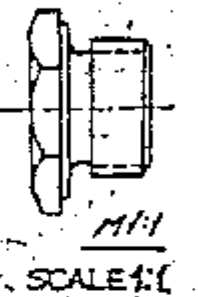
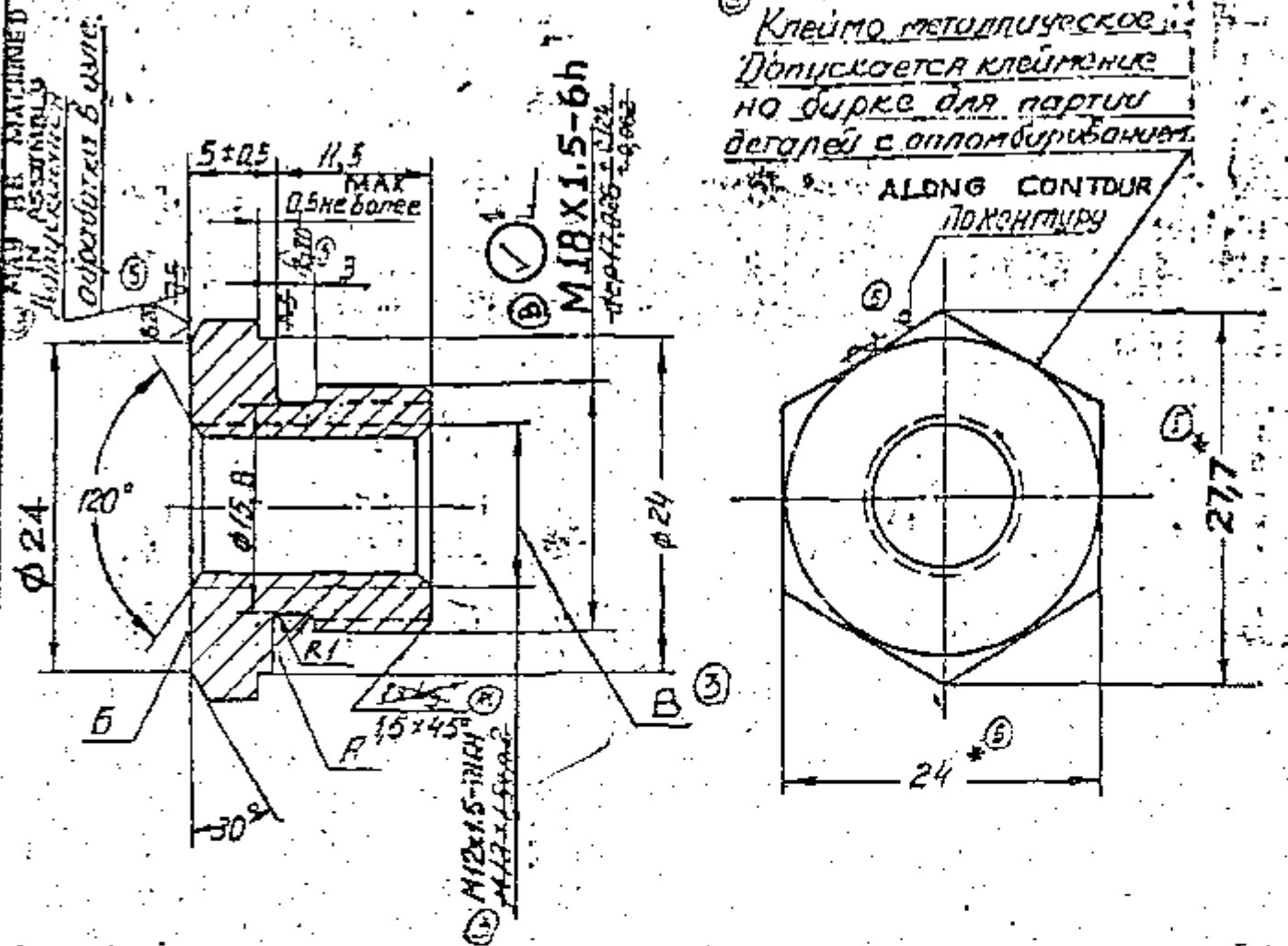


1-901-10E

TO BE PUNCHED, MARKING ON TAG FOR A BATCH OF COMPONENTS WITH PACKING AND SEALING IS PERMISSIBLE.

Клеймо металлическое
Допускается клеймение
но бирке для партии
деталей с опломбированием



Inspection group V
Tolerance on free dimensions are as per class 7 accuracy of OST 1010.
Tech. Requirements for thread are as per standard 82021-00.
End play on surface A relative to the axis of external thread should not exceed 0.1 mm on Ø 23. End play on surface B relative to the axis of internal thread should not exceed 0.15 mm on Ø 23. Thread dimensions are to be checked before coating, internal thread may not be coated. Sharp edges should be blunted, turning of face on Ø 26 C5 is permissible.
Coating is Cd 9 Cr as per ~~U.S. 569-84~~ with hydrogen embrittlement removed.
Alternate material-steel grades 40 and 50, Gost 1050-74

*Dimensions for reference.

ALTERNATE MATERIAL: STEEL 080M40 (EN B)
TO BS: 970 Pt. I-1983 OR 45 CB 70 IS: 1570

COA(HV)5.07.50E Cb 306-01-36 * CB-20-29-08-2
COA(HV)5.07.504E Cb 306-02-36 CB-3329-01-11
Cb 337-120 CB-3301-15-44
PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION

| | | | | |
|-------|----------|--|---|--|
| D | 9-6-09 | 3 rd ALTN. COMM. MINUTES POINT B. DT 27-2-09 | EST. MASS 0.022 Kg | TO BE STAMPED ON MARKED WHERE INDICATED THUS # |
| C | 9-9-08 | USED ON NUMBER ADDED | | |
| B | 20-5-98 | REPAIR SIZES ADDED | ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE | |
| G | | BK 82-207 | MATERIAL 24-5 GOST 8560-78 USED ON- CB 3301-15-30 * | |
| A | 25.12.08 | AUTHY BK 65-141 | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI | |
| ISSUE | DATE | NATURE OF AMENDMENTS | TITLE: BUSH | |
| DRN | 1/2 | SCALE: 2:1 | U.S. CAT NUMBER: 301-106-1 | |
| CHD | 3/11 | DIMENSIONS IN mm | DRAWING NUMBER: 301-106-1 | |
| TCO | 4 | TOLERANCE ON DIMS UNLESS OTHERWISE STATED | | |
| APPD | | ALL TOLERANCES TO COMPLY TO | | |
| ISSUE | DATE | NATURE OF AMENDMENTS | | |
| E | 5.3.14 | Authy. Point No.11 of 7 th Alt. Comm. Meeting at EFA. | | |

EXPLANATORY NOTE:-

MATERIAL QUOTED :- HEXAGONAL BAR 24-5 GOST 8560-78
45- GOST 1051-73.

ALTERNATE MATERIAL QUOTED :- 40 AND 50 GOST 1050-74.

BRIGHT STEEL HEXAGONAL FROM GRADE 45 STEEL WITH WIDTH ACROSS FLATS 24 mm; OF ACCURACY CLASS - 5 AS PER GOST 1051-73.

CHEMICAL COMPOSITION:-

| GRADE OF STEEL | CONTENT OF ELEMENTS % | | | | | | | |
|----------------|-----------------------|-----------|-----------|------|-------|-------|------|------|
| | C | Si | Mn | Cr | P | S | Cu | Ni |
| 40 | 0.37-0.45 | 0.17-0.37 | 0.50-0.80 | 0.25 | 0.035 | 0.040 | 0.25 | 0.25 |
| 45 | 0.42-0.50 | 0.17-0.37 | 0.50-0.80 | 0.25 | 0.035 | 0.040 | 0.25 | 0.25 |
| 50 | 0.47-0.55 | 0.17-0.37 | 0.50-0.80 | 0.25 | 0.035 | 0.040 | 0.25 | 0.25 |

MECHANICAL PROPERTIES:-

| GRADE OF STEEL | TENSILE STRENGTH | YIELD POINT | ELONGATION | REDUCTION IN AREA | IMPACT STRENGTH |
|----------------|---------------------|---------------------|------------|-------------------|-----------------------|
| | kgf/cm ² | kgf/mm ² | % | % | kgf.m/cm ² |
| 40 | 58 | 34 | 19 | 45 | 6 |
| 45 | 61 | 36 | 16 | 40 | 5 |
| 50 | 64 | 38 | 14 | 40 | 4 |

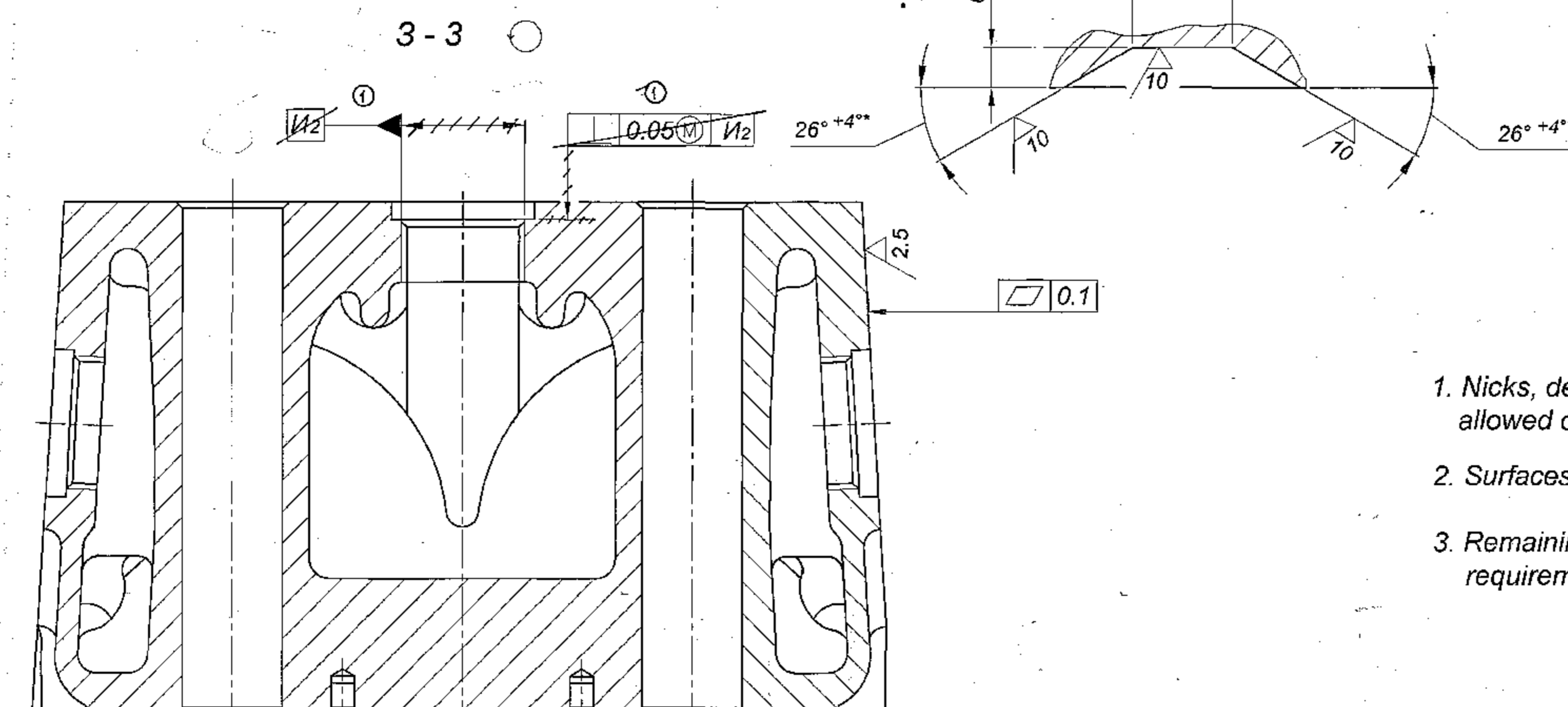
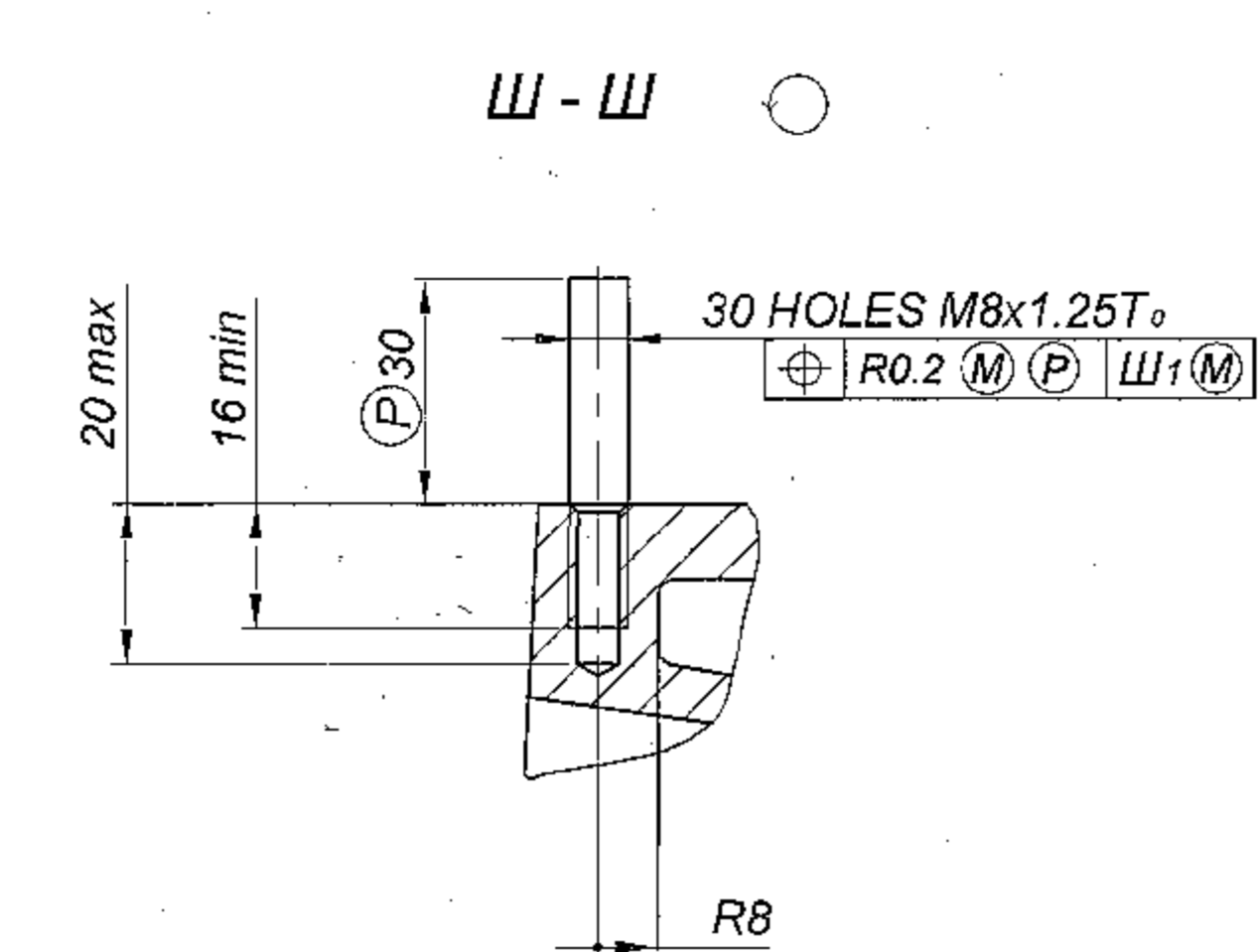
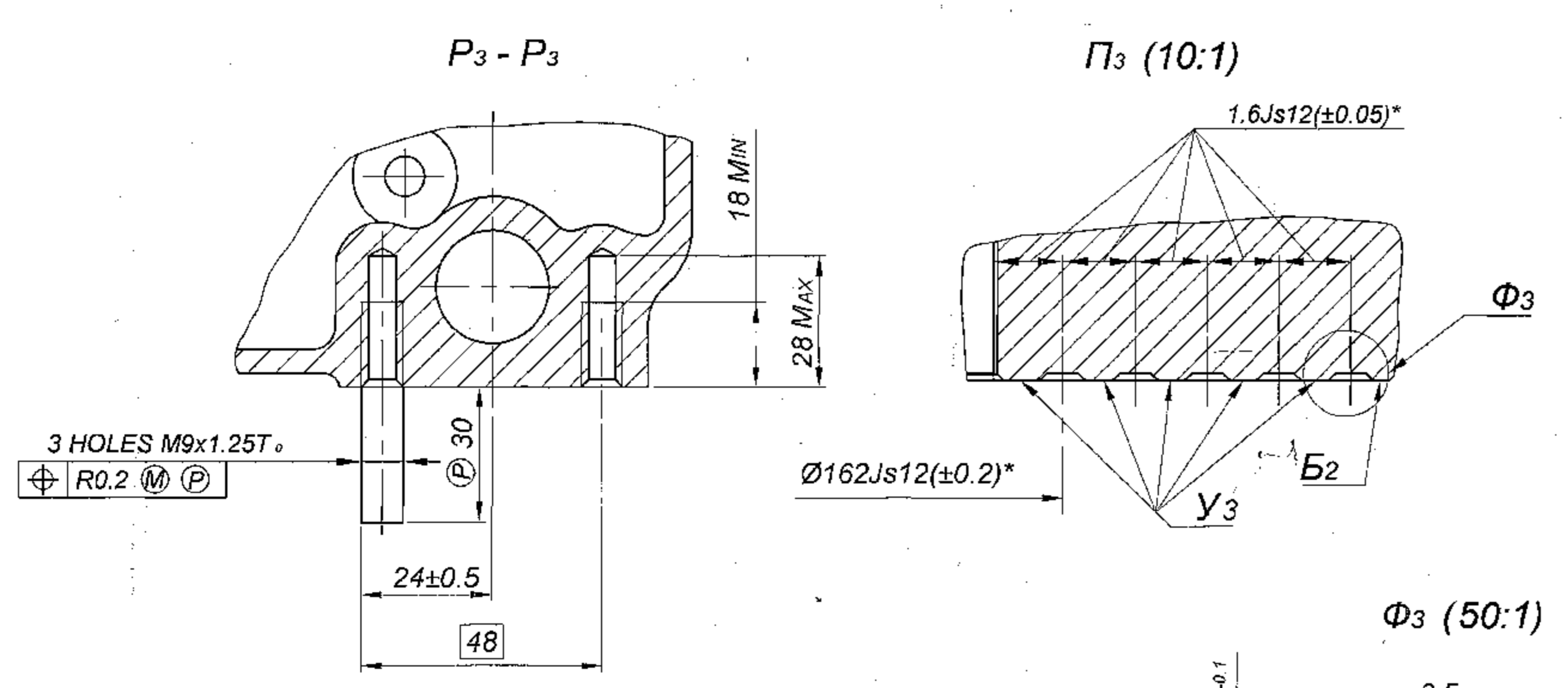
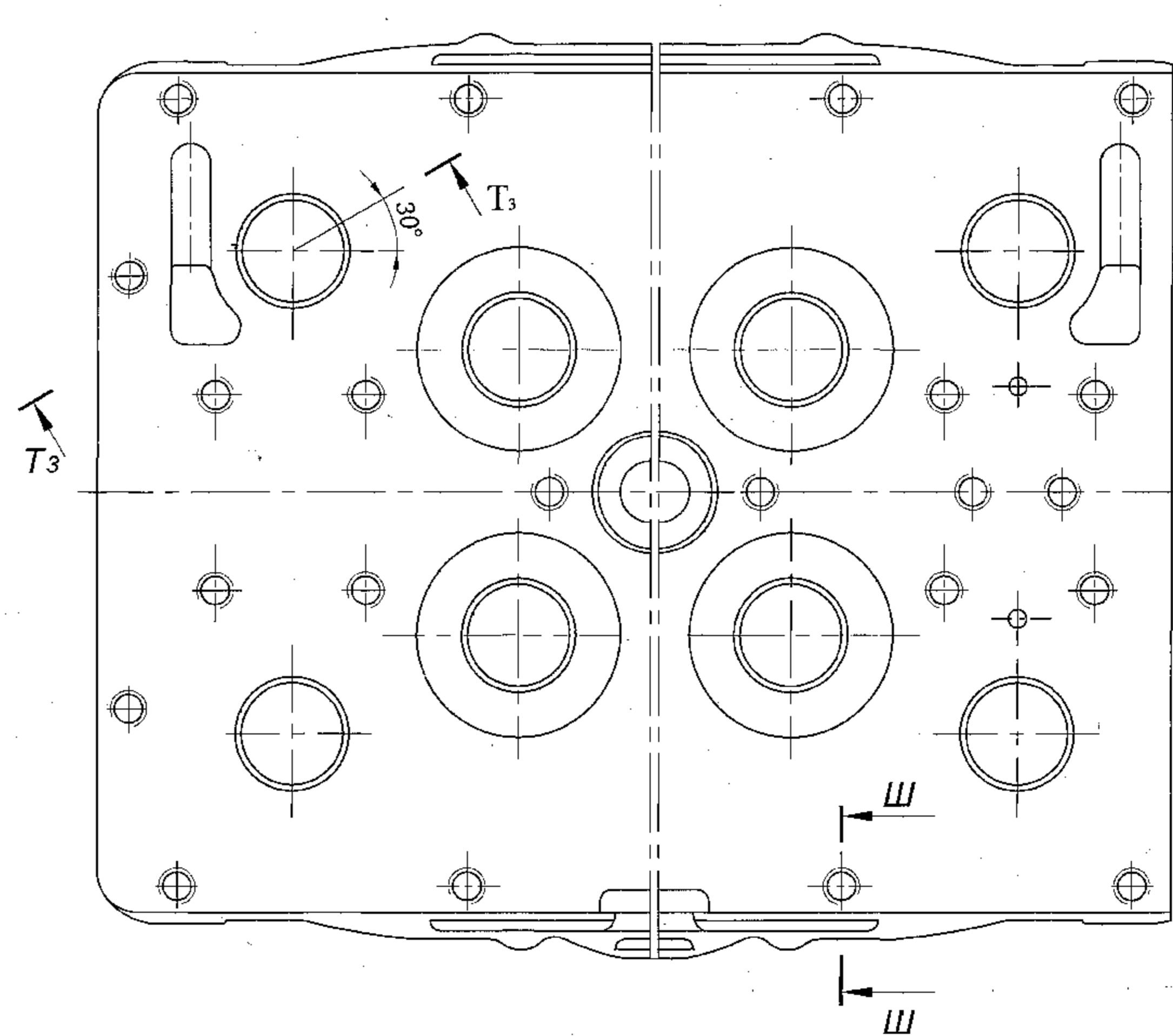
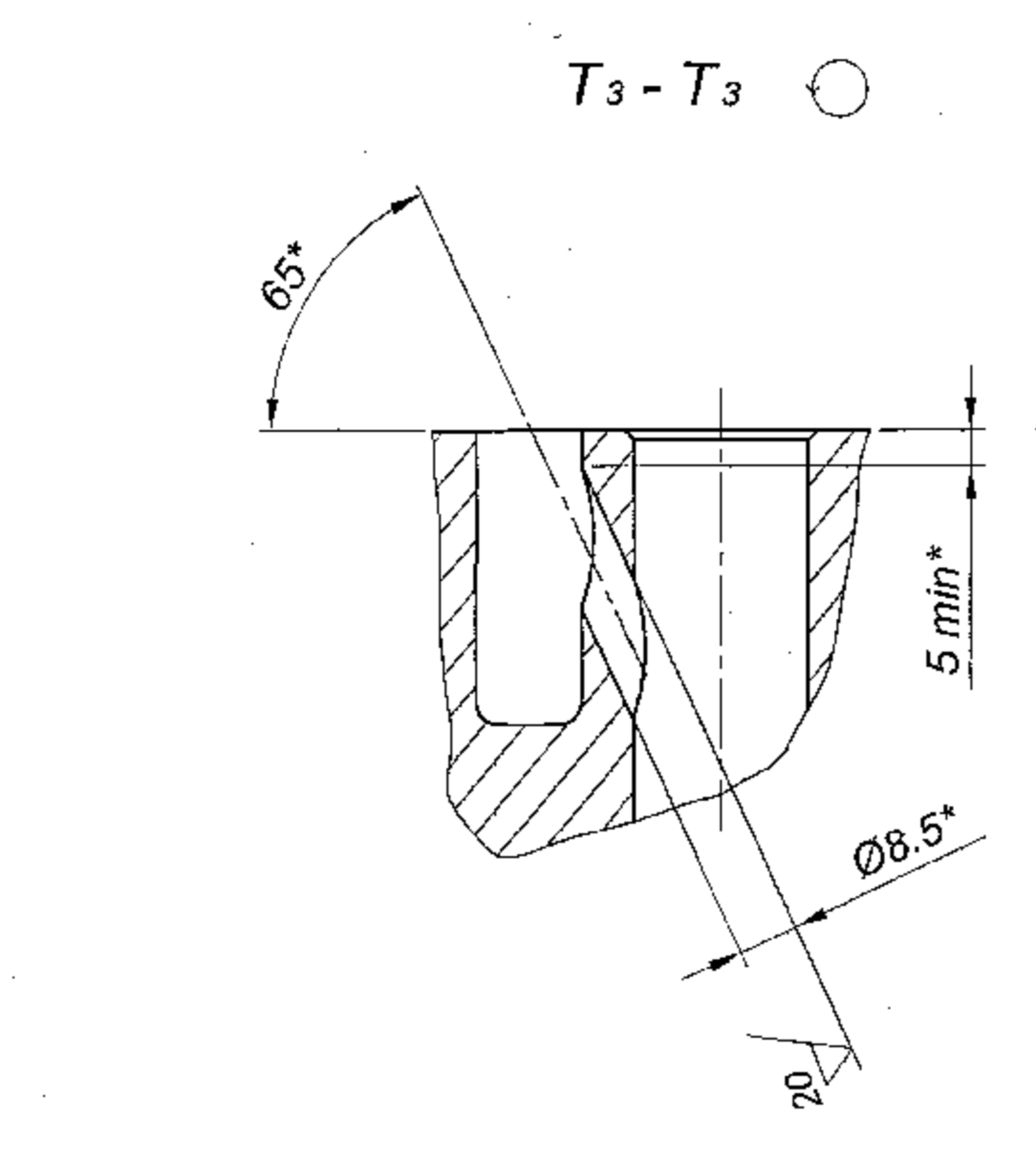
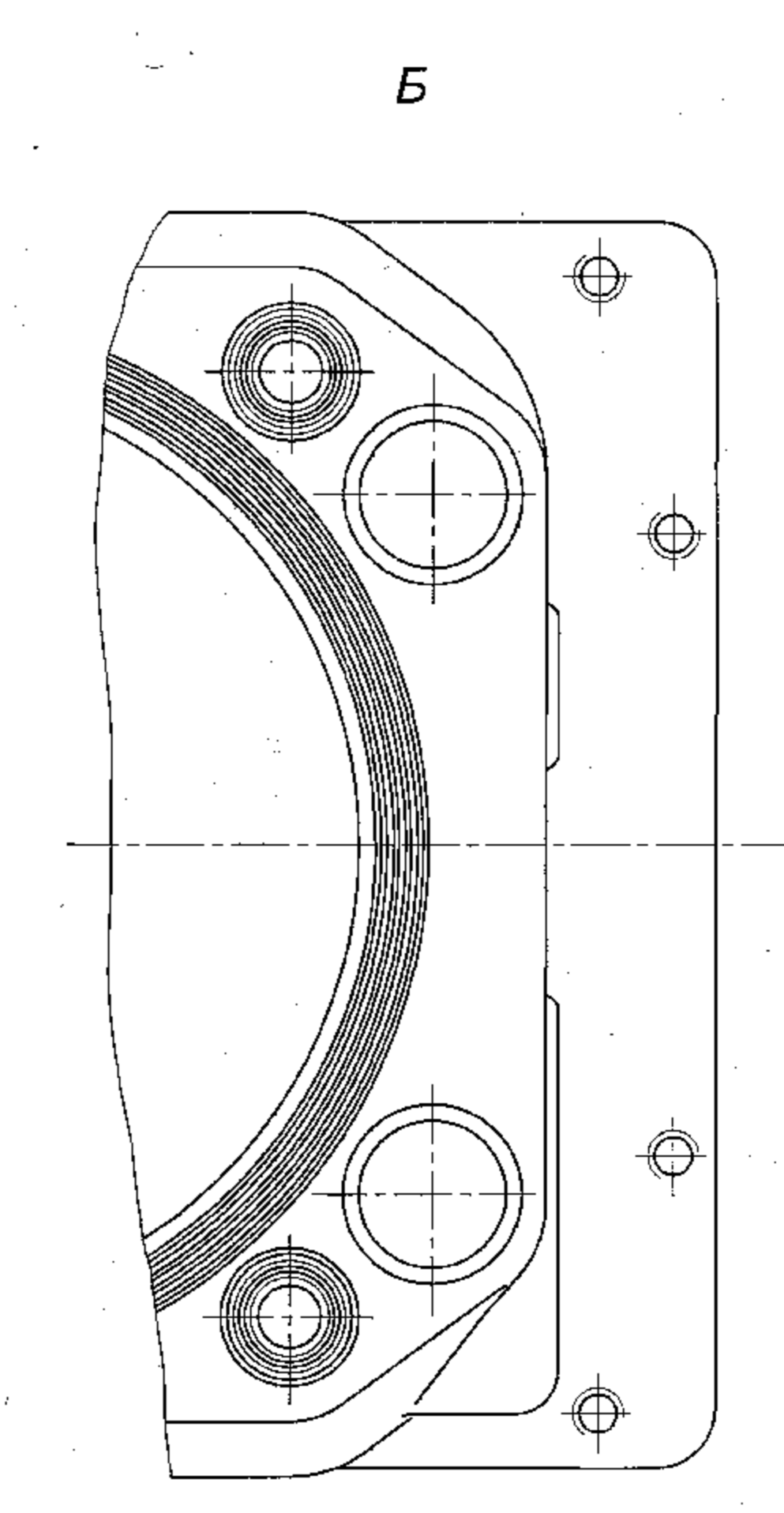
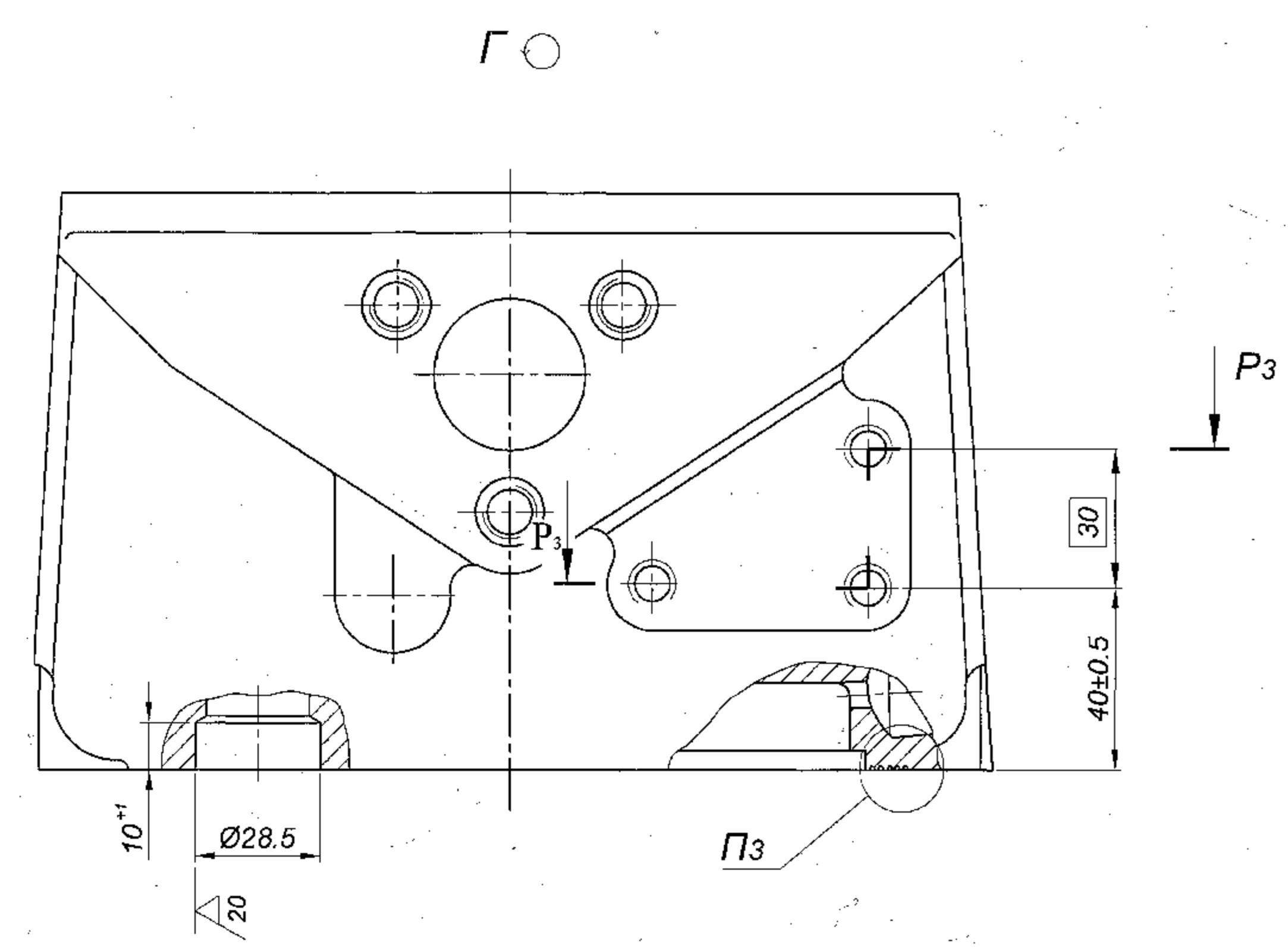
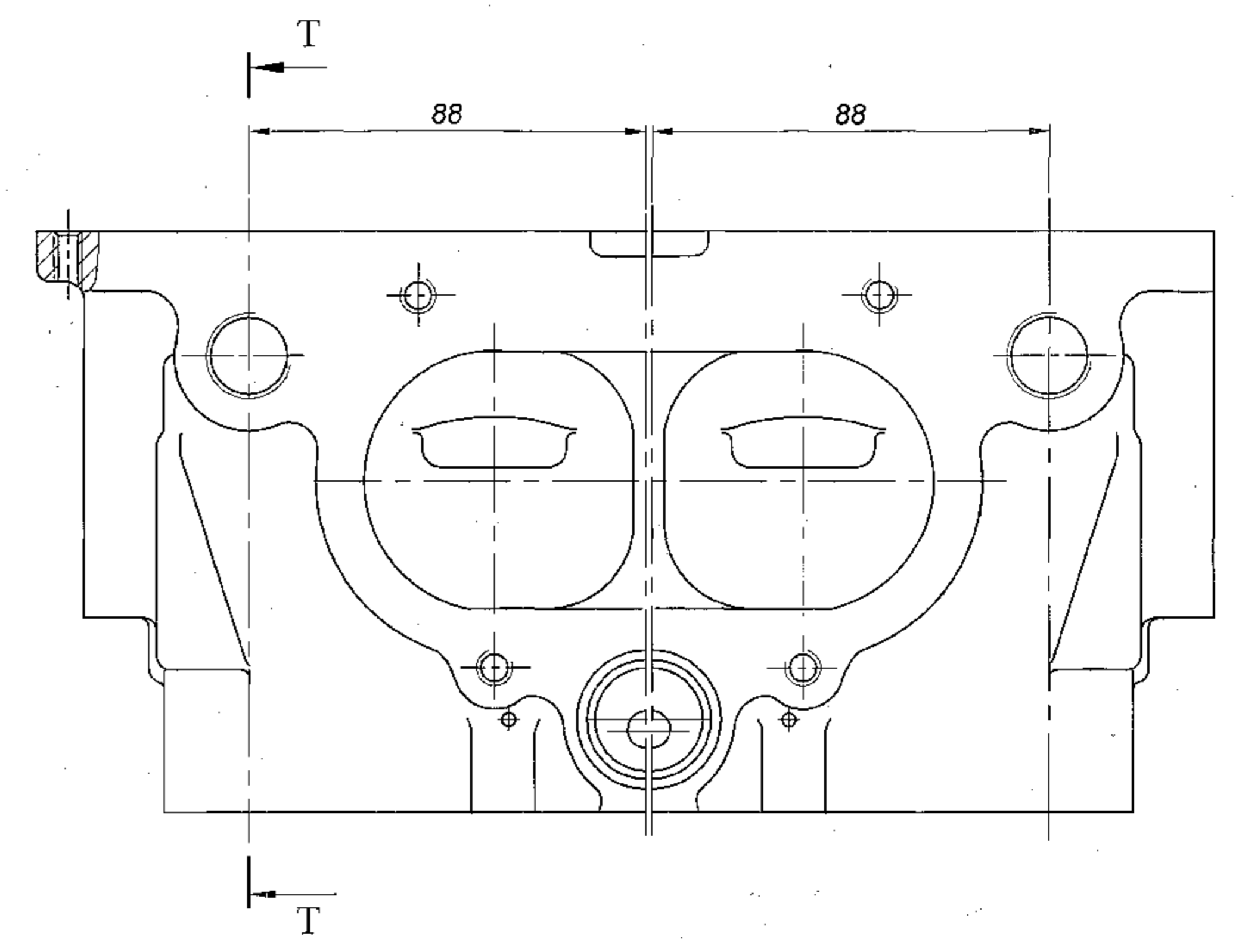
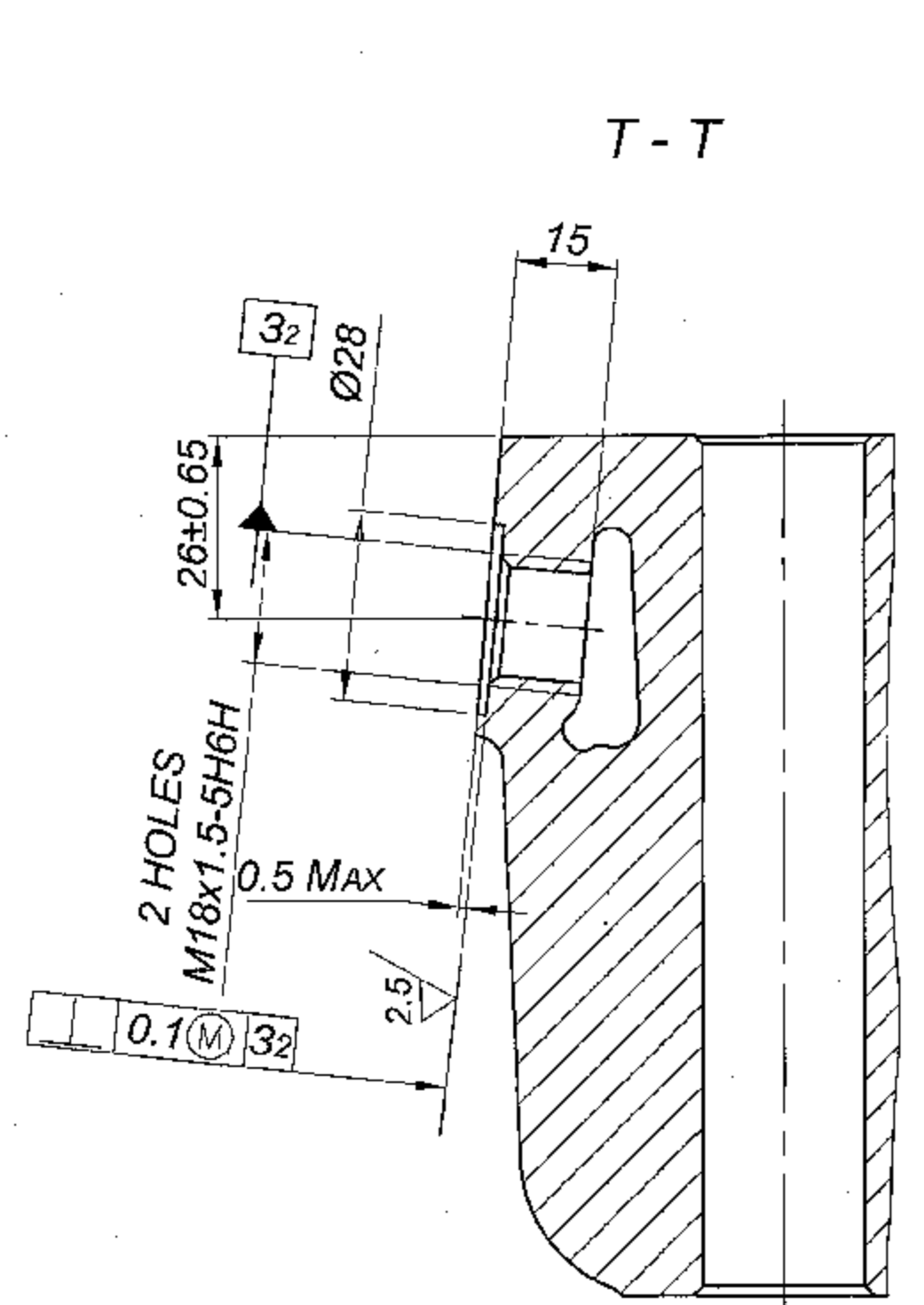
REPAIR SIZE DIMENSIONS ARE ADDED BASED ON LETTER NO: 82847/OH/GAS/ED. DT: 27 MAR 95 AS FOLLOWS:

REPAIR SIZE DIMENSION ADDED WHERE INDICATED THUS: (B)

| S/N | R | REMARKS |
|-----|------------|---|
| 1 | M20x1.5-6h | ALL OTHER CONDITIONS AS PER STD DRG. MARK REPAIR SIZE |

COMMON TO V-92S2 & UTD-20 ENGINES

A-2



1. Nicks, dents, marks, and fissures from machining are not allowed on the surface Y_3 .
2. Surfaces E_2 and Y_3 should be placed in one flatness.
3. Remaining-graph, dimensions, surface finish, technical requirements are as per drawing 306-16-23.

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

| | | |
|---|-------|--|
| EST. WT. | 36.61 | 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. OUT-SIDE R. INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE. | | |

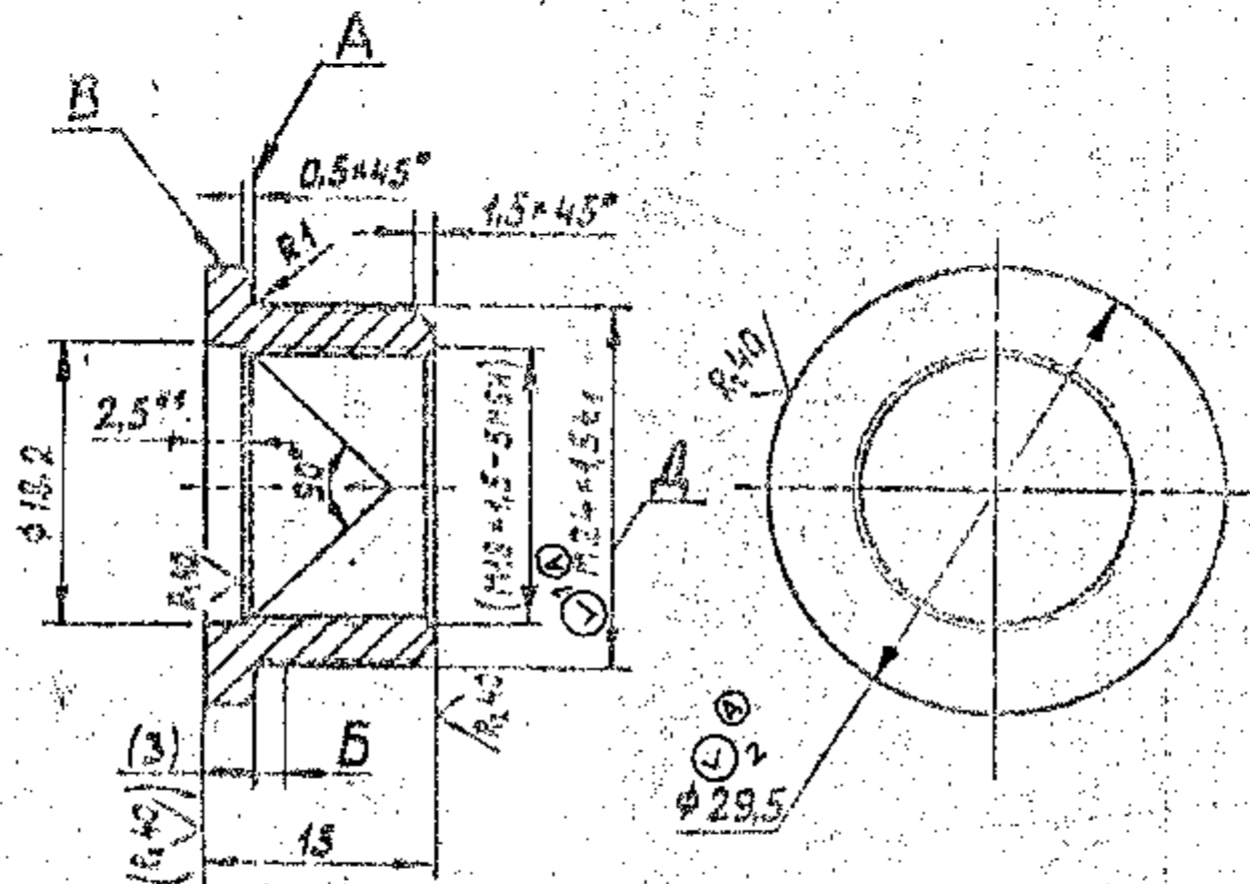
| | | | | | | | | | | |
|-----------------------------------|-----|------|------|-------|------------------|---|---------------------------|---------------------------|---------|--------------|
| DRN | CHD | APPD | DATE | SCALE | DIMENSIONS IN mm | TOLERANCE ON DIMS UNLESS OTHERWISE STATED IS: 2102-09 | ALL THREADS TO CONFORM TO | D S CAT NUMBER | USED ON | CL 306-01-36 |
| | | | | | | | | | | |
| MATERIAL: АК74(A119) GOST 1583-93 | | | | | | CONTROLLEDATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI | | TITLE: CYLINDER HEAD RH | | |
| NOT N. No 117-04. F-15 B | | | | | | DD CORRECTION | | DRAWING NUMBER: 306-16-28 | | |

DRG. INDIVANISED BASED ON RUSSIAN ORIGINAL ISSUE - NL

SIZE A0

7-51-902

2.57 (M)



1. ALTERNATE MATERIAL IS BRONZE OF THE FOLLOWING GRADES:
 Бр АЖ 9-4Л, Бр АЖ-МЛ10-3-105, ГОСТ 18175-78 AND BRASS
 АС 59-1, ГОСТ 15527-70.
2. REQUIREMENTS PLACED UPON CASTING ARE AS PER TTM 55-78.
3. UNSPECIFIED LIMIT DEVIATIONS OF DIMENSIONS ARE AS FOLLOWS:
 FOR HOLES - AS PER A₇
 SHAFTS - AS PER B₇
 OTHERS - AS PER CM₇.
4. IT IS PERMITTED TO PERFORM EXTERNAL DIAMETER OF HEAD B WITH TOLERANCE B₀ (-0.04) AND SURFACE ROUGHNESS R_a.
5. RUN OUT OF SURFACE A IN RESPECT TO AXIS OF ANGLE DIAMETER OF EXTERNAL THREAD AS PER DIAMETER OF 26mm SHOULD NOT EXCEED 0.05mm.
6. CHATTER MARKS ON THE FIRST THREAD FROM THE DEAD ARE PERMITTED.
7. NO THREAD OR FLATTENED THREAD IS ALLOWED ON SECTION B EQUAL TO 2mm, MAX. AND MAJOR DIAMETER OF THREAD ON THIS SECTION MAY BE LOOSENE D U P T O 0.3mm.
8. CARRY OUT FINAL MACHINING OF DIMENSIONS GIVEN IN BRACKETS IN ASSEMBLY.
9. MAKE THREAD A AS PER STANDARD 82020-13, ISSUE 4.
10. APPLY STAMP OF FINAL ACCEPTANCE ON THE TAG (PART 540-551) FOR BATCH OF PARTS AND SEAL.

(A) II. REPAIR SIZES DIMENSIONS ARE ADDED WHERE INDICATED. THUS (V)

*** ROD Бр А Ж 9-4 ГОСТ 1520-78
 (B) CQA(HV)5.06.605E * CB 306-01-20
 CQA(HV)5.06.609E * CB 306-02-20

| S.No | R1 | R2 | REMARKS |
|-------|---|---|--|
| (V) 1 | 2M 27x1.5 ± 0.124 Ø26-026+0.062 (MEAN) | 2M 30x1.5 ± 0.124 Ø29-026+0.062 (MEAN) | 1. MARK REPAIR SIZE CATEGORY R1, R2 |
| (V) 2 | Ø32.5 -0.84 | Ø35.5 -0.84 | 2. ALL OTHER SIZES SURFACE FINISH MATERIAL AND TECHNICAL REQUIREMENTS ARE SAME |

BASED ON LETTER No. B2847/0H/QAD/ED DT 13-1-95

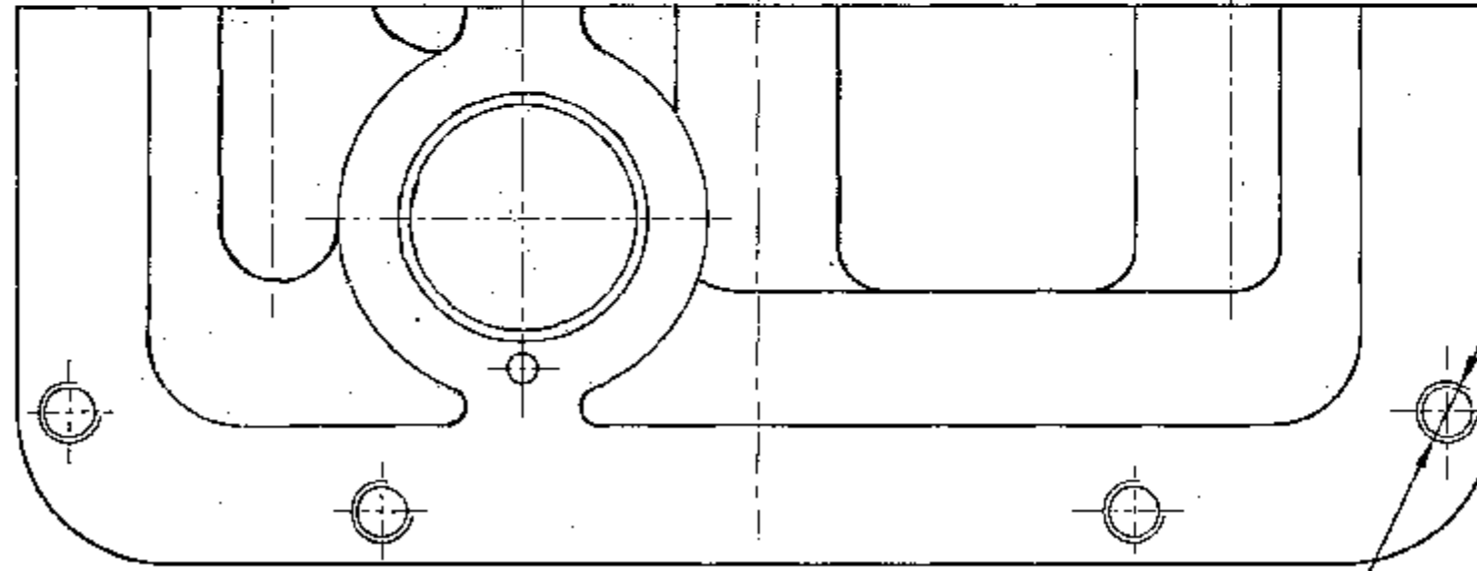
PRINT STAMP SHOULD BE APPROVED BY A MAN RECORDS AND ENGINEERING

| | |
|---|--|
| EST. MASS 0,030 Kg | TO BE STAMPED BY PLANT SHOP WHEN THIS IS |
| B 15.715 Pt. 11 of 7th Alt. Com. Meeting Dt. 11.4.12 | ALL STAMP EDGES AND CORNERS TO BE DEBURR DRESS |
| A 205.86 REPAIR SIZES ADDED | OVERSHINE STAMPED ENGRAVED TO HAVE A DISTINCT |
| DATE | A HIGH EQUIVALENT FINISH BY PERIODIC |
| NATURE OF ASSIGNMENT | MATERIAL USED DT 15-06-07-5 |
| SCALE: 2:1 | * * * SEE ABOVE 15-20-06-01-05 *** |
| DIMENSIONS IN mm | CONTROL UNIT OF INSPECTION HEAVY VEHICLE AVAIL |
| TOLERANCE ON HOLE DRESS OTHERWISE STATED | STARTING VALVE BUSH |
| PER THREADS CATEGORY | 0.5 CALIBER |
| DATE 18.26.07 | DRAWING NUMBER 306-19-7 |

DRAWING NUMBER
306-20-4

SHEET No. 1 OF 1

1. Remaining sketch, dimensions, surface finish,
technical requirements as per drawing 306-20-2



4 HOLES
M8x1.25T.

DRG. INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - NIL

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

EST. WT. (Kg) TO BE STAMPED OR MARKED WHERE
INDICATED THUS # (LETTERS)
0.73

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

| ISSUE | DATE | NATURE OF AMENDMENTS |
|-------|----------|----------------------|
| A | 09.07.08 | DO CORRECTION. |

| | | | | | |
|---|-------------|--|------------------------|-----------------------------------|--------------|
| DRN | 306-20-4 | MATERIAL :- | AK74(A19) GOST 1583-93 | USED ON :- | CB 306-01-36 |
| CHD | R. Babitska | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI | | | |
| APPD | [Signature] | | | | |
| DATE | 02/2/07 | TITLE :- (A) INCLINED SHAFT BOX RH | | | |
| SCALE:- 1:1 | | DIMENSIONS IN mm | | D S CAT NUMBER | |
| TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS : 2102-69 | | ALL THREADS TO CONFORM TO | | DRAWING NUMBER 306-20-4 | |

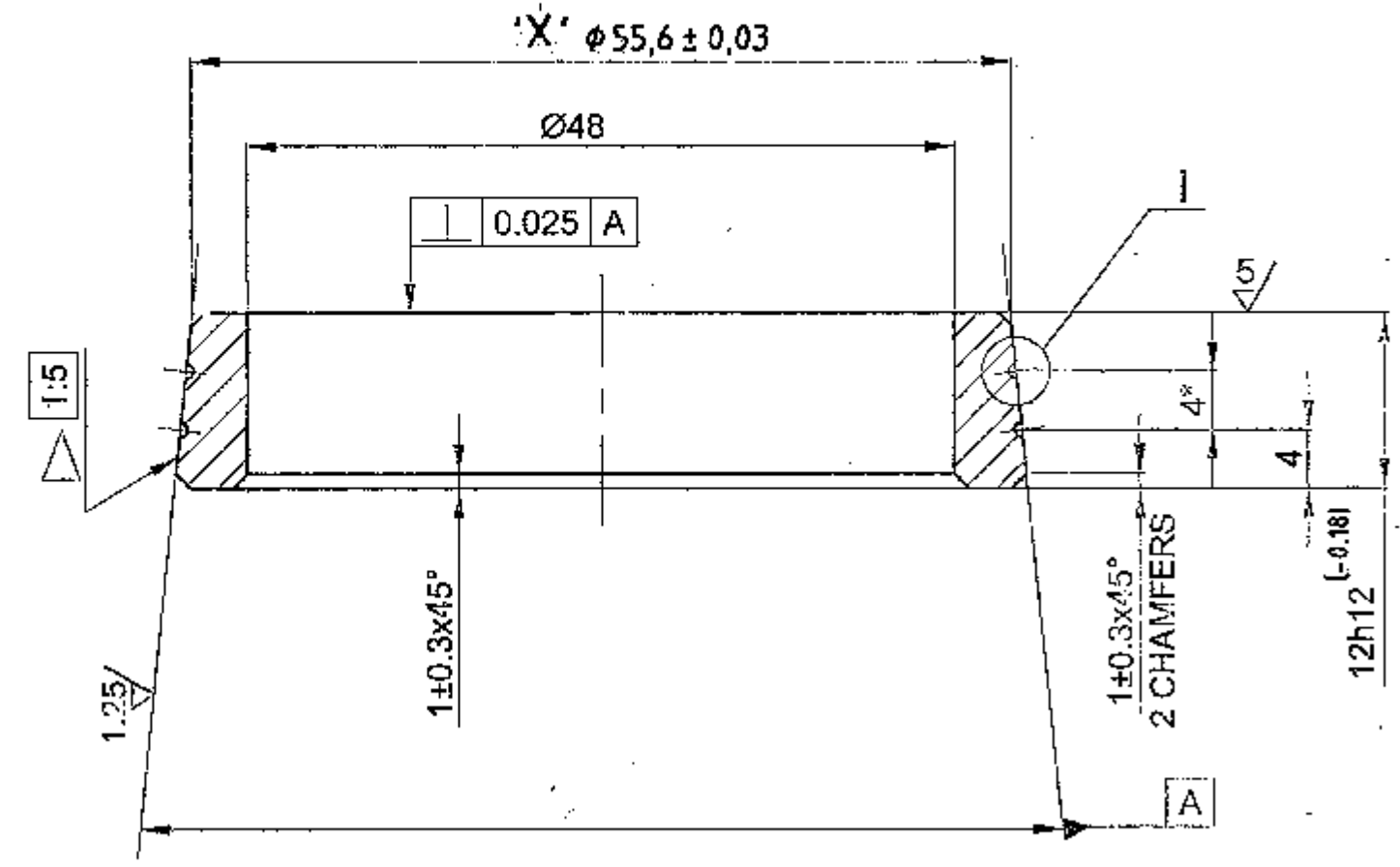


SIZE A3

DRAWING INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - 13
 DRG. REPLACES 306-22-1, ISSUE - A VIDE NOTIFICATION NO: 89-361
 COMMON TO V-92SZ & UTD-20

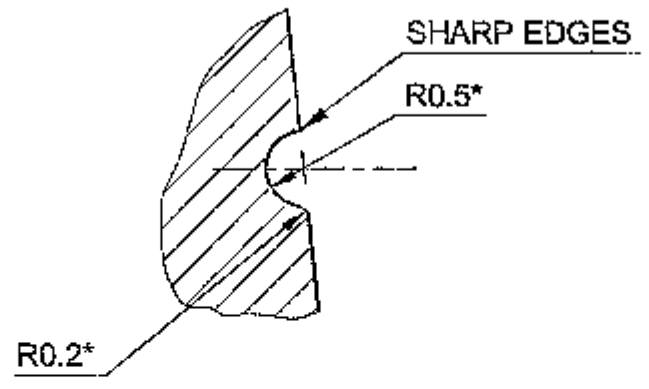
DRAWING NUMBER
306-22-1

10 / (✓)



1. Inspection group IV as per TT-11.
2. Hardness 269.....321 HB.
3. Alternative material is steel 38XC GOST 4543-71.
4. Coating : Chemically oxidized,oiled.
5. Unspecified limit deviation of dimensions H14,± $\frac{IT14}{2}$.
6. Deviation from the taper surfaces 'A' to be checked by "bluing" with special gauge, the imprint should be uniform and cover the length of the cone minimum 80 % of the area.
7. *Dimension to be ensured by tool.

1 (10:1)



| CATEGORY | | X |
|----------|----------------|-----------------|
| 306-22-1 | R ₁ | DIA 55,7 ± 0,03 |
| 306-22-1 | R ₂ | DIA 55,8 ± 0,03 |

NOTE: R₂ SIZE IS "APPLICABLE ONLY" FOR V46-6 & UTD-20 ENGINES.

**
 (13B) CQA(HV)5.06.605E
 CQA(HV)5.06.609E

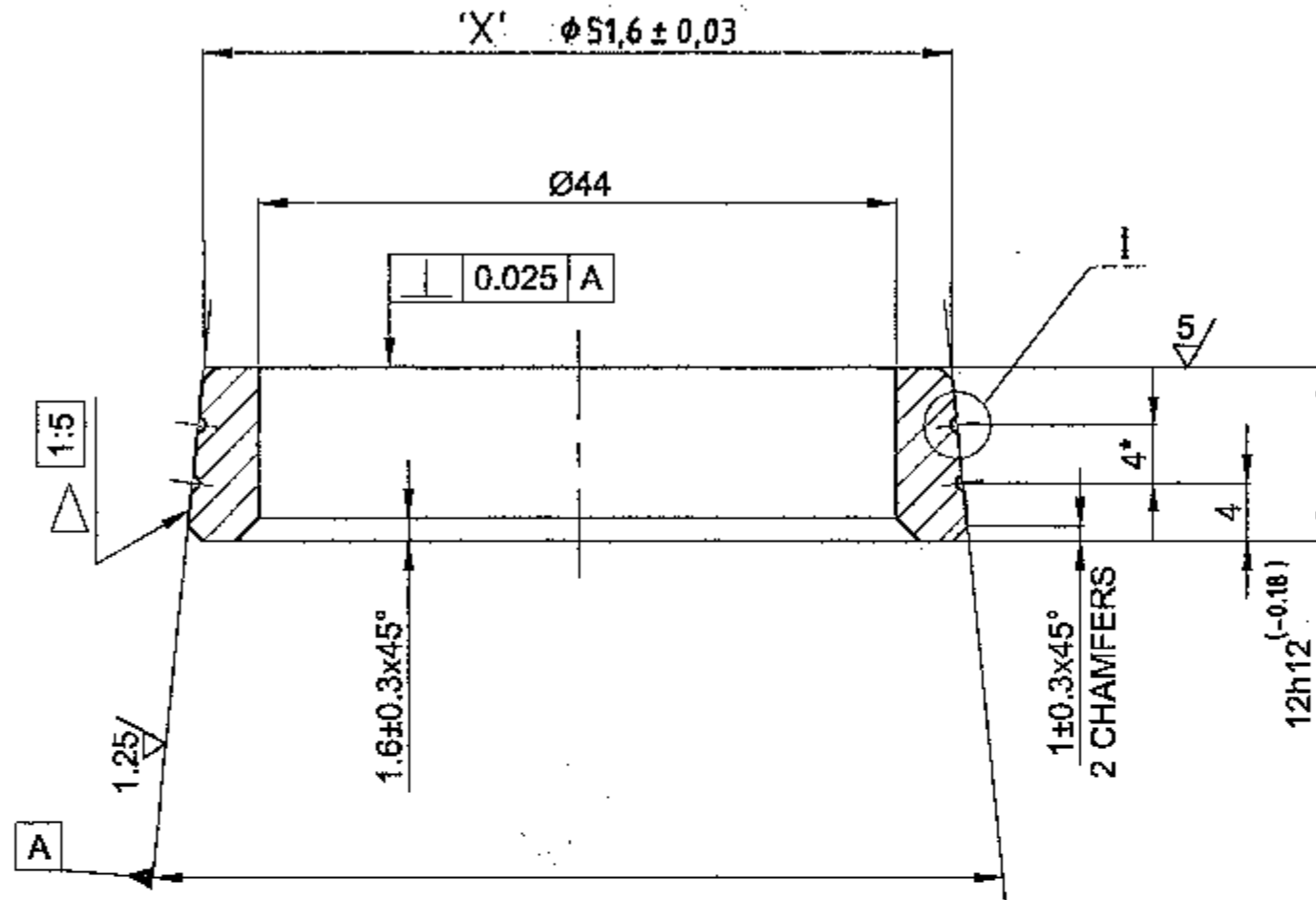
| | | | | | |
|--|---|---|------------------|--|--------------------------------|
| PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION. | | DRN | <i>B. A. ...</i> | MATERIAL :- PIPE | USED ON :- Sb 20-06-01-5 |
| EST. WT. 0.065Kg | TO BE STAMPED OR MARKED WHERE INDICATED THUS # (LETTERS) | CHD | <i>R. ...</i> | 60x8GOST 8732-78 | Sb 20-06-02-5, SB 306-01-20, |
| ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUT-SIDE R INSIDE. EQUIVALENT CHAMFERS ARE PERMISSIBLE. | | APPD | <i>...</i> | B-40X GOST 8731-87 | Sb 306-02-20, Sb 306-01-36, ** |
| | | DATE | 31.12.07 | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI | |
| | | SCALE:- | 2 : 1 | TITLE :- | |
| | | DIMENSIONS IN mm | | VALVE SEAT | |
| | | TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS : 2102 - 69 | | D S CAT NUMBER | |
| | | ALL THREADS TO CONFORM TO | | DRAWING NUMBER | |
| | | | | 306-22-1 | |
| 8 | 7 | 6 | ISSUE | DATE | NATURE OF AMENDMENTS |

F-153
 12
 74
 SIZE A3

DRAWING INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - 14
 DRG. REPLACES 306-23-1 ISSUE - A, VIDE NOTIFICATION NO: 89-361
 COMMON TO V-9252 & UTD-20

DRAWING NUMBER
306-23-1

10 ✓ (✓)



1. Inspection group IV as per TT-11.
2. Hardness 269.....321 HB.
3. Alternative material is steel 38XC GOST 4543-71.
4. Coating: Chemically oxidized, oiled.
5. Unspecified limit deviation of dimensions $H14, \pm \frac{IT14}{2}$.
6. Deviation from the taper surfaces 'A' to be checked by "bluing" with special gauge, the imprint should be uniform on cone length and cover minimum 80 % of the area.
7. *Dimension to be ensured by tool.

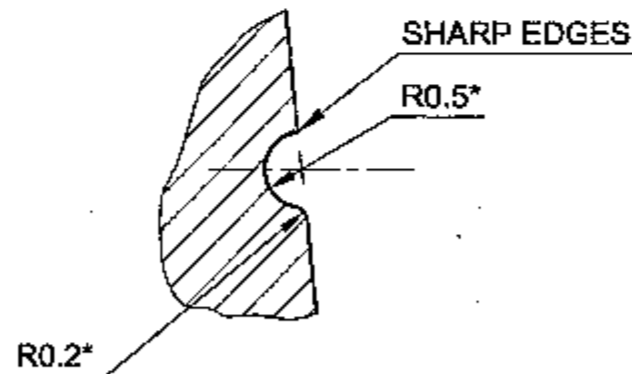
14A

| CATEGORY | X |
|-------------------------|-----------------|
| 306-23-1 R ₁ | DIA 51,7 ± 0,03 |
| 306-23-1 R ₂ | DIA 51,8 ± 0,03 |

NOTE: R₂ SIZE IS "APPLICABLE ONLY" FOR V46-6 & UTD-20 ENGINES.

**

14B CQA(HV)5.06.605E
 CQA(HV)5.06.609E

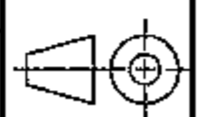


PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION.

EST. WT. **0.055 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 OUT-SIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

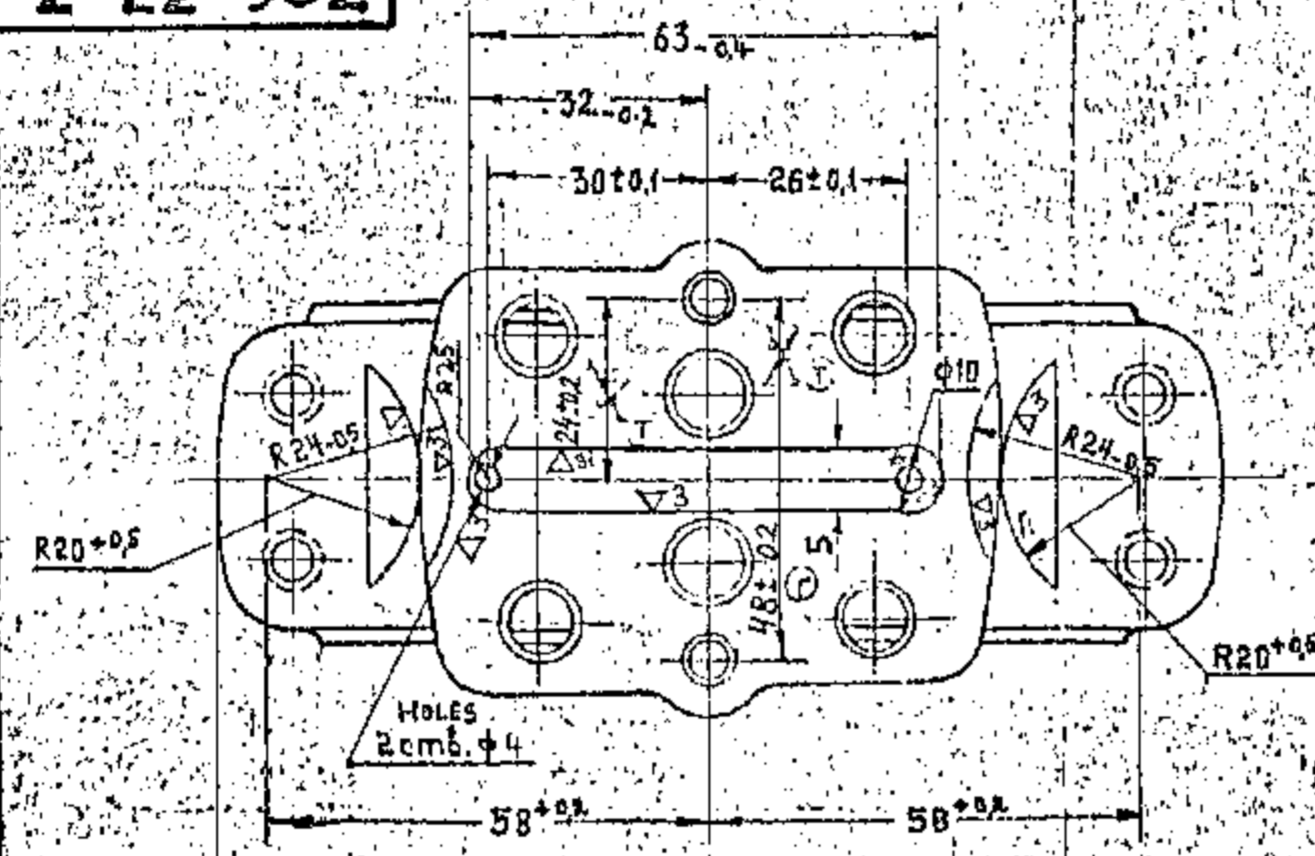
| ISSUE | DATE | NATURE OF AMENDMENTS |
|-------|----------|---|
| 14B | 15.7.15 | Pt. 11, 7 th Alt. Comm. Meeting Dt. 11.4.12 |
| 14A | 24-03-10 | i) Lt. No. EFA/P/RDS/CQA(HV)/23. Dt: 20-3-10 ii) Authy: SPECN. FOR REPAIR SIZE DRGS PART-III |

| | | | |
|---|--------------------|---|-----------------------------------|
| DRN | <i>B. J. B. B.</i> | MATERIAL :- PIPE | USED ON :- Sb 20-06-01-5 |
| CHD | <i>R. P. B. B.</i> | 56x8 GOST 8734-75 | ** Sb 20-06-02-5 |
| APPD | <i>Sumit.</i> | B-40X GOST 8733-87 | Sb 306-01-20, Sb 306-02-20 |
| DATE | 31-12-07 | | Sb 306-01-36, Sb 306-02-36 |
| SCALE:- | 2:1 | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI | |
| DIMENSIONS IN mm | | TITLE :-  VALVE SEAT | |
| TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS : 2102 - 69 | | | |
| ALL THREADS TO CONFORM TO | | D S CAT NUMBER | DRAWING NUMBER 306-23-1 |

F-153
 13
 74

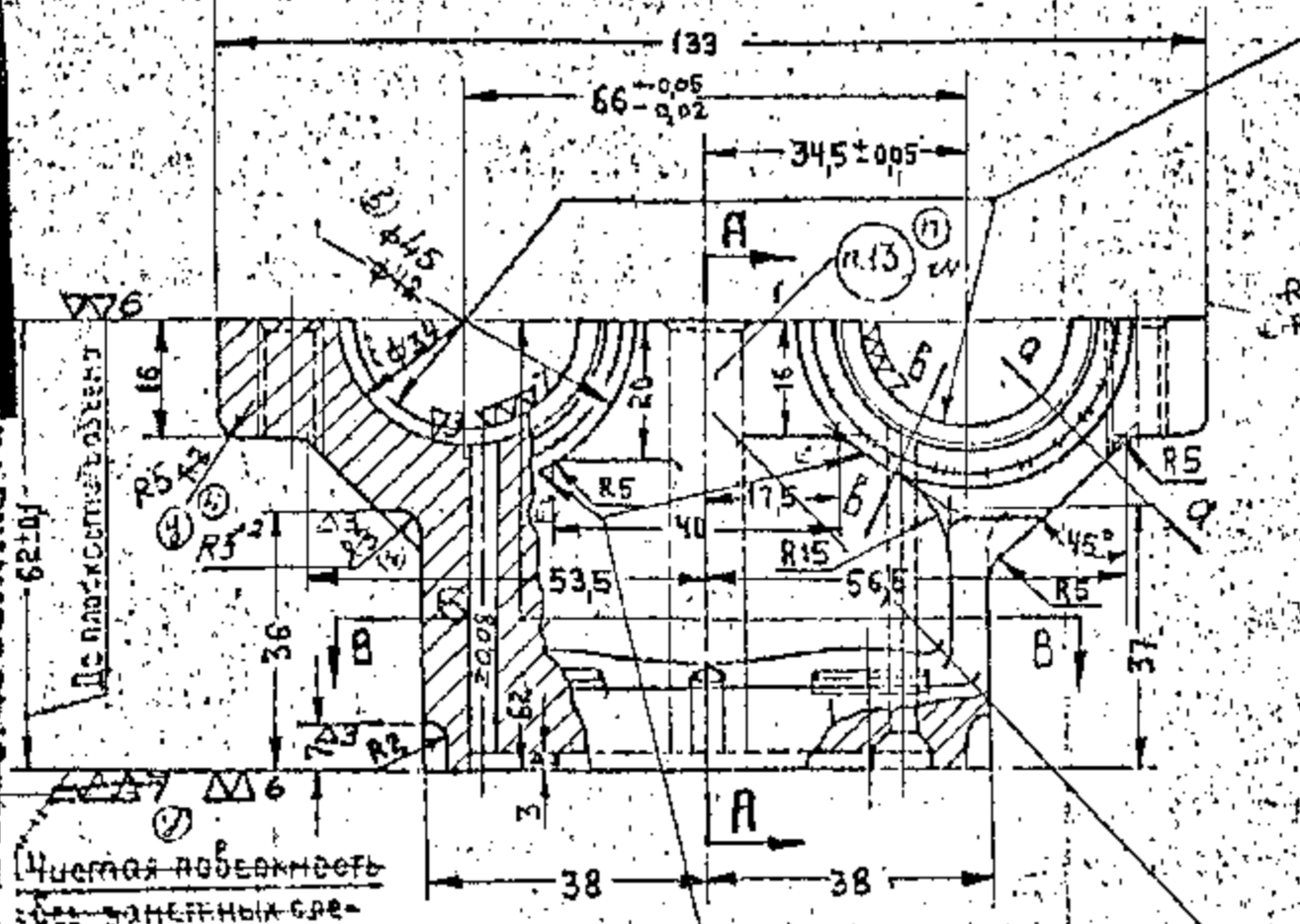
SIZE A3

~(V3V4V6V7)~



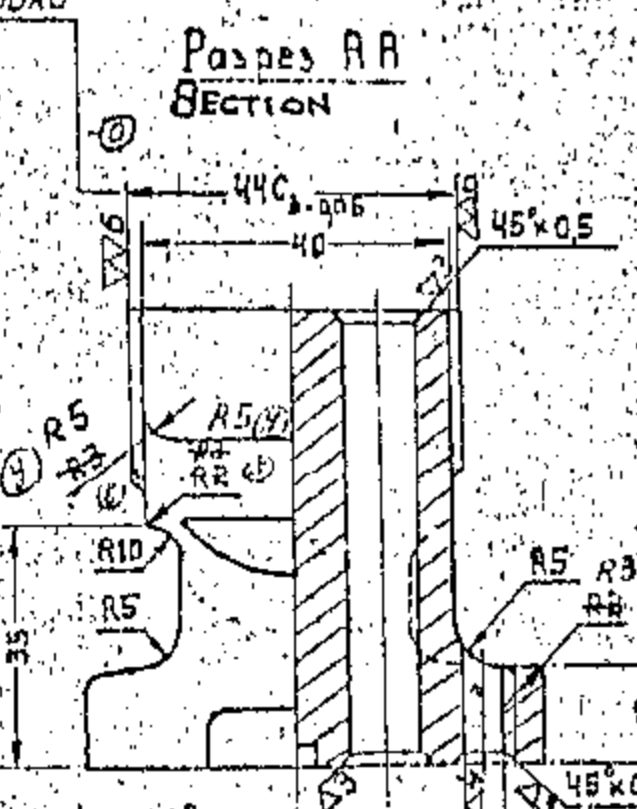
TO BE FINISHED AFTER THE ASSEMBLY OF CYLINDER HEAD

φ30x+0.02 окончательная обработка в виде блока



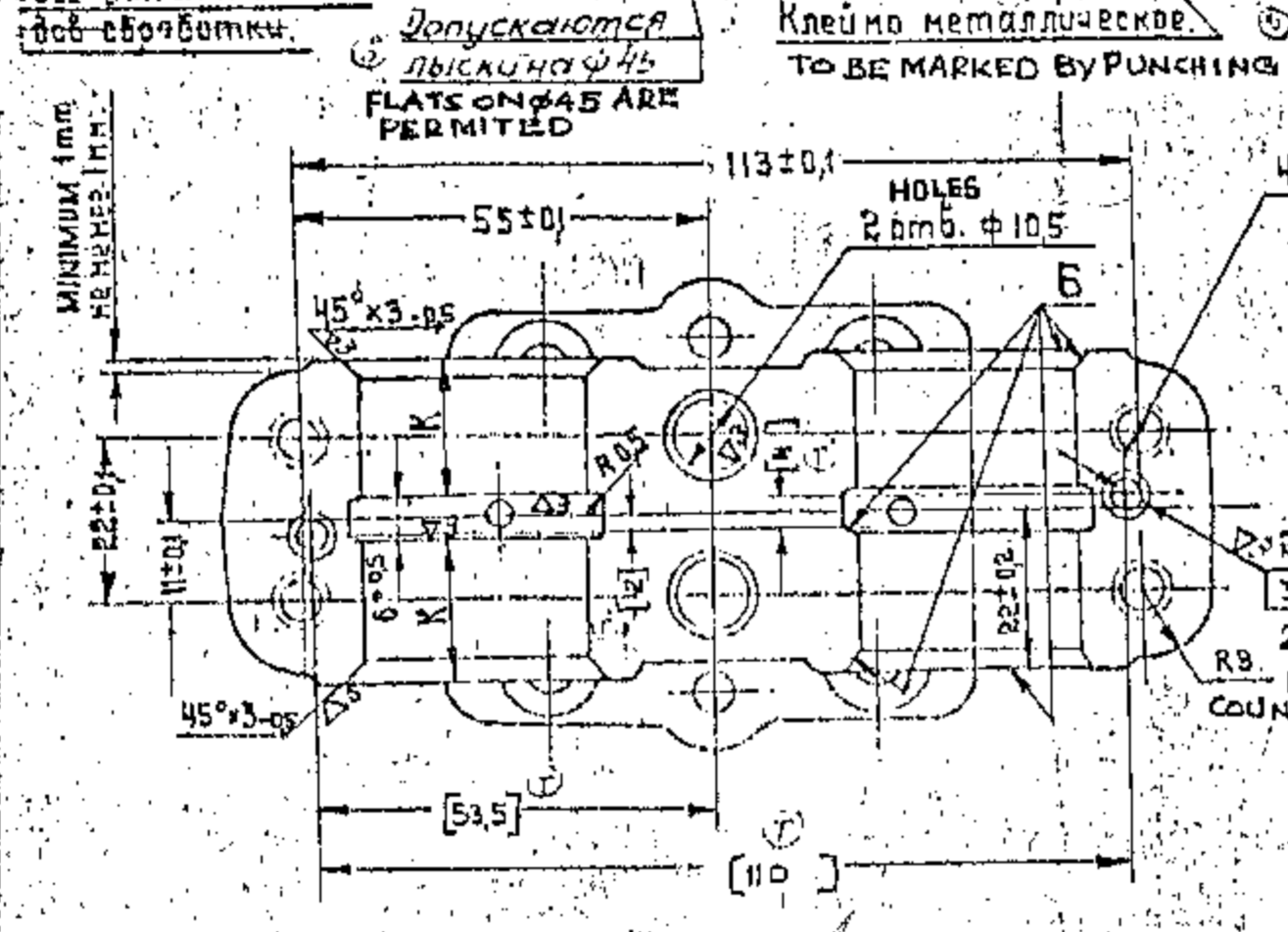
Сечение BB SECTION

Сечение AA SECTION



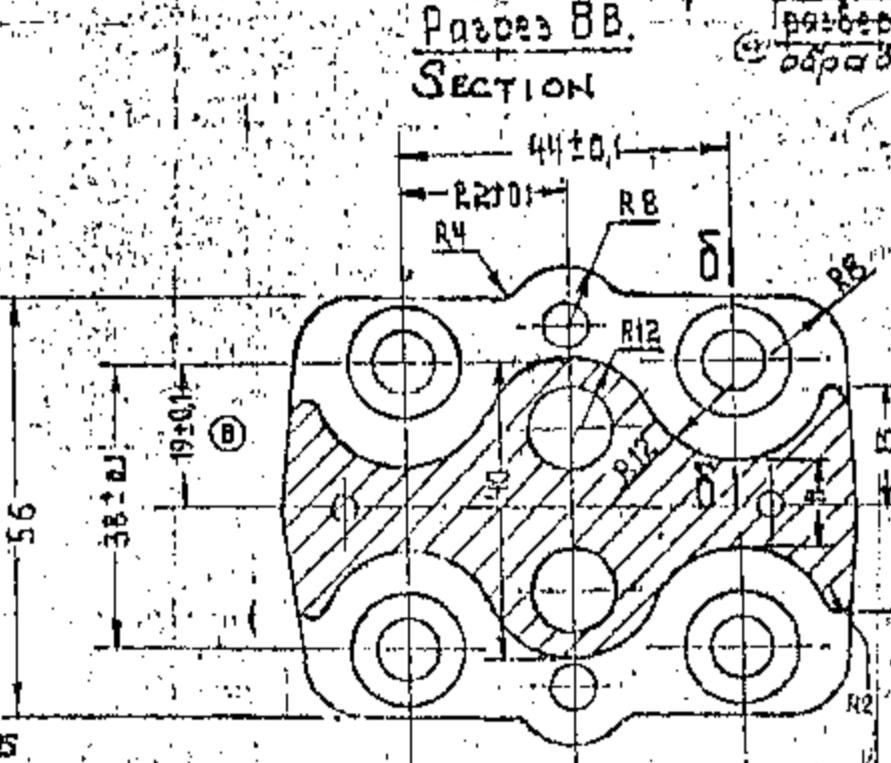
Разрез AA SECTION

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

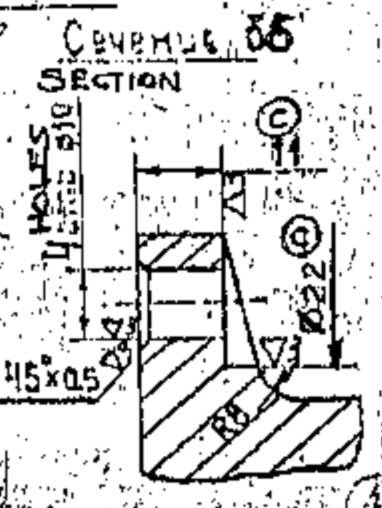


HOLES 2 amb. 18x1.25 to

2 amb. φ3.8±0.1, 10±0.1, 38±0.1, 19±0.1, 56, 38±0.1, 19±0.1, 26, R2



Разрез BB SECTION



Сечение BB SECTION

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.

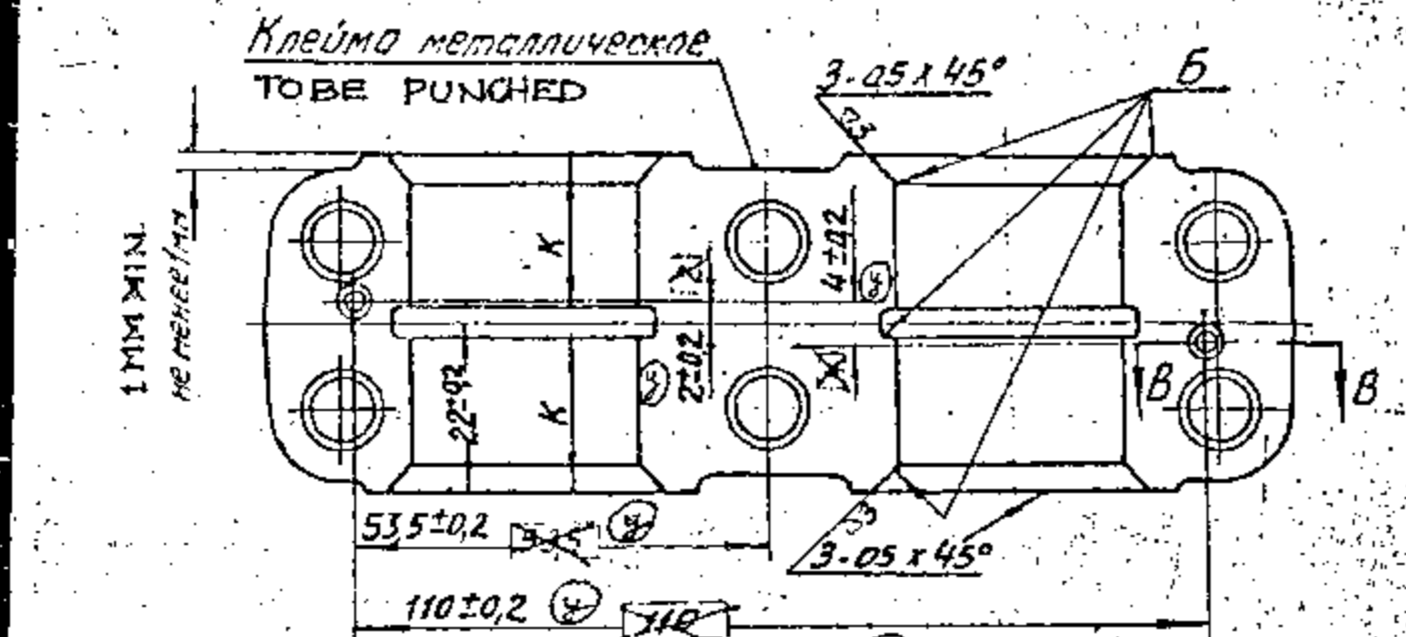
Участок подверженности коррозии

Допускается лысина φ45 FLATS ON φ45 ARE PERMITTED

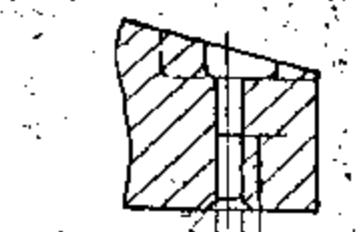
Клеймо металлическое TO BE MARKED BY PUNCHING

| | | |
|-------------|---|--|
| EST. MASS | 0.460 Kg | TO BE STAMPED OR MARKED WITH INDICATED FIGS & LETTERS |
| C | 11.9.80 | D.O. CORRECTION |
| B | 11.12.89 | D. O. CORRECTION |
| A | 05.12.88 | AUTHY BK 65-897 |
| ISSUE DATE | NATURE OF AMENDMENTS | FEDERAL AI GOST 4784-78 (A) (B) (C) STAMPING |
| DRN | SCALE 1:1 | CONTINUED DATE OF QUALITY ASSURANCE (HEAVY VEHICLES) A V A H I |
| CID | DIMENSIONS IN mm | TITLE: THRUST BEARING BASE FOR CAMSHAFT |
| YCD | TOLERANCE OF DIMS UNLESS OTHERWISE STATED | U.S. CAT NUMBER |
| APPD | ALL THREADS TO CONFORM TO | DRAWING NUMBER |
| DATE 5/1/88 | | 306-37-3 |

1-8E-90E



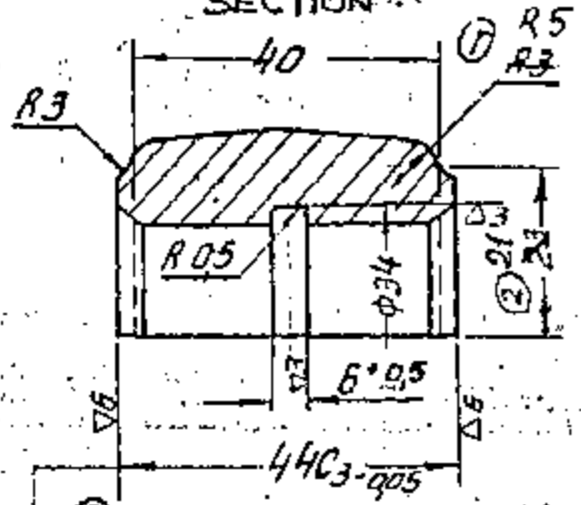
Разрез ВВ
SECTION



2 отв. φ4A ± 0.013
вместить на
глубине 10 мм

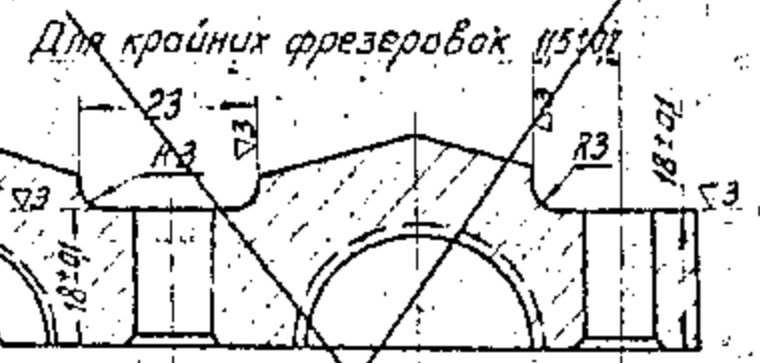
2 HOLES φ4A ± 0.013
TO BE MAINTAINED
AT 10MM DEPTH

Разрез АА
SECTION

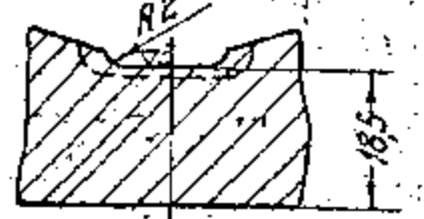


Окончательно обработать
в узле головки блока
TO BE FINISH MACHINED AFTER
ASSEMBLY OF

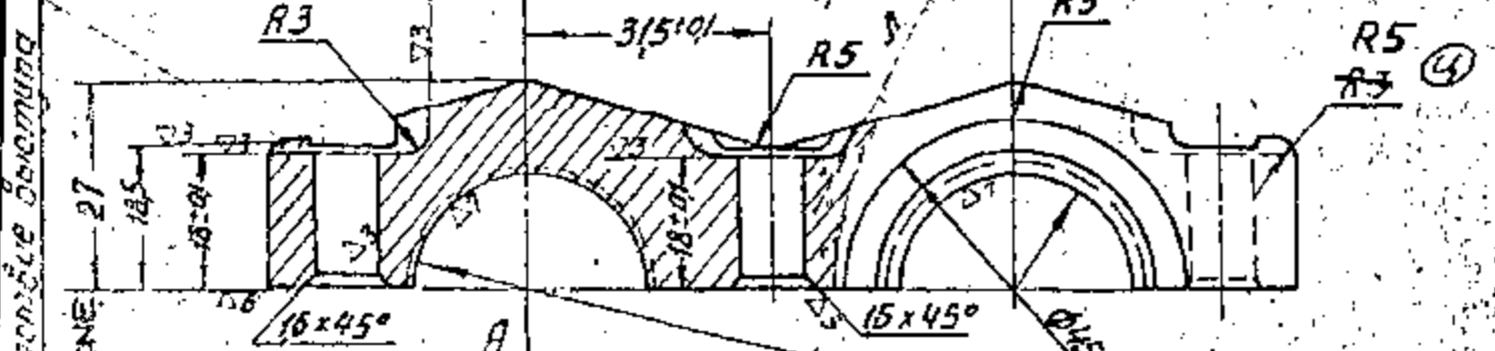
РАЗРЕЗ АА ASSEMBLY OF
CYLINDER HEAD



Разрез ББ
SECTION

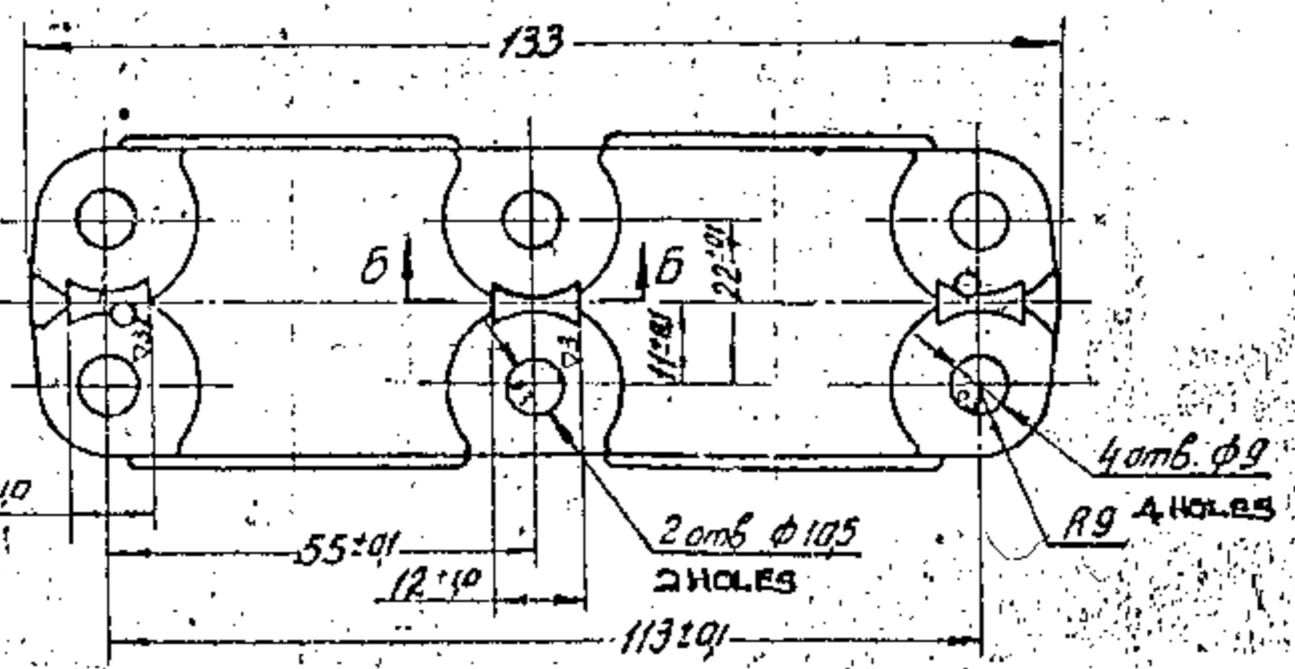


ALL SPOT FACINGS
на всех подтарцавках



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

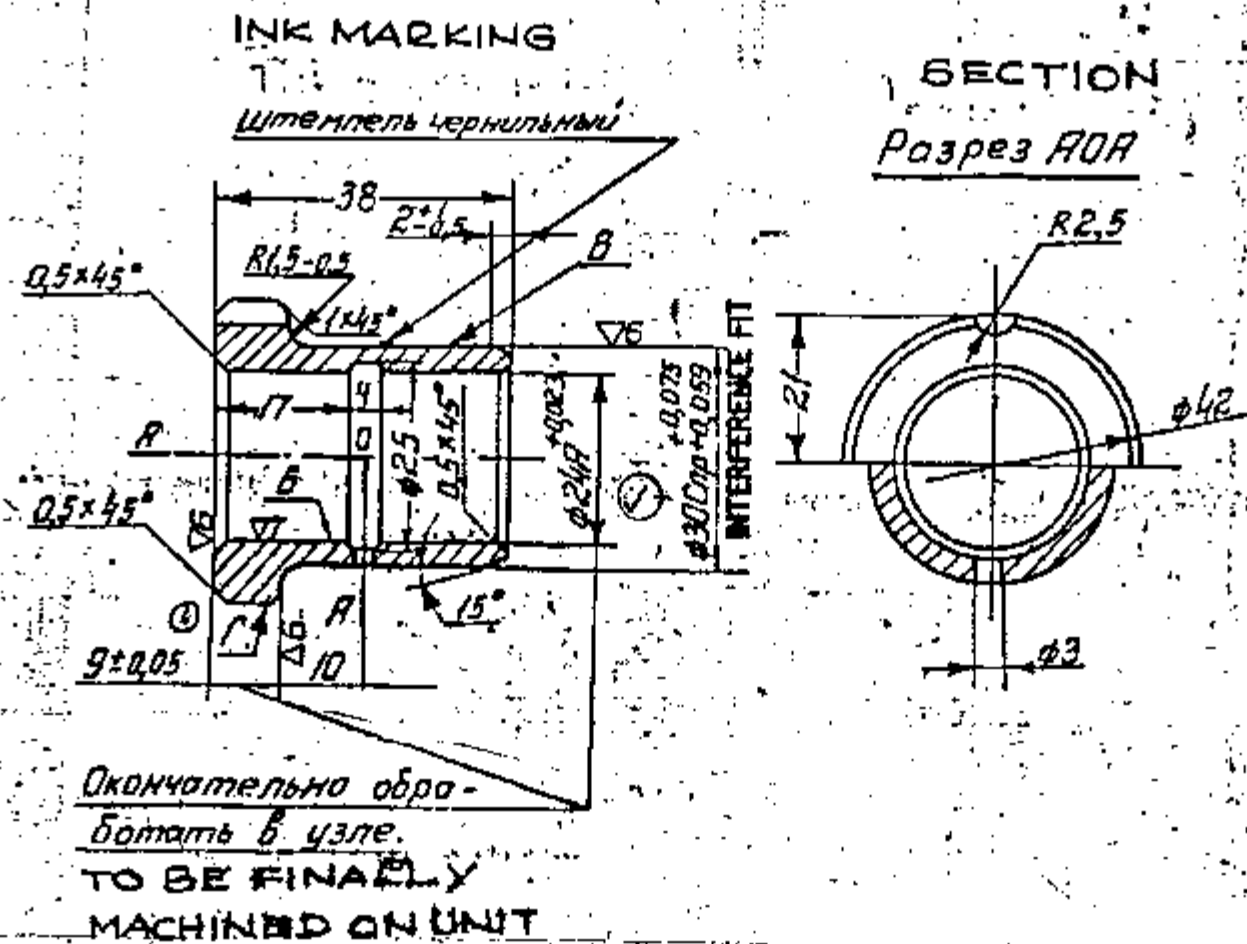
PILOT SAMPLE SHOULD BE APPROVED BY A.I.S.P. BEFORE BULK PRODUCTION

| | | |
|------------|----------|--|
| EST. MASS | 0.200Kg | TO BE STAMPED OR MARKED WHERE INDICATED THIS # LETTERS |
| ISSUE DATE | 2-12-88 | 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

DRAWING NUMBER

306-75-3



- INSPECTION GROUP IV, TT II.
- B.H.N \geq 120.
- DIMENSION WITH UNSPECIFIED TOLERANCES SHOULD BE MAINTAINED AS PER ACCURACY CLASS 7, OF OST 1010.
- RUN-OUT OF SURFACE 'B' RELATIVE TO AXIS OF SURFACE 'B' BEFORE PRESSING SHOULD NOT EXCEED 0.04mm.
- SHARP EDGES SHOULD BE BLUNTED.
- ALTERNATE MATERIAL : БР А9 Ж 3П, GOST 493-79.
- REQUIREMENTS FOR CASTING ARE AS PER TECHNICAL REQUIREMENT Б/А -109.
- CUTTER MARK NOT MORE THAN 0.3mm DEEP IS PERMISSIBLE ON SURFACE Г.

10. REPAIR SIZE DIMENSION: $\varnothing 30.5$ ADDED WHERE INDICATED THIS \varnothing AND BASED ON LETTER No: 82847/OH/QAD/ED Dt: 13.1.95

| Sl.No. | R ₁ | R ₂ | REMARKS |
|--------|--|----------------------------|---|
| 1 | $\varnothing 30.5$ + 0.075 + 0.059 | 31.0 + 0.075 + 0.059 | 1. MARK REPAIR SIZE CATAGORY R ₁ , R ₂ , Etc 2. ALL OTHER SIZES SURFACE FINISH MATERIAL AND TECHNICAL REQUIREMENTS ARE SAME |

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

| | |
|--|---|
| EST. WT. 0.110 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. | |

EXPLANATORY NOTE :

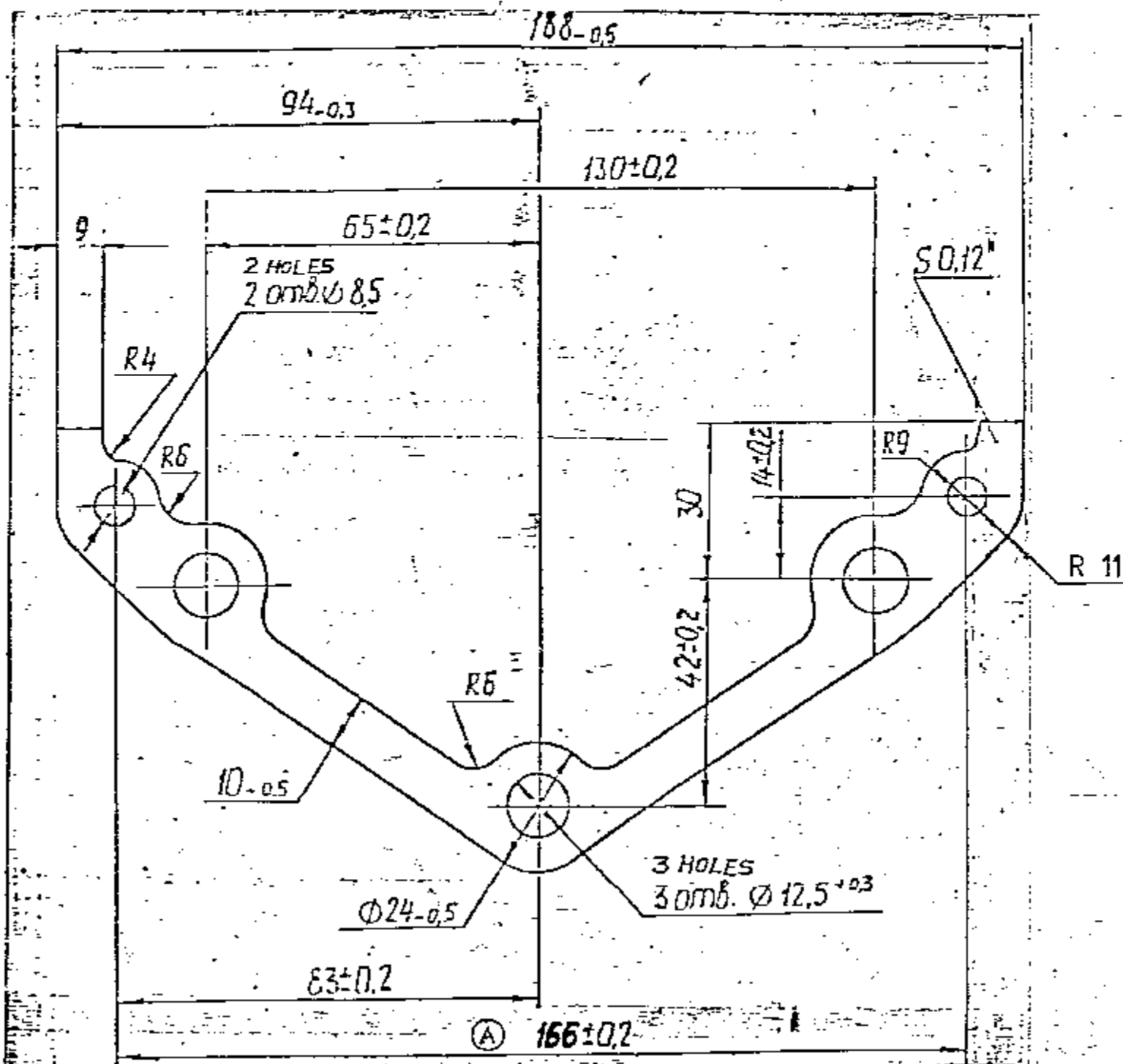
- REFERENCE MATERIAL QUOTED : BAR БрА Ж9-4 GOST 1628-78
БрА Ж9-4 - GRADE OF MATERIAL (BRONZE - EXTRUDED ROUND ROD)
a) CHEMICAL COMPOSITION : % (BY WEIGHT) AS PER GOST 18175-78.
(i) BASIC COMPONENT COPPER - THE REST
ALUMINIUM - 8.0 - 10.0
IRON - 2.0 - 4.0
(ii) IMPURITIES ELEMENTS VIZ :
TIN, SILICON, LEAD, PHOSPHORUS, ZINC, MANGANESE ALL PUT TOGETHER 1.7 % (max) BY WEIGHT.
b) MECHANICAL PROPERTIES :
ULTIMATE TENSILE STRENGTH Kgf/mm² (Mpa) (min) - 55 (540)
RELATIVE ELONGATION % (min) - 15
- ALTERNATE MATERIAL QUOTED : БрА9 Ж3П, GOST 493-79
БрА9 Ж3П - GRADE OF MATERIAL (TIN FREE BRONZE).
a) CHEMICAL COMPOSITION : % (BY WEIGHT)
BASIC COMPONENT COPPER - THE REST.
ALUMINIUM - 8.0 - 10.5
IRON - 2.0 - 4.0
IMPURITIES ELEMENTS VIZ :
ARSENIC, ANTIMONY, TIN, SILICON, NICKEL, LEAD, PHOSPHORUS, ZINC, MANGANESE, ALL PUT TOGETHER 2.8% (max) BY WEIGHT.
b) MECHANICAL PROPERTIES : CHILL CASTING METHOD.
ULTIMATE TENSILE STRENGTH, Mpa (Kgf/mm²) (min) 490 (50)
RELATIVE ELONGATION % (min) = 12

| | | | | | | | | |
|--|-----|-----|--------------------------------------|---------|-------|--|---|---------------------------|
| DRN | CHD | TCD | APPB | DATE | SCALE | DIMENSIONS IN mm. | TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS 2102-69 | ALL THREADS TO CONFORM TO |
| | | | | 28-1-88 | 1:1 | | | |
| MATERIAL :- BAR Бр А Ж9-4 GOST 1628-78 | | | USED ON :- CB 306-01-20 CB 306-02-20 | | | CONTROLLER OF QUALITY ASSURANCE (HEAVY VEHICLES) A V A D I | | |
| TITLE | | | | | | | OBLIQUE SHAFT BUSHING | |
| ISSUE | | | | | DATE | | NATURE OF AMENDMENTS | |
| D S CAT NUMBER | | | | | | DRAWING NUMBER 306-75-3 | | |

KVD No: 78120

A55

ZE A2



1. ALTERNATE MATERIAL : CABLE INSULATING PAPER K-170 GOST 23463-83.
2. UNSPECIFIED LIMIT DEVIATIONS OF DIMENSIONS $\pm 0.5\text{mm}$.
3. ON THE EDGES OF CONTOUR OF DENTS AND RUPTURE ARE NOT ALLOWED.
4. * DIMENSION FOR REFERENCES.

EXPLANATORY NOTE

5. MATERIAL QUOTED : CABLE INSULATING PAPER K120 GOST 23436-83.
 Alt Matl quoted : CABLE INSULATING PAPER K170 GOST 23436-83.
 PAPER = FOR INSULATING 35KV POWER CABLES.
 K-120 = GRADE OF PAPER - ORDINARY - THICKNESS = 120 ± 7 MICRONS.
 K-170 = GRADE OF PAPER - ORDINARY - THICKNESS = 170 ± 10 MICRONS.

QUALITY PARAMETERS :

| | K - 120 | K - 170 |
|---|-----------------|-----------------|
| 1. FIBRE COMPOSITION % OF UNBLEACHED SULPHATE CELLULOSE AS PER STANDARD AND TECHNICAL DOCUMENTATION | 100 | 100 |
| 2. DENSITY g/cm^3 | 0.78 ± 0.05 | 0.76 ± 0.05 |
| 3. BREAKING PROOF Kgf (min) IN THE MACHINE DIRECTION IN THE TRANSVERSE DIRECTION | 13.0 6.0 | 17.5 8.5 |
| 4. ELONGATION % (min) IN THE MACHINE DIRECTION IN THE TRANSVERSE DIRECTION | 2.2 6.6 | 2.2 6.6 |
| 5. AIR PERMEABILITY ml/min (max) | 40 | 40 |
| 6. ASH CONTENT % (max) | 1.0 | 1.0 |
| 7. PH VALUE OF AQUEOUS EXTRACT | 7.0 - 9.5 | 7.0 - 9.5 |
| 8. CONDUCTIVITY OF AQUEOUS EXTRACT $\mu\text{s/cm (max)}$ WITH MODULE 1 : 50 WITH MODULE 1 : 20 | 63 126 | 63 126 |
| 9. MOISTURE CONTENT % | 4-8 | 4-8 |

DRG INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE 11 (BK 84-510)

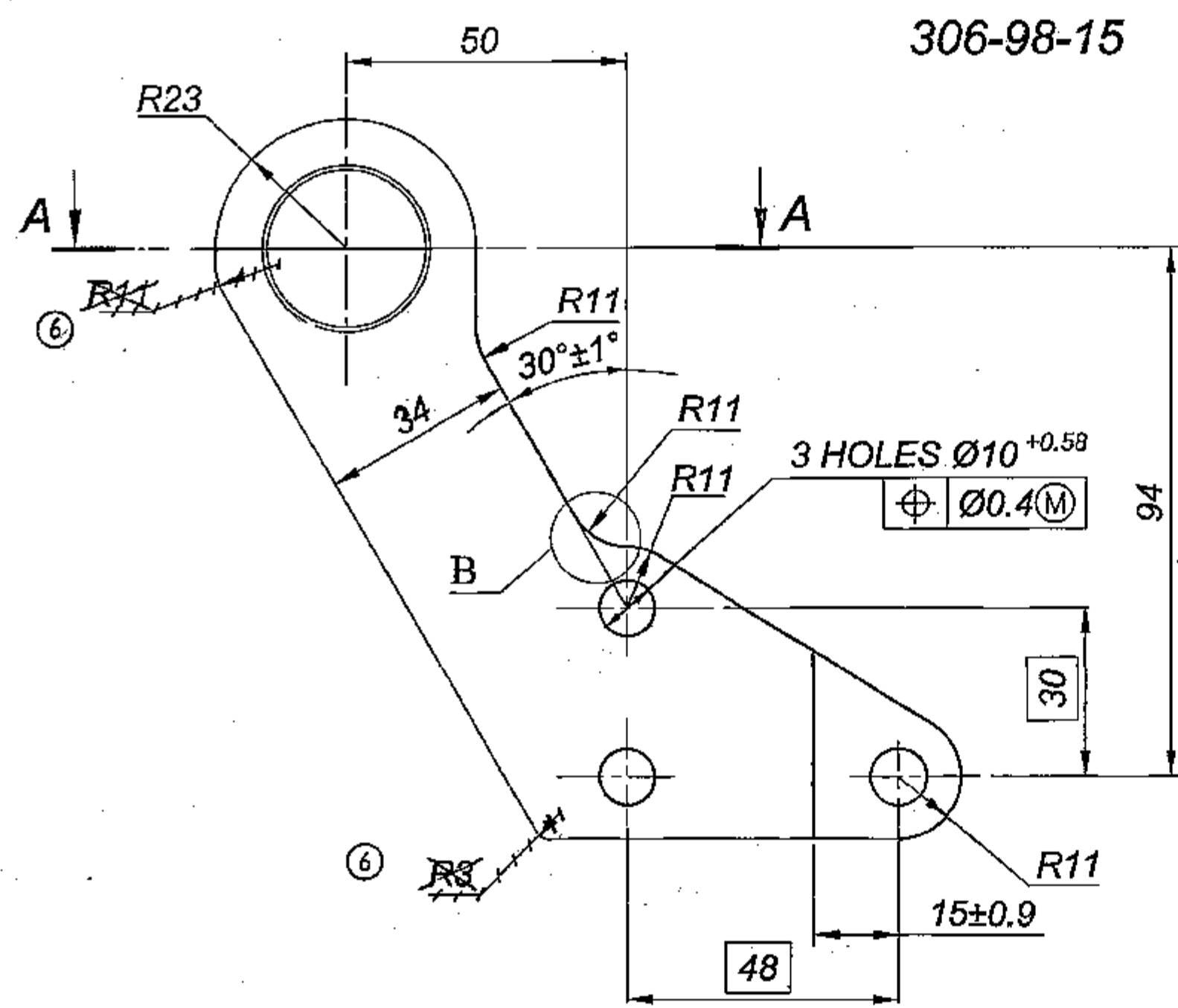
KVD No: 78409

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

EST. WT. (A) TO BE STAMPED OR MARKED WHERE INDICATED THIS \neq LETTERS).
 0.0005 Kg

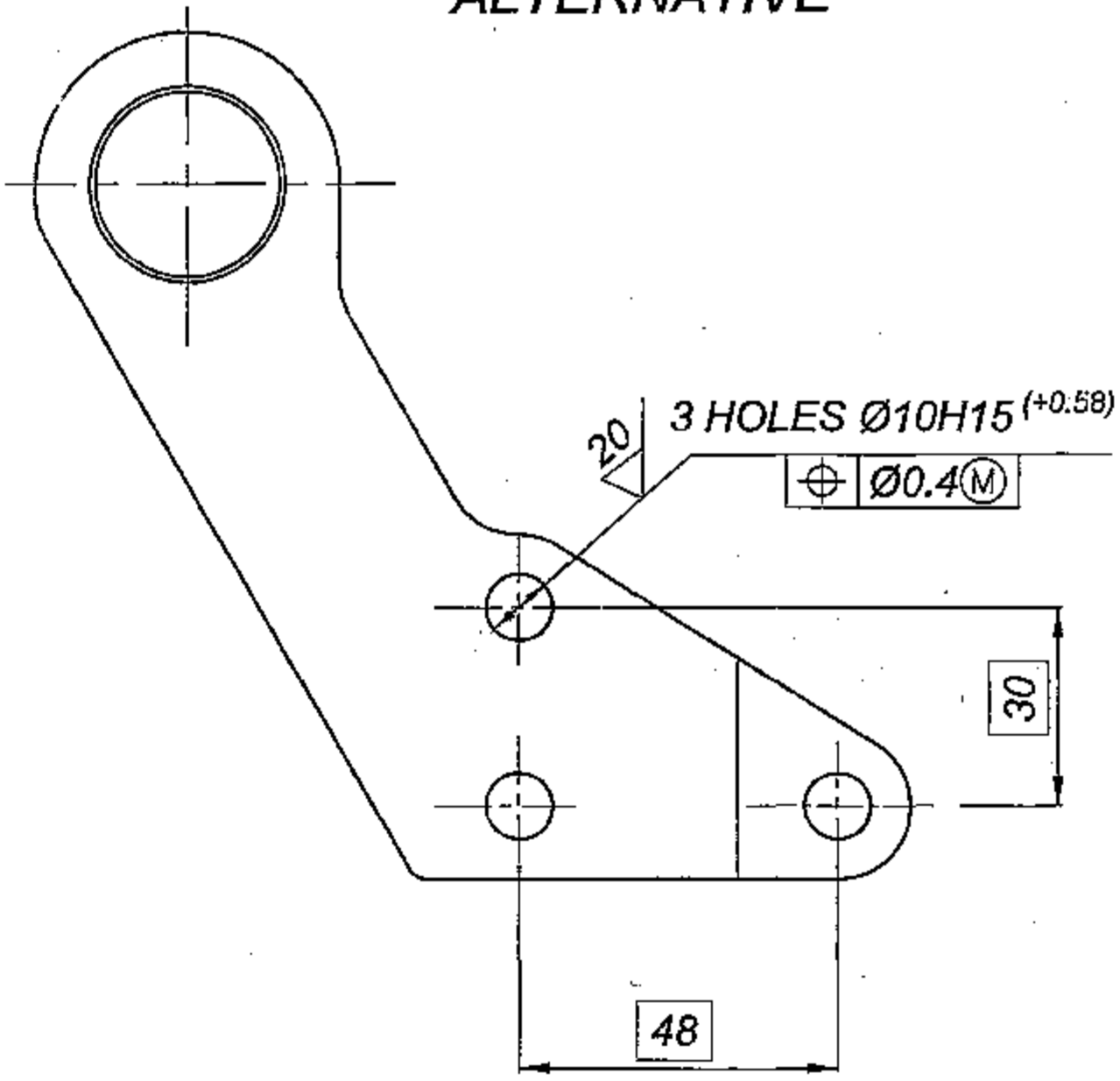
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

| | | | |
|-------------------|---|---|----------------|
| DRN | Art. 306-87 | MATERIAL :- | USED ON :- |
| CHKD | 9/1/89 | CABLE INSULATING PAPER | CB 306-01-20 |
| TED | 11/1/89 | K-120 GOST 23436-83 | CB 306-02-20 |
| APRD | 11/1/89 | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) | |
| DATE | 11-5-89 | A V A D I | |
| SCALE | 1:1 | TITLE | |
| DIMENSIONS IN | mm | GASKET | |
| TOLERANCE ON DIMS | UNLESS OTHERWISE STATED IS 2102-69 | DRAWING NUMBER | |
| A 28-2-96 | AUTHY. I.T. No. EFA/PDO/2556-47 36 DT. 21-2-96 | ISSUE DATE | 306-87 |
| ISSUE | DATE | NATURE OF AMENDMENTS | D S GAT NUMBER |

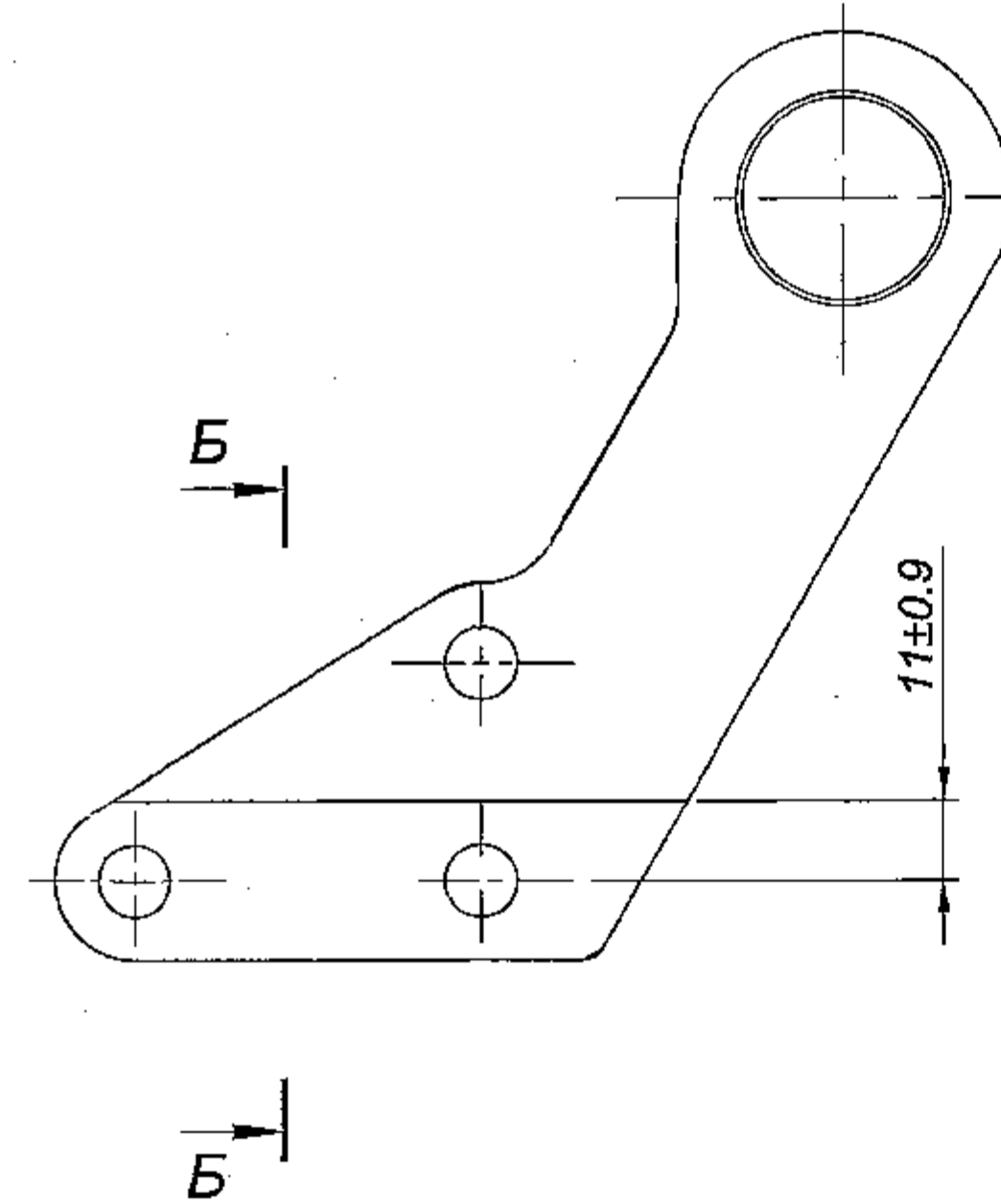


306-98-15

ALTERNATIVE



306-98-15-01- MIRROR IMAGE
REMAINING . SEE 306-98-15



1. Alternate material : Sheet ^{88 GOST 19903-74} 20 GOST 4041-71
Steel 25;35;40; 45 GOST 1050-88.

2. Unspecified limit deviations of dimensions for forging should be ±0.5 mm.

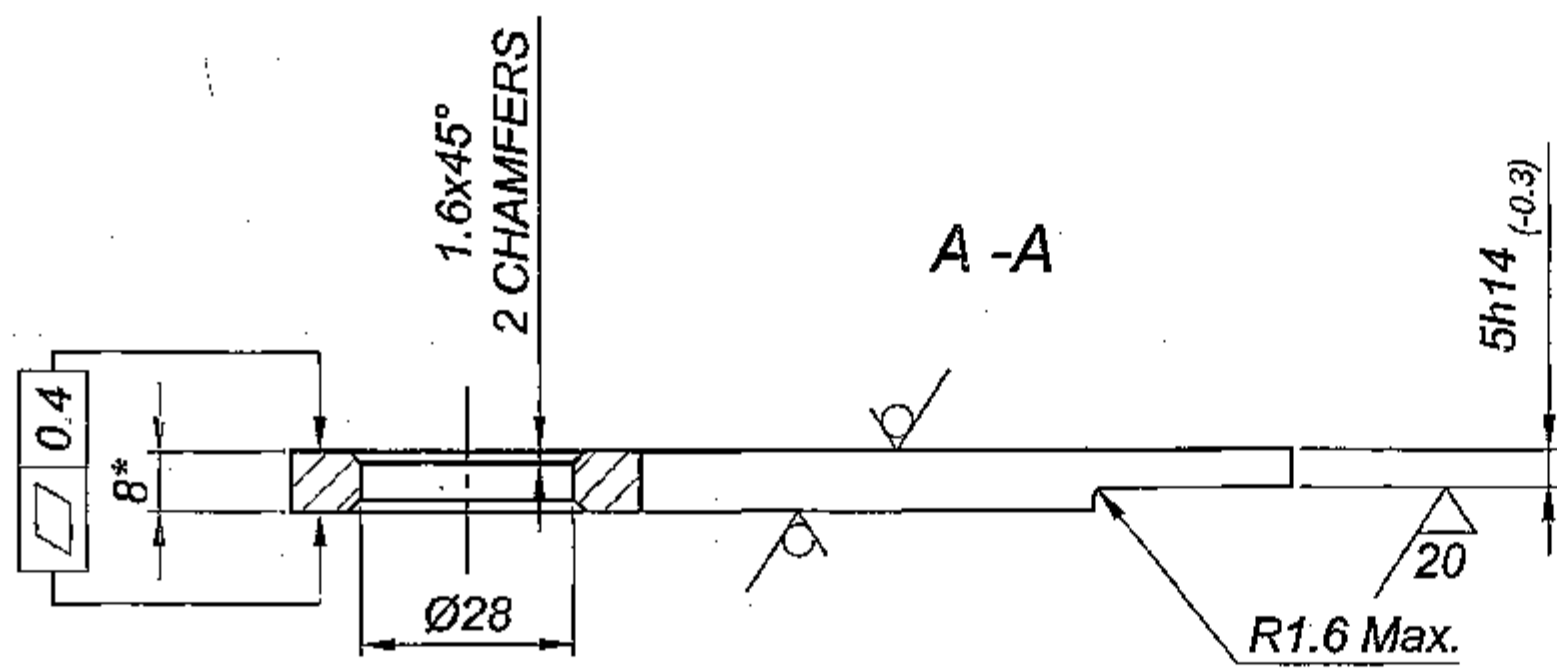
3. Forging draft should not exceed 0.8 mm per side.

4. Plating : Zinc-15 microns, chromium-1micron as per ИП -749-88.

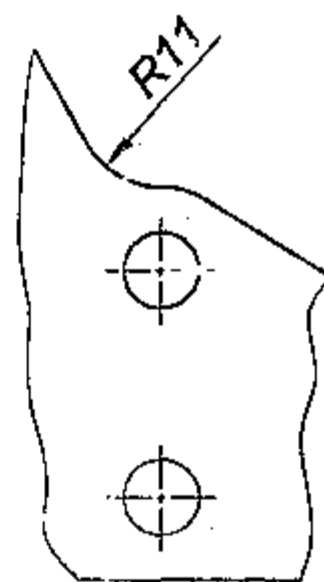
5. Put final acceptance stamp for part batch on the tag.

6. *Dimension is given for reference.

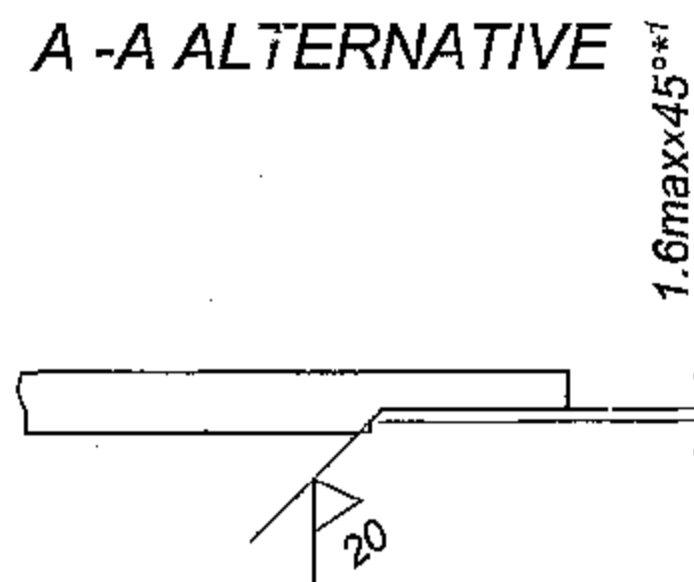
7. *Dimension to be ensured by tool.



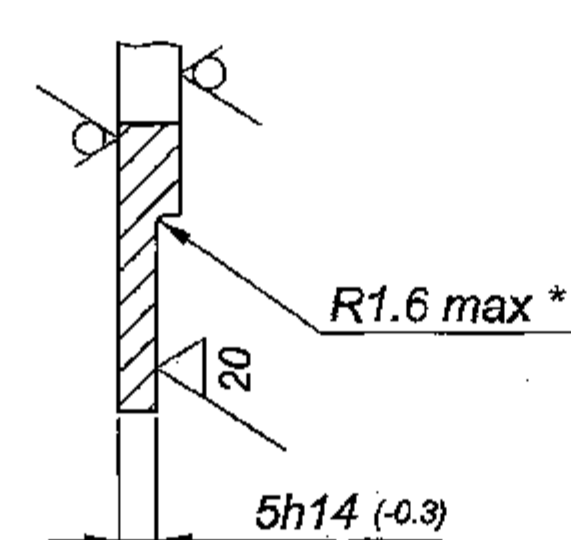
B ALTERNATIVE



A-A ALTERNATIVE



B-B



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

EST. WT. (Kg) 0.36 TO BE STAMPED OR MARKED WHERE INDICATED THIS # (LETTERS)

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

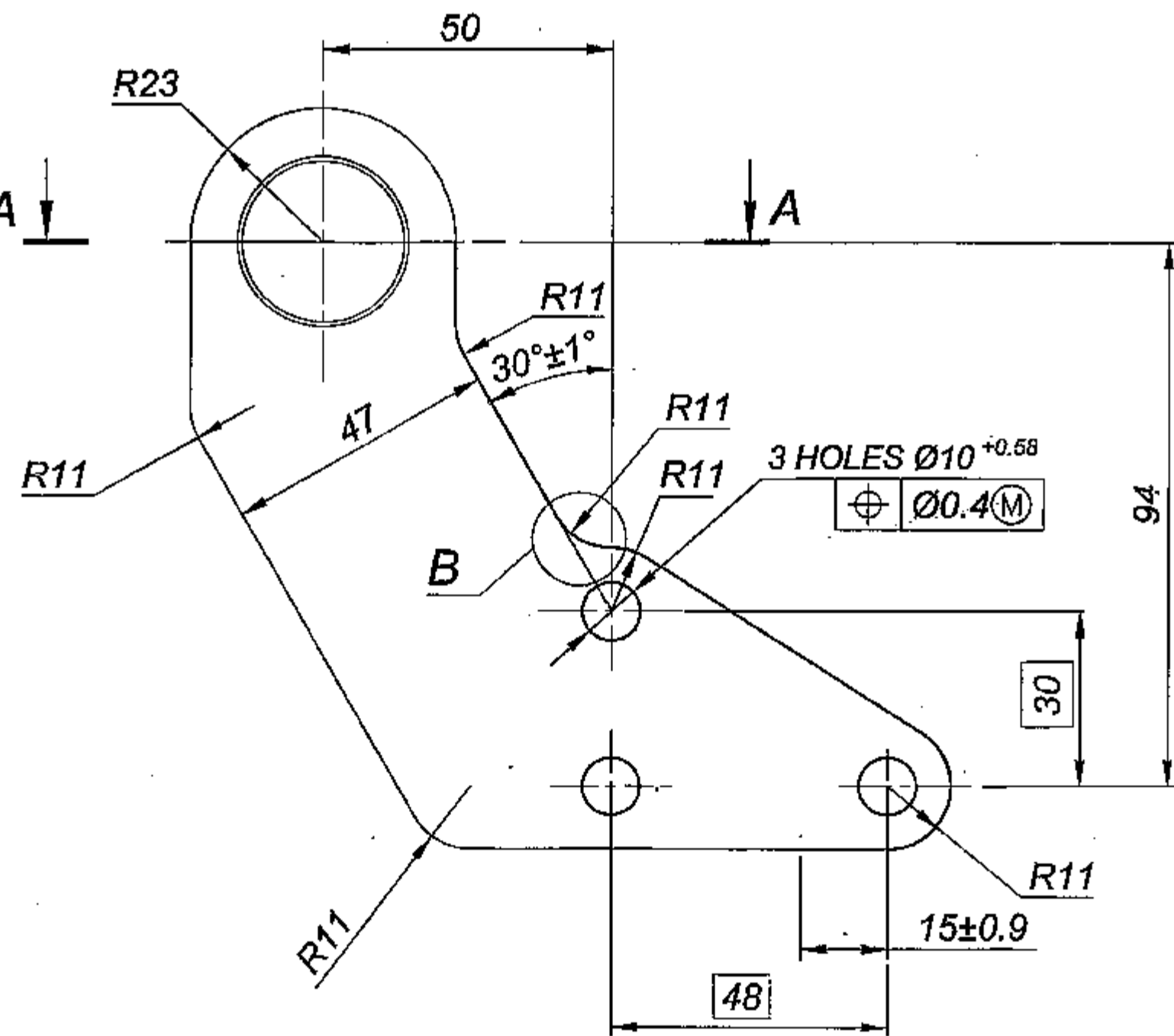
| | | | | | |
|--|----------|---|------------------|---------|--------------|
| DRN | AP | MATERIAL | 88 GOST 19903-74 | USED ON | 16 306-01-36 |
| CHD | AP | SHEET | 20 GOST 1577-81 | | 16 306-02-36 |
| APPD | | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) | | | |
| DATE | 01/29/07 | AVADI | | | |
| SCALE | 1:1 | TITLE: ANGLE PIECE (5A) | | | |
| DIMENSIONS IN mm | | D S CAT NUMBER | | | |
| TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS: 2102-69 | | DRAWING NUMBER 306-98-15/01 | | | |
| ISSUE | DATE | NATURE OF AMENDMENTS | IS: 4218 Pt. IV | | |

DRAWING NUMBER
306-98-17

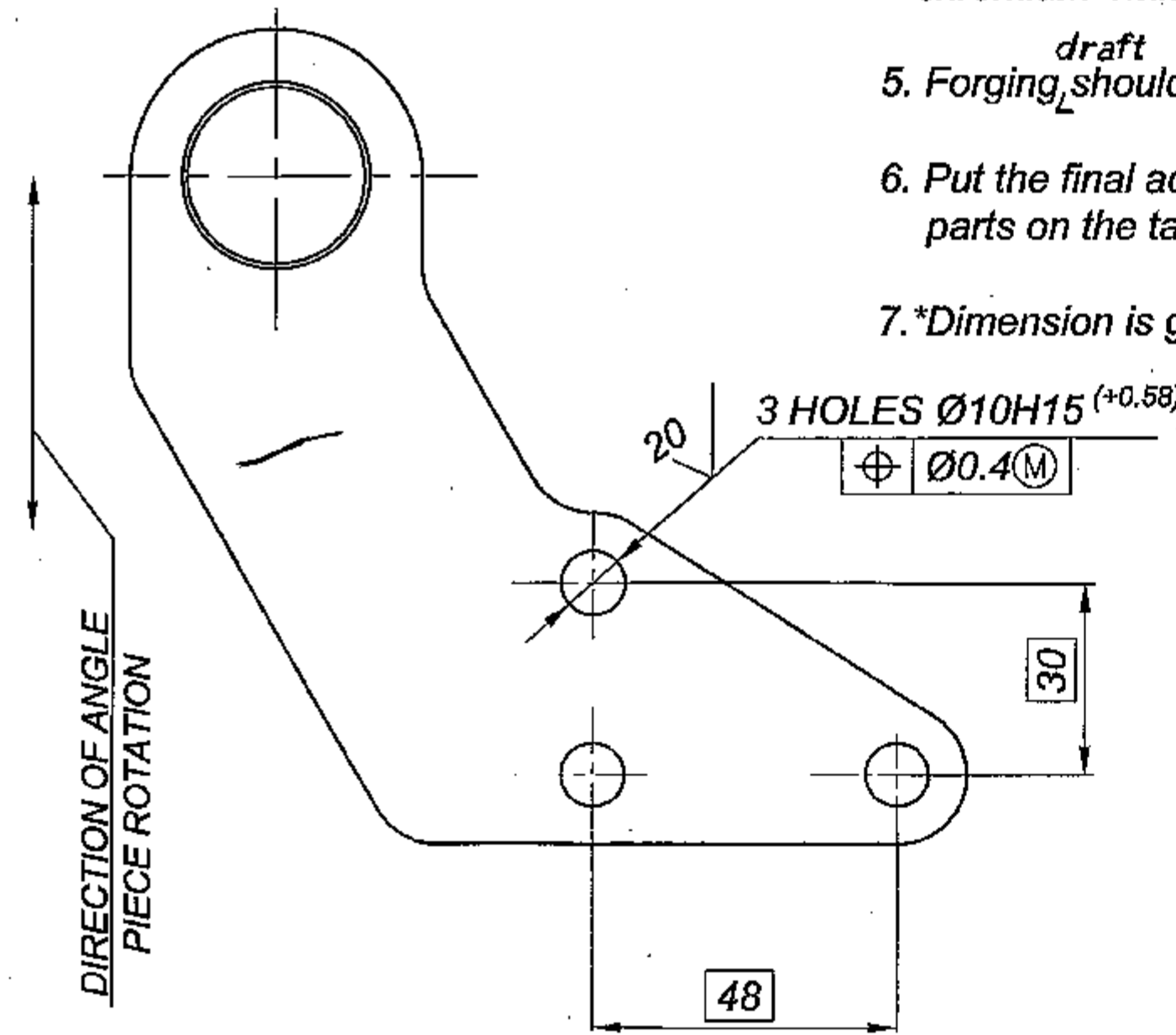
SHEET No. 1 OF 1

80 ✓(✓)

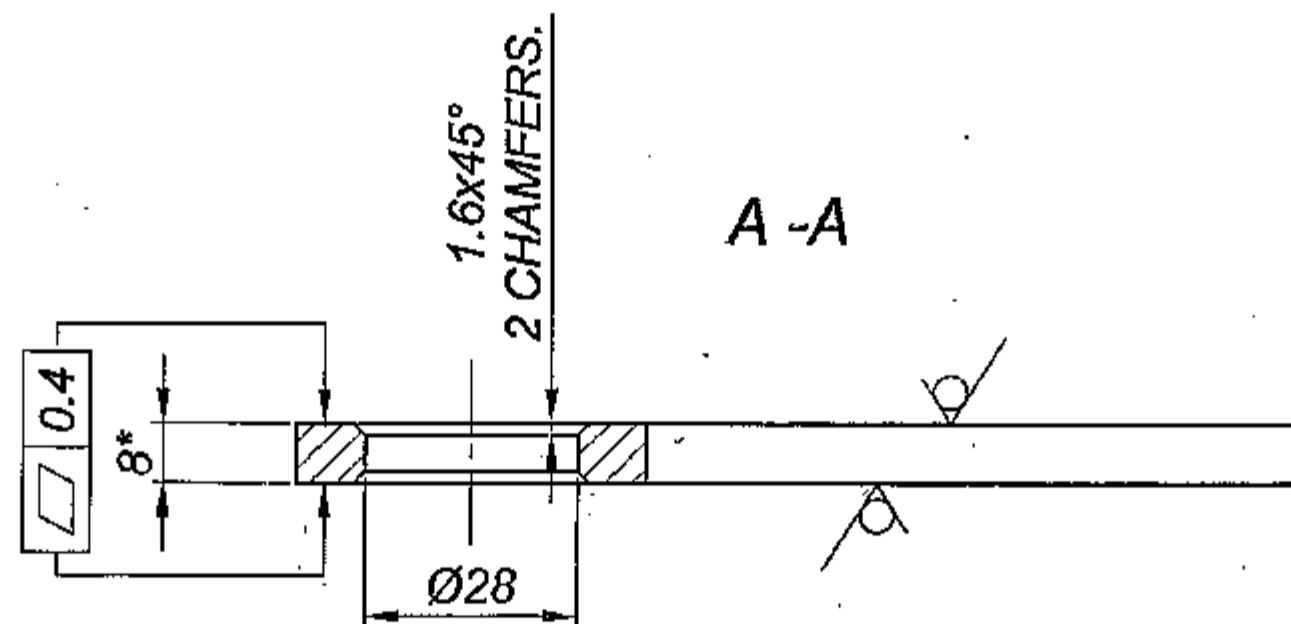
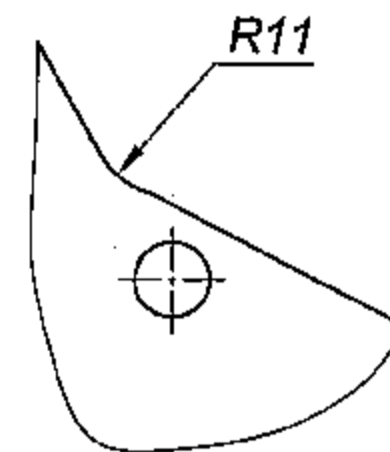
1. Alternate material : steel 20;25; 30 GOST 1050-88.
2. Unspecified limit deviation of dimensions is ± 0.5 mm.
3. Plating: Zinc-15microns, chromium-1micron, Titanium 1micron as per instruction ИЛ -749-88.
4. In tropical construction coating is cadmium-9microns, chromium-1micron, Titanium 1micron as per ИЛ -569-84.
5. Forging should not exceed draft 0.8 mm on one side.
6. Put the final acceptance stamp for batch of parts on the tag.
7. *Dimension is given for reference.



ALTERNATIVE



B ALTERNATIVE



ⓑ EQUIVALENT MATERIAL
STEEL 070 M20 (EN 3A) TO BS: 970

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

EST. WT. (Kg) 0.48 TO BE STAMPED OR MARKED WHERE INDICATED THUS # (LETTERS)

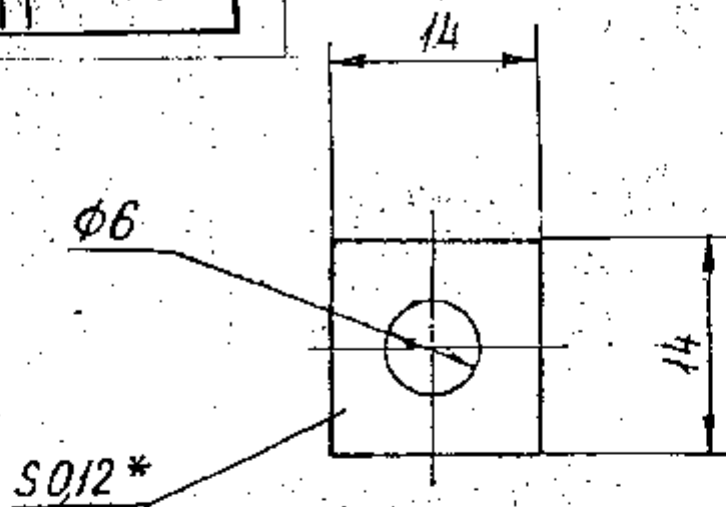
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

| | | | |
|--|--|---|--------------|
| DRN | APPD | MATERIAL:- SHEET | USED ON:- |
| CHD | DATE | E-nB-0 8 GOST 19903-74 | C6 306-01-36 |
| APPD | SCALE:- 1:1 | 15-TB1-M1 GOST 1577-93 | C6 306-02-36 |
| DATE | DIMENSIONS IN mm | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) | |
| SCALE:- 1:1 | TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS: 2102-69 | AVADI | |
| DIMENSIONS IN mm | ALL THREADS TO CONFORM TO | TITLE:- | |
| TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS: 2102-69 | D S CAT NUMBER | ELBOW (A) | |
| ALL THREADS TO CONFORM TO | DRAWING NUMBER | 306-98-17 | |
| ISSUE | DATE | NATURE OF AMENDMENTS | |
| B | 10-7-10 | A/B ALT. COMM. Mtg. MINUTES | |
| A | 09.07.08 | POINT No 5 DT 26-10-09 | |
| | | DO CORRECTION. | |

DRG. INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - NIL

F-3
125
166
SIZE A2

306-111



1. Заменитель материала бумага кабельная К-170
ГОСТ 23436-79.

2. Неуказанные предельные отклонения размеров
± 0,3 мм.

3* Размер для справок.

1. ALTERNATE MATERIAL : INSULATING PAPER K-170 GOST 23436-79.

2. UNSPECIFIED TOLERANCES FOR DIMENSIONS ± 0.3 mm.

3* DIMENSION FOR REFERENCE.

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

DRG. INDIANISED BASED ON RUSSIAN ORIGINAL
 ISSUE No: 4 (BK 84-109)

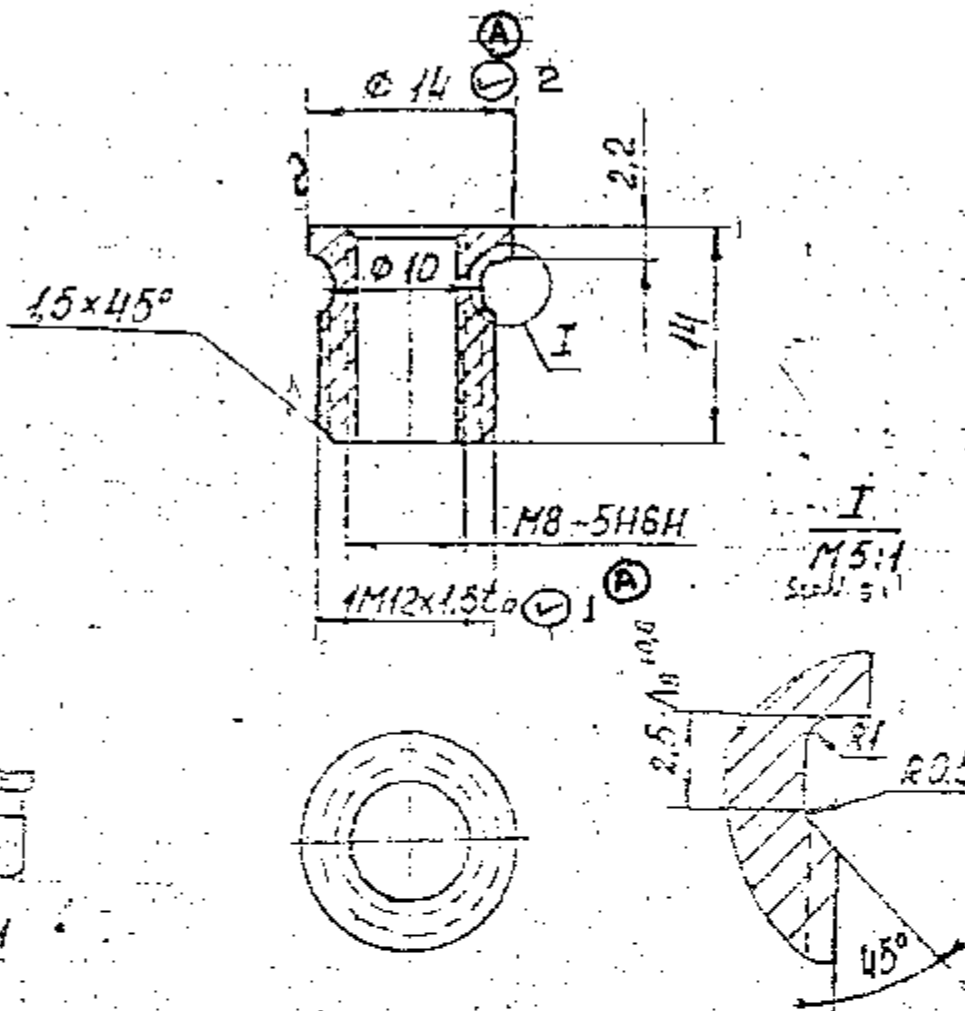
A5

| | | | |
|---------------|---|---|---|
| | | EST. WT. | TO BE STAMPED OR MARKED WHERE |
| | | 0.005 Kg. /200 | INDICATED THUS $\frac{1}{200}$ (LETTERS) |
| | | ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUT-SIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE. | |
| | | MATERIAL : INSULATING PAPER K-120 GOST 23436-79 . | USED ON CS 306-01-20 CS 306-02-20 |
| ISSUE DATE | NATURE OF AMENDMENTS | | |
| DRN | SCALE:- 2:1 DIMENSIONS IN mm | | |
| CHD | TOLERANCE ON DIMENSIONS UNLESS OTHERWISE STATED IS 2102 -69 | | |
| TED | ALL THREADS CONFORM TO | | |
| APPD | D S CAT NUMBER | | DRAWING NUMBER |
| DATE 15-11-89 | | | 306-111 |

SIZE A4

306-129

W4(2)



ALTERNATE MATERIAL - STEEL GRADES 40 AND 50
GOST 1050-74

DIMENSIONS WITH UNSPECIFIED TOLERANCES SHOULD BE
MAINTAINED ACCORDING TO ACCURACY CLASS 7, OST 1010

SHARP EDGES SHOULD BE BLUNTED

COATING - CHEMICAL OXIDIZING, OZ FINISHING

TECHNICAL REQUIREMENTS FOR THREAD SHOULD BE AS
PER STANDARD 82021-00

WHERE REPAIR SIZE DIMENSIONS ARE ADDED, INDICATED THIS AND BASED ON LETTER No: 82847/0H/GAD/ED D: 13.1.95.

| Sl.No | Ri | REMARKS |
|-------|----------------|---|
| 1 | 1M 14 x 1.5 to | 1. MARK REPAIR SIZE CATAGORY Ri |
| 2 | Ø 15 | 2. ALL OTHER SIZES, SURFACE FINISH MATERIAL AND TECHNICAL REQUIREMENTS ARE SAME. |

Замечатель материала сталь марок 40 и 50 ГОСТ 1050-74.
Размеры без допусков выполнять по 7 классу точности
Острые кромки затупить.
Покрyтие хим. Окс. прм.
Технические требования на резьбу выполнять по нормам
82021-00.

ALT. MATERIAL: STEEL 080 M40 (EN 8)
TO BS-970 Pt-1-1983 OR 45 CB TO IS:1510

* CB 3311-05-1

PLOT SAMPLE SHOULD BE APPROVED BY A H/S P BEFORE
BULK PRODUCTION

EST. WT. TO BE STAMPED OR MARKED WHERE
INDICATED THIS (LETTERS)

ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS
OTHERWISE STATED HAGENED CORNERS TO HAVE R CUT SIDE
INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE

| | | | |
|---|--------------|---|----------------------|
| DRN | G. Ranganath | MATERIAL 45 GOST 7417-75 | USED ON CB 306-01-20 |
| CHKD | S. Ranganath | ROUND BAR 45 GOST 1051-73 | * CB 306-02-20 |
| TCO | G. Ranganath | | |
| APPD | S. Ranganath | | |
| DATE | 13-3-88 | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) | |
| SCALE | 2:1 | AVADI | |
| DIMENSIONS IN mm | | TITLE | BUSH |
| TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS:2192-69 | | | |
| ALL THREADS TO CONFORM TO | | D S CAT NUMBER | DRAWING NUMBER |
| ISSUE DATE | | 306-129 | |

| | | |
|------------|---------|---|
| B | 13-7-09 | 3 rd ALTERATION COMM. MINUTES POINT B, DATE 27-2-09 |
| A | 20-5-95 | REPAIR SIZES ADDED |
| ISSUE DATE | | NATURE OF AMENDMENTS |

ORG. INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE No. 6-4 84-109

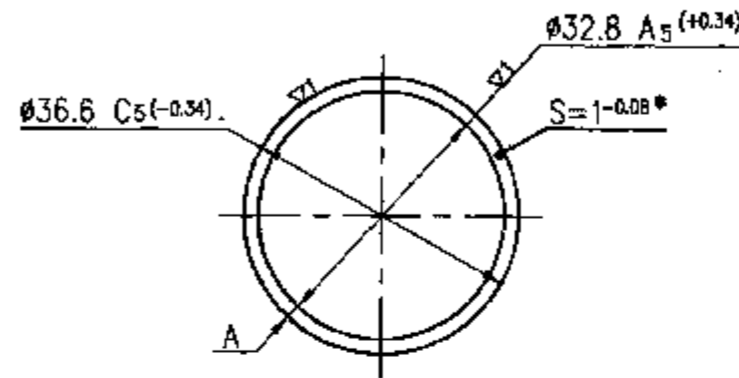
SIZE A3

DRAWING NUMBER

306-165

2(▽)

0. ~~Грубая контроль V по IT 11~~
1. Разномерность по размеру A не более 0.4мм.
2. Отжечь.
3. *Размер для справок.
4. Допускается механическая обработка V3.
5. Клеймить на бирке ~~705-25-154~~ для партии деталей.
6. Острые кромки допускаются.



1. —
2. VARIATION IN MEASUREMENTS OF DIMENSIONS A SHOULD NOT EXCEED 0.4mm.
3. TO BE ANNEALED.
4. *DIMENSION FOR REFERENCE.
5. MACHINING TO V 3 IS PERMISSIBLE.
6. THE BATCH OF COMPONENT IS TO BE MARKED ON TAG.
7. SHARP EDGES AREPERMITTED.
- ① 8. ALTERNATE MATERIAL SHEET ДПРЛМ 1.0 М1 GOST 495-92.

- 1B CQA(HV)5.06.605E
CQA(HV)5.06.609E
- 1A CQA(HV)5.07.502E
CQA(HV)5.07.504E
Cb 20.06.01-5
Cb 20.06.02-5
* Cb 306.01.36
Cb 306.02.36

DRAWING APPLICABLE TO V46-6, UTD-20, V92S2 & BAZ ENGINES.
DRAWING RE-INDIANISED BASED ON ISSUE-1

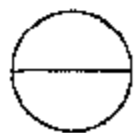
R. Balakrishnan
(R. BALAKRISHNAN)
J.S.O
DI.12 Nov 2014

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

EST. WT. 0.0018 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 OUT-SIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

| | | | | | |
|---|----------|--|-----------|------------|-------------------------------|
| DRN | -Sd- | MATERIAL :- | ДПРЛМ 1.0 | USED ON :- | *Cb 306-01-20 Cb 306-02-20 |
| CHD | -Sd- | NAM 3 GOST 1173-77 | | | |
| TCD | -Sd- | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI | | | |
| APPD | -Sd- | SCALE:- 1:1 | | | |
| DATE | 28-01-88 | DIMENSIONS IN mm | | | |
| TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS : 2102-69 | | TITLE :- | | | |
| ALL THREADS TO CONFORM TO | | RING | | | |
| D S CAT NUMBER | | DRAWING NUMBER | | | |
| 306-165 | | 306-165 | | | |



SIZE A3

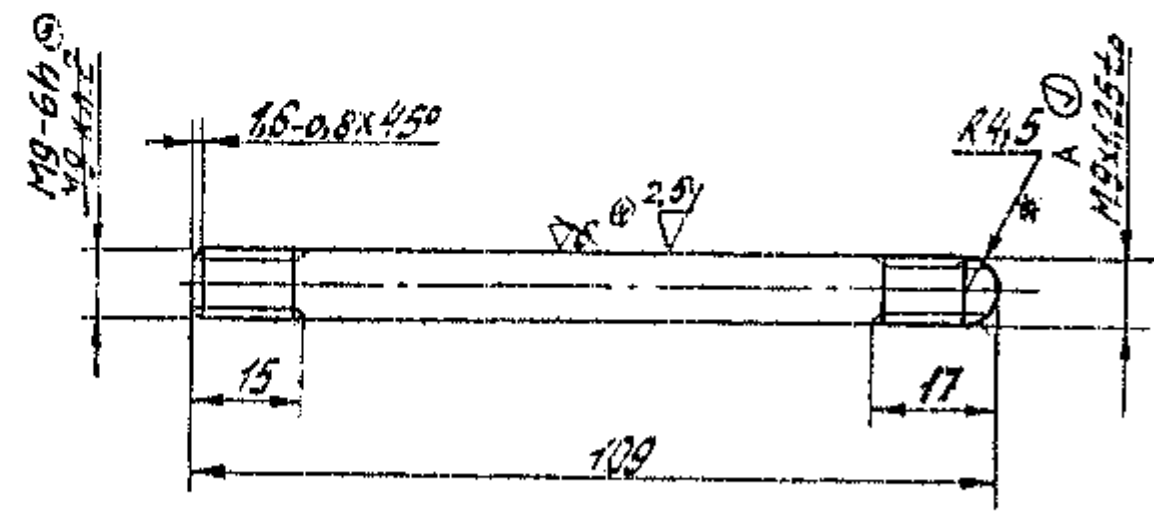
| ISSUE | DATE | NATURE OF AMENDMENTS |
|-------|----------|---|
| 1B | 15.07.16 | Pt. 11 a 17th All. Comm. Meeting Dt. 11-4-12 |
| 1A | 11.11.14 | POINT No.3 OF 9 th ALTERATION COMMITTEE MEETING Dt. 10-07-2014 |
| 1 | 4.12.08 | NOTN. No.117-04 F-158 |

Dr. P. Janardhanan
 (P. JANARDHANAN)
 JTO (D)
 Dt. 27 Oct 18

DRG. REINDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - NIL

DRAWING NUMBER **350-07-2** SHEET No. 1 OF 1

Rz 80
 (V)(V)



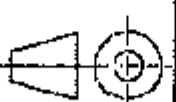
1. INSPECTION GROUP IV TT - 11.
2. HRC 35 39.
3. TECHNICAL REQUIREMENTS FOR THREADS - AS PER STANDARD 82021 - 00.
4. DIMENSIONS WITH UNSPECIFIED TOLERANCES AND THE REST OF THE TECHNICAL REQUIREMENTS - AS PER STANDARD 82052 - 00.
6. THE THREAD MAY BE MADE BY ROLLING WITH THE DIAMETER OF UNTHREADED PORTION WITH IN THE PITCH DIAMETER OF THREAD.
7. ALTERNATE MATERIAL : STEEL 18x2 H4 MA Ty14-1-381-72.
8. COATING : CADMIUM 3, CHROMATIZING AS PER UJJI-104 WITH THE ELIMINATION OF HYDROGEN EMBRITTLEMENT.
9. REPAIR SIZE DIMENSIONS ARE ADDED WHERE INDICATED THUS (A) BASED ON OVERHAUL SPECIFICATIONS PART III REPAIR DRGS. **

**

| SL No. | F | REMARKS |
|--------|--|---------------------|
| 1 | 1 M 12x1.5 to | ALL OTHER CONDITION |
| 2 | PCD=11.026 ^{+0.170} / _{+0.085} | AS PER STD. DRG. |

- (C) EQUIVALENT MATERIAL -
 (D) STEEL 709M40 (EN-19) COLD DRAWN
 TO BS-970-PT-1-1983/AISI 4140
- (D) EQUIVALENT MATERIAL:-
 STEEL 835M15(EN39B) TO BS 970 PT-1-1983

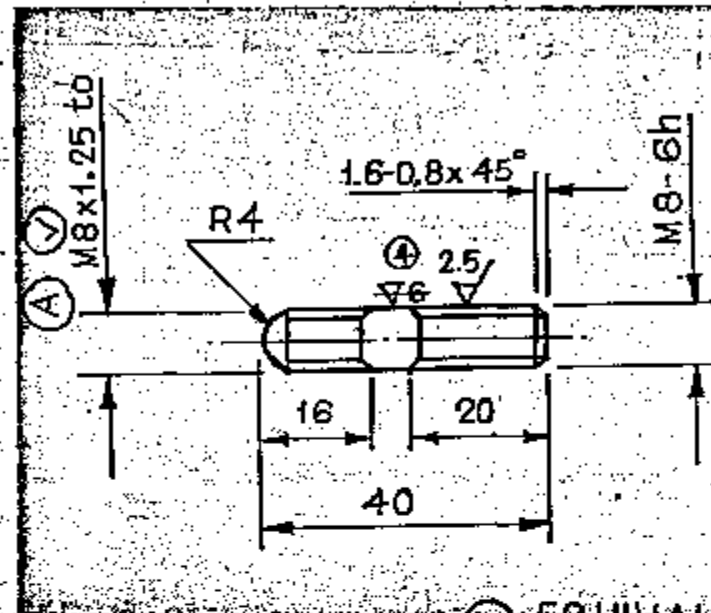
(B) EQUIVALENT MATERIAL STEEL
~~835 M15 (EN39B) BS-970~~

| | | | | | |
|---|---|---------|----------------------|---|-------------------------|
| PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION. | | DRN | Sd/= | MATERIAL :- GOST 7417-75 | USED ON :- Cb 306-01-20 |
| EST. WT. (Kg) 0.05 | TO BE STAMPED OR MARKED WHERE INDICATED THUS # (LETTERS) | CHD | Sd/= | RD.BAR 18x2 H4 BA Ty14-1-381-72 | Cb 306-02-20 |
| ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUT-SIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE. | | APPD | Sd/= | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI | |
| | | DATE | 28-1-88 | | |
| | | SCALE:- | 1 : 1 | | |
| | | D | 30.03.15 | DIMENSIONS IN mm | |
| | | C | 11.11.2014 | TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS : 2102-69 | |
| | | B | 23.10.10 | TITLE :-  STUD M9 x 109 | |
| | | A | 2-9-85 | D S CAT NUMBER | |
| | | ISSUE | DATE | DRAWING NUMBER | |
| | | | NATURE OF AMENDMENTS | 350-07-2 | |

SIZE A3

DRAWING NUMBER
350-08-2A

④ Rz80 ✓ (✓)



③ EQUIVALENT MATERIAL STEEL
835M15 (EN39B) BS:970

1. INSPECTION GROUP IV TT-11
2. HRC 35-39
3. TECHNICAL REQUIREMENTS FOR THREADS AS PER STANDARD 82021-00.
4. DIMENSIONS WITH UNSPECIFIED TOLERANCES AND THE REST OF THE TECHNICAL REQUIREMENTS AS PER STANDARD 82052-00.

⑤ ~~THE THREAD MAY BE MADE BY ROLLING WITH THE DIAMETER OF UNTHREADED PORTION WITHIN THE PITCH DIAMETER OF THREAD.~~

7. ALTERNATE MATERIAL: STEEL 18X2H4MA TY 14-1-381-72

8. COATING: CADMIUM 3, CHROMATIZING AS PER UJ, П-104 WITH ELIMINATION OF HYDROGEN EMBRITTLEMENT.

⑥ BOTH THE THREADS SHOULD BE MADE BY ROLLING AFTER HEAT TREATMENT. DIAMETER OF UNTHREADED PORTION WITHIN THE PITCH DIAMETER OF THREAD.

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

EST. WT. 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 OUT SIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

9. EXPLANATORY NOTE :-

GOST 7417-75

MATERIAL QUOTED: 18X2H4 BATY14-381-72

HOT ROLLED CHROMIUM-NICKEL TUNGSTEN STEEL OF HIGH QUALITY.

18X2H4 BA = GRADE OF STEEL AS PER TY 14-1-381-72

CHEMICAL COMPOSITION % (AS PER GOST 4543-71)

| | |
|------------|-------------|
| CARBON | = 0.14-0.20 |
| SILICON | = 0.17-0.37 |
| MANGANESE | = 0.25-0.55 |
| NICKEL | = 4.00-4.40 |
| CHROMIUM | = 1.35-1.65 |
| TUNGSTEN | = 0.80-1.20 |
| PHOSPHORUS | = 0.025 |
| SULPHUR | = 0.025 |
| COPPER | = 0.30 |

} MAX.

MECHANICAL PROPERTIES (AS PER GOST 4543-71)

ULTIMATE TENSILE STRENGTH $Kgf/mm^2 = 105$ (MIN)

YIELD POINT $Kgf/mm^2 = 80$ (MIN)

% ELONGATION = 12 (MIN)

REDUCTION IN AREA % = 50 (MIN)

IMPACT STRENGTH $Kgf.m/cm^2 = 12$ (MIN)

④ 10. REPAIR SIZE DIMENSIONS ARE ADDED WHERE INDICATED THIS BASED ON OVERHAUL SPECIFICATIONS PART III REPAIR DRAWINGS.

| SL. No. | R. | REMARKS |
|---------|-------------------------------------|----------------------|
| 1. | M 10 X 1.5 to | ALL OTHER CONDITIONS |
| 2. | P.C.D. = 9.026 $+0.170$ $+0.095$ | AS PER STD. DRG. |

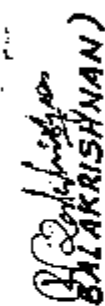
| | | | | | | | | | | |
|-----|-----|-----|------|---------|-------|--|--|------------|----------------|----------------|
| DRN | CHD | TCO | APPD | DATE | SCALE | DIMENSIONS IN mm | TOLERANCE ON DIMS UNLESS OTHERWISE STATED IS: 2102-69. | TITLE | D'S CAT NUMBER | DRAWING NUMBER |
| | | | | 28-1-85 | 1:1 | MATERIAL: ROUND BAR GOST 7417-75 | USED ON CE 306-01-20 | STUD M8x40 | | 350-08-2A |
| | | | | | | 18X2H4BATY14-1-381-72 | CE 306-02-20 | | | |
| | | | | | | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVAIL. | | | | |
| | | | | | | 4 th Alt. Comm Meeting Minutes Point No. 15 Dated 26.10.09 | | | | |
| | | | | | | AUTHY: MINUTES OF MEETING VIDE LT. No 81262/D B II / N OF A Dt 2-1-98. | | | | |
| | | | | | | REPAIR SIZE DIMENSION ADDED | | | | |
| | | | | | | ALL THREADS TO CONFORM TO | | | | |
| | | | | | | ISSUE DATE NATURE OF AMENDMENTS | | | | |

EXPLANATORY NOTE ADDED ON 20-1-92

KVD NO 78866

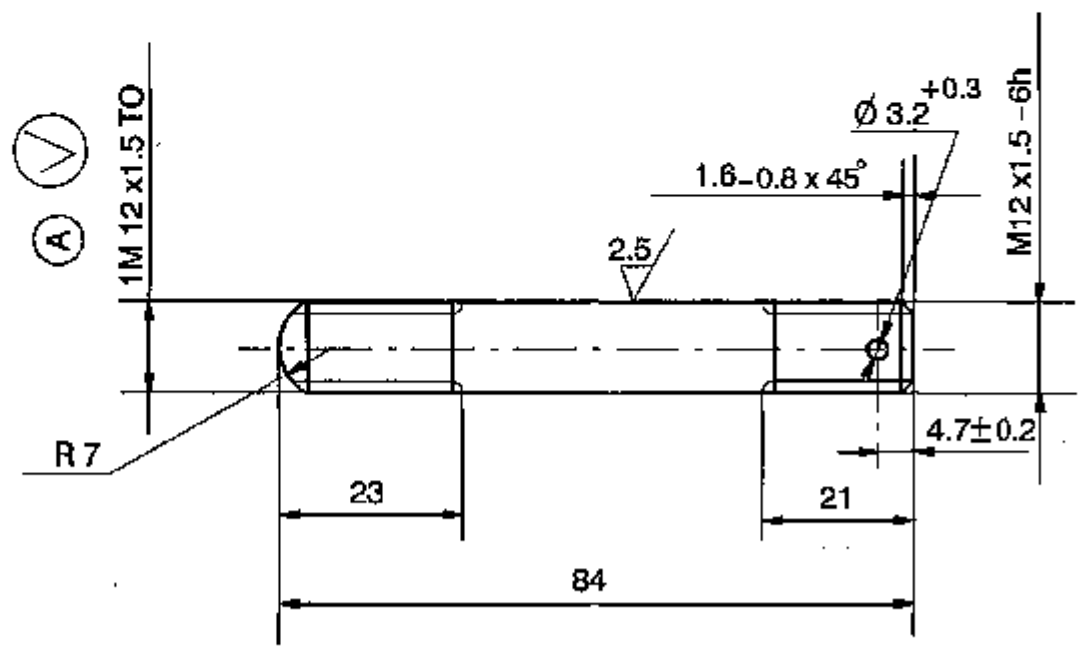


DRAWING RE-INDIANISED BASED ON RUSSIAN ORIGINAL
ISSUE - A


 (R. BALAKRISHNAN)
 JTO (C) DT. 9.6.09

DRAWING NUMBER
350-10-1

Rz80 ✓ (✓)



(A) **

| Sl.No. | R | REMARKS |
|--------|---|---------------------------------------|
| 1 | 1M 14 X 1.5 TO | ALL OTHER CONDITIONS AS PER STD. DRG. |
| 2 | P.C.D. = 13.026 ^{+0.170} / _{+0.095} | |

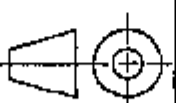
- INSPECTION GROUP IV TT-11.
- HRC₃ 28 35.
- TECHNICAL REQUIREMENTS FOR THREADS AS PER STANDARD 82021-00.
- DIMENSIONS WITH UNSPECIFIED TOLERANCES AND THE REST OF THE REQUIREMENTS AS PER STANDARD 82052-00.
- COATING : CADMIUM 3, CHROMATIZING AS PER ЦУП-104 WITH ELIMINATION OF HYDROGEN EMBRITTLEMENT.
- THE THREAD MAY BE MADE BY ROLLING WITH THE DIAMETER OF UNTHREADED PORTION WITHIN THE PITCH DIAMETER OF THREAD.
- MECHANICAL DAMAGES OF CADMIUM COATING SUCH AS SCRATCHES, NICKS AND DENTS ARE ALLOWED ON ASSEMBLY UNITS, PROVIDED THE STEEL IS NOT EXPOSED.
- REPAIR SIZE DIMENSIONS ARE ADDED WHERE INDICATED THUS (✓), BASED ON OVERHAUL SPECIFICATIONS PART III REPAIR DRAWINGS. **

(B) ALTERNATE MATERIAL: STEEL 709 M40 (EN 19)
TO BS: 970, Pt I - 1983

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

EST. WT. 0.056 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.

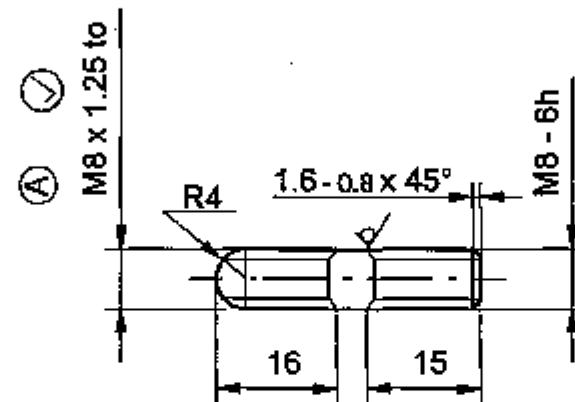
| | | | |
|---|------------|--|-----------------|
| DRN | Sd/= | MATERIAL :- ROUND BAR | USED ON :- |
| CHD | Sd/= | GOST 7417-75 | Cb 306-01-20 ✓ |
| TCD | Sd/= | 38XA GOST 1051-73 ✓ | Cb 306-02-20 ✓ |
| APPD | Sd/= | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) | |
| DATE | 06.11.88 ✓ | AVADI | |
| SCALE:- 1 : 1 | | TITLE:- | |
| DIMENSIONS IN mm | |  STUD M12 x 84 | |
| TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS : 2102 - 69 | | | |
| ALL THREADS TO CONFORM TO | | D S CAT NUMBER | DRAWING NUMBER |
| | | | 350-10-1 |

(A-11)
6
SIZE A3

| ISSUE | DATE | NATURE OF AMENDMENTS |
|-------|----------|--|
| B | 9-6-09 | 3 rd ALTERATION COMM. MINUTES POINT 2, DATE 27-2-09 |
| A | 06.09.85 | REPAIR SIZE DIMENSIONS ADDED |

DRAWING NUMBER
350 - 15

SHEET No. 1 OF 1



8. EXPLANATORY NOTE :-

MATERIAL QUOTED :- ROUND BAR GOST 7417-75
45 GOST 1051-73

ALTERNATE MATERIAL QUOTED :- 40, 50 GOST 1050-74
PERTAINS TO SIZED COLD ROLLED OR COLD DRAWN STEEL WITH ROUND SECTION

40, 45 AND 50 ARE GRADES OF STEEL GOST 1051-73

CHEMICAL COMPOSITION :

| GRADE OF STEEL | CONTENT OF ELEMENTS IN % | | | | | | | |
|----------------|--------------------------|-------------|-------------|------|-------|------|------|------|
| | C | Si | Mn | Cr | P | Cu | S | Ni |
| 40 | 0.37 - 0.45 | 0.17 - 0.37 | 0.50 - 0.80 | 0.25 | 0.035 | 0.25 | 0.04 | 0.25 |
| 45 | 0.42 - 0.50 | 0.17 - 0.37 | 0.50 - 0.80 | 0.25 | 0.035 | 0.25 | 0.04 | 0.25 |
| 50 | 0.47 - 0.55 | 0.17 - 0.37 | 0.50 - 0.80 | 0.25 | 0.035 | 0.25 | 0.04 | 0.25 |

MECHANICAL PROPERTIES :

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

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 3. CHROMATIZING AS PER IIIIJI-104 WITH ELIMINATION OF HYDROGEN EMBRITTELEMENT.
5. THE THREAD MAY BE MADE BY ROLLING WITH THE DIAMETER OF UNTHREADED PORTION WITHIN THE PITCH DIAMETER OF THREADS.
6. MECHANICAL DAMAGES OF THE CADMIUM COATING SUCH AS SCRATCHES, NICKS AND DENTS ARE ALLOWED ON ASSEMBLY UNITS, PROVIDED THE STEEL IS NOT EXPOSED.
7. ALTERNATE MATERIAL : STEEL, GRADES 40 AND 50 GOST 1050-74.
8. HARDNESS :- 27 - 32 HRC.

9. REPAIR SIZE DIMENSIONS ARE ADDED WHERE INDICATED THUS BASED ON OVER HAUL SPECIFICATION PART III REPAIR DRAWINGS.

| SL.No. | R | REMARKS |
|--------|---|---------------------------------------|
| 1 | M 10 x 1.5 to | ALL OTHER CONDITIONS AS PER STD. DRG. |
| 2 | PCD = 9.026 ^{+0.170} _{+0.095} | |

- * ALT. MATERIAL :- STEEL 709 M40 (EN-19) TO BS : 970 PT. - I-1983.

** Cb 306-01-36 Cb 306-01-20
 Cb 306-02-36 Cb 306-02-20
 Cb 3301-15-44 Cb 406-05-3
 Cb 3308-04-24 Cb 3301-15-30
 Cb 3321-14-1

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

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

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| | | | |
|---|----------|--|------------------|
| DRN | Sd/= | MATERIAL :- ROUND BAR | USED ON :- |
| CHD | Sd/= | GOST 7417-75 * | Cb 3338-402-4 ** |
| APPD | Sd/= | 45 GOST 1051-73 (C) | |
| DATE | 02.05.87 | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI | |
| SCALE:- 1 : 1 | | TITLE:- | |
| DIMENSIONS IN mm | | STUD M8 x 35 | |
| TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS : 2102-69 | | D S CAT NUMBER | |
| ALL THREADS TO CONFORM TO | | DRAWING NUMBER | |
| ISSUE | DATE | 350 - 15 | |

| | | |
|---|----------|--|
| D | 26-05-09 | Authy: Third Alt. Comm. Minutes Point. 5 Dated 27-02-2009. |
| C | 25.8.08 | USED ON NUMBERS ADDED |
| B | 11.01.08 | AUTHY: MIN. OF ALT. COM. MEET POINT |
| A | 06.9.95 | No. - 2. 12 DL.07.02.07 |
| | | REPAIR SIZE DIMNS. ADDED. |
| | | NATURE OF AMENDMENTS |

DRG. RE-INDIANISED BASED ON 350-15 ISSUE 'B' COMMON TO V-92S2 ENGINE

F-11
SIZE A1