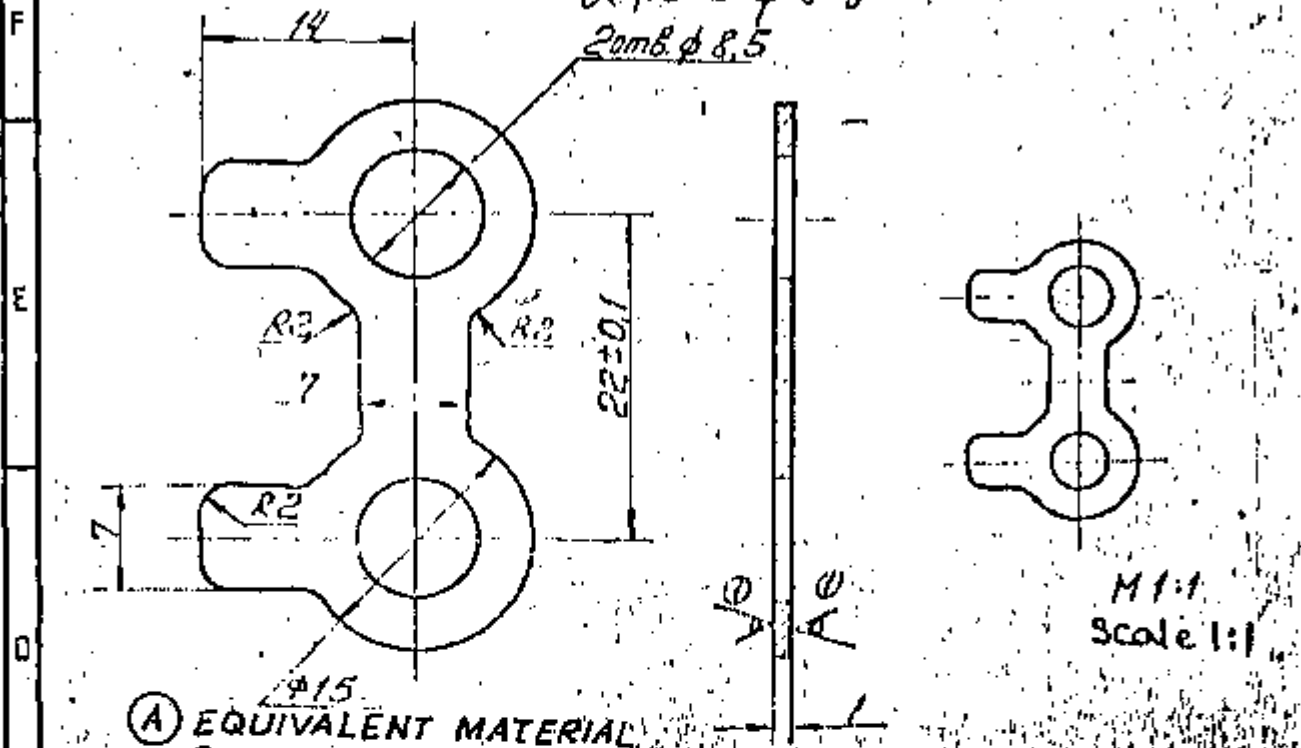


DRAWING NUMBER
353-12

Rz80/10



(A) EQUIVALENT MATERIAL
Gr.O 15:513-1994

1. Requirements for stamping as per standard 4000-16.
2. The Component should be straightened after stamping.
3. Bore are not allowed.
4. Coatings: - cd 9. Chromating as per 4.460.104 with elimination of hydrogen embrittlement.
5. Required finishing of surfaces being stamped should be ensured by tool.

PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION.

A-11
G3

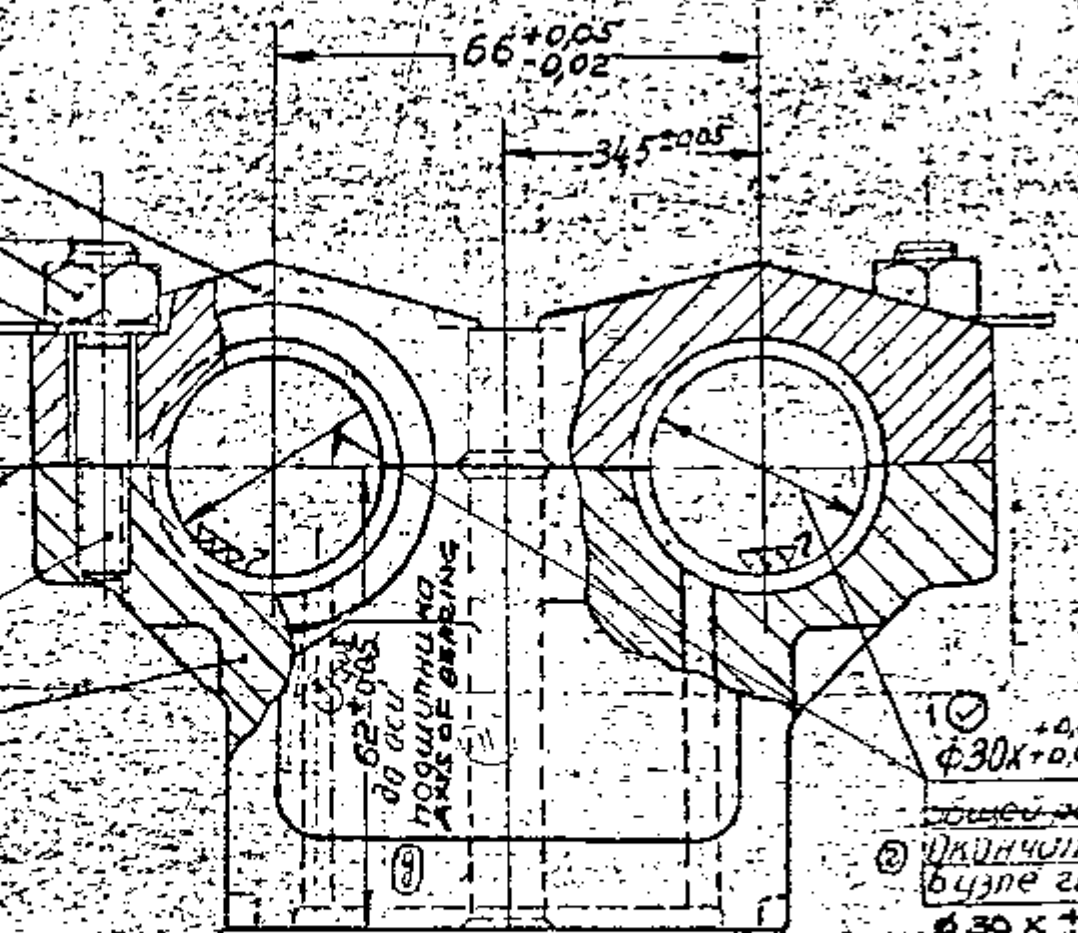
		EST. WT. 0.0026 kg	TO BE STAMPED OR MARKED WHERE INDICATED THUS ≡ I (LETTERS)
		ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE	
A	17.03.10	4 th Alt. Comm. Meet. Minutes Point No.1 Dt:26-10-09.	MATERIAL:- strip 0.806-M-2-1 Cast 303-71 selected
ISSUE	DATE	NATURE OF AMENDMENTS	USED ON CB 20-10-603 CB 20-06-03-1 CB 306-03-0 CB 20-10-663-4
ORN	llz	SCALE = 2:1 DIMENSIONS IN mm	CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI.
CHO		TOLERANCE ON DIMENSIONS UNLESS OTHERWISE STATED IS 2102 -07 ALL THREADS CONFORM TO	TITLE LOCK WASHER 8
TEC			D S CAT NUMBER
APPD			DRAWING NUMBER 353-12
DATE	15-2-89		
SIZE	A4		



- ② - 306-38-1
- ④ - 351-02
- ⑥ - 353-12
- ⑦ - ② 350-40-1
350-20-1
- ① - 306-37-3

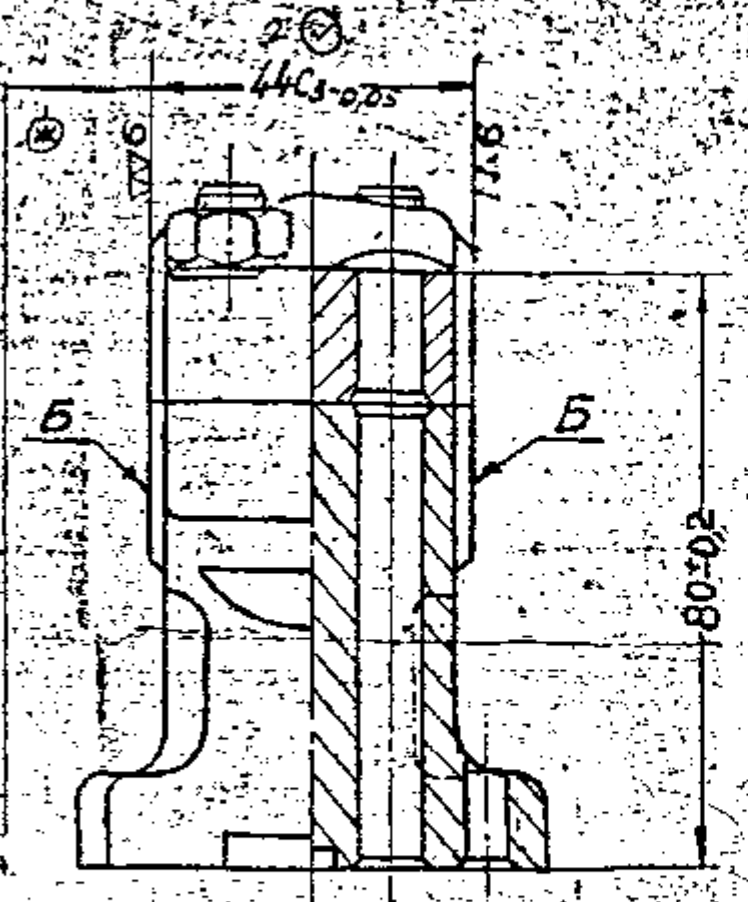
Зазор не допускается
CLEARANCE IS NOT ALLOWED

TO BE PUNCHED
Клеймо метилметиле



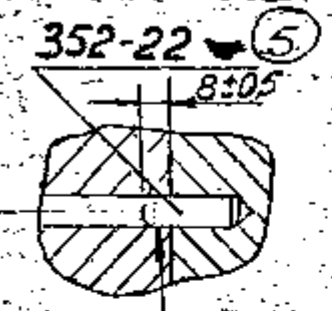
① $\phi 30 \times \pm 0.02$ TO BE FINISH MACHINED IN CYLINDER HEAD ASSEMBLY

Разрез АА
SECTION A A

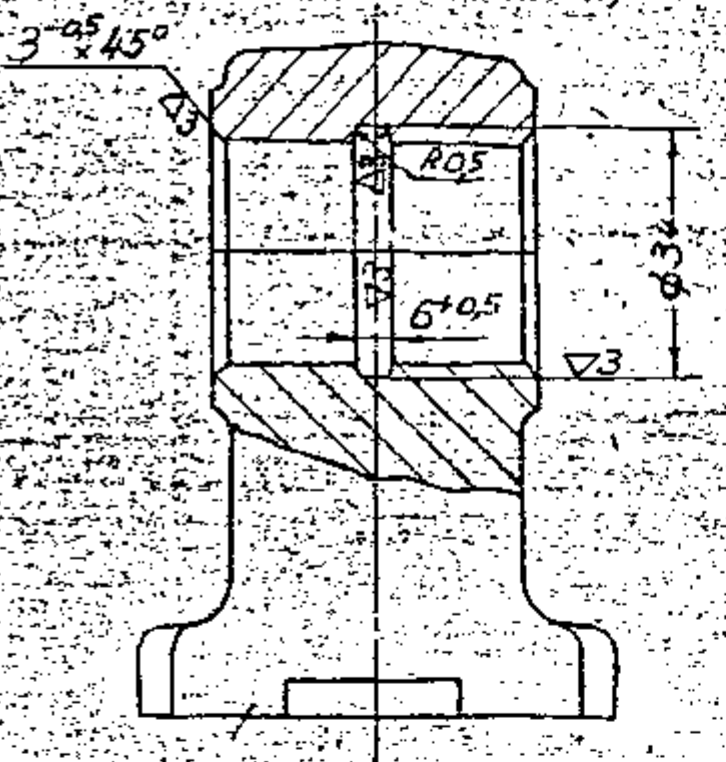
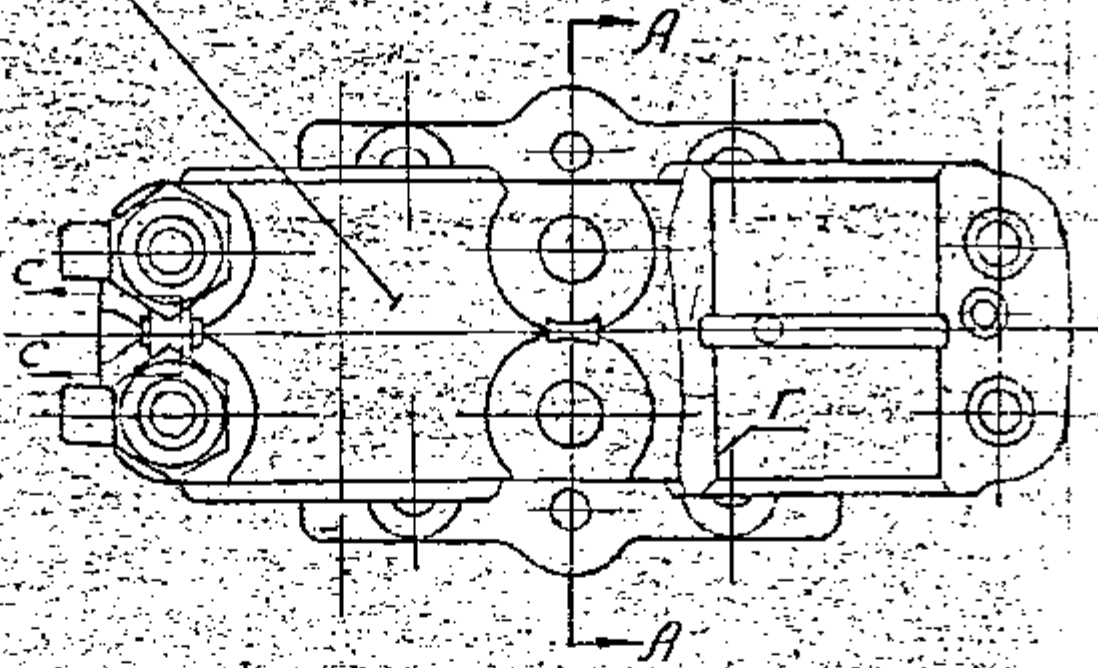


After machining of $\phi 30$ X, burrs at the annular groove should be dressed.
End play of surfaces "Б" relative to surfaces "Г" should not exceed 0.1 mm.
During machining, reused washers 353-05-1 may be installed instead of components 353-12.

SECTION CC
Разрез CC



0.038
352-22
DURING REASSEMBLY
CLEARANCE IS 0.060
0.000



REPAIR SIZE DIMENSIONS ARE ADDED WHERE MARKED THIS \checkmark
BASED ON LETTER No. 82847/OH/GAD/ED DT. 13.1.95

S.No	R ₁	R ₂	REMARKS
1 \checkmark	$\phi 29.5 \times \pm 0.045$	$\phi 29.5 \times \pm 0.045$	1. MARK REPAIR SIZES CATEGORY R ₁ , R ₂
2 \checkmark	44C3 -0.05	44C3 -0.05	2. ALL OTHER SIZES, SURFACE FINISH AND TECHNICAL REQUIREMENTS ARE SAME.

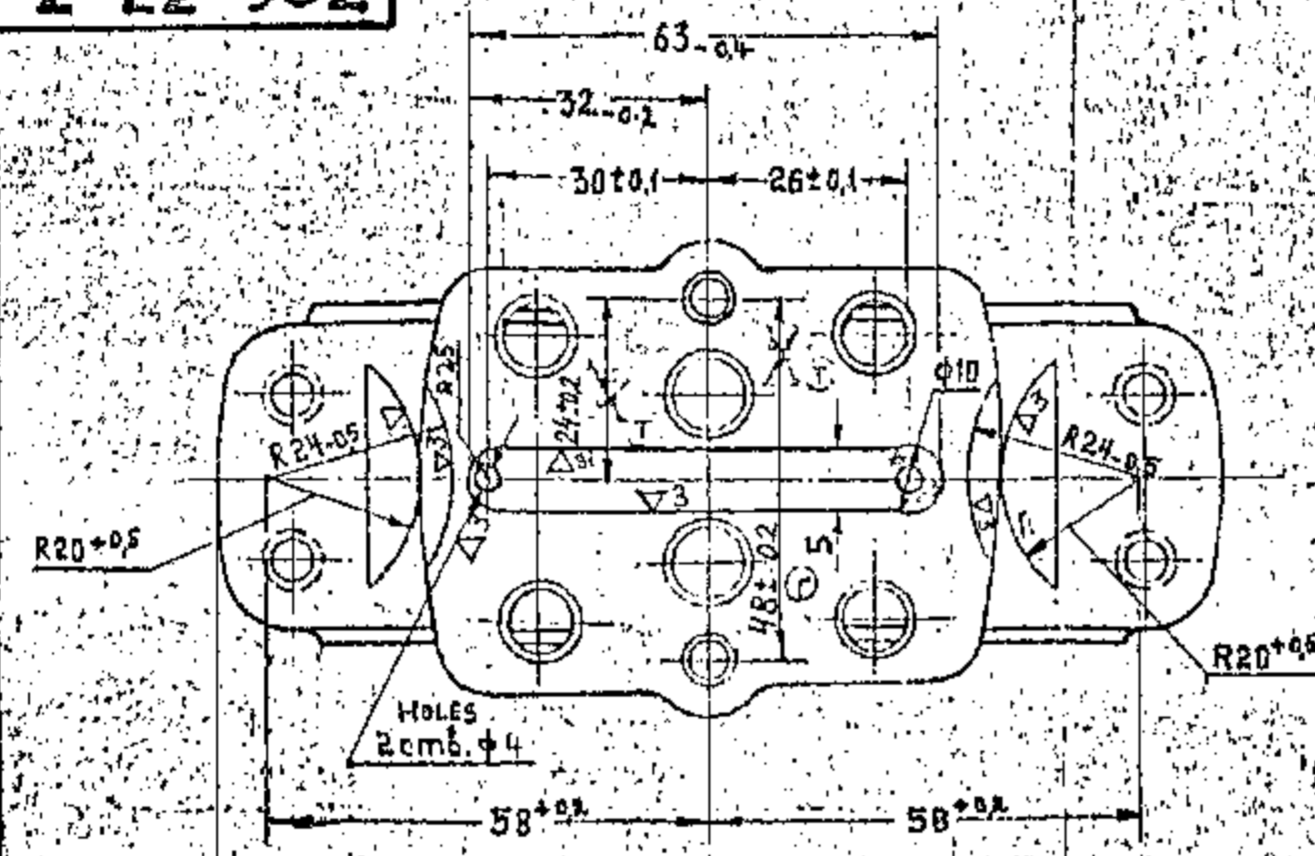
* PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION

EST. MASS	0.775 kg	TO BE STAMPED OR MARKED WHERE INDICATED THIS # LETTERS
ISSUE DATE	DRN	NATURE OF AMENDMENTS
SCALE	1:1	DIMENSIONS IN mm
TOLERANCE ON DIMS UNLESS OTHERWISE STATED		
DATE 11-4-88	ALL THREADS TO CONFORM TO	
MATERIAL	USED ON	Cb 306-01-20
CONTROLLER OF QUALITY ASSURANCE (HEAVY VEHICLES) A V A D I		
TITLE	CAMSHAFT THRUST BEARING	
D/S CAT NUMBER	DRAWING NUMBER	Cb 306-03-3



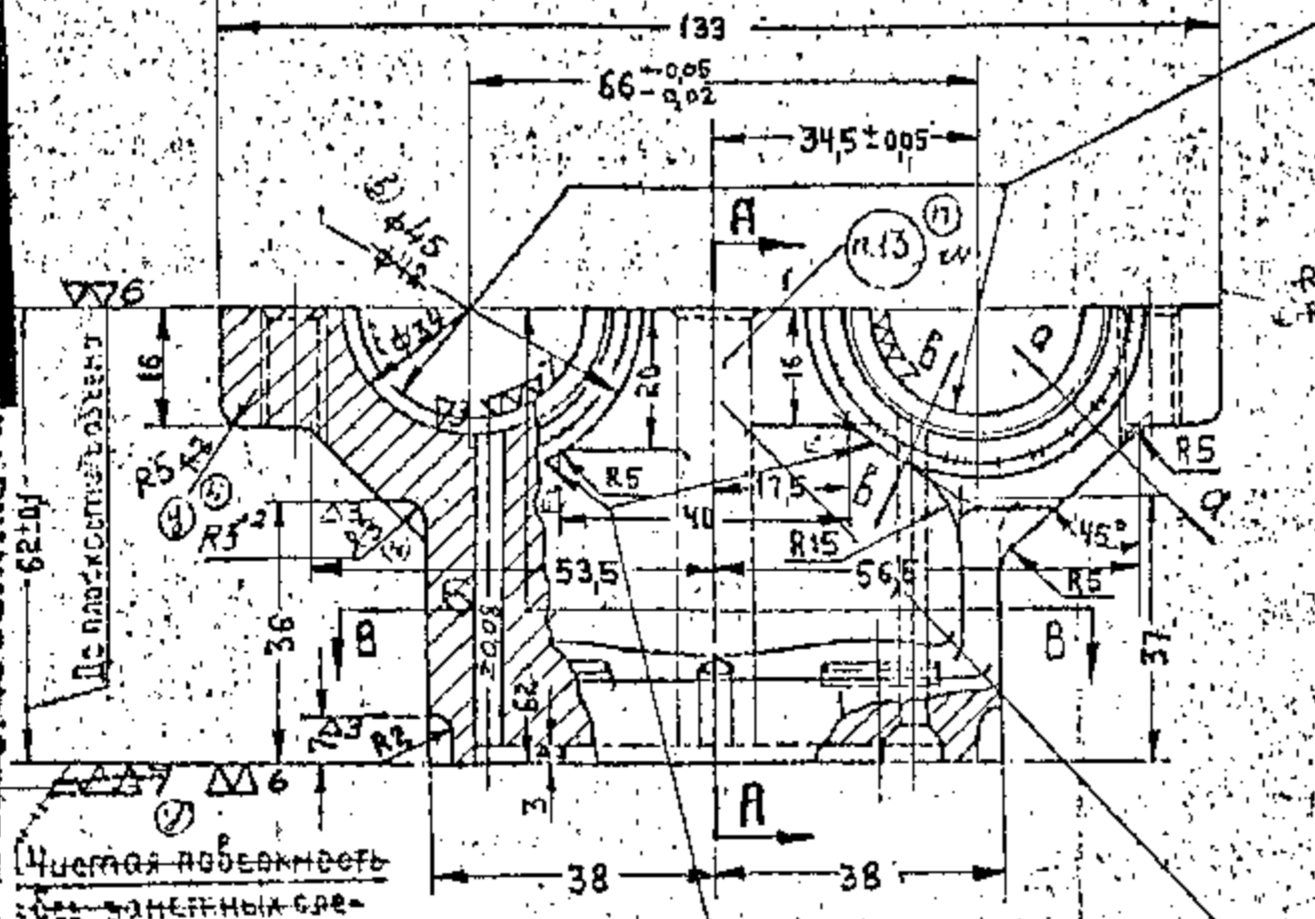


~(V3V4V6V7)~



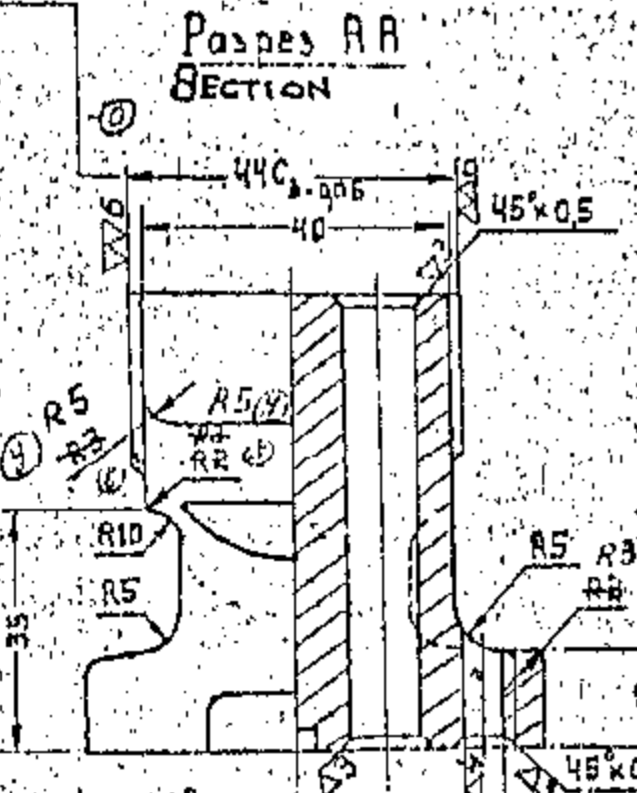
TO BE FINISHED AFTER THE ASSEMBLY OF CYLINDER HEAD

φ30x+0.02 окончательная обработка в виде блока 60180-0936 вращающ-д-конт-4-4



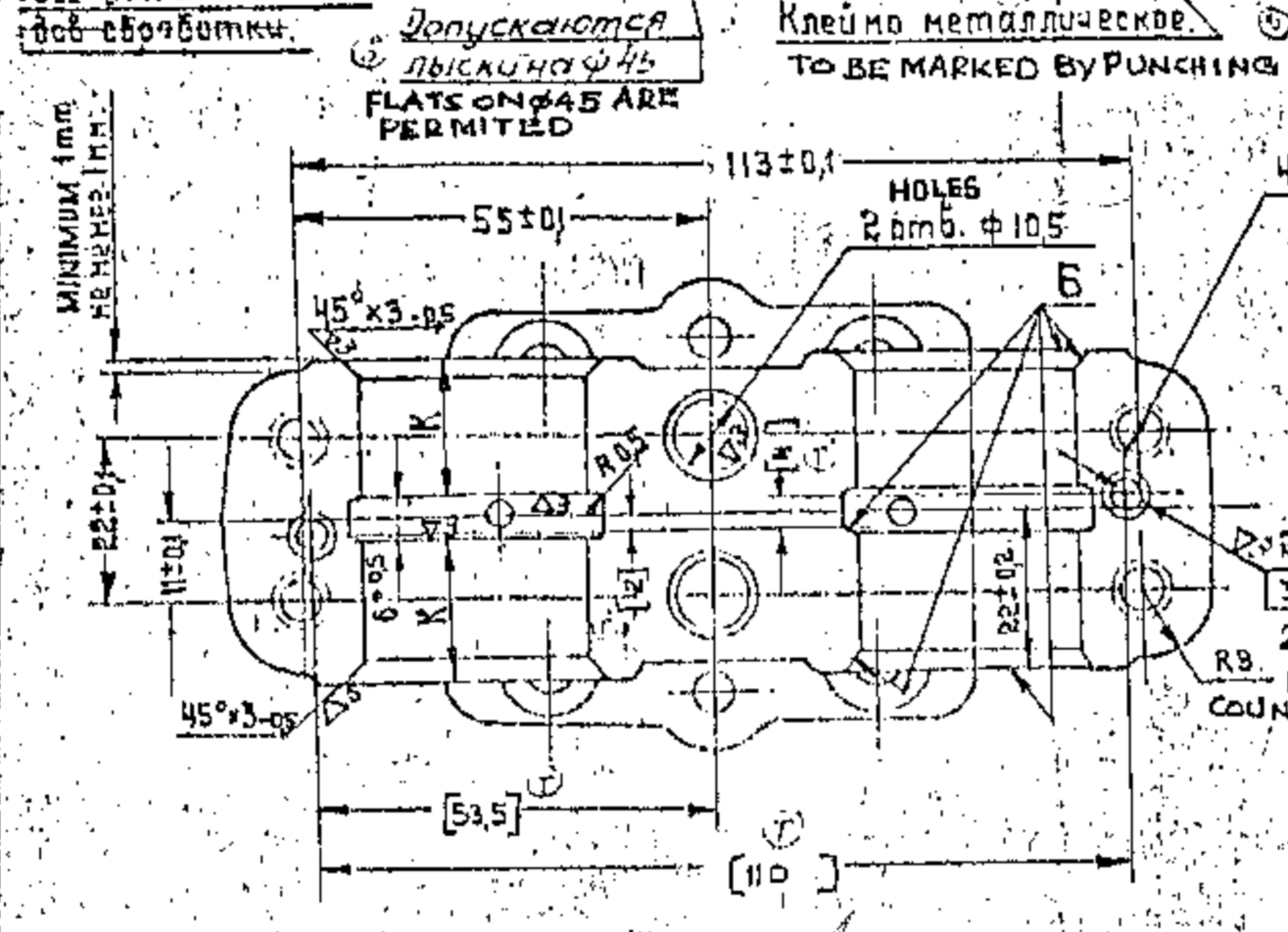
Сечение ББ SECTION

Сечение АА SECTION



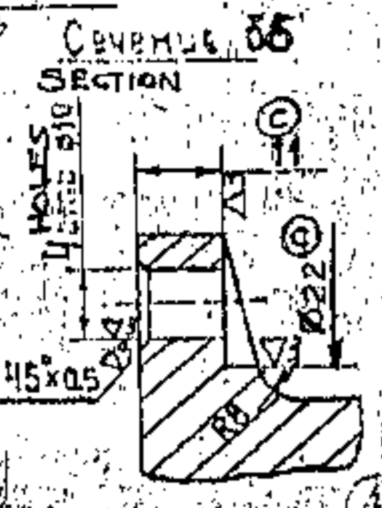
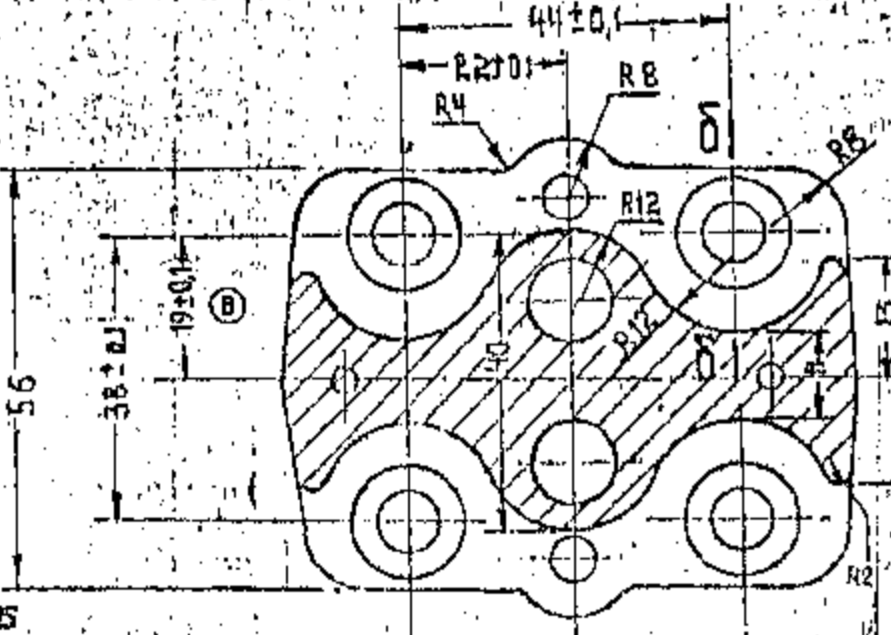
Разрез ВВ SECTION

2 HOLES φ5g^{+0.1} TO BE FINISHED MACHINED AFTER ASSEMBLY



HOLES 4 шт. 18x1.85 То

2 HOLES φ3.8±0.1 R8 DEPTH 10^{±0.1} TO BE COUNTERSUNK AT 80° TO 95°



PILOT SAMPLE SHOULD BE APPROVED BY A.I.S.P. BEFORE BULK PRODUCTION

1. INSPECTION GROUP IV, AS PER TT-11.
2. HARDNESS: BHN ≥ 90.
3. COMPONENTS SHOULD BE ACCEPTED AFTER FINAL HEAT TREATMENT ACCORDING TO TT-10. (A)
4. TOLERANCES ON STAMPING DIMENSIONS SHOULD BE IN ACCORDANCE WITH STANDARD 82050-17.
5. DRAFTS WHICH ARE NOT SPECIFIED ON THE DRAWING SHOULD BE EQUAL TO 6°.
6. MACHINING DIMENSIONS WITHOUT TOLERANCES SHOULD BE AS PER ACCURACY CLASS 7 OST 1010.
7. TECHNICAL REQUIREMENTS FOR THREAD ARE AS PER STANDARD 82021-00.
- 8.
9. SURFACES SHOULD BE MACHINED IN ASSEMBLY
10. DIFFERENCE IN MEASUREMENTS OF DIMENSION "K" SHOULD NOT EXCEED 0.8mm.
11. SHARP EDGES ARE TO BE BLUNTED.
12. DRILL RUN-OFF OF HOLE φ 4mm SHOULD BE WITHIN THE GROOVE WIDTH.
13. MATERIAL GRADE TO BE MARKED.
14. TRACES OF FINS UP TO 1.7mm HIGH ALONG THE DIE PARTING-LINE ARE PERMISSIBLE.
15. DIMENSIONS GIVEN IN SQUARE BRACKETS SHOULD BE OBTAINED BY MACHINING TOGETHER WITH MATING COMPONENTS.

Участок подверженности коррозии

Допускается лысина φ45 FLATS ON φ45 ARE PERMITTED

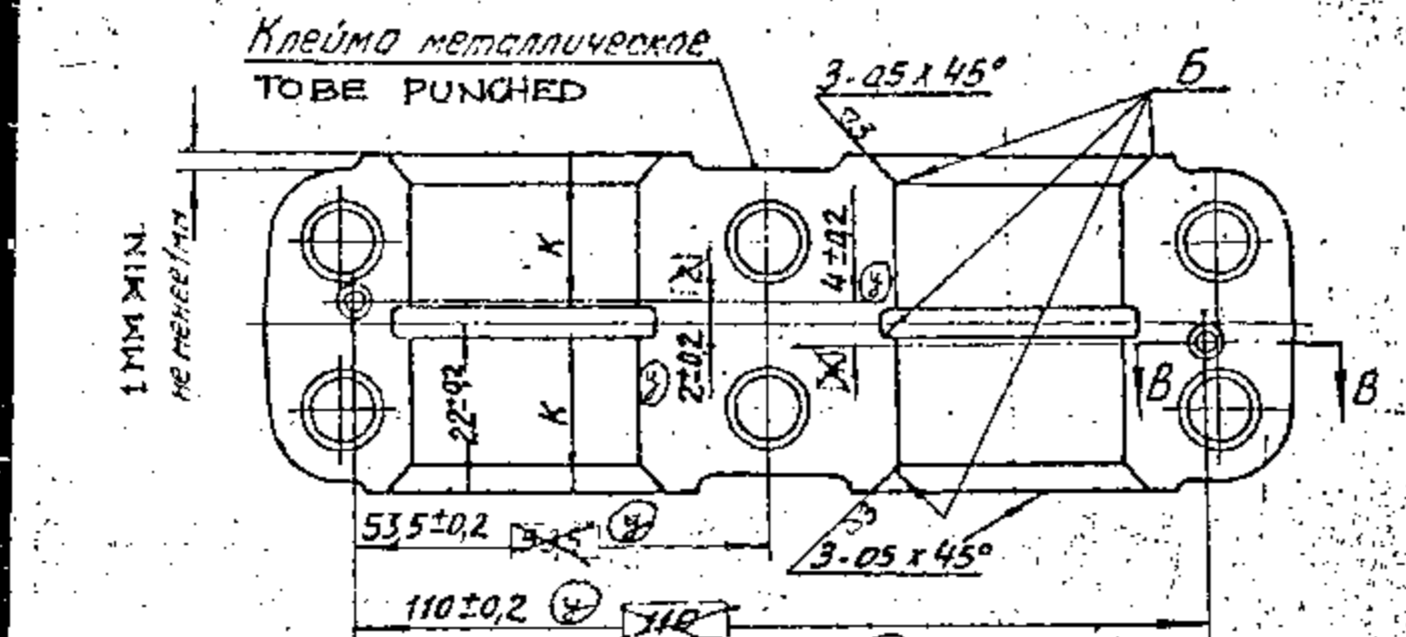
Клеймо металлическое TO BE MARKED BY PUNCHING

MINIMUM 1mm READER 1mm

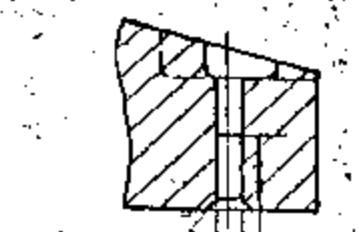
EST. PAGES	0.460 Kg	TO BE STAMPED OR MARKED WITH INDICATED FIGS & LETTERS
C 11.9.80	D.O. CORRECTION	ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED. MACHINED CORNERS TO HAVE R OUTSIDE
B 11.12.89	D. O. CORRECTION	IF IN THE EQUIVALENT CHARACTERS ARE PERMISSIBLE
A 05.12.88	AUTHY BK 65-897	NATIONAL AI GOST 4784-78
ISSUE DATE	NATURE OF AMENDMENTS	© STAMPING
DRN	SCALE 1:1	WELD ON - CB 306-03-3
CID	DIMENSIONS IN mm	CONTINUATE OF QUALITY ASSURANCE (HEAVY VEHICLES) A V A 11
YCD	TOLERANCE OF DIMS UNLESS OTHERWISE STATED	TITLE: THRUST BEARING BASE FOR CAMSHAFT
APPD	ALL THREADS TO CONFORM TO	U.S. CAT NUMBER
DATE 5/1/88		DRAWING NUMBER 306-37-3



1-8E-90E



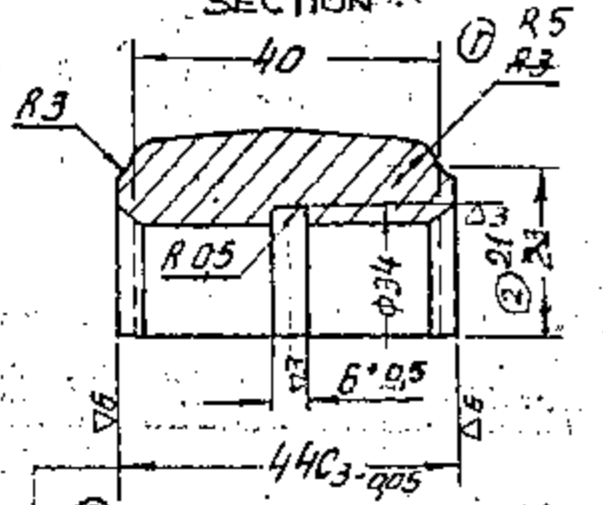
Разрез ВВ
SECTION



2 отв. φ4A ± 0.013
вместить на
глубине 10 мм

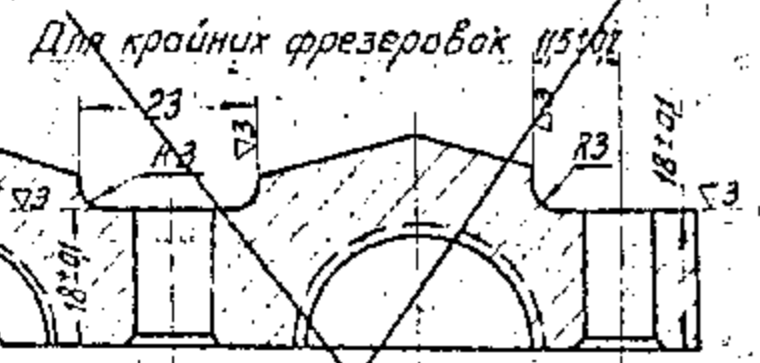
2 HOLES φ4A ± 0.013
TO BE MAINTAINED
AT 10MM DEPTH

Разрез АА
SECTION

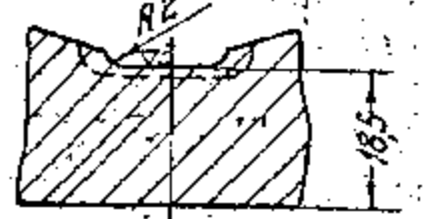


Окончательно обработать
в узле головки блока
TO BE FINISH MACHINED AFTER
ASSEMBLY OF

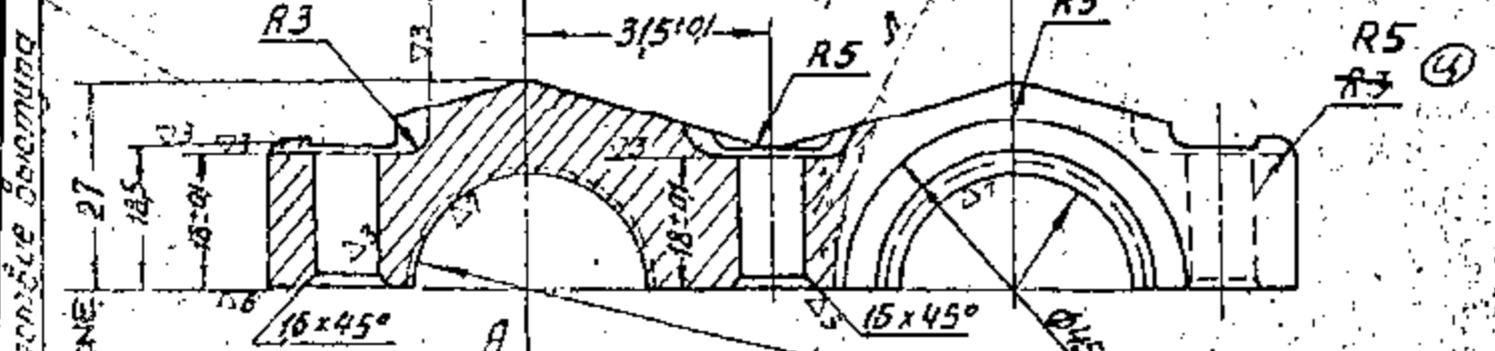
Разрез по АА
CYLINDER HEAD



Разрез ББ
SECTION

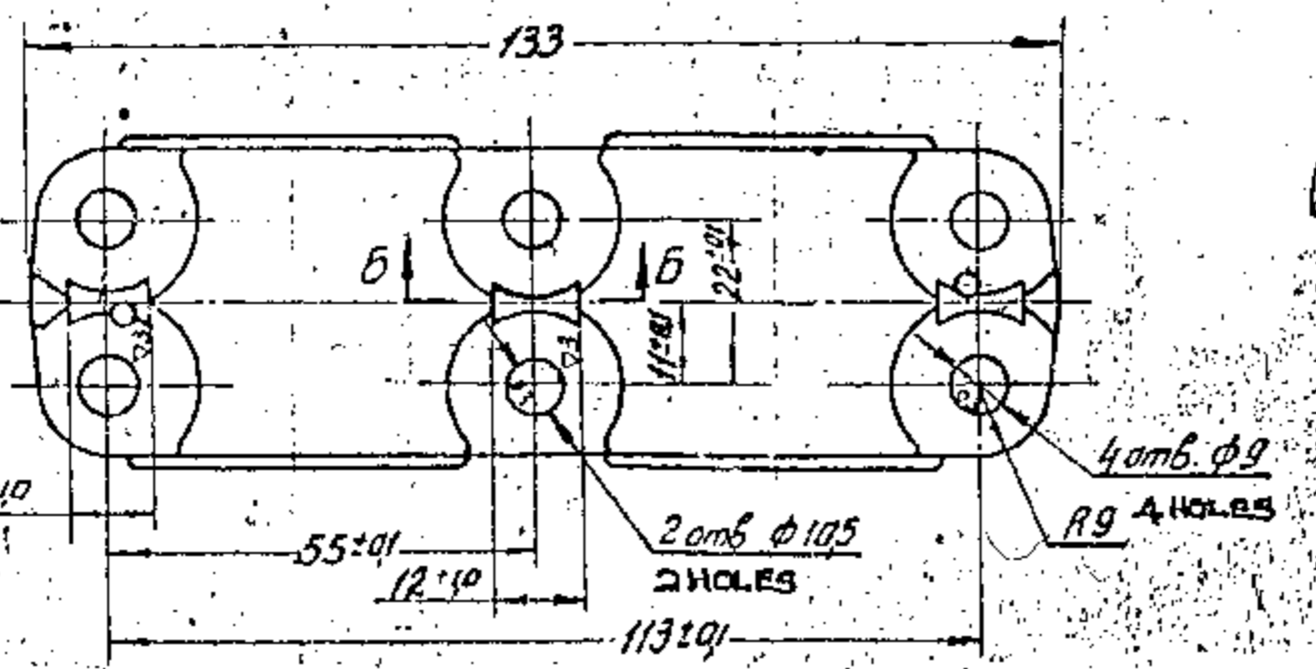


ALL SPOT FACINGS
на всех подтарничках



обработать в узле головки блока
TO BE FINISH MACHINED AFTER ASSEMBLY OF CYLINDER HEAD

NO SHOULDER MAY BE DONE



1. Inspection group IV as per TT - 11
2. BHN ≥ 90;
3. Components should be accepted after final heat treatment according to TT - 10 TTM - 79 - 81 (A)
4. Tolerances on stamping dimensions should be in accordance with standard 82050 - 17.
5. Drafts which are not specified in the drawing should be equal to 6°.
6. Machining dimensions without tolerances should be as per accuracy, class 7 OST 1010.
7. Surfaces 6 should be machined after assembly. Difference in measuring of dimension 'K' should not be more than 0.8 mm
8. Sharp edges should be blunted.
9. Traces of fins upto 1.7 mm high along the die parting line are permissible

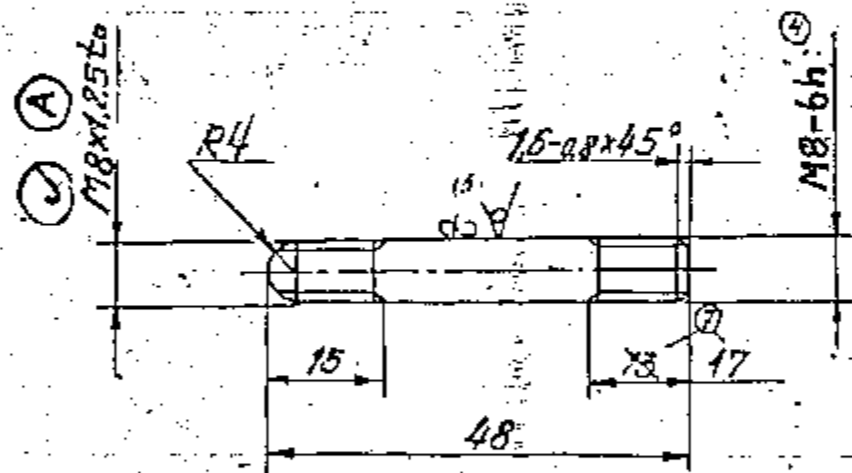
A-4

PILOT SAMPLE SHOULD BE APPROVED BY A.I.S.P. BEFORE BULK PRODUCTION

EST. MASS	0.200Kg	TO BE STAMPED OR MARKED WHERE INDICATED THIS # LETTERS
ISSUE DATE	2-12-84	ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED OTHERWISE CORNERS TO HAVE R OUTSIDE IF INSIDE EQUIVALENT CHANGES ARE PERMISSIBLE
ISSUE DATE	05.12.88	NATURE OF AMENDMENTS
DRN	BY	SCALE 1:1
CHKD	BY	DIMENSIONS IN mm
TCU	BY	TOLERANCE ON DIMS UNLESS OTHERWISE STATED
APPD	BY	ALL THREADS TO CONFORM TO
DATE	28-1-88	
		MATERIAL ALUMINIUM ALLOY (A1) USED ON - GOST 4764-74 (STAMPING) GOST 306-03-3
		CONTROL RATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AV 411
		CAP OF CAMSHAFT THRUST BEARING
		DRAWING NUMBER 306-38-1

5 1 18E81-12 1013 34 2





1. Inspection group IV TT-11.
2. Technical requirements for threads as per standard 82021-00.
3. Dimensions with unspecified tolerances and the rest of the technical requirements as per standard 82052-00.
4. Coating: cadmium, chromating as per 231-104 with elimination of hydrogen embrittlement.
5. The thread may be made by rolling with the diameter of unthreaded portion within the pitch diameter of thread.
6. HRC ≥ 28.....35.

7. EXPLANATORY NOTE :

MATERIAL QUOTED : ROUND BAR GOST 7417-75
38XA GOST 1051-73

PERTAINS TO SIZED, COLD ROLLED OR COLD DRAWN STEEL WITH ROUND SECTION AS PER GOST 7417-75.

38XA = GRADE OF STEEL AS PER GOST 4543-71.

CHEMICAL COMPOSITION : (As per gost 4543-71)

C = 0.35 - 0.42	P = 0.025 max
Si = 0.17 - 0.37	S = 0.025 max
Mn = 0.50 - 0.80	Cu = 0.30 max
Cr = 0.80 - 1.10	Ni = 0.30 max

MECHANICAL PROPERTIES (AS PER GOST 4543-71)

ULTIMATE TENSILE STRENGTH Kg/mm² = 95 (min)

YIELD POINT Kg/mm² = 80 (min)

% ELONGATION = 12 (min)

% REDUCTION IN AREA = 50 (min)

IMPACT STRENGTH Kgfm/cm² = 9 (min)

HEAT TREATMENT :

(a) HARDENING OR NORMALIZING TEMPERATURE °C. = 860

COOLING MEDIUM = OIL

(b) TEMPERING TEMPERATURE °C = 550

COOLING MEDIUM = WATER OR OIL

Cb 3301-15-30
306-03-3
306-04-2
3312-91-4

8. REPAIR SIZE DIMENSION ARE ADDED WHERE INDICATED THUS BASED ON OVERHAUL SPECIFICATION PART III REPAIR DRAWINGS

Sl.No	R	REMARKS
1	MID X 1.5 TO	ALL OTHER CONDITIONS
2	PCD - 9.026 + 0.170 + 0.095	AS PER STD DRG

Cb 3301-15-30
Cb 306-03-3
Cb 306-04-2
Cb 3312-91-4
Cb 3301-15-44
Cb 3312-91-11

(C) EQUIVALENT MATERIAL
STEEL 109M40 (EN 19) TO BS: 1570
40Cr4Mo3 TO IS: 1570

PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION.

EST. WT.	TO BE STAMPED OR MARKED WHERE INDICATED THUS # LETTERS)
0.019 Kg.	1

ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

DRN	DATE	MATERIAL	USED ON
DRN	15-7-10	ROUND BAR GOST 7417-75	SEE ABOVE **
APPD	15-6-89	38XA GOST 1051-73	
DATE		CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) A V A D I	
SCALE	1:1	DIMENSIONS IN mm	
TOLERANCE ON DIMS UNLESS OTHERWISE STATED IS 2102-69		TITLE	
		STUD M8x48	
		D S CAT NUMBER	
		DRAWING NUMBER	
		350-40-1	

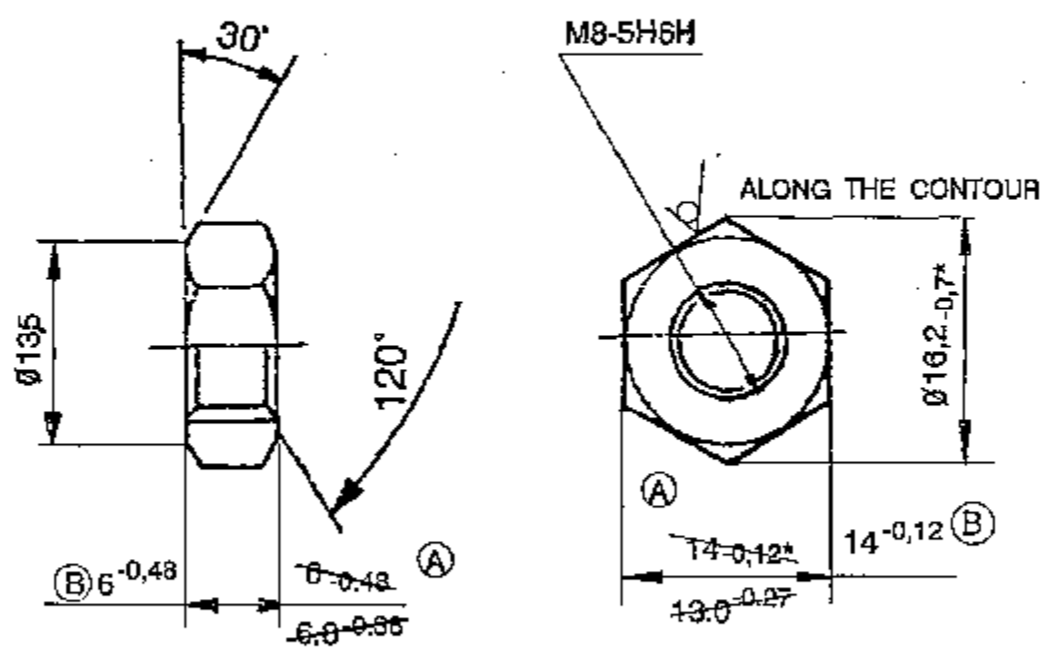
COMMON TO V-92S2 ENGINE



COMMON TO V-92S2 & UTB-20 ENGINES
 DRG. INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - M1L
 (B. JAYAVELU)
 JTO (01)

DRAWING NUMBER
351 - 02

Rz40 ✓ (✓)



EXPLANATORY NOTE :

7. MATERIAL QUOTED :- HEXAGON BAR 14-4 GOST 8560-78
45-5 GOST 1051-73

ⓐ BRIGHT STEEL OF HEXAGONAL CROSS SECTION 14mm ACROSS FLAT, ACCURACY CLASS - 4 TO GOST 8560-78. AND MANUFACTURED FROM COLD DRAWN SIZED STEEL OF GROUP 6 SURFACE QUALITY TO GOST 1051-73.
ALTERNATE MATERIAL QUOTED :- STEEL GRADE 40 & 50 TO GOST 1050-74.

CHEMICAL COMPOSITION :

STEEL GRADE	C O N T E N T O F E L E M E N T S %							
	C	Si	Mn	Cr(max)	S	P	Ni	Cu
40	0.37-0.45	0.17-0.37	0.50-0.80	0.25	0.040	0.035	0.10	0.15
45	0.42-0.50	0.17-0.37	0.50-0.80	0.25	0.040	0.035	0.10	0.15
50	0.47-0.55	0.17-0.37	0.50-0.80	0.25	0.040	0.035	0.10	0.15

MECHANICAL PROPERTIES :

STEEL GRADE	YIELD POINT Kgf/mm ² (min)	ULTIMATE TENSILE STRENGTH Kgf/mm ² (min)	PERCENTAGE ELONGATION (min)	REDUCTION OF AREA % (min)	IMPACT STRENGTH Kgfcm/cm ² (min)
40	34	58	19	45	6
45	36	61	16	40	5
50	38	64	14	40	4

- ROLLED STOCK OF GROUP B CLASS 4 GOST 1051-73 MAY BE USED TO ENSURE HIGH QUALITY OF COATING, IT IS ALLOWED TO ELIMINATE SURFACE DEFECTS OF ROLLED STOCK WITH DECREASE OF DIMENSIONS AS PER ACCURACY CLASS 5.
- ~~ALTERNATE MATERIAL - STEEL GRADES 40 AND 50 GOST 1050-74~~
- THE REST OF THE TECHNICAL REQUIREMENTS AS PER STANDARD 82052 - 00.
- COATING :- Cd3, CHROMATIZING AS PER UUA-104 WITH ELIMINATION OF HYDROGEN EMBRITTLEMENT.
- *DIMENSIONS FOR REFERENCE.

ⓐ Material: STEEL 709M40 (EN-19) TO BS-970 Pt-1-1983

USED ON:-
 Eb 20-01-00-B, Cb 20-06-12-6, Cb 20-06-13-6, Cb 20-09-07,
 Cb 20-19-00-1, Cb 20-11-00-6, Cb 20-12-00-13, Cb 20-13-01-8,
 Cb 20-20-00-10, Cb 20-22-00-7, Cb 20-08-00-7, Cb 3301-00-37,
 Cb 306-01-20, Cb 306-02-20, Cb 306-03-3, Cb 306-04-2, Cb 321-04-4, Cb 447-01-1,
 Cb 421-04-3, Cb 421-18-1, Cb 3301-00-44, Cb 3301-15-44, Cb 306-01-36,
 Cb 306-02-36, Cb 3308-15-2, Cb 3312-90-14, Cb 419-00-20, Cb 3320-00-43,
 Cb 315-663-33, Cb 3334-02-10, Cb 3336-00-11, Cb 337-100, Cb 3342-00-21

PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION.

EST. WT. 0,0055 Kg TO BE STAMPED OR MARKED WHERE INDICATED THUS # (LETTERS)

ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

ISSUE	DATE	NATURE OF AMENDMENTS
U	18.5.09	Authy: Third Alt. Comm. Minutes Point: 5 Dated 27-02-2009.
C	25.8.08	USED ON NUMBER ADDED
B	24-12-07	ALT. COMMITTEE MEETING MINUTES. POINT No. 2.18 Dt. 18-12-2007.
A	15-03-04	AUTHY. Lt. No.110094/IND-III/577, Dt. 19-02-04.

DRN Sd/=
 CHD Sd/=
 TCD Sd/=
 APPD Sd/=
 DATE 08-05-88

MATERIAL :-
 ⓐ 14-4 GOST 8560-78
 45-5 GOST 1051-73

CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES)
 AVADI

SCALE:- 2 : 1
 DIMENSIONS IN mm

TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS : 2102-69

ALL THREADS TO CONFORM TO

D S CAT NUMBER

DRAWING NUMBER
351 - 02