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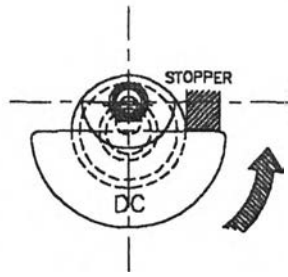
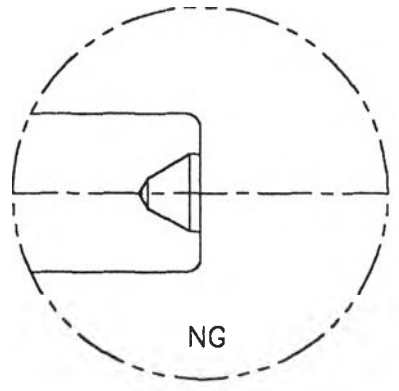
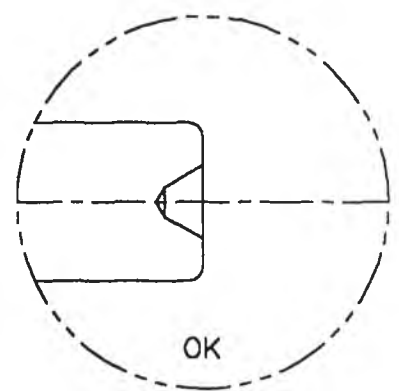
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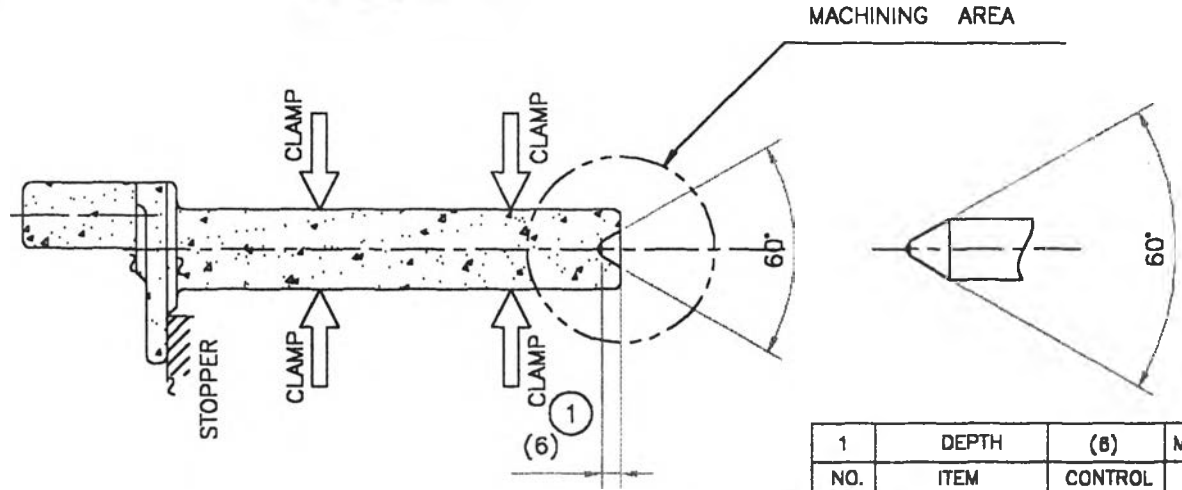
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## **APPENDIX**

PROCESS NO.	01	MODEL	Short	OPERATION STANDARD	PROCESS NAME	Centerdrill	OPERATION NO.	OS-M-IMT-11-001
PART NO.	1CWKT0088	PART NAME	C-Machine		MACHINE NO.	HSB-9309	PAGE 1/7	



No.	Tool	
1	Centerdrill	CD-S60 #4x10x65



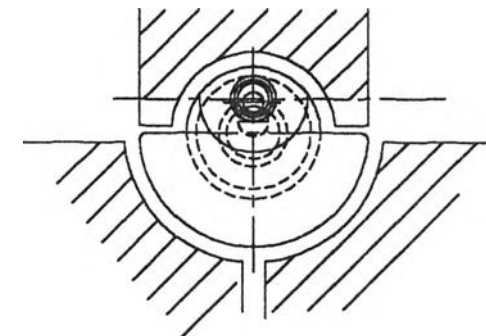
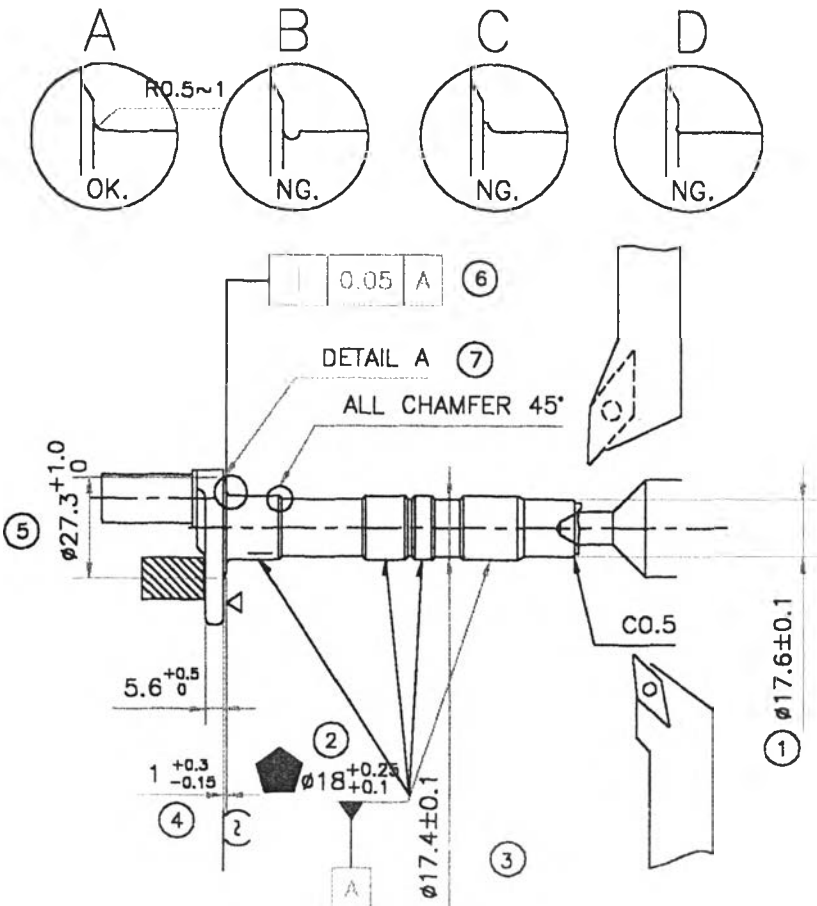
CENTER POSITION  
AUTO DRILL

1	DEPTH	(6)	Master Sample	ALL
NO. ลำดับ	ITEM รายการ	CONTROL วิธีการควบคุม	INSTRUMENT เครื่องมือวัด	อื่นๆ ความถี่วัด

INPROCESS CHECK POINT (จุดควบคุม)

SYMBOL	REF.NO.	DATE	WRITTEN	NOTE:	REFERENCE	M/C Time	H/T Time	PROGRAM NO.	APPROVED	CHECKED	DRAWN
▲				จุดควบคุม	จุดตรวจชิ้นงาน						

PROCESS NO. 02	MODEL Short	OPERATION STANDARD	PROCESS NAME TURNING BODY#18	OPERATION NO. OS-M-HTC-11-001
PART NO. 1CWKT0088	PART NAME C-Machine		MACHINE NO. WCL-0203&WCL-0673	PAGE 2/7

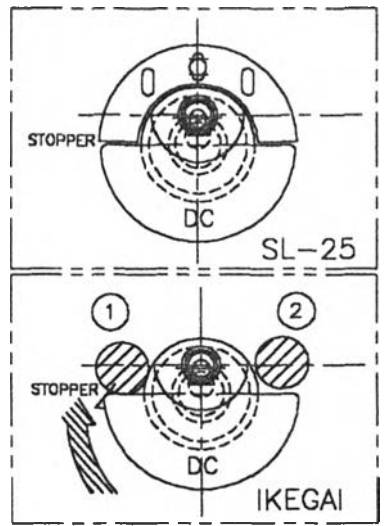
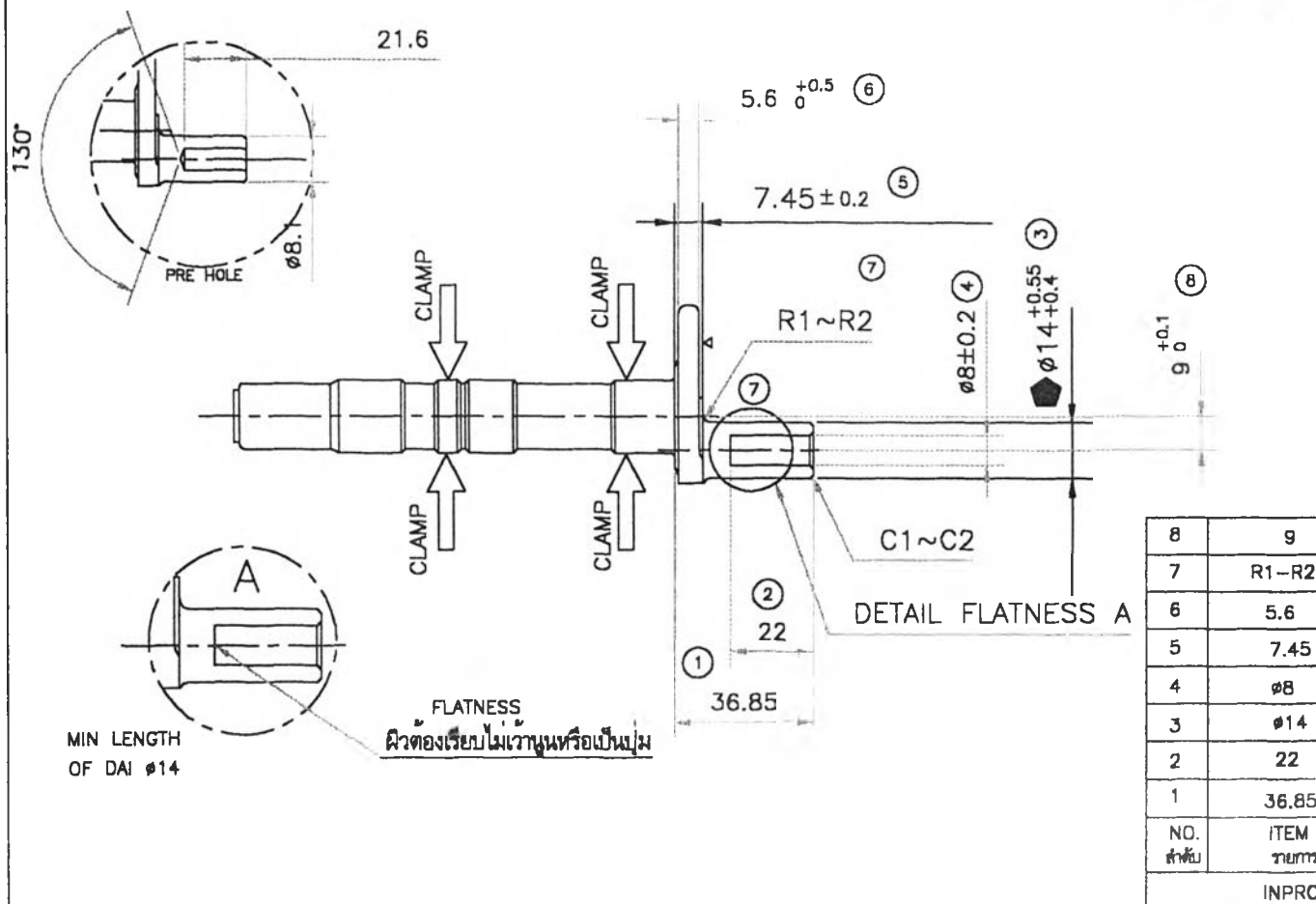


8	THICKNESS	5.6 <sup>+0.5</sup> <sub>0</sub>	GAGE GO-NOGO	1ชิ้น/ชม.
7	R0.5~R1	NO STEP NO UNDERCUT	APPEARANCE CHECK	1ชิ้น/ชม.
6		0.05 A	JIG&DIAL	1ชิ้น/ชม.
5	27.3	+1.0 0	VERNIER	1ชิ้น/ชม.
4	1	+0.3 -0.15	JIG&DIAL	1ชิ้น/ชม.
3	Ø17.4	±0.1	MICROMETER	1ชิ้น/ชม.
2	Ø18	+0.25 +0.10	MICROMETER	1ชิ้น/ชม.
1	Ø17.6	±0.1	RING GAGE	1ชิ้น/ชม.
NO. ลำดับ	ITEM รายการ	CONTROL มาตรการควบคุม	INSTRUMENT เครื่องมือวัด	จำนวน ความถี่วัด

INPROCESS CHECK POINT (จุดควบคุม)

SYMBOL	REF.NO.	DATE	WRITTEN	REFERENCE	M/C Time	H/T Time	PROGRAM NO.	APPROVED	CHECKED	DRAWN
				NOTE: CHECK 100% GO-NOGO GAGE						

PROCESS NO. 03	MODEL Short	OPERATION STANDARD	PROCESS NAME ECENTRIC	OPERATION NO. OS-M-IMT-11-001
PART NO. 1 CWKT0088	PART NAME C-Machine		MACHINE NO.	Page 3/7

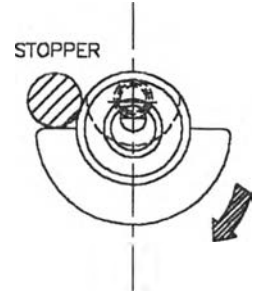
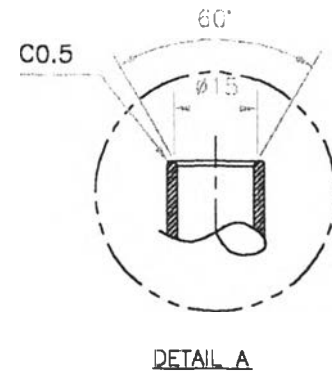
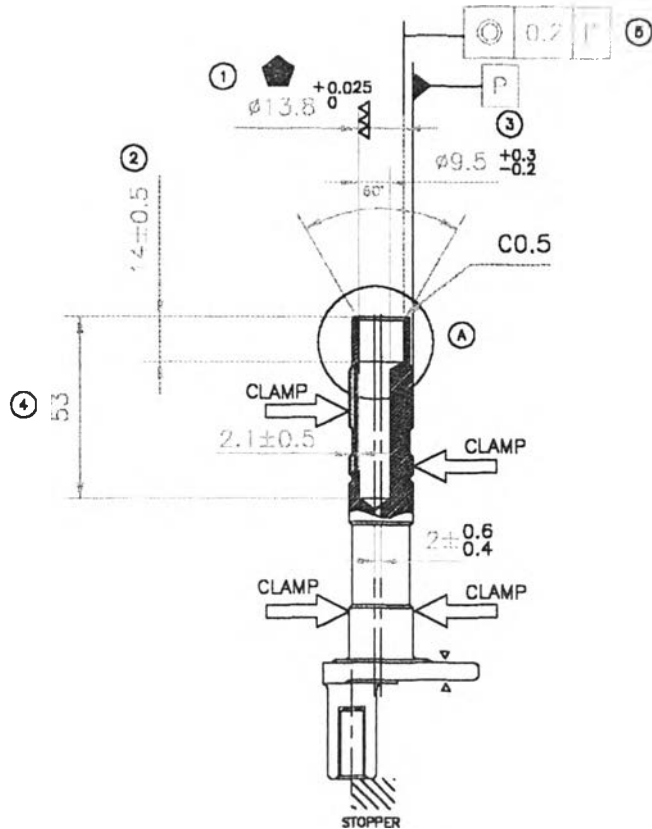


8	9	+0.1 0	V-BLOCK/HIGHT GAGE	1 ชิ้น/ชม.
7	R1-R2	SMOOT	APPEARANCE CHECK	1 ชิ้น/ชม.
6	5.6	+0.5 0	GAGE	1 ชิ้น/ชม.
5	7.45	±0.20	GAGE	1 ชิ้น/ชม.
4	∅8	±0.20	PLUG GAGE	1 ชิ้น/ชม.
3	∅14	+0.55 +0.40	MICROMETER	1 ชิ้น/ชม.
2	22	±0.20	GAGE	1 ชิ้น/ชม.
1	36.85	±0.50	GAGE	1 ชิ้น/ชม.
NO. ลำดับ	ITEM รายการ	CONTROL พิถีพิถันควบคุม	INSTRUMENT เครื่องมือวัด	ชิ้น/ชม. ความถี่วัด

INPROCESS CHECK POINT (จุดควบคุม)

SYMBOL	REF.NO.	DATE	WRITTEN	REFERENCE	M/C Time	H/T Time	PROGRAM NO.	APPROVED	CHECKED	DRAWN
				CHECK 100% GO-NOGO GAGE						

PROCESS NO. 04	MODEL Short	OPERATION STANDARD	PROCESS NAME DRILLING	OPERATION NO. OS-M-IMT-11-001
PART NO. 1 CWKT0088	PART NAME C-Machine		MACHINE NO.	Page 4/7

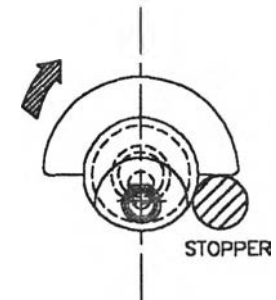
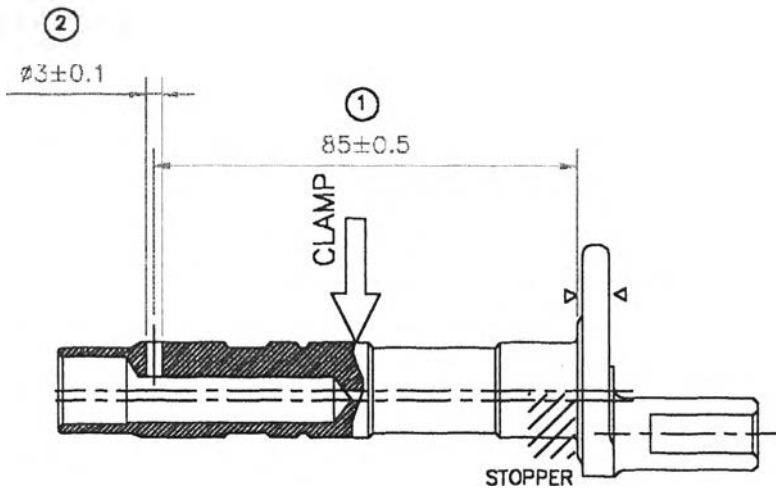


5		$\pm 0.02$	JIG&DIAL	1 ชิ้น/ชม.
4	53	$+1.0$ $-0.5$	GAGE	1 ชิ้น/ชม.
3	$\phi 9.5$	$+0.3$ $-0.2$	GAGE	1 ชิ้น/ชม.
2	14	$\pm 0.5$	VERNIER	1 ชิ้น/ชม.
1	$\phi 13.8$	$+0.025$ $0$	BORE GAGE	1 ชิ้น/ชม.
NO. ลำดับ	ITEM รายการ	CONTROL ควบคุม	INSTRUMENT เครื่องมือวัด	ชิ้น/ชม. ความถี่วัด

INPROCESS CHECK POINT (จุดควบคุม)

				REFERENCE	M/C Time	H/T Time	PROGRAM NO.	APPROVED	CHECKED	DRAWN
				NOTE:						
SYM	REF.NO.	DATE	WRITTEN							

PROCESS NO. 05	MODEL Short	OPERATION STANDARD	PROCESS NAME Drilling #3	OPERATION NO. OS-M-IMT-11-001
PART NO. 1 CWKT008B	PART NAME C-Machine		MACHINE NO.	Page 5/7



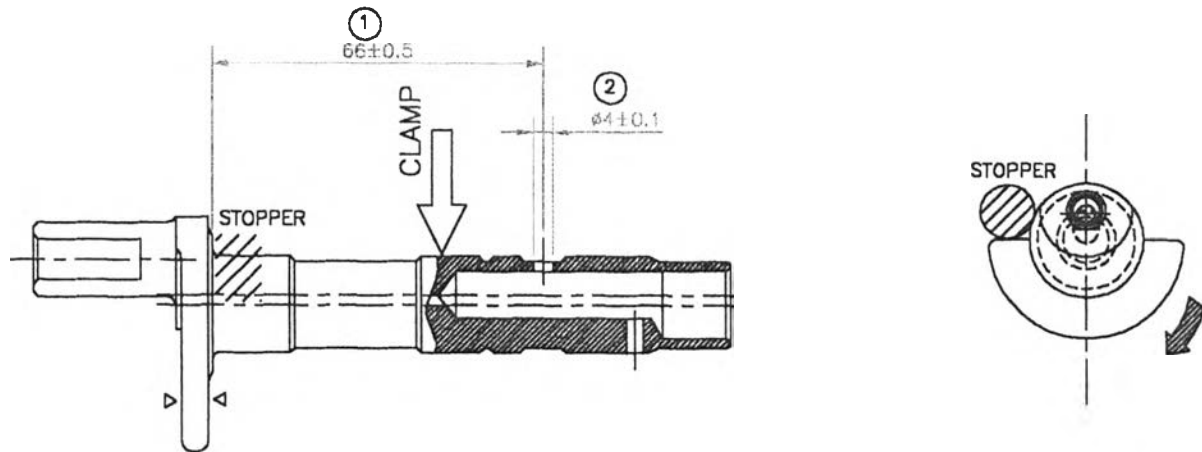
2	3	±0.5	Plug Gage	1 ชิ้น
1	85	±0.1	V-Block Height Gage	1 ชิ้น
NO. ลำดับ	ITEM รายการ	CONTROL ศึกษาคะแนน	INSTRUMENT เครื่องมือวัด	จำนวน ความถี่วัด

INPROCESS CHECK POINT (จุดควบคุม)

△				REFERENCE	M/C Time	H/T Time	PROGRAM NO.	APPROVED	CHECKED	DRAWN
△				NOTE:						
SYM	REF.NO.	DATE	WRITTEN							



PROCESS NO. 06	MODEL Short	OPERATION STANDARD	PROCESS NAME Drilling #3	OPERATION NO. OS-M-IMT-11-001
PART NO. 1 CWKT0088	PART NAME C-Machine		MACHINE NO. ....	Page 6/7

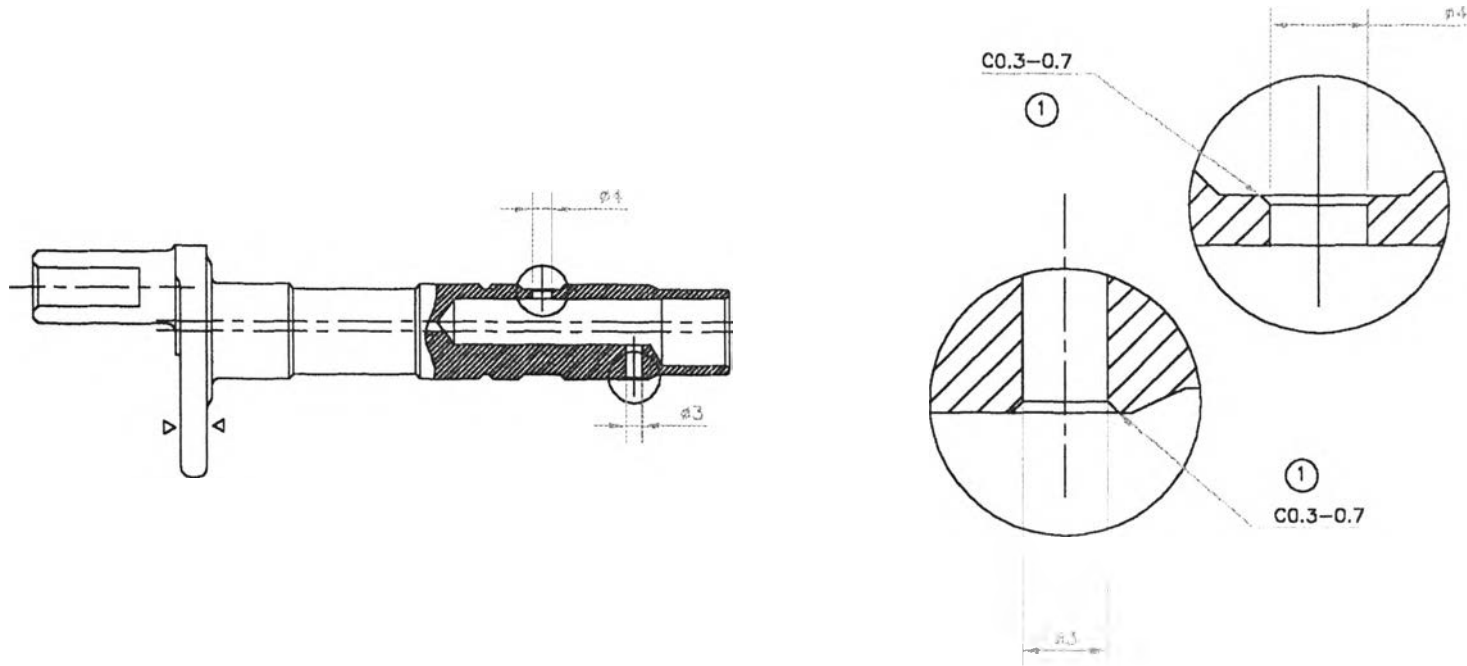


2	ø4	±0.1	Plug Gage	1 ชิ้น/ชม.
1	66	±0.5	V-Block Height Gage	1 ชิ้น/ชม.
NO. ลำดับ	ITEM รายการ	CONTROL ศึกษาคงคุม	INSTRUMENT เครื่องมือวัด	ชิ้น/ชม. ความถี่วัด

INPROCESS CHECK POINT (จุดควบคุม)

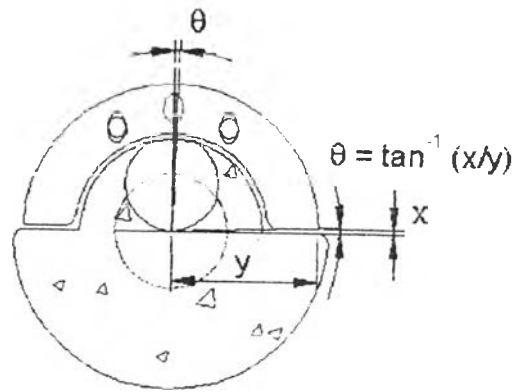
SYM	REF.NO.	DATE	WRITTEN	NOTE:	M/C Time	H/T Time	PROGRAM NO.	APPROVED	CHECKED	DRAWN

PROCESS NO. 07	MODEL Short	OPERATION STANDARD	PROCESS NAME Drilling $\phi 3$	OPERATION NO. OS-M-IMT-11-001
PART NO. 1 CWKT0088	PART NAME C-Machine		MACHINE NO. 0706	Page 7/7



1	Chamfer	0.3-0.5	Visual Check	ALL
NO. ลำดับ	ITEM รายการ	CONTROL มาตรการควบคุม	INSTRUMENT เครื่องมือวัด	อื่นๆ ความถี่วัด
INPROCESS CHECK POINT (จุดควบคุม)				

SYMBOL	REFERENCE	M/C Time	H/T Time	PROGRAM NO.	APPROVED	CHECKED	DRAWN
	NOTE:						
SYM	REF.NO.	DATE	WRITTEN				

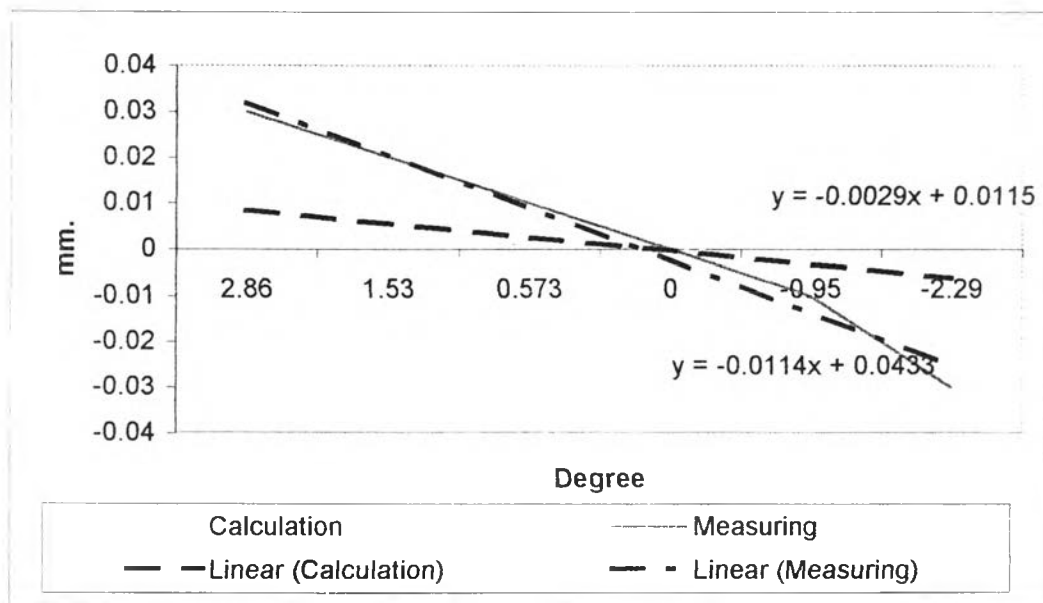


The measuring method for the angle of load part and the eccentric distance

The correlation between angle of loading part and the eccentric distance

Angle of loading part ( Degree )	The eccentric distance by calculation (mm.)	The eccentric distance by measuring (mm.)
$\theta = 2.86$	9.039	9.02
$\theta = 1.53$	9.047	9.03
$\theta = 0.573$	9.049	9.04
$\theta = 0$	9.05	9.05
$\theta = -0.95$	9.049	9.04
$\theta = -2.29$	9.043	9.02

The correlation between the result by calculation and measuring



From the trend lines, both of them have the minus slope. But the difference between them is the value of the slope. The causes of difference comes from the variation of material and the measurement.

# RAKS

INPROCESS CHECK SHEET

LINE :

PART NO. :

PART NAME :

MODEL :

APPROVED

CHECKED

WRITEN

PAGE

ใบบันทึกการตรวจสอบระหว่างการผลิต

CRANK SHAFT HTC

1CWKT0088

C-MACHINE

SHORT

*[Signature]*

*O. Masri*

1/2

NO. **I P M I M T I I 0 0 1**

10/12/99

08/12/99

PROCESS : 3 & 4 (TURNING DIA. 18 & DIA.14,ECCENTRIC ๑ )

SHIFT 1

SHIFT 2

SHIFT 3

NO.	FREQ.	STANDRAD	GAGE	DATA	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00	19.00	20.00	21.00	22.00	23.00	24.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00			
P2 1	4/shift (4/กะ)	DIAMETER	GAUGE GO-NOGO	OK																												
		$\Phi 17.6 \pm 0.1$		NG																												
P2 2	1/Hr (1/ชม.)	DIAMETER $\Phi 18_{+0.1}^{+0.25}$	MICROMETER	OK																												
				NG																												
				18.221-18.250																												
				18.191-18.220																												
				18.161-18.190																												
P2 3	1/Hr (1/ชม.)	THICKNESS(หนา)	GAUGE GO-NOGO	OK																												
		$5.6_{0}^{+0.3}$		NG																												
		DIAMETER		NG																												
P2 4	1/2Hr (1/2ชม.)	$\Phi 17.4 \pm 0.1$	VERNIER	17.471-17.500																												
				17.331-17.470																												
				17.300-17.330																												
P2 5	1/Hr (1/ชม.)	NO STEP	VISUAL CHECK MASTER	OK																												
		NO UNDERCUT		NG																												
P3 1	1/Hr (1/ชม.)	DIAMETER	MICROMETER	OK																												
		$\Phi 14_{+0.4}^{+0.55}$		NG																												
		14.521-14.550																														
P3 2	1/Hr (1/ชม.)	DIAMETER	GAUGE GO-NOGO	OK																												
		$\Phi 8 \pm 0.2$		NG																												
P3 3	1/Hr (1/ชม.)	DEPTH (ลึก)	GAUGE GO-NOGO	OK																												
		$22 \pm 0.2$		NG																												
P3 4	1/Hr (1/ชม.)	LENGTH(ยาว)	GAUGE GO-NOGO	OK																												
		$36.85 \pm 0.5$		NG																												
P3 5	1/Hr (1/ชม.)	NO STEP	VISUAL CHECK MASTER	OK																												
		NO UNDERCUT		NG																												
P3 6	1/Hr (1/ชม.)	THICKNESS(หนา)	GAUGE GO-NOGO	OK																												
		$7.45 \pm 0.2$		NG																												
P3 7	4/shift (4/กะ)	ECCENTRIC (ระยะเยื้องศูนย์กลาง) $9_{0}^{+0.1}$	HEIGHT GAGE & V-BLOCK	OK																												
				NG																												
				9.081-9.100																												
				9.061-9.080																												
				9.041-9.060																												

RAW MATERIAL LOT NO.

MANUFACTURING DATE / วันที่ผลิต

OPERATOR / พนักงาน

SHIFT LEADER / หัวหน้ากะ

NOTE : 1. ตรวจสอบความสะอาดผิวงาน 2. ตรวจสอบเครื่องมือวัดก่อนใช้ทุกครั้ง

## Biography

Pisak Sukondhasingha was born on 5<sup>th</sup> October, 1974 in Bangkok, Thailand. He graduated from Chulalongkorn University in 1995 with Bachelor degree in Metallurgical Engineering. From 1995 to 1999, He has been working at automotive parts maker company as quality assurance engineer.

