

USED ON

V46-6

(A)

(A)

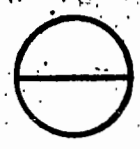
(A)

ITEM	DRAWING NUMBER	D S CAT NUMBER	DESCRIPTION	No. OFF	REMARKS
	CB3338-00-16CB		MOUNTING OF SUPER CHARGER ASSY		
	& ITEM LIST				
1	CB3338-401-10		SUPER CHARGER H-46-6 ASSY	1	TV
	& ITEM LIST				
4	3338-460-1		T-PIECE WASHER	1	TV
5	3338-482		NUT M10 X 1	2	TV
8	3301-193-1		GASKET	1	

A	10-4-95	AUTHY NOTN. No. BK 86-190 BK 85-521			
ISSUE	DATE	NATURE OF AMENDMENTS	ISSUE	DATE	NATURE OF AMENDMENTS

DRN	<i>[Signature]</i>	CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI.			
CHD	<i>[Signature]</i>	TITLE: MOUNTING OF SUPER CHARGER ASSY			
TCD	<i>[Signature]</i>				
APPD	<i>[Signature]</i>				
DATE	16-4-95	SHT. No. 1 OF 2	D S CAT NUMBER	ITEM LIST FOR CB3338-00-16	

A 10-2-95. AUTHY NOTN. No. BK 86-190 BK 85-521



USED ON

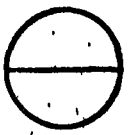
V 46-6

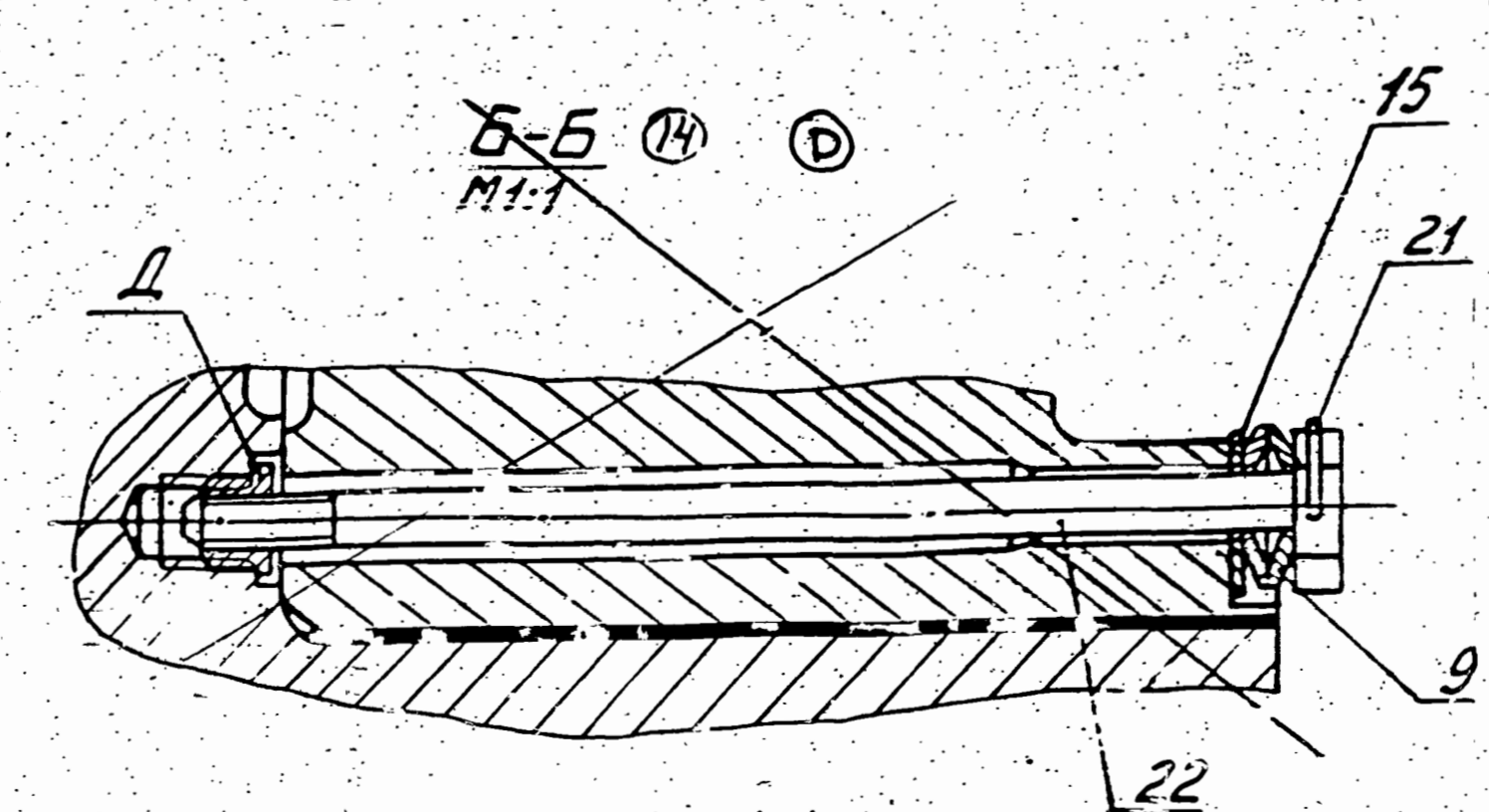
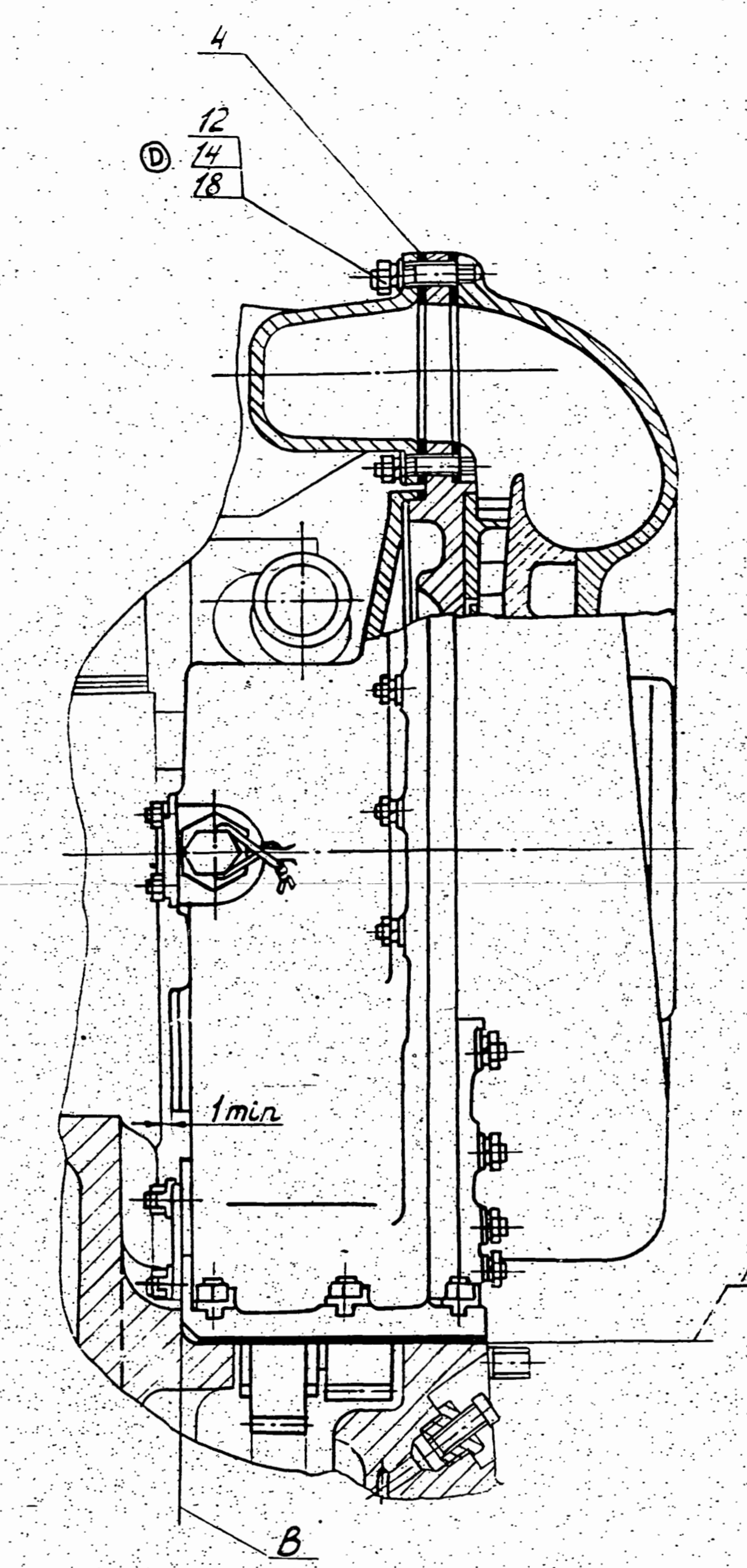
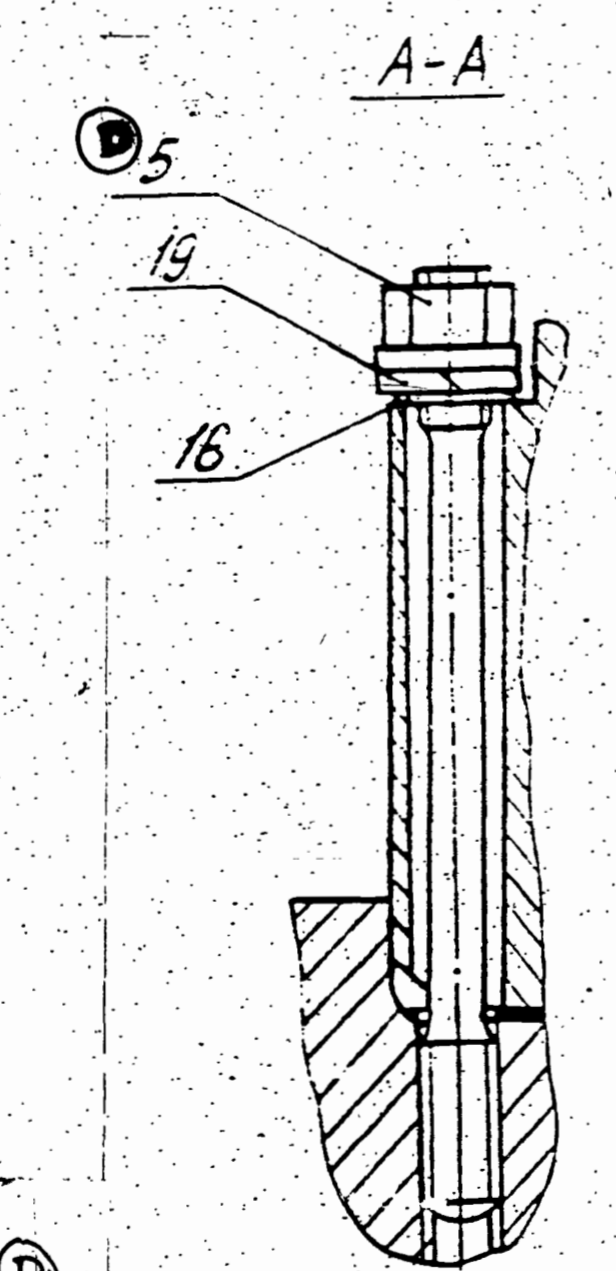
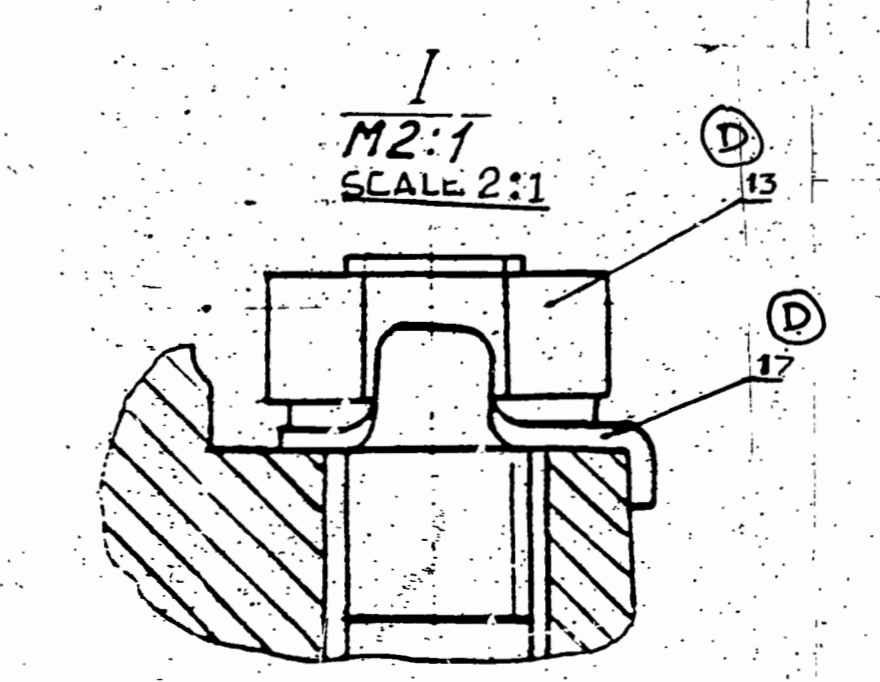
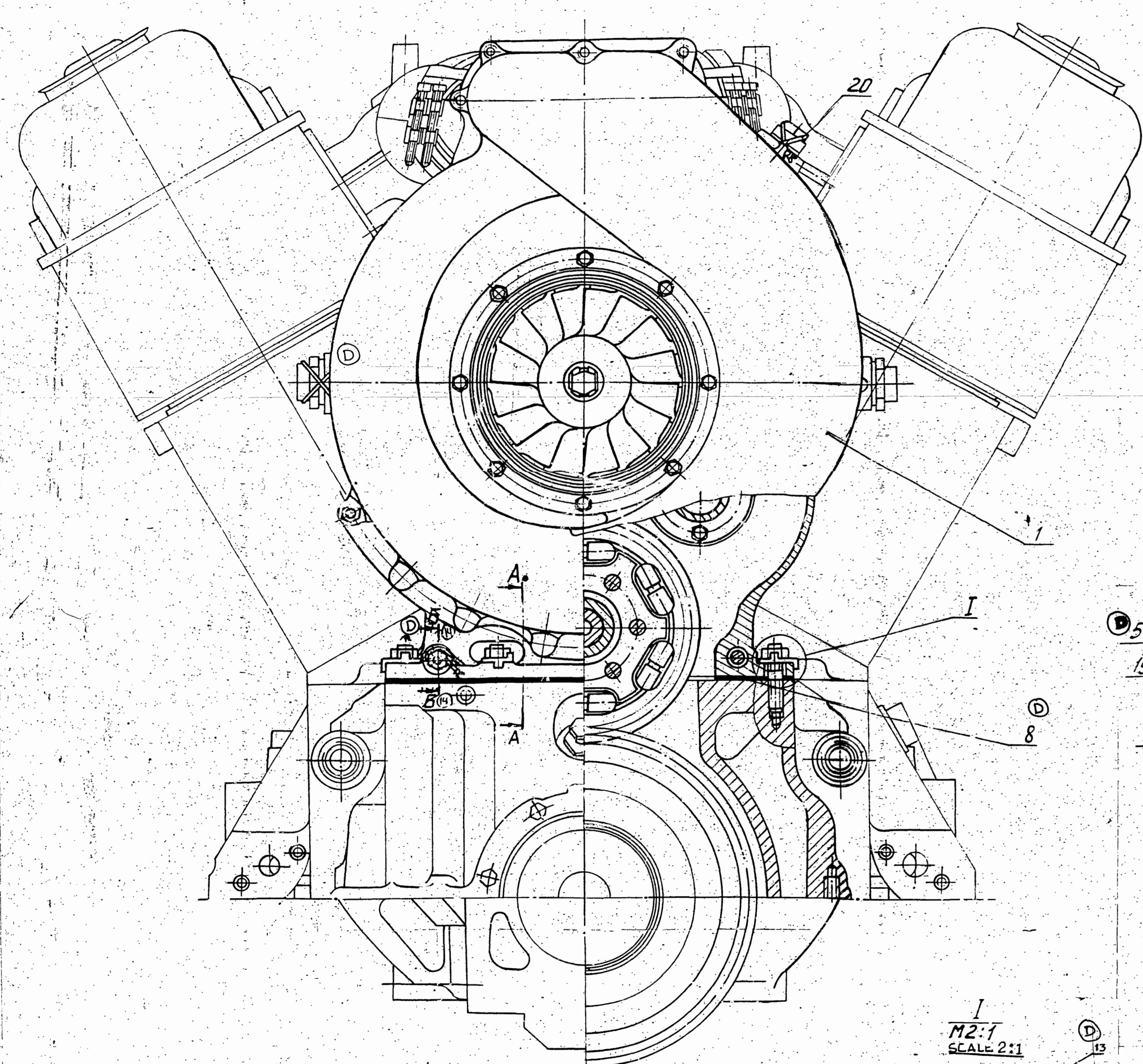
ITEM	DRAWING NUMBER	D S CAT NUMBER	DESCRIPTION	No. OFF	REMARKS
12	351-06		NUT M 6	8	TI
13	351-09-1		NUT M 12 X 1.5	8	TI
14	353-04-1		BRIGHT WASHER 6	8	TI
15	353-06-1		BRIGHT WASHER 9	2	TI
16	353-07-1		BRIGHT WASHER 10	2	TI
17	353-20-2		LOCK WASHER 12	8	
18	353-23		WASHER 6 T	8	TI
19	353-26		WASHER 10 T	2	TI
20	354-22		LOCK WIRE	1	L = 60 MM
					TI
21	354-22		LOCK WIRE	2	L = 100 MM
					TI
22	356-133		ADJUSTING BOLT	2	TI

A	10-495	AUTHY NOTN No BK 86-190 & BK 85-521			
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ISSUE	DATE	NATURE OF AMENDMENTS	ISSUE	DATE	NATURE OF AMENDMENTS
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DRN	<i>[Signature]</i>	CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI.			
CHD	<i>[Signature]</i>	TITLE: MOUNTING OF SUPER CHARGER ASSY			
TCO	<i>[Signature]</i>				
APPO	<i>[Signature]</i>				
DATE	16-4-95	SHT. No. 2 OF 2	D S CAT NUMBER	ITEM LIST FOR CG 3338-00-16	





1. BEFORE MOUNTING OF SUPERCHARGER, THE QUALITY OF SURFACES B AND Γ OF CRANKCASE AND SUPERCHARGER IS TO BE CHECKED. DENTS AND DEEP MARKS ARE NOT ALLOWED.
2. THE SUPERCHARGER IS TO BE FITTED ON THE PAD B OF CRANKCASE WITHOUT CLEARANCE BY USING OF BOLTS, ITEM 22 AND THE BOLTS ARE TO BE TIGHTENED - WITH A TORQUE OF 20 Nm (2Kgf/m) MAX. FITTING OF BODY TO THE CRANKCASE IS TO BE CHECKED AT THE EDGE POINTS AFTER FINALLY TIGHTENING NUTS, ITEM 5 AND ITEM 13 WITH A FEELER-GAUGE. FEELER 0.03 mm. SHOULD NOT PASS THROUGH. AFTER FINAL TIGHTENING OF NUTS, ITEM 5 AND ITEM 13. THE BOLTS ARE TO BE TIGHTENED WITH A TORQUE OF (20.5) Nm ((2 - 0.5) Kgf/m) AND LOCKED. DURING MOUNTING THE BOLTS SHOULD BE EASILY SCREWED IN TO THREADED HOLES A OF CRANKCASE - THROUGH THE HOLES OF SUPERCHARGER BODY. SEPARATION OF SURFACE Γ OF SUPERCHARGER BODY FROM THE CRANKCASE IS NOT ALLOWED.
3. SUPERCHARGER FASTENING NUTS TO THE CRANKCASE ARE TO BE TIGHTENED BY TWO STEPS IN THE FOLLOWING SEQUENCE : TWO MIDDLE REAR, TWO MIDDLE FRONT AND THEN THE REST OF NUTS. TO BE TIGHTENED : NUTS, ITEM 13 (TO A POSITION ENSURING THE PROPER LOCKING) WITH A TORQUE OF (90 ± 3) Nm ((9 ± 0.3) Kgf/m) NUTS, ITEM 5 WITH A TORQUE OF (35 ± 5) Nm ((3.5 ± 0.5) Kgf/m)
4. TEETH ENGAGEMENT OF SUPERCHARGER CLUSTER GEAR SHOULD BE CHECKED WITH THE CRANKSHAFT GEAR OF ENGINE AS BELOW :
 - a) CIRCUMFERENTIAL BACKLASH BETWEEN THE TEETH SHOULD BE WITH IN 0.2 - 0.4 mm. DIFFERENCE IN MEASUREMENT OF CLEARANCE SHOULD NOT EXCEED 0.08 mm.
 - b) THE BLUE IMPRINT ON THE GEAR TEETH SHOULD COVER NOT LESS THAN 65% OF TOOTH LENGTH AND NOT LESS THAN 50% OF TOOTH HEIGHT. THE IMPRINT SHOULD BE IN COMPLIANCE WITH THE INSTRUCTIONS MB - 89 - 3.2.
5. INSTEAD OF CHECKING THE TEETH ENGAGEMENT OF SUPERCHARGER CLUSTER GEAR WITH THE CRANKSHAFT GEAR OF ENGINE, IT IS ALLOWED TO CHECK THE ENGAGEMENT WITH THE GEAR OF SPECIAL DUMMY IN COMPLIANCE WITH THE POINT 4. OF TECHNICAL REQUIREMENTS FOR QUALITY OF ENGAGEMENT DURING MOUNTING OF SUPERCHARGER ON THE ENGINE.
6. AFTER THE PERFORMANCE OPERATION OF ACCEPTANCE TEST. OF ENGINE, TIGHTENING OF NUTS, ITEM 5 WITH A TORQUE OF (35 ± 5) Nm ((3.5 ± 0.5) Kgf/m AND TIGHTENING OF NUTS, ITEM 12 FASTENING INLET PIPELINE T-PIECE IS TO BE CHECKED.
7. FOR ASSEMBLY UNIT IN TROPICALIZED MAKE, THE COMPONENTS AND ASSEMBLY UNIT, SHOWN WITH THE CONVENTIONAL DESIGNATION " T " IN THE PARTS LIST OF GIVEN DRAWING IN " REMARKS " COLUMN, SHOULD HAVE TROPICALIZED MAKE, AS SPECIFIED IN THE DRAWINGS FOR COMPONENTS AND ASSEMBLY UNIT.

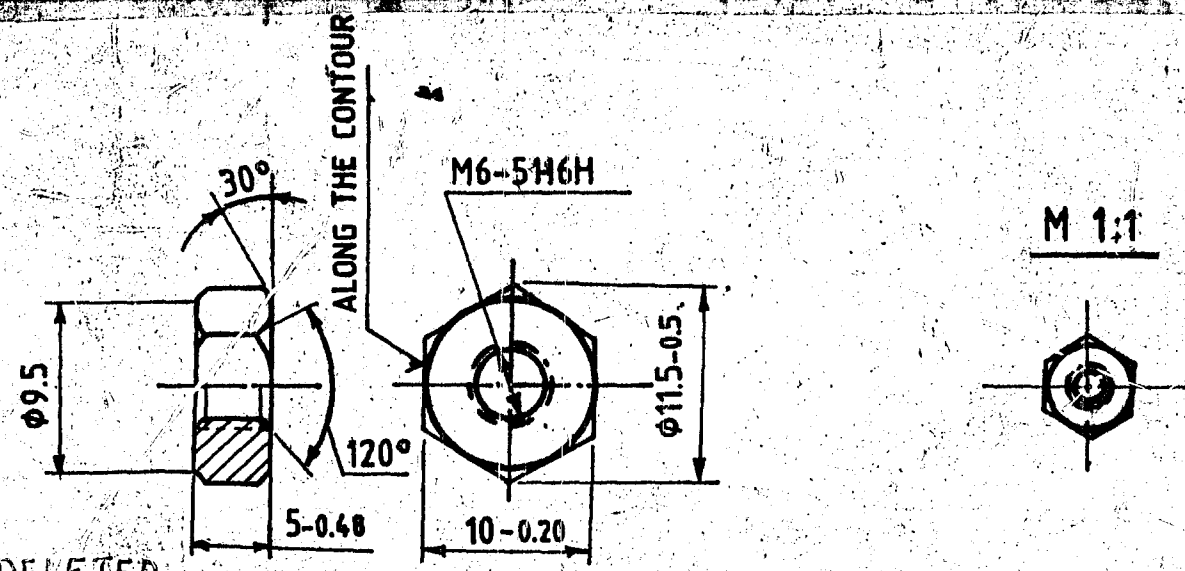
PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION.

EST. MASS	TO BE STAMPED OR MARKED WHERE INDICATED THUS IN 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	OK	MATERIAL	USED ON
CHD			V 46-6
TGD			
APPD		CONTROLLERATE OF QUALITY ASSURANCE(HEAVY VEHICLES)	
DATE	10-11-95	4-V A D I	
SCALE	1:1		
DIMENSIONS IN mm		TITLE	
TOLERANCE ON DIMS UNLESS OTHERWISE STATED IS 2102-69		SETTING OF SUPERCHARGER ASSY	
ALL THREADS TO CONFORM TO		D S LAT NUMBER	
ISSUE	DATE	NATURE OF AMENDMENTS	C53338-00-16C8

DRAWING NUMBER
351-06

EXPLANATORY NOTE



1. } DELETED.
2. }

3. THE THREAD MAY BE CHECKED BEFORE COATING.

4. DELETED.

5. COATING: Cd9, CHROMATIZING, AS PER ULSN-104 WITH ELIMINATION OF HYDROGEN EMBRITTLEMENT.

6. THE REST OF THE TECHNICAL REQUIREMENTS AS PER STANDARD 82052-00.

ALTERNATE MATERIAL: STEEL GRADES 40 AND 50 GOST 1050-74. ROLLED STOCK OF GROUP 'B' CLASS 4, GOST 1051-73 MAY BE USED.

TO ENSURE HIGH QUALITY OF COATING, IT IS ALLOWED TO ELIMINATE SURFACE DEFECTS OF ROLLED STOCK WITH DECREASE OF DIMENSION AS PER ACCURACY CLASS 5.

Ⓢ MATERIAL: STEEL 709 M40 (EN 19)
TO BS: 970-PL-I-1983

Cb 20-05-47-4, Cb 20-01-00-8, Cb 20-06-12-6, Cb 20-06-13-6, Cb 20-09-07, Cb 20-11-01-9, Cb 20-12-01-13
Cb 20-22-00-7, Cb 20-23-33-6, Cb 20-23-34-6, Cb 20-32-00-4, Cb 20-08-00-7

Cb 3301-00-37, Cb 406-12-44, Cb 406-13-44, Cb 3308-00-17, Cb 3320-00-33, Cb 407-7, Cb 401-10

Cb 3301-00-46, Cb 406-12-75, Cb 406-13-75, Cb 3308-00-23, Cb 3308-15-2, Cb 310-00-14, Cb 3320-00-43, Cb 315-606-12, Cb 327-00-73, Cb 315-777-2, Cb 3334-00-47, Cb 3335-00-9, Cb 337-100

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

EST WT 0.0025 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

6. REFERENCE MATERIAL QUOTED:
BRIGHT STEEL HEXAGON BAR 10 mm A/F CLASS OF ACCURACY 4 (+0.000) TO GOST 8560-78, FROM HIGH GRADE SIZED STEEL 45, SURFACE QUALITY B TO GOST 1051-73 AND MANUFACTURED IN ACCORDANCE WITH QUALITY CARBON STRUCTURAL STEEL GRADE 45 AND REFERENCE NOTE 4, ON ALTERNATE MATERIALS STEEL GRADES 40 AND 50 TO GOST 1050-74.

a) CHEMICAL COMPOSITION AS PER GRADES 45, 40 & 50 TO GOST 1050-74.

GRADE OF STEEL	CONTENT OF ELEMENTS %						REMARKS
	C	Si	Mn	Cr	S	P	
	MAXIMUM						
45	0.42-0.50	0.17-0.37	0.50-0.80	0.25	0.040	0.035	Ref, Matl
40	0.37-0.45	0.17-0.37	0.50-0.80	0.25	0.040	0.035	Alt, Matl
50	0.47-0.55	0.17-0.37	0.50-0.80	0.25	0.040	0.035	Alt, Matl

RESIDUAL CONTENT OF COPPER AND NICKEL SHOULD NOT EXCEED 0.25% EACH

b) MECHANICAL PROPERTIES UNDER NORMALISED CONDITION:

GRADE OF STEEL	ULTIMATE TENSILE STRENGTH Kgf/mm ²	YIELD POINT Kgf/mm ²	ELONGATION %	REDUCTION IN AREA %	IMPACT STRENGTH Kgm/cm ²	HARDNESS BHN MAX	RE-MARKS
45	61	36	16	40	5	289	Ref Matl
40	58	34	19	45	6	217	Alt Matl
50	64	38	14	40	4	241	Alt Matl

Ⓐ Cb 20-27-00-4, Cb 3338-00-16, Cb 3338-401-10, Cb 447-00-1, Cb 3335-00-30

DRN CHD TCD APPD DATE 09-4-86 MATERIAL: HEXAGON BAR 10-4 GOST 8560-78 45-B GOST 1051-73 USED ON: Cb 3342-188-3 Cb 315-606, Cb 327-00-45 Cb 402-93-1

CONTROLLERATE OF INSPECTION (HEAVY VEHICLES) AVADI

SCALE: 2:1
DIMENSIONS IN mm
TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS: 2102-69

TITLE: NUT M6

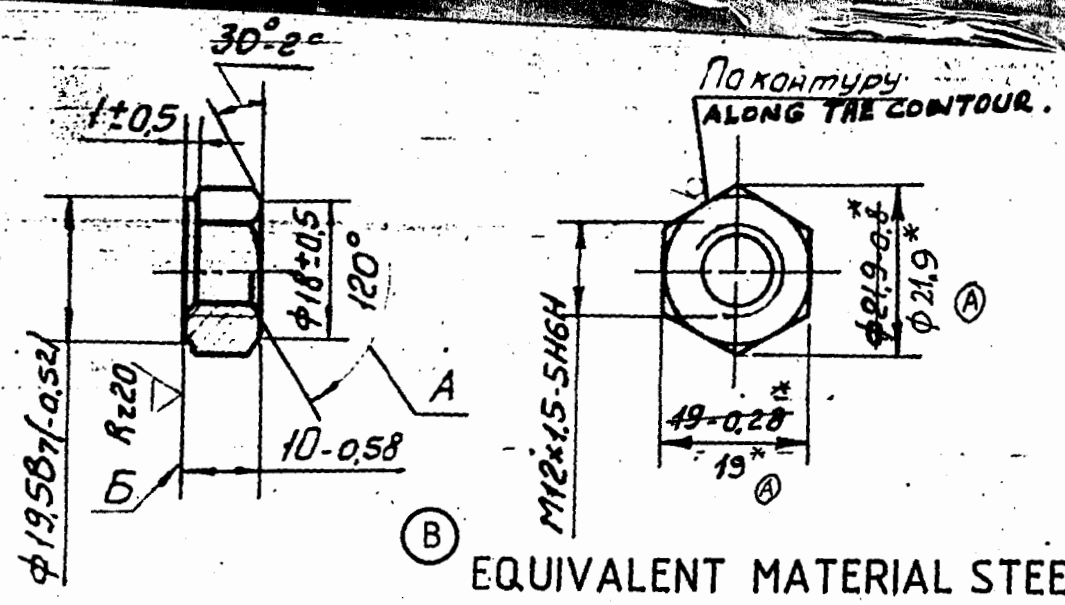
D S CAT NUMBER DRAWING NUMBER 351.06

C 9-6-09 3rd ALTN. COMM. MINUTES POINT 5 DATE 27-2-09

B 25.8.08 USED ON NUMBER ADDED
A 5-9-92 EFA LT. 07263/ENG/PDO/395-4 dt 29.8.92
ISSUE DATE NATURE OF AMENDMENTS

DRG. INDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - NIL COMMON TO V-92S2 & UTD - 20 ENGINES KUC No. 78016

Sl. No. DC



EQUIVALENT MATERIAL STEEL

1. Inspection Group IV Т.Т-11
2. HRC ≥ 26..... 32.
3. Rolled stock: of group B class 5 Gost 1051-73 may be used. To ensure high quality of coating, it is allowed to eliminate surface defects of rolled stock with decrease of dimension as per accuracy class 5.
4. Chamfer A should be made up to the major diameter of thread.
5. End play of surface B relative to the axis of thread should not exceed 0.2 mm at φ18 mm.
6. The rest of the technical requirements - As per standard 82052-00.
8. * Dimension for reference.
9. Coating: Cd 9 chromating, as per УЗП-104 with eliminat of hydrogen embrittlement.

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

		EST. MASS 0,02 Kg	TO BE STAMPED OR MARKED WHERE INDICATED THUS #
B	13.8.10	4 th Alt. Comm. Meeting Minutes	LETTERS)
A	17.10.89	Point No.11 Dt: 26-10-09	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	
DRN		SCALE :- 1 : 1;	MATERIAL :- 12-5 GOST 1051-73 HEXAGON BAR 12-5 GOST 1051-73
CHD		DIMENSIONS IN mm	USED ON :- CB 3338-00-16
TCO		TOLERANCE ON DIMNS UNLESS OTHERWISE STATED	CONTROLLERATE OF INSPECTION (HEAVY VEHICLES) AVADI
APPD		ALL THREADS CONFORM	TITLE :- NUT M12 x 1.5
			D S CAT NUMBER
			DRAWING NUMBER 351-09-1

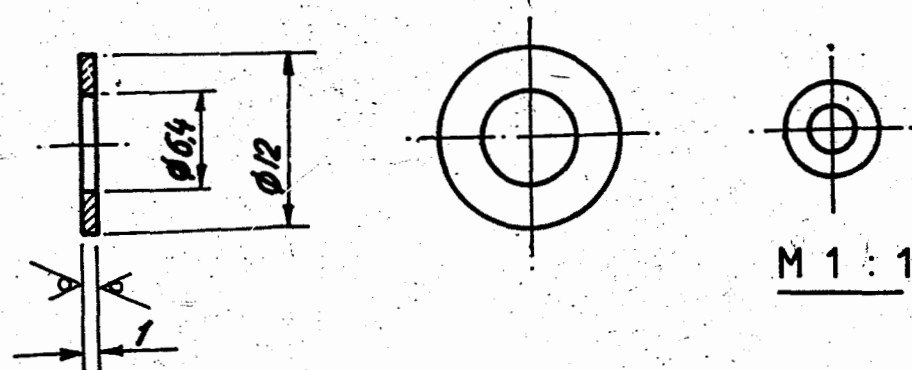
(A11)

DRAWING NUMBER

353-04-1

EXPLANATORY NOTE :

Rz80/ (✓) (✓)



1. DIMENSIONS WITH UNSPECIFIED TOLERANCES - AS PER STANDARD 82050-16.
2. THE COMPONENT SHOULD BE STRAIGHTENED AFTER STAMPING.
3. BURRS ARE NOT ALLOWED.
4. COATING: CADMIUM 9, CHROMATIZING AS PER 449-104 WITH ELIMINATION OF HYDROGEN EMBRITTLEMENT.
5. ALTERNATE MATERIAL: STEEL GRADES 15, 08nc GOST 1050-74.
6. REQUIRED FINISHING OF SURFACES BEING STAMPED SHOULD BE ENSURED BY TOOL.

7. REFERENCE MATERIAL QUOTED:

COLD ROLLED LOW CARBON STEEL STRIP HIGHLY COLD WORKED 'BH' CONDITION SURFACE QUALITY '2' 1mm THICK TO GOST 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 GOST 1050-74.

a) 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,Matl
15	0.12-0.19	0.17-0.37	0.35-0.65	0.25	0.040	0.035	Alt,Matl
08nc	0.05-0.11	0.05-0.17	0.35-0.65	0.10	0.040	0.035	Alt,Matl

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.

b) MECHANICAL PROPERTIES AS PER GOST 503-81

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

c) MECHANICAL PROPERTIES AS PER GOST 16523-70 FOR ALTERNATE MATERIAL QUOTED.

GRADE OF STEEL	ULTIMATE TENSILE STRENGTH Kgf/mm ²	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 3338-00-16
 cb 3338-401-10
 cb 3338-404-7

(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 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	TCD	APPD	DATE	SCALE: 2 : 1	MATERIAL: STRIP 10 - BH - 2 - 1 GOST 503-71	USED ON: cb 3342-188-3 cb 315-663-21 cb 327-00-45 cb 411-00-48 cb 447-00-1
				25-3-86	DIMENSIONS IN mm	CONTROLLERATE OF INSPECTION (HEAVY VEHICLES) AVADI	
					TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS 2102-69	TITLE: WASHER BRIGHT 6	
					ALL THREADS TO CONFORM TO	D S CAT NUMBER	DRAWING NUMBER 353 04 1
A	19-5-10	4 th Alt. Comm. Mt. Minutes Pt.No.2 Dt.26.10.09			ISSUE DATE		

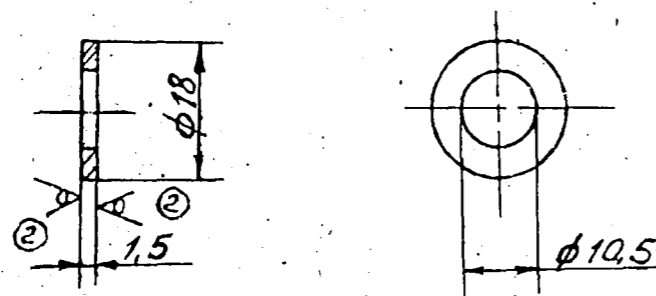
SIZE A3

DRAWING NUMBER

353.07.1

RZ 80 ✓

EXPLANATORY NOTE:



- 2. Dimensions with unspecified tolerances - as per Standard 82050-16.
- 3. The component should be straightened after stamping. Burrs are not allowed.
- 6. Coating: Cd9, chromating as per U.S.A.-104 with elimination of Hydrogen embrittlement.
- 7. Alternate material :- Steel, grades 15, GOST 1050-74.
- 8. Required finishing of surfaces being stamped should be ensured by tool.

1. REFERENCE MATERIAL QUOTED :-

COLD ROLLED LOW CARBON STEEL STRIP HIGHLY COLD WORK 'B H' SURFACE
 QUALITY GROUP '2' WITH TRIMMED EDGES NORMAL MANUFACTURING ACCURACY
 1.5 (-0.11)mm THICK TO GOST 503-71 AND MANUFACTURED IN ACCORDANCE WITH
 QUALITY CARBON STRUCTURAL STEEL GRADE 10 TO GOST 1050-74 AND REFERENCE
 NOTE 7 ON ALTERNATE MATERIAL QUALITY CARBON STRUCTURAL STEEL STRIP/STEEL
 GRADE 15 TO GOST 1050-74.

a) CHEMICAL COMPOSITION AS PER GOST 1050-74.

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. Matl.
15	0.12 - 0.19	0.17 - 0.37	0.35 - 0.65	0.25	0.040	0.035	Alt. Matl.

RESIDUAL CONTENT OF COPPER AND NICKEL SHOULD NOT EXCEED 0.25% EACH.

b) MECHANICAL PROPERTIES : FOR 'BH' CONDITION AS PER GOST 503-71.

ULTIMATE TENSILE STRENGTH - - - - - 55. Kgf/mm² (Min)

ii MECHANICAL PROPERTIES AS PER GOST 1050-74.

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

CONDITION OF MATERIAL	GRADE OF STEEL	U T S Kgf/mm ²	YIELD POINT Kgf/mm ²	ELONGATION %	REDUCTION IN AREA %	REMARKS
NORMALIZED	15	38	23	27	55	Alt. Matl.

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

EST WT **0002 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	GOST 503-71	USED ON	30
CHD	<i>[Signature]</i>		STRIP 10-BH-2-15	CG 3335 00	24
TCO	<i>[Signature]</i>	CONTROLLERATE OF INSPECTION (HEAVY VEHICLES) AVADI			
APPD	<i>[Signature]</i>	TITLE			
DATE	05-6-80	BRIGHT WASHER 10			
SCALE : 1 : 1		D S CAT NUMBER			
DIMENSIONS IN mm		DRAWING NUMBER			
TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS : 2102-69		353.07.1			
ALL THREADS TO CONFORM TO					
A	19-5-10	4 th Alt. Comm. Mt. Minutes Pt. No. 2 Dt. 26.10.09			
ISSUE	DATE	NATURE OF AMENDMENTS			

KVD No.-78675

(A-11)

SIZE A3

8 7 6

DRAWING NUMBER

353-20-2

SHEET No. 1 OF 1

EXPLANATORY NOTE :-

MATERIAL QUOTED : SHEET A 1.5 GOST 19904-74
12X18H 10T GOST 5582-75

A = IMPROVED ACCURACY ; 1.5 = THICKNESS OF THE STRIP

GOST 19904-74 FOR COLD ROLLED SHEET STEEL

12X18H 10T = GRADE OF STEEL

HIGH ALLOYED STEELS, CORROSION PROOF HEAT RESISTING AND HEAT TREATED.

CHEMICAL COMPOSITION : (AS PER GOST 5632-72)

CARBON=0.12 (max)

NICKEL = 9.0 - 11.0

SILICON = 0.80 (max)

TITANIUM = 0.60 - 0.80

MANGANESE = 2.0 (max)

SULPHUR = 0.020

CHROMIUM = 17.0 - 19.0

PHOSPHORUS = 0.035 (max)

MECHANICAL COMPOSITION : (AS PER GOST 5582-75)

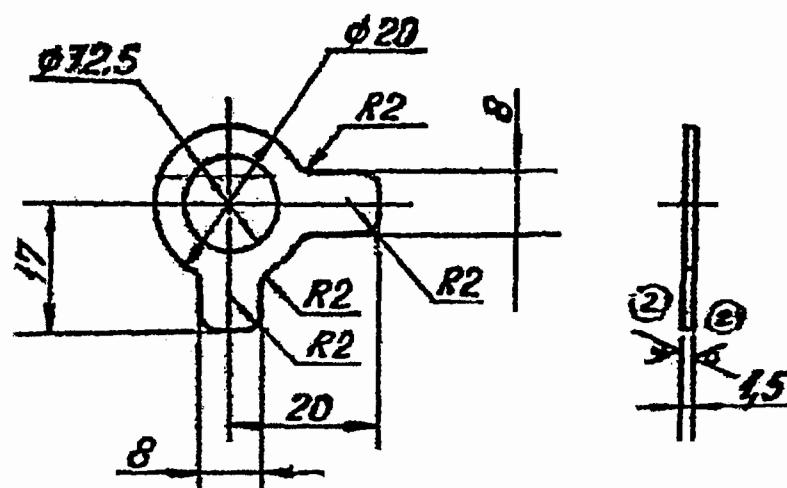
1. HEAT TREATMENT SCHEDULE : TEMPERING AT 1050° TO 1080° C COOLING IN WATER OR IN AIR

2. ULTIMATE TENSILE STRENGTH kgf/mm² = 54 (min)

3. YIELD POINT LIMIT kgf/mm² = 20 (min)

4. % RELATIVE ELONGATION = 40 (min)

Ⓐ EQUIVALENT MATERIAL
04 Cr. 18 Ni 10Ti 20 TD IS:6911-72



2. DIMENSIONS WITH UNSPECIFIED TOLERANCES - WILL BE ATTAINED WITH ACCURACY ± 0.3mm.
3. THE COMPONENT SHOULD BE STRAIGHTENED AFTER STAMPING.
4. BURRS ARE NOT ALLOWED.
6. REQUIRED FINISHING OF SURFACES BEING STAMPED SHOULD BE ENSURED BY TOOL.

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

EST. WT. (Kg) 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.

			DRN	Sd/=	MATERIAL :- SEE ABOVE	USED ON :- Cb 3338-00-16
			CHD	Sd/=	CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI	
			APPD	Sd/=		
			DATE	2-5-87		
			SCALE:- 1 : 1		TITLE :- LOCK WASHER-12	
			DIMENSIONS IN mm			
			TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS : 2102 - 69		D S. CAT NUMBER	
			ALL THREADS TO CONFORM TO IS : 4218,PART-4.			
			A	23.10.10	DRAWING NUMBER 353-20-2	
			ISSUE	DATE	NATURE OF AMENDMENTS	

P. JANARDHANAN
 Dt 21 Oct 10 JTO (D)

DRG. REINDIANISED BASED ON RUSSIAN ORIGINAL ISSUE - NIL

KVD No. 78685

F-
SIZE A3

353 23

EXPLANATORY NOTE

3. REFERENCE MATERIAL QUOTED

SPRING WASHER, NOMINAL THREAD DIA 6mm, HEAVY WASHER 'T' PARKERISED AND OILED '0,6' AND REFERENCE NOTE 'Z' ON ALTERNATE MATERIAL ZINC PLATED '09' TO GOST 6402-70 AND MANUFACTURED IN ACCORDANCE WITH CARBON STRUCTURAL HOT ROLLED STEEL GRADE 65 G TO GOST 1050-74.

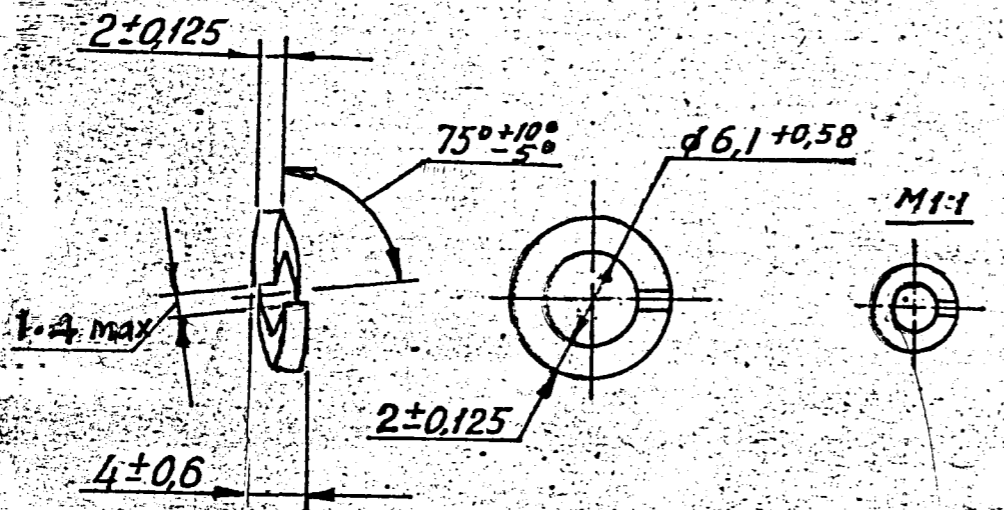
a) CHEMICAL COMPOSITION:

GRADE OF STEEL	CONTENT OF ELEMENTS %					
	C	SI	Mn	Cr	S	P
65G	0,62 - 0,70	0,17 - 0,37	0,90 - 1,20	0,25	0,040	0,35

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

b) MECHANICAL PROPERTIES UNDER NORMALISED CONDITION: AS PER GRADE 65G, 1050-74.

GRADE OF STEEL	ULTIMATE TENSILE STRENGTH Kg/mm ²	YIELD POINT Kg/mm ²	ELONGATION %	HARDNESS		
				B	H	N
65G	75	44	9	285		



- 1. COATING: CADMIUM CHROMATIZING AS PER ЧЗЛ 104 WITH ELIMINATION OF HYDROGEN EMBRITTLEMENT.
- 2. WASHER 6T.65G 09 GOST 6402-70 MAY BE USED.

B EQUIVALENT MATERIAL
75 C6 TO IS:2507/EN42 J BS:970

- A**
- Cb 327-00-73
 - Cb 3334-00-47
 - Cb 3335-00-9
 - Cb 337-100
 - Cb 3301-00-44, Eb 406-12-75
 - Cb 406-13-75, Cb 3308-15-2
 - Cb 310-00-14, Cb 411-00-56
 - Cb 3320-00-43, Cb 315-606-12
 - Cb 406-12-44, Cb 406-13-44
 - Cb 3300-00-27 EX, Cb 3301-00-37
 - Cb 3308-00-17, Cb 3320-00-33
 - Cb 3335-00-24

USED ON *
Cb 3338-00-16
Cb 3338-401-10
Cb 3338-404-7
Cb 3342-00-805
Cb 3342-188-7 Cb 3315-606
Cb 3327-00-45 Cb 411-00-41
Cb 407-00-1 Cb 602-53-1

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

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

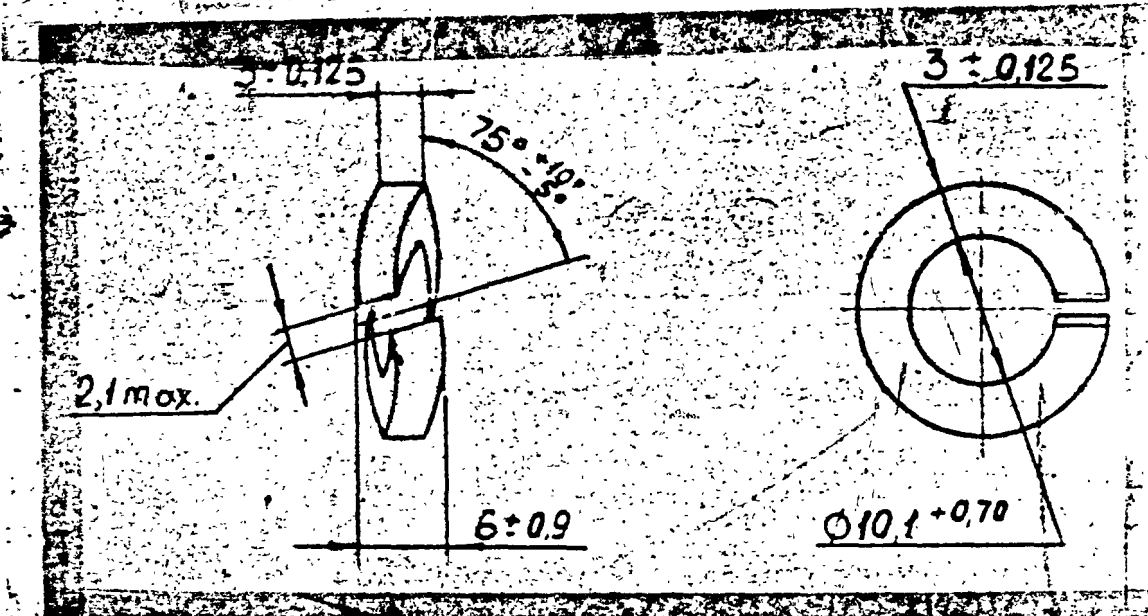
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE

DRN	
CHD	
TCD	
APPD	
DATE	25-3-86
SCALE	2:1
DIMENSIONS IN mm	
TOLERANCE ON DIMS UNLESS OTHERWISE STATED IS	±1002-69
ALL THREADS TO CONFORM TO	
ISSUE	A
DATE	28.8.08
NATURE OF AMENDMENTS	USED ON NUMBER ADDED

MATERIAL	65G 06
	GOST 6402-70
CONTROLLERATE OF INSPECTION (HEAVY VEHICLES)	AVADI
TITLE	WASHER 6T
D S CAT NUMBER	
DRAWING NUMBER	353 23

* CB 20-01-00-8 CB 20-06-13-6 CB 20-23-34-86
 CB 20-06-00-2 CB 20-15-671
 CB 20-06-12-6 CB 20-22-00-7
 CB 20-15-663-4 CB 20-23-83-6
 COMMON TO V-92S2 & UTD-20 ENGINES
 SVD NO 63632
 SIZE A3
 A11

DRAWING NUMBER
353-26



1. Washer 10 TO 65Г 06 GOST 6402-70
may be used.

EXPLANATORY NOTE:

Material Quoted: 65Г 06 GOST 6402-70

Alternate material quoted: washer 10 TO 65Г 06 GOST 6402-70

65Г : Spring(lock) washers(heavy washer) manufactured from
steel grade of 65Г to gost 1050-74.

06 : Parkerising followed by oiling

washer 10: oxy- anodizing followed by chromate passivation.

Chemical Composition: as per GOST 1050-74

C	Si	Mn.	Cr	S	P	Cu	Ni
			MAXIMUM				
0.62-0.70	0.17-0.37	0.70-1.00	0.25	0.040	0.035	0.25	0.25

(i) General Properties: as per GOST 6402-70.

1. Theoretical weight of 1000 washers in kg \approx = 2.914

2. Estimated resilience of washers from steel of
grade 65 G in kg \approx } = 87.0

(ii) Mechanical Properties: for 65Г, as per GOST 1050-74

1. yield point kgf/mm^2 (min) = 44

2. ultimate tensile strength kgf/mm^2 (min) = 75

3. Elongation % (min) = 9

4. Hardness BHN (max) = 229

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

EST. WT. 1000 PIECES 2.914 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.

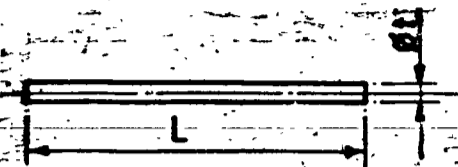
DRN	<i>S. S. S.</i>	MATERIAL:-	USED ON
CHD	<i>S. S. S.</i>	65Г.06 GOST 6402-70	C520-09-01-6
TCD	<i>S. S. S.</i>		
APPD	<i>S. S. S.</i>		
DATE	20-4-89	CONTROLLERATE OF QUALITY ASSURANCE(HEAVY VEHICLES) AVADI	
SCALE:-	2:1		
DIMENSIONS IN mm TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS:2102-69			TITLE WASHER 10T
ALL THREADS TO CONFORM TO			D S CAT NUMBER
8	7	6	ISSUE DATE
		NATURE OF AMENDMENTS	

KVD No. 78687
(V-46)

KVD.No. 63634
(UTD)

SIZE A3

DRAWING NUMBER
354-22



KVD NO	L mm	LIMIT DEVIATIONS mm	USED ON
	150	±1.5	
78705	60	±1.5	CB 3338-401-10 CB 530-200
78706	80	±2	CB 3334-00-39 CB 327-00-45
78707	100	±2	CB 3338-00-16 CB 327-00-45 CB 3335-00-24 CB 3362-00-8CB
78708 (C)	120	±2	CB 419-00-4, CB 370-00-7 CB 20-22-00-7 CB 322-00-4 CB
78709	160	±2	CB 327-00-45 CB 3335-00-24 CB 3334-00-2
78710	200	±2	CB 327-00-45 CB 3334-00-27
78711 (A)	260	±3	CB 3334-00-27 CB 20-29-00-8
78712	350	±3	CB 3338-407-4 CB 3329-00-13
78713	420	±3	CB 411-00-41
78714	500	±3	CB 327 00 45
	600	±3.5	
	800	±5	

ADDITIONAL REQUIREMENTS

- FOR MANUFACTURE OF LOCK WIRE AS PER DRAWING 354-22
1. THE WIRE SHOULD BE PROVIDED WITH ZINC COATING. DIAMETER OF WIRE AFTER COATING SHOULD BE 1.15 mm
 2. QUALITY OF WIRE SHOULD NOT EXCEED HALF OF THE TOLERANCE ON DIAMETER
 3. THE WIRE SHOULD BE MANUFACTURED FROM LOW CARBON ROLLED STEEL AS PER GOST 1050-74
 4. ULTIMATE RUPTURE STRENGTH OF ZINC PLATED WIRE SHOULD NOT BE LESS THAN 17 Pa (37 Kgf/mm²)
 5. THE WIRE SHOULD WITHSTAND NOT LESS THAN 7 BENDINGS THROUGH 180° AND NOT LESS THAN 25 TWISTINGS THROUGH 360°
 6. THE SURFACE OF WIRE SHOULD NOT HAVE BLOW HOLES, CRACKS, MARKS, BLACK FINS, OXIDE SPOTS, BURS AND RUST. THERE SHOULD NOT BE ANY UNCOATED AREAS ON THE WIRE.
 7. ON WIRE FRACTURE, THERE SHOULD NOT BE ANY CRACKS, BACKFINS, FISSURES, BLISTERS, AND SHRINKAGE CAVITIES
 8. WIRE ZINC COATING SHOULD BE BOUND TO THE STEEL WHEN WOUND ON CYLINDER WITH DIAMETER EQUAL TO WIRE FIVE FOLD DIAMETER, THE WIRE SHOULD NOT HAVE ANY PEELINGS AND FISSURINGS OF ZINC COATING.

EXPLANATORY NOTE:-

REFERENCE MATERIAL QUOTED:- LOW CARBON STEEL
To GOST 1050-74.

CHEMICAL COMPOSITION %

GRADE	C	Si	Mn	MAXIMUM				
				Cr	P	S	Cu	Ni
15	0.12-0.19	0.17-0.37	0.35-0.65	0.25	0.035	0.040	0.25	0.25

MECHANICAL PROPERTIES

1. ULTIMATE TENSILE STRENGTH Kgf/mm² (min) = 38
2. YIELD POINT Kgf/mm² (min) = 23
3. PERCENTAGE ELONGATION % (min) = 27
4. REDUCTION IN AREA % (min) = 55
5. HARDNESS BHN (MAX) = 149

COMMON TO V-92S2 & UTD-20 ENGINES

(E) EQUIVALENT MATERIAL
IS: 549.

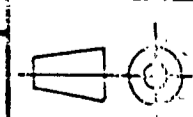
(D) ** ITEM USED IN VARIOUS LENGTHS ON VARIOUS ASSEMBLIES
OF V46-6, V92-S2, & UTD-20. ENGINE.

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

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

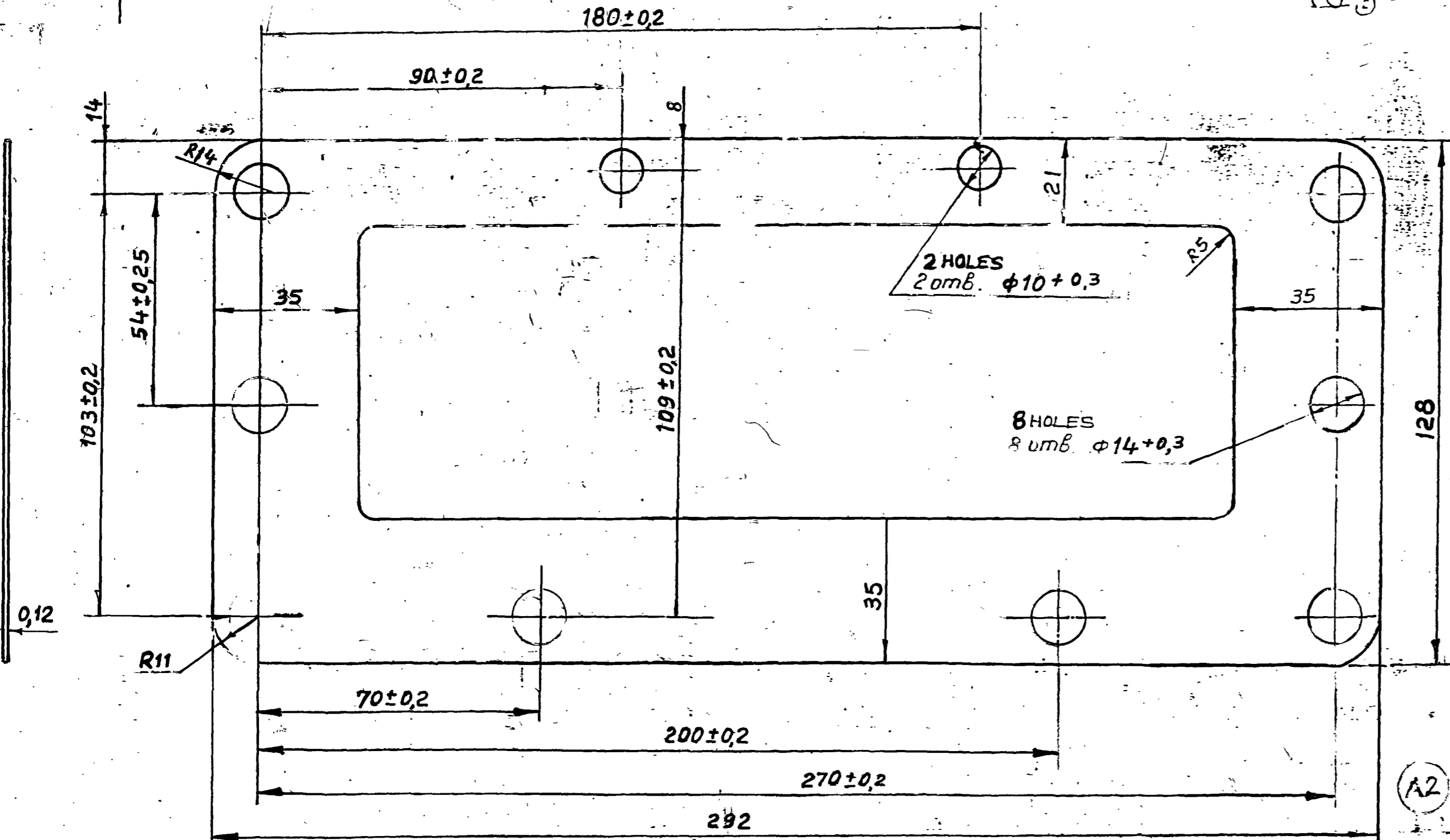
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUT-SIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

DRN	<i>[Signature]</i>	MATERIAL	CB 20-06-00-2
CHD	<i>[Signature]</i>	USED ON	CB 20-35-00-5
TCO	<i>[Signature]</i>		CB 3338-402-4 CB
APPD	<i>[Signature]</i>		SEE TABLE **
DATE	18-3-86	CONTROL RATE OF QUALITY ASSURANCE (HEAVY VEHICLES)	
SCALE		AVADI	
E	8-7-10	4 th ALT. COMM. Mtg. MINUTES	
D	28.8.08	POINT No. 3 DT. 26-10-09	
C	30.6.01	USED ON NUMBER ADDED	
B	15.1.02	AUTHY 90211/AHSP/ED dt 27.3.01	
A	15-2-88	AUTHY LE No. 1100267/IND-11/7	
ISSUE	DATE	NATURE OF AMENDMENTS	



LOCK WIRE

DRAWING NUMBER
354-22



EXPLANATORY NOTE:

MATERIAL QUOTED: PAPER K-120 GOST 23436-79

ALTERNATE MATERIAL QUOTED: PAPER K-170 GOST 23436-79

PAPER - FOR INSULATING 35KV POWER CABLES

K-120 - GRADE OF PAPER - ORDINARY; THICKNESS = 120 ± 7

K-170 - GRADE OF PAPER - ORDINARY; THICKNESS = 170 ± 10

QUALITY PARAMETERS:

1. FIBRE COMPOSITION, % OF UNBLEACHED SULPHATE CELLULOSE AS PER STANDARDS & TECHNICAL DOCUMENTATION

2. DENSITY g/cm³

3. BREAKING FORCE Ko: (MIN)

IN THE MACHINE DIRECTION

IN THE TRANSVERSE DIRECTION

4. ELONGATION % (MIN)

IN THE MACHINE DIRECTION

IN THE TRANSVERSE DIRECTION

5. AIR PERMEABILITY L/min, (MAX)

6. ASH CONTENT % (MAX)

7. pH VALUE OF AQUEOUS EXTRACT

8. CONDUCTIVITY OF AQUEOUS EXTRACT, $\mu S/cm$; (MAX)

WITH MODULE 1:50

WITH MODULE 1:20

9. MOISTURE CONTENT, %

	K-120	K-170
1. FIBRE COMPOSITION, % OF UNBLEACHED SULPHATE CELLULOSE AS PER STANDARDS & TECHNICAL DOCUMENTATION	100	100
2. DENSITY g/cm ³	0.78 ± 0.05	0.78 ± 0.05
3. BREAKING FORCE Ko: (MIN)		
IN THE MACHINE DIRECTION	13.0	17.5
IN THE TRANSVERSE DIRECTION	6.0	8.5
4. ELONGATION % (MIN)		
IN THE MACHINE DIRECTION	2.2	2.2
IN THE TRANSVERSE DIRECTION	6.6	6.6
5. AIR PERMEABILITY L/min, (MAX)	40	40
6. ASH CONTENT % (MAX)	1.0	1.0
7. pH VALUE OF AQUEOUS EXTRACT	7.0-9.5	7.0-9.5
8. CONDUCTIVITY OF AQUEOUS EXTRACT, $\mu S/cm$; (MAX)		
WITH MODULE 1:50	63	63
WITH MODULE 1:20	126	126
9. MOISTURE CONTENT, %	4-8	4-8

DIMENSION WITHOUT TOLERANCE TO BE IMPLEMENTED WITH ACCURACY OF ± 0.3mm.

ALTERNATE MATERIAL: PAPER K-170 GOST 23436-79

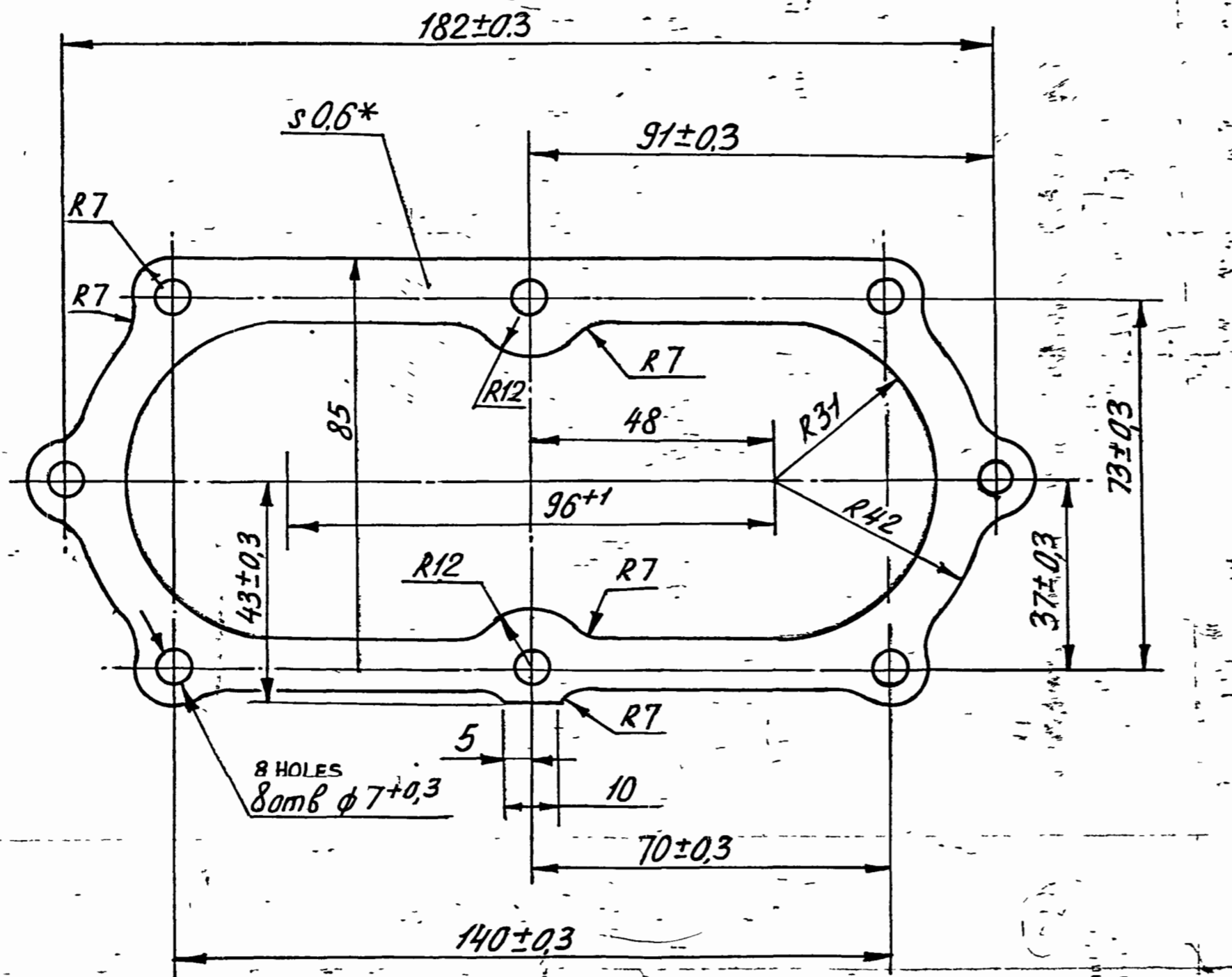
Размеры без отклонения выполняются с точностью ± 0.3 мм.
 ЗамениТЕЛЬ материала бумаги K-170 ГОСТ 23436-79

PILOT SAMPLE SHOULD BE APPROVED BY A MSP BEFORE BULK PRODUCTION

EST. MASS 0.0016 Kg	TO BE STAMPED OR MARKED WHERE INDICATED THIS IN LETTERS
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALEN. CHAMFERS ARE PERMISSIBLE	
ISSUE DATE	NATURE OF AMENDMENTS
SCALE 1:1	
DIMENSIONS IN mm	
TOLERANCE IN DIMENSIONS UNLESS OTHERWISE STATED	
DATE 7.4.88	ALL THREADS TO CONFORM TO
MATERIAL PAPER K-120 GOST 23436-79	USED ON - СБ 3338-00-16 *
CONTROL MADE BY QUALITY ASSURANCE (AVY VEICLES)	
TITLE GASKET	
D/S CAT NUMBER	DRAWING NUMBER 3301-193-1

DRAWING NUMBER

3338-460-1



EXPLANATORY NOTE:

Material quoted: Rubberized asbestos fabric ПМБ 06

GOST 481-80

Paronite and paronite gaskets (compressed asbestos fabric sheets)

ПМБ (PMB) : Grade, 06 : width ±10

Physical mechanical and technological requirements

1. working medium : oil fraction (diesel automobiles, aviation industrial, turbines and transformer oils)
2. Limiting Pressure kgf/cm^2 : 25
3. Limiting temperature $^{\circ}\text{C}$: 150
4. Density g/cm^3 : 1.5 - 2.0
5. conventional breaking point with transverse direction kgf/cm^2 (min) = 130
 - (a) After soaking in kerosene at 23°C for 12 hours = 70
 - (b) After soaking in oil MS-20 or MK-22 at 150°C for 12 hours = 100
6. Increase in weight in liquid media % (max)
 - (a) In kerosene at 23°C for 12 hours = 10-24
 - (b) In oils MS-20 or MK-22 = 23
7. compressibility at 350 kgf/cm^2 % = 5 to 16
8. Recovery after removal of pressure 350 kgf/cm^2 = 35 (min)

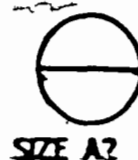
1. LINEAR DIMENSIONS AND RADII WITH UNSPECIFIED TOLERANCES SHOULD BE OBTAINED WITH TOLERANCE $\pm 0.5\text{mm}$.
2. ALTERNATE MATERIAL : RUBBERIZED ASBESTOS FABRIC ПМБ GOST 481-80.
3. * DIMENSION FOR REFERENCE
4. IN TROPICALIZED MAKE MANUFACTURE - FROM RUBBERIZED ASBESTOS FABRIC GOST 481-80, MARK WITH YELLOW PAINT "Г"

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 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	10/02/05	MATERIAL :- RUBBERIZED ASBESTOS FABRIC ПМБ 06 GOST 481-80	USED ON :- CB 3338-00-16
CHKD	11/02/05	CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) A V A D I	
TCD	11/02/05	TITLE T-PIECE GASKET	
APPO	11/02/05	D S CAT NUMBER	
DATE	3-5-89	DRAWING NUMBER 3338-460-1	
SCALE	-1.1	NATURE OF AMENDMENTS	
DIMENSIONS IN mm		TOLERANCE ON DIMS UNLESS OTHERWISE STATED IS 2102-69	
TOLERANCE ON DIMS UNLESS OTHERWISE STATED IS 2102-69		ALL THREADS TO CONFORM TO	
ISSUE	8-2-95	AUTHY NOTN No BK 86-190	
DATE			

KVD No. 78583

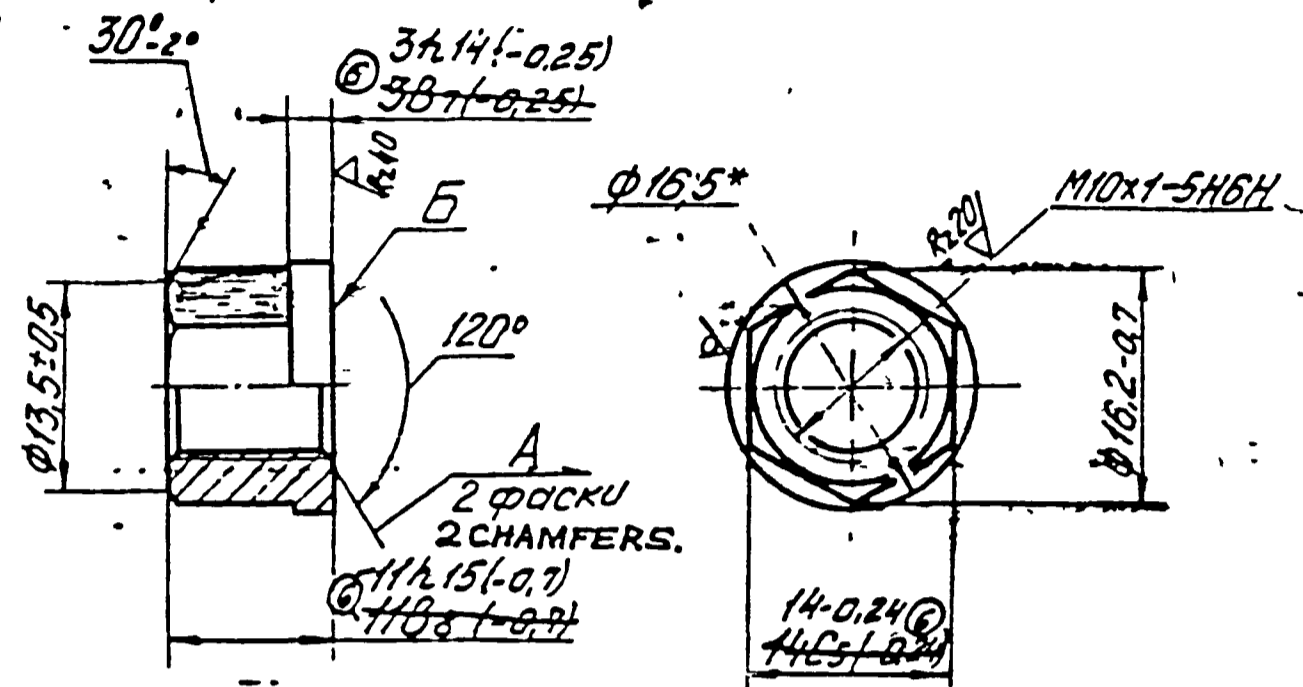


SIZE A2

DRAWING NUMBER

3338-482

Rz80



EXPLANATORY NOTE :-

14. MATERIAL QUOTED : ROUND BAR 16.5-4 GOST 7417-75
45X GOST 4543-71
ROUND BAR 16.5 mm ϕ , ACCURACY CLASS - 4
45X = GRADE OF STEEL (AS PER GOST 4543-71)

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	P	S	Cu	Ni
0.41 - 0.49	0.17 - 0.37	0.50 - 0.80	0.80 - 1.10	0.035	0.035	0.30	0.30

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

YIELD POINT Kgf/mm ² (min)	=	85
ULTIMATE STRENGTH Kgf/mm ² (min)	=	105
RELATIVE ELONGATION % (min)	=	9
RELATIVE REDUCTION ALONG CROSS SECTION % (min)	=	45
IMPACT STRENGTH Kgf/cm ²	=	5

- INSPECTION GROUP IV TT - 11.
- HRC 2B ... 35
HRC 26 ... 33. MAY BE CHECKED ON TEST-PIECES HEAT TREATED TOGETHER WITH THE BATCH OF COMPONENTS.
- SURFACE OF THREAD SHOULD BE CLEAN, FREE FROM SCORES, BURRS, STRIPPED THREADS, DENTS, CORROSION TRACES AND OTHER SURFACE DEFECTS.
- CHAMFERS "A" SHOULD BE MADE UP TO THE MAJOR DIAMETER OF THE THREAD.
- SHIFT OF HOLE AXIS FROM THE TRUE POSITION SHOULD NOT EXCEED 0.25 mm.
- CONCAVITY OF SURFACE B SHOULD NOT EXCEED 0.1mm, max. CONVEXITY IS NOT ALLOWED.
- END PLAY OF SURFACE B RELATIVE TO THE THREAD AXIS SHOULD NOT EXCEED 0.2mm, AT DIA. 16 mm.
- GRADE OF SIDE FACES SHOULD NOT EXCEED 1°.
- SIDE FACES MAY BE MADE BY FORGING.
- * DIMENSION FOR REFERENCE.
- FINAL ACCEPTANCE MARK SHOULD BE PUT ON A TAG.
- COATING: Cd 9, CHROMATIZING AS PER UUП-104 WITH SUBSEQUENT ELIMINATION OF HYDROGEN EMBRITTLEMENT.

KVD NO-78594

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

EST. WT. 0.008 Kg	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 OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

DRN	g.m.a.	MATERIAL	USED ON :-
CHD	B. B. B.	ROUND BAR 16.5 GOST 7417-75	CG 3338-00-16
TCO	N. N. N.	45X GOST 4543-71	
APPD		CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES)	
DATE	16-5-89	A V A D I	
SCALE	2 1		
DIMENSIONS IN mm		TITLE	
TOLERANCE ON DIMS UNLESS OTHERWISE STATED IS 2002-69		NUT M10x1	
ALL THREADS TO CONFORM TO		D S FAT NUMBER	DRAWING NUMBER
A	5-7-88	AUTHY BK 85-807	3338-482
ISSUE	DATE	NATURE OF AMENDMENTS	