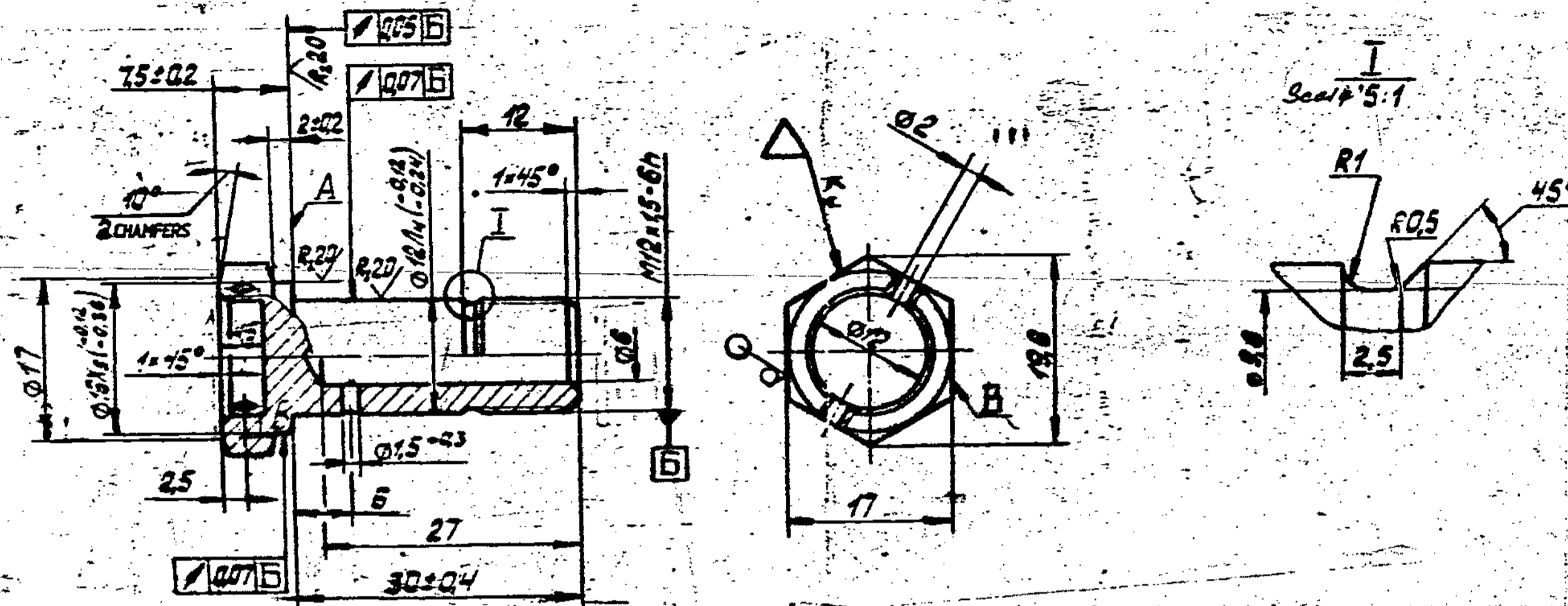


DRAWING NUMBER

20-27-340

Rz40 ✓



**EXPLANATORY NOTE :**

11. MATERIAL QUOTED : 17-5 GOST 8560-78  
45 GOST 1050-74  
BRIGHT STEEL HEXAGON BAR WIDTH ACROSS FLAT 17mm,  
OF ACCURACY CLASS 5 TO GOST 8560-78. AND MANUFACTURED  
OUT OF STEEL GRADE 45 TO GOST 1050-74.  
ALTERNATE MATERIAL QUOTED : 40 & 50 GOST 1050-74.

a) **CHEMICAL COMPOSITION :**

| STEEL GRADE | CONTENT OF ELEMENTS % |           |           |          |       |       |      |      |
|-------------|-----------------------|-----------|-----------|----------|-------|-------|------|------|
|             | 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 | 0.25 | 0.25 |
| 45          | 0.42-0.50             | 0.17-0.37 | 0.50-0.80 | 0.25     | 0.040 | 0.035 | 0.25 | 0.25 |
| 50          | 0.47-0.55             | 0.17-0.37 | 0.50-0.80 | 0.25     | 0.040 | 0.035 | 0.25 | 0.25 |

b) **MECHANICAL PROPERTIES :**

| STEEL GRADE | YIELD POINT Kg/mm <sup>2</sup> (min) | ULTIMATE TENSILE STRENGTH Kg/mm <sup>2</sup> (min) | PERCENTAGE ELONGATION (min) | REDUCTION OF AREA % (min) | IMPACT STRENGTH Kgfm/cm <sup>2</sup> (min) | HARDNESS B H N (max) |
|-------------|--------------------------------------|--|-----------------------------|---------------------------|--|----------------------|
| 40          | 34                                   | 58   | 19                          | 45                        | 6  | 217                  |
| 45          | 36                                   | 61   | 16                          | 40                        | 5  | 229                  |
| 50          | 38                                   | 64   | 14                          | 40                        | 4  | 241                  |

- 1 Inspection group V as per Technical Requirements TT-11.
- 2 Unspecified limit deviations of dimensions are as follows: for holes - as per A7; shafts - as per B7; others - as per CM7.
- 3 Displacement of axis of head B with respect to axis of thread b should not exceed 0,5 mm.
- 4 When facing butt end A, single-point tool may cut along the cylindrical surface to a depth as not more than 0,3 mm.
- 5 Cracks, burrs, notches, dents and other mechanical damages are not allowed.
- 6 Thread should be clean and free from burrs, stripping and dents.

- 7 Coating: Cadmium-plated, 9 microns thick, oiled. Thread may be checked before applying coating. Internal surfaces may have no coating.
- 8 Permitted is edge rounding to a diameter of 9 mm.
- 9 No recess, 19 mm in diameter, is allowed.
- 10 Alternate material is steel 40: 50 GOST 1050-74.

Ⓐ EQUIVALENT MATERIAL  
STEEL 080M40 (EN8) TO BS: 970 OR  
45 CB TO IS: 1570

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

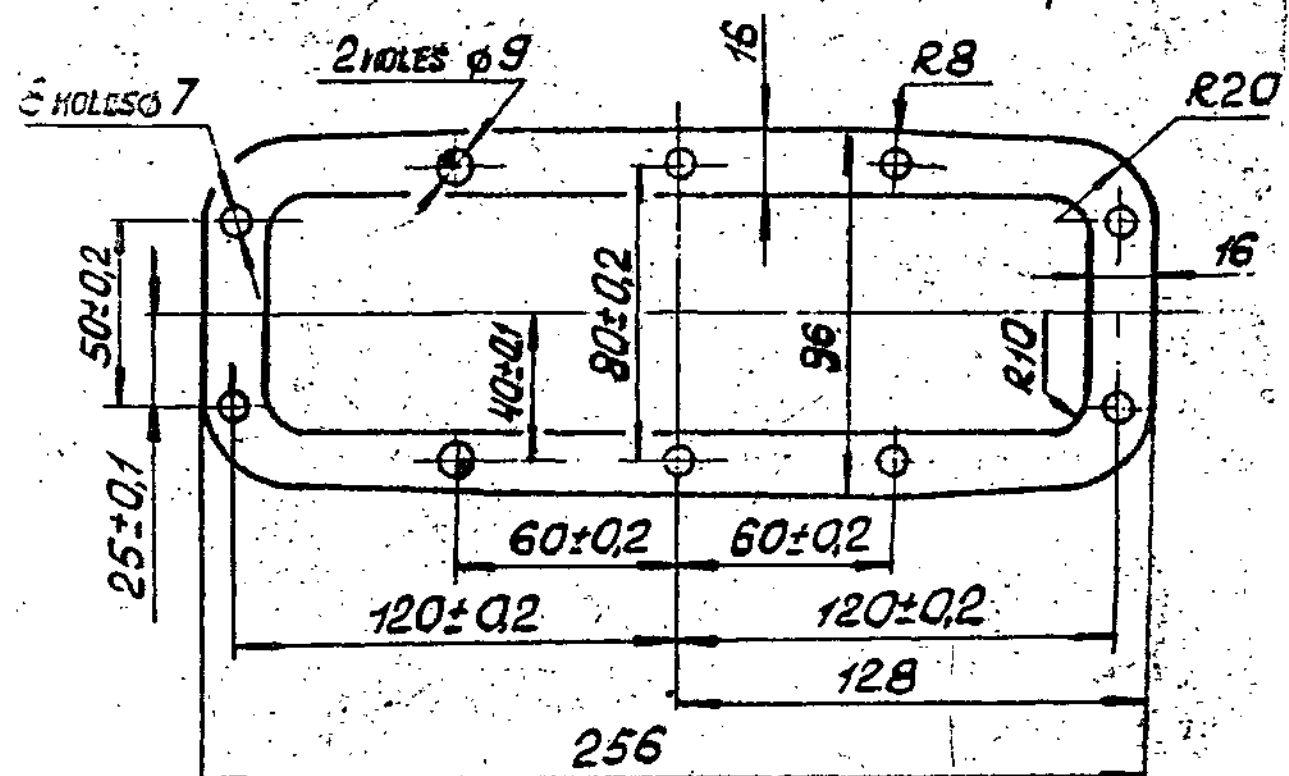
EST. WT. 0.030 Kg TO BE STAMPED OR MARKED WHERE INDICATED THUS # LETTERS)

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  | Used     | MATERIAL  | USED ON        |
| CHD  | Used     | 17-5 GOST 8560-78                                     | CB 20-27-00-4  |
| TCO  | Norman   | 45 GOST 1050-74                                       |                |
| APPD   |          | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES)   |                |
| DATE   | 06-03-87 | A V A D   |                |
| SCALE  | 2 : 1    |   |                |
| DIMENSIONS IN mm.                                      |          | TITLE   |                |
| TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS 2102-69. |          | CONNECTOR   |                |
| A  | 10-7-10  | 4.15 ALT. COMM. Mfg. MINUTES POINT No. 7 DT. 26-10-09 | D S CAT NUMBER |
| ISSUE  | DATE     | NATURE OF AMENDMENTS                                  | DRAWING NUMBER |
|  |          |   | 20-27-340      |



DRAWING NUMBER  
20-15-645-3



1. REQUIREMENTS PLACED UPON STAMPING ARE AS PER STANDARD 82050-16.

EXPLANATORY NOTE :

2. MATERIAL QUOTED : ПОН 0.6, GOST 481-80.

GENERAL PURPOSE PARONITE GRADE ПОН, THICKNESS 0.6mm.

- (i) WORKING MEDIUM = HEAVY PETROLEUM PRODUCTS LIKE DIESEL FUEL, ETC
- (ii) LIMITING TEMPERATURE = -40° TO +200° C.
- (iii) LIMITING PRESSURE = 64 Kgf/cm<sup>2</sup>
- (iv) DENSITY = 1.6 - 2.0 g/cm<sup>3</sup>
- (v) CONVENTIONAL BREAKING POINT IN THE TRANSVERSE DIRECTION AFTER SOAKING IN KEROSENE AT 23°C FOR 12 HOURS } = 66 Kgf/cm<sup>2</sup> (min)
- (vi) INCREASE IN WEIGHT IN KEROSENE AT 23°C FOR 12 HOURS } = 40 % (max)
- (vii) COMPRESSABILITY AT 350 Kgf/cm<sup>2</sup> = 8 - 20 %
- (viii) RECOVERY AFTER REMOVAL OF PRESSURE } 350 Kgf/cm<sup>2</sup> } = 30 % (min)

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

EST. WT. 0.007 Kg TO BE STAMPED OR MARKED WHERE INDICATED THUS  $\frac{\text{---}}{\text{---}}$  ( LETTERS)

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

|   |                      |  |               |
|---|----------------------|--|---------------|
| DRN   | <i>[Signature]</i>   | MATERIAL:-   | USED ON       |
| ПОН   | <i>[Signature]</i>   | ПОН 0.6 GOST/481-80                                | СБ 20-27-00-4 |
| ТОО   | <i>[Signature]</i>   | CONTROLLERATE OF QUALITY ASSURANCE(HEAVY VEHICLES) |               |
| APPO  | <i>[Signature]</i>   | AVADI  |               |
| DATE  | 04-05-87             | TITLE  |               |
| SCALE:-   | 1 : 2                | GASKET   |               |
| DIMENSIONS IN mm                                      |                      | D S CAT NUMBER                                     |               |
| TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS:2102-69 |                      | DRAWING NUMBER                                     |               |
| ALL THREADS TO CONFORM TO                             |                      | 20-15-645-3  |               |
| ISSUE DATE  | NATURE OF AMENDMENTS |  |               |

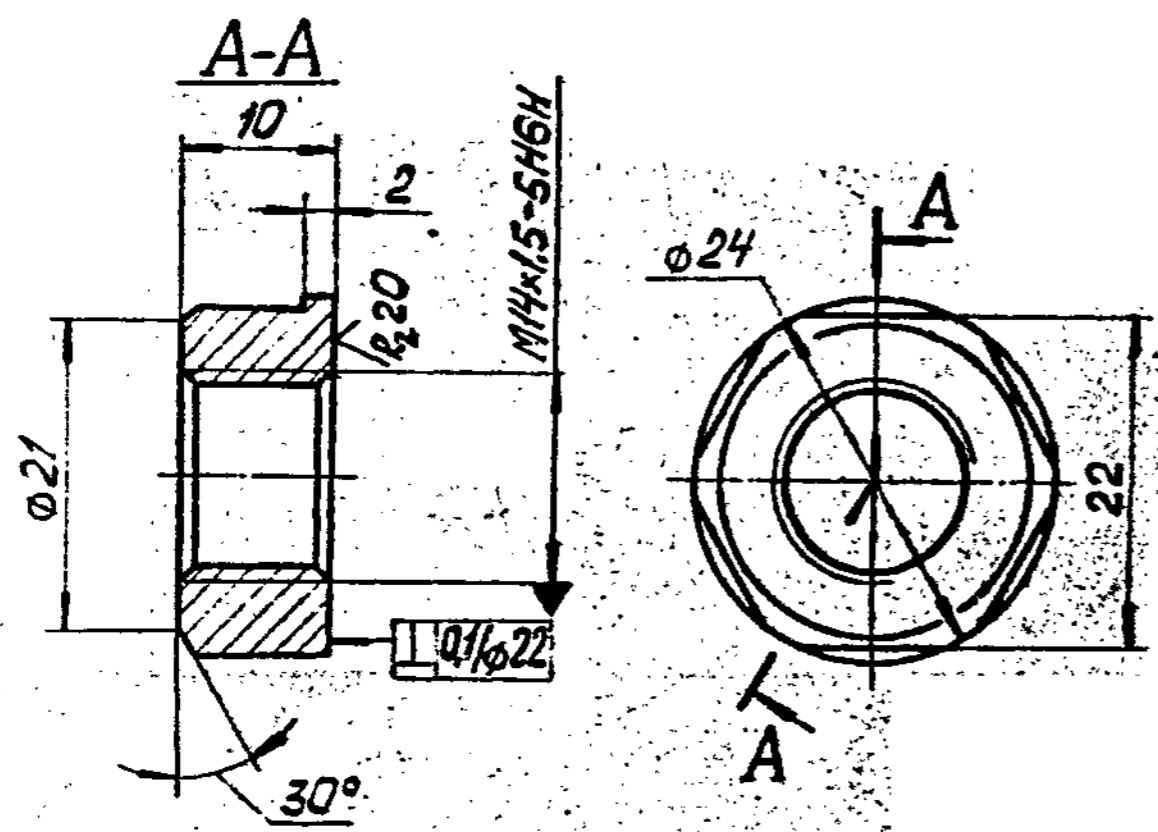


SIZE A3



DRAWING NUMBER  
20-15-647-1A

Rz80 (✓)



5. EXPLANATORY NOTE :-

MATERIAL QUOTED :- 18X2H4MA (18X2H4BA) TO GOST 4543-71  
CHROMIUM, NICKEL, MOLYBDENUM STEEL OF HIGH QUALITY, GRADE  
18X2H4MA (18X2H4BA) TO GOST 4543-71

CHEMICAL COMPOSITION :- %

|            |               |
|------------|---------------|
| CARBON     | = 0,14 - 0,20 |
| SILICON    | = 0,17 - 0,25 |
| CHROMIUM   | = 1,35 - 1,65 |
| NICKEL     | = 4,00 - 4,40 |
| MOLYBDENUM | = 0,30 - 0,40 |
| TITANIUM   | = 0,06 (MAX)  |
| PHOSPHORUS | = 0,025 (MAX) |
| SULPHUR    | = 0,025 (MAX) |
| COPPER     | = 0,30 (MAX)  |

PHYSICAL PROPERTIES :-

|   |                                 |
|---|---------------------------------|
| YIELD POINT                                 | = 85 Kgf/mm <sup>2</sup> (MIN)  |
| ULTIMATE STRENGTH                           | = 115 Kgf/mm <sup>2</sup> (MIN) |
| RELATIVE ELONGATION                         | = 12 % (MIN)                    |
| RELATIVE REDUCTION ALONG<br>CROSS - SECTION | = 50 %                          |
| IMPACT STRENGTH                             | = 12 Kgf/Cm <sup>2</sup>        |

1. INSPECTION GROUP IV AS PER TECHNICAL REQUIREMENTS TT-11.
2. HRC 33 TO 37.
3. UNSPECIFIED LIMIT DEVIATIONS OF DIMENSIONS ARE AS FOLLOWS:- FOR SHAFTS - AS PER B<sub>7</sub>.
4. COATING: CHEMICALLY-OXIDIZED, OILED.

|   |                      |  |                          |
|---|----------------------|--|--------------------------|
| DRN   | <i>Pr...</i>         | MATERIAL:- 18X2H4MA<br>(18X2H4BA) TO GOST 4543-71          | USED ON<br>CB 20-27-00-4 |
| TC  | <i>...</i>           | CONTROLLERATE OF QUALITY ASSURANCE(HEAVY VEHICLES)<br>AVAD |                          |
| DATE  | 25-04-87             | TITLE<br>CROSS NUT   |                          |
| SCALE   | 2:1                  | D S CAT-NUMBER   |                          |
| DIMENSIONS IN mm<br>TOLERANCE ON DIMNS<br>UNLESS OTHERWISE<br>STATED IS:2102-69 |                      | DRAWING NUMBER<br>20-15-647-1A                             |                          |
| ALL THREADS TO<br>CONFORM TO  |                      |  |                          |
| ISSUE DATE  | NATURE OF AMENDMENTS |  |                          |

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

EST. WT. 0,02 Kg. TO BE STAMPED OR MARKED WHERE INDICATED THIS ≡ I LETTERS)

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

SIZE A3

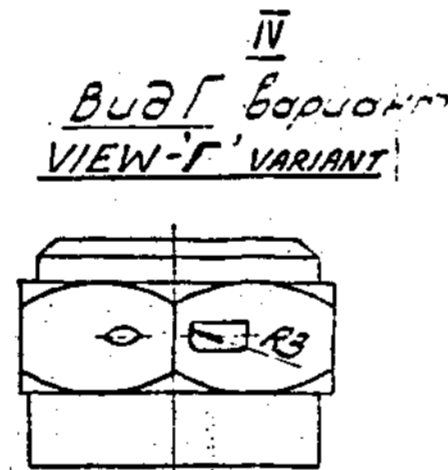
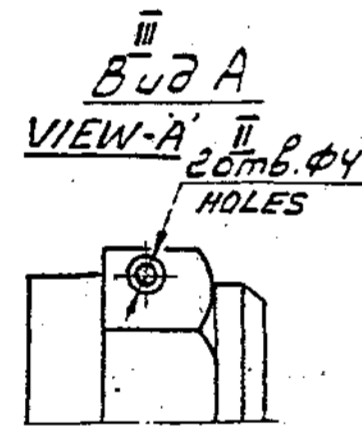
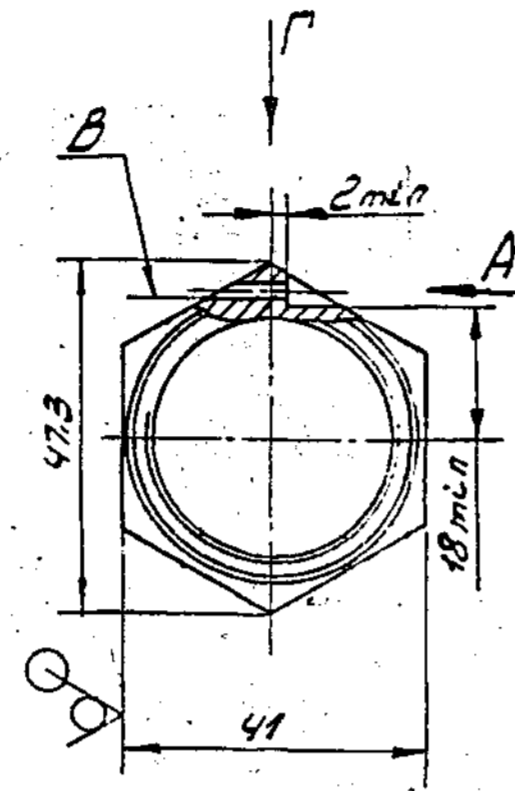
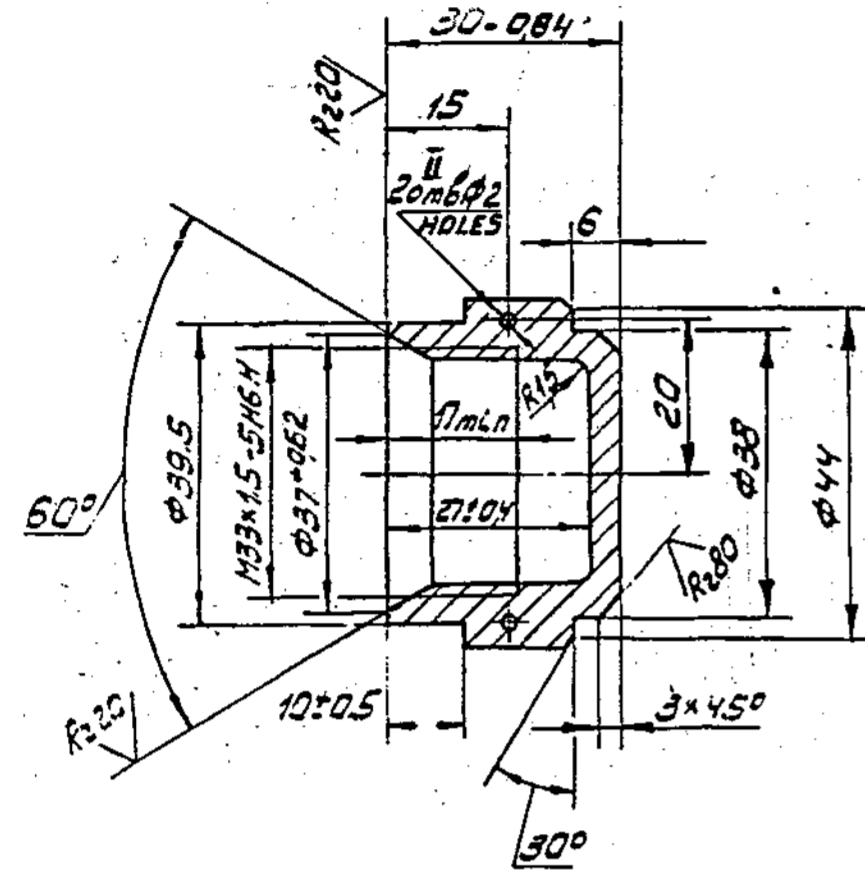


DRAWING NUMBER  
20.15.654-1

Rz40/ (✓)

- I
1. Неуказанные предельные отклонения размеров: H14, h14,  $\pm \frac{IT14}{2}$ .
  2. Допускается сбивка граней шестигранника до  $\phi 46 - 0,62$  мм.
  3. Взаимное положение подторцовок R3 - безразлично.
  4. Покрытие: ЦЗ.хр.  
Допускается отсутствие покрытия на поверхности В.

- I. 1. Non-indicated limit deviations of dimensions: H14, h14,  $\pm \frac{IT14}{2}$ .
2. Knocking down of the hexahedron faces is allowed up to  $\phi 46 - 0,62$  mm.
  3. Mutual position of facings R3 is indifferent.
  4. Coating: Zinc 3 chrom.  
Coating absence is allowed on B surface.



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

EST. 0,012 Kg. TO BE STAMPED OR MARKED WHERE INDICATED (US # LETTERS)  
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED. MACHINE DRIVERS TO HAVE R CUT-INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

|  |     |     |      |         |       |                         |  |   |       |                            |                      |
|--|-----|-----|------|---------|-------|-------------------------|--|---|-------|----------------------------|----------------------|
| DRN  | CHD | TCD | APPD | DATE    | SCALE | DIMENSIONS IN mm        | TOLERANCE ON DIMS UNLESS OTHERWISE STATED IS 2102-69 | ALL THREADS TO CONFORM TO                                 | ISSUE | DATE                       | NATURE OF AMENDMENTS |
|  |     |     |      | 16-7-93 | 1:1   |                         |  |   |       |                            |                      |
| MATERIAL - 41-5 GOST 8560-78 45 GOST 1050-74 |     |     |      |         |       | USED ON - C6 20-21-00-4 |  | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI |       |                            |                      |
| TITLE CAP-NUT                                |     |     |      |         |       |                         |  | D'S CAT NUMBER  |       | DRAWING NUMBER 20.15.654-1 |                      |

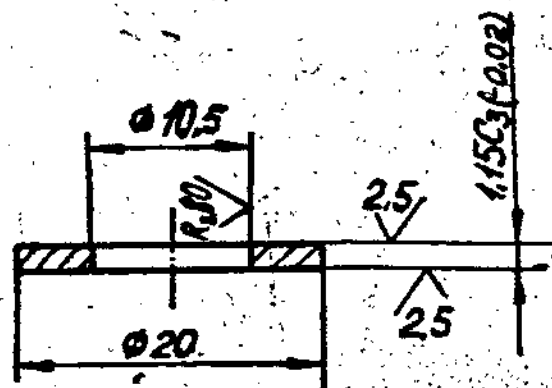
DRG. INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - NIL - NOTN. No. 1618-867



DRAWING NUMBER

20-15-659

✓ (V)



1. INSPECTION GROUP IV AS PER TECHNICAL REQUIREMENTS TT-11
2. HRC 47 TO 54.
3. REQUIREMENTS PLACED UPON STAMPING ARE AS PER STANDARD 82050-16.
4. COATING: CHEMICALLY-OXIDIZED, OILED.
5. WASHER MAY BE MADE OF STEEL 65F GOCT 1050-74.

**EXPLANATORY NOTE :**

6. MATERIAL QUOTED : 2 GOST 19904-74  
85 GOST 1050-74

COLD ROLLED SHEET, THICKNESS 2mm AND MATERIAL GRADE 85 & Alt Gde 65F TO GOST 1050-74.

CHEMICAL COMPOSITION : %

|            | GRADE 85      | GRADE 65F     |
|------------|---------------|---------------|
| CARBON     | = 0.82 - 0.90 | = 0.62 - 0.70 |
| SILICON    | = 0.17 - 0.37 | = 0.17 - 0.37 |
| MANGANESE  | = 0.50 - 0.80 | = 0.90 - 1.20 |
| CHROMIUM   | = 0.10 (max)  | = 0.10 (max)  |
| SULPHUR    | = 0.040 (max) | = 0.040 (max) |
| PHOSPHORUS | = 0.035 (max) | = 0.035 (max) |
| COPPER     | = 0.25 (max)  | = 0.25 (max)  |
| NICKEL     | = 0.25 (max)  | = 0.25 (max)  |

MECHANICAL PROPERTIES :

|                           | GRADE 85                        | GRADE 65F                      |
|---------------------------|---------------------------------|--------------------------------|
| YIELD POINT               | = 100 Kgf/mm <sup>2</sup> (min) | = 44 Kgf/mm <sup>2</sup> (min) |
| ULTIMATE TENSILE STRENGTH | = 115 Kgf/mm <sup>2</sup> (min) | = 75 Kgf/mm <sup>2</sup> (min) |
| PERCENTAGE ELONGATION     | = 6 % (min)                     | = 9 % (min)                    |
| REDUCTION OF AREA         | = 30 % (min)                    | = —                            |

KVD No. - 63460



SIZE A3

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

EST. WT. 0.003 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 INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE

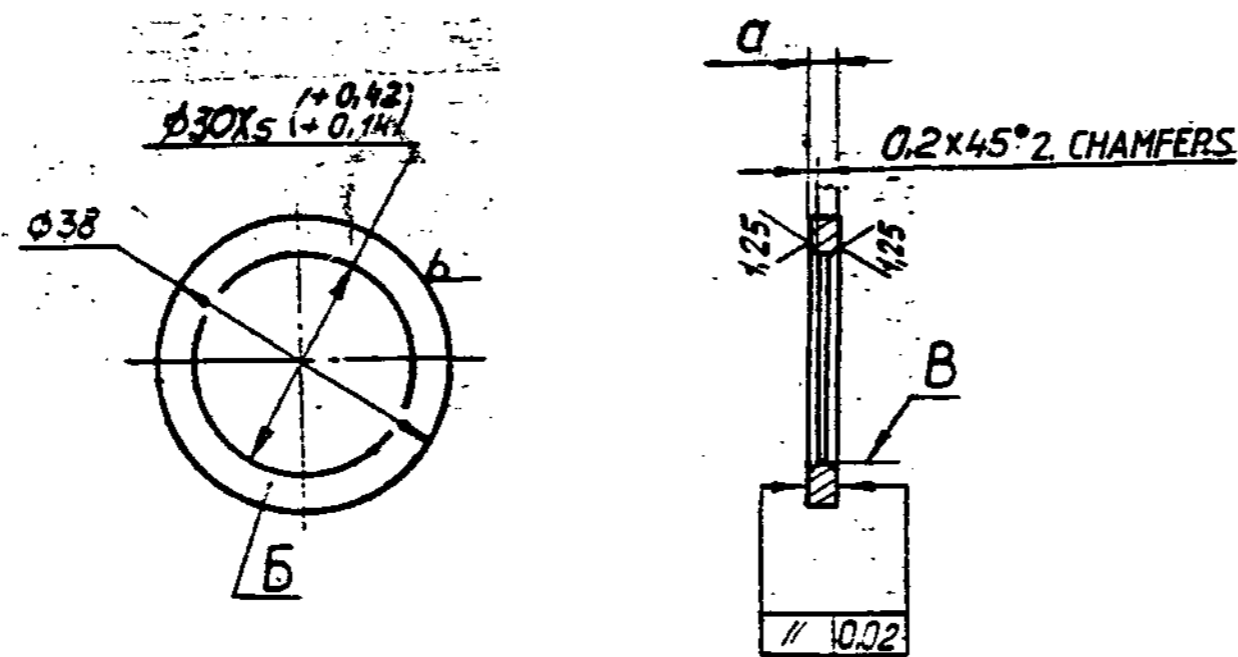
|   |                    |  |                |
|---|--------------------|--|----------------|
| DRN   | <i>[Signature]</i> | MATERIAL:-   | USED ON        |
| CHK   | <i>[Signature]</i> | 2 GOST 19904-74                                    | CB 20-27-00-4  |
| TCD   | <i>[Signature]</i> | 85 GOST 1050-74                                    |                |
| APPD  | <i>[Signature]</i> | CONTROLLERATE OF QUALITY ASSURANCE(HEAVY VEHICLES) |                |
| DATE  | 04-05-87           | AVADI  |                |
| SCALE:-   | 2 : 1              |  |                |
| DIMENSIONS IN mm                                      |                    | TITLE  | WASHER         |
| TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS:2102-69 |                    |  |                |
| ALL THREADS TO CONFORM TO                             |                    | D'S CAT. NUMBER                                    | DRAWING NUMBER |
| ISSUE DATE  |                    |  | 20-15-659      |
| NATURE OF AMENDMENTS                                  |                    |  |                |



DRAWING NUMBER

20-15-681

Rz 80 ✓ (✓)



**EXPLANATORY NOTE:-**

MATERIAL QUOTED : = 38XC TY 14-1-381-72  
 ALTERNATE MATERIAL QUOTED : = 38XC GOST 4543-71  
 38XC = CHROMIUM-SILICON STEEL ( QUALITY STEEL )

(a) **CHEMICAL COMPOSITION:** AS PER GOST 4543-71

| C O N T E N T O F E L E M E N T S % |           |           |           |       |       |      |      |
|-------------------------------------|-----------|-----------|-----------|-------|-------|------|------|
| C                                   | Si        | Mn        | Cr        | S     | P     | Cu   | Ni   |
| 0,34-0,42                           | 1,00-1,40 | 0,30-0,60 | 1,30-1,60 | 0,035 | 0,035 | 0,30 | 0,30 |
| m a x i m u m                       |           |           |           |       |       |      |      |

(b) **MECHANICAL PROPERTIES:** AS PER GOST 4543-71

| ULTIMATE TENSILE STRENGTH Kgf/mm <sup>2</sup> | YIELD POINT Kgf/mm <sup>2</sup> | IMPACT STRENGTH Kgf/cm <sup>2</sup> | RELATIVE ELONGATION % | RELATIVE REDUCTION ALONG CROSS SECTION % |
|---|---------------------------------|-------------------------------------|-----------------------|--|
| (min)   | (min)                           | (min)                               | (min)                 | (min)                                    |
| 95  | 75                              | 7                                   | 12                    | 50                                       |

- INSPECTION GROUP IV AS PER TECHNICAL REQUIREMENTS.
- H R C 33 TO 37.
- UNSPECIFIED LIMIT DEVIATIONS OF DIMENSIONS ARE AS FOLLOWS FOR SHAFTS - AS PER B7.
- TOLERANCE ON NON-PARALLELITY SHOULD BE CHECKED IN TWO MUTUALLY PERPENDICULAR DIRECTIONS.
- ACTUAL SIZE OF THE RING THICKNESS SHOULD BE ENGRAVED AT POINT B ACCORDING TO TABLE.
- NOT MORE THAN 20% OF RINGS FROM EACH GROUP BE MANUFACTURED WITHIN THE LIMITS FROM ± 0.02 mm UP TO ± 0.05 mm.
- MACHINING OF SURFACE B IS PERMITTED.
- WASHER MAY BE MADE OF STEEL 38XC, GOCT 4543-71.

| SL. NO. | DIMENSION  |
|---------|------------|
| 1       | 0,4 ± 0,02 |
| 2       | 0,6 ± 0,02 |
| 3       | 0,8 ± 0,02 |
| 4       | 1,0 ± 0,02 |
| 5       | 1,2 ± 0,02 |
| 6       | 1,4 ± 0,02 |

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

EST. WT.  
0,00299 Kg  
0,0058 Kg

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 OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

|                    |      |                      |      |                  |       |   |   |                           |
|--------------------|------|----------------------|------|------------------|-------|---|---|---------------------------|
| DRN                | CHD  | TCD                  | APPD | DATE             | SCALE | DIMENSIONS IN mm.                                   | TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS 2102-69 | ALL THREADS TO CONFORM TO |
|                    |      |                      |      | 7-5-87           | 1:1   |   |   |                           |
| MATERIAL :-        |      |                      |      | USED ON :-       |       | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) |   |                           |
| 38XC TY14-1-381-72 |      |                      |      | C6 20-27-00-4    |       | A V A D I   |   |                           |
| TITLE              |      |                      |      | ADJUSTING WASHER |       |   |   |                           |
| D S CAT NUMBER     |      |                      |      | DRAWING NUMBER   |       |   |   |                           |
|                    |      |                      |      | 20-15-681        |       |   |   |                           |
| ISSUE              | DATE | NATURE OF AMENDMENTS |      |                  |       |   |   |                           |

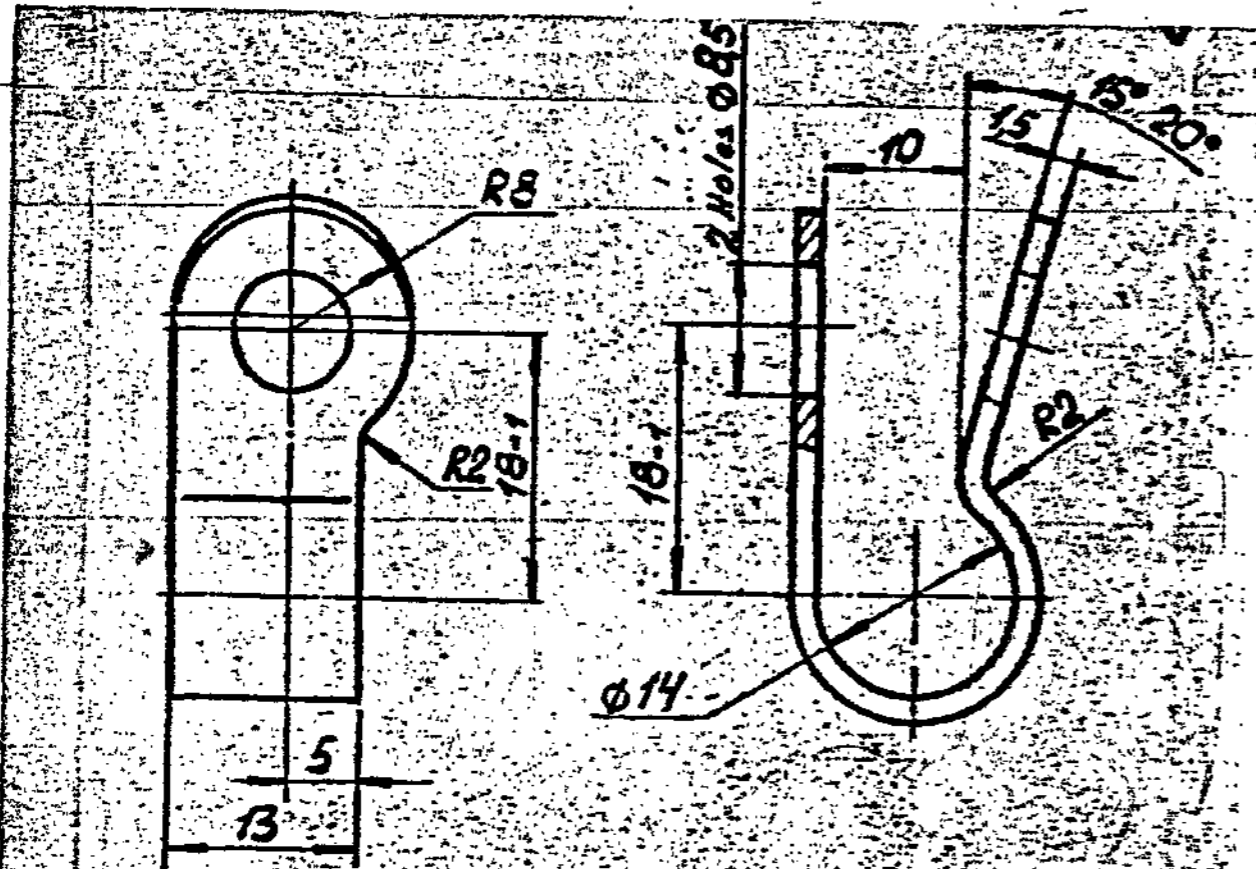
KVP No. - 63461

SIZE A2



DRAWING NUMBER

20-27-23-1



1. TOTAL LENGTH L = 75mm
2. REQUIREMENTS PLACED UPON STAMPING ARE AS PER STANDARD 82050-18
3. THE PART MAY BE MADE OF STEEL 0.8 k : 10: 10Kn, 10nc: GOST 1050-74
4. COATING : CADMIUM-PLATED, 21 MICRONS THICK, OILED WITH FURTHER REMOVAL OF HYDROGEN EMBRITTLEMENT.

**EXPLANATORY NOTE :-**

5. MATERIAL QUOTED : STRIP 08nc-M-2-1.5 GOST 503-71  
 COLD ROLLED LOW CARBON STEEL STRIP.  
 M = SOFT  
 2 = SECOND GROUP - SURFACE QUALITY.  
 1.5 = THICKNESS.  
 08nc = MATERIAL GRADE AS PER GOST 1050-74.

**a) CHEMICAL COMPOSITION :-**

| STEEL GRADE   | CONTENT OF ELEMENTS % |           |           |      |       |       |      |      |
|---------------|-----------------------|-----------|-----------|------|-------|-------|------|------|
|               | C                     | Si        | Mn        | Cr   | S     | P     | Cu   | Ni   |
| M A X I M U M |                       |           |           |      |       |       |      |      |
| 08nc          | 10.05-0.11            | 0.05-0.17 | 0.35-0.65 | 0.10 | 0.040 | 0.035 | 0.25 | 0.25 |
| 08Kn          | 10.05-0.11            | 0.03-max  | 0.25-0.50 | 0.10 | 0.040 | 0.035 | 0.25 | 0.25 |
| 10            | 10.07-0.14            | 0.17-0.37 | 0.35-0.65 | 0.15 | 0.040 | 0.035 | 0.25 | 0.25 |
| 10Kn          | 10.07-0.14            | 0.07-max  | 0.25-0.50 | 0.15 | 0.040 | 0.035 | 0.25 | 0.25 |
| 10nc          | 10.07-0.14            | 0.05-0.17 | 0.35-0.65 | 0.15 | 0.040 | 0.035 | 0.25 | 0.25 |

**b) MECHANICAL PROPERTIES :-**

| STEEL GRADE | YIELD POINT<br>Kgf/mm <sup>2</sup> (min) | PERCENTAGE ELONGATION<br>% (min) | REDUCTION OF AREA<br>% (min) | ULTIMATE STRENGTH<br>Kgf/mm <sup>2</sup> (min.) | B H N HARDNESS<br>(m a x) |
|-------------|--|----------------------------------|------------------------------|---|---------------------------|
| 08nc        | 20                                       | 33                               | 60                           | 33  | 131                       |
| 08Kn        | 20                                       | 33                               | 60                           | 33  | 131                       |
| 10          | 21                                       | 31                               | 55                           | 34  | 143                       |
| 10Kn        | 21                                       | 31                               | 55                           | 34  | 143                       |
| 10nc        | 21                                       | 31                               | 55                           | 34  | 143                       |

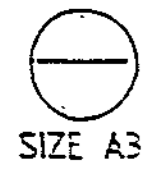
**Ⓐ EQUIVALENT MATERIAL**  
 Gr:DD IS: 513-1994

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

EST. WT. 0.011 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. IN CASE EQUIVALENT CHAMFERS ARE PERMISSIBLE

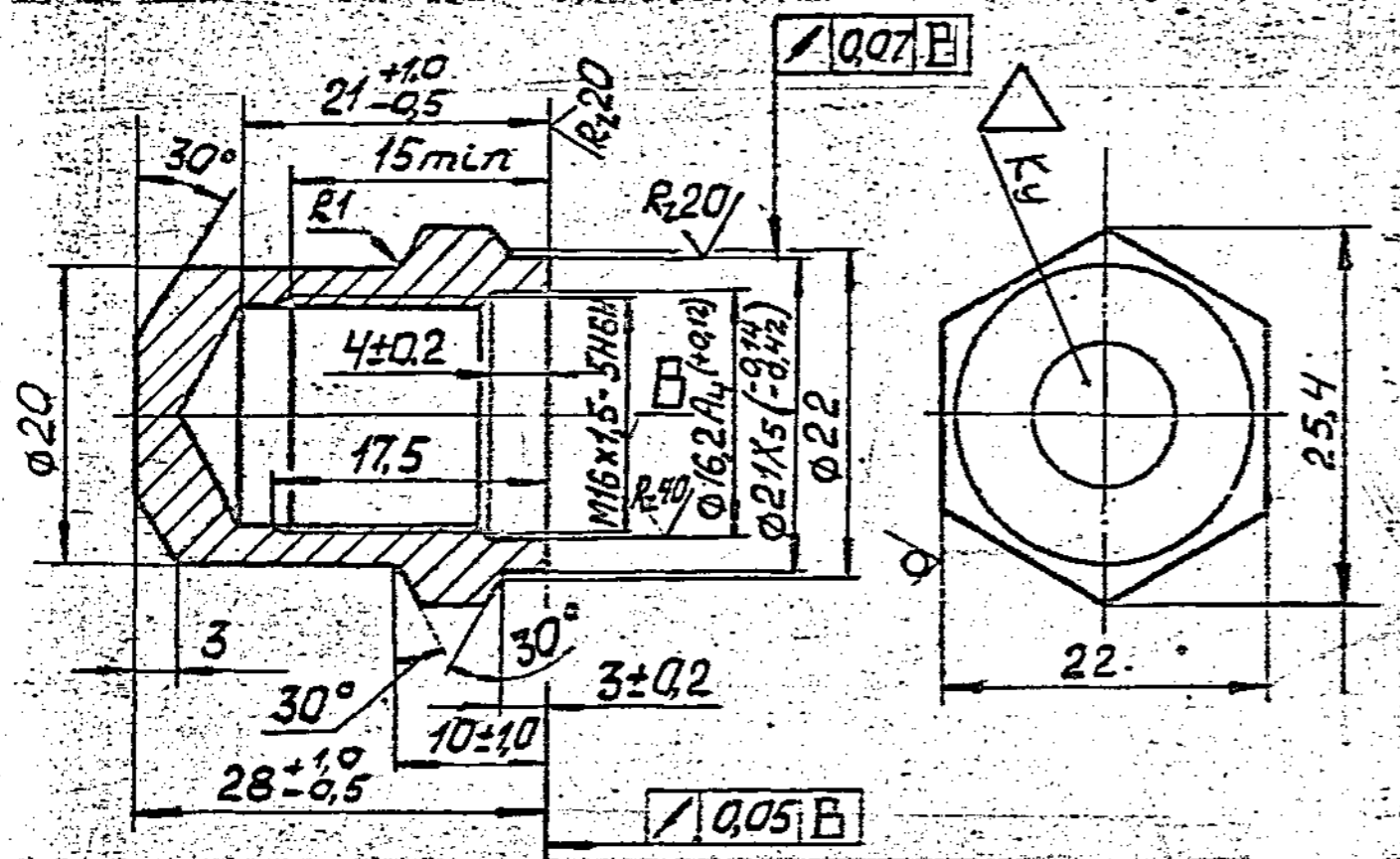
|                      |                                    |   |                              |
|----------------------|------------------------------------|---|------------------------------|
| DRN                  | 14                                 | MATERIAL :-<br>STRIP 08nc-M-2-1.5<br>GOST 503-71            | USED ON<br>CB 20-27-00-4     |
| CHKD                 |                                    |   |                              |
| TCD                  |                                    |   |                              |
| APPR                 |                                    |   |                              |
| DATE                 | 04-05-87                           | CONTROLLERATE OF QUALITY ASSURANCE(HEAVY VEHICLES)<br>AVADI |                              |
| SCALE                | 2 : 1                              |   |                              |
| DIMENSIONS IN        | mm                                 |   |                              |
| TOLERANCE ON DIMNS   | UNLESS OTHERWISE STATED IS:2102-69 |   |                              |
| ALL THREADS TO       | CONFORM TO                         |   |                              |
| ISSUE DATE           | 10.03.10                           | D S CAT NUMBER  | DRAWING NUMBER<br>20-27-23-1 |
| NATURE OF AMENDMENTS |                                    |   |                              |



SIZE A3



DRAWING NUMBER  
20-27-37



**EXPLANATORY NOTE :**

Rz80 ✓

5. MATERIAL QUOTED : 22-5 GOST 8560-78  
45 GOST 1050-74

BRIGHT STEEL HEXAGON BAR, WIDTH ACROSS-FLAT 22mm, OF ACCURACY CLASS 5 TO GOST 8560-78 AND MANUFACTURED OUT OF STEEL GRADE 45 : TO GOST 1050-74.

ALTERNATE MATERIAL QUOTED : 40 & 50 TO GOST 1050-74.

a) CHEMICAL COMPOSITION :

| STEEL GRADE | CONTENT OF ELEMENTS |           |           |      | %     |       |      |      |
|-------------|---------------------|-----------|-----------|------|-------|-------|------|------|
|             | C                   | S         | Mn        | Cr   | S     | P     | NI   | Cu   |
|             | M A X I M U M       |           |           |      |       |       |      |      |
| 40          | 0.37-0.45           | 0.17-0.37 | 0.50-0.80 | 0.25 | 0.040 | 0.035 | 0.25 | 0.25 |
| 45          | 0.42-0.50           | 0.17-0.37 | 0.50-0.80 | 0.25 | 0.040 | 0.035 | 0.25 | 0.25 |
| 50          | 0.47-0.55           | 0.17-0.37 | 0.50-0.80 | 0.25 | 0.040 | 0.035 | 0.25 | 0.25 |

b) MECHANICAL PROPERTIES: %

| STEEL GRADE | YIELD POINT<br>Kgf/mm <sup>2</sup><br>(min) | ULTIMATE TENSILE STRENGTH<br>Kgf/mm <sup>2</sup><br>(min) | PERCENTAGE ELONGATION<br>% (min) | REDUCTION OF AREA<br>% (min) | IMPACT STRENGTH<br>Kgf/m <sup>2</sup><br>(min) | HARDNESS<br>B H N<br>(max) |
|-------------|---|---|----------------------------------|------------------------------|--|----------------------------|
| 40          | 34  | 58  | 19                               | 45                           | 6  | 217                        |
| 45          | 36  | 61  | 16                               | 40                           | 5  | 229                        |
| 50          | 38  | 64  | 14                               | 40                           | 4  | 241                        |

Ⓐ EQUIVALENT MATERIAL STEEL  
45C8 TO IS:1570

- UNSPECIFIED LIMIT DEVIATIONS OF DIMENSIONS ARE AS FOLLOWS: FOR HOLES - AS PER A<sub>1</sub>, SHAFTS - AS PER B<sub>1</sub>.
- CRACKS, BURRS, NOTCHES, DENTS AND OTHER MECHANICAL DAMAGE ARE NOT PERMITTED.
- COATING: CADMIUM-PLATED, 9 MICRONS THICK, OILED. THE THREAD MAY BE CHECKED BEFORE APPLYING COATING.  
  
INTERNAL SURFACES MAY HAVE NO COATING.
- ALTERNATE MATERIAL IS STEEL 40: 50 GOST 1050-74.

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

EST. WT. 0.042 Kg 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 INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE

|                                    |             |  |                   |                |               |
|------------------------------------|-------------|--|-------------------|----------------|---------------|
| DRN                                | G. Nayak    | MATERIAL:-   | 22-5 GOST 8560-78 | USED ON        | CB 20-27-00-4 |
| CHKD                               | Shree Kumar |  | 45 GOST 1050-74   |                |               |
| TCD                                | M. Narain   |  |                   |                |               |
| APPD                               |             |  |                   |                |               |
| DATE                               | 07-05-87    | CONTROLLERATE OF QUALITY ASSURANCE(HEAVY VEHICLES) |                   |                |               |
| SCALE                              | 2 : 1       | AVAD   |                   |                |               |
| DIMENSIONS IN mm                   |             | TOLERANCE ON DIMNS                                 |                   | TITLE          |               |
| UNLESS OTHERWISE STATED IS-2102-69 |             | ALL THREADS TO CONFORM TO                          |                   | CAP            |               |
| A                                  | 12-8-10     | 4 <sup>th</sup> Alt. Comm. Meeting Minutes         | D S CAT NUMBER    | DRAWING NUMBER |               |
|                                    |             | Point No.11, Dt. 26.10.09                          |                   | 20-27-37       |               |
| ISSUE DATE                         |             | NATURE OF AMENDMENTS                               |                   |                |               |

KVD No.-66740

# THE UNIVERSITY OF CHICAGO

1955-1956

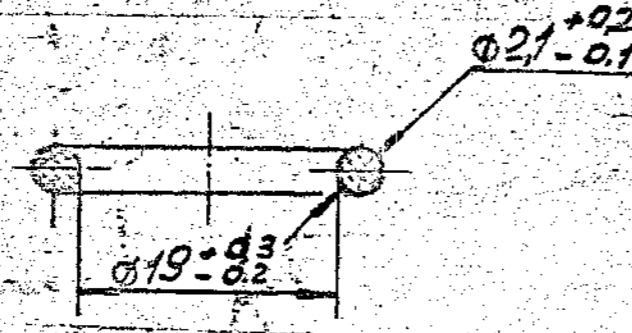


1955-1956

1955-1956

DRAWING NUMBER

20-27-61



1. DIMENSION IS PROVIDED WITH TOOLS.

2. OTHER REQUIREMENTS ARE AS PER TECHNICAL SPECIFICATIONS TY 005 216-75, FOR ARTICLES, CODE 25 3111 H/L

**EXPLANATORY NOTE :-**

**MATERIAL QUOTED :-** RUBBER HO-68-1 TO TY 005216-75

**RUBBER GRADE :-** HO-68-1

**IMPORTANT PARAMETERS :-**

- (I) WORKING MEDIUM = OIL & PETROL
- (II) OPERATING TEMPERATURE =  $-50^{\circ}$  TO  $+125^{\circ}$ C
- (III) HARDNESS MEASURED ON TWP DEVICE (ARBITRARY) = 55 - 70
- (IV) RUPTURE STRENGTH = 90 Kg/cm<sup>2</sup> (MIN)
- (V) ELONGATION OF RUPTURE = 250% (MIN)
- (VI) DENSITY = 1,24 ± 0,05 gm/cm<sup>3</sup>

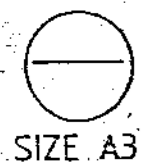
(A) ALT MATL.: RUBBER GRADE BNC TO SPECN. CQA(HV)/NBR+CR

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 INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

|                                     |         |  |               |
|-------------------------------------|---------|--|---------------|
| DRN                                 | 9/10/87 | MATERIAL :- RUBBER HO-68-1                         | USED ON       |
| CD                                  | Bhurch  | TY 005216-75                                       | CB 20-27-00-4 |
| TD                                  | Bmisa   | CONTROLLERATE OF QUALITY ASSURANCE(HEAVY VEHICLES) |               |
| APPO                                | 20/87   | AVADI  |               |
| DATE                                | 4-05-87 | TITLE  |               |
| SCALE                               | 2:1     | SEALING RING                                       |               |
| DIMENSIONS IN mm                    |         | D S CAT NUMBER                                     |               |
| TOLERANCE ON DIMNS                  |         | DRAWING NUMBER                                     |               |
| UNLESS OTHERWISE STATED IS:2102-69  |         | 20-27-61   |               |
| ALL THREADS TO CONFORM TO           |         | ISSUE DATE   |               |
| A 22.05.08                          |         | NATURE OF AMENDMENTS                               |               |
| Lt. No. TC/GEN/IND-III Dt. 02.04.08 |         |  |               |



SIZE A3

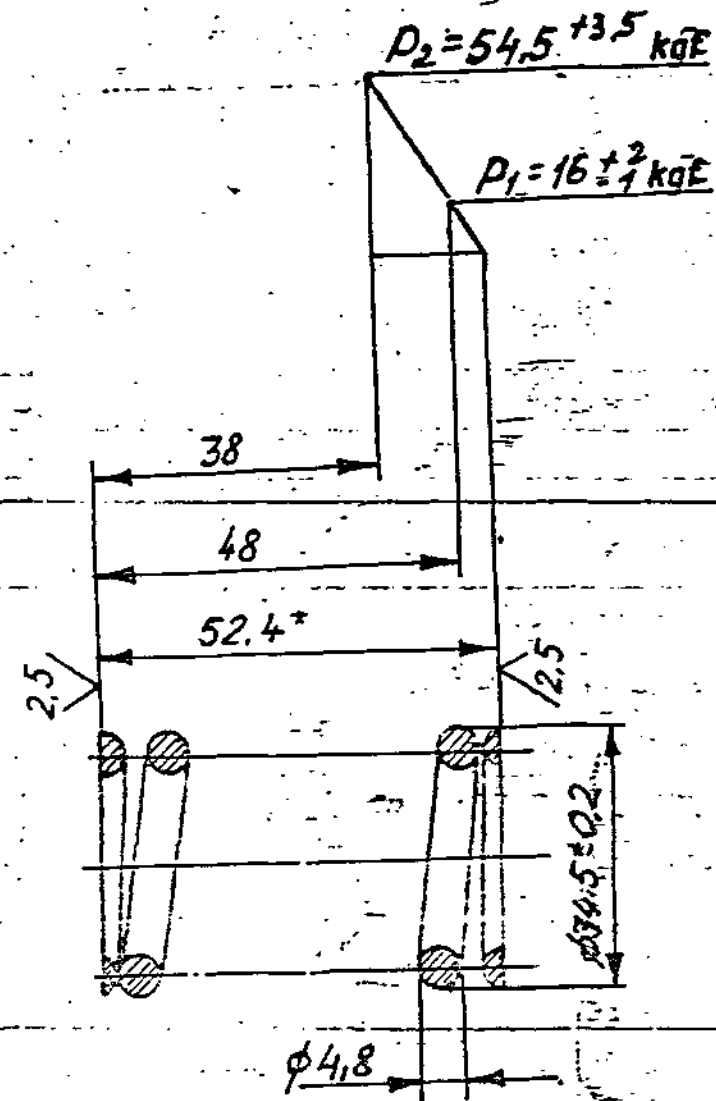




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SOCIETY

DRAWING NUMBER  
20-27-79



- 1 INSPECTION GROUP IV AS PER TECHNICAL REQUIREMENTS TT-11.
- 2 HRC 40 TO 47. CHECK HARDNESS ON THE WORKING COILS OF REFERENCE PARTS FROM THE BATCH.
- 3 TOTAL LENGTH OF SPRING IS APPROXIMATELY 700 mm.
- 4 NUMBER OF WORKING COILS - 5,25.
- 5 FULL NUMBER OF COILS - 7,5 ± 0,25.
- 6 DIRECTION OF COILING IS RIGHT-HAND.
- 7 VARIATION IN PITCH OF WORKING COILS SHOULD NOT EXCEED 0,2 mm.
- 8 GAP BETWEEN COMPRESSED COILS SHOULD BE NOT MORE THAN 0,2 mm.
- 9 BEARING SURFACE OF EXTREME COILS SHOULD BE AT LEAST 20 % OF CIRCUMFERENCE LENGTH: THE BEARING COIL END THICKNESS SHOULD BE AT LEAST 0,5 mm.
- 10 PERFORM SHOT-BLASTING AS PER INSTRUCTIONS H-170-2/61. AFTER SHOT-BLASTING BUTT-ENDS MAY BE GROUND.
- 11 PERFORM THE CHECK BY USING THE MAGNETIC FLAW-DETECTOR AS PER INSTRUCTIONS TT UB-20-17.
- 12 AFTER COMPRESSING THE SPRING BY FORCE OF 56 kgf, IT SHOULD BE FREE RESIDUAL DEFORMATION.
- 13 \* DIMENSION IS GIVEN FOR REFERENCE.
- 14 COATING :- VARNISH T-95, BROWN, GOST 8018-70. IV 6/1
- 15 OUTER DIAMETER OF THE BEARING COILS MAY BE INCREASED UPTO DIAMETER OF 34,9 mm.
- 16 NON-SQUARENESS OF BUTT-END SURFACES WITH RESPECT TO THE AXIS SHOULD NOT EXCEED 0,5 mm OVER THE LENGTH OF THE SPRING.

**EXPLANATORY NOTE :-**

MATERIAL QUOTED : WIRE 51XΦ A-A-II-XH-48 GOST 14963-78

WIRE = ALLOYSTEEL SPRING WIRE 4,8 mm DIAMETER  
 51XΦA = GRADE OF STEEL  
 A = SPECIAL SURFACE FINISH  
 II = HIGHER ACCURACY  
 XH = COLD SPRING COILING

CHEMICAL COMPOSITION: AS PER GOST 14959-79

| C O N T E N T O F E L E M E N T S % |           |           |           |           |               |      |       |      |
|-------------------------------------|-----------|-----------|-----------|-----------|---------------|------|-------|------|
| C                                   | Si        | Mn        | Cr        | Va        | P             | Ni   | S     | Cu   |
| 0,47-0,55                           | 0,15-0,30 | 0,30-0,60 | 0,75-1,10 | 0,15-0,25 | M A X I M U M |      |       |      |
|                                     |           |           |           |           | 0,025         | 0,25 | 0,025 | 0,20 |

MECHANICAL PROPERTIES: AS PER GOST 14959-79

| YIELD POINT<br>Kgf/mm <sup>2</sup><br>(min) | ULTIMATE STRENGTH<br>Kgf/mm <sup>2</sup><br>(min) | RELATIVE ELONGATION<br>%<br>(min) | RELATIVE REDUCTION<br>%<br>(min) |
|---|---|-----------------------------------|----------------------------------|
| 110   | 130   | 8                                 | 35                               |

KVD No.-63422

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

EST. WT. 0,098 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 | CHD | TCD | APPD | DATE    | SCALE | DIMENSIONS IN mm. | TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS 2102-69 | MATERIAL :- WIRE 51XΦA-A II-XH 4,8 GOST 14963-78    | USED ON :- C6 20-27-00-4 |
|     |     |     |      | 14-8-88 | 1:1   |                   |   | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) |                          |
|     |     |     |      |         |       |                   |   | A V A D I   |                          |
|     |     |     |      |         |       |                   |   | TITLE   | PLUNGER SPRING           |
|     |     |     |      |         |       |                   |   | S CAT NUMBER  | DRAWING NUMBER           |
|     |     |     |      |         |       |                   |   |   | 20-27-79                 |



DRAWING NUMBER  
20-27-80

**EXPLANATORY NOTE :**

4. MATERIAL QUOTED : 10 GOST 19904-74  
08 Kn GOST 16523-70

COLD ROLLED SHEET STEEL GOST 19904-74.

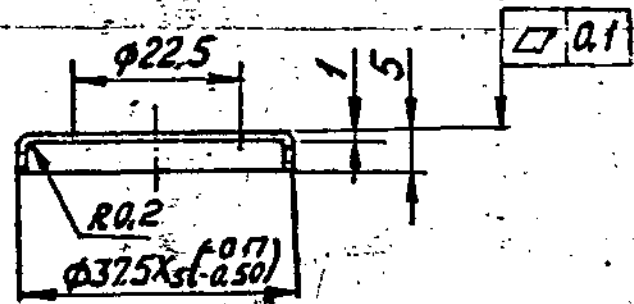
10 - THICKNESS OF SHEET STEEL.  
08 Kn - GRADE OF MATERIAL GOST 16523-70.

a) CHEMICAL COMPOSITION AS PER 1050-74 :-

| GRADE OF STEEL | CONTENT OF ELEMENTS % |            |           |               |       |       |      |      |  |
|----------------|-----------------------|------------|-----------|---------------|-------|-------|------|------|--|
|                | C                     | Si         | Mn        | Cr            | P     | S     | Ni   | Cu   |  |
| 08             | 0.05-0.12             | 0.17-0.37  | 0.35-0.65 | M A X I M U M |       |       |      |      |  |
|                |                       |            |           | 0.10          | 0.035 | 0.040 | 0.25 | 0.25 |  |
| 08nc           | 0.05-0.11             | 0.05-0.17  | 0.35-0.65 | 0.10          | 0.035 | 0.040 | 0.25 | 0.25 |  |
| 10ПC           | 0.07-0.14             | 0.05-0.17  | 0.35-0.65 | 0.15          | 0.035 | 0.040 | 0.25 | 0.25 |  |
| 08Kn           | 0.05-0.11             | 0.037(max) | 0.25-0.50 | 0.10          | 0.035 | 0.040 | 0.25 | 0.25 |  |
| 10Kn           | 0.07-0.14             | 0.07 max   | 0.25-0.50 | 0.15          | 0.035 | 0.040 | 0.25 | 0.25 |  |
| 15Kn           | 0.12-0.19             | 0.07 max   | 0.25-0.50 | 0.25          | 0.035 | 0.040 | 0.25 | 0.25 |  |

b) MECHANICAL PROPERTIES AS PER GOST 16523-70 :-

|                     |   |  |   |                   |
|---------------------|---|--|---|-------------------|
| 0.8<br>08ПC<br>10Kn | } | TENSILE STRENGTH - 28.40 Kgf/mm <sup>2</sup> | - | ELONGATION - 25 % |
| 10nc                |   | TENSILE STRENGTH - 30.42 Kgf/mm <sup>2</sup> | - | ELONGATION - 25 % |
| 08 Kn               |   | TENSILE STRENGTH - 27-39 Kgf/mm <sup>2</sup> | - | ELONGATION - 26 % |
| 15Kn                |   | TENSILE STRENGTH - 32-45 Kgf/mm <sup>2</sup> | - | ELONGATION - 24 % |



1. REQUIREMENTS PLACED UPON STAMPING ARE AS PER STANDARD 82050-16.
2. COATING : ZINC-PLATED, 6 MICRONS THICK, OILED.
3. ALTERNATE MATERIAL IS STEEL 08: 08nc: 10nc: 10kn: 15kn, GOST 1050-74.

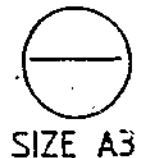
KVD No. - 63423

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

EST. WT. 0.0086 Kg TO BE STAMPED OR MARKED WHERE INDICATED THUS # ( LETTERS)

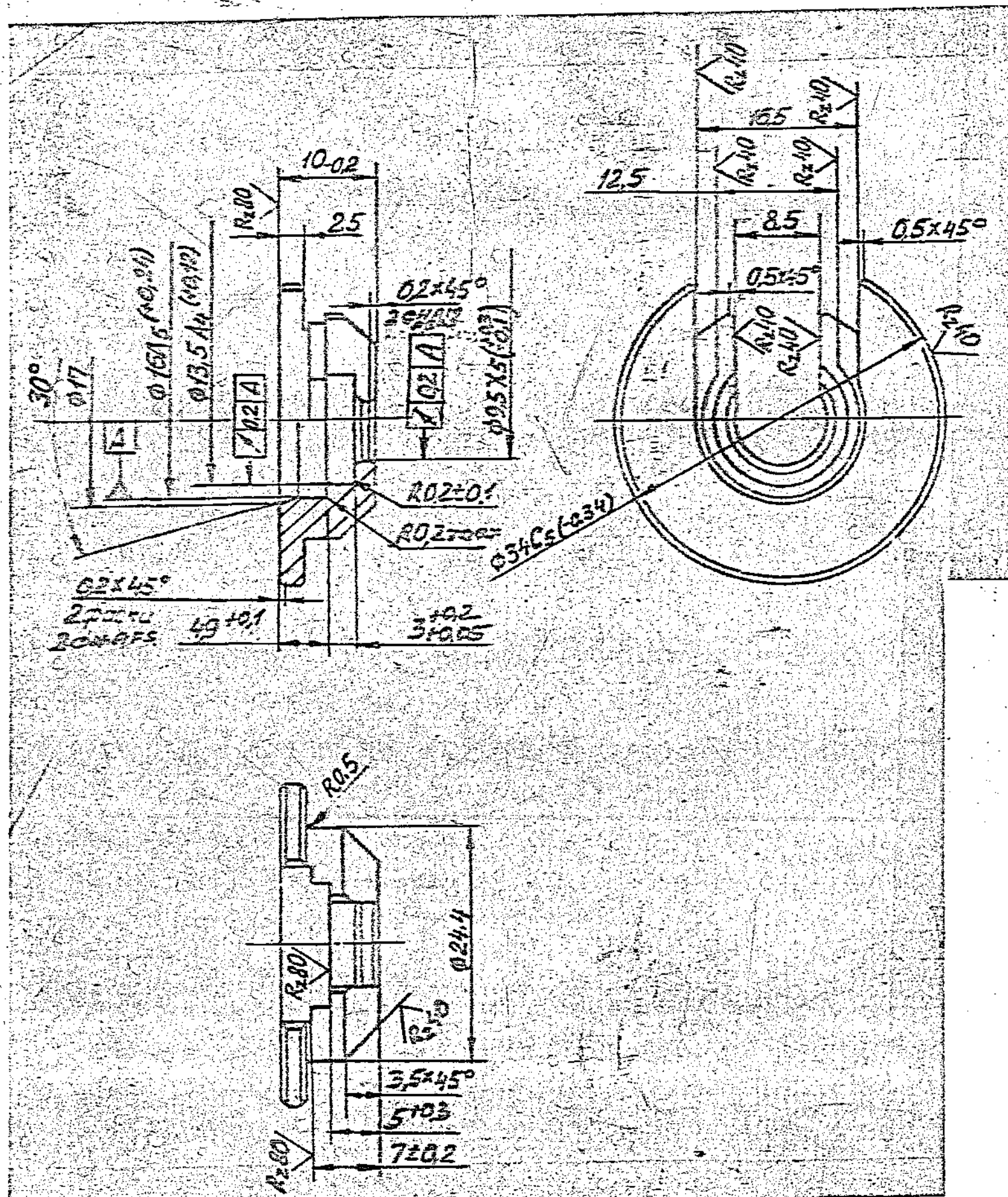
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUT SIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

|   |          |  |               |
|---|----------|--|---------------|
| DRN   |          | MATERIAL :-  | USED ON       |
| CHK   |          | 1.0 GOST 19904-74                                  | CB 20-27-00-4 |
| TCO   |          | 08Kn 16523-70                                      |               |
| APPD  |          | CONTROLLERATE OF QUALITY ASSURANCE(HEAVY VEHICLES) |               |
| DATE  | 04-05-87 | AVADI  |               |
| SCALE:-   | 1 : 1    | TITLE  |               |
| DIMENSIONS IN mm                                      |          | UPPER SPRING PLATE                                 |               |
| TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS:2102-69 |          | D S CAT NUMBER                                     |               |
| ALL THREADS TO CONFORM TO                             |          | DRAWING NUMBER                                     |               |
| ISSUE DATE  |          | 20-27-80   |               |
| NATURE OF AMENDMENTS                                  |          |  |               |



SIZE A3





1. INSPECTION GROUP IV AS PER TECHNICAL REQUIREMENTS TT-11
2. CYANIDE/H 0.1 TO 0.2mm: HR 15N > 86
3. UNSPECIFIED LIMIT DEVIATIONS OF DIMENSIONS ARE AS FOLLOWS: FOR HOLES - AS PER A<sub>1</sub>, SHAFTS - AS PER B<sub>1</sub>, OTHERS - AS PER C<sub>1</sub>
4. COATING: CHEMICALLY OXIDED, OILED

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

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

0,0261 Kg. ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

5. EXPLANATORY NOTE :-

MATERIAL QUOTED :- 10 GOST 1050-74  
STEEL GRADE :- 10

CHEMICAL COMPOSITION :- ( % )

|            |   |             |
|------------|---|-------------|
| CARBON     | = | 0,07 - 0,14 |
| SILICON    | = | 0,17 - 0,37 |
| MANGANESE  | = | 0,35 - 0,65 |
| CHROMIUM   | = | 0,15 (MAX), |
| SULPHUR    | = | 0,040 (MAX) |
| PHOSPHORUS | = | 0,035 (MAX) |
| COPPER     | = | 0,25 (MAX)  |
| NICKEL     | = | 0,25 (MAX)  |

MECHANICAL PROPERTIES :-

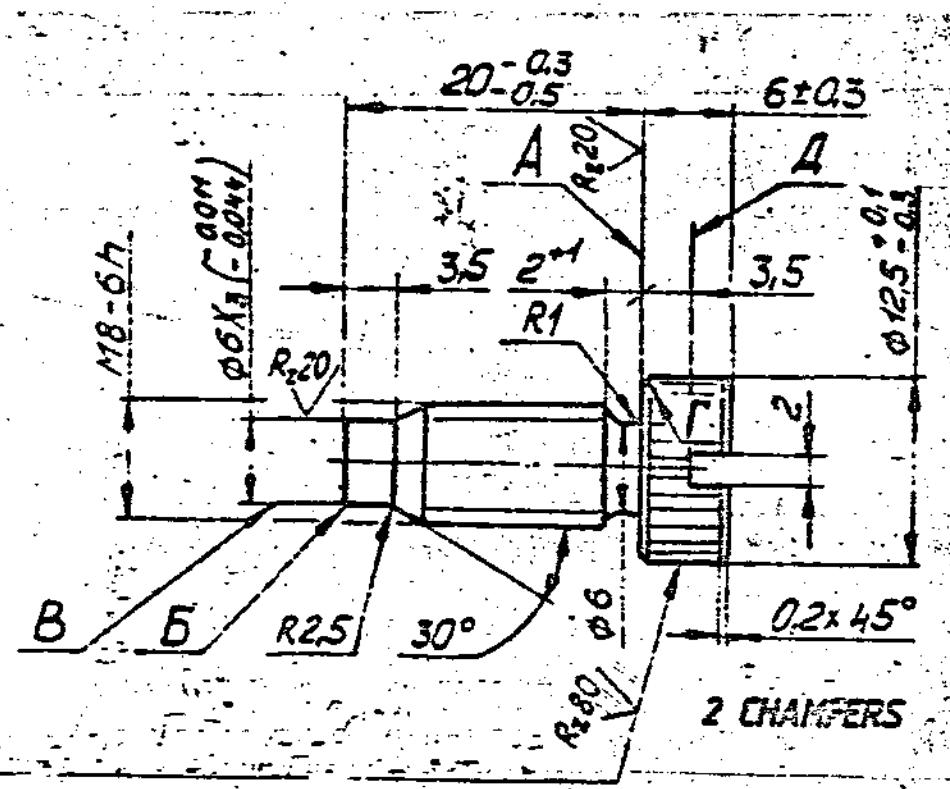
|                           |   |                              |
|---------------------------|---|------------------------------|
| YIELD POINT               | = | 21 Kgf/mm <sup>2</sup> (MIN) |
| ULTIMATE TENSILE STRENGTH | = | 34 Kgf/mm <sup>2</sup> (MIN) |
| PERCENTAGE ELONGATION     | = | 31 % (MIN)                   |
| REDUCTION OF AREA         | = | 55 % (MIN)                   |

KVD No. - 6342A

|   |      |                      |      |          |                          |                  |   |                           |
|---|------|----------------------|------|----------|--------------------------|------------------|---|---------------------------|
| DRN   | CHD  | TCD                  | APPD | DATE     | SCALE                    | DIMENSIONS IN mm | TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS 2102-69 | ALL THREADS TO CONFORM TO |
|   |      |                      |      | 06-03-87 | 2:1                      |                  |   |                           |
| MATERIAL :- 10 GOST 1050-74                         |      |                      |      |          | USED ON :- CE 20-27-00-4 |                  |   |                           |
| CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) |      |                      |      |          | AVADI                    |                  |   |                           |
| TITLE   |      |                      |      |          |                          |                  | LOWER SPRING PLATE                                    |                           |
| D S CAT NUMBER                                      |      |                      |      |          | DRAWING NUMBER 20-27-81  |                  |   |                           |
| ISSUE   | DATE | NATURE OF AMENDMENTS |      |          |                          |                  |   |                           |



DRAWING NUMBER  
20-27-85-1



STRAIGHT KNURLING 1,0 GOST 21674-75

- 1 INSPECTION GROUP IV AS PER TECHNICAL REQUIREMENTS TT-11
- 2 CYANIDE  $h$  0,1 TO 0,2 mm: HR: 15 N<sub>2</sub>86.
- 3 UNSPECIFIED LIMIT DEVIATIONS OF DIMENSIONS ARE AS FOLLOWS :-  
FOR HOLES - AS PER A7,  
SHAFTS - AS PER B7,  
OTHERS - AS PER CM7.
- 4 NON-SQUARENESS OF BUTT END A IN RELATION TO THE AXIS OF THE THREAD SHOULD NOT EXCEED 0,05mm ON  $\phi$  11 mm.
- 5 EDGE B SHOULD BE WITHOUT CHAMFER.
- 6 WHILE CUTTING SLOT IT IS PERMITTED TO MAKE SURFACE A WITH R<sub>2.25</sub> mm.
- 7 TRACES OF TWO TO THREE THREADS FROM THE THREAD MINOR DIAMETER ARE PERMITTED ON SURFACE B.
- 8 COATING :- ZINC-PLATED, 3 MICRONS THICK, OILED. THE INNER SURFACES AND THREAD MAY BE FREE OF COATING.
- 9 CHAMFER -  $\Gamma$  MAY NOT BE MADE.
- 10 ALTERNATE MATERIAL IS STEEL 18X2H4MA TY 14-1-381-72.

EXPLANATORY NOTE :-

MATERIAL QUOTED : 12XH3A TY14-1-381-72

ALTERNATE MATERIAL QUOTED : 18X2H4MA TY 14-1-381-72

12XH3A = CHROMIUM-NICKEL STEEL (HIGH QUALITY)

18X2H4MA = CHROMIUM-NICKEL MOLYBDENUM STEEL (HIGH QUALITY)

CHEMICAL COMPOSITION AS PER GOST 4543 71

| GRADE OF STEEL | C O N T E N T O F E L E M E N T S % |           |           |           |           |           |       |       |      |
|----------------|-------------------------------------|-----------|-----------|-----------|-----------|-----------|-------|-------|------|
|                | C                                   | Si        | Mn        | Cr        | Ni        | Mo        | P     | S     | Cu   |
| 12XH3A         | 0,09-0,16                           | 0,17-0,37 | 0,30-0,60 | 0,60-0,90 | 2,75-3,15 | -         | 0,025 | 0,025 | 0,30 |
|                | M A X I M U M                       |           |           |           |           |           |       |       |      |
| 18X2H4MA       | 0,14-0,20                           | 0,17-0,37 | 0,25-0,55 | 1,35-1,65 | 4,00-4,40 | 0,30-0,40 | 0,025 | 0,025 | 0,30 |

MECHANICAL PROPERTIES AS PER GOST 4543-71

| GRADE OF STEEL | ULTIMATE TENSILE STRENGTH<br>Kgf/mm <sup>2</sup> (min) | YIELD POINT<br>Kgf/mm <sup>2</sup> (min) | IMPACT STRENGTH<br>Kgf/cm <sup>2</sup> (min) | RELATIVE ELONGATION %<br>(min) | RELATIVE REDUCTION ALONG CROSS SECTION %<br>(min) |
|----------------|--|--|--|--------------------------------|---|
| 12XH3A         | 95   | 70                                       | 9  | 11                             | 55  |
| 18X2H4MA       | 115  | 85                                       | 10   | 12                             | 50  |

Ⓐ EQUIVALENT MATERIAL  
EN 36B TO BS:970/  
13 Ni13 Cr3 TO IS: 4432-1988

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

EST. WT. 0,01 Kg TO BE STAMPED OR MARKED WHERE INDICATED THUS # (LETTERS)

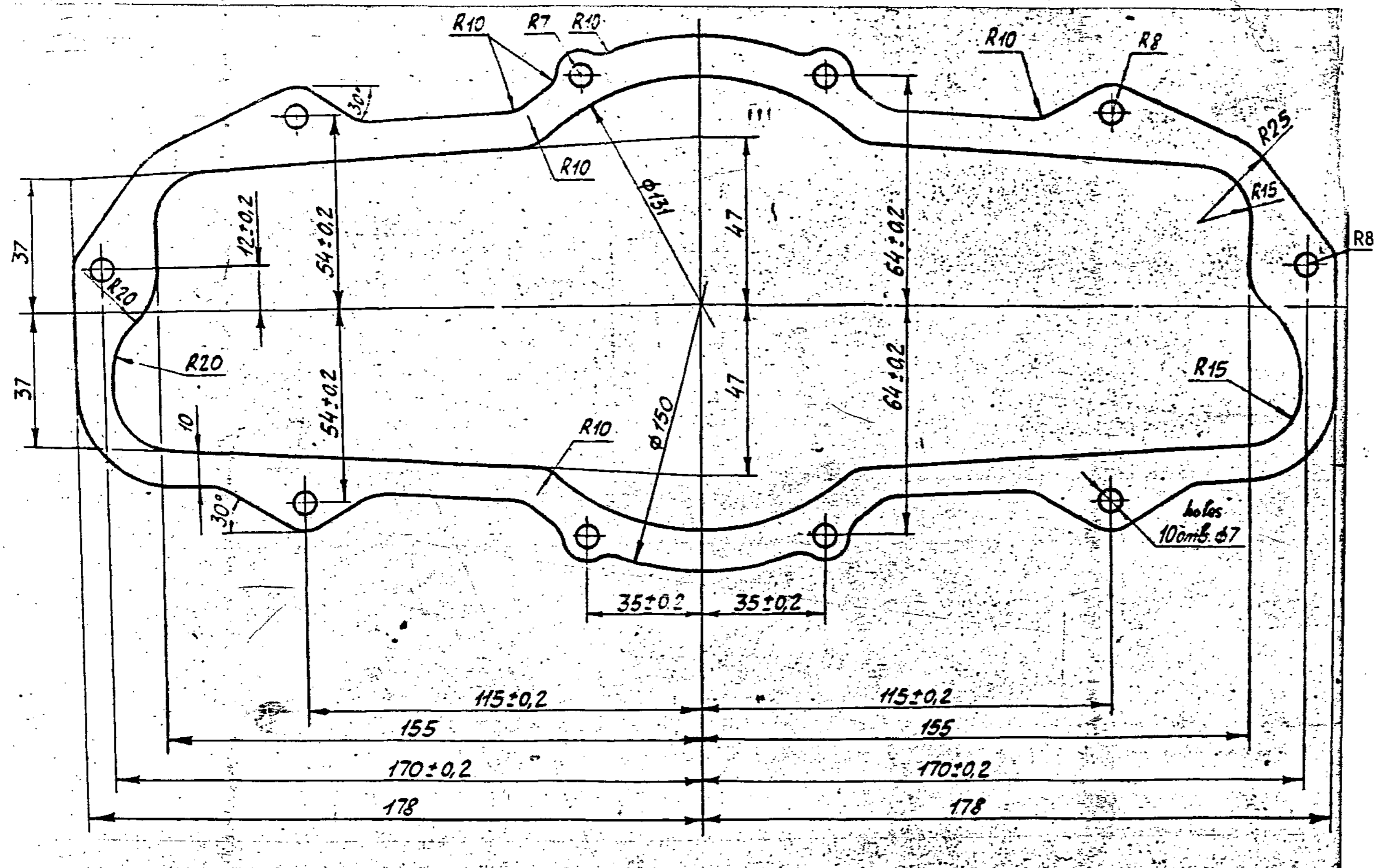
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

|     |     |     |      |         |       |            |                                    |       |         |   |                       |               |            |                 |              |                |
|-----|-----|-----|------|---------|-------|------------|------------------------------------|-------|---------|---|-----------------------|---------------|------------|-----------------|--------------|----------------|
| DRN | EHD | TCD | APPD | DATE    | SCALE | DIMENSIONS | TOLERANCE                          | ISSUE | DATE    | NATURE OF AMENDMENTS  | MATERIAL              | USED ON       | CONTROLLER | TITLE           | ISSUE NUMBER | DRAWING NUMBER |
|     |     |     |      | 7-02-88 | 2:1   | IN mm      | UNLESS OTHERWISE STATED IS 2102-69 | A     | 15-7-10 | 4 <sup>th</sup> ALT. COMM. MEETING MINUTES POINT No. 9 DT. 26-10-09 | 12XH3A TY 14-1-381-72 | C6 20-27-00-4 |            | ADJUSTING SCREW |              | 20-27-85-1     |

SIZE A2



DRAWING NUMBER  
20-27-109-3



**EXPLANATORY NOTE :**

2. MATERIAL QUOTED : ПОН 0.6 GOST 481-80.
- GENERAL PURPOSE PARONITE GRADE ПОН. THICKNESS 0.6mm.
- (i) WORKING MEDIUM = HEAVY PETROLEUM PRODUCTS LIKE DIESEL FUEL ETC
- (ii) LIMITING PRESSURE = 64 Kgf/cm<sup>2</sup>
- (iii) LIMITING TEMPERATURE = -40° TO +200°C
- (iv) DENSITY = 1.6 - 2.0 g/cm<sup>3</sup>
- (v) CONVENTIONAL BREAKING POINT IN THE TRANSVERSE DIRECTION AFTER SOAKING IN KEROSENE AT 23°C FOR 12 HOURS } 66 Kgf/cm<sup>2</sup> (min)
- (vi) INCREASE IN WEIGHT IN KEROSENE } AT 23°C FOR 12 HOURS = 40 % (max)
- (vii) COMPRESSIBILITY AT 350 Kgf/cm<sup>2</sup> = 8 - 20 %
- (viii) RECOVERY AFTER REMOVAL OF PRESSURE } 350 Kgf/cm<sup>2</sup> 30 % (min)

1. REQUIREMENTS PLACED UPON STAMPING ARE AS PER STANDARD 82050-16.

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

EST. WT. 0.01 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.

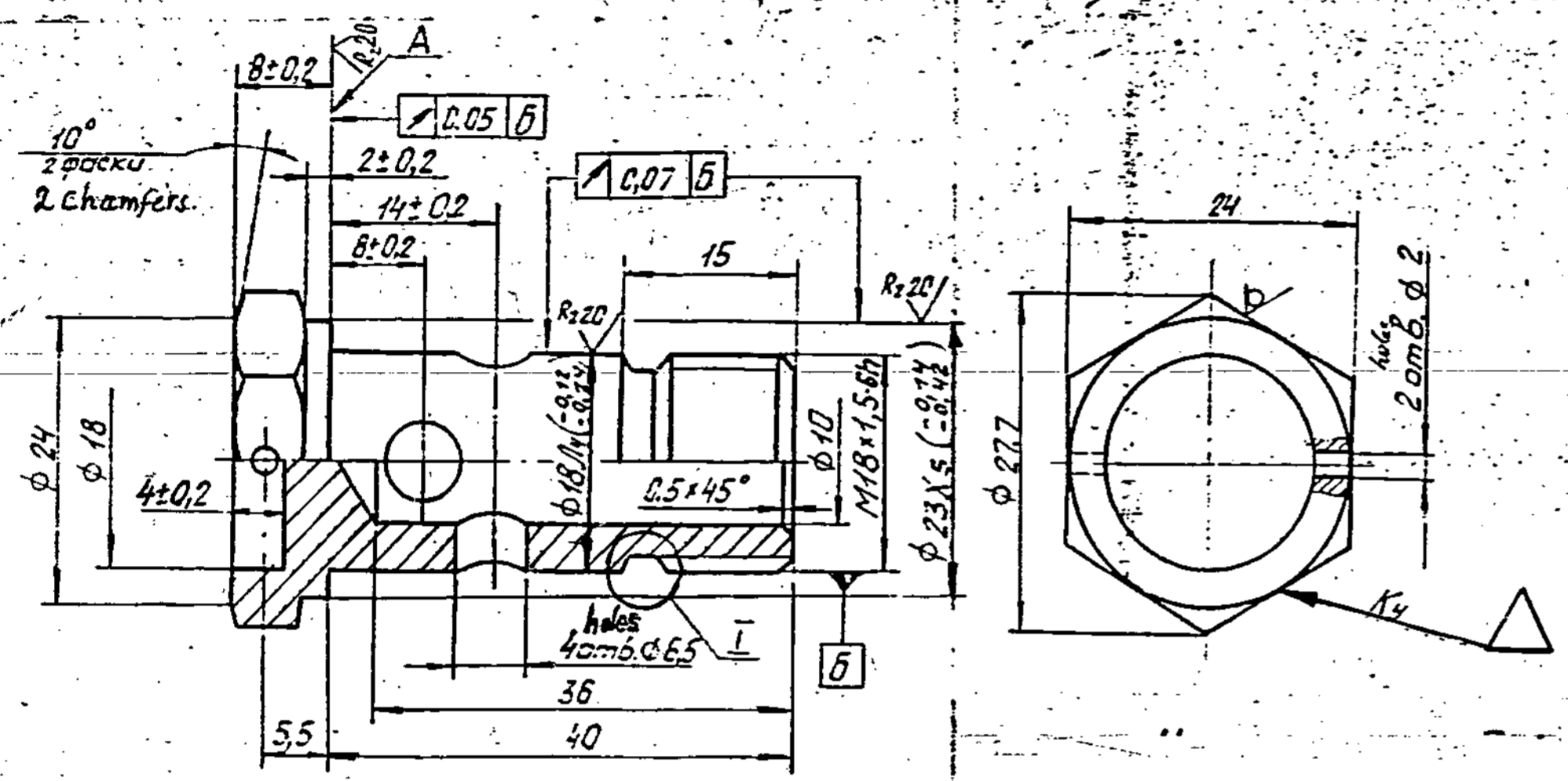
|   |           |   |                |
|---|-----------|---|----------------|
| DRN   | PHILIPKOR | MATERIAL :- ПОН 0.6                                 | USED ON :-     |
| CHD   | PHILIPKOR | PARONITE GOST 481-80                                | CS 20-27-00-4  |
| TCD   | NARAN DOR | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) |                |
| APPD  |           | A V A D I   |                |
| DATE  | 06-03-87  |   |                |
| SCALE   | 1 : 1     |   |                |
| DIMENSIONS IN mm.                                     |           | TITLE   |                |
| TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS 2102-69 |           | GASKET  |                |
| ALL THREADS TO CONFORM TO                             |           | D S CAT NUMBER                                      | DRAWING NUMBER |
| ISSUE DATE  |           |   | 20-27-109-3    |
| NATURE OF AMENDMENTS                                  |           |   |                |

KVD No - 63430





DRAWING NUMBER  
20-27-112



**EXPLANATORY NOTE:-**

**MATERIAL QUOTED:** 24-5 GOST 8560-78  
45 GOST 1050-74.

BRIGHT STEEL-HEX. FROM GRADE 45 STEEL  
ACROSS FLATS 24mm, ACCURACY CLASS 5.

**CHEMICAL COMPOSITION %**

- CARBON = 0.42-0.50
  - SILICON = 0.17-0.37
  - MANGANESE = 0.50-0.80
  - CHROMIUM = 0.25
  - PHOSPHORUS = 0.035
  - SULPHUR = 0.040
  - COPPER = 0.25
  - NICKEL = 0.25
- } MAXIMUM

**MECHANICAL PROPERTIES:**

- TENSILE STRENGTH  $\text{Kgf/mm}^2 = 61$  (MIN)
- YIELD POINT  $\text{Kgf/mm}^2 = 36$  (MIN)
- % ELONGATION = 16 (MIN)
- % REDUCTION IN AREA = 40 (MIN)
- IMPACT STRENGTH  $\text{Kgf.m/cm}^2 = 5$

**1. UNSPECIFIED LIMIT DEVIATIONS OF DIMENSIONS ARE AS FOLLOWS:**

FOR HOLES : AS PER A7  
FOR SHAFTS - AS PER B7  
FOR OTHERS - AS PER CM7

**2. DISPLACEMENT OF HEAD AXIS WITH RESPECT TO THREAD**

AXIS SHOULD NOT EXCEED 0.5mm.

**3. CRACKS, BURRS, NOTCHES DENTS AND OTHER MECHANICAL DAMAGES ARE NOT ALLOWED.**

**4. THREAD SHOULD BE CLEAN AND FREE FROM BURRS, STRIPPING AND DENTS.**

**5. WHEN FACING BUTT END A SINGLE POINT TOOL MAY CUT ALONG THE CYLINDRICAL SURFACE TO A DEPTH AS NOT MORE THAN 0.3mm.**

**6. COATING :- CADMIUM-PLATED 9 MICRONS THICK, OILED INTERNAL SURFACES MAY HAVE NO COATING.**

**7. THREAD MAY BE CHECKED BEFORE APPLYING COATING.**

**8. PERMITTED IS EDGE ROUNDING TO A DIAMETER OF 27mm.**

**9. Alt. Mat: IS STEEL 40, 50 GOST 1050-74.**

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

|  |  |
|--|--|
| EST. WT.<br>0.052 Kg   | TO BE STAMPED OR MARKED WHERE INDICATED THUS #<br>LETTERS) |
| ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE. |  |

(12A) EQUIVALENT MATERIAL  
STEEL 080 M40 (EN8) TO BS: 970 OR  
45 CB TO IS: 1570

|       |         |  |      |         |       |                   |   |           |                |                |
|-------|---------|--|------|---------|-------|-------------------|---|-----------|----------------|----------------|
| DRN   | CHD     | TCD  | APPD | DATE    | SCALE | DIMENSIONS IN mm. | TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS 2102-69 | TITLE     | D S CAT NUMBER | DRAWING NUMBER |
|       |         |  |      | 17-3-90 | 2:1   |                   |   | CONNECTOR |                | 20-27-112      |
| 12    | 10-7-10 | 4.15 ALT. COMM. Mfg. MINUTES POINT No 7 DT. 26-10-09 |      | 1289-81 |       |                   | ALL THREADS TO CONFORM TO                             |           |                |                |
| ISSUE | DATE    | NATURE OF AMENDMENTS                                 |      |         |       |                   |   |           |                |                |

EXPLANATORY NOTE ADDED ON 20-7-92

KVD No. 63431





M. UMACHANDRAN, JTO(D)  
25-08-2015

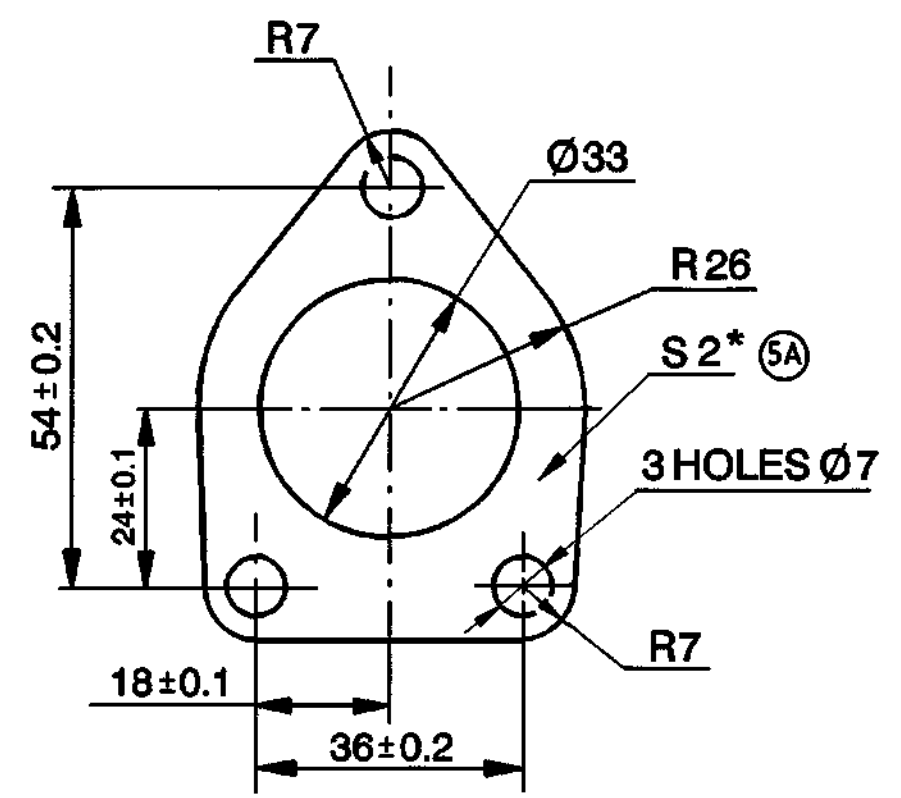
DRG. RE - INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - 5

|   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|---|

**DRAWING NUMBER**  
**20-27-293**



**EXPLANATORY NOTE:-**



2. **MATERIAL QUOTED :** ПМ52 GOST 481-80.  
 ПМ5 - GRADE OF MATERIAL.  
 THICKNESS = 2 ± 0.20mm
- (1) WORKING MEDIUM = HEAVY PETROLEUM PRODUCTS (SOLAR OIL, DIESEL FUEL, FURNACE OIL, PARAFIN TAR, ASPHALT, BITUMEN)
  - (2) OPERATING TEMPERATURE = 300°C
  - (3) DURING USAGE IT SHOULD WITHSTAND A PRESSURE OF } = 20 Kgf/cm<sup>2</sup>
  - (4) CONVENTIONAL BREAKING POINT IN THE TRANSVERSE DIRECTION AFTER SOAKING IN OIL MS-20 (OR) MK-22 AT 150°C FOR 12 Hrs } = 100 Kgf/cm<sup>2</sup> min.
  - (5) DENSITY g/cm<sup>3</sup> = 1.5 TO 2.0
  - (6) % INCREASE IN WEIGHT IN OIL MS-20 (OR) MK-22 AT 100°C FOR 12 Hrs } = 23 % min.
  - (7) % COMPRESSIBILITY AT 350 Kgf/cm<sup>2</sup> = 5 - 16
  - (8) % RECOVERY AFTER REMOVAL OF PRESSURE 350 Kgf/cm<sup>2</sup> } = 35 (min)

1. REQUIREMENTS PLACED UPON STAMPING ARE AS PER STANDARD 82050-16.

(5A) NOTE: \* DIMENSION FOR REFERENCE.

PILOT SAMPLE SHOULD BE APPROVED BEFORE BULK PRODUCTION.

|                   |   |
|-------------------|---|
| EST. WT.<br>0.008 | 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.

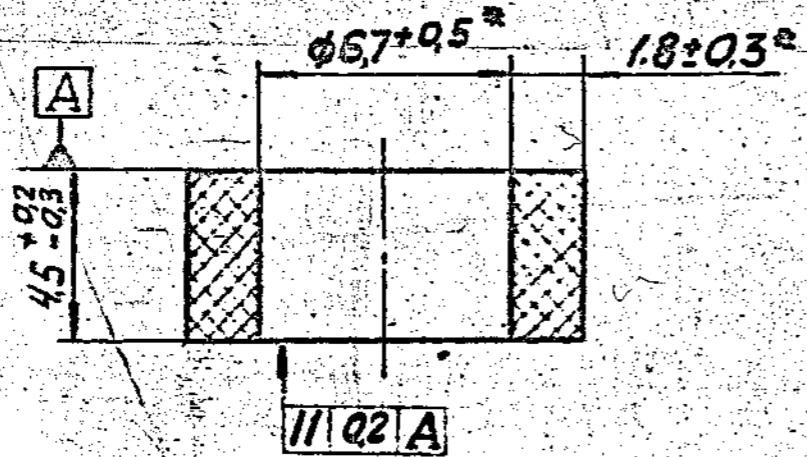


SIZE A3

|    |          |   |   |          |   |                                    |
|----|----------|---|---|----------|---|------------------------------------|
|    |          |   | DRN   | Sd/=     | MATERIAL :-<br>ПМ52 GOST 481-80                               | USED ON :-<br>Cb 20-27-00-4        |
|    |          |   | CHD   | Sd/=     |   |                                    |
|    |          |   | APPD  | Sd/=     |   |                                    |
|    |          |   | DATE  | 25-04-87 | CONTROLLERATE OF QUANTITY ASSURANCE (HEAVY VEHICLES)<br>AVADI |                                    |
|    |          |   | SCALE:- 1 : 1   |          |   |                                    |
|    |          |   | DIMENSIONS IN mm  |          | TITLE :-<br>GASKET  |                                    |
|    |          |   | TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS : 2102 - 69 |          |   |                                    |
|    |          |   | ALL THREADS TO CONFORM TO IS:4218, PART-4.                |          | D S CAT NUMBER  | DRAWING NUMBER<br><b>20-27-293</b> |
| 5A | 25-08-15 | Lt.No:90202/AHSP/E&P/MISC Di. 09-06-15. | ISSUE   | DATE     | NATURE OF AMENDMENTS  |                                    |



DRAWING NUMBER  
20-27-303



1. \*DIMENSIONS ARE PROVIDED WITH TOOLS.
2. OTHER REQUIREMENTS ARE AS PER TECHNICAL SPECIFICATIONS TY 005 216-75 FOR ARTICLES, CODE 25 3113.

**EXPLANATORY NOTE :-**

MATERIAL QUOTED :- RUBBER HO-68-1 TO TY 005216-75

RUBBER :- HO-68-1

**IMPORTANT PARAMETERS :-**

- (I) WORKING MEDIUM = OIL & PETROL
- (II) OPERATING TEMPERATURE =  $-50^{\circ}$  TO  $+125^{\circ}$ C
- (III) HARDNESS MEASURED ON TWP DEVICE ( ARBITRARY ) = 55 - 70
- (IV) RUPTURE STRENGTH = 90 Kg/Cm<sup>2</sup> (MIN)
- (V) ELONGATION AT RUPTURE = 250% (MIN)
- (VI) DENSITY = 1.24  $\pm$  0.05 gm/Cm<sup>3</sup>

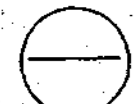
(A) ALT. MATL.: RUBBER GRADE BNC TO SPECN. CQA(HV)/NBR+CR

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 INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

|   |            |   |                |
|---|------------|---|----------------|
| DRN   | 9000/11    | MATERIAL:-RUBBER HO-68-1                                    | USED ON        |
| CHD   | 18/0000/11 | TY 005 216-75   | CB 20-27-00-4  |
| TCD   | 18/0000/11 | CONTROLLERATE OF QUALITY ASSURANCE(HEAVY VEHICLES)<br>AVADI |                |
| APPD  | 18/0000/11 |   |                |
| DATE  | 25-4-87    | SCALE:- 5:1   |                |
| DIMENSIONS IN mm                                      |            | TITLE<br>SEALING RING                                       | D S CAT NUMBER |
| TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS:2102-69 |            |   |                |
| ALL THREADS TO CONFORM TO                             |            | DRAWING NUMBER<br>20-27-303                                 |                |
| ISSUE   | DATE       | NATURE OF AMENDMENTS  |                |



SIZE A3



DRAWING NUMBER  
20-27-305

**EXPLANATORY NOTE :**

Rz40 ✓ (✓)

3. MATERIAL QUOTED : 10 GOST 1050-74  
ALTERNATE MATERIAL GRADE 15, 20, 30 GOST 1050-74.

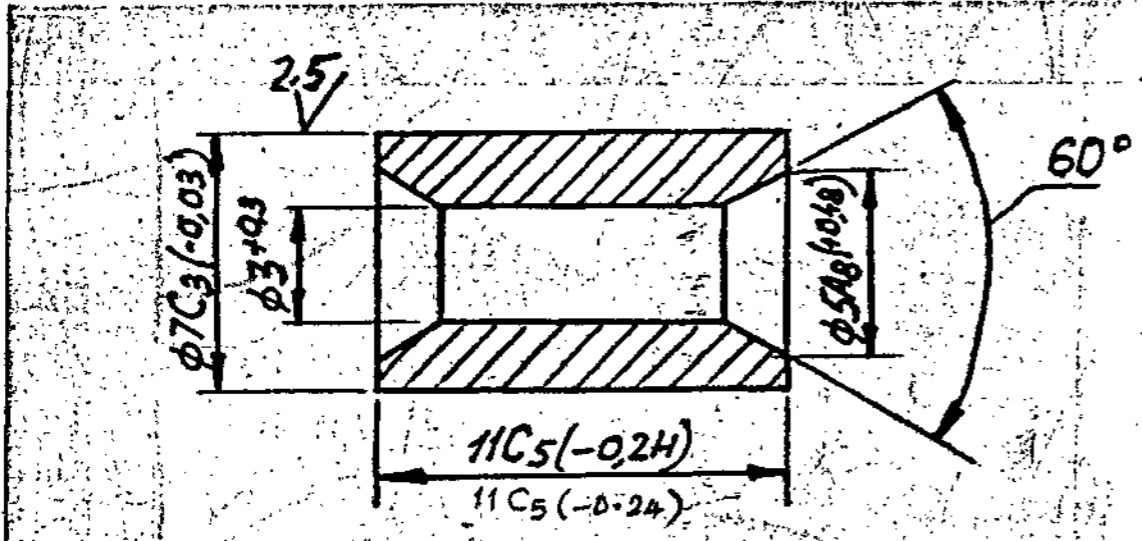
HOT ROLLED CARBON STRUCTURAL STEEL.

a) CHEMICAL COMPOSITION :

| GRADE | CONTENT OF ELEMENTS % |           |           |               |       |       |      |      |  |
|-------|-----------------------|-----------|-----------|---------------|-------|-------|------|------|--|
|       | C                     | Si        | Mn        | Cr            | S     | P     | Cu   | Ni   |  |
| 10    | 0.07-0.14             | 0.17-0.37 | 0.35-0.65 | M A X I M U M |       |       |      |      |  |
|       |                       |           |           | 0.15          | 0.040 | 0.035 | 0.25 | 0.25 |  |
| 15    | 0.12-0.19             | 0.17-0.37 | 0.35-0.65 | 0.25          | 0.040 | 0.035 | 0.25 | 0.25 |  |
| 20    | 0.17-0.24             | 0.17-0.37 | 0.35-0.65 | 0.25          | 0.040 | 0.035 | 0.25 | 0.25 |  |
| 30    | 0.27-0.35             | 0.17-0.37 | 0.50-0.80 | 0.25          | 0.040 | 0.035 | 0.25 | 0.25 |  |

b) MECHANICAL PROPERTIES :

| GRADE | YIELD POINT<br>Kgf/mm <sup>2</sup><br>(min) | ULTIMATE<br>TENSILE<br>STRENGTH<br>Kgf/mm <sup>2</sup><br>(min) | PERCENTAGE<br>OF<br>ELONGATION<br>%<br>(min) | REDUCTION<br>OF<br>AREA %<br>(min) | IMPACT<br>STRENGTH<br>Kgf/cm <sup>2</sup><br>(min) | HARDNESS<br>B H N<br>(max) |
|-------|---|---|--|------------------------------------|--|----------------------------|
| 10    | 21  | 34  | 31   | 55                                 | -  | 187                        |
| 15    | 23  | 38  | 27   | 55                                 | -  | 197                        |
| 20    | 25  | 42  | 25   | 55                                 | -  | 207                        |
| 30    | 30  | 50  | 21   | 50                                 | 8  | 229                        |



1. COATING: CHEMICALLY OXIDIZED, OILED.
2. ALTERNATE MATERIAL IS STEEL 15, 20, 30, GOST 1050-74.

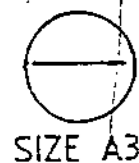
Ⓐ EQUIVALENT MATERIAL  
CDS-1 19:3074

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

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

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

|   |                      |   |               |
|---|----------------------|---|---------------|
| DRN   |                      | MATERIAL:-  | USED ON       |
| CHD   |                      | 10 GOST 1050-74                                     | CS 20-27-00-4 |
| TCD   |                      | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) |               |
| APPD  |                      | AVAD  |               |
| DATE  | 24-4-87              | TITLE   |               |
| SCALE:-   | 5 : 1                | BY-PASSPIPE   |               |
| DIMENSIONS IN mm                                      |                      | D S CAT NUMBER                                      |               |
| TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS:2102-69 |                      | DRAWING NUMBER                                      |               |
| ALL THREADS TO CONFORM TO                             |                      | 20-27-305   |               |
| ISSUE DATE  | NATURE OF AMENDMENTS |   |               |



SIZE A3

