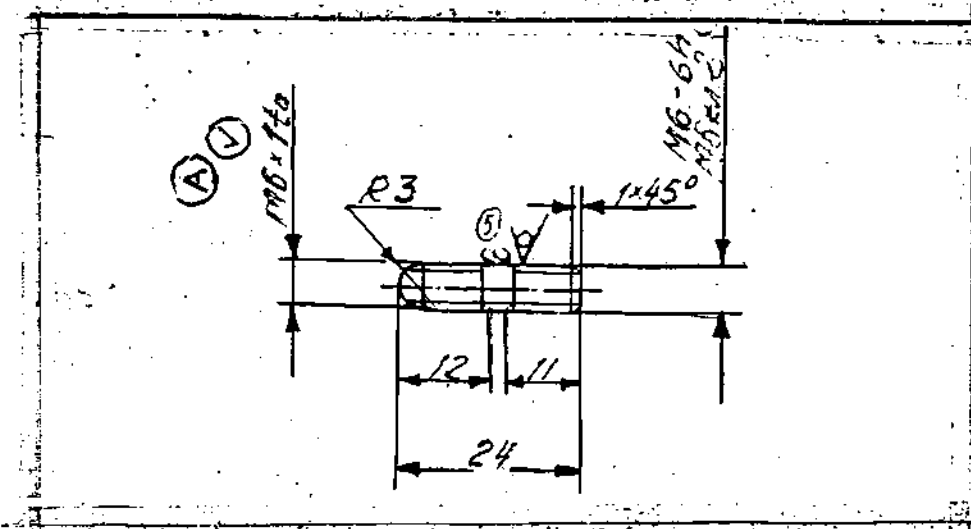


DRAWING NUMBER

350 03



① EQUIVALENT MATERIAL STEEL
45C8 TO IS:1570

- DELETED.
- TECHNICAL REQUIREMENTS FOR THREADS AS PER STANDARD 82021-00.
- DIMENSIONS WITH UNSPECIFIED TOLERANCES AND THE REST OF THE TECHNICAL REQUIREMENTS AS PER STANDARD 82052-00.
- COATING: CADMIUM 3, CHROMATIZING AS PER UL-104 WITH SUBSEQUENT ELIMINATION OF HYDROGEN EMBRITTLEMENT.
- THE THREAD MAY BE MADE BY ROLLING WITH DIAMETER OF UN-THREADED PORTION WITH IN THE PITCH DIAMETER OF THREAD.
- MECHANICAL DAMAGES OF THE CADMIUM COATING SUCH AS SCRATCHES, NICKS AND DENTS ARE ALLOWED ON ASSEMBLY UNITS, PROVIDED THE STEEL IS NOT EXPOSED.

7. ALTERNATE MATERIAL: STEEL GRADES 40 & 50 GOST 1050-74.

8. HARDNESS:- 27-32 HRC.

* ALT MATERIAL:-

STEEL 709 M40 (EN-19) TO
BS:- 970 PT.-1- 1983

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

EST WT
0.004 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

EXPLANATORY NOTE:

8. REFERENCE MATERIAL QUOTED:

COLD DRAWN SIZED ROUND BAR, 6.0 (-0.025)mm DIA TO GOST 7417-75 FROM HIGH GRADE SIZED STEEL NORMAL SURFACE QUALITY TO GOST 1051-73 AND MANUFACTURED IN ACCORDANCE WITH QUALITY CARBON STRUCTURAL STEEL GRADE 45 TO GOST 1050-74.

REFERENCE NOTE '7' ON ALTERNATE MATERIAL: QUALITY CARBON STRUCTURAL STEEL GRADE 40 AND 50 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	
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: AS PER GOST 1050-74.

GRADE OF STEEL	ULTIMATE TENSILE STRENGTH Kgf/mm ²	YIELD POINT Kgf/mm ²	ELONGATION %	REDUCTION IN AREA %	IMPACT STRENGTH Kgf/cm ²	HARDNESS B H N M A X	REMARKS
45	61	36	16	40	5	207	Ref,Matl
40	58	34	19	45	6	197	Alt,Matl
50	64	38	14	40	4	217	Alt,Matl

9. REPAIR SIZE DIMENSIONS ARE ADDED WHERE INDICATED THUS ② BASED ON OVERHAUL SPECIFICATIONS PART III REPAIR DRAWINGS.

Sl.No.	R	REMARKS
1	M6 x 1.25 to	ALL OTHER CONDITIONS AS PER STD. DRG.
2	PCD = 7.188 ± 0.022	

**
Cb 306-08-8, Cb 306-09-10,
Cb 401-03-6, Cb 3301-15-30,
Cb 306-08-13, Cb 306-09-13,
Cb 3308-04-24

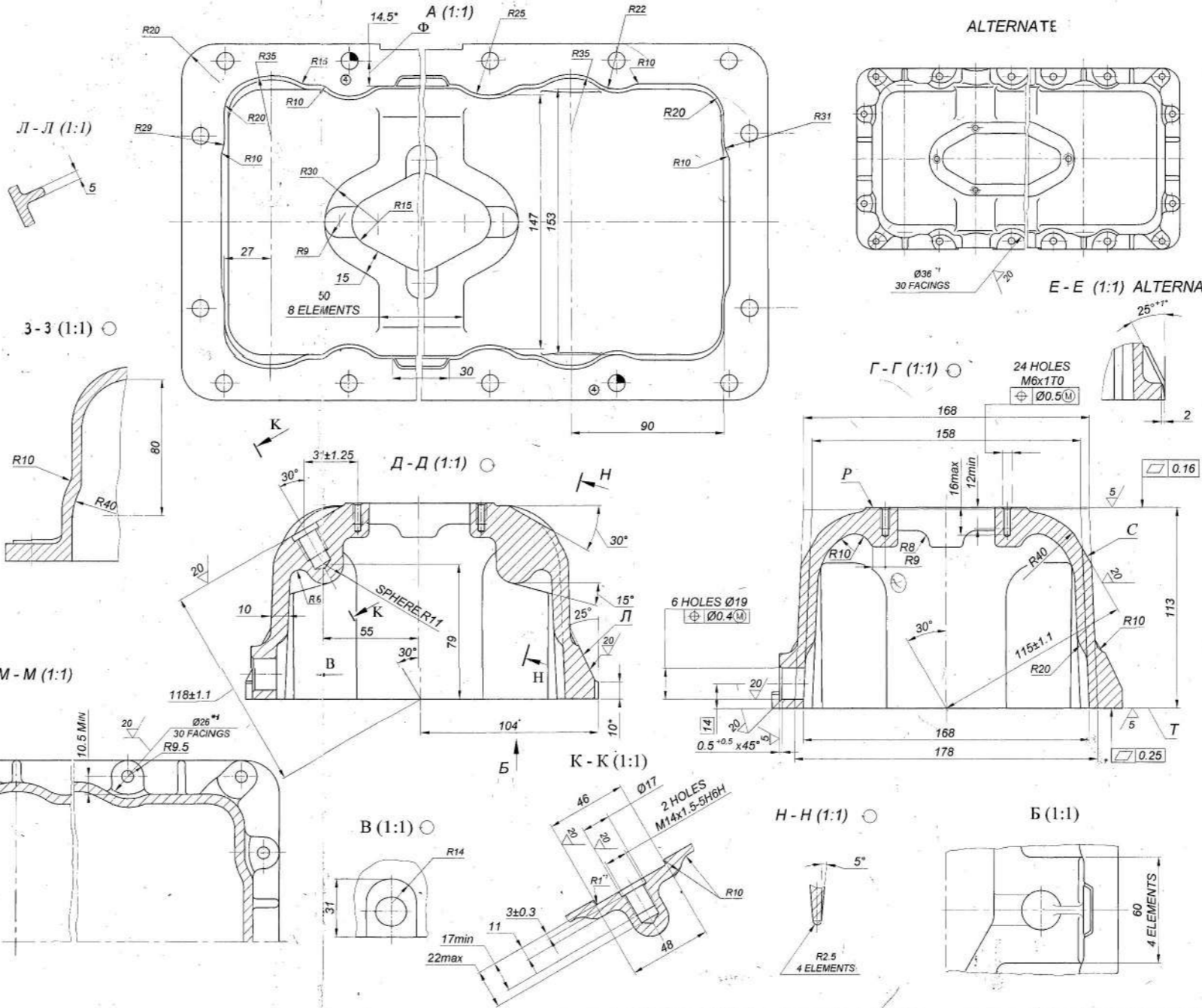
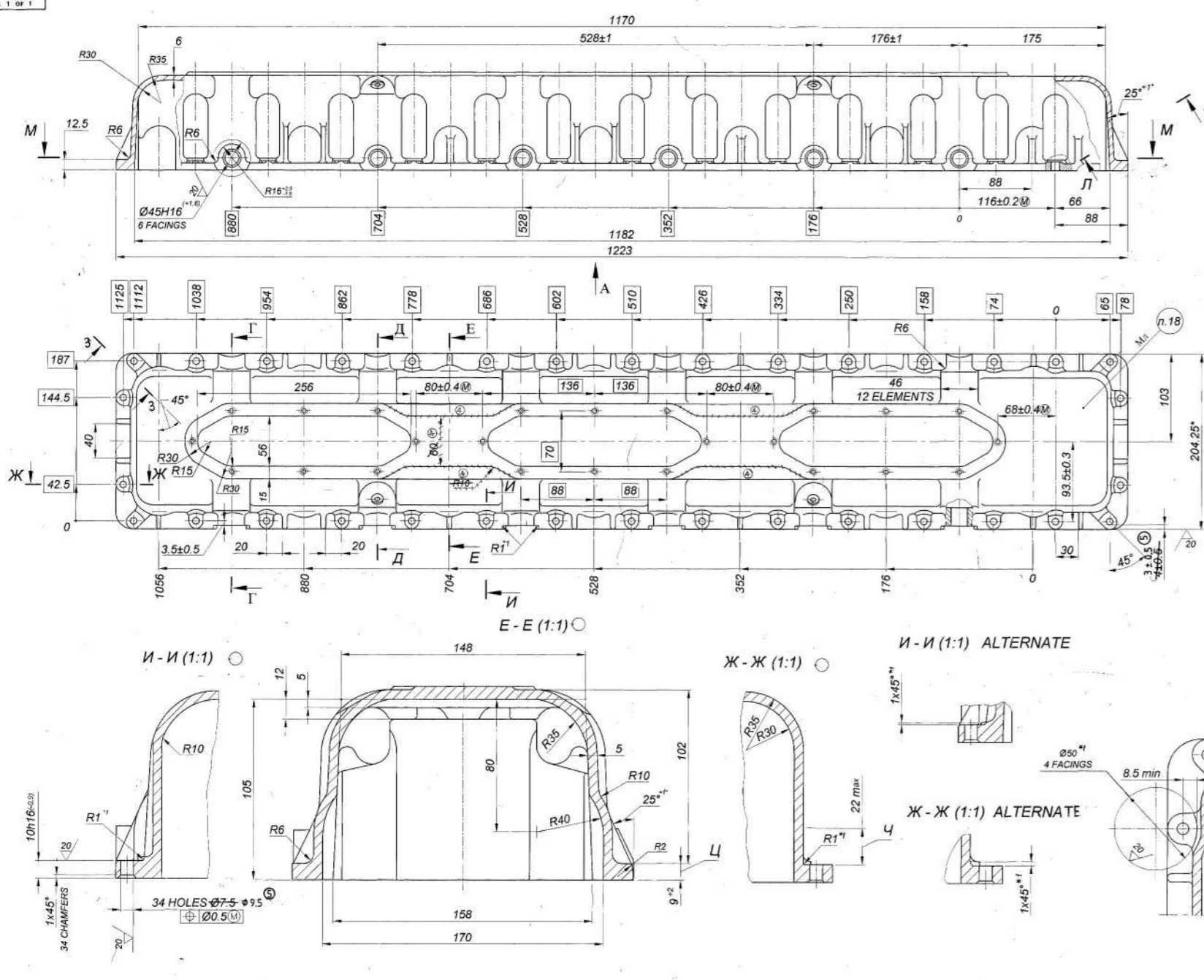
DRN	CHD	TCD	APPD	DATE	MATERIAL ROUND BAR GOST 7417-75 45 GOST 1051-73	USED ON Cb 3301-15-44 Cb 3338-402-4 Cb 3329-01-11
				30-5-86		
SCALE 1 : 1					CONTROLLERATE OF INSPECTION(HEAVY VEHICLES) AVADI	
DIMENSIONS IN mm TOLERANCE ON DIMNS UNLESS OTHERWISE STATED					TITLE: STUD M6 x 24	
ALL THREADS TO CONFORM TO					D S CAT NUMBER	
ISSUE DATE					DRAWING NUMBER 350 03	
D	12-8-10	4 th Alt. Comm. Meeting Minutes Point No.11 Dt: 26-10-09				
C	25.8.08	USED ON NUMBERS ADDED AUTHY:- MIN. OF ALT. COM. MEET.				
B	11.01.08	POINT No.-2.12 Dt.- 07-02-07				
A	6.9.95	REPAIR SIZE DIMENSION ADDED				
ISSUE DATE		NATURE OF AMENDMENTS				

COMMON TO V-92S2 ENGINE

A-11

SIZE A3





- Requirement for casting should be as per TTM-27-87
- Alternate material AK74 (A19) as per GOST 1583-93
- Unspecified limit deviation of casting dimensions:
 - Upto 100 mm ± 0.2 mm;
 - Above 100 upto 200 mm ± 0.3 mm;
 - Above 200 mm ± 0.5 mm;
 - For radii above 3 upto 10 mm ± 1 mm;
 - Above 10 upto 30 mm ± 1.5 mm;
 - Above 30 mm ± 2 mm.
- Limit deviations of wall thickness ± 0.1 mm.
- Unspecified wall thickness 5 mm.
- Unspecified casting radii 2...5 mm.
- Casting draft angle 2° above tolerance.
- Unspecified limit deviations of dimensions for machining: H14; h14 ± 0.1 .
- In the places of resting base, the dimension 'L' should be (9.5±0.3) mm.
- It is permitted to carry out the dimension as 'L' ($9^{+0.3}$) mm, except the places of resting base.
- On the surface P and T around the hole $\varnothing 15$ mm, marks, dents with diameter exceeding 1 mm is not permitted. Marks and dents with depth not exceeding 0.05 mm, nonintersecting flanging of depth not exceeding 0.1 mm-receding from the internal contour by 7 mm minimum is permitted.
- Reduction of wall thickness in machining places upto 3mm minimum is allowed.
- Check the inner contour of cover as per template: ensure with checked tooling.
- Check the inner cavity of cover as per dummy.
- Difference in dimension should be $\varnothing 1$ mm maximum.
- Technical requirement for thread as per standard 82021-00.
- Absence of machining is permitted on surface 'C'.
- Test the casting for air-tightness with water under pressure minimum 0.3 MPa (3 Kg/cm²), for 2 minutes. Leakage of water is not permitted. It is permitted to test for air tightness with air in water under pressure minimum 0.1 MPa (1 Kg/cm²). Leakage of air is not permitted.
- Mark the grade of material as per GOST 2171-90, letter type 10 - Пp3 GOST.26.008-85.
- Traces of Tools are allowed on the length '4'.
- *Dimensions are given for reference.
- *Dimensions to be ensured by Tool.
- Projection of surfaces Γ over the plane of rib should not exceed 1 mm for the maximum linear dimensions of cover.

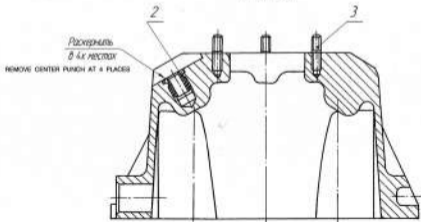
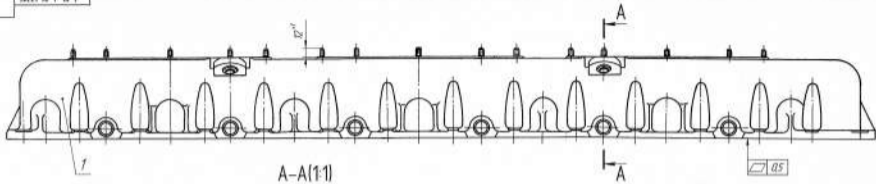
Dwg. prepared based on Russian original issue - 3
 DIE REPLACES 146-93-18 Vsk. No. 195-99
 Dwg. No. 406-93-15-1
 1:1

EST. WT. (kg)	TO BE STAMPED OR MARKED WHERE INDICATED THIS # ()	DATE	APP. (Signature)	SCALE: 1:1	DIMENSIONS IN mm UNLESS OTHERWISE STATED IN THIS Dwg.	TOLERANCE ON DIMENSIONS UNLESS OTHERWISE STATED IN THIS Dwg.	ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED. MACHINED CORNERS TO HAVE R () DIM. R INSTEAD OF EQUIVALENT CHAMFERS ARE PERMISSIBLE.	ISSUE DATE	NATURE OF AMENDMENTS
9.6					30 ± 0.15	± 0.1	30 ± 0.15		

MATERIAL: AK74 (A19) GOST 1583-93		USER ON: 26-08-20	
APP. (Signature)		406-93-15	
DATE: 1999-02-02		CYLINDER HEAD COVER, RH	
SCALE: 1:1		D & S CAT NUMBER	
DIMENSIONS IN mm UNLESS OTHERWISE STATED IN THIS Dwg.		DRAWING NUMBER	
TOLERANCE ON DIMENSIONS UNLESS OTHERWISE STATED IN THIS Dwg.		406-93-15	
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED. MACHINED CORNERS TO HAVE R () DIM. R INSTEAD OF EQUIVALENT CHAMFERS ARE PERMISSIBLE.			
ISSUE DATE			
NATURE OF AMENDMENTS			

DRAWING NUMBER
Cb406-08-3cb

SHEET No 1 OF 1



1. SET THE BUSH ITEM No.2 ON SEALING COMPOUND
ANAEKBC ANATERM TY 2257-239-0029947-0000 No. 01460-06

PILOT SAMPLE SHOULD BE APPROVED BEFORE BULK PRODUCTION.

EST. WT. (KG) 0.70 TO BE STAMPED ON MARKED SURFACE INDICATED THIS # 1 LETTERS:
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R 0.05-0.10 IN INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

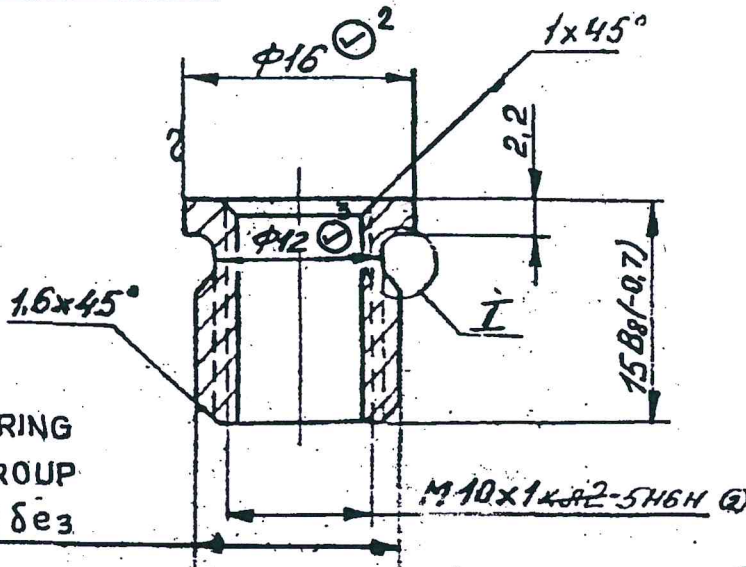
DES	CB	MATERIAL	USED ON
APPD	DATE	CORPORATE OF QUALITY ASSURANCE (HEAVY VERLES)	Cb406-12-75
SCALE	DIMENSIONS IN mm	AVADY	
TOLERANCE OF DIMENS UNLESS OTHERWISE STATED IS -0.05-0.10	TITLE		
ALL THREADS TO CONFORM TO IS-4218, PART 4	R.H. HEAD COVER ASSY.		
	DRAW DATE	D S CAT NUMBER	DRAWING NUMBER
			Cb406-08-3cb

DIMS INDICATED BASED ON RUSSIAN ORIGINAL ISSUE - N/A
 DIMS INTRODUCED AND REPLACES Cb 385-08-08 - D/Cb Title No. 194-05



SIZE A4 x 4

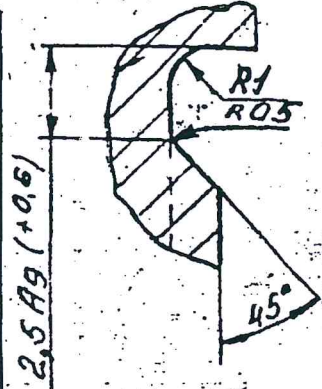
Cb 406-08-3 (B)
Cb 306-09-8



I
M5-1 Scale 5:1

REPAIR SIZE DIMENSIONS ARE ADDED WHERE INDICATED THUS (C) BASED ON Lt. NO. 82847/0H/QAD/ED DT. 13-1-95

S.No	R1	R2	REMARKS
1	M16x1.5T1.2δ23 φ 15.026 +0.062 (MEAN)	M18x1.5T1.2δ23 φ 17.026 +0.062 (MEAN)	1. MARK REPAIR SIZE CATEGORY R1, R2. 2. ALL OTHER SIZES SURFACE FINISH, MATERIAL AND TECHNICAL REQUIREMENTS ARE SAME.
2	φ 18	φ 20	
3	φ 13.8	φ 15.8	



- TECHNICAL REQUIREMENTS FOR THREAD SHOULD IN ACCORD WITH STANDARD 82021-00.
- DIMENSIONS WITH UNSPECIFIED TOLERANCES SHOULD BE MAINTAINED AS PER ACCURACY CLASS 7 OST 1010.
- SHARP EDGES SHOULD BE BLUNTED.
- COATING : Zn 3, CHROMATIZING IN ACCORDANCE WITH U1 483-82. (A5)

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

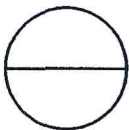
PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION

EST. MASS 0.009 kg		TO BE STAMPED OR MARKED WHERE INDICATED THUS # LETTERS	
C	28.12.21	SHEET 2 CREATED.	
B	19.12.19	USED ON NUMBER ADDED.	
A	7/19/09	3rd ALTN. COMM. MIN POINT B DT. 27-2-09	
ISSUE	DATE	NATURE OF AMENDMENTS	MATERIAL - 16.50ST7417-75 RD BAR 45.50ST 1051-73
DRW	lls	SCALE: 2:1	USED ON - Cb 306-08-8 ** Cb 306-09-10
CHD	lls	DIMENSIONS IN mm	CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) A V A U I
TCD	lls	TOLERANCE ON DIMS UNLESS OTHERWISE STATED	TITLE: BUSH
APPD	lls	ALL THREADS TO CONFORM TO	D'S CAT NUMBER
DATE	28-1-88		DRAWING NUMBER: 306-157 Sht 1 of 2

COMMON TO V46-6 & V92S2

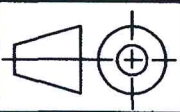
SHEET 2 CREATED ISSUE "C", BASED ON CQA(HV) NOTING No. 111909/CQA(HV)/DB/ENGT-90/ALT.COMM dt. 05 Aug 2020 & POINT No.3 OF 14TH ACM

COMMON TO V46-6 & V92S2 Engines



4	3	2	1					
DRAWING NUMBER 306-157		SHEET No. 2 OF 2						
EXPLANATORY NOTE:								
Material Quoted: Round Bar $\frac{16.5 \text{ GOST 7417-75}}{45 \text{ GOST 1051-73}}$								
Killed Steel :								
Grade of Steel : 45 as per GOST 1051-73								
Dia of Round Bar - 16.5 mm								
Chemical & Mechanical properties as per GOST 1050-74 according to GOST 1051-73.								
CHEMICAL COMPOSITION: AS PER GOST 1050-74								
CONTENT OF ELEMENTS %								
GRADE OF STEEL	C	Si	Mn	Cr	S	P	Cu	Ni
	MAXIMUM							
45	0.42 - 0.50	0.17 - 0.37	0.50 - 0.80	0.25	0.040	0.035	0.25	0.25
MECHANICAL PROPERTIES: AS PER GOST 1050-74								
GRADE OF STEEL	Yield Point Kg/mm ²	Ultimate Tensile Strength Kg/mm ²	% of Elongation	Reduction of Area %	Impact Strength Kg.m/cm ²			
	Minimum							
45	36	61	16	40	5			
<p>Note : Any other parameters given in specification to be adhered in ToTo.</p> <p>PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION</p>								



			EST. WT. Refer Sht 1 of 2	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 :- Refer Sht 1 of 2	USED ON :- Refer Sht 1 of 2
ISSUE	DATE	NATURE OF AMENDMENTS	CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) AVADI	
DRN		SCALE :- —	BUSH	
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	DRAWING NUMBER 306-157 SHT 2 of 2
SIZE	A4			