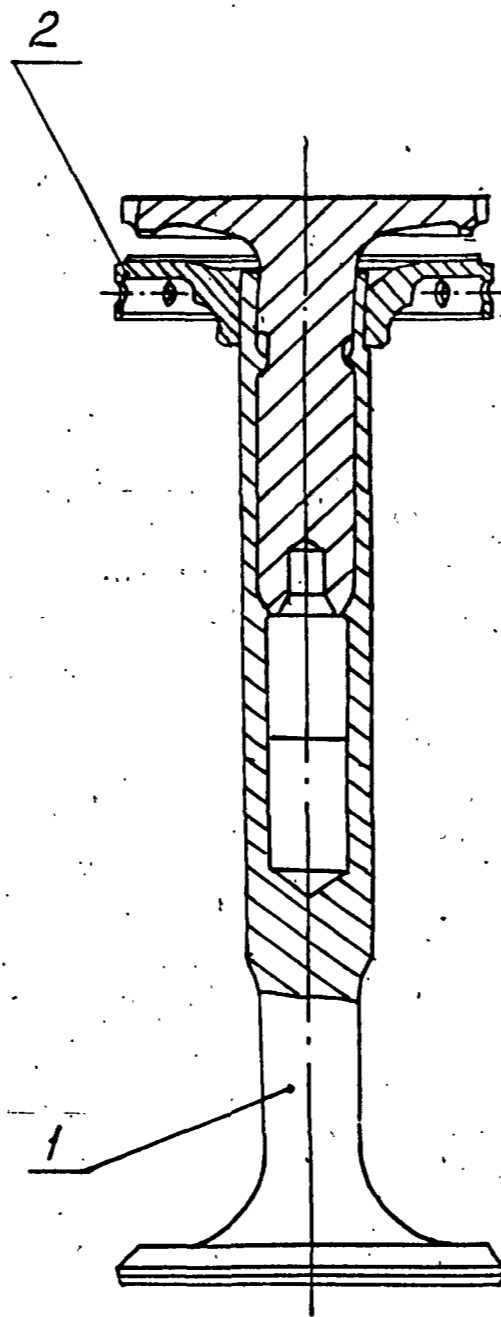


DRAWING NUMBER
CQA(HV) 506 600 E



(A) TECHNICAL REQUIREMENTS

1. Circumferential play of the Valve Disc Lock 306-48-7 (Item No.2) on flats of the Inlet Valve stem 306-46-2B * should not exceed 0.3 on 50 Dia.
2. Valve Disc Lock 306-48-7 should match closely with Valve Disc 306-47-2 * by all their splines, 100 % checking is to be ensured.
3. Assy Valve Intake with Disc Lock is to be procured / replaced as a set.
4. The parts should be clean, free from dust, dirt and oiled to prevent rust.

* Part of item No.1

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

EST. WT. 0.420 Kg TO BE STAMPED OR MARKED WHERE INDICATED THIS # 1 LETTERS)

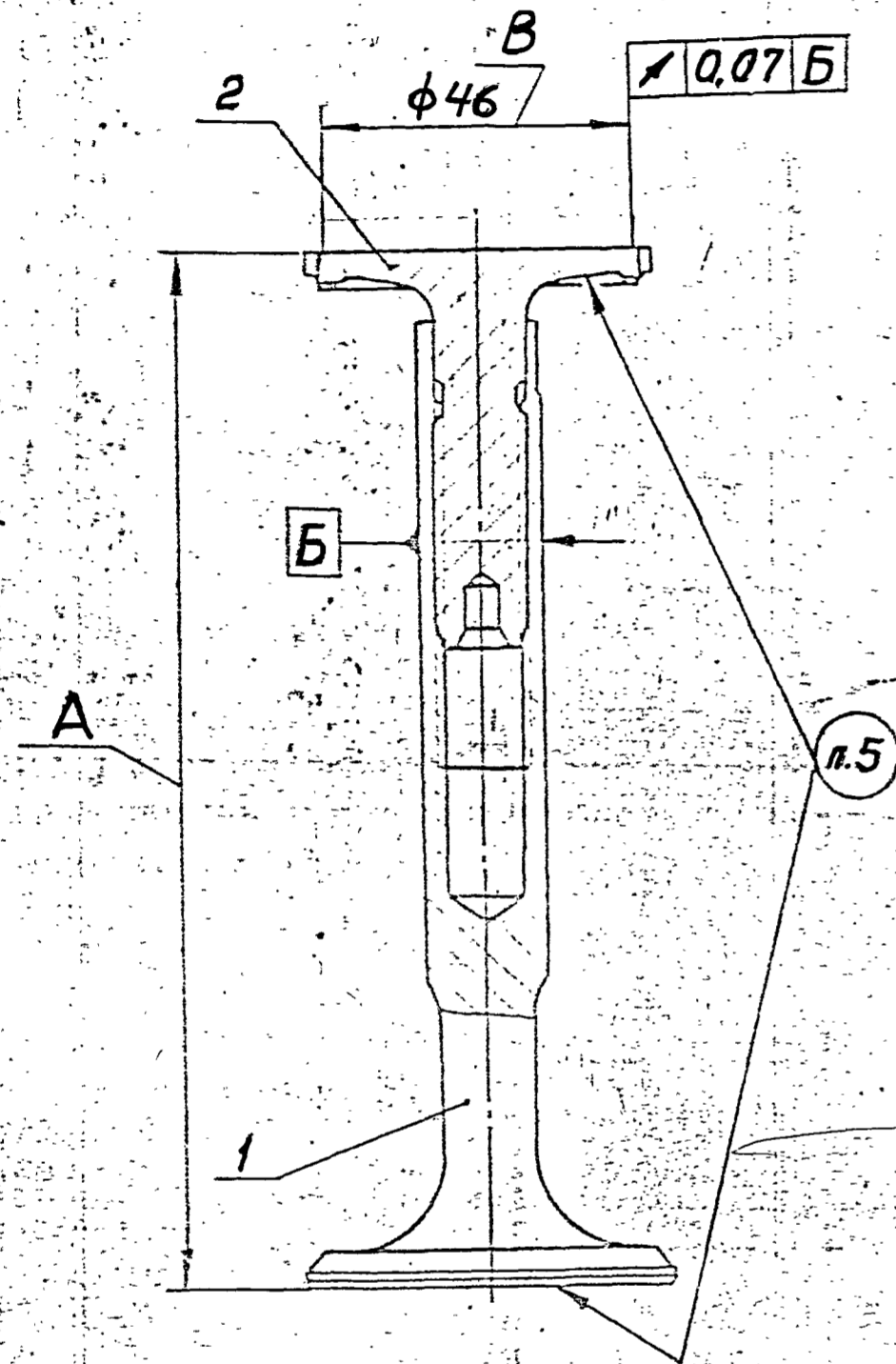
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUT SIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE

DRN	CHD	TCD	APPD	DATE	SCALE:-	DIMENSIONS IN mm	TOLERANCE ON DIMS UNLESS OTHERWISE STATED IS:2102-69	ALL THREADS TO CONFORM TO	D S (CAT NUMBER	DRAWING NUMBER
				7 DEC 99	1:1					CQA(HV) 506 600 E
						MATERIAL:-		USED ON V46-6 ENGINE		
						CONTROLLERATE OF QUALITY ASSURANCE(HEAVY VEHICLES) AVADI		TITLE ASSY. VALVE INTAKE WITH DISC LOCK.		
A		10.4.02		AUTHY LT.No.EFA /P/ PDO/023		18-3-02				
ISSUE DATE		NATURE OF AMENDMENTS								



SIZE A3

TECHNICAL REQUIREMENTS



1. Перед сборкой клапан поз. 1 и тарелку поз. 2 тщательно промыть и сдуть сжатым сухим воздухом.
 2. Тарелку ввернуть в клапан до размера $A = 146 \pm 0.5$ мм. Момент при заворачивании должен быть в пределах 2.5...12.5 Нм. Касание галтели тарелки с клапаном не допускается. Допускаются легкие следы напуга и нарушение оксидированной поверхности на направляющей части тарелки клапана.
 3. Шаткость тарелки относительно клапана при размере $A = 146 \pm 0.5$ мм не допускается. Шаткость тарелки при заворачивании в резьбу клапана на размер $A = 158 \pm 1$ мм и замеренная на диаметре B не более 0.04 мм.
 4. Контроль допуска торцевого зазора диска тарелки производится при размерах $A = 146 \pm 0.5$ мм и вывернутой тарелке относительно клапана на 120° и 240° .
 5. Маркировка электроискровым способом № спаренности. Номера присваивать от 1 до 99. Каждой сотне присваивать алфавитную букву.

- BEFORE ASSEMBLY, VALVE, 1 AND DISC, 2 SHOULD BE THOROUGHLY WASHED AND BLOWN WITH DRY COMPRESSED AIR.
- THE DISC SHOULD BE SCREWED TO THE VALVE UP TO DIMENSION $A = 146 \pm 0.5$ mm. WHILE SCREWING IN THE TORQUE SHOULD BE WITHIN 2.5 TO 12.5 N.m. THE CONTACT OF THE DISC HOLLOW CHAMFER WITH THE VALVE IS NOT ALLOWED. SLIGHT MARKS OF RUBBING AND DISTURBED OXIDIZED COATING ON THE SLIDING PORTION OF THE VALVE DISC ARE ALLOWED.
- WHEN DIMENSION $A = 146 \pm 0.5$ mm. PLAY OF THE DISC RELATIVE TO THE VALVE IS NOT ALLOWED. WHEN DISC IS SCREWED INTO THE VALVE AT $A = 158 \pm 1$ mm. THE PLAY MEASURED AT DIAMETER B SHOULD NOT EXCEED 0.04 mm.
- END PLAY OF THE DISC FACE SHOULD BE CHECKED WHEN DIMENSION $A = 146 \pm 0.5$ mm. AND THE DISC IS TURNED RELATIVE TO THE VALVE AT 120° AND 240° .
- MATING NUMBERS FROM 1 TO 99 SHOULD BE MARKED BY ETCHING A LETTER SHOULD BE ASSIGNED TO EVERY HUNDRED.

-DRG. INDICATED BASED ON RUSSIAN ORIGINAL ISSUE No. 4.1 BK 05 - 1907

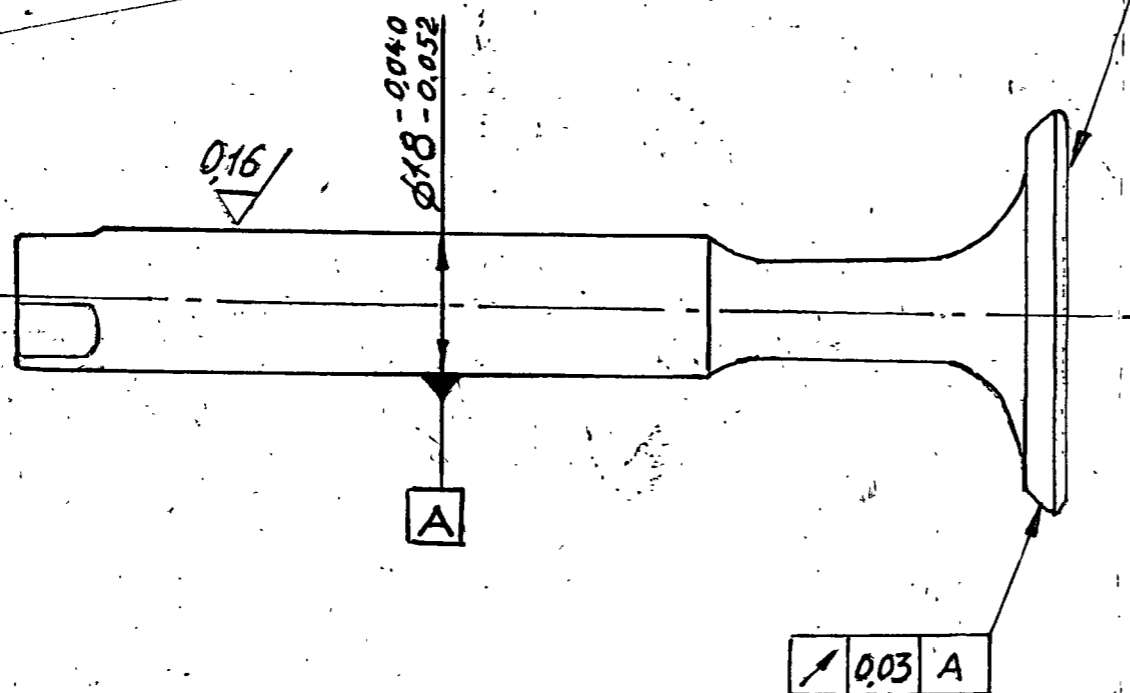
PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION.

EST. WT. 0.365 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	MATERIAL	USED ON : С6 406-12-44 С6 406-13-44 CQA(HV) 506 600 E
CHD		
TCD		
APPD	CONTROL RATE OF QUALITY ASSURANCE (HEAVY VEHICLES)	
DATE	SCALE : 1:1	A V A D I
	DIMENSIONS IN mm.	
	TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS 2102-69	TITLE INTAKE VALVE ASSY.
	ALL THREADS TO CONFORM TO	D S CAT NUMBER
ISSUE	DATE	NATURE OF AMENDMENTS
		DRAWING NUMBER С6 306-06-35 СБ

DRAWING NUMBER

306-46-25



1. Обрабатывать blank "С" сверхточными методами
ударным способом на расстоянии от края не менее 10 мм.
Допускается обработка электрохимическим способом
по инструкции ПМ-32 или электроискровой обработкой.

1. LETTER C (SUPER - FINISHED) MAY BE MARKED BY PUNCHING AT A DISTANCE
MINIMUM 10 mm. FROM EDGE . MAY BE MARKED BY ELECTROCHEMICAL METHOD
AS PER INSTRUCTIONS PM - 32 OR BY ETCHING.

ORGANISED BASED ON RUSSIAN ORIGINAL ISSUE No: 11 (BK-01 - 221)

Ref Drg No 306-46-7

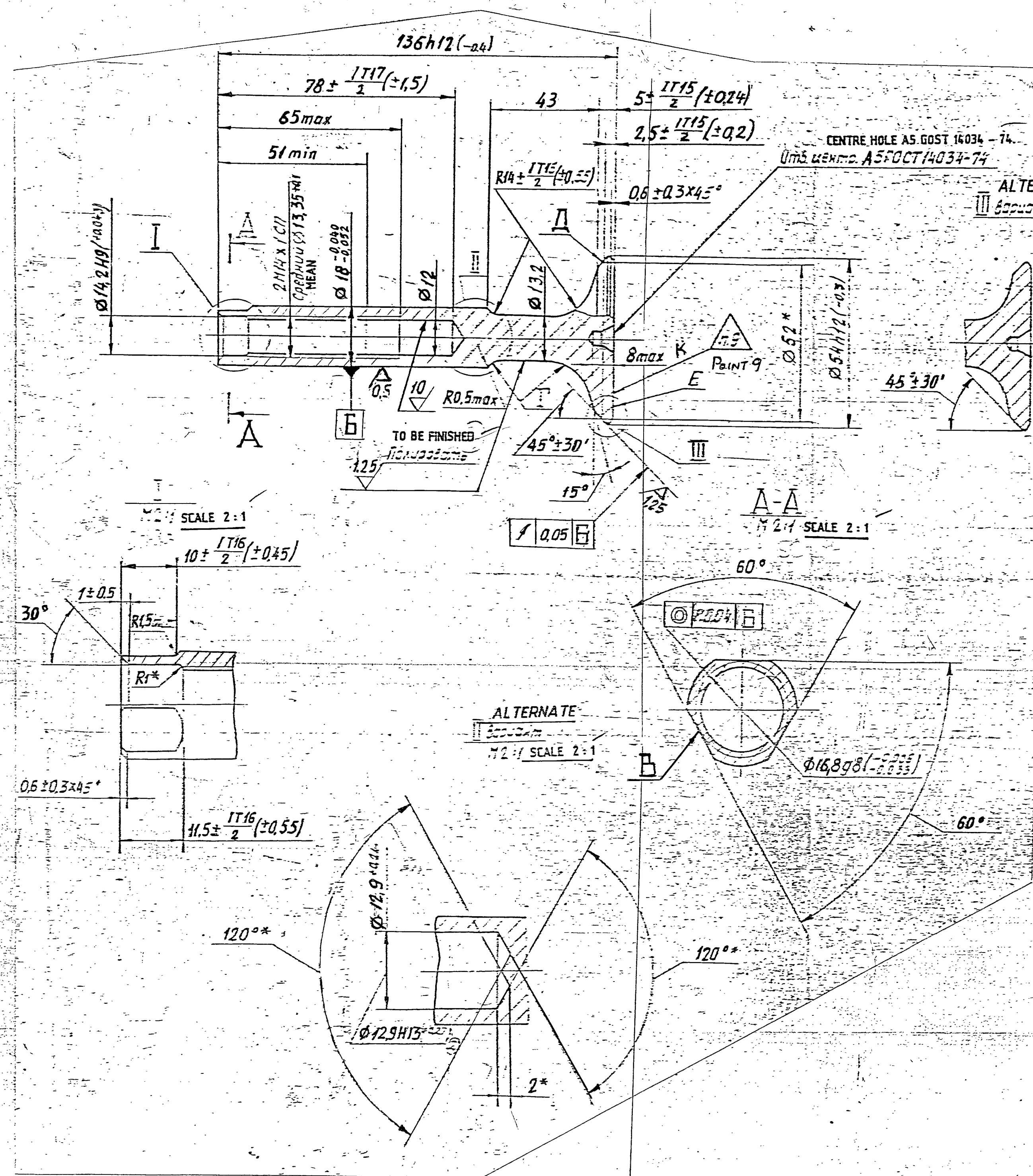
PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE
BULK PRODUCTION

EST WT TO BE STAMPED OR MARKED WHERE
INDICATED THIS #
0,255 Kg. (LETTERS)

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

DRN	-	MATERIAL :-	USED ON :-
CHD	<i>182</i>	BLANK 306-46-7	C5.306-06-35
TCD	<i>Amirata</i>	CONTROLLERATE OF INSPECTION (HEAVY VEHICLES)	
APPD	<i>201</i>	AVADI	
DATE	25-10-88	TITLE	
SCALE	- 1:1	INLET VALVE	
DIMENSIONS IN mm		D S CAT NUMBER	
TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS: 2102-69		DRAWING NUMBER	
ALL THREADS TO CONFORM TO		306-46-25	
8	7	6	ISSUE DATE NATURE OF AMENDMENTS

TECHNICAL REQUIREMENTS



1. Группы контроля I по ТТ-11.
2. НБ 255-302.
3. Технические требования на резьбу по нормам 82021-00.
4. Неказанные предельные отклонения размеров: отверстий по Н14, валов по н14, остальных - IT14/2.
5. Допуск взаимного расположения поверхностей B и их расположение относительно поверхности B проводить специальным комплексным калибром.
6. Проверку вала после окончательной термической обработки производить согласно ТТМ-55-78.
7. Деталь проверить на магнитном дефектоскопе. Технические требования и пробки привинты согласно ТТМ-17.
8. Допускается поверхность D в поверхности D накатать роликом Ø 50-60 мм, радиус по вершине ролика R=3,5 мм, нагрузка на ролик 980-690 Н, скорость до 0,2 м/мин.
9. Клапанить удобным способом на расстоянии не менее 10 мм от края. Допускается клапанить электрохимическим способом по инструкции РЧ-32 или электроискровым способом.
10. Размеры обозначить инструментом.
11. На поверхности E допускается след от вывода резца глубиной не более 0,1 мм.

1. INSPECTION GROUP I AS PER TR-11.
2. H B 255-302.
3. TECHNICAL REQUIREMENTS ON THREAD AS PER STANDARD 82021-00.
4. UNSPECIFIED LIMIT DEVIATIONS OF DIMENSIONS: HOLES AS PER H 14, SHAFTS AS PER h 14, OTHERS - IT 14/2.
5. TOLERANCE OF MUTUAL DIS-POSITION OF SURFACES B AND THEIR DISPOSITION RELATIVE TO SURFACE B SHOULD BE CHECKED BY SPECIAL COMBINATION GAUGE.
6. ACCEPTANCE OF COMPONENT AFTER FINAL HEAT TREATMENT SHOULD BE CARRIED OUT ACCORDING TO TTM-56-78.
7. COMPONENT SHOULD BE CHECKED ON MAGNETIC FLAW DETECTOR. TECHNICAL REQUIREMENTS AND ACCEPTANCE RULES ARE ACCORDING TO TTM-17.
8. SURFACE C MAY BE ROLLED UP TO SURFACE D BY ROLLER Ø 50-50 mm. PEAK RADIUS OF ROLLER R=3,5+1mm. LOAD ON ROLLER 980+690 N. FEED UP TO 0,2 R P M.
9. TO BE STAMPED BY PUNCHING METHOD AT A DISTANCE NOT LESS THAN 10 mm. FROM THE EDGE. IT IS ALLOWED TO STAMP BY ELECTROCHEMICAL METHOD AS PER INSTRUCTIONS P M-32 OR BY ETCHING.
10. * DIMENSIONS ARE TO BE ENSURED BY TOOL.
11. TRACES OF TOOL FOR NOT MORE THAN 0,1 mm. DEEP ARE ALLOWED ON SURFACE E.

ALTERNATIVE MATERIAL: JIS-SUH-3

CHEMICAL COMPOSITION %

C	= 0.35 - 0.45
Si	= 1.80 - 2.50
Mn	= 0.60 (MAX)
Ni	= 0.60 (MAX)
Cr	= 10.0 - 12.0
Mo	= 0.7 - 1.3

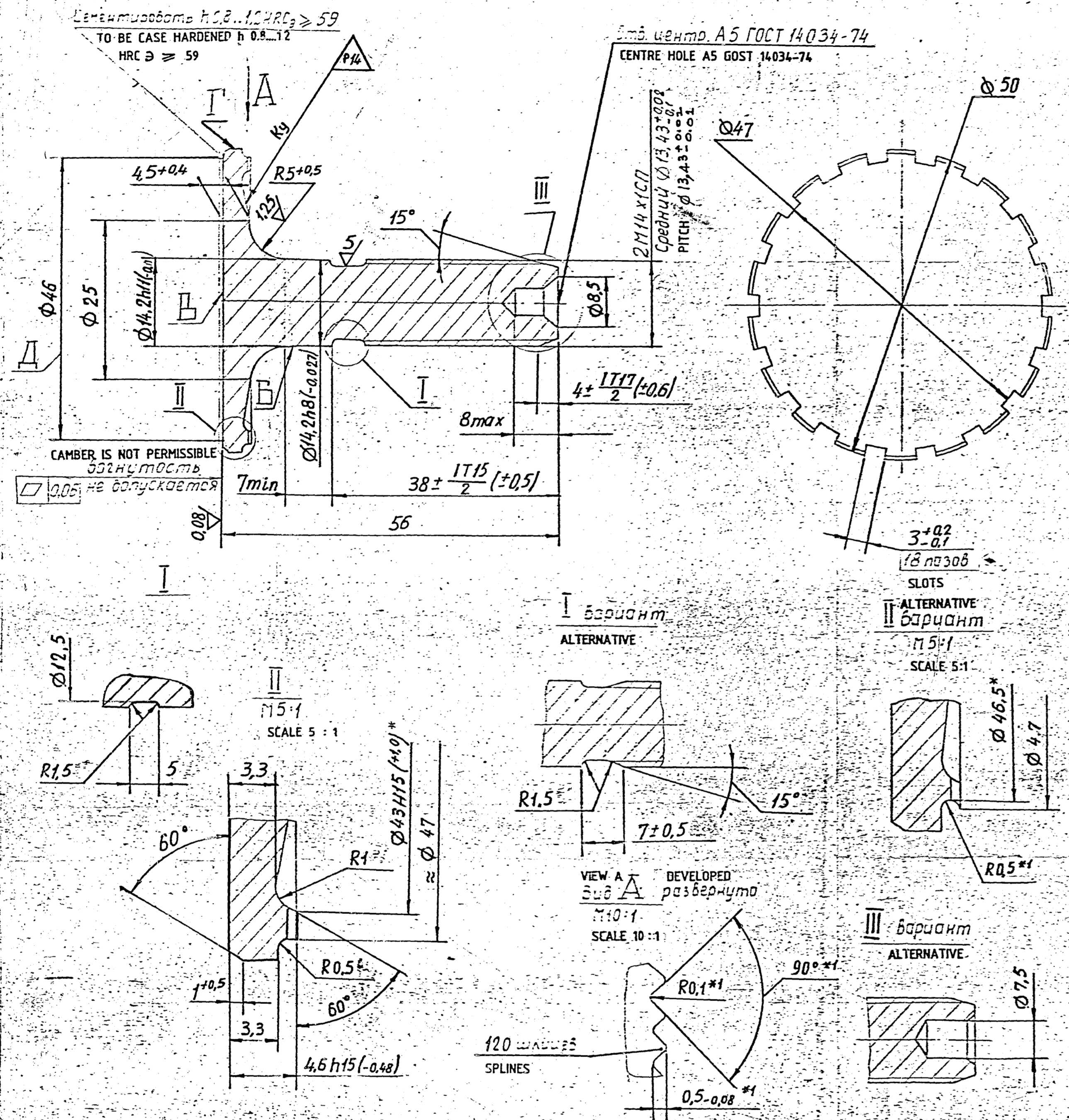
MECHANICAL PROPERTIES

ULTIMATE TENSILE STRENGTH	= 95 Kg/mm ² (MIN)
HARDNESS	= 262 HB (MIN)

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

EST. MASS	0,25 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.		

ERN		MATERIAL	STEEL 40X10 C 2H	USED ON	CB 306-06-35
CHD					
TCB					
APPD					
DATE	30-09-88	CONTROLLER OF QUALITY ASSURANCE (HEAVY VEHICLES)			
SCALE	1:1	A V A O I			
DIMENSIONS IN mm		TOLERANCE ON DIMS UNLESS OTHERWISE STATED IS 2702-59		TITLE	
ALL THREADS TO CONFORM TO		D S CAT NUMBER		DRAWING NUMBER	
ISSUE DATE		NATURE OF AMENDMENTS		306-46-7	



1. Группа контроля III по ТТ-11.
2. HRC, 26...42, кроме места, обозначенного осью.
3. Неуказанные предельные отклонения, размеров: отверстий по H14; валов по h14; остальных $\pm \frac{IT14}{2}$.
4. Технические требования на резьбу по нормали 82021-00.
5. Торцовые шлицы и расположение их относительно оси поверхности Б проверять специальным калибром в 3^х положениях через 120°. Прилегание должно быть плотным без ощутимой качки. Принимать по контрольному образцу.
6. Допуск торцового биения поверхности В относительно оси среднего диаметра резьбы не более 0,04 мм на диаметре Д.
7. Допуск радиального биения поверхности Б относительно оси среднего диаметра 0,03 мм, не более.
8. Допускается подкачка остальной поверхности.
9. Допускается при накатке резьбы закругление гребешков R=0,17 мм, не более.
10. Допускается цементация поверхности Г h=4,2 мм, не более.
11. Допускается отсутствие центрального отверстия.
12. На дне канавки выхода резьбы риски не допускаются.
13. Деталь проверить на магнитном дефектоскопе. Технические требования и правила приемки согласно ТТ ЧЗ-17.
14. Диаметр клейма 5 мм, не более.
- 15.* Размеры контролировать до накатки торцовых шлицев.
- 15.* Размеры обеспечить инструментом.
17. Покрытие хим. окс. прм.

- 1) INSPECTION GROUP III AS PER TT-11.
- 2) HRC 26...42 UNLESS OTHERWISE SPECIFIED.
- 3) UNSPECIFIED LIMIT DEVIATION OF DIMENSIONS OF HOLES AS PER H14, SHAFT PER h14 AND OTHER DIMENSIONS $\pm \frac{IT14}{2}$.
- 4) TECHNICAL REQUIREMENTS FOR THE THREAD ARE AS PER STANDARD 82021-00.
- 5) THE FACE SPLINES AND THEIR POSITION RELATIVE TO THE AXIS OF SURFACE B BE CHECKED WITH A SPECIAL GAUGE. THE CHECK SHOULD BE CARRIED OUT AT 3 POINTS EVERY 120°. THE ENGAGEMENT SHOULD BE FULL WITHOUT PLAY AND ACCEPTED ON TEST SPECIMEN.
- 6) THE RUNOUT OF SURFACE B RELATIVE TO THE AXIS OF THE DIAMETER OF THE THREAD SHOULD NOT EXCEED 0.04mm ON DIAMETER D.
- 7) THE RADIAL RUNOUT OF SURFACE B RELATIVE TO THE PITCH DIAMETER OF THE THREAD SHOULD NOT EXCEED 0.03mm.
- 8) THE REPEATED CARBURIZATION OF THE REMAINING SURFACE IS ALLOWED.
- 9) WHEN ROLLING THE THREAD THE CRESTS MAY BE BLUNTED TO A RADIUS NOT EXCEEDING 0.17mm.
- 10) SURFACE G MAY BE CARBURIZED THE DEPTH OF CARBURIZATION SHOULD NOT EXCEED h=4.2mm.
- 11) CENTRE HOLE MAY BE DRILLED.
- 12) MARKS ARE NOT ALLOWED ON THE BOTTOM OF GROOVE TO WHICH THE THREAD COMES.
- 13) THE COMPONENT SHOULD BE CHECKED FOR DEFECTS ON MAGNETIC FIELD FLAW DETECTOR. TECHNICAL REQUIREMENTS AND ACCEPTANCE RULES ARE IN ACCORDANCE WITH TECHNICAL REQUIREMENTS ИВ-17.
- 14) MARKING DIAMETER SHOULD NOT EXCEED 5mm.
- 15) DIMENSIONS SHOULD BE CHECKED BEFORE FORMING THE FACE SPLINES. MARKING DIAMETER SHOULD NOT EXCEED 5mm.
- 16) DIMENSIONS TO BE ENSURED BY TOOL.
- 17) COATING: CHEMICAL OXIDIZING OIL FINISHING.

Ⓐ ALT. MATERIAL BS: 970. STEEL GRADE En36B.

CHEMICAL COMPOSITION	MECHANICAL PROPERTIES
C = 0.12 TO 0.18	ULTIMATE TENSILE STRENGTH - 102 kg/mm ² (min)
Si = 0.10 TO 0.35	ELONGATION % - 13 (min)
Mn = 0.30 TO 0.60	IZOD IMPACT - 4.8 kgm/cm ² (min)
Cr = 0.60 TO 1.10	
Ni = 3.0 TO 3.75	
P = 0.05 (Max)	
S = 0.05 (Max)	

Ⓑ 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. MASS 0.115 Kg. TO BE STAMPED OR MARKED WHERE INDICATED THUS # LETTERS!

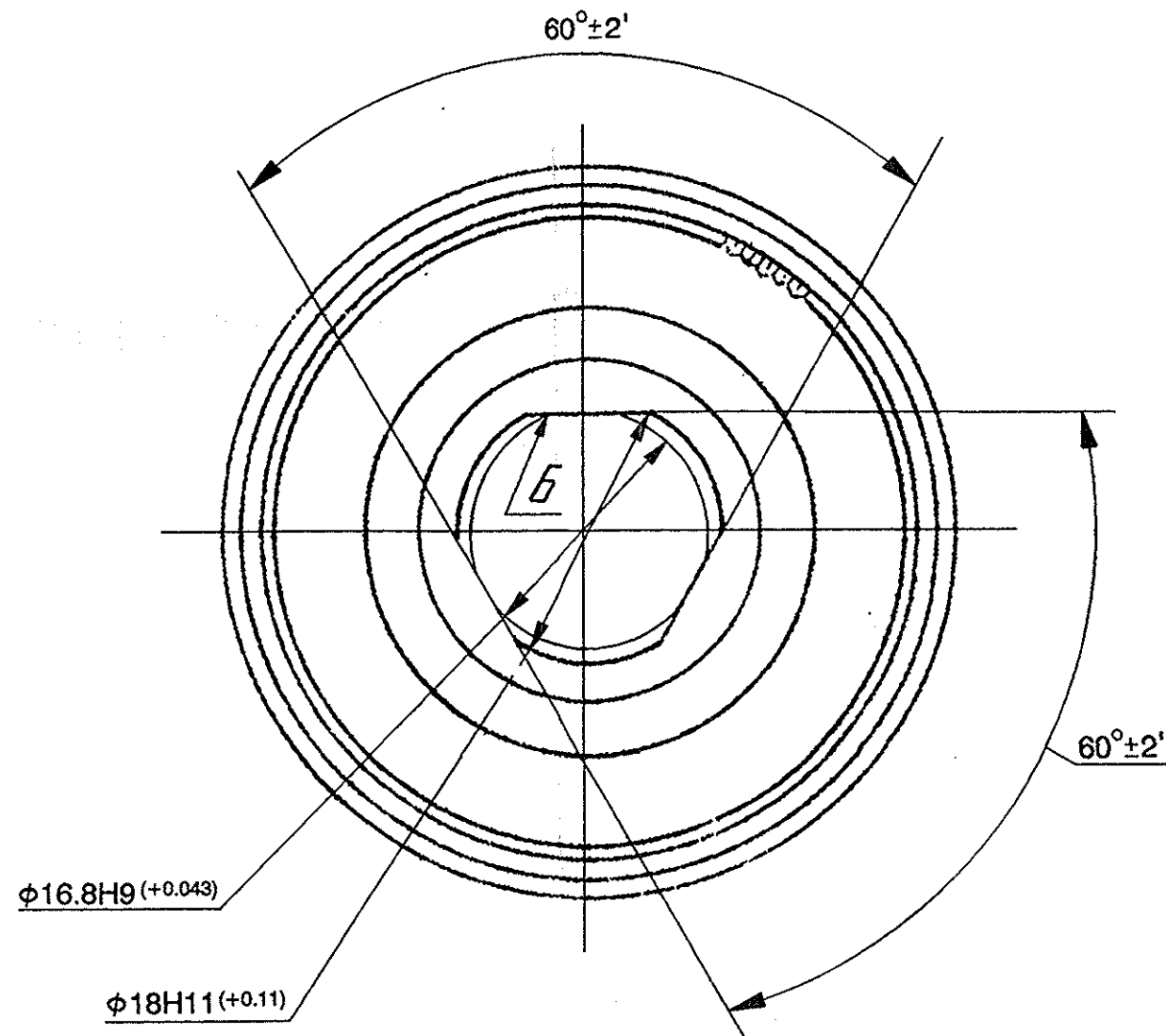
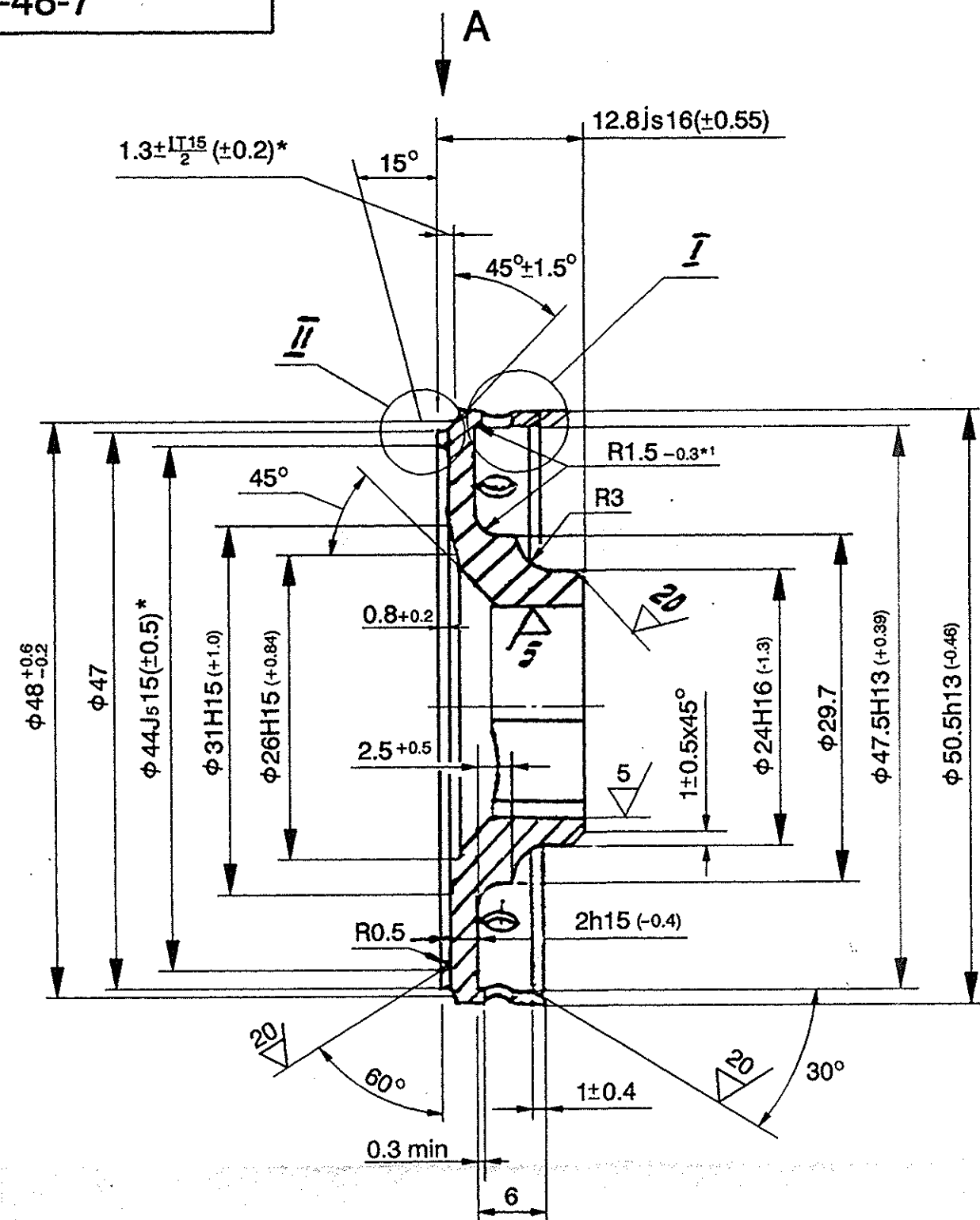
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

DRN	ED	TCO	APPD	DATE	SCALE	DIMENSIONS IN mm	TOLERANCE ON DIMS UNLESS OTHERWISE STATED IS 2102-69	MATERIAL - STEEL 12XH3A	USED ON - CB 306-06-36 CB
				23-3-88	2:1			TY 14-1-381-72	CB 306-07-3A
								CONTROLLERATE OF QUALITY ASSURANCE BEAVY VEICLEN	AVAQI
								TITLE	VALVE DISC
								S EAT NUMBER	306-47-2

DRAWING NUMBER
306-48-7

SHEET No. 1 OF 1

10/ (✓)



1. INSPECTION GROUP III AS PER TT-11.
2. HRC₃ 28.....32.
3. UNSPECIFIED LIMIT DEVIATIONS OF DIMENSIONS HOLES AS PER H 14, SHAFTS AS PER h 14, OTHERS $\pm \frac{IT_{14}}{2}$.
4. THE FACE SPLINES SHOULD BE CHECKED WITH A SPECIAL GAUGE IN 3 POSITIONS THROUGH 120° ON A MANDREL WHICH IS MADE TO SUIT MAXIMUM DIMENSION ON THE MATING COMPONENT.
5. ENGAGEMENT OF SPLINES SHOULD BE ACCEPTED AS PER TEST SPECIMEN.
6. RELATIVE POSITION OF SURFACE B IS TO BE CHECKED BY SPECIAL GAUGE. GAUGE MANUFACTURED AS PER MAXIMUM DIMENSIONS OF MATING COMPONENTS.
7. COATING : CHEMICAL OXIDIZING OIL FINISHING.
8. TO BE MARKED ON TAG FOR THE BATCH OF COMPONENTS WITH SEALING.
9. * DIMENSIONS TO BE CHECKED BEFORE ROLLING FACE SPLINES.
10. * 1 DIMENSIONS TO BE ENSURED WITH TOOL.
11. HARDNESS MAY BE CHECKED ON BLANK ON EACH HEAT TREATED BAR BHN 255 285.
12. SLOT MAY BE MADE AS PER ALTERNATIVE 2 INSTEAD OF ONE FROM HOLE B.

EXPLANATORY NOTE :

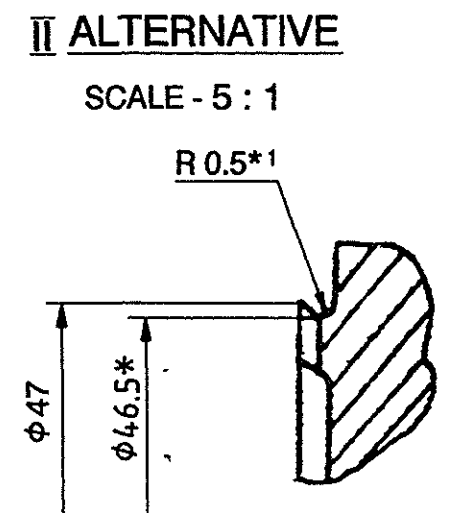
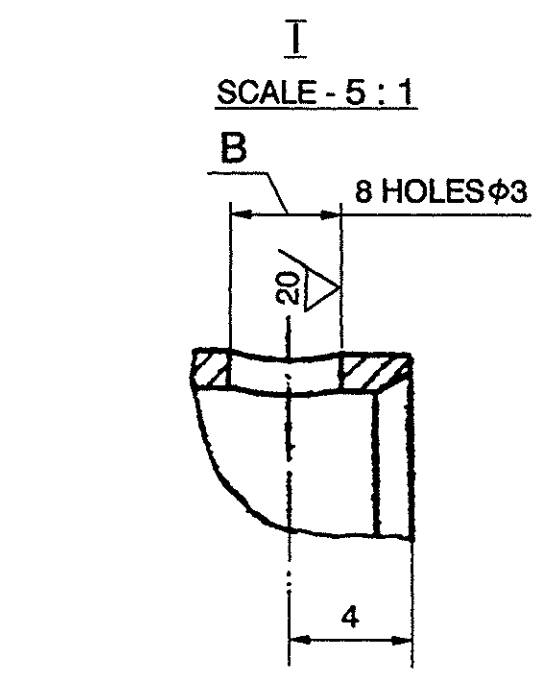
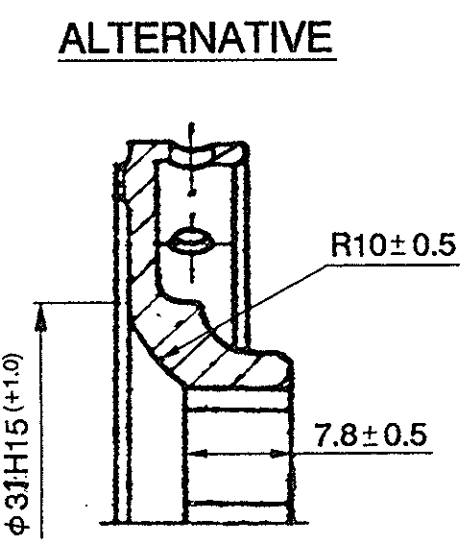
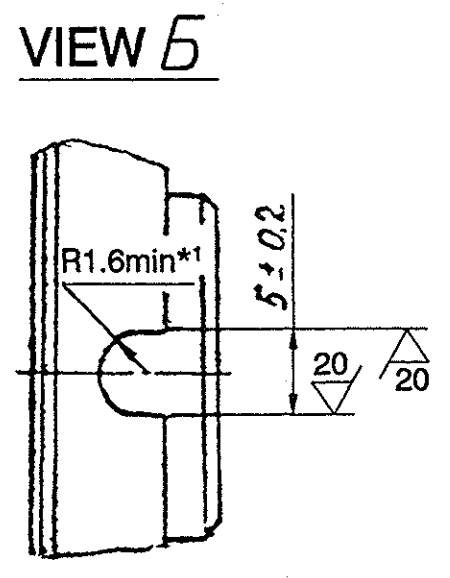
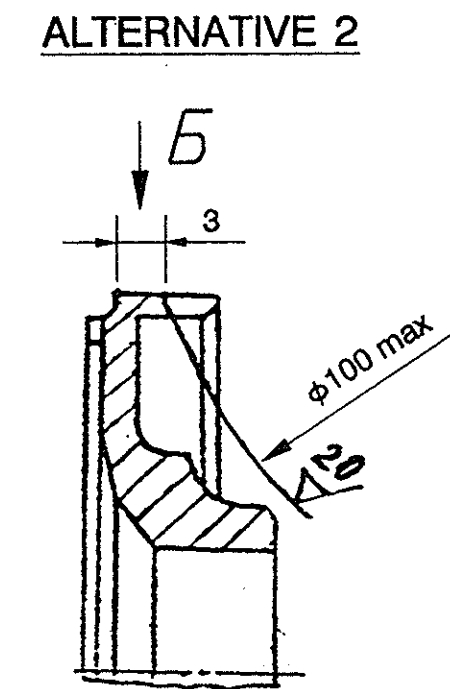
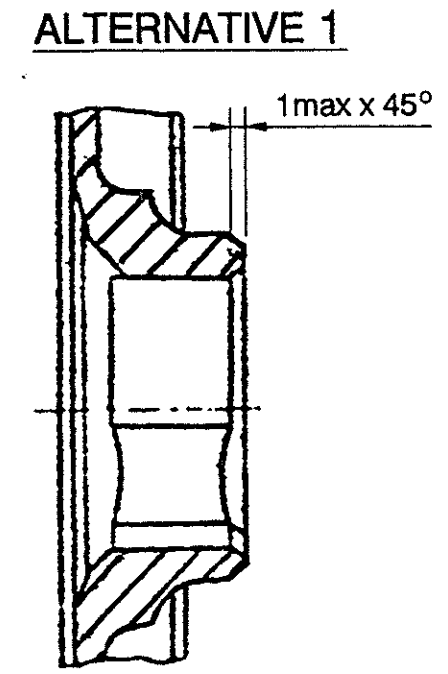
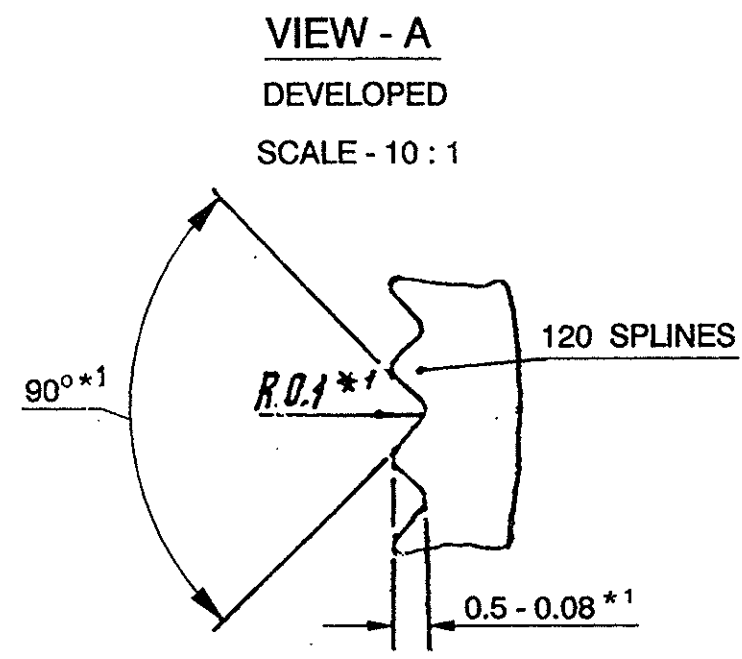
MATERIAL QUOTED : STEEL 38 X C
GOST 4543-71
38XC CHROMIUM SILICON QUALITY STEEL

CHEMICAL COMPOSITION:

GRADE OF STEEL	CONTENT OF ELEMENTS %							
	C	Si	Mn	Cr	P	S	Cu	Ni
38 X C	0.34 -	1.00 -	0.30 -	1.30 -	0.035	0.035	0.30	0.30
	0.42	1.40	0.60	1.60				

MECHANICAL PROPERTIES:

GRADE OF STEEL	YIELD POINT Kgf/mm ²	ULTIMATE TENSILE STRENGTH Kgf/mm ²	RELATIVE ELONGATION %	RELATIVE REDUCTION ALONG CROSS SECTION %	IMPACT STRENGTH Kgf/cm ² Kgf.m/cm ² (C)
38 X C	75	95	12	50	7



(A) ALT.MATERIAL: STEEL 709M40 (EN-19) TO BS-970 P1-1-1983

EST. WT. (Kg) 0.05
TO BE STAMPED OR MARKED WHERE INDICATED THUS # (LETTERS)
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

ISSUE	DATE	NATURE OF AMENDMENTS
C	16.08.18	D.O.CORRECTION
B	04.04.16	USED ON NUMBER ADDED.
A	18.05.09	AUTHY : THIRD ALT.COMM.MINUTES POINT No.2 DATED 27-02-2009.

DRN	-sd-	MATERIAL:- STEEL 38xC	USED ON :- Cb406-16-2, CQA(HV)506 613E (B)
CHD	-sd-	GOST 4543-71	Cb406-17-2, CQA(HV)506 614E
APPD	-sd-	CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI	
DATE	19-05-1989	TITLE:- VALVE DISC LOCK	
SCALE:- 2 : 1		D S CAT NUMBER	DRAWING NUMBER 306-48-7
DIMENSIONS IN mm		TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS : 2102 - 69	
ALL THREADS TO CONFORM TO IS:4218.PART- 4			

DRG.RE- INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - 6
V.V. RAMESH
JTO(D)
Dt: 31 Mar 2018.