

Annexure to Indent

Dated: 03/12/2020

SPECIFICATIONS FOR DESIGN, MANUFACTURING & SUPPLY OF CARBIDE NOTCHING & TRIMMING TOOL WITH DIE SHOE FOR ROTOR SLOT NOTCHING OF 6FRA LAMINATIONS AS PER DRAWING NO.04453164055 REV.15,SUITABLE FOR OPERATION ON 12T IMPACT NOTCHING MACHINE(RNM) & 32T SEGMENTAL NOTCHING MACHINE (SNM) OF BHEL, FSIP (CS), JAGDISHPUR:-

Sl. No.	Description for Requirement
1	SCOPE: Design, Manufacture and supply of carbide Notching and air gap trimming tool with Die Shoe for rotor slot notching & air gap trimming as per drawing NO.04453164055 REV.15 form CRNGO segments (pre coated with varnish) of thickness 0.5 mm suitable for CS FSIP 12T Impact radial notching machine & 32T segmental notching machine.
2	TECHNICAL PARAMETERS:
2.1	Component to be manufactured: Slot for rotor main stamping Item #003 with air gap trimming to maintaining rotor OD & stator ID as per component DRAWING NO.04453164055 REV.15. Tool drawing 1605067 added for reference of rotor punch profile dimensions.
2.2	Material Composition: (a) For Punch & Die Notch : Carbide Material (b) For Stripper pin & plate/ Die plate/ Punch plate/adaptor plate: material to be used will be MS(SPEC-AA10108) (c) For Upper Die shoe : Aluminum Casting Base (d) For Lower Die shoe : C-45 Steel
2.4	The design of the tool shall be suitable for operation on 12T Impact Notching Machine & 32T CNC Segmental notching machine of Stamping Shop, FSIP Jagdishpur. The tool to be supplied with die shoe/bolster to suit press.
2.5	Tool should be provided with all the required accessories (such as packing plate, pillars, cage etc if required) to facilitate interchangeability of tool to suit both RNM & SNM presses.
2.5	Proper support should be provided along the air gap & trimming section of the carbide punch.
2.6	The notched lamination burr level shall be within 50 microns .
3	DOCUMENTS / DOCUMENTATION: The supplier shall submit working drawings during despatch of the tool.
4	GUARANTEE: Performance guarantee of the tool for Six months against manufacturing defects and defective materials.
5	TRY OUT: The manufacturer shall try out the tool at CS FSIP BHEL Jagdishpur works. The tool must produce at least 10000 stampings per re-sharpening with a maximum burr level of 50 microns on the punching.
6	PACKING: Rigid packing/fixing for all the items including complete die & punch, all accessories and other supplied items, to avoid any damage/ loss in transit.

The vendor if so desires may see the nearest similar tool/ old tools /die shoe /its tool drawing available in at CS, FSIP Jagdishpur.

Tam
03/12/2020



Operating Instructions

128 334 / A 3. 1

Technical data

Notching press type NNS 3–32

with CNC-controlled 3-axis indexing system.

Press force		320 kN
Stroke rate infinitely variable		50 – 500 min ⁻¹
Max. sheet thickness		2.5 mm
Throat		350 mm
Distance between bolster and ram with stroke down, ram adjustment up and bolster adjustment down		240 mm
Top edge of die plate above bolster with bolster adjustment down		100 mm
Bolster height adjustment with hydraulic clamping feature		10 mm
Ram stroke		40 mm
Ram adjustment		40 mm
Bolster clamping area:	Width	510 mm
	Depth	440 mm
Through-hole in bolster:	Width	120 mm
	Depth	263 mm
Ram clamping area:	Width	252 mm
	Depth	175 mm
Pin hole in ram:		
Diameter		32 mm
Depth		50 mm

Maximum outside diameter of segments	20000 mm
Maximum circular blank diameter	1300 mm
Distance between ram centre and blank location centre on Y-axis:	
Maximum	675 mm
Minimum	175 mm
Drive motor:	
Power	13 kW
Speed	2650 min ⁻¹
Required air pressure, min.	5 bar
Weight of complete machine including indexing unit	8000 kg

Power supply:

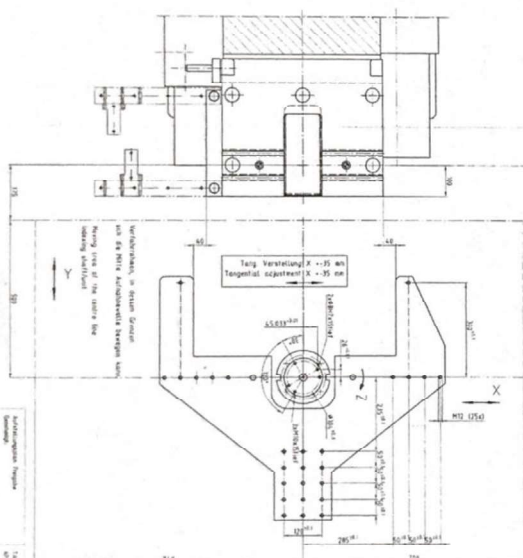
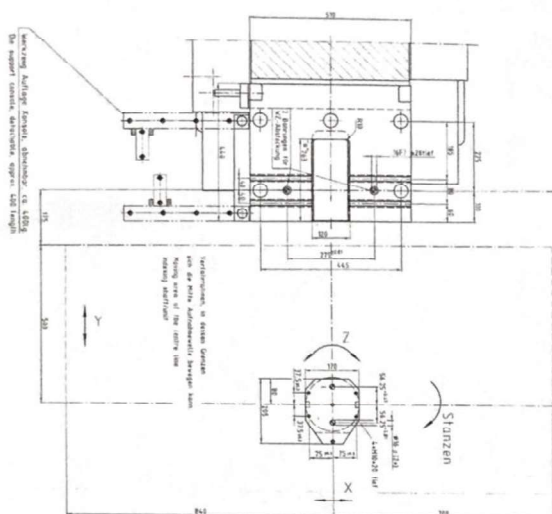
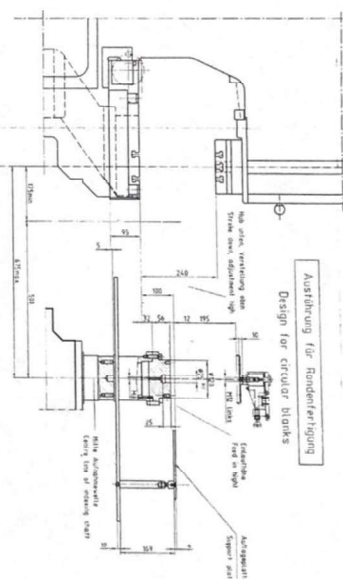
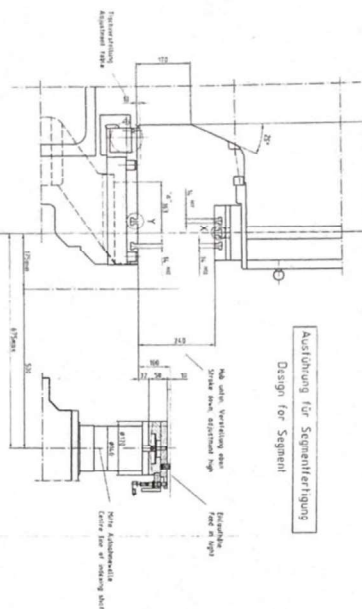
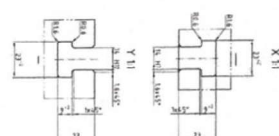
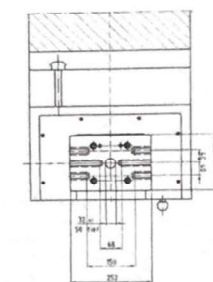
Operating voltage	3 x 415 V
Line frequency	50 Hz
General control voltage	220 V AC
Control voltage for electronics (PLC) and valves	24 V DC

Voltage tolerance for:

Control system	+/- 10 %
Threephase drives	+/- 5 %

Ambient conditions:

Ambient temperature, operating	0 to +40 °C
Rel. humidity	<95 % at 40 °C

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136625/2020/FSIP-CS140000

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SPECIFICATION SHEET
MACHINE MODEL - PNC-12.5 M1

ARTICLE NO. SD-0743

PAGE NO... 1.. OF .. 1

SPECIFICATION:

CAPACITY	kN	125
Blank Thickness	mm	0.5 to 1.6
Max. Blank Diametre	mm	1400
Depth of Throat	mm	300
Stroke of slide lift	mm	10
Stroke of slide during notching	mm	25
Slide Area (LRxFB)	mm	320X150
Slide Adjustment	mm	25
Spigot dia (dia. x depth)	mm	32H7x25
Shut height over bolster (S.D.A.U)	mm	240
Bolster Area (LRxFB) ADJ. HEIGHT	mm	500x325
Bolster Opening	mm	120x155
Bolster Thickness	mm	105
Distance from top of bolster to top of blank locator	mm	70
Minimum Number of Notches	:	11
Maximum Number of Notches	:	192
Max. stator slot size	mm	30x150
Max. rotor slot size	mm	40x220
Distance Between slide center to spindle center	mm	150~660
Number of Strokes (variable)	spm	200-600
Main Motor (AC variable speed drive)	kw X RPM	3.7X1500
Air pressure	Kg/cm2	5.5
Air consumption per clutch engagement	litres	2.6
Ht. from Floor to Top of Bolster	mm	1140

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DRN. BY

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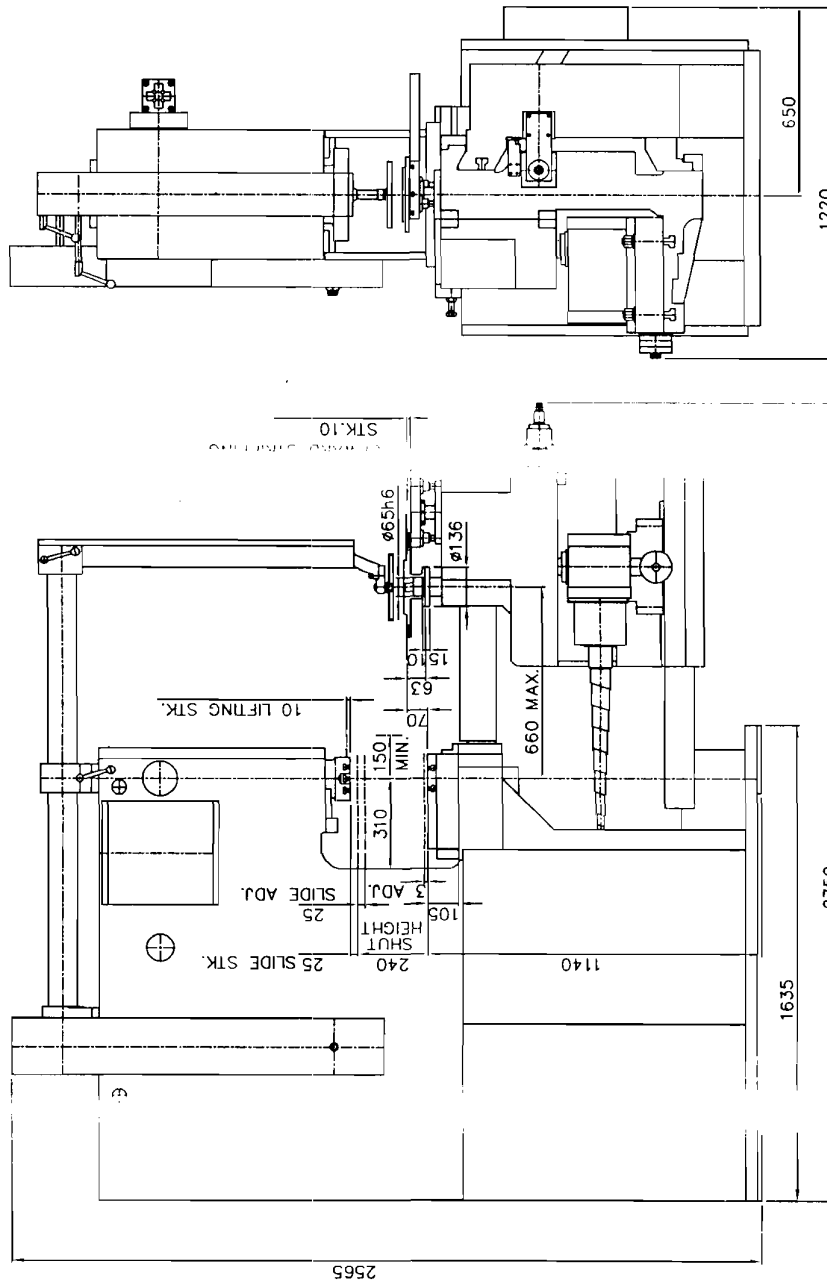
CHD. BY

DATE

20-11-2013

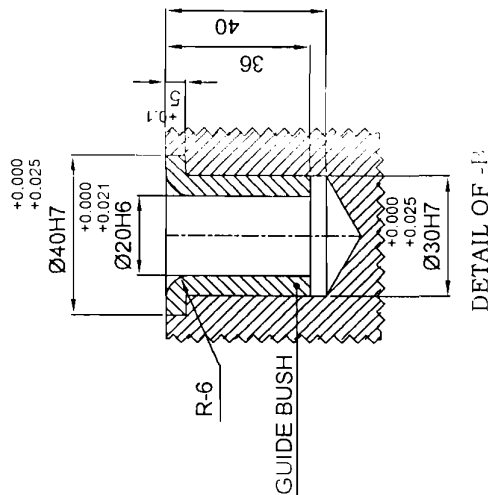
SPECIFICATION

Force	kN	125
Max. blank thickness	mm	0.5 TO 1
Depth of throat	mm	300
Max. lamination dia	mm	1400
Stroke of slide	mm	25
Slide adjustment	mm	25
Slide area LR X B	mm	320 X 150
Lift of slide	mm	10
Spigot diameter	mm	32H7X25
Shut height over bolster (SDAU)	mm	240
Bolster area (LR X B) Adj.	mm	500x325
Bolster opening (RxFH)	mm	120x155
Bolster thickness	mm	105
Distance from center of bolster to top of blank holder	mm	70
Height from floor to top of bolster	mm	1140
Min. number of strokes	No.	11
Max. number of strokes	No.	192
Max. stator slot	mm.	30x150
Max. rotor slot	mm.	40x220
Distance between slide center to spindle center	mm	150-660
No. of strokes	min ⁻¹	200-600
Motor	kW	3.7
Air pressure required	kg/cm ²	5.5
Free air per cycle	lit	2.6



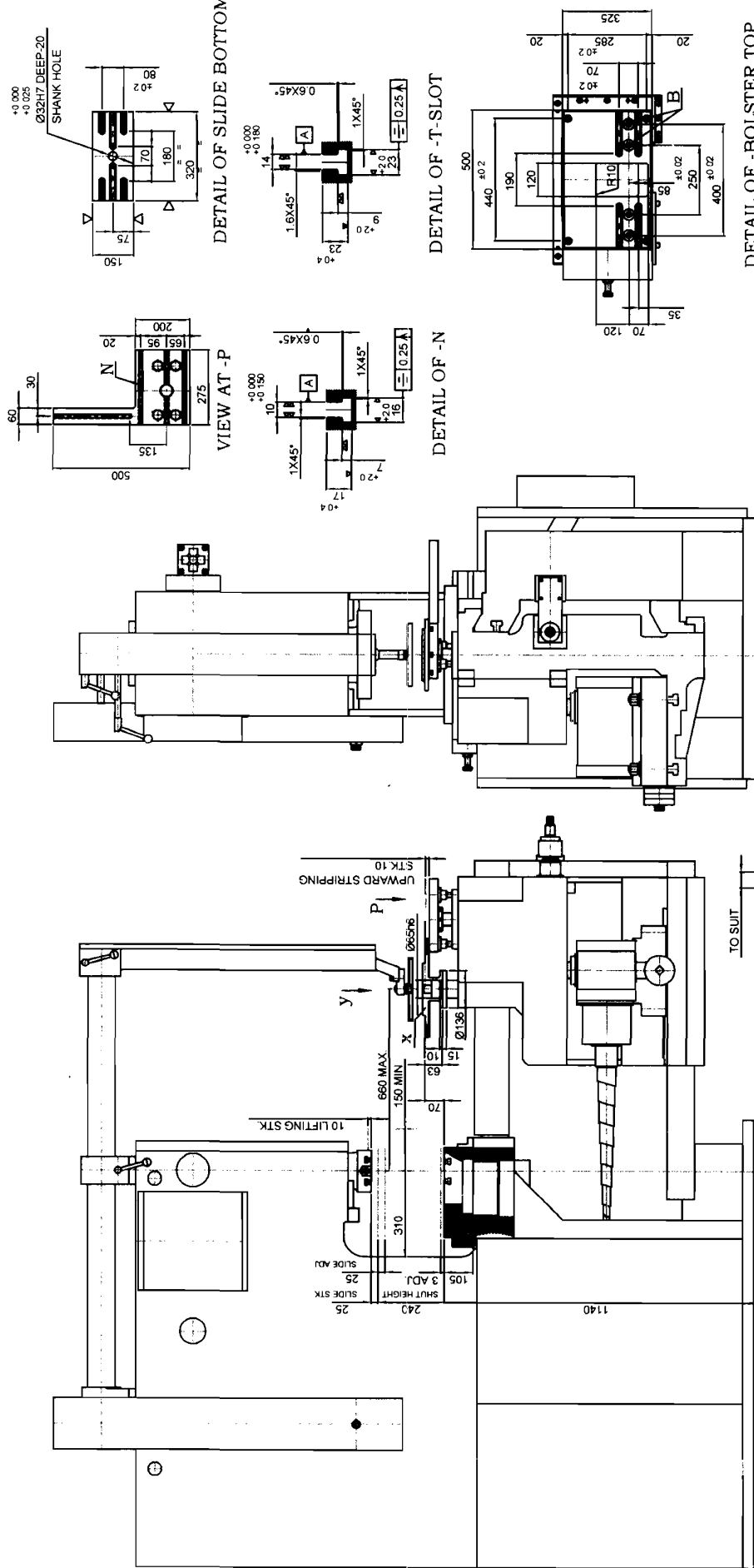
NO. OF PARTS	NAME	DATE
Change	Date	Approved By
Changed By	Order No.	Do Not Change
By 0.5 mm Quantity or Rows		
If in Doubt Ask		

SPECIFICATION	GROUP	1	151 PNC-12 SMI
No. of Dimensions	No. of Dimensions	No. of Dimensions	No. of Dimensions
Actual	Actual	Actual	Actual
Scale	Scale	Scale	Scale
NTS	NTS	NTS	NTS
Date	Date	Date	Date
7/0/06	7/0/06	7/0/06	7/0/06
ARRANGED BY	ARRANGED BY	ARRANGED BY	ARRANGED BY
IMPACT MACHINES	IMPACT MACHINES	IMPACT MACHINES	IMPACT MACHINES
FARIDABAD (INDIA)	FARIDABAD (INDIA)	FARIDABAD (INDIA)	FARIDABAD (INDIA)
2DN-125785A	2DN-125785A	2DN-125785A	2DN-125785A



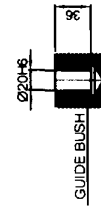
★ TO BE USED FOR : A.No 200-06-605 , 606
 , 200-10-764, 771

PLS.H.C BOLTS-M16X120 IS:2269		1	1	PNS-12.5
S'G. WASHER-B-16 IS:6735-1972		1	1	PNC-12.5 M1
	NAME AND SPECIFICATION	No GRCT. OFF	No No.	NAME OF MACHINE
Change	Tolerances For Dimensions Without Specified Linear Dimensions	~ ABOVE 25 ▽ 8 TO 25 ▽ 16 TO 8	Drn By Chd By	MATL
Date	Above Up To And Including Devia	▽▽ 0.025 TO 0.16	Appd By	SR-42 S IS:226-1975
Changed By	5 6 10 30 120 315 1000 2000	Scale Weight 1:3.5		
Order No	1:50 1:100 1:200 1:500 1:1000 1:2000	Date		CHINES INDIA)
Signatures and Comments	NAME OFFICER	DRG No		1253632A
Signature of P.E.O.	* * * BOLSTER PLATE	312		

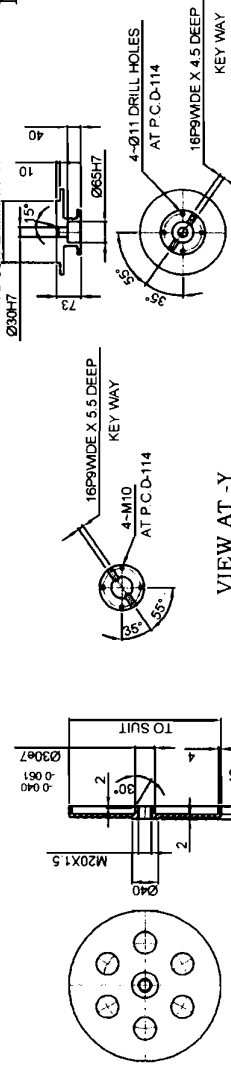


NOTE-

★ FOR O.A.NO-200-06-606



DETAIL OF -BOLSTER TOP

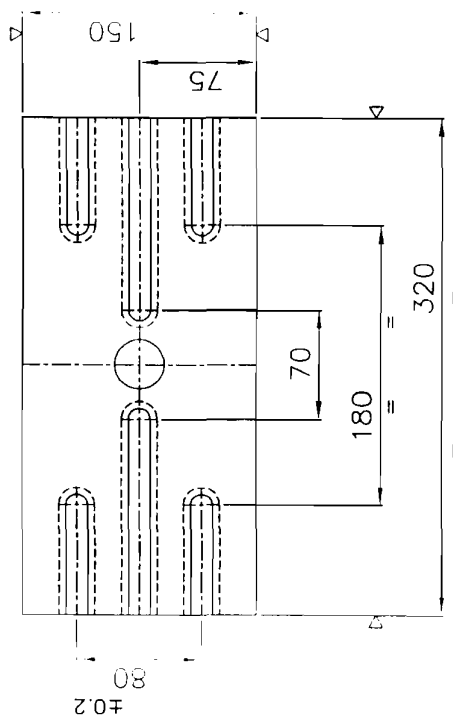
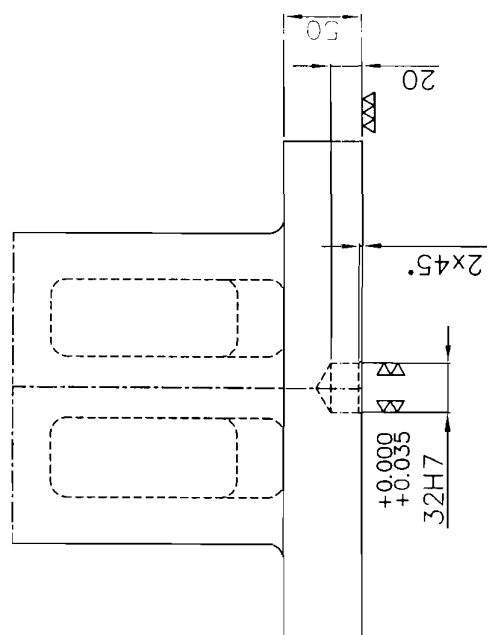
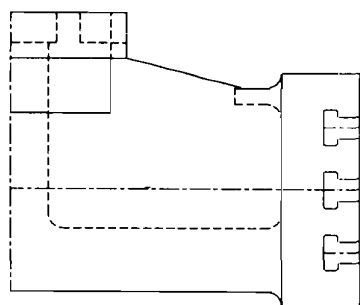


VIEW AT -Y
INDEX SPINDLE TOP

DETAIL OF -X

JOB CLAMPING CUP

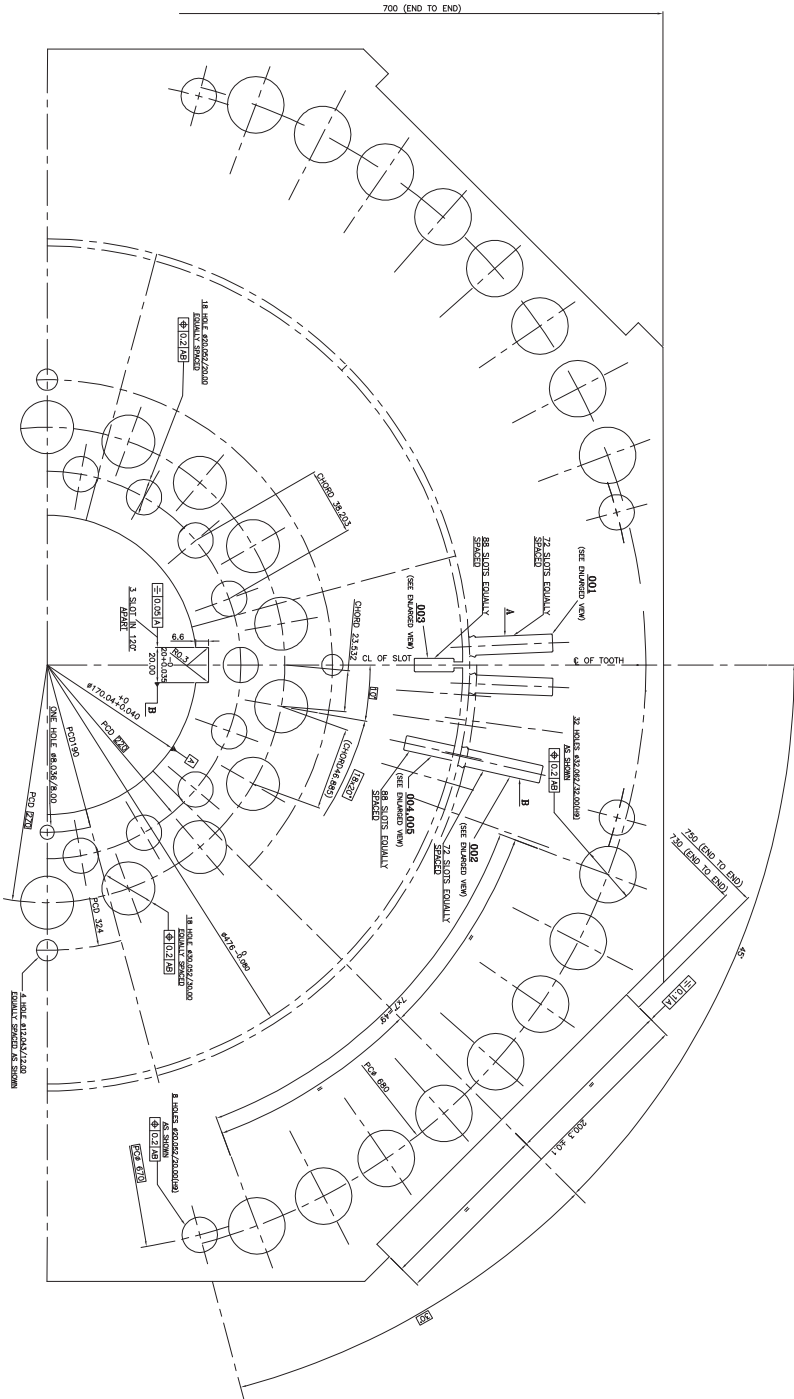
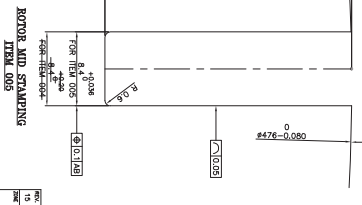
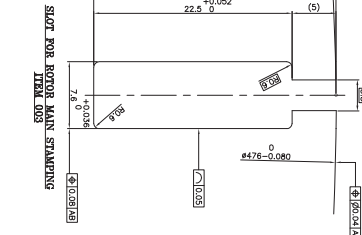
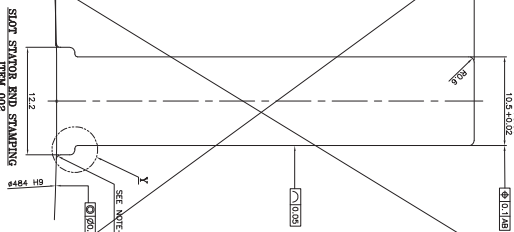
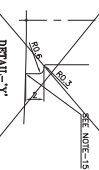
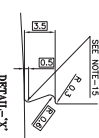
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NOT TO BE USED FOR O.A.No 200-06-604
& 200-06-606

No. OF PER PART		NAME AND SPECIFICATION				
		Tolerances For Dimensions Without Specified Linear Dimensions				
Change	Date	Above	Up To And Including	Devia		
Changed		0.5	6	+0.1		
By		6	30	+0.1		
		30	120	+0.1		
		120	315	+0.1		
		315	1000	+0.1		
No.		1000	2000	+0.1		
Remove Sharp Edges And Corners By 0.5 mm (0.019 in) Radius If In Doubt Ask					NAME OF PLANT	
					Do Not Scale	
					SUN	

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REV. DATE	ATTNED	SIGN	SALES ORG NO.	JEAN12016
15	07.01.18	CHECKED AS	STATUS OF DRAWING	
16	07.01.18	APPROVED AS		
IN TOOL LIST TOOL NO.			DISTRIBUTION OF PRINTS	
1665091 ADDED.				
OR NAME OF CUSTOMER/PROJECT INDUCTION MOTOR FOR A.C. LOCO OFRA 0008 OR PROJECT REFERENCE IS IN				
DATE	NAME	250H	DATE	NO. OF
08N RBY		-50-	03.10	WKS.

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