

DRAWING NUMBER
317-09-3

Rz 20/ (✓) (✓)

1. INSPECTION GROUP III, TT-11
2. ~~HRC 7-59~~ HRC₉ ≥ 60
3. DELETED
4. MISALIGNMENT OF SURFACE 'A' RELATIVE TO SURFACE 'B' SHOULD NOT EXCEED 0,1 mm
5. CURVATURE OF SURFACE 'B' SHOULD NOT EXCEED 0,02 mm
6. * DIMENSION FOR REFERENCE

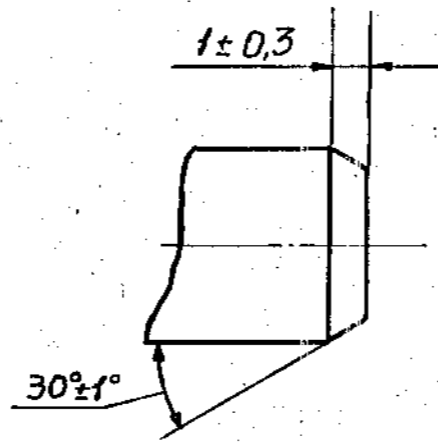
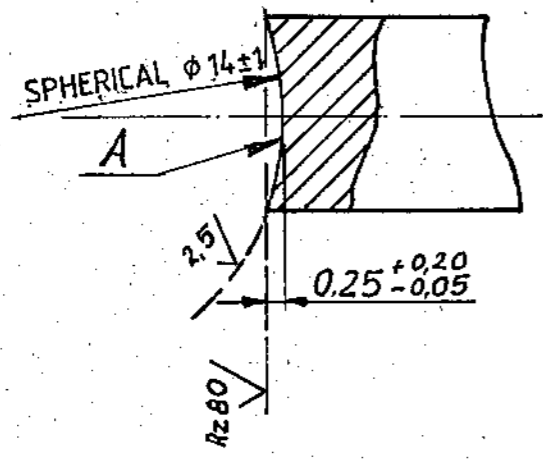
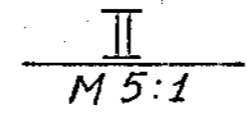
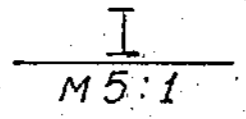
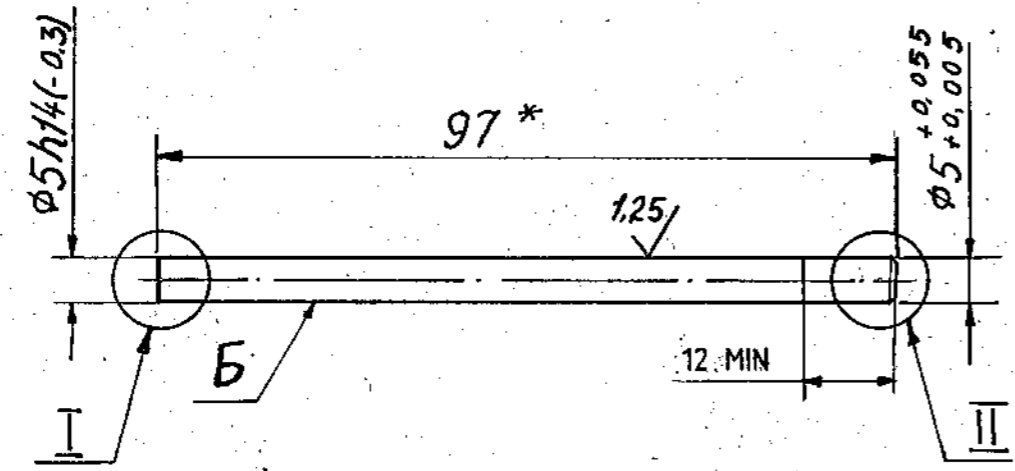
EXPLANATORY NOTE

7. REFERENCE MATERIAL QUOTED:
BALL BEARING STEEL HOT ROLLED GRADE U4 X15 GOST 801-78
CHEMICAL COMPOSITION:

CONTENT OF ELEMENTS %								
C	Si	Mn	Cr	S	P	Ni	Cu	Ni + Cu
				M A X I M U M				
0.95	0.17	0.20	1.30	0.02	0.027	0.30	0.25	0.50
1.05	0.37	0.40	1.65					

8. REFERENCE NOTE 1 ON INSPECTION GROUP III, TT - 11
TO BE SUBJECTED TO 100 % CHECKING OF HARDNESS WITHOUT BEING TESTED FOR MECHANICAL PROPERTIES,

(B) EQUIVALENT MATERIAL
STEEL 535A99 (EN31) TO BS:970/103
CR 2 TO IS 4398-72



DRAWING INDIANISED BASED ON ISSUE 4.

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

EST WT 0,015 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>Freehand</i>
CHD	<i>V.G.L.</i>
TCD	<i>Freehand</i>
APPD	<i>Freehand</i>
DATE	<i>24-2-86</i>
SCALE	1 : 1
DIMENSIONS IN mm	
TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS: 2102-69	
ALL THREADS TO CONFORM TO	
ISSUE	NATURE OF AMENDMENTS
B 10-7-10	4 th ALT. COMM. Mtg. MINUTES POINT No 8 DT-26-10-09
A 23.11.87	AUTHY BK 82-394

MATERIAL : STEEL U4 X15 GOST 801-78	USED ON C5 317 023 C6
CONTROLLERATE OF INSPECTION (HEAVY VEHICLES) AVADI	
TITLE ROD	
D S CAT NUMBER	DRAWING NUMBER 317-09-3

(A6)

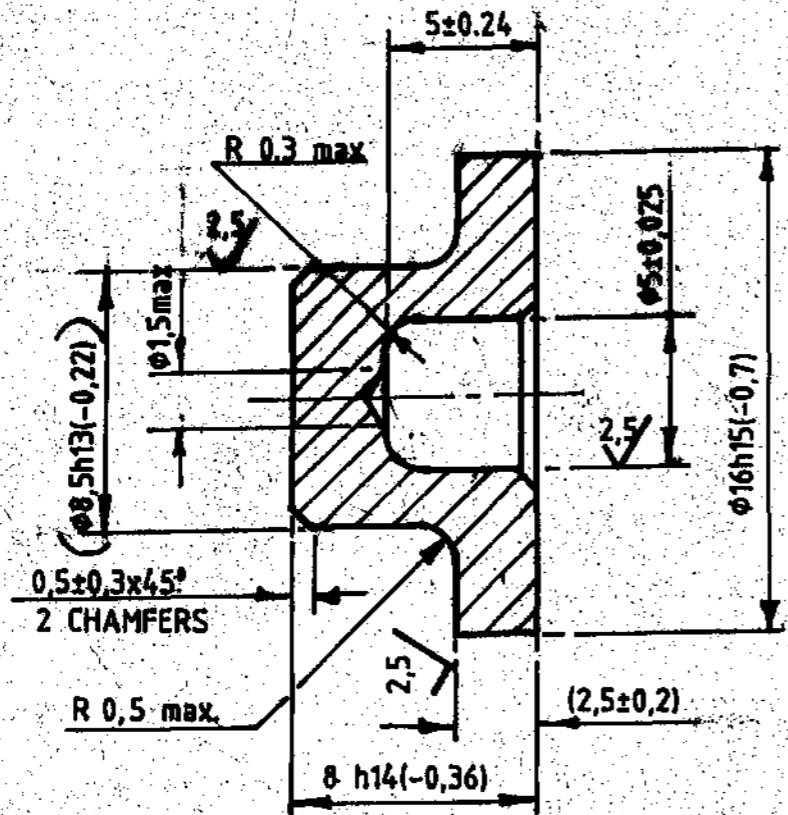
SIZE A3

DRAWING NUMBER

317-10-2

R200/✓(✓)

DRAWING/INDIANISED BASED ON ISSUE 3.



(B) EQUIVALENT MATERIAL STEEL
835 M 15 (EN39B) TO BS:970

EXPLANATORY NOTE

5. REFERENCE MATERIAL QUOTED

STRUCTURAL ALLOY CONTROLLED HIGH QUALITY STEEL
GRADE 18X2H4BA GOST 4543-71

6. REFERENCE NOTE 4 ON ALTERNATIVE MATERIAL: HOT-ROLLED
ROUND BAR GRADE 18X2H4MA TO TY 14-1-381-72

a. CHEMICAL COMPOSITION:

GRADE OF STEEL	CONTENT OF ELEMENTS %							P MAXIMUM	S
	C	Si	Mn	Cr	Ni	Mo	W		
18X2H4BA	0.14 0.20	0.17 0.37	0.25 0.55	1.35 1.65	4.00 4.40	—	0.80 1.20	0.025	0.025
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

- i. RESIDUAL CONTENT OF COPPER SHOULD NOT EXCEED MORE THAN 0.30%.
- ii. THE PHOSPHOROUS CONTENT FOR HIGH QUALITY STEEL PRODUCED IN BASIC OPEN-HEARTH AND ACID-REFINED FURNACES, IS ALLOWED UP TO 0.030%

b. MECHANICAL PROPERTIES:-

GRADE OF STEEL	TENSILE STRENGTH Kgf/mm ²	YIELD POINT kgf/mm ²	ELONGATION %	REDUCTION IN AREA %	IMPACT STRENGTH Kgf.m/cm ²	HARDNESS BHN (MAX)
18X2H4BA	105	80	12	50	12	269
18X2H4MA	115	85	10	50	12	269

1. INSPECTION GROUP IV T T-11.

2. HRC: 33.....37 (HRC: 35.....39)

3. DIMENSIONS GIVEN IN BRACKETS SHOULD BE ENSURED AFTER ASSEMBLY

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

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

EST WT
0.006 Kg

TO BE STAMPED OR MARKED WHERE INDICATED THUS # (LETTERS)

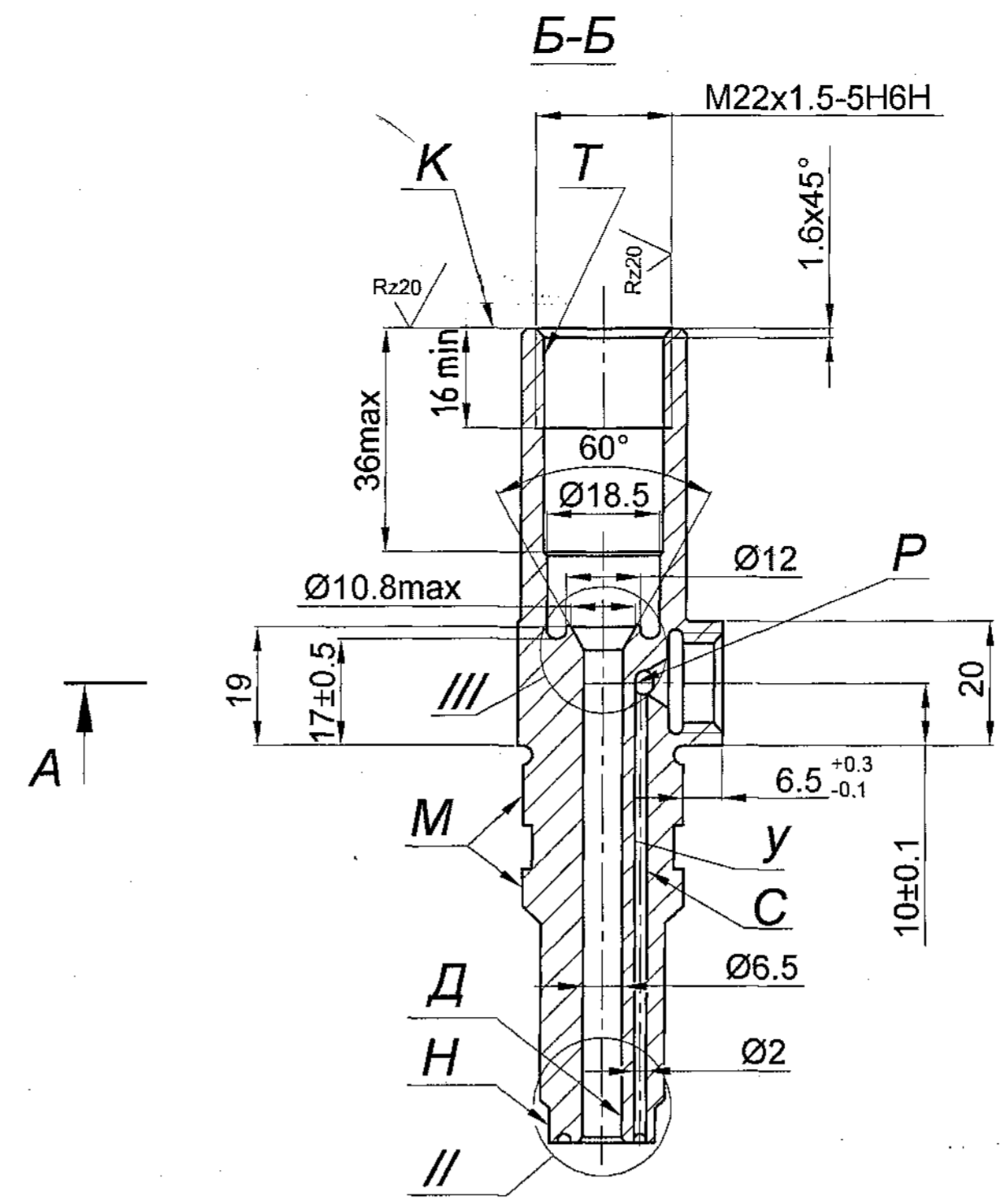
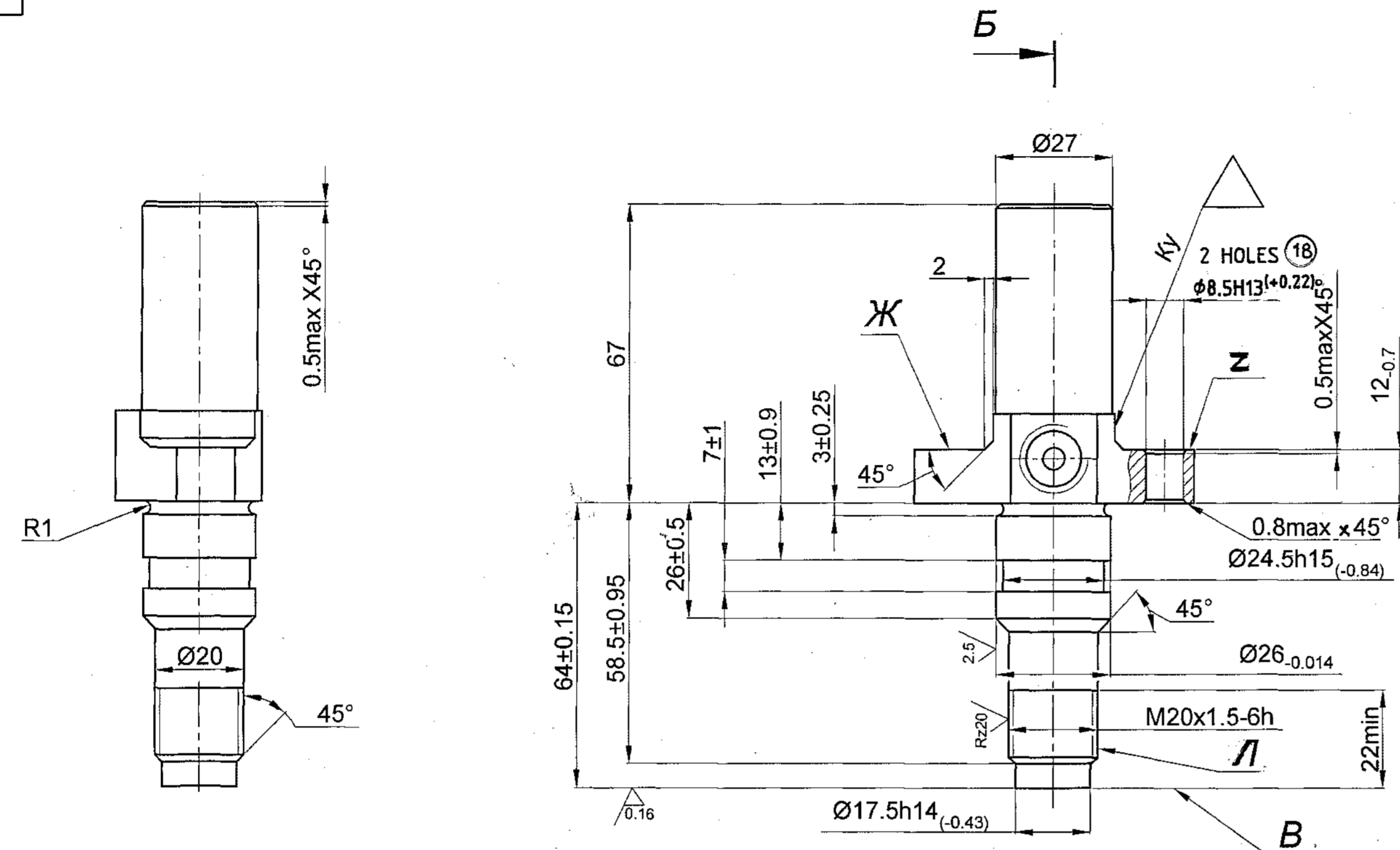
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED. MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE

DN	27.8.10	4 th ALT. Comm. Meeting Minutes	DATE	26.10.09	Point No.14
DD	23.11.07	AU HY BK 82-394.	DATE		
TC			DATE		
APPO			DATE		
SCALE	4:1				
DIMENSIONS	IN mm				
TOLERANCE	ON DIMNS UNLESS OTHERWISE STATED IS: 2102-69				
CONFORM TO	ALL THREADS TO CONFORM TO				
MATERIAL	STEEL 18X2H4BA GOST 4543-71		USED ON CS 317-02-3 CS		
CONTROLLER			RATE OF INSPECTION (HEAVY VEHICLES) AVADI		
TITLE			SPRING DISC		
D S CAT NUMBER			DRAWING NUMBER 317-10-2		
ISSUE	DATE	NATURE OF AMENDMENTS			

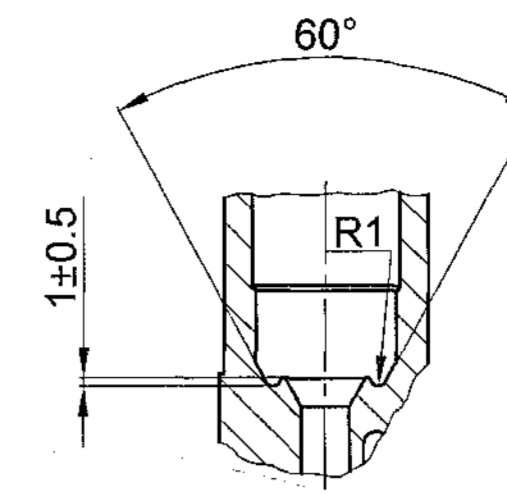
A6

SIZE A3

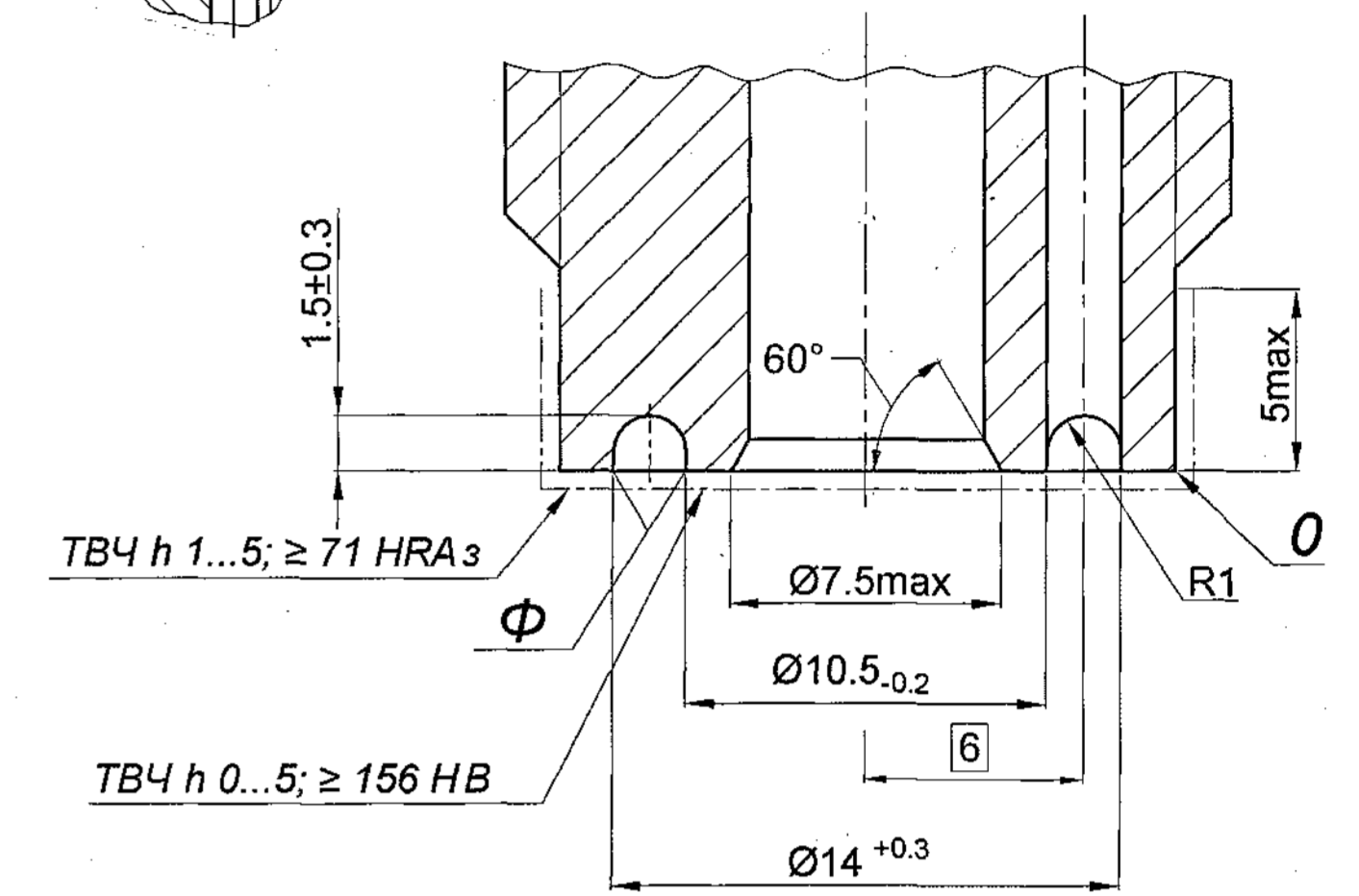




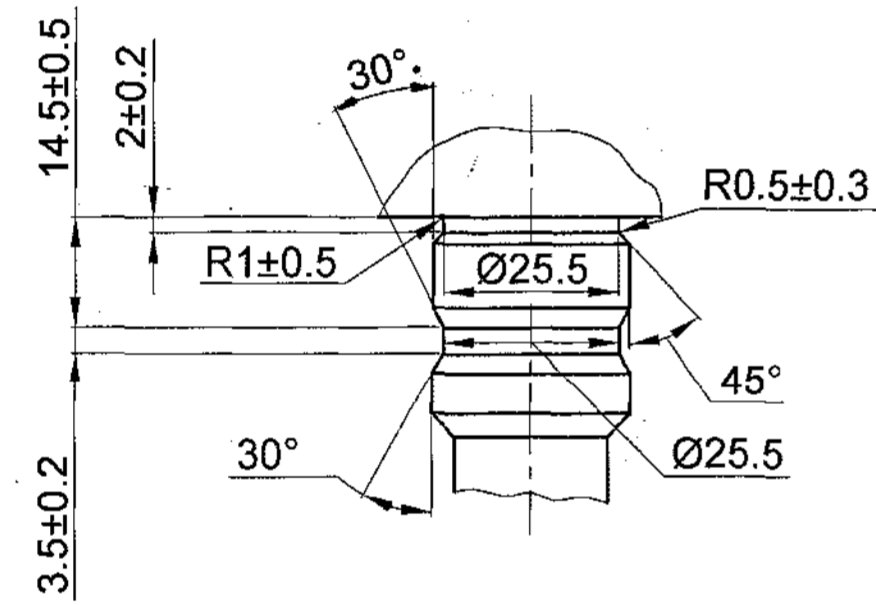
/// ALTERNATE



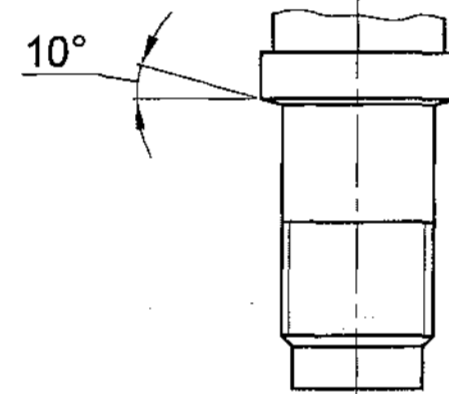
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M 5:1



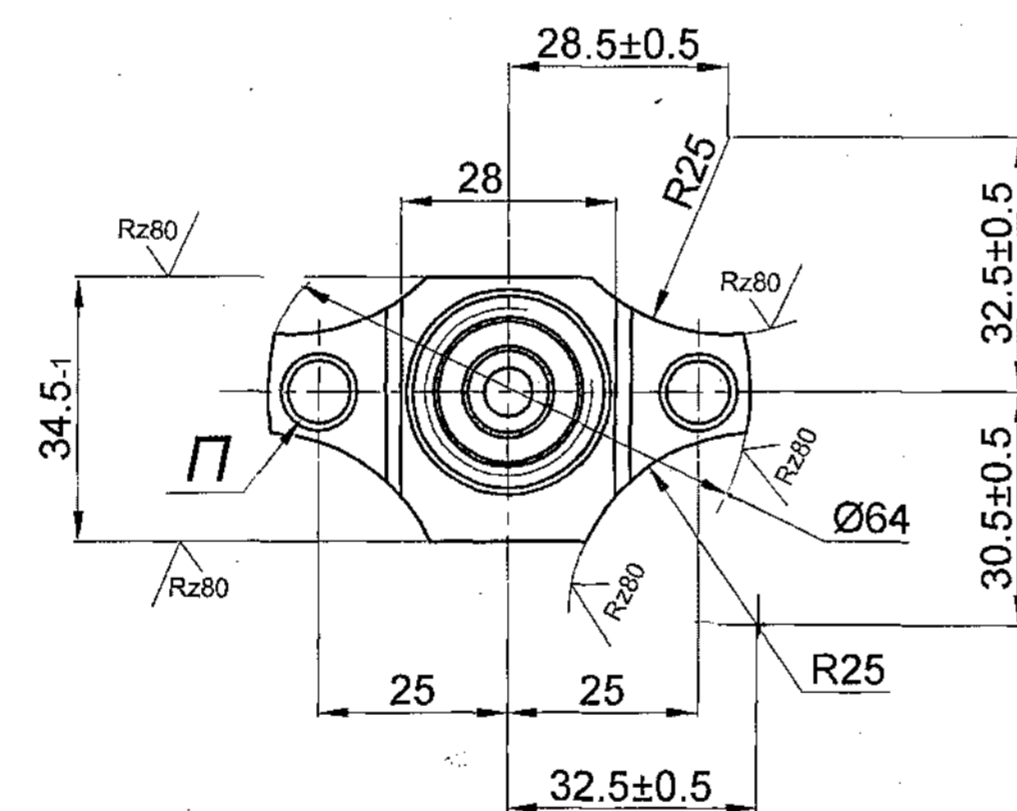
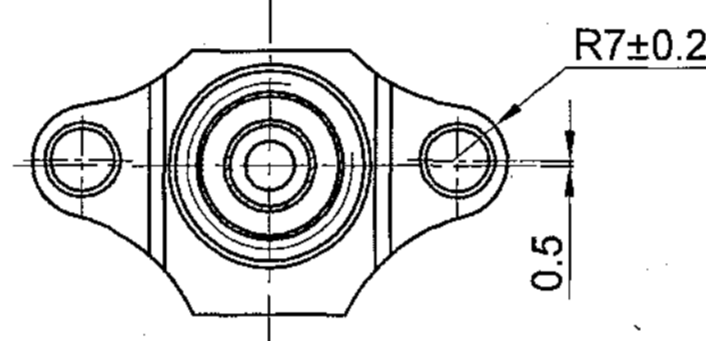
ALTERNATE II



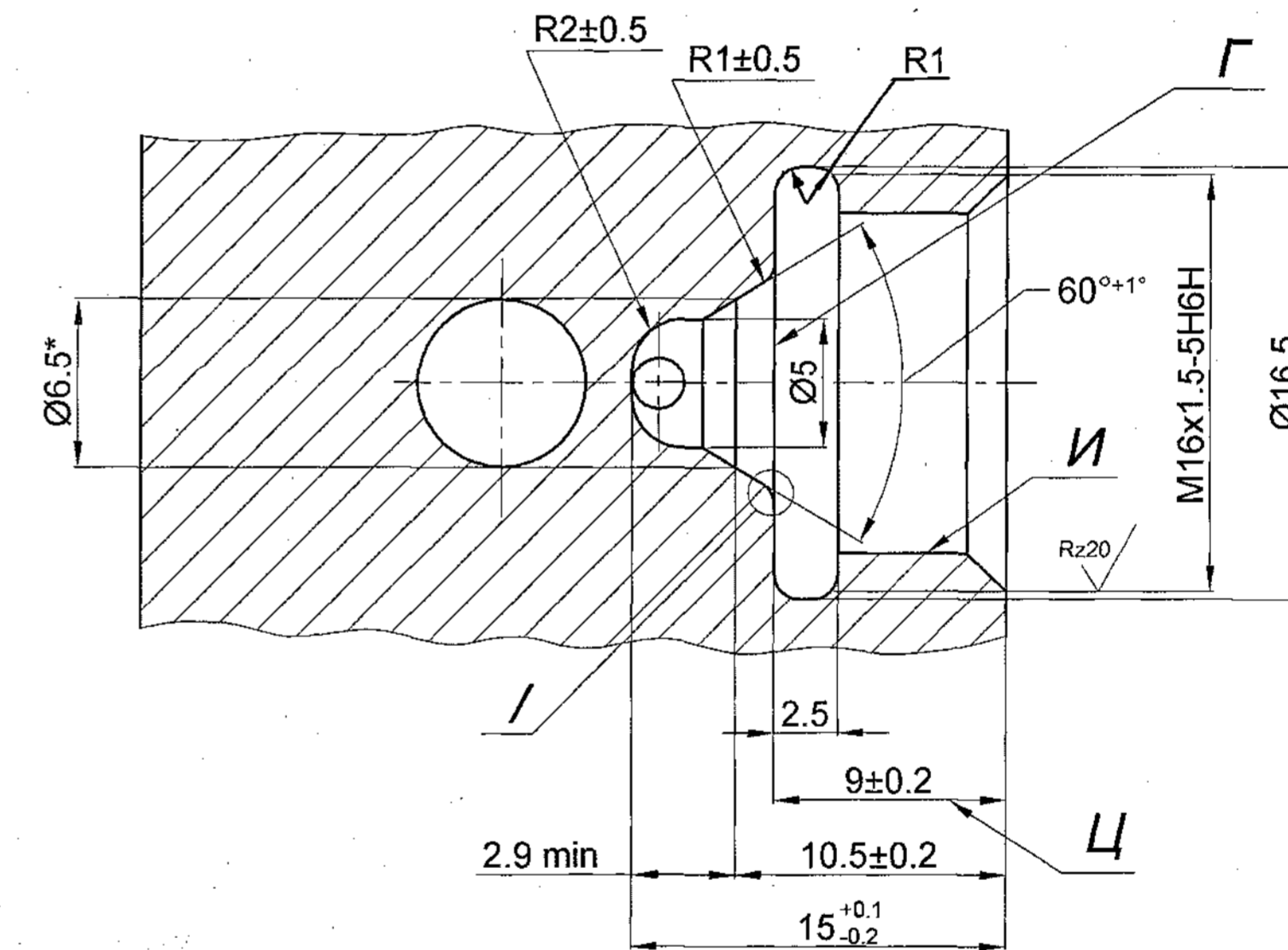
ALTERNATE I



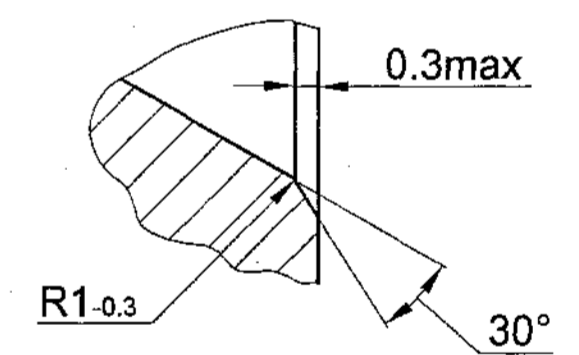
ALTERNATE III



A-A
M 4:1



ALTERNATE
M10:1



1. Inspection Group III as per Technical requirement - TT-11.
2. Acceptance rule and quality checking of heat treatment should be as per IIM 815-93.
3. H14, h14.
4. Non-flatness of face "B" is to be checked with straight edge. The gap is not allowed.
5. Radial run out of surface "D" relative to surface "M" should not exceed 0.4mm.
6. Radial run out of thread "L" relative to surface "M" should not exceed 0.1mm (permissible tolerance).
7. Run out of sealing cone relative to thread axis "I" should not exceed 0.2mm.
8. Shift and misalignment on the total thread "T" relative to surface "D" should not exceed 0.2mm on the surface length "D" (permissible tolerance).
9. Misalignment of hole "P" from nominal location relative to surface "M" should not exceed 0.12mm (permissible tolerance).
10. Non-squareness of face "K" relative to thread axis "T" should not exceed 0.1mm (permissible tolerance).
11. Non-squareness of face "B" relative to axis of thread "L". Should not exceed 0.6mm for 016mm.
12. Non-Perpendicularity of axis of thread "I" for axial flatness (parallel-axis of surface "M") of surface "P" should not exceed 4mm- 0.8mm OI length 100mm.
13. Non-squareness of planes "X" and "Z" to the axis of surface "M" should not exceed 0.1mm on the end of point. (on planes "X" and "Z" are allowed facing 019mm relative to hole "P", in this case, non-squareness of faced surfaces to axis of surface "M" should not exceed 0.1mm for 015mm).

14. While drifting of hole "Y" on the surface "P" the wall thickness between surface "C" and surface "D" should be minimum 0.7mm. While drifting the hole "Y" to the side should be totally opened.
15. After machining injector body should be washed thoroughly (pay extra attention for cleaning of channel "C").
16. On the surface "I" recess of 014.5 mm is allowed within limit of tolerance on dimension "L".
17. Edge "O" should be blunted with radius or chamfer of max 0.3mm.
18. Coating: Chemically oxidized and (except surface "B") local oxidation on the surfaces "M" and thread "L" is allowed.
19. Presence of blackness as per standard is allowed on the surfaces "X" and "Z".
20. Inner and outer edges of hole "Y" and edge "O" are not to be blunted.
21. * Dimension is given for reference.
22. Misalignment of hole axis "Y" from nominal position should not exceed 0.1mm of base-hole "D" (permissible tolerance).
23. Absence of coating on the surface "K" is allowed.
24. Blank... Forging steel as per Gost 7505-89.

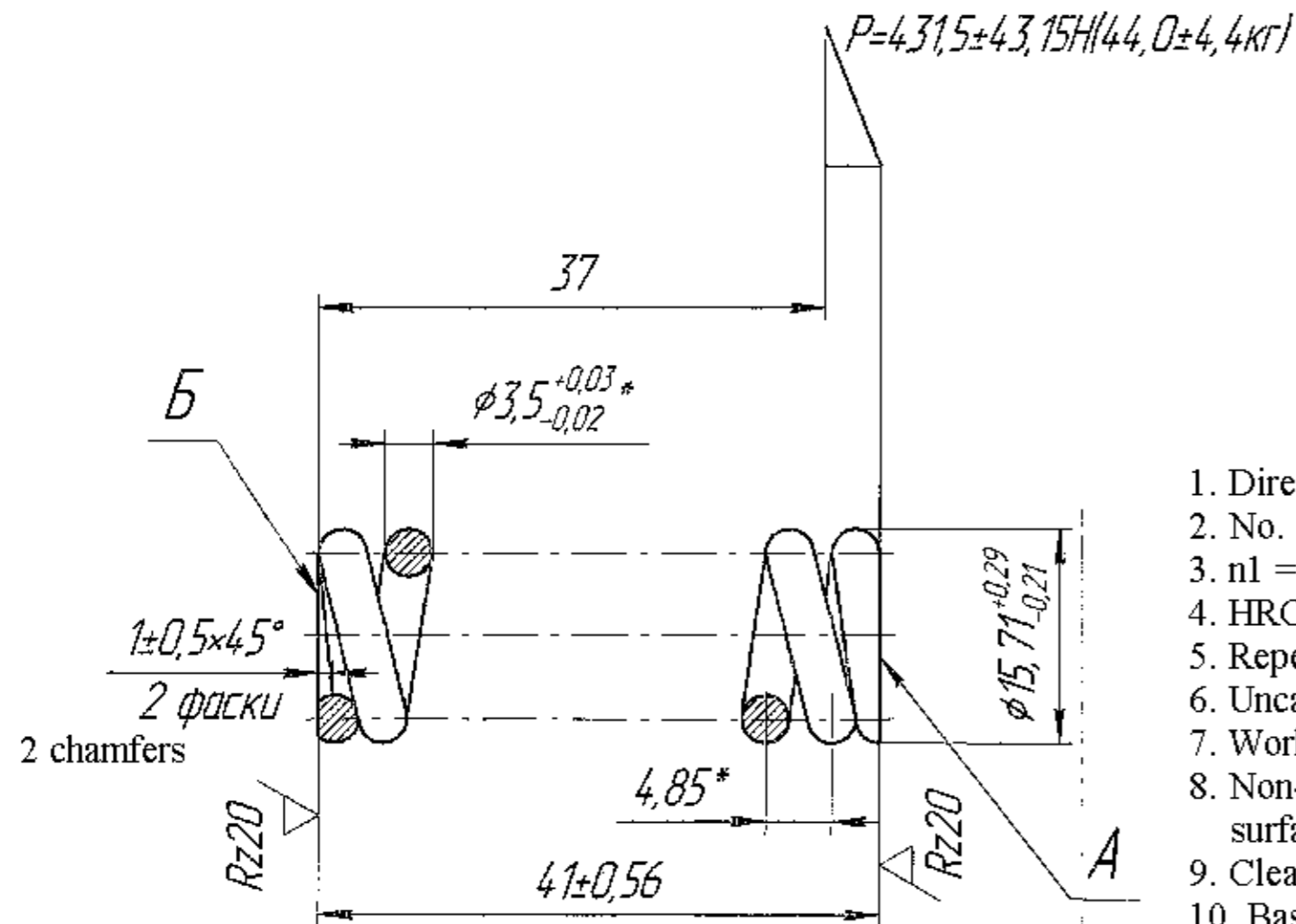
18A ALTERNATE MATERIAL: STEEL 080 M40 (EN 8) TO BS: 970
PL-1-1983 OR 45 CB TO IS: 1570

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)
0.409

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	APPD	DATE	SCALE	DIMENSIONS IN mm	TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS: 2102-69	ALL THREADS TO CONFORM TO	D S CAT NUMBER	DRAWING NUMBER
				1:1					317-13-30
MATERIAL: STEEL 45 GOST 1050-88				USED ON:- C5 317-00-33-01		CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI			
18A 11-7-09				3RD ALTERATION COMM. MINUTES POINT B, DATE 27-2-09					
18 30.10.08				NOTN. NO: 266-03 (F-158)					
ISSUE				DATE		NATURE OF AMENDMENTS			



15. Маркировать обозначение и количество пружин на бирке для партии деталей.
16. Клеить окончательную приемку на бирке для партии деталей.
17. *Размеры для справок.
18. Допускается подшлифовка торцов пружины после обработки дробью и заневоливания.
19. Неплоскостность опорных поверхностей опорных витков не более 0,1мм.
20. Контроль силовой характеристики производить по инструкции ИЛ-482-82.

1. Direction of spring winding - right.
2. No. of turns n = 7.
3. n1 = 9.5±0.25
4. HRC₃ 45...51
5. Repeated hardening is not permitted.
6. Uncarburized layer is not permitted.
7. Working thread pitch unevenness should be maximum 0.4mm
8. Non-squareness of the generatrix of spring relative to the face surface A and B should not exceed to 0.4 mm.
9. Clearance between compressed turns of spring should not exceed to 0.2 mm.
10. Base surface of supporting turns should be minimum of 0.75 of length of circle.
11. Thickness of the supporting turn should not be less than 0.5 mm.
12. Shot blast before compressing as per instruction ИМ-508-83.
13. compress and duration of holding minimum 11 hours 30 minutes.
14. Coating: Chemical oxidation and oil finished.
15. Mark code and quantity of springs on tag for batch of parts.
16. Stamp final acceptance on tag for batch of parts.
17. *Dimensions for reference.
18. Grinding of end face of spring after machining of shot and compression is permitted.
19. Non-flatness of supporting surfaces of supporting turns is not more than 0.1 mm.
20. Carry out of inspection of force characteristic as per instruction ИЛ-482-82.

1. Направление навивки пружины правое.
2. n=7.
3. n₁=9,5±0,25.
4. HRC₃ 45...51.
5. Повторная закалка не допускается.
6. Обезуглерожженный слой не допускается.
7. Неравномерность шага рабочих витков не более 0,4мм.
8. Неперпендикулярность образующей пружины к торцевым поверхностям А и Б не более 0,4мм.
9. Зазор между поджатыми витками не более 0,2мм.
10. Опорная поверхность опорных витков не менее 0,75 длины окружности.
11. Толщина конца опорного витка не менее 0,5мм.
12. Обработать дробью до заневоливания по инструкции ИМ-508-83.
13. Заневолить, продолжительность выдержки 11 часов 30 мин, не менее.
14. Покрытие Хим. Окс. прм.

F-154
17/59

Подп. и дата
Взам. инв. №
Инв. № докл.
Инв. № подл.
45089

Sheet		Doc. No.		Sign.		Date	
9		- 96-161					
Изм. / лист		№ докум.		Подп.		Дата	
Trans. & Ckd. by:		M/S SWYAZ					
Authenticated by:							
Approved by:							
Engine Factory, Avadi							
Spring of the sprayer				317-15-15		Letter Weight Scale	
Wire Пружина форсунки				Б 0,025		2:1	
Проволока 51ХФА-А-П-1-ХН-3,5 ГОСТ 14963-78				Лист		Листов 1	
				Sheet		Sheets	

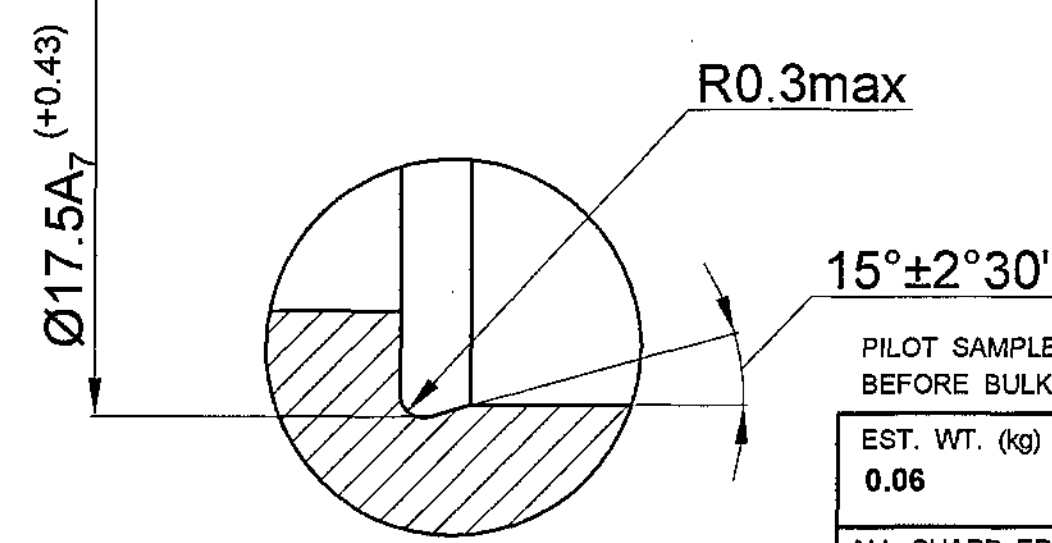
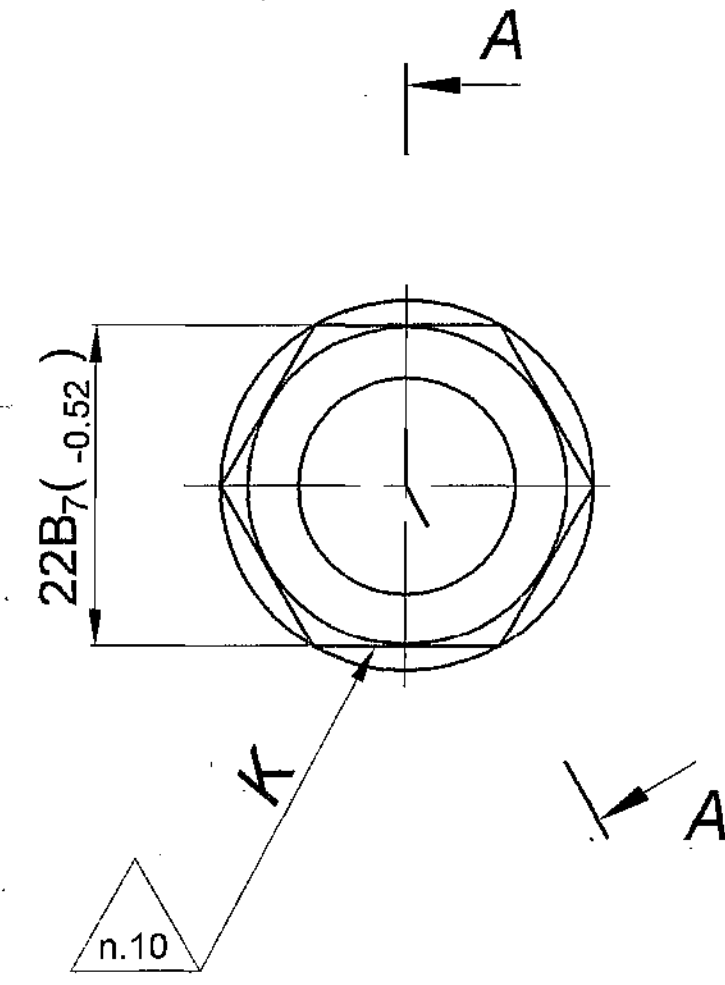
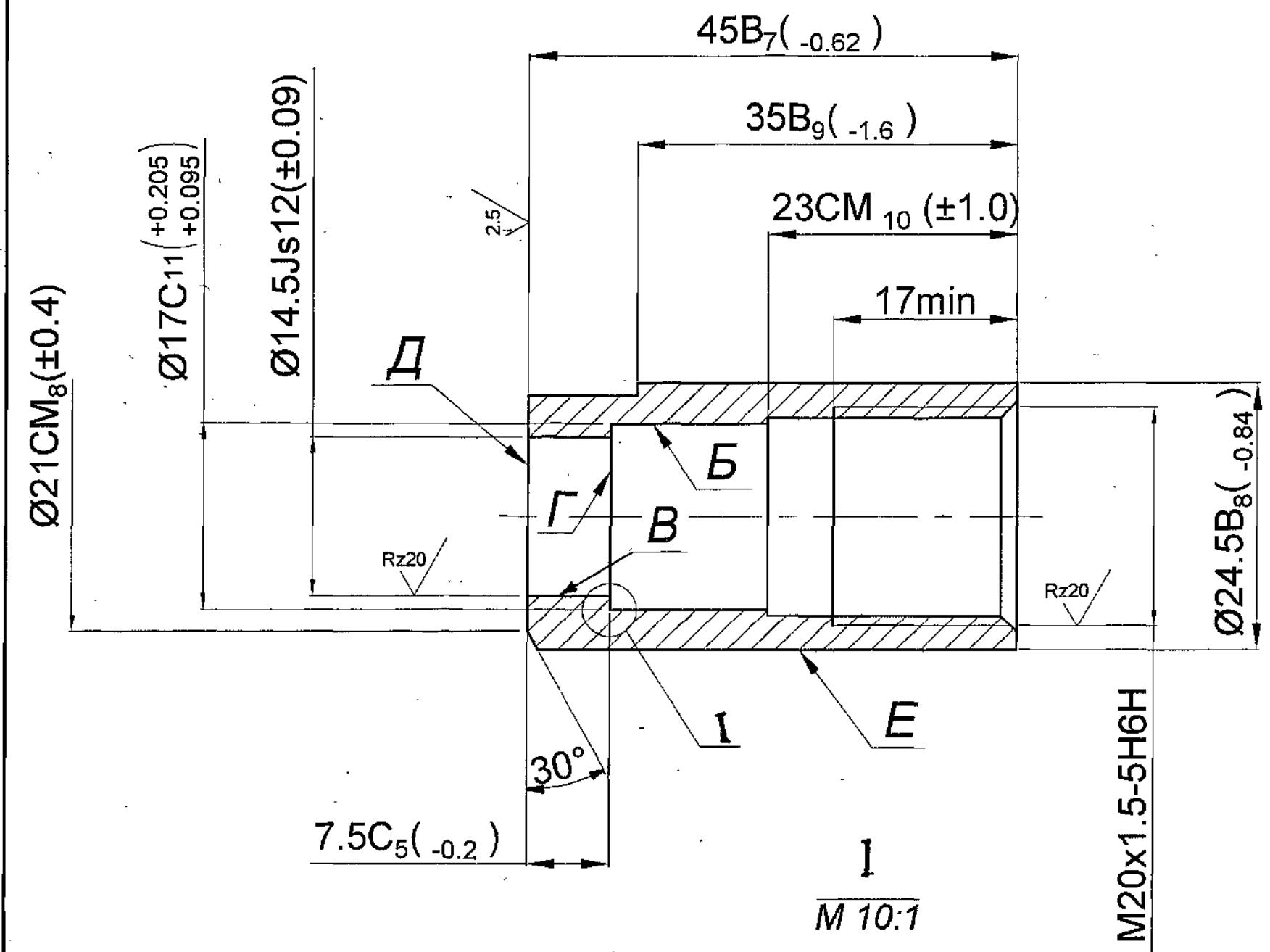
DRAWING INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - 7

DRAWING NUMBER
317-23-18

SHEET No. OF

A-A

Rz40 ✓ (✓)



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

EST. WT. (kg) 0.06 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.

1. Inspection group - IV.
2. HRC₃ 26...32.
3. Misalignment of surface B relative to thread axis should not exceed 0.05mm (permissible tolerance).
4. Misalignment of surface "B" relative to thread axis should not exceed 0.03mm (permissible tolerance).
5. Non-squareness of surface "Г" relative to thread axis should not exceed 0.04mm on the surface Ø 16 mm (permissible tolerance).
6. Non-squareness of surface "Д" relative to thread axis should not exceed 0.06mm on the surface Ø 21 mm (permissible tolerance).
7. Radial runout of surface "E" relative to thread axis should not exceed 0.3mm.
8. An acceptance of thread of plug M20x1.5-7H is allowed.
9. Coating: Chemically oxidized and oiled.
10. Stamp on the surface "E" is allowed.
11. Quality of calibrated steel surface should comply with the requirement of Gost 1051-73 group "B".

ⓑ EQUIVALENT MATERIAL
STEEL Ø80 M40 (EN8) TO BS: 970 OR
45 CB TO IS: 1570

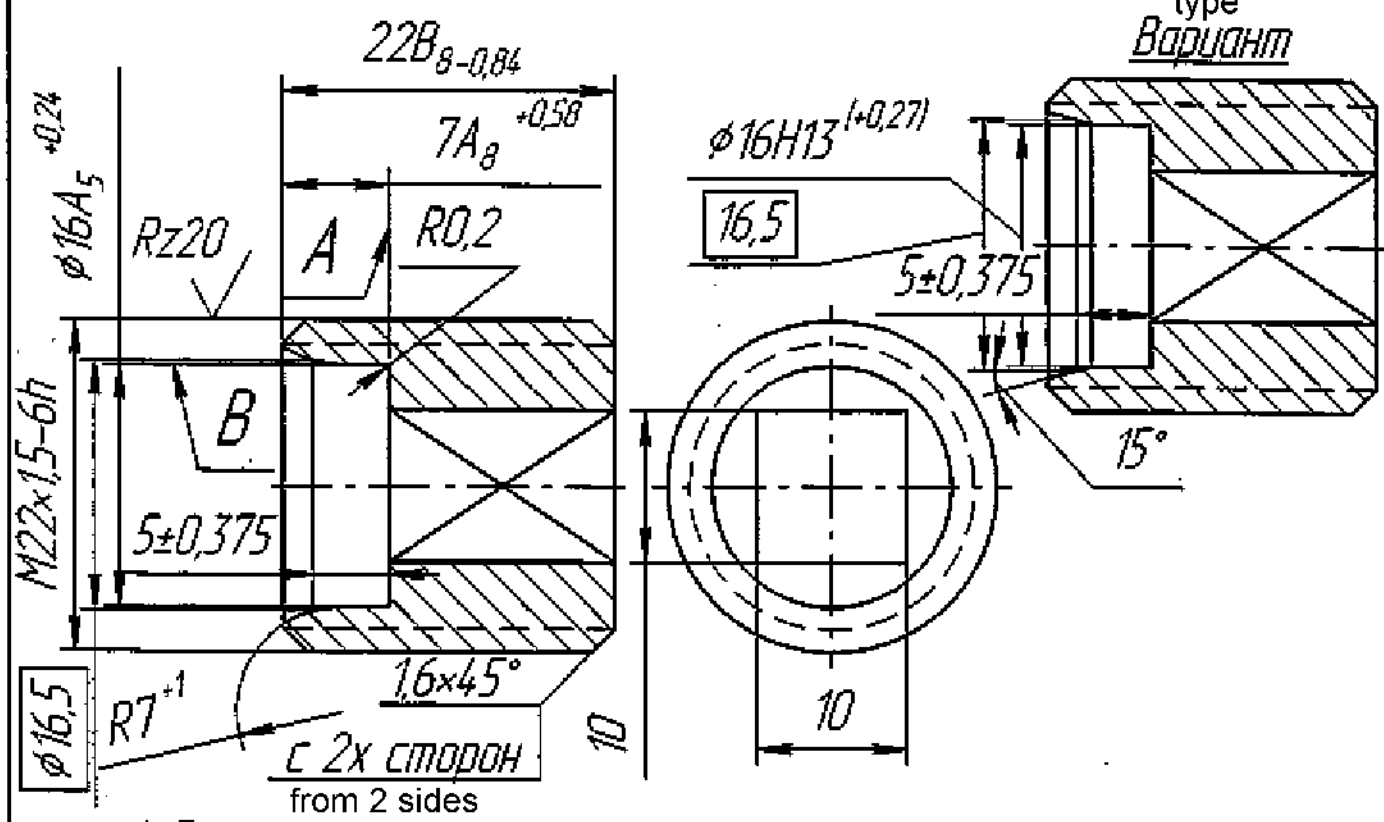
DRN	CHD	APPD	DATE	MATERIAL :- STEEL 45 GOST 1050-88	USED ON :- Cb 317-00-33-01
			01/3/07	CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI	
				SCALE:- 2:1	
				DIMENSIONS IN mm	
				TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS: 2102-69	TITLE :- SPRAY TIP NUT (7A)
1B	10-7-10	4 th ALT. COMM. Mtg. MINUTES POINT No 7 DT. 26-10-09		ALL THREADS TO CONFORM TO	D S CAT NUMBER
7A	09.07.08	DO CORRECTION.			DRAWING NUMBER 317-23-18
ISSUE	DATE	NATURE OF AMENDMENTS			

F-4
45
253
SIZE A4 x 3

L-47-L1E

Rz40

type
Вариант



1. Group of inspection - V.
2. Non-perpendicularity of end face A in relation to the axis of thread is not more than 0.08 mm for dia. 14 mm (tolerance is dependable).
3. Misalignment of axis of surface B in relation to thread is not more than 0.1 mm (tolerance is dependable).
4. H14; h14; $\pm IT14/2$.
5. Blunt the sharp edges.
6. Coating Chemically Oxidized and oil finished.
7. Make thread by rolling is permitted.
8. Traces from drill dia. 10 mm on sides of 4 faces is permitted.

1. Группа контроля V.
2. Неперпендикулярность торца А относительно оси резьбы не более 0,08мм на $\phi 14$ мм (допуск зависимый).
3. Смещение оси поверхности В относительно резьбы не более 0,1мм (допуск зависимый).
4. H14, h14, $\pm \frac{IT14}{2}$.
5. Острые кромки затупить.
6. Покрытие Хим. Окс. прм.
7. Допускается резьбу изготавливать накаткой.
8. На сторонах 4-х гранника допускаются следы от сверла $\phi 10$ мм.

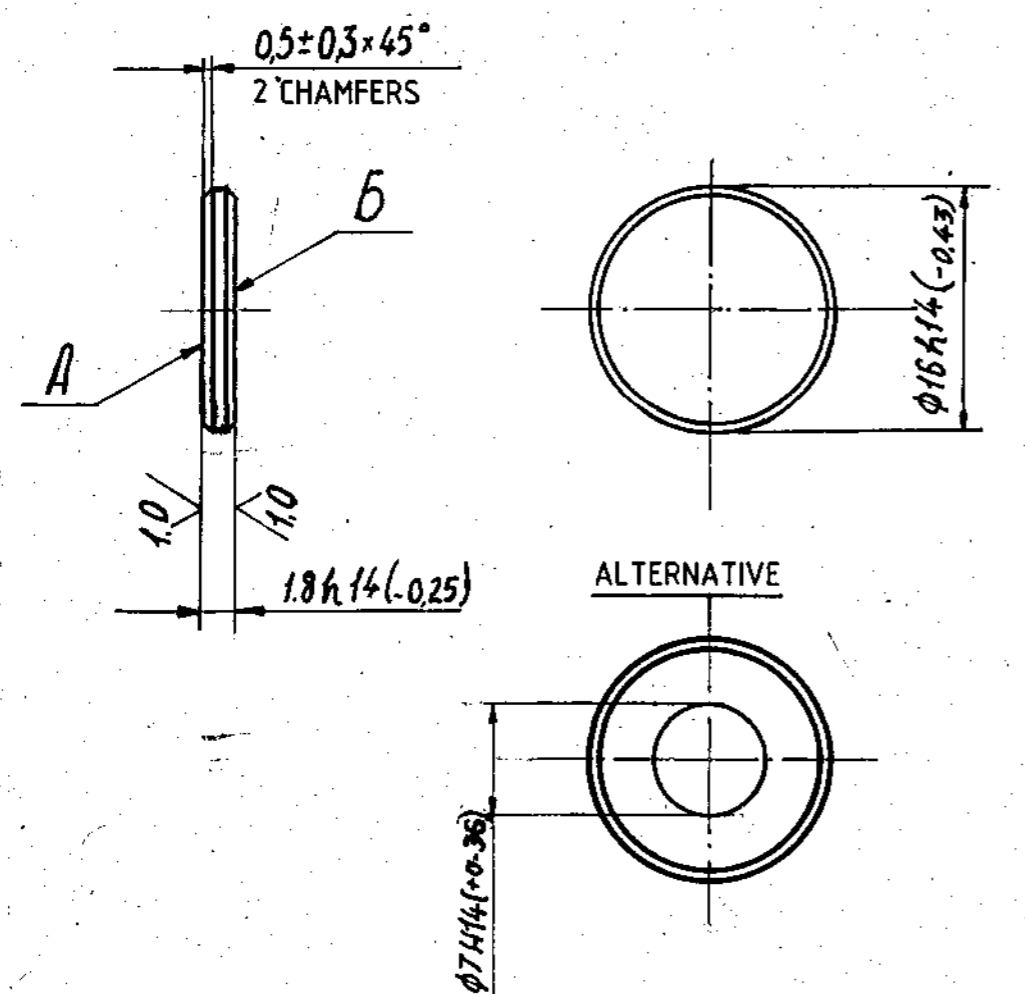
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Разраб.	
Проб.	
Т.контр.	
Н.контр.	
Утв.	

SPRING NUT		317-24-7	
Letter	Weight	Scale	
Лит.	Масса	Масштаб	
A	0,0339	2:1	
Лист	Листов	1	
Sheet	Sheets	1	
Steel 45 GOST 1050-88		Сталь 45 ГОСТ 1050-88	

317-36

Rz 40 (✓)

DRAWING INDIANISED BASED ON ISSUE 2.



EXPLANATORY NOTE

6. REFERENCE MATERIAL QUOTED :
 SPRING ALLOY STEEL, HOT ROLLED, GRADE 65 F GOST 14959-69
 a. CHEMICAL COMPOSITION AS PER GRADE 65 F GOST 14959-79.

CONTENT OF ELEMENTS %					
C	Si	Mn	Cr	S	P
			M A X I M U M		
0,62 - 0,70	0,17 - 0,37	0,90 - 1,20	0,25	0,035	0,035

RESIDUAL CONTENT OF COPPER AND NICKEL SHOULD NOT EXCEED 0,20 % AND 0,25 % EACH RESPECTIVELY

- b. MECHANICAL PROPERTIES

TENSILE STRENGTH Kgf/mm ²	YIELD POINT Kgf/mm ²	ELONGATION %	REDUCTION IN AREA %	HARDNESS B H N (Max)
100	80	8	30	285

7. REFERENCE NOTE 3 ON ALTERNATE MATERIAL : BALL BEARING STEEL,
 HOT ROLLED GRADE ~~U X 15~~ GOST 801-60
 CHEMICAL COMPOSITION : AS PER GRADE ~~U X 15~~ GOST 801-78

CONTENT OF ELEMENTS %									
C	Si	Mn	Cr	S	P	Ni	Cu	Ni + Cu	
				M A X I M U M					
0,95	0,17	0,20	1,30	0,02	0,027	0,030	0,25	0,30	
1,05	0,37	0,40	1,65						

8. REFERENCE NOTE 1 ON INSPECTION GROUP IV TT-11 : SUBJECTED ONLY TO RANDOM CHECKING OF HARDNESS DURING ACCEPTANCE. THE MATERIAL SHOULD MEET THE APPROPRIATE GOST OR TECHNICAL REQUIREMENTS.
 9. REFERENCE NOTE 5 ON PROTECTIVE FINISH :
 OXIDIZED-COPPER FINISH TO IS : 1378 - 79 AND OIL FINISH

1. INSPECTION GROUP IV TT-11
 HRC 49-57
 HRC 48-56
 2. ALTERNATE MATERIAL : STEEL : -ROUND BLANK 17-F-4 GOST 14955-77
 U X 15-O-XB GOST 801-78
 3. NON-PARALLELISM OF SURFACES A AND B SHOULD NOT EXCEED 0,02 mm AT DIA 12 mm
 4. PERMITTED COATING : CHEMICAL OXIDIZING OIL FINISHING

(D) EQUIVALENT MATERIAL
 75 C6 TO IS:2507/EN 42 J BS:970

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

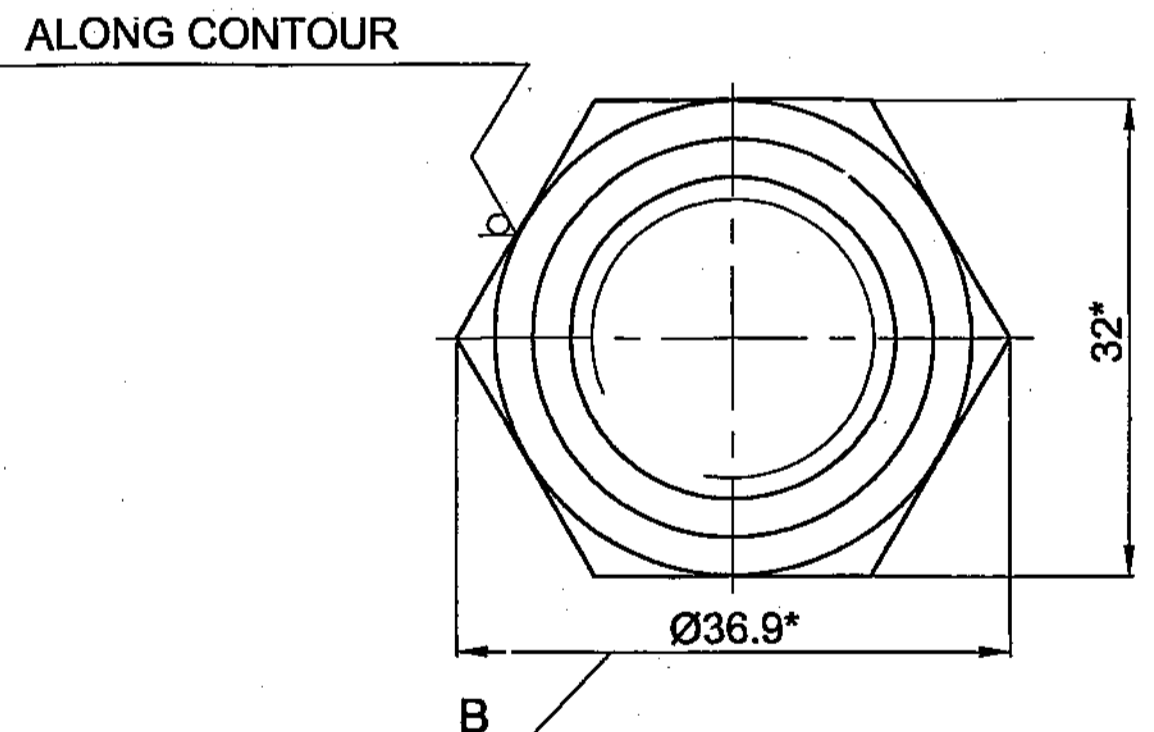
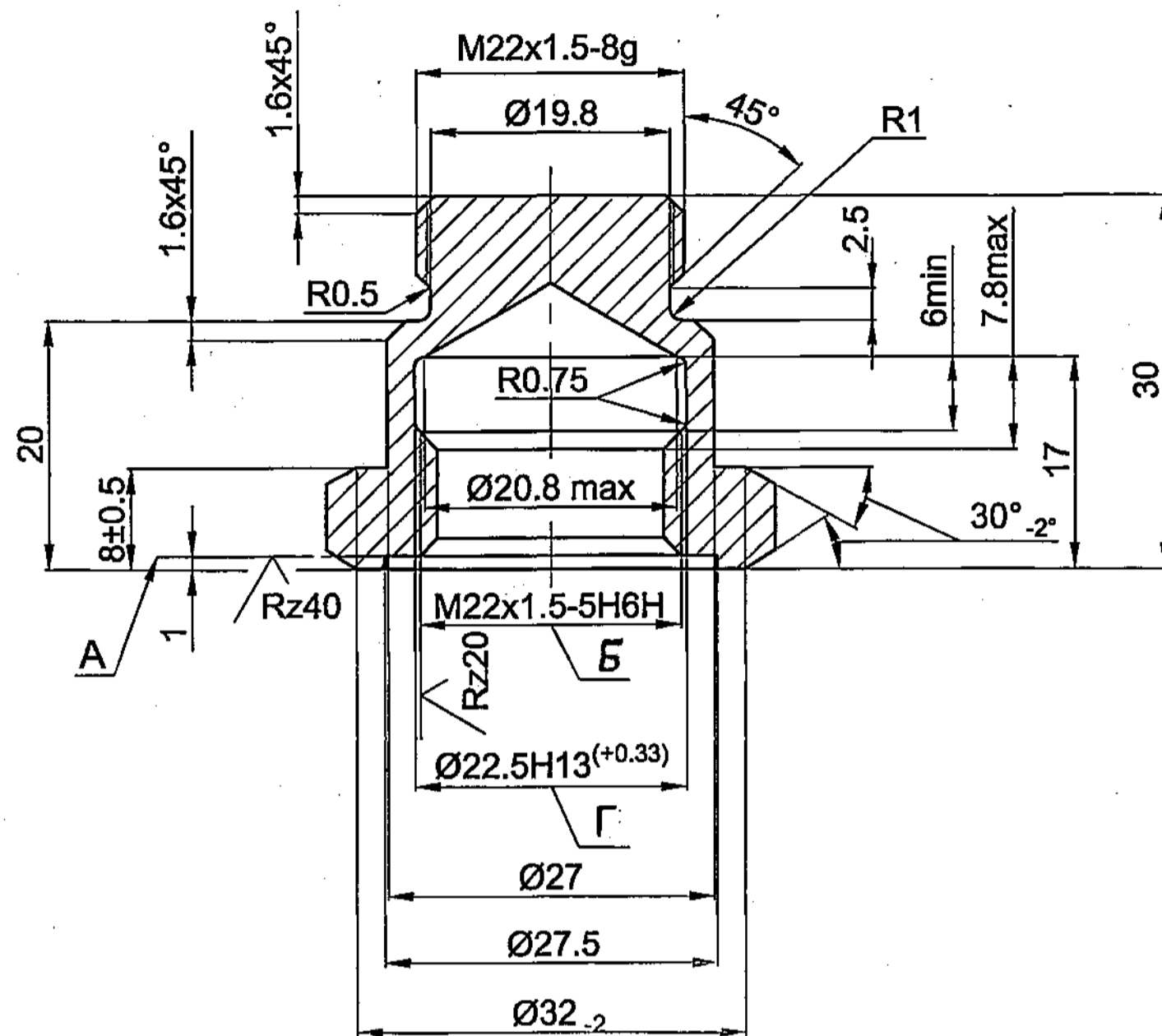
EST WT 0,003 Kg TO BE STAMPED OR MARKED WHERE INDICATED THUS # (LETTERS)

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

DRN	<i>Freejuth</i>	MATERIAL	STEEL 65 F GOST 14959-69	USED ON	38 (B) CB-317-00-30
CHD	<i>V. Co.</i>	CONTROLLERATE OF INSPECTION (HEAVY VEHICLES) AVADI			
TCD	<i>P. Bhadrakumar</i>	TITLE			
APPD	<i>Donson</i>	SPRING WASHER			
DATE	24-2-86	D S CAT NUMBER			
SCALE	2 : 1	DRAWING NUMBER			
DIMENSIONS IN. MM		317-36			
TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS: 2102-69		ALL THREADS TO CONFORM TO			
D 16-08-10 4 th Alt. Comm. Meeting Minutes Point No.12 Dt:26-10-09		ISSUE DATE NATURE OF AMENDMENTS			
C 7.7.93 AUTHY. NOTN. NO. BK 88-304					
B 08-3-88 AUTHY. NOTN. NO. BK 83-345					
A 23.11.87 AUTHY BK 82-394					

DRAWING NUMBER
317-38-2

Rz80 (✓)



1. Inspection group - V as per TT-11.
2. Non-squareness of face A to axis of thread "B" should not exceed 0.1mm on $\phi 26$ mm (permissible tolerance).
3. H14, h14, $\pm 1T14/2$.
4. Coating: Chemically oxidized and oiled.
5. * Dimensions are given for reference.
6. Dimension "B" is allowed up to $\phi 36$ mm.
7. Dimension "Г" $\phi 22.5H14^{(+0.52)}$ is allowed.

DRAWING INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - 6

(6B) ALTERNATE MATERIAL : STEEL 080 M40 (EN 8) TO BS: 970 Pt-1-1983 OR 45 C8 TO IS : 1570

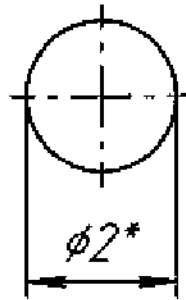
PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION.

EST. WT. (Kg) 0.0749	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 DIMNS UNLESS OTHERWISE STATED IS : 2102 - 69	MATERIAL :- HEXAGONAL BAR 32-h11 GOST 8560-78 45-b GOST 1051-73	USED ON :- [E 317-00-33-01]
				2:1			CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI	
							TITLE :- CAP NUT (6A)	
							D S CAT NUMBER	DRAWING NUMBER 317-38-2
6B	11-7-09	3 rd ALTERATION COMM. MINUTES POINT B. DATE 27-2-09						
6A	09.07.08	DO CORRECTION.						
ISSUE	DATE	NATURE OF AMENDMENTS						

F-4
47
253
SIZE A2

317-52



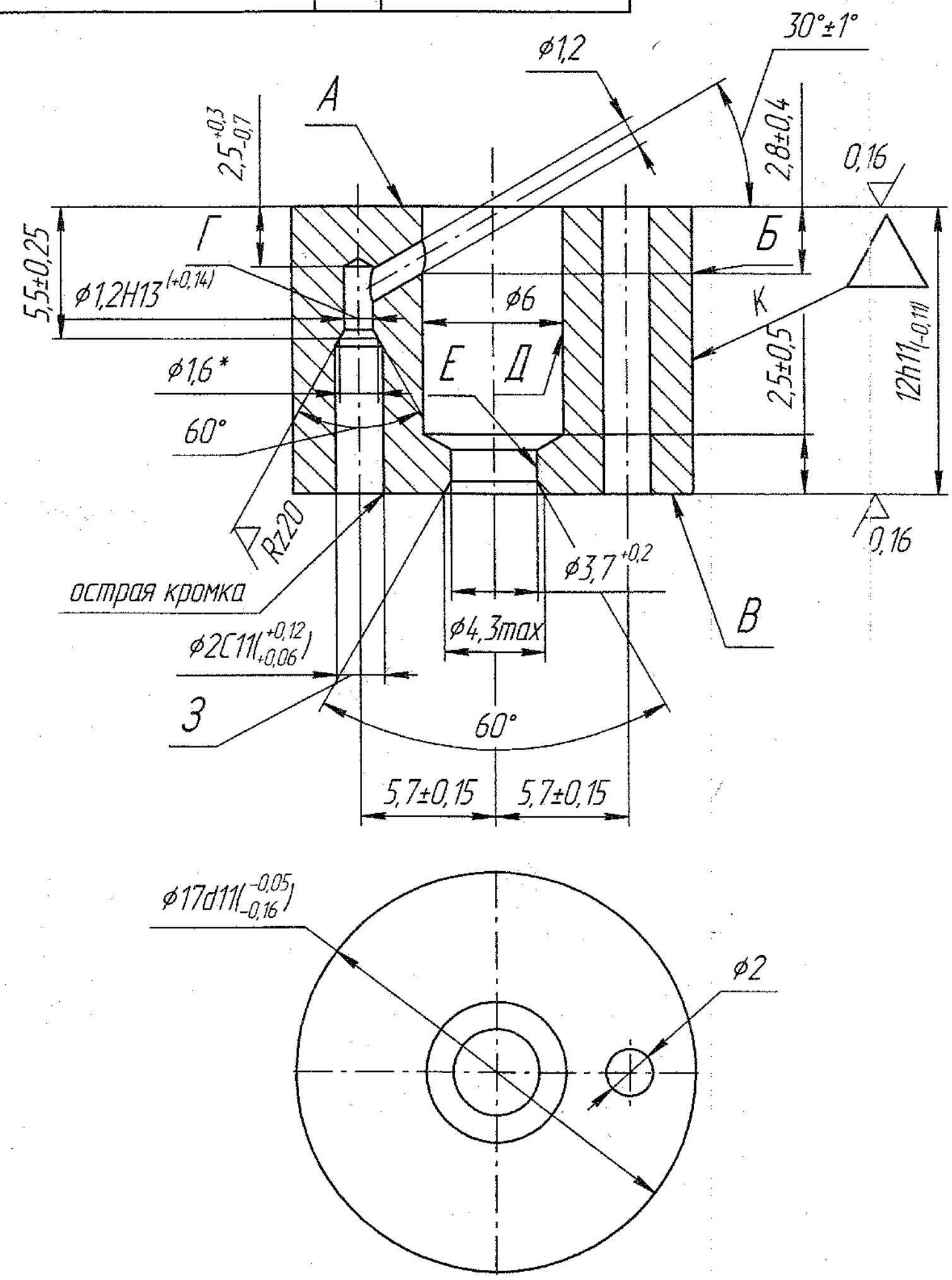
**Размер для справок.*

* Dimension for references.

Инд. № подл.	Взам. инв. №	Инд. № докл.	Подп. и дата
44695			

				BALL			317-52					
							Letter	Weight	Scale			
2	-	84-109					А	0,00003	10:1			
Изм.	Лист	№ докум.	Подп.	Дата	Шарик 2-40			Лист	Листов			
Trans. & Ckd. by : M/s SWYAZ				ГОСТ 3722-81 и ЕТУ 500			1					
Authenticated by :							GOST 3722-81 and ETY 500			Sheet		Sheets
Approved by :												F 1
Engine Factory, Avadi												

Rz40 (✓)



1. Группа контроля III по ТТ-11.
2. HRC 54...58.
3. Покрытие Хим. Окс. прм, кроме поверхностей А и В.
4. Неуказанные предельные отклонения размеров: отверстий - по Н14.
5. Неперпендикулярность поверхности Б относительно поверхности В не более 0,06 мм на длине 8 мм (допуск зависимый).
6. Непараллельность торца А относительно поверхности В не более 0,025 мм на φ16 мм.
7. Доведенные поверхности А и В проверять лекальной линейкой; просвет не допускается.
8. Несоосность поверхностей Д и Е не более 0,05 мм (допуск зависимый).
9. Радиальное биение поверхности Е относительно поверхности Б не более 0,1 мм (допуск зависимый).
10. Допускается ступенчатый переход отверстия 3 в конус.
11. На поверхности Б допускается винтовой след выхода резца глубиной не более 0,1 мм.
12. Допускается сужение отверстия Г до φ0,8 мм.
13. Допускается отверстие 3 выполнять до φ2,14мм.
14. *Размер для справок.

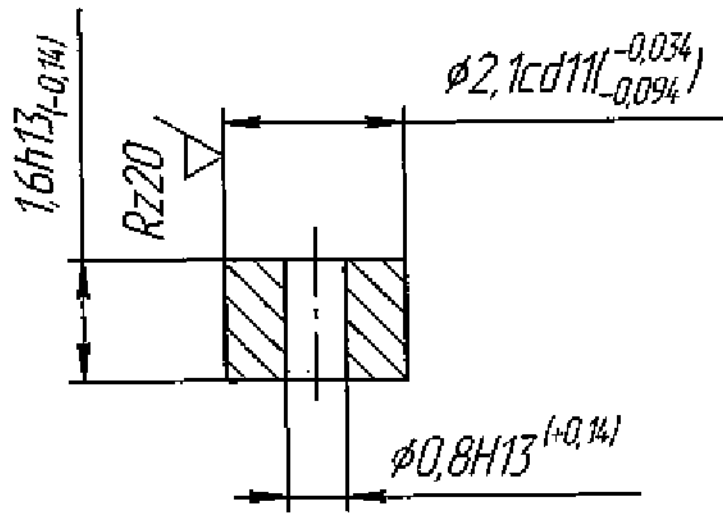
1. Group of Insepection III as per TT-11
2. HRC 54-58
3. Crating: Chemically oxidized oil quenched except surface A and B.
4. Unspecified limit deviation of dimension :for holes H14.
5. Non perpendicularity of surface Б with respect to surface В should not exceed 0,06mm on a length 8mm (Tolerance dependable).
6. Non parallelity of face "А" with respect to the surface "В" should not exceed 0.025mm on φ 16mm.
7. Given surfaces AandB are checked by curvatures. The clearances are not allowed.
8. Misalignment of surfaces "Д" and"E" should not exceed 0.05mm (Tolerance dependable).
9. Radial runout of surface "Е" with respect to surface "Б" should not exceed 0.1mm (Tolerance dependable).
10. Passage steps of hole "3" are allowed in taper.
11. It is allowed on surface "Б" screwmark of outlet of cutting tools Max 0.1mm depth.
12. It is allowed narrowing of hole "Г" upto Φ 0.8mm.
13. It is allowed hole "3" to carryout upto Φ 2.14mm.
14. * Marked dimension are for reference.

Инв. № подл. 44696
 Подп. и дата
 Взам инв. №
 Инв. № подл.
 Подп. и дата

				317-54-2		
6	-	2001-298				
Изм.	Лист	№ докум.	Подп.	Дата	Проставка	
Разраб.						
Проб.						
Т.контр.						
И.контр.					Лист 1	
Утв.					Листов 1	
				19-Г-4 ГОСТ 14955-77		
				Круг ШХ15-0-ХВ ГОСТ 801-78		
				FA A9		

09-115

Rz40 (✓)



Материал-заменитель: Сталь 10, 45 ГОСТ 1050-88.

Material - substitute : Steel 10, 45 GOST 1050-88.

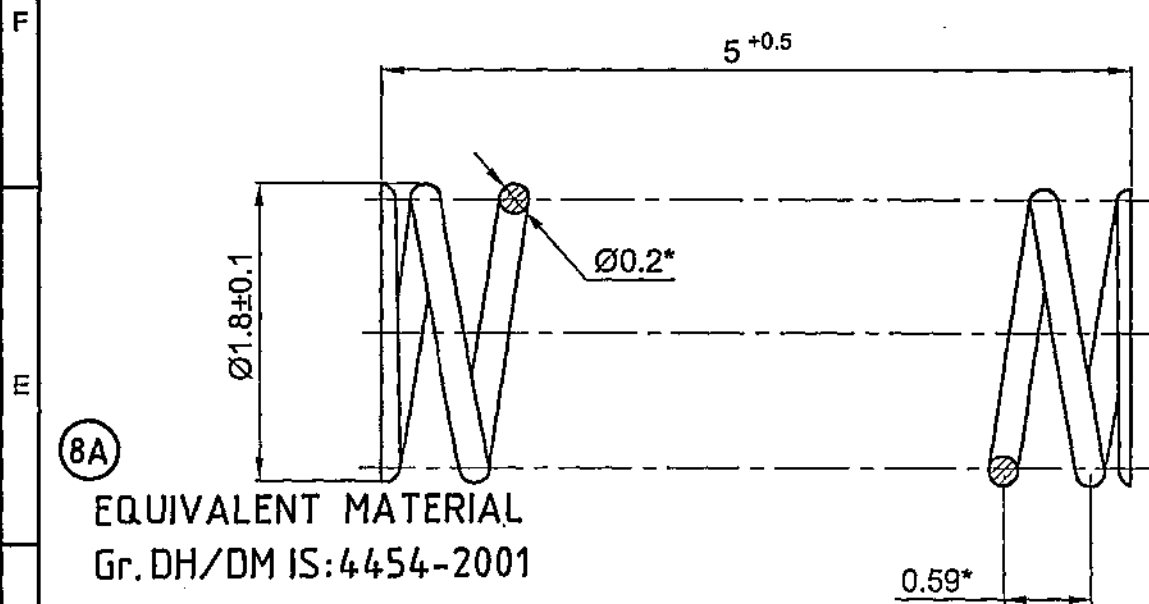
Инв. № подл.	44687	Подп. и дата		Взам. инв. №		Инв. № вкл.		Подп. и дата	
Изм.	6	Лист	-	№ док.	91-240	Подп.		Дата	
Trans. & Ckd. by : M/s SWYAZ									
Authenticated by :									
Approved by :									
Engine Factory, Avadi									
WASHER Шаўда Steel 20 GOST 1050-88 Сталь 20 ГОСТ 1050-88							317-60 Letter Weight Scale Лист Маса Масштаб A 0,0000315 10:1 Лист Листов 1 Sheet Sheets		

DRAWING INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - 8

F-4
SI
253

DRAWING NUMBER

317-61



(8A)

EQUIVALENT MATERIAL
Gr. DH/DM IS:4454-2001

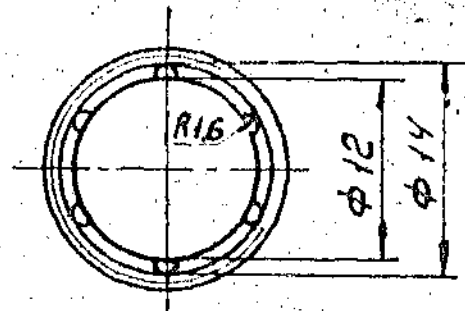
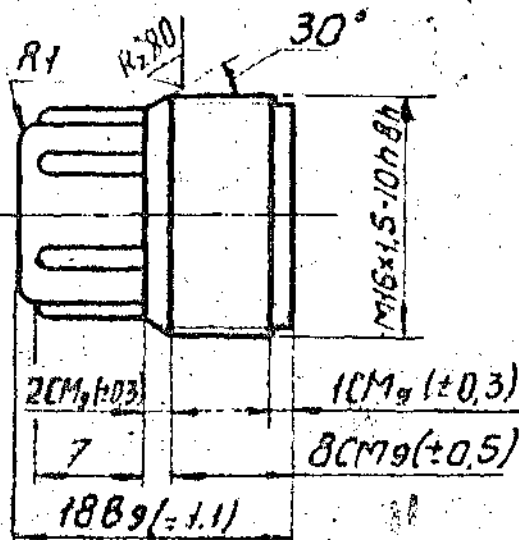
1. No. of working turns - 8.
2. No. of full turns 10 ± 0.5 .
3. Length of unfolded spring 55.5mm.
4. Direction of coiling - any.
5. Base surface of end coil should be minimum length 0.75 of circumference.
6. Coating: Chemically oxidized and oiled.
7. * Dimension and parameters are given for reference.
8. Spring should be compressed upto 3mm pitch for 6 hours minimum. After this pitch of the spring should be with in the limit of drawing.
9. Material: Alternate wire II-0.2, TY 14-4-923-87.
10. Material: Alternate wire 5-2 0.3 Gost 9389-75.

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

			EST. WT. (Kg) 0.000014	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.	
8A	16.8.10	14 th Alt. Comm. Meeting Minutes Point No.13 Dt: 26-10-09	MATERIAL :- WIRE 5-2-0.2 GOST 9389-75	USED ON :- Cb 317-53-1
ISSUE	DATE	NATURE OF AMENDMENTS		
DRN		SCALE :- 20:1	CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI	
CHD		DIMENSIONS IN mm		
APPD		TOLERANCE ON DIMENSIONS UNLESS OTHERWISE STATED IS : 2102 - 69		TITLE :- SPRING
DATE		ALL THREADS TO CONFORM TO	D S CAT NUMBER	DRAWING NUMBER 317-61
SIZE A4				

340-21-1Г

ECKD



DRG. INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE-

1. UNSPECIFIED LIMIT DEVIATIONS OF SHAFTS DIMENSIONS ARE AS PER B7; OTHERS AS PER CM7.
2. SUBSTITUTE FOR MATERIAL IS PHENOLIC PLASTIC OF GRADES 01-040-02, 01-030-02 GOST 5689-79.
3. THE FOLLOWING MAY BE MARKED ON THE FACES: TRADE MARK, ARTICLE NO, SEAT NUMBER.
4. OTHER TECHNICAL REQUIREMENTS ARE AS PER TY6-05-1538-77.
5. PART IN TROPICAL VERSION SHOULD BE MADE FROM PHENOLIC PLASTIC B x 7-090-34 OR B x 3-090-14 GOST 5689-79, AND BE MARKED WITH LETTER "T" OR WITH YELLOW OR WHITE SPOT.

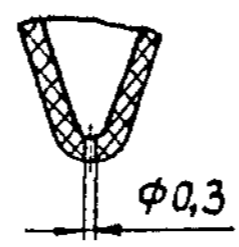
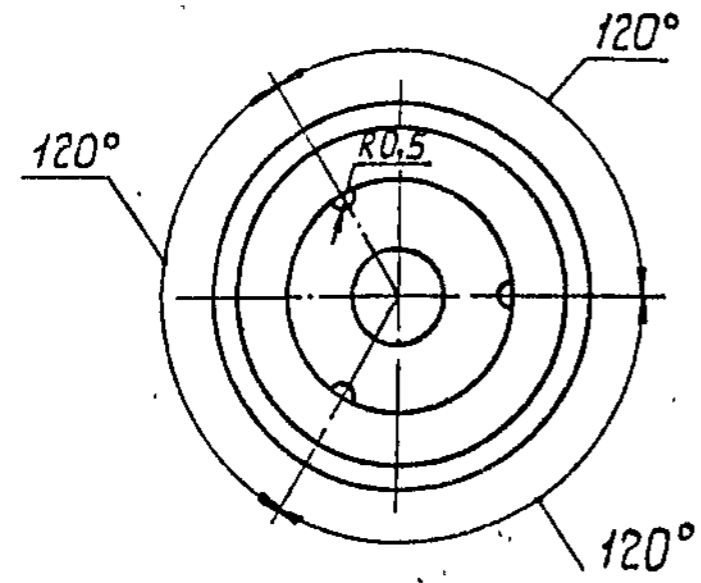
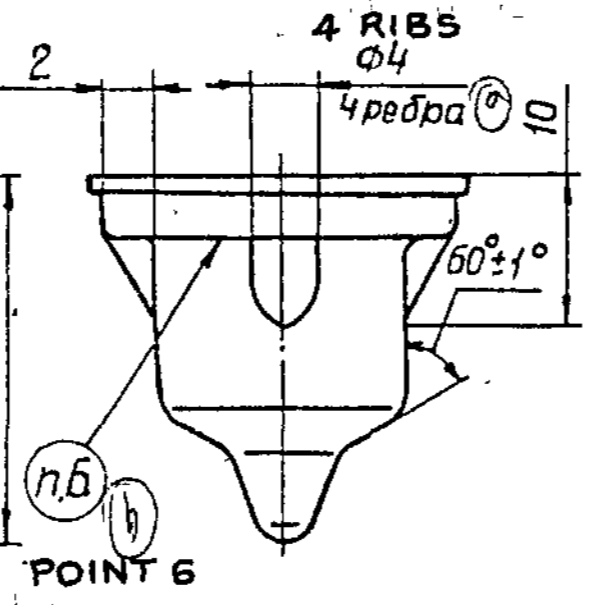
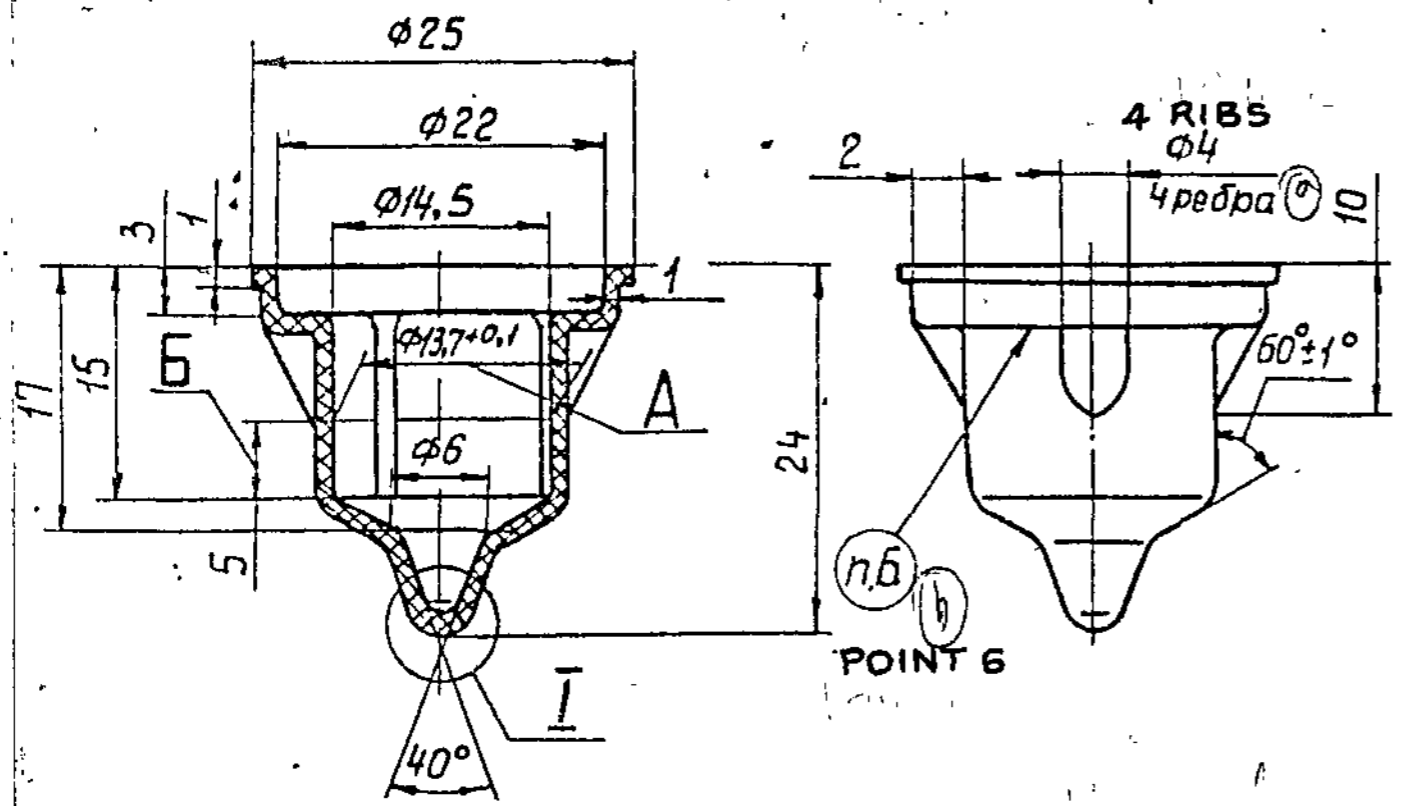
PILOT SAMPLE SHOULD BE APPROVED BY A.H.S.P. BEFORE BULK PRODUCTION

ISSUE DATE		NATURE OF AMENDMENTS	EST. NO.	TO BE STAMPED ON DRAWING BEFORE APPROVED THIS IS
DUN gms		SCALE: 2 : 1	0.003 Kg	1111051
C.H. gms		DIMENSIONS IN mm	ALL DIMENSIONS AND TOLERANCES TO BE OBSERVED UNLESS OTHERWISE STATED OTHERWISE INDICATED TO HAVE IT OTHERWISE	
T.C. gms		TOLERANCE ON DRYS UNLESS OTHERWISE STATED	MATERIAL PHENOLIC PLASTIC	USED OR G6 317-00-38
APPD gms		ALL THREADS TO	03-010-02 GOST 5689-79	QUALITY ASSURANCE (HEAVY V. RULES)
DATE			PLUG	
			D.S. CAT NUMBER	DRAWING NUMBER
				340.21.1Г

(A15)

DRAWING NUMBER
700-40-5109

INTRODUCED VIDE BK No. 87 - 869



I ALTERNATIVE
I вариант

1. IT IS ALLOWED TO REPLACE THE MATERIAL BY POLYETHYLENE ПЭВН П ТУ 23-108-68-79
2. UNSPECIFIED LIMIT DEVIATION OF DIMENSIONS: HOLES AS PER H14, SHAFTS h14 AND OTHERS $\pm IT14$
3. RADII ROUNDING OFF SHOULD NOT EXCEED 1.5 mm
4. INCOMPLETE MOULDING, CRACKS AND CAVITIES ARE NOT ALLOWED.
5. DIMENSION A SHOULD BE MAINTAINED TO LENGTH B
6. MARKING PLACE OF MOULD SEAT. LETTERING AS PER 1.5 GOST 2930-62 PROJECTION SHOULD NOT EXCEED 0.5 mm.

POLYETHYLENE 15808-020
GRADE 1 GOST 16337-77

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

EST. WT. 0.001 kg TO BE STAMPED OR MARKED WHERE INDICATED THUS #1 LETTERS)

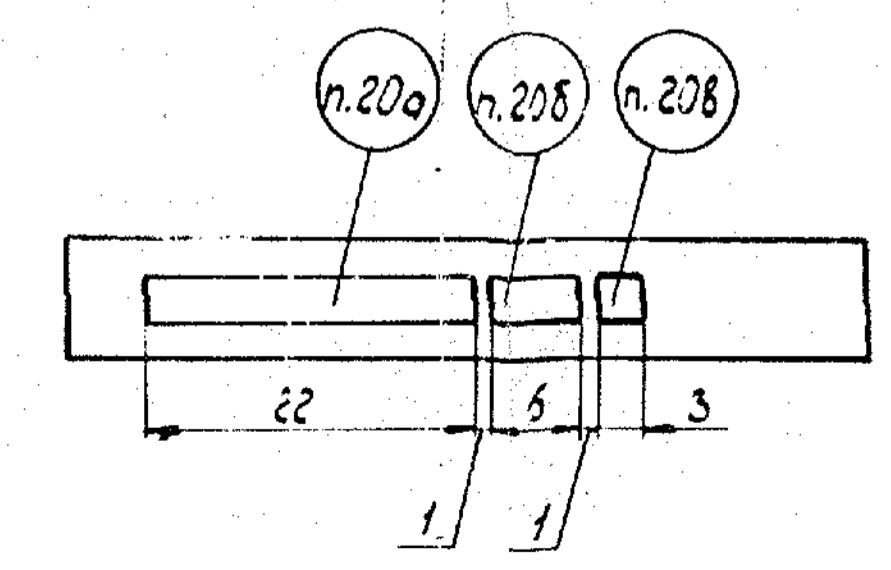
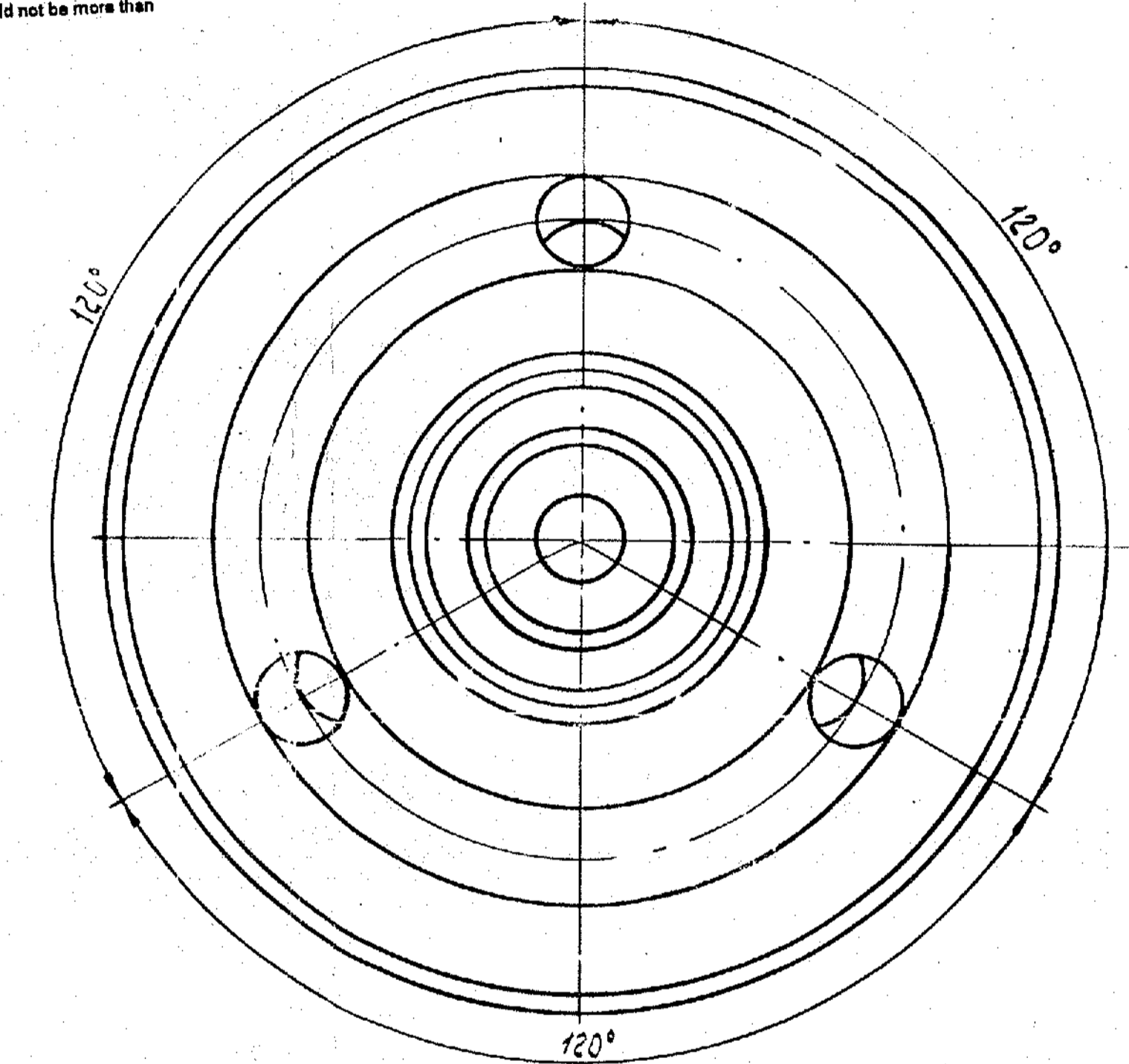
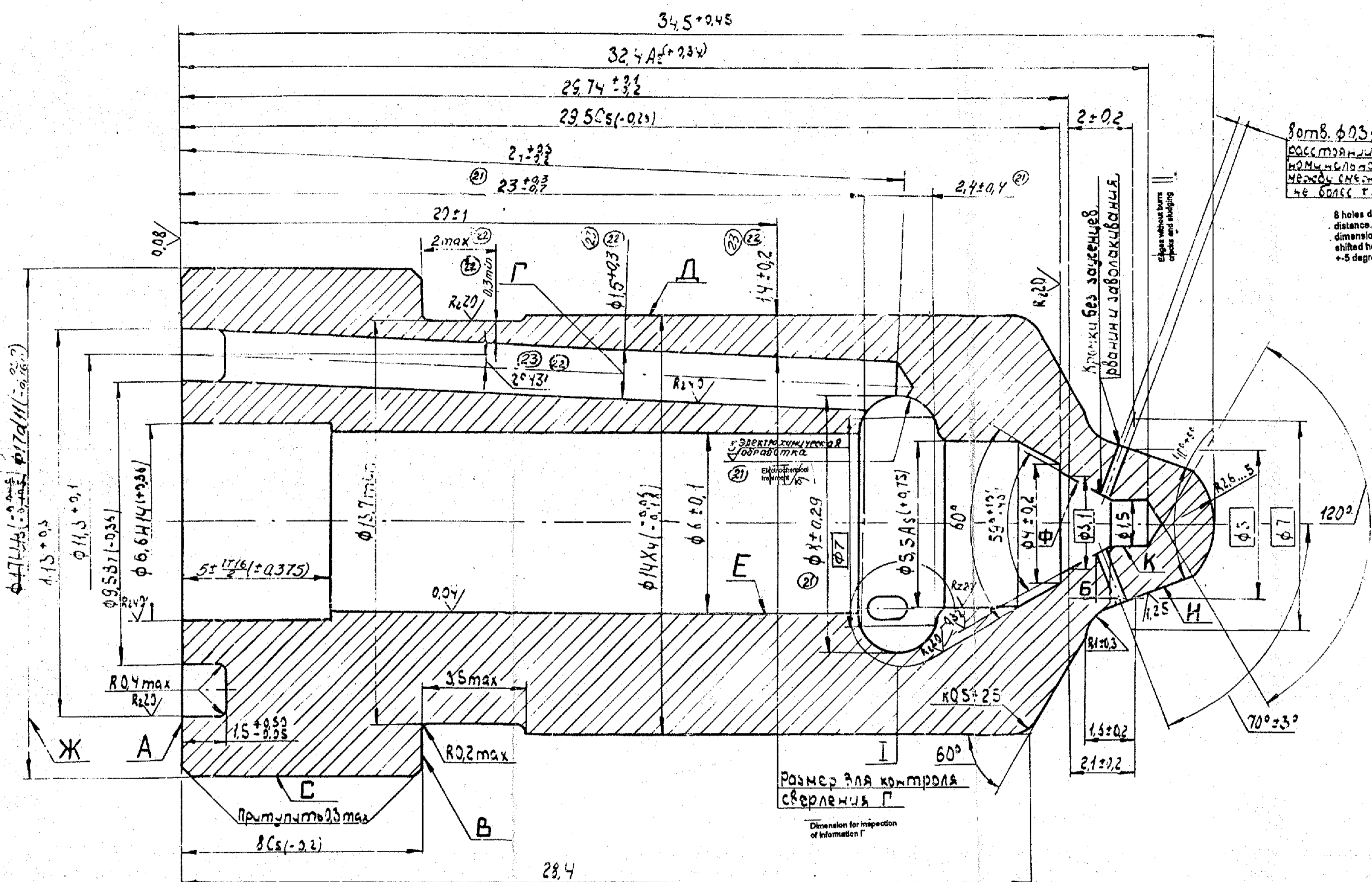
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUT SIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

DRN	Polis	MATERIAL:-	USED ON
CHD	Polis	SEE ABOVE	CS 317-00 - 38
TCD	Polis	CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VENCLES) AVADI.	
APPD		TITLE	
DATE	24.4.97.	CAP	
SCALE:-	2:1	D S CAT NUMBER	
DIMENSIONS IN mm		DRAWING NUMBER	
TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS : 2102-69.		700-40-5109	
ALL THREADS TO CONFORM TO			
ISSUE	DATE	NATURE OF AMENDMENTS	

SIZE A3

NOZZLE BODY

- Inspection group III as per technical requirements -11. H 0.4...0.7mm ; 53...57 HRC.
- Case harden depth of case hardened on surface Φ is 0.3 mm minimum of the surface H 0.4 mm Maximum on the surface "K" and "A" 0.2 mm minimum
- Cold treatment at temperature minus 60° (-5° +20°), in this case diameter Φ BY 0.02 mm is permitted to increase.
- Check the hardness of surface D at a distance not less than 15 mm from end face B.
- Dimension without deviation carry out as per 7th class of accuracy OST 1010.
- Run out surface D in relation to surface C is not more than 0.08 mm.
- Run out of surface E in relation to the surface D is not more than 0.1 mm.
- Run out of surface K in relation to the surface E is not more than 0.15 mm.
- Run out of surface Φ in relation to the surface E is not more than 0.004 mm.
- Run out of surface H in relation to the surface E is not more than 0.1 mm.
- Non perpendicularity of end face B in relation to the axis of surface E is not more than 0.025 mm on Φ 16 mm.
- Non-parallelism of end face B in relation to the end face B is not more than 0.025 mm by Φ 16 mm.
- Non-exit of hole Γ in groove is not permitted. Opening should be with dimension not less than 1 mm in any direction. It is permitted to check as per sample.
- Mark the group of hydraulic uniformity according to OC -42 Material: Round 28-b11Gost 7417-75 18X2H4BA Ty 14-1-381-72.
- Machining quality of surfaces E, Φ and inlet edges of spraying holes as well as condition of edges at outlet of hold T' are checked by special optical devices. Compare with etalon.
- On section B, surface of working cone Φ (given below the upper edges of spray holes up to end of cone) grinding traces are permitted according to etalon.
- Non flatness of end face A is not more than 0.0006 mm. It is permitted to check with master straight-edge. Gap is not permitted.
- Dimension which are given in rectangular - theoretical.
- It is permitted to manufacture the parts with simultaneous reduction of all the linear dimensions, given from end face A, by 0.2 mm. Shortened sprayer for difference, apply the circular groove having width up to 1 mm and depth upto 0.3 mm below sprayer marking on dia Φ .
- Mark with font size ПО - 3 Gost 2930-62.
 - 8 X 0.3 X 140°
 - Index (letter) or trade mark of manufacturing plant.
 - Number - 2
- Out let of spray holes on surface K is not permitted.
- Non-roundness of surface E is not more than 0.0005 mm.
- Conicity of surface E is not more than 0.001 mm at length 15 mm.
- Saddle shaping surface E is not more than 0.001 mm
- Barrel-shaping surface E is not more than 0.001 mm.



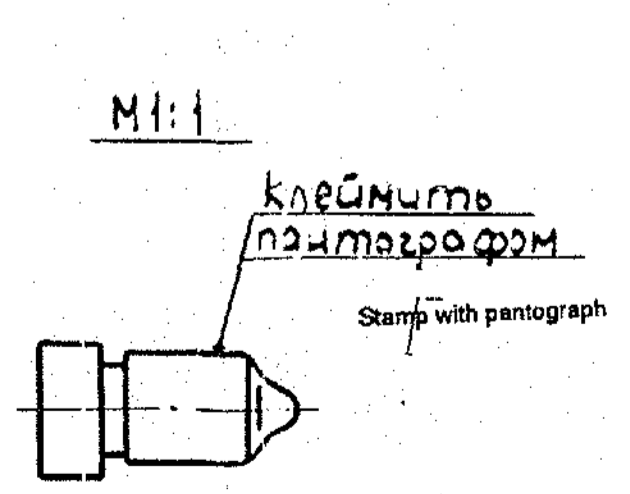
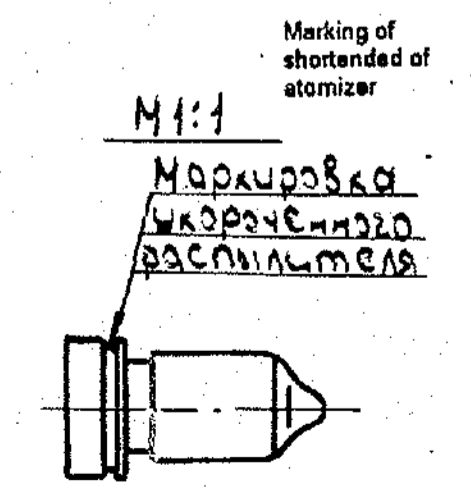
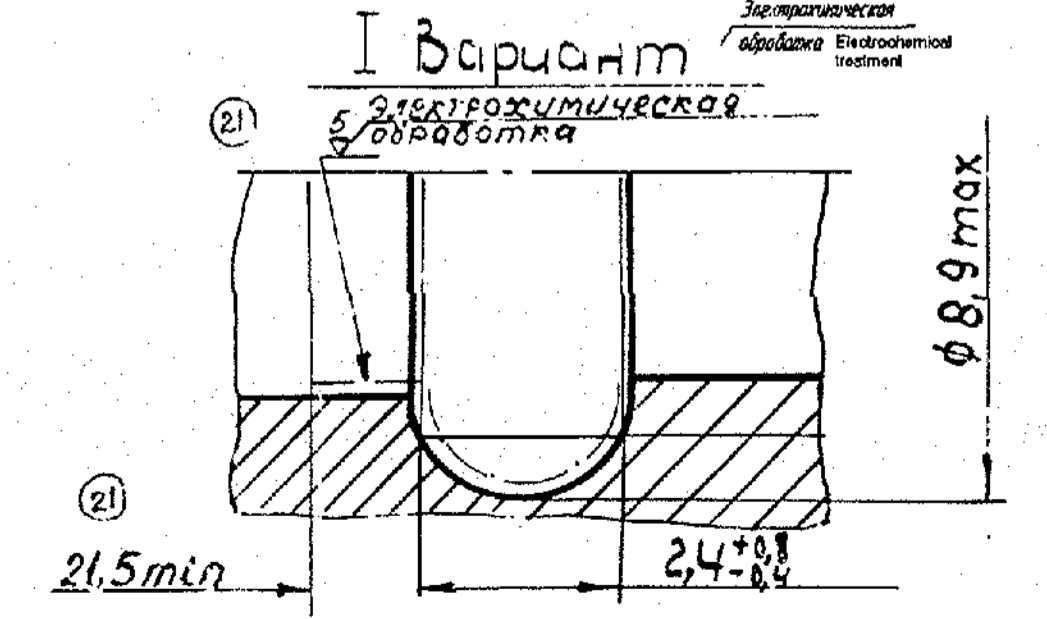
- Качество обработки поверхностей Е, Ф и входной кромки распыляющих отверстий, а также состояние кромок на выходе отв. Г проверять на специальном оптическом приборе. Сравнение с эталоном.
- На участке Б поверхности рабочего конуса Ф (расположенном ниже верхних кромок распыляющих отверстий до конца конуса) допускаются следы шлифовки согласно эталону.
- Неплоскостность торца А не более 0,0006 мм. Допускается проверять локальной линейкой. Просвет не допускается.
- Размер в рамках теоретический.
- Допускается изготовление детали с одновременным уменьшением всех линейных размеров, заданных от торца А, на 0,2 мм. На укороченном распылителе для отличия нанести кольцевую канавку шириной до 1 мм и глубиной до 0,3 мм ниже маркировки распылителя на Ф Ж.
- Маркировать шрифтом ПО-3 ГОСТ 2930-62:
 - 8 x 0,3 x 140°;
 - индекс (буквой) или товарный знак предприятия-изготовителя;
 - цифру - 2.
- Выход распыляющих отверстий на поверхность К не допускается.
- Круглость поверхности Е не более 0,0005 мм.
- Конусообразность поверхности Е не более 0,001 мм на длине 15 мм.
- Седлообразность поверхности Е не более 0,001 мм.
- Бочкообразность поверхности Е не более 0,001 мм.

- Группа контроля III по ТТ-11.
- Цементировать кружон. Глубина слоя цементации Φ 0,4-0,7 мм в готовом изделии. Глубина слоя цементации на поверхности Ф 0,3-0,7 мм на поверхности И 0,4 мм, на поверхностях К и А 0,2 мм.
- Обработать холодом при температуре минус 60° ± 10°, при этом допускается увеличение Ф Ж на 0,02 мм.
- Ч. НК 53...57. Замерять на поверхности Д на расстоянии не менее 15 мм от торца В. На торце А НК 53...57.
- Размер без отклонений выполнять по 7 классу точности OST 1010.
- Выход поверхности А относительно поверхности С не более 0,08 мм.
- Выход поверхности Е относительно поверхности А не более 0,1 мм.
- Выход поверхности К относительно поверхности Е не более 0,15 мм.
- Выход поверхности Ф относительно поверхности Е не более 0,004 мм.
- Выход поверхности И относительно поверхности Е не более 0,1 мм.
- Неперпендикулярность торца В относительно оси поверхности Е не более 0,025 мм на Φ 16 мм.
- Непараллельность торца А относительно торца В не более 0,025 мм на Φ 16 мм.
- Невыход отверстий Г в проточку Ф В. Не допускается. Вскрытие должно быть с размером не менее 1 мм в любом направлении. Допускается проверка по эталону.
- Распыляющие отверстия подвергаются гидравлическому контролю методом сетечки согласно ГОСТ 7417-75 по эталону детали 3317-06-3А.
- Маркировать группу гидравлического единобразия согласно ГОСТ 42.

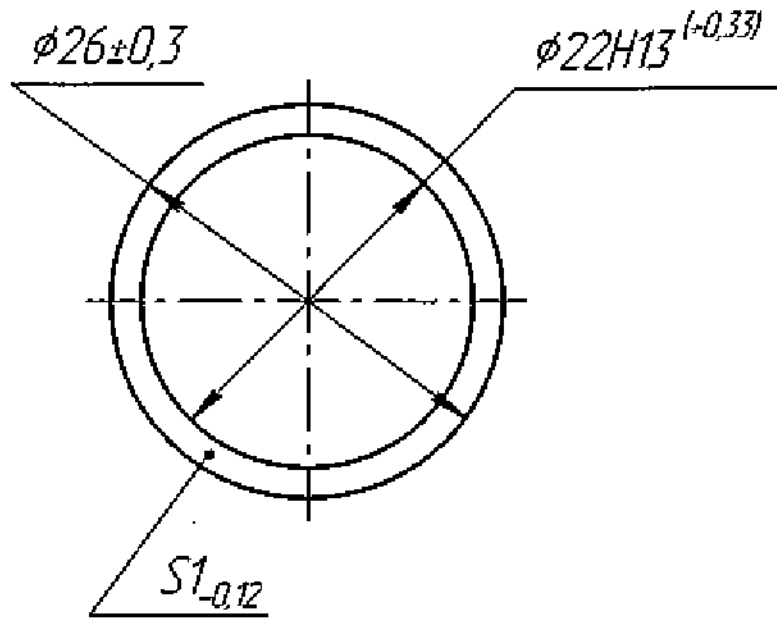
Материал: сталь 18Х2Н4ВА ГОСТ 7417-75
18X2H4BA Ty 14-1-381-72

24 - 517-06	3317-06-3А
Корпус распылителя	NOZZLE BODY
См. выше	Материал: сталь 18Х2Н4ВА
	Точность: 10:1
	Масштаб: 1:1

Копировал Аветисова Формат А3:4



40936



1. Допускается замена на М3 ГОСТ 859-78.

2. Отжечь.

1. Replacement by M3 GOST 859-78 is permitted.

2. Anneal.

Подп. и дата	Инв. №	Взам. инв. №	Инв. №	Инв. №
Подп. и дата				
Инв. №				

6	-	РГИ 717-86		
Изм.	Лист	№ док-м.	Подп.	Дата
Trans. & Ckd. by: M/s SWYAZ				
Authenticated by:				
Approved by:				
Engine Factory, Avadi				

SEALING RING

Кольцо
уплотнения

GOST
M1 ГОСТ 859-78

40936

Letter	Weight	Scale
Лит.	Масса	Масштаб
A	0,0011	2:1
Лист	Листов	1
Sheet	Sheets	1

Формат	Зона	Поз.	Code Обозначение	Nomenclature Наименование	Кол.	Примечание
Format	Zone	Items		Documents	Qty.	Remark
				<u>Документация</u>		
				Assembly drawing		
A2			сб.317-00-33СБ	Сборочный чертёж		
A4			317-00ПМ Programme and procedure	Программа и методика		
A4			0С-93-2ПМ Programme and procedure	Программа и методика		
A4			0С-42	Программа и методика		
				Programme and procedure		
				Assembly units		
				<u>Сборочные единицы</u>		
A4	1		сб.3317-01-4А Sprayer	Распылитель	1	
A4	2		сб.317-02-3 Rod	Штанга	1	
A3	3		сб.317-53-1 Spacer	Проставка	1	
				Parts		
				<u>Детали</u>		
				Body of sprayer		
*1	4		317-13-30	Корпус форсунки	1	*1А3×4
A3	5		317-15-15	Пружина форсунки	1	
				Spring of sprayer		
*1	7		317-23-18	Гайка распылителя	1	*1А4×3
				Nut for sprayer		
18	-		380-03			
				сб.317-00-33		
Trans. & Ckd. By: M/s Swyaz Authenticated By:				Letter Sheet Sheets		
Approved By: Engine Factory, Adavi				Лист Лист Листов		
				- - - 1 3		
				F-158		