

DRAWING NUMBER

353-04-1

**EXPLANATORY NOTE**

**1. REFERENCE MATERIAL QUOTED:**

COLD ROLLED LOW CARBON STEEL STRIP HEAVY COLD WORKED 10% DIMENSION SURFACE QUALITY 2' mm THICK TO BOST 503-81 AND MANUFACTURED IN ACCORDANCE WITH QUALITY CARBON STRUCTURAL STEEL GRADE 10 AND REFERENCE NOTE 5. ON ALTERNATE MATERIAL STEEL GRADES 15 AND 08nc TO BOST 1050-76.

**2. CHEMICAL COMPOSITION:**

GRADE OF STEEL	CONTENT OF ELEMENTS %						REMARKS
	C	SI	Mn	Cr	S	P	
10	0.07-0.14	0.17-0.37	0.35-0.65	0.15	0.040	0.035	Ref 10/11
15	0.12-0.19	0.17-0.37	0.35-0.65	0.25	0.040	0.035	Ref 10/11
08nc	0.05-0.11	0.05-0.17	0.35-0.65	0.10	0.040	0.035	Ref 10/11

RESIDUAL CONTENT OF COPPER AND NICKEL SHOULD NOT EXCEED 0.25% EACH. MANGANESE CONTENT UPTO 0.25% AS REGARDS LOWER LIMIT IS ALLOWED IN THE STEEL OF GRADE 08nc MEANT FOR PRODUCTION OF SHEET STEEL FOR COLD STAMPING.

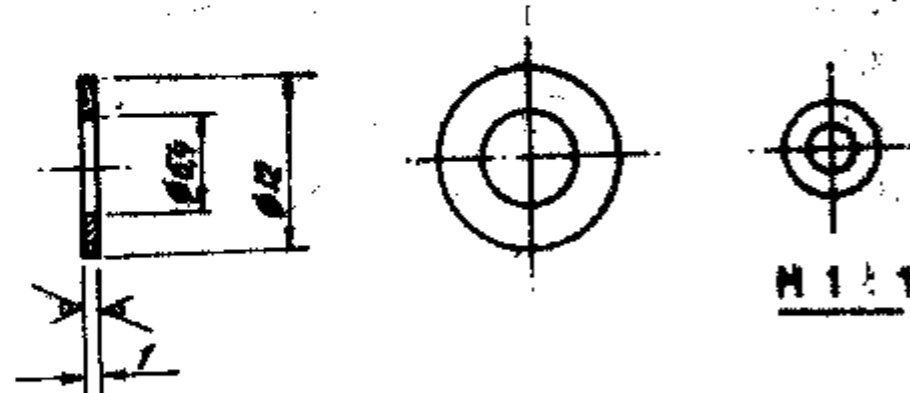
**3) MECHANICAL PROPERTIES AS PER BOST 503-81**

GRADE OF STEEL	CONDITION OF MATERIAL	ULTIMATE TENSILE STRENGTH /mm <sup>2</sup>	ELONGATION
10	BH	55 MIN	—

**4) MECHANICAL PROPERTIES AS PER BOST 10523-70 FOR ALTERNATE MATERIAL QUOTED.**

GRADE OF STEEL	ULTIMATE TENSILE STRENGTH Kgf/mm <sup>2</sup>	ELONGATION %
15	34 - 47	24
08nc	28 - 40	25

CB 20-01-00-8  
 CB 20-11-05-2  
 CB 20-06-00-4  
 CB Y 36-11-07-01  
 CB 3330-00-16  
 CB 3330-401-10  
 CB 3330-404-7  
 COA/HV15.06.001E (B)  
 COA/HV15.06.607E (C)



- DIMENSIONS WITH UNSPECIFIED TOLERANCES - AS PER STANDARD 02050-16.
- THE COMPONENT SHOULD BE STRAIGHTENED AFTER STAMPING.
- BURRS ARE NOT ALLOWED.
- COATING: CADMIUM 9, CHROMATIZING AS PER U/L-1104 WITH ELIMINATION OF HYDROGEN EMBRITTLEMENT.
- ALTERNATE MATERIAL: STEEL GRADES 15, 08nc BOST 1050-76.
- REQUIRED FINISHING OF SURFACES BEING STAMPED SHOULD BE ENSURED BY TOOL.

(A) EQUIVALENT MATERIAL  
 Gr. 0 IS:513-1994

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

EST WT 0.00063 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 R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE

ISSUE	DATE	NATURE OF AMENDMENTS
C	15-7-15	Pl. 11 of 7th All. Comm. Meeting Dt. 11-6-12
B	18-3-15	Pl. 11 of 7th All. Comm. Meeting Dt. 11-6-12
A	19-5-10	4th All. Comm. Mt. Minutes Pt. No. 2 Dt. 26.10.09

DRN *Dr*  
 END *Dr*  
 TED *Dr*  
 APPD *Subram*  
 DATE 25-8-15

MATERIAL: STRIP 10 - BH - 2 - 1 BOST 503-71

SCALE: 2 : 1  
 DIMENSIONS IN mm  
 TOLERANCE ON DIMS UNLESS OTHERWISE STATED IS - 2002-69

CONTROL RATE OF INSPECTION (HEAVY VEHICLES) AVADI

TITLE: WASHER BRIGHT 6

D'S CAT NUMBER DRAWING NUMBER 353 04 1



DRW NUMBER:

353-11

5. REFERENCE MATERIAL QUOTED :

Rz80

**EXPLANATORY NOTE :**

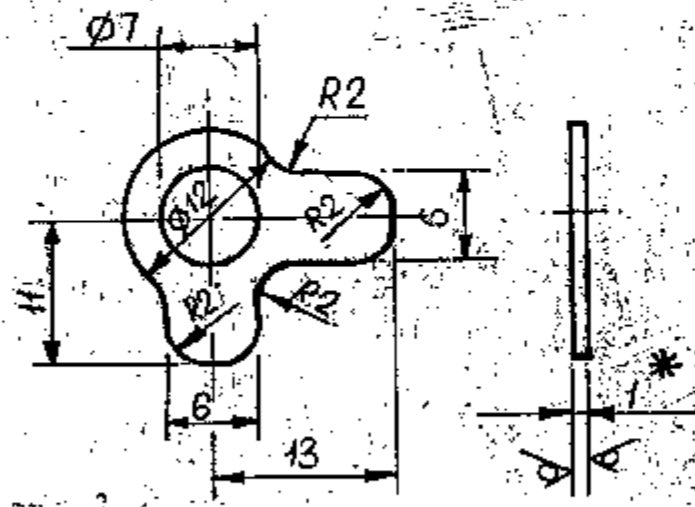
a) COLD ROLLED LOW CARBON STEEL TAPE OF STEEL GRADE - 08 ΠC (SEMI-KILLED), CONDITION OF MATERIAL - SOFT (M), WITH 2<sup>nd</sup> GROUP OF APPEARANCE AND SURFACE QUALITY (ROUGHNESS PARAMETER -  $R_a \leq 1.25$  MICRON ) AND THICKNESS 1mm.

b) CHEMICAL COMPOSITION OF STEEL 08ΠC TO GOST 1050-74.

CARBON %	SILICON %	MANGANESE (MAX) %	CHROMIUM (max)	SULPHUR (max)	PHOSPHORUS (max)	COPPER (max)	NICKEL (max)
0.05-0.11	0.05-0.17	0.35-0.65	0.70	0.040	0.035	0.25	0.25

c) PHYSICAL PROPERTIES :-

- (i) ULTIMATE TENSILE STRENGTH - 32-45 Kgf/mm<sup>2</sup>
- (ii) RELATIVE ELONGATION - 17 % (min)



1. REQUIREMENTS PLACED UPON STAMPING ARE AS PER STANDARD 82050-16.
2. STRAIGHTEN AFTER STAMPING.
3. COATING: ZINC-PLATED 9 MICRONS THICK, OILED, WITH REMOVAL OF HYDROGEN EMBRITTLEMENT.
4. \* DIMENSION IS GIVEN FOR REFERENCE.

**(B) EQUIVALENT MATERIAL**  
Gr. O IS: 513-1994

**(A) \*\*** Cb 20-05-47-4, Cb 20-09-07  
Cb 20-11-01-9, Cb 20-12-01-13,  
Cb 3301-00-44, Cb 401-01,  
Cb 315-662-16, Cb 315-777-2,  
Cb 3301-00-37

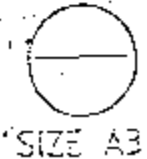
COMMON TO V-92S2 & UTD-20 ENGINES

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

EST. WT. 0.0011 Kg TO BE STAMPED OR MARKED WHERE INDICATED THUS  $\equiv$  ( LETTERS)

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

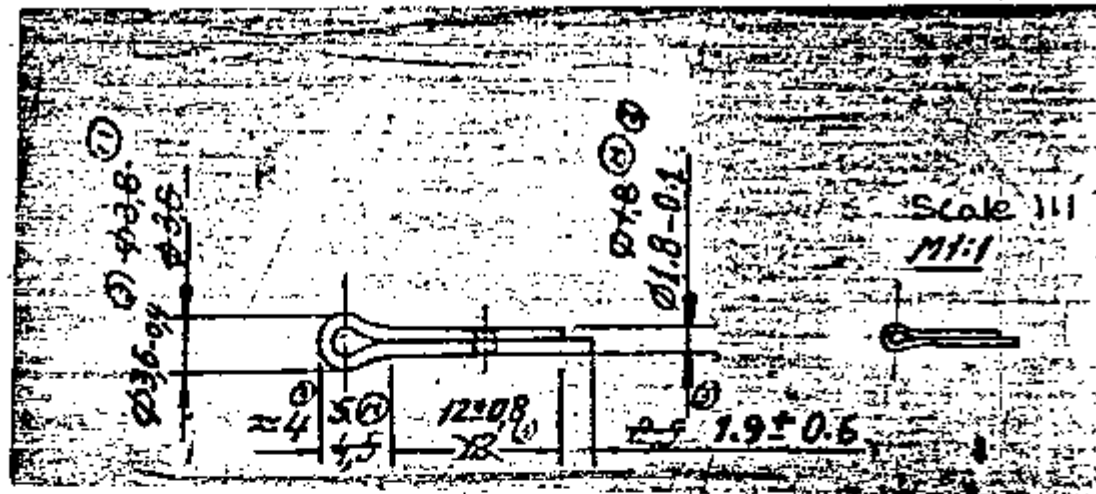
DRN	CHK	TCD	APPD	DATE	SCALE:- 2 : 1	MATERIAL:- STRIP 08nc - M - 2 - 1 GOST 503-21	USED ON: C6 3338-401-10 C6 20-27-00-4 **
				24-4-1987		CONTROLLERATE OF QUALITY ASSURANCE(HEAVY VEHICLES) AVADI	
					DIMENSIONS IN mm TOLERANCE ON DIMS UNLESS OTHERWISE STATED IS:2102-69	TITLE	LOCK WASHER 7
					ALL THREADS TO CONFORM TO	D S CAT NUMBER	DRAWING NUMBER
					ISSUE DATE		353-11



SIZE A3



DRAWING NUMBER  
354-17



1. TO BE ANNEALED.
2. COATING : Cd 3, CHROMATIZING AS PER U. U. A - 104 WITH ELIMINATION OF HYDROGEN EMBRITTLEMENT
3. BURRS, CRACKS, RUST ARE NOT ALLOWED ON THE SURFACE OF THE PIN AND SHARP CUT ON THE BENDED HEAD ARE ALSO NOT ALLOWED.
4. PINS OF DIAMETER UPTO 5mm MUST WITHSTAND 3 BENDS WITH OUT ANY SIGN OF BREAKING.

**EXPLANATORY NOTE:**

**MATERIAL QUOTED:-** LOW CARBON STEEL WITH MAXIMUM CARBON CONTENT 0.20% TO GOST 1050-74. (GRADE 15 GOST 1050-74 PREFERRED).

**CHEMICAL COMPOSITION:** FOR GRADE 15 TO GOST 1050-74.

CONTENT OF ELEMENTS %							
C	Si	Mn	Cr	P	S	Cu	Ni
MAXIMUM							
0.12 - 0.19	0.17 - 0.37	0.35 - 0.65	0.25	0.035	0.040	0.25	0.25

**MECHANICAL PROPERTIES:**

YIELD POINT Kgf/mm <sup>2</sup>	ULTIMATE TENSILE STRENGTH Kgf/mm <sup>2</sup>	ELONGATION %	REDUCTION OF AREA %	HARDNESS BHN
MINIMUM				MAXIMUM
23	38	27	55	149

\*\*  
LOW CARBON STEEL WITH  
MAXIMUM CONTENT 0.20%.  
GOST 1050-74

(A)  
EQUIVALENT MATERIAL  
IS: 549

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

EST. WT. 1000 PIECES 0.324 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	<i>[Signature]</i>	MATERIAL:-	USED ON
CHKD	<i>[Signature]</i>	** SEE ABOVE	CB 315-663-21
TCD	<i>[Signature]</i>		CB 322-00-45
APPO	<i>[Signature]</i>	CONTROLLER AT: DE QUALITY ASSURANCE (HEAVY VEHICLES)	
DATE	4-5-86	AVADI	
SCALE:-	2:1	TITLE	
DIMENSIONS IN mm		COTTER PIN 2x12	
TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS: 2102-69		D S CAT NUMBER	
ALL THREADS TO CONFORM TO		DRAWING NUMBER	
4 1/2 ALT. COMM. Mfg. MINUTES		354-17	
POINT No 3 DT. 26-10-09			
ISSUE DATE	NATURE OF AMENDMENTS		

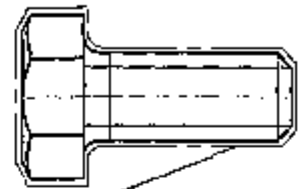
KVD No: 78701

(A)  
11  
SIZE A3



DRAWING INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - 5

DRAWING NUMBER  
**356-16-1**



Coating is carried out with thickness of Zinc-6microns, Chromium-1micron as per instruction *ИЛ-749-88* with removal of hydrogen embrittlement

1. Coating tropicalised construction is carried out with thickness of Cadmium-9microns, chromium-1micron as per instruction *ИЛ-569-84* with removal of hydrogen embrittlement.
2. Blank should correspond to requirements *Gost 1759.0-87* for accuracy class B.

F-5  
94  
283

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

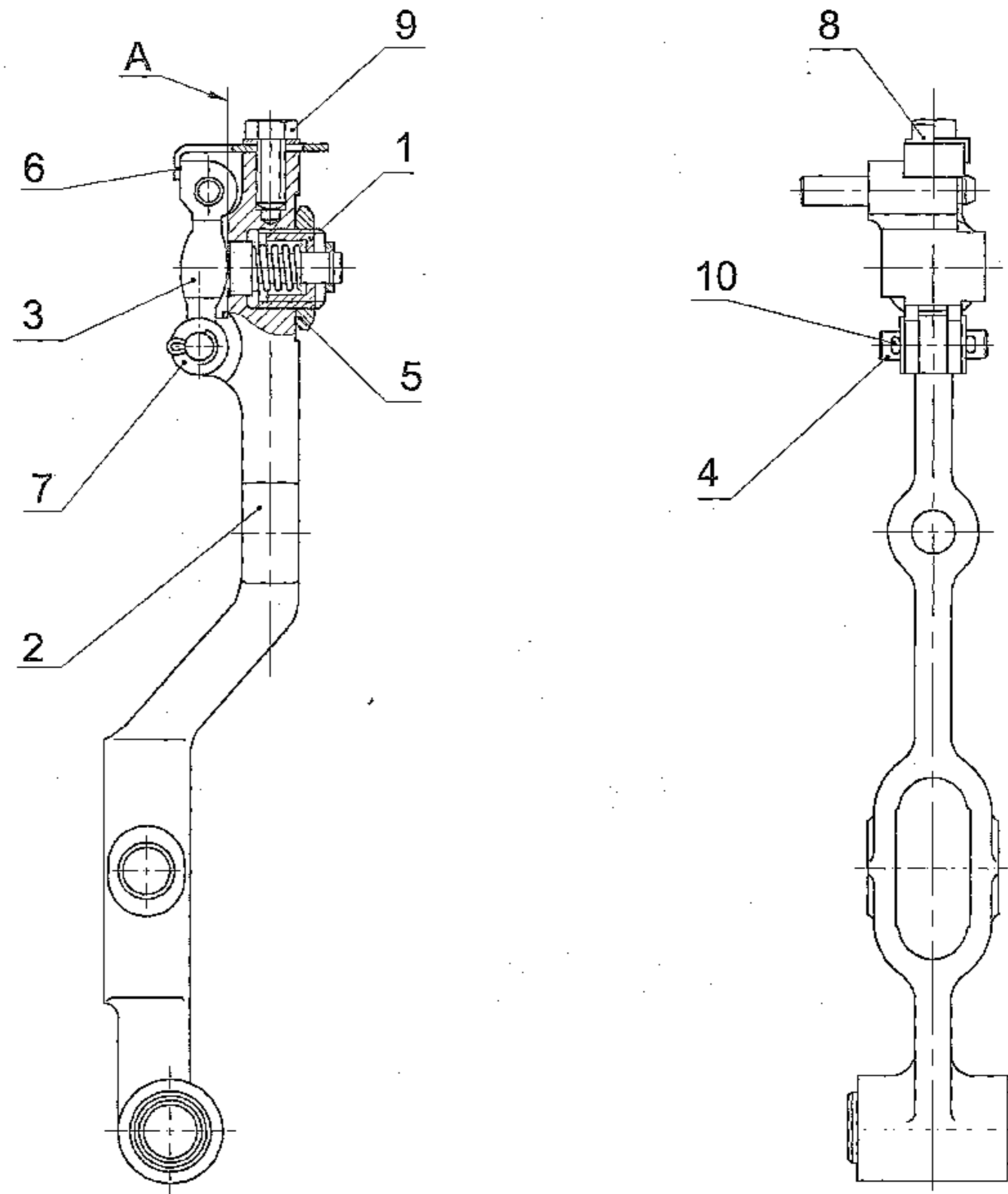
			EST. WT. <b>0.006</b>	TO BE STAMPED OR MARKED WHERE INDICATED THUS # (        LETTERS )
			ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.	
			MATERIAL :- <b>Blank</b> <b>BOLT M6-6gx14.88.35</b> <b>GOST 7798-70</b>	USED ON :- <b>CE 315-662-16</b>
ISSUE	DATE	NATURE OF AMENDMENTS	CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) <b>AVADI</b>	
DRN		SCALE :- <b>2 : 1</b>		
CHD		DIMENSIONS IN mm	TITLE :- <b>BOLT M6×14</b>	
APPD		TOLERANCE ON DIMENSIONS UNLESS OTHERWISE STATED IS : 2102 - 69		
DATE		ALL THREADS TO CONFORM TO	D S CAT NUMBER	DRAWING NUMBER <b>356-16-1</b>
	<b>14/3/67</b>			

SIZE A4





DRAWING NUMBER  
Cb.315-662-16



1. Hinge joint of levers should ensure free (under own weight) rotation of corrector lever relative to regulator lever. Jamming is not allowed.
2. Mount the moment corrector item 1 without its projection over the surface A.
3. Mount snap gauge item 6 in a position, corresponding to touching of corrector lever item 3 with plane A.

DRAWING INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - 4

*Main Governor Levers*

F-5  
37  
203  
SIZE A2

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

EST. WT. (Kg) 0.39	TO BE STAMPED OR MARKED WHERE INDICATED THUS # ( LETTERS )
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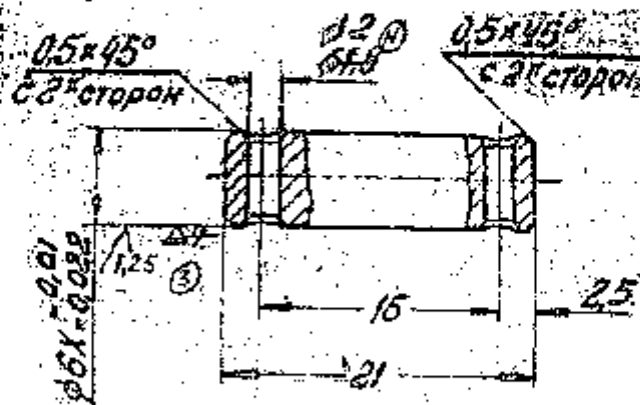
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUT-SIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

DRN	CHD	APPD	DATE	SCALE	DIMENSIONS IN mm	TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS : 2102 - 69	ALL THREADS TO CONFORM TO	ISSUE	DATE	NATURE OF AMENDMENTS
			16/3/07	1:1						
MATERIAL :-						CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI		USED ON :- CB 315-777-2		
TITLE :-						MAIN GOVERNOR LEVER ASSY.		DRAWING NUMBER Cb.315-662-16		
D S CAT NUMBER										



DRAWING INDIAN STANDARD IS 1591-73

0.5 X 45 ON 2 SIDES



1. Группа контроля IV по ТТ-11
2. Твердость HRC 24-30 HRC<sub>3</sub> 26-32
3. Размеры без допусков выполнять по 7 классу точности ГОСТ 1010.
4. Острые кромки затупить.
5. Покрытие хим. окс. прн.

1. INSPECTION GROUP IV, T T-11
2. HRC 24-30 HRC<sub>3</sub> 26-32
3. DIMENSIONS WITH UNSPECIFIED TOLERANCES SHOULD BE OBTAINED AS PER ACCURACY CLASS OST 1010.
4. SHARP EDGES SHOULD BE BLUNTED.
5. COATING: CHEMICAL OXIDIZING, OIL FINISHING.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

|            |          |                                                                                                                                                    |                                                    |                         |
|------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-------------------------|
|            |          | EST. MASS                                                                                                                                          | TO BE STAMPED OR MARKED WHERE INDICATED THUS *     |                         |
|            |          | 0.004 Kg                                                                                                                                           | LETTERS)                                           |                         |
| ISSUE DATE | 23.11.77 | AUTHY BK 62-324                                                                                                                                    |                                                    |                         |
| DRN        |          | ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE. |                                                    |                         |
| CHD        |          | SCALE - 2 : 1                                                                                                                                      | MATERIAL :- STEEL 45                               | USED ON :- СБ 327-00-45 |
| TCD        |          | DIMENSIONS IN mm.                                                                                                                                  | GOST 1050-74                                       |                         |
| APPL       |          | TOLERANCE ON DIMNS UNLESS OTHERWISE STATED.                                                                                                        | CONTROLLERATE OF INSPECTION (HEAVY VEHICLES) AVADI |                         |
| DATE       | 11-5-78  | ALL THREADS CONFORM TO                                                                                                                             | TITLE :-                                           | PIN                     |
|            |          |                                                                                                                                                    | D S CAT NUMBER                                     | DRAWING NUMBER          |
|            |          |                                                                                                                                                    |                                                    | 315-42                  |

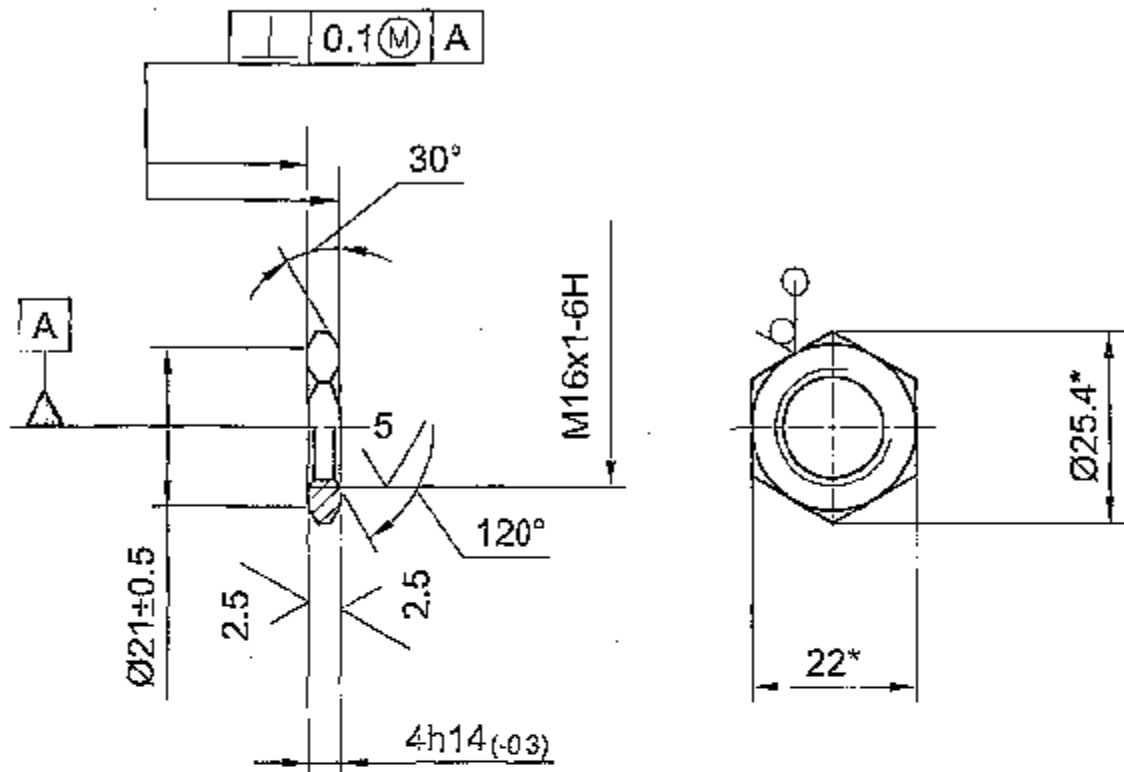


DRAWING NUMBER

**315 -795**

10 / (✓)

DRAWING INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - 3



1. Coating: Chemically oxidised, oiled as per instruction ИЛ-681-78.
2. \*Dimension is given for reference.

F5  
85  
283

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

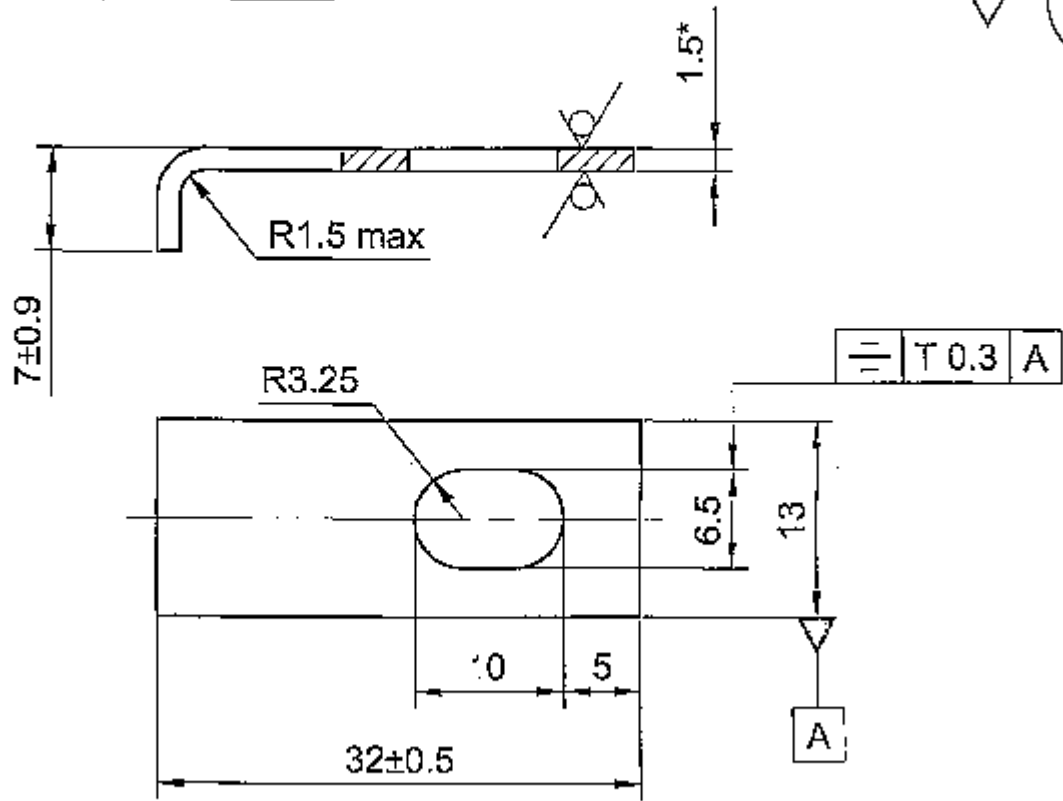
|                                                                                                                                                     |              |                                                                |                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------------------------------------------|-----------------------------------------------------------|
|                                                                                                                                                     |              | EST. WT. (Kg)                                                  | TO BE STAMPED OR MARKED WHERE INDICATED THUS # ( LETTERS) |
|                                                                                                                                                     |              | 0.005                                                          |                                                           |
| 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 : HEXAHEDRON                                          | USED ON :-                                                |
|                                                                                                                                                     |              | 22-h11 GOST 8560-78                                            | CS 315 - 659 - 2                                          |
|                                                                                                                                                     |              | 45-B-H GOST 1051-73                                            | CS 315 - 662-16                                           |
| 3A                                                                                                                                                  | 18-8-08      | D. O. CORRECTION.                                              |                                                           |
| ISSUE                                                                                                                                               | DATE         | NATURE OF AMENDMENTS                                           |                                                           |
| DRN                                                                                                                                                 | SCALE :- 1:1 |                                                                |                                                           |
| APPD                                                                                                                                                |              | DIMENSIONS IN mm                                               |                                                           |
| CHD                                                                                                                                                 |              | TOLERANCE ON DIMENSIONS UNLESS OTHERWISE STATED IS : 2102 - 69 |                                                           |
| DATE                                                                                                                                                |              | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI      |                                                           |
| 16/3/07                                                                                                                                             |              | TITLE :-                                                       |                                                           |
| SIZE A4                                                                                                                                             |              | LOCK NUT (3A)                                                  |                                                           |
|                                                                                                                                                     |              | D S CAT NUMBER                                                 | DRAWING NUMBER                                            |
|                                                                                                                                                     |              |                                                                | 315 -795                                                  |



DRAWING INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - 3

DRAWING NUMBER  
**315 -799**

20  
✓ (M)



1. Unspecified limit deviations of dimensions are  $\pm 0.3$ .
2. Coating: Zinc -12 microns, chromium -1 micron as per instruction *ИТ-483-82*.
3. \* Dimension is given for reference.

F-5  
88  
283

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

|         |                                                                |                      |                                                                                                                                                     |                                                                 |
|---------|----------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
|         |                                                                |                      | EST. WT. (Kg)<br><b>0.005</b>                                                                                                                       | 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. |                                                                 |
|         |                                                                |                      | MATERIAL :- Sheet                                                                                                                                   | USED ON :-                                                      |
| 3A      | 18-8-08                                                        | D. O. CORRECTION.    | AT-7B 1.5 GOST 19904-74                                                                                                                             | CS 315 -662 -16                                                 |
| ISSUE   | DATE                                                           | NATURE OF AMENDMENTS | И-10 GOST 16523-89                                                                                                                                  |                                                                 |
| DRN     | SCALE :- 2:1                                                   |                      | CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES)<br>AVADI                                                                                        |                                                                 |
| CHD     | DIMENSIONS IN mm                                               |                      |                                                                                                                                                     |                                                                 |
| APPD    | TOLERANCE ON DIMENSIONS UNLESS OTHERWISE STATED IS : 2102 - 69 |                      |                                                                                                                                                     | TITLE :-                                                        |
| DATE    | ALL THREADS TO CONFORM TO                                      |                      | D S CAT NUMBER                                                                                                                                      | <b>SHACKLE</b> Ⓜ                                                |
| SIZE A4 | 16/3/07                                                        |                      | DRAWING NUMBER                                                                                                                                      | <b>315 -799</b>                                                 |

