FORM NO EFA/P-047

ENGINE FACTORY, AVADI

PROCESS SCHEDULE

DESCRIPTION :- CAM SHAFT BEARING ASSY.

COMPT. No :- CS 20-06-04

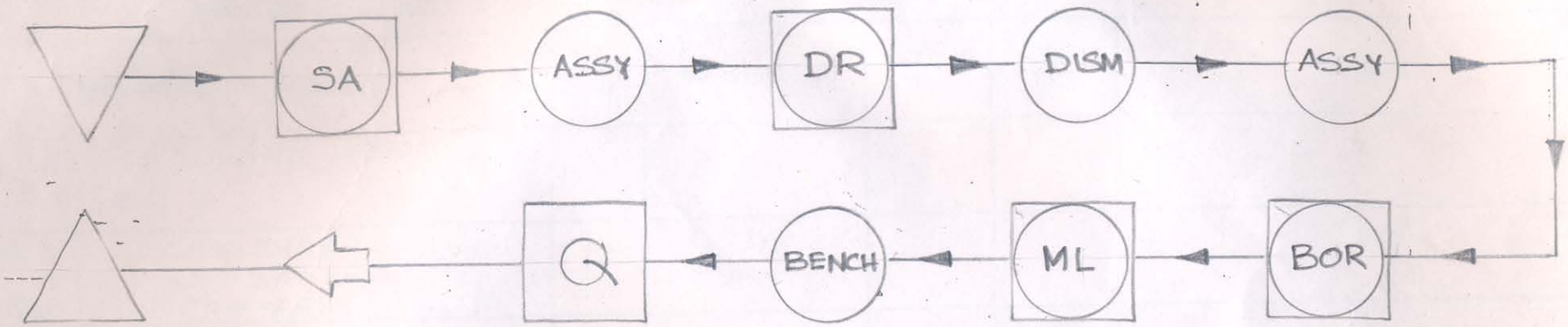
MFG. SHOP :- MPS

REV. NO. 00

DATE - 24.10.96

FLOW PROCESS CHART

STORE : CAM SHAFT BEARING ASSEMBLY DRG. NO.: SB 20 -06-04 END STORE: UTD-20- ASSEMBLY



SA = STUB ASSEMBLY	ASSY = ASSEMBLY	DR = DRILLING	DISM = DISMANTLING	BOR = BORING
ML = MILLING				

LEGEND				APPROVAL			SECTION	MPS
TEMP. STORAGE	▽	TRANSPORTATION	⇨	SIGNATURE & DATE			NO. OF SHEETS	1
OPERATION	○	INSPECTION BY QC	Q	PREPARED BY	MGR. DAR	QC	SHEET NO.	1
OPERATION CUM INSPECTION	▢	INSPECTION BY SQAE/CQA ME) Etc.	I	APPROVED BY			ENGINE FACTORY, AVADI, MADRAS-54	
100 % INSPN. BY MFG. SEC.	□	STORAGE	△	AUTHORISED FOR ISSUE	24/10/96			

ENGINE FACTORY AVADI

FORM No :EFA/P-038

PROCESS SCHEDULE

NOMENCLATURE : CAM SHAFT BEARING Assy.
DRAWING No : CS 20-06-04
MATL SPECIFICATION : .....

OPN No	DESCRIPTION OF OPERATION	SHT No	WORK CENTRE	SET UP TIME	OPN TIME	REMARKS
	DRAW THE FOLLOWING ITEMS FROM STORES					
	1. 20-06-40 - CAM SHAFT BRG BASE - 1 NO 2. 20-06-41 CAM SHAFT 1 NO					
	BRG. CAP 3. 351-02. NUT M8 - 2 Nos					
	4. 351-50 - NUT M10 - 1 NO 5. 352-22. LOCK PIN - 2 Nos					
	6. 353-19 LOCK WASHER - 1 NO Φ10 7. 353-32 LOCK Φ8 WASHER - 2 Nos					
	8. 550-105 - STUD M8x46 - 2 Nos 9. 550-118 - STUD M10x48 - 1 NO					
	10. 353-05-1 LOCK WASHER - 2 No					

PREPARED BY	CHECKED BY	APPROVED BY	AUTHORISED BY
SIGN	SIGN	SIGN	
DATE 11.10.96	DATE 24.10.96	DATE 24.X.96	24/10/96
Chargeman II /PDO	C/M I /PDO	HOS/PDO	DO/PDO

PDO REF	ISSUE	DATE	SIGN

SHT. No 1 OF 9

ENGINE FACTORY AVADI

FORM No :EFA/P-038

PROCESS SCHEDULE

NOMENCLATURE : CAMSHAFT BEARING ASSY
DRAWING No : CS 20-06-04
MATL SPECIFICATION : .....

OPN No	DESCRIPTION OF OPERATION	SHT No	WORK CENTRE	SET UP TIME	OPN TIME	REMARKS
010	STUD-FITTING	3	RADIAL DRILL			
020	ASSY OF 20-06-40 AND 20-06-41	4	BENCH			
030	DRILLING, REAMING IST SETUP	5	VTC HMT			
040	DISMANTLING OF 20-06-40 & 20-06-41	-	BENCH			
045	ASSY OF 352-22-LOCK PIN CAP AND BASE	6	BENCH			
050	BORING IIND SET UP	7	VTC HMT			
060	FACE MILLING IIIRD SET UP	8	VTC HMT			
070	DE BURRING	-	BENCH			
080	INSPECTION	9				

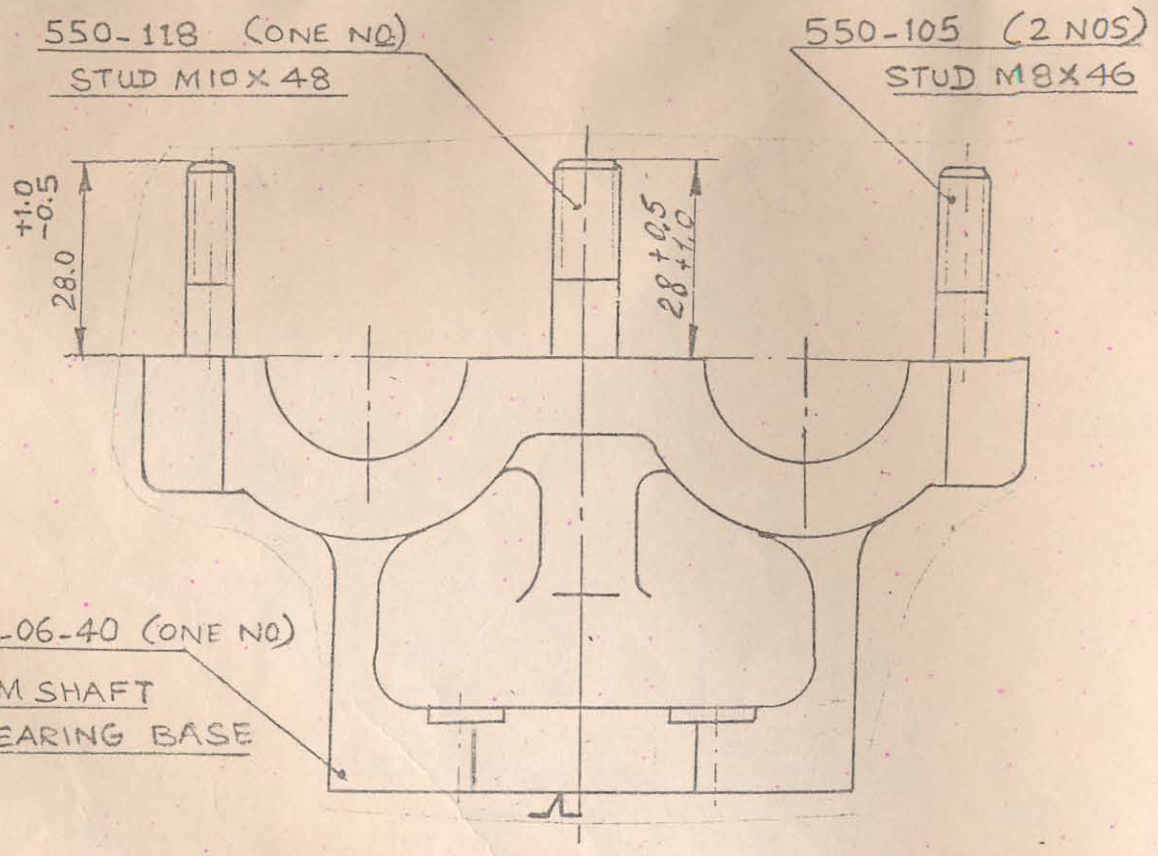
PREPARED BY	CHECKED BY	APPROVED BY	AUTHORISED BY
SIGN	SIGN	SIGN	
DATE 11.10.96	DATE 24.10.96	DATE 24.X.96	
Chargeman II /PDO	YMI /PDO	HOS/PDO	DO/PDO

PDO REF	ISSUE	DATE	SIGN

SHT. No 2 OF 9

NOMENCLATURE	DRAWING No.	ISSUE	OPN. No.	OPERATION
CAM SHAFT BEARING ASSY	CS 20-06-04		010	STUD FITTING

MACHINE:
RADIAL DRILL



STD. TOOLS&GAUGES

STUD RUNNER
COLLETS FOR
M8 & M10
STUD FITTIN
ATTACHMENT

SPECIAL TOOLS&GAUGES

MACHINE VICE

TECHNICAL REQUIREMENT

NON-PERPENDICULARITY OF STUDS SHOULD NOT EXCEED 0.2 MM OVER ENTIRE LENTH OF STUD. (CHECK BY FREE MATING PARTS 20-06-40 AND 20-06-41)

PRED	CHD	APPD

NOMENCLATURE: CAM SHAFT BEARING ASSY.

DRAWING No. CS 20-06-04

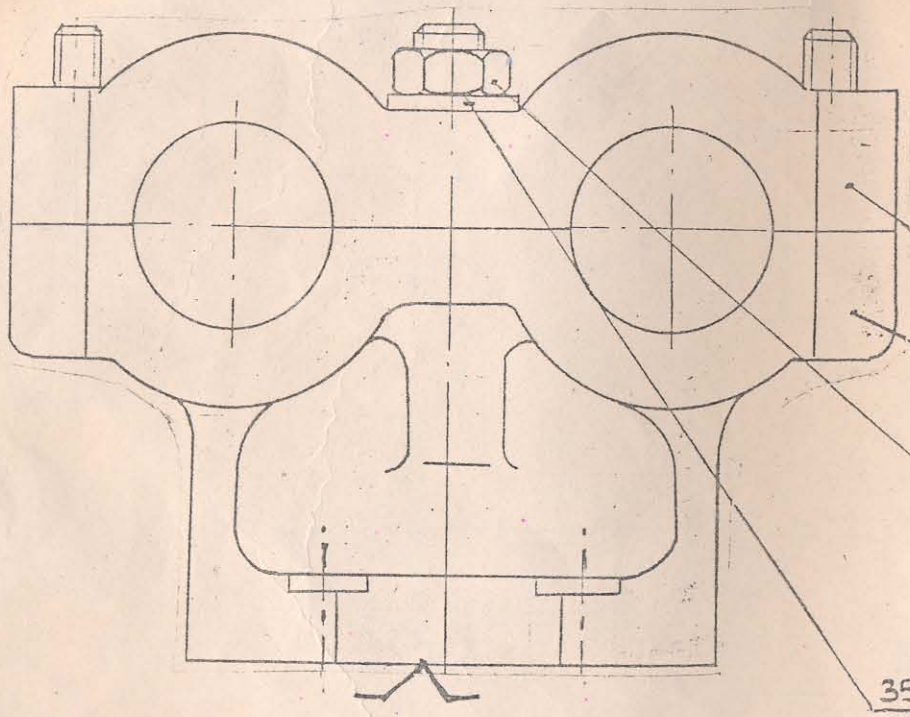
020

ASSEMBLY

MACHINE: BENCH.

STD. TOOLS&GAUGES

SPECIAL TOOLS&GAUGES



NOTE:

1. CHECK THE SURFACE FINISH OF JOIN ING PLANES.
2. FILE ROUGHNESS CAUSED BY SCRATCHES AND NICKS ON THE JOIN ING PLANE OF PARTS 20-06-40 AND 20-06-41
3. MOUNT BEARING CAP 20-06-41 ON CAM SHAFT BEARING BASE 20-06-40. SUCH THAT CONVENTIONAL STAMPING LETTERS ARE IN THE SAME DIRECTION.
4. SET WASHER 353-07-1, SCREW UP NUT 351-50 AND TIGHTEN IT UP.

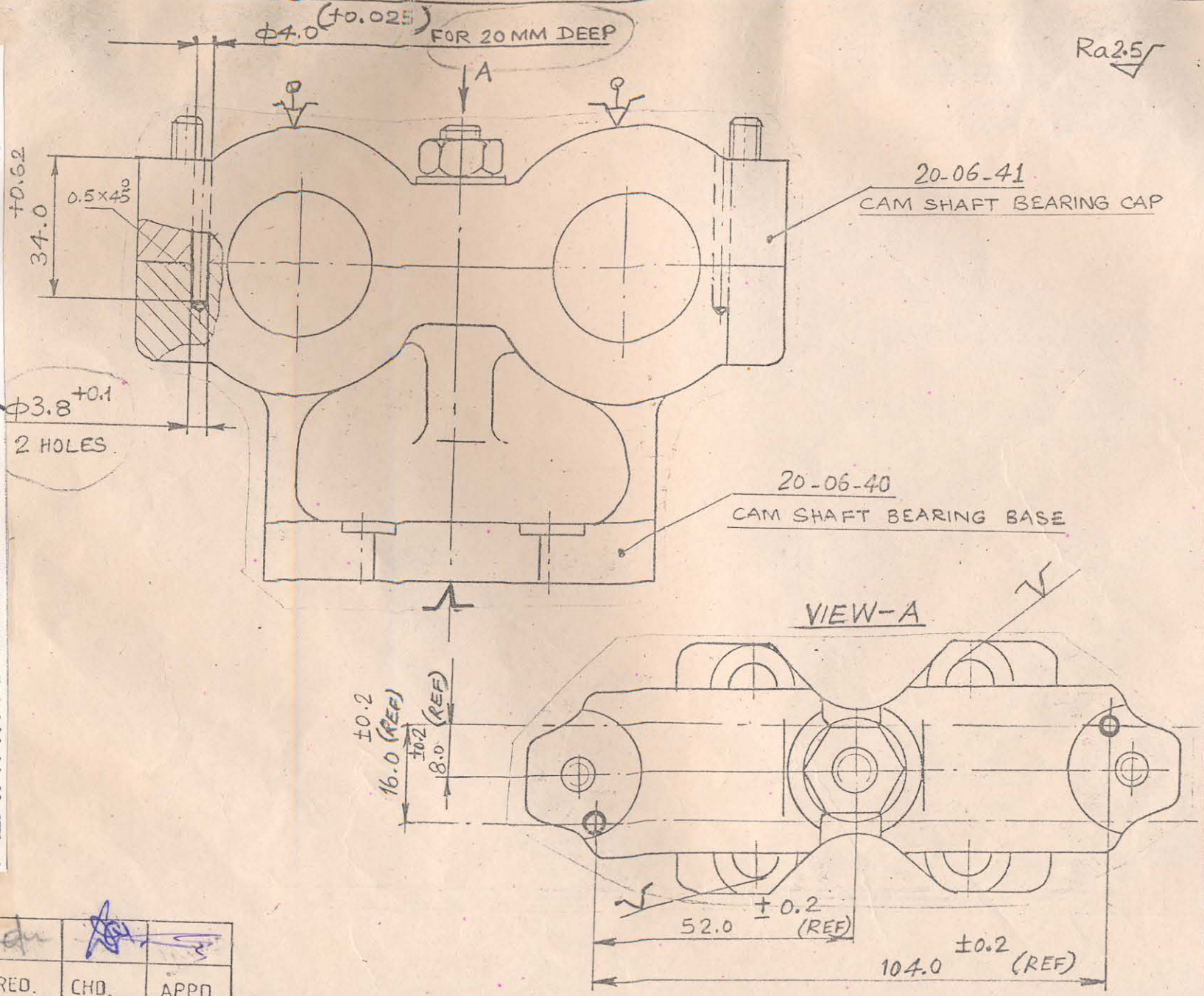
PRED.	CHD.	APPD

SHEET 4 OF 9

PLANNING SHEET - PDO/EFA FormNo.EFA/P-039

NOMENCLATURE	DRAWING No.	ISSUE	OPN. No.	OPERATION
CAM SHAFT BEARING ASSY	Cδ 20-06-04		030	DRILLING AND REAMING

PLANNING SHEET – PDO/EFA FormNo.EFA/P–039



MACHINE: VERTICAL MACHINING CENTRE HMT-VTC.

STD. TOOLS&GAUGES

DRILL φ3.8	
REAMER φ4 H8	
TOOLING PACKAGE PR: 233/18.9.90	

SPECIAL TOOLS&GAUGES

FIXTURE	TP
PLUG GAUGE φ4.0 +0.025	020/02/19

PRED.	CHD.	APPD

NOMENCLATURE: CAM SHAFT BEARING ASSY

DRAWING No: CS 20-06-04

ISSUE

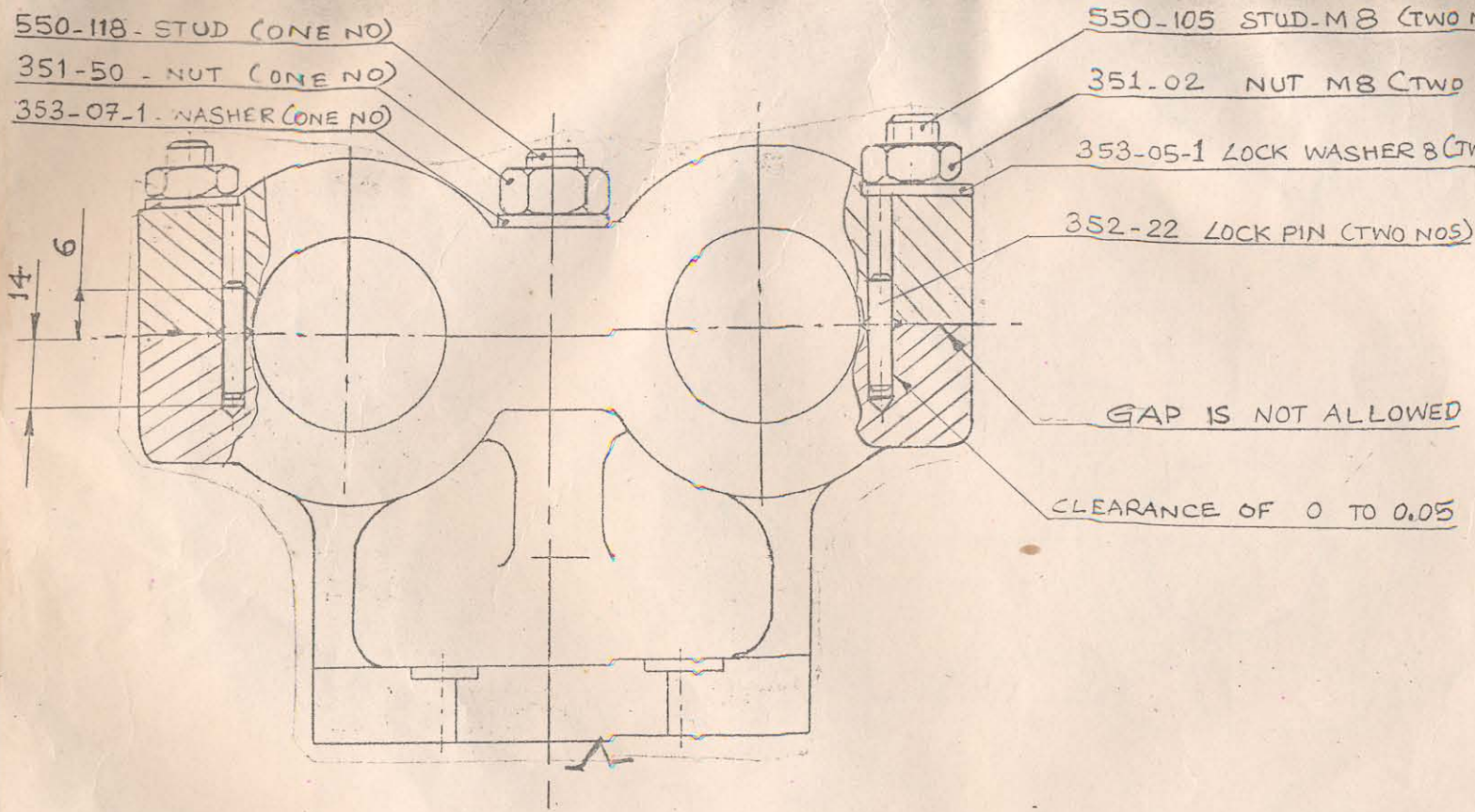
OPN. No. 045

OPERATION: ASSEMBLY

MACHINE: BENCH

STD. TOOLS&GAUGES

SPECIAL TOOLS&GAUGES



NOTE:

1. JOIN ING PLANES SHOULD BE CLEANED FOR THE ABSENCE OF NICKS, SCRATCHES AND OTHER DAMAGES.
2. PRESS DOWN 2 PINS WITH 20° CHAMFER SIDE DOWNWARD.

PRED.	CHD.	APPD

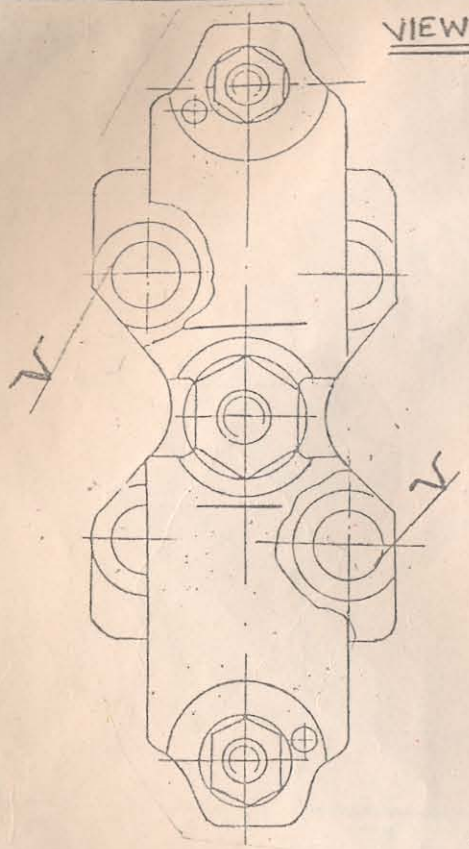
SHEET 6 OF 9

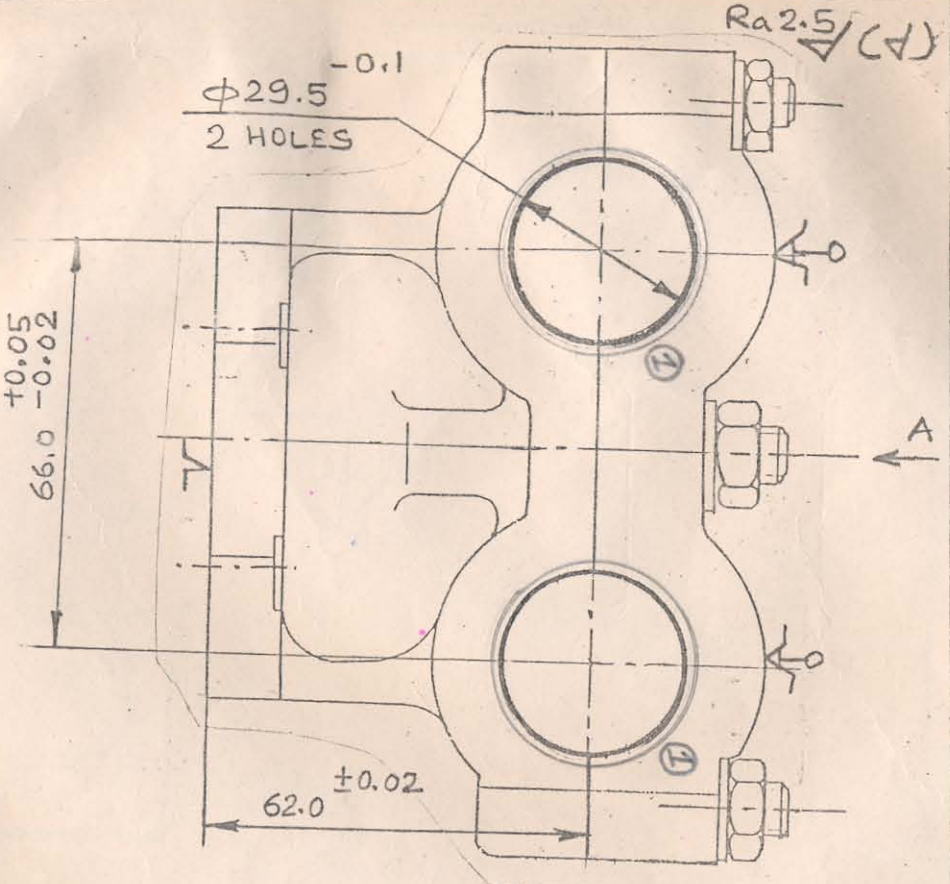
PLANNING SHEET - PDO/EFA Form No. EFA/P-039

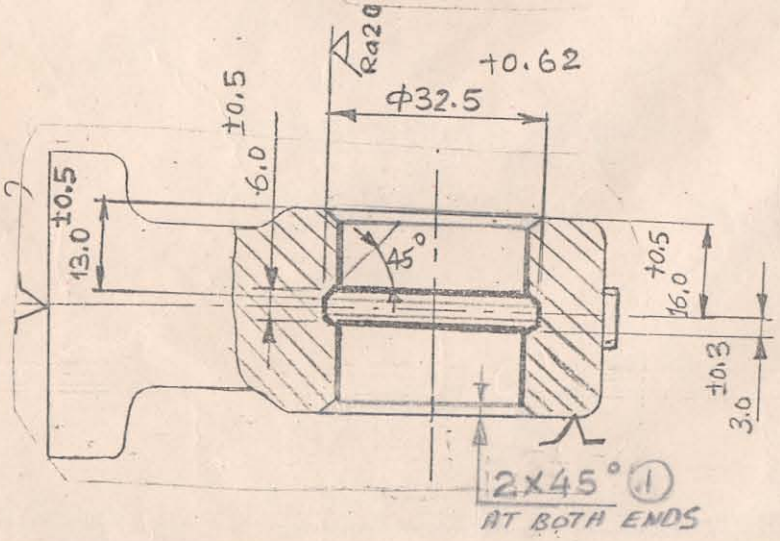
CAM SHAFT BEARING ASSY.

CD 20-06-04

050 | BORING







MACHINE: VERTICAL MACHINING CENTRE VTC - HMT

STD. TOOLS&GAUGES

INSERT-CCMA 060204 BORING TOOL CATRIDGE 8×8 SQUARE SPL. WOOD ROFF CUTTER Φ22×Φ10 6MM WIDTH BOTH SIDE CHAMFERING Φ40×90° T/SCSK CUTTER	6938785220

SPECIAL TOOLS&GAUGES

FIXTURE	TP
PLUG GAUGE Φ29.5 -0.1	020/08/45
CALIPER GAUGE Φ32.5 +0.62	95740-190
GROOVE POSITION GAUGE.	077/25
RECEIVER GAUGES FOR 62.0 ±0.02 AND 66.0 +0.05 -0.02	203223

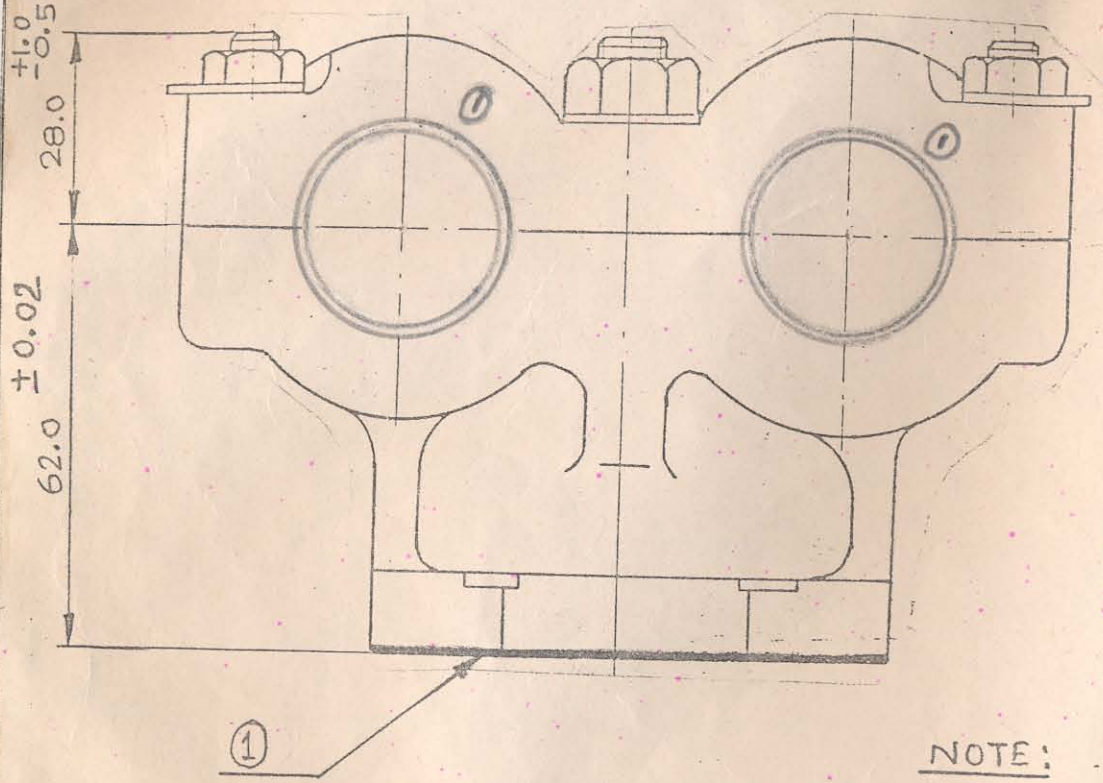
RED.	CHD.	APPD	PDOREF	ISSUE	DATE
			120	1	20/02/01

PLANNING SHEET – PDO/EFA FormNo.EFA/P–039

NOMENCLATURE	DRAWING No.	ISSUE	OPN. No.	OPERATION
CAM SHAFT BEARING ASSY	cs 20_06_04		060	MILLING

MACHINE: VTC – HMT

Ra 5.0



NOTE:

NICKS, DENTS, BURRS AND SCRATCHES ARE NOT ALLOWED ON SURFACE ①

STD. TOOLS&GAUGES

φ100 FACE MILL	R 265-2-100 E 24AL
INSERT SFAN 1203	EFR.

SPECIAL TOOLS&GAUGES

PRED.	CHD.	APPD	PDO REF	ISSUE	DATE
			120	1	20/02/01

NOMENCLATURE: CAM SHAFT BEARING ASSY

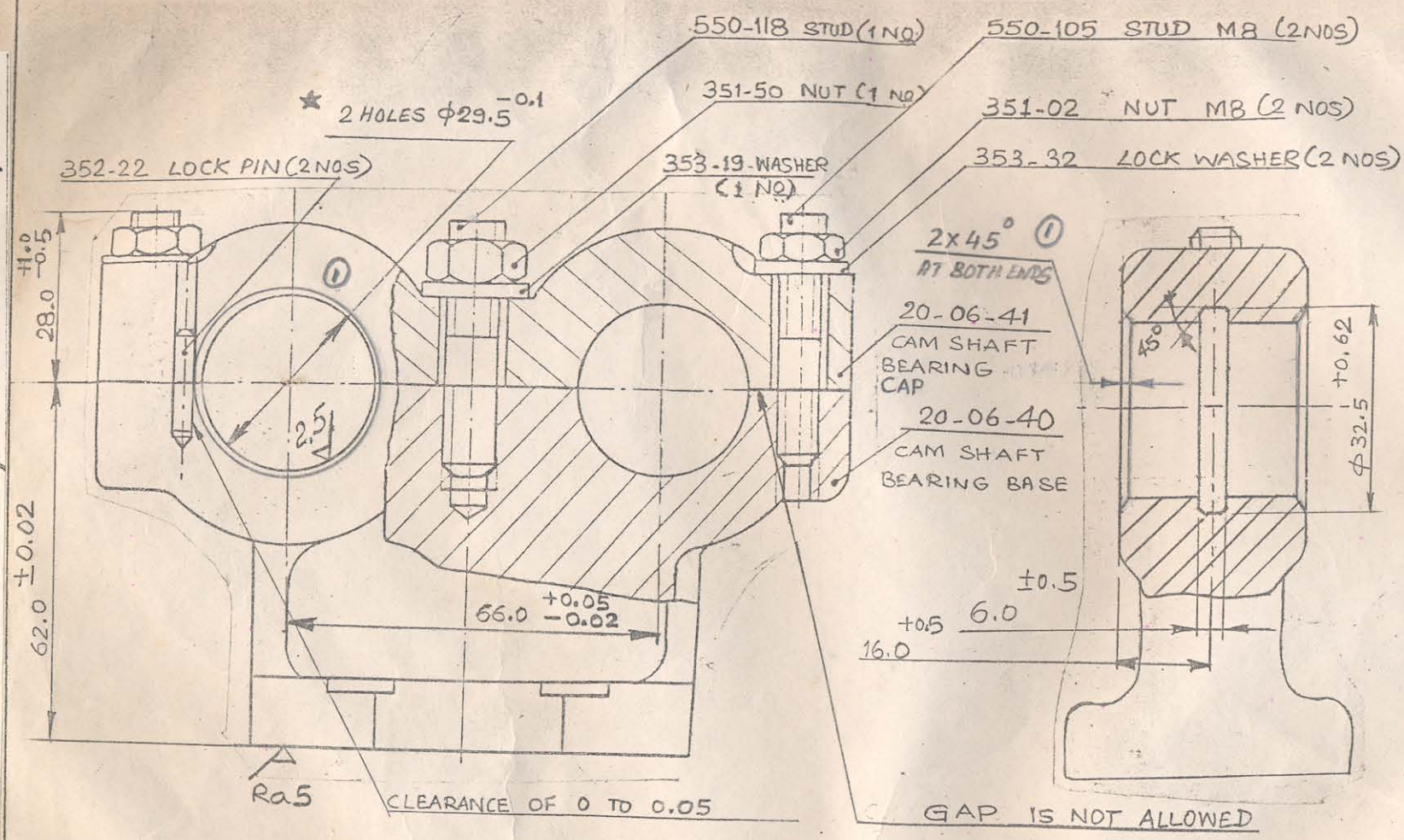
DRAWING No.: CS 20-06-04

ISSUE:

OPN. No.: 080

OPERATION: INSPECTION

MACHINE:



STD. TOOLS&GAUGES

SPECIAL TOOLS&GAUGES

PLUG GAUGE φ29.5 -0.1 — 020/08/45

INSPECTION FIXTURE — REF. OPN 175 K (ACB.1719)

CALIPER GAUGE φ32.5 +0.62

GROOVE POSITION GAUGE

GAUGE FOR 62.0 ±0.02.

PDO REF	ISSUE	DATE
120	1	20/12/01
PRED.	CHD.	APPD

NOTE:

★ THESE 2 HOLES φ29.5 -0.1 TO BE ENLARGED AS φ30.0 +0.05 +0.02 ON ASSEMBLY.

PLANNING SHEET – PDO/EFA Form No. EFA/P–039