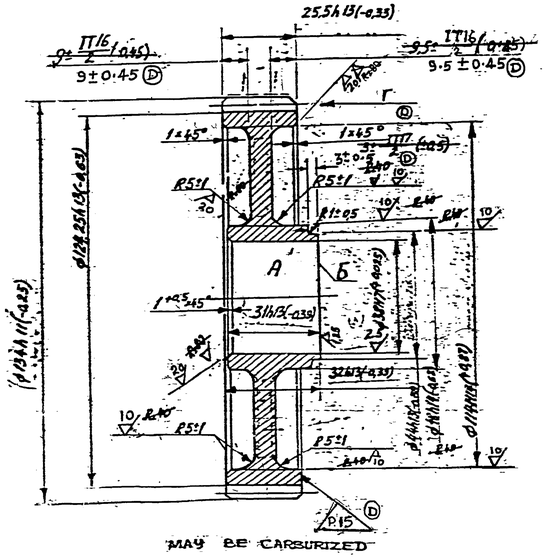
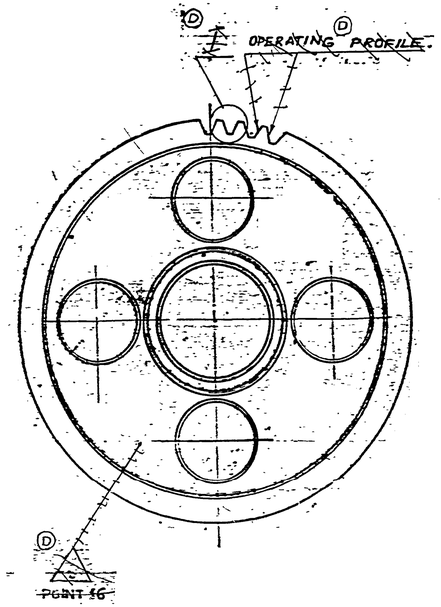
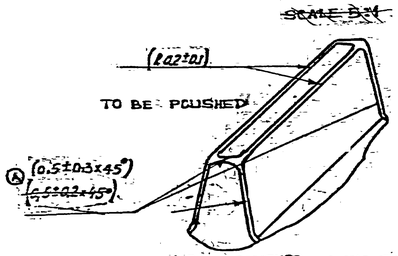
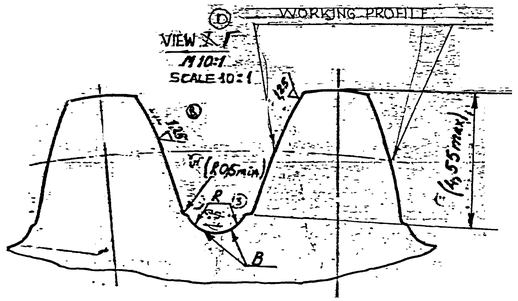
3338-438







TO BE POLISHED ALONG THE ENTIRE CONTOUR OF TEETH. CHAMFERS SHOULD BE MADE BEFORE CARBURIZATION ADDITIONAL MACHINING IS ALLOWED CARBURIZING.



1. INSPECTION GROUP III TT-11.
2. GEARS SHOULD BE CARBURIZED; h 0.5.....0.9 mm. FOR THE TIP CIRCLE h 0.6.....0.9 mm. FOR THE TOOTH PROFILE, h 0.8.....1.1 mm FOR TEETH FACES SURFACE 'B'. HRC$_э$ ≥ 59 SPECIFIED DEPTH OF CARBURIZATION SHOULD BE ENSURED AFTER ASSEMBLY ALONG THE TIP CIRCLE AND TEETH PROFILE.
3. HARDNESS OF NON-CARBURIZED SURFACES SHOULD BE HRC$_э$ 36...43.
4. DIMENSIONS OF CHAMFERS WITH UNSPECIFIED TOLERANCES SHOULD BE OBTAINED WITH TOLERANCE ±0.5 mm.
5. END PLAY OF SURFACE 'Б' RELATIVE TO THE AXIS OF SURFACE 'A' SHOULD NOT EXCEED 0.05 mm.
6. DEPTH OF TEETH GRINDING SHOULD NOT EXCEED 0.2 mm (IN ASSEMBLED COMPONENT).
7. RADIUS 'R' OF TEETH SPACE SHOULD BE ENSURED WITH MILLING CUTTER.
8. BEFORE CARBURIZATION, DENTS AND CUTS, ARE NOT ALLOWED ON SURFACE 'B'. ROUGHNESS OF SURFACE SHOULD BE ACCEPTED AS PER STANDARD MACHINING. OF SURFACE 'B' IS IS NOT ALLOWED AFTER CARBURIZATION AND CASE HARDENING.
9. THE COMPONENT SHOULD BE CHECKED ON MAGNETIC-FIELD FLAW DETECTOR AND ACCEPTED ACCORDING TO TT UB-17.
10. QUALITY OF TEETH ENGAGEMENT SHOULD BE CHECKED BY BLUEING BY RUNNING-IN WITH STANDARD GEAR. IN THIS CASE, PAINT IMPRINT SHOULD COVER 55%, MIN, OF TEETH FLANK HEIGHT AND 80%, MIN, OF TEETH FLANK LENGTH. THE IMPRINT SHOULD MEET THE REQUIREMENTS OF INSTRUCTIONS UB-89-3A.
11. VALUES SPECIFIED IN THE TABLE SHOULD BE ENSURED IN ASSEMBLED COMPONENT.
12. SHARP EDGES SHOULD BE BLUNTED.
13. BURRS ON THE GROUND SURFACE OF TOOTH PROFILE ARE NOT ALLOWED.
14. DIMENSIONS GIVEN IN BRACKETS SHOULD BE OBTAINED AFTER ASSEMBLY.

(D) ~~15. TO BE MARKED WITH ELECTROGRAPH.~~

(D) ~~15. TO MARK BY ELECRDSPARK OR ELECTROCHEMICAL METHODS~~

MODULE			m	2.5
NUMBER OF TEETH			z	52
BASIC RACK	PROFILE ANGLE		α_0	25°
	COEFFICIENT OF	ADDENDUM	f_0	0.8
		DEDENDUM	f	1.15
	FILLET RADIUS		ρ_1	1
ADDENDUM MODIFICATION COEFFICIENT			ξ	0
ACCURACY AS PER GOST 1643-56			—	6-6-5
BASE TANGENT LENGTH			L	$42.41^{-0.07}_{-0.11}$
TOLERANCE FOR BASE TANGENT LENGTH			δ_L	0.022
TOLERANCE FOR COMPOSITE ERROR		TOTAL	F_{ia}	0.058
		TOOTH-TO TOOTH	f_{ia}	0.022
BASE PITCH			p_b	7.38±0.01
MAXIMUM DIFFERENCE OF BASE PITCHES OF SIMILER PROFILES WITHIN THE GEAR				0.012
TO BE CHECKED IN CASE THE GEAR IS NOT CHECKED BY RUNNING-IN WITH STANDARD GEAR, IS NOT CARRIED OUT	TOLERANCE FOR PROFILE		f_f	0.012
	TOLERANCE FOR TOTAL ERROR OF DISTORTION		f_{Ha}	0.01
	TOLERANCE FOR RUNOUT OF TOOTHED RIM		F_D	0.033
BASE CIRCLE DIAMETER			d_b	122.16
RADIUS OF INVOLUTE CURVATURE AT THE START OF PROFILE WORKING SECTION			ρ_a	15.9

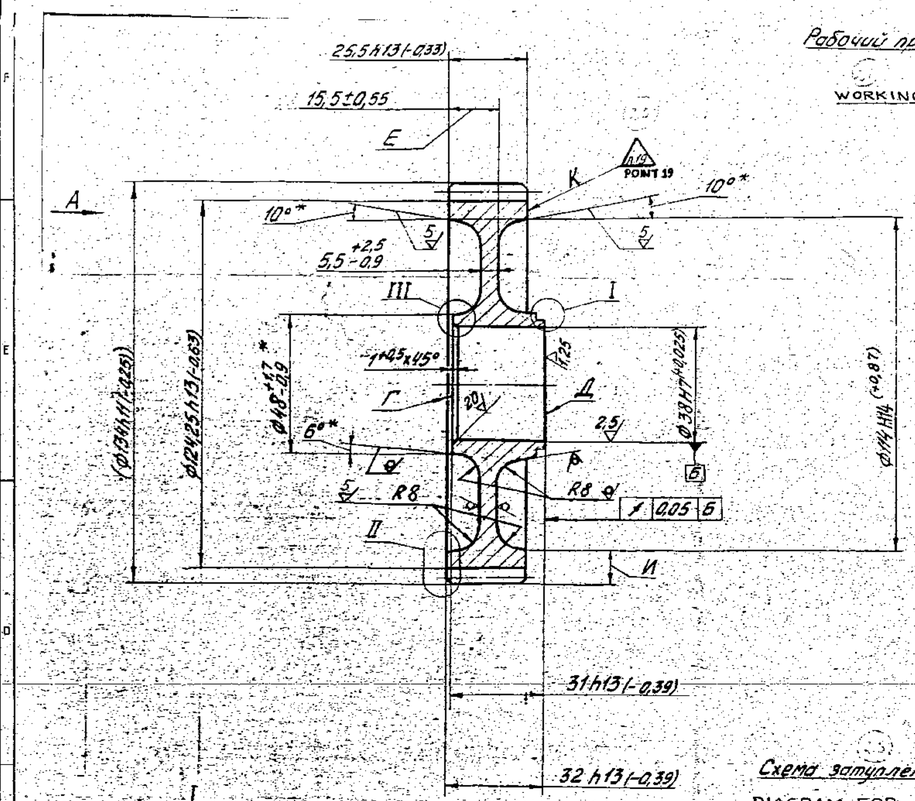
* STEEL 12 X 2H4A C 0,11-0,15
GOST 4543-71 FORGING

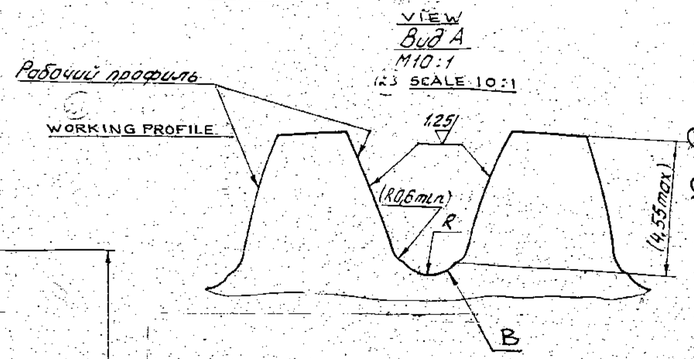
A 0T SAMPLE SHOULD BE APPROVED BY A.H.S.P BEFORE BULK PRODUCTION

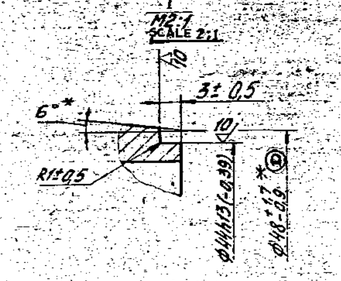
D	20/7/95	AUTH'Y NOTN No BK 87-2254 & BK 88-226	EST. MASS 1.2 Kg
C	7.7.88	AUTH'Y. BK 85-807	TO BE STAMPED OR MARKED WHERE INDICATED THUS ✦ LETTERS!
B	4.7.88	AUTH'Y. BK 84-694	ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE
A	14.7.88	AUTH'Y. BK 83-583	
ISSUE	DATE	NATURE OF AMENDMENTS	
DRW		SCALE 1:1	MATERIAL ✦ SEE ABOVE / USED ON CG 3338-409
CHD		DIMENSIONS IN mm	CONTROLLERATE OF INSPECTION (HEAVY VEHICLES) AVADI
TC		TOLERANCE ON DIMS UNLESS OTHERWISE STATED	TITLE IDLER GEAR
APPD		ALL THREADS CONFORM TO	DS LAT NUMBER / DRAWING NUMBER 3338-438
DATE			

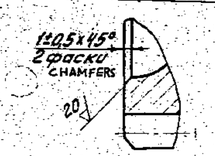
A-9

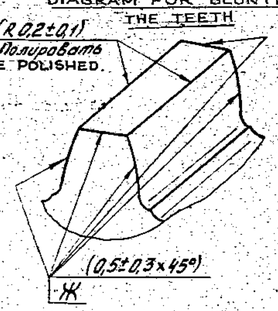
DRAWING NUMBER
3338-438-2

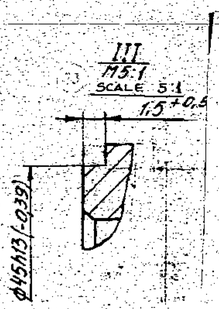












16. COMPONENT SHOULD BE CHECKED ON MAGNETIC FIELD FLAW DETECTOR AND ACCEPTED ACCORDING TO TT UB-47.
17. ——
18. *DIMENSIONS ARE TO BE ENSURED BY TOOL.
19. TO BE STAMPED BY ELECTROCHEMICAL METHOD AS PER PM-32.

MODULE		m	2.5
NO. OF TEETH		z	52
NORMAL BASIC RACK	PROFILE ANGLE	α	20°
	ADDENDUM COEFFICIENT	h_a^*	0.8
	COEFFICIENT OF BOUNDRY HEIGHT	h_e^*	1.6
	COEFFICIENT OF CURVATURE RADIUS WITH FILLET CURVE	ρ_f	0.4
	COEFFICIENT OF BOTTOM CLEARANCE	c^*	0.35
MODIFICATION COEFFICIENT		x	0
DEGREE OF ACCURACY AS PER GOST 1643-81		–	6-7-7
BASE TANGENT LENGTH		W	$42{,}41^{-0.07}_{-0.11}$
BASE TANGENT LENGTH TOLERANCE		F_vW	0.028
COMPOSITE ERROR DOUBLE FLANK	TOTAL FOR TOOTHED WHEEL	F_i''	0.050
	TOOTH-TO-TOOTH	f_i''	0.022
TOTAL ERROR OF DISTORTION		F_β	0.011
PITCH DIAMETER		d	130
CURVATURE RADIUS OF ACTIVE FLANK AT THE BOTTOM POINT		ρ_p	16.9
BASE DIAMETER		d_B	122.16
BASE PITCH		p_α	7.38

1. INSPECTION GROUP III AS PER TT-11.
2. SHIFT OF AXES OF DIES SHOULD NOT BE MORE THAN 0.7 mm.
3. LOCAL CAVITIES NOT EXCEEDING 1.0mm ARE ~~NOT~~ ALLOWED ON THE NON-MACHINING SURFACE.
4. TO BE CARBURIZED ALL AROUND, EXCEPT SURFACES Б, Г AND Д: FOR TIP CIRCLE h 0.5...0.9 mm AFTER ASSEMBLY, FOR TOOTH PROFILE – h 0.6....0.9 mm AFTER ASSEMBLY AND FOR OTHER SURFACES h 0.8.....1.1 mm; HRC$_э$ ≥ 59.
5. HARDNESS OF NON-CARBURIZED SURFACES SHOULD BE HRC$_э$ 36....43.
6. RADIUS R OF TEETH SPACE IS TO BE ENSURED BY CHECKING THE DIMENSIONS OF CUTTING PROFILE OF MILLING CUTTER.
7. BEFORE CARBURIZATION, DENTS, CUTS AND TOOL MARKS ARE NOT ALLOWED ON SURFACE В; ROUGHNESS OF SURFACES IS TO BE ACCEPTED AS PER STANDARD. MACHINING OF SURFACE В IS NOT ALLOWED AFTER CARBURIZATION AND HARDENING.
8. DEPTH OF TEETH GRINDING SHOULD NOT EXCEED 0.2mm AFTER ASSEMBLY.
9. GEAR DATA SPECIFIED IN THE TABLE IS TO BE ENSURED AFTER ASSEMBLY.
10. IF THE COMPOSITE ERROR DOUBLE FLANK IS NOT CHECKED AND FOR REMAINING GEAR DATA OF TABLE THE FOLLOWING ARE TO BE CHECKED:
    TOLERANCE ON RADIAL RUN-OUT OF GEAR RIM F_z 0.036 mm;
    DEVIATION ON BASE PITCH f_{pb} ± 0.01mm;
    MAXIMUM DIFFERENCE IN BASE PITCHES OF SIMILAR PROFILES FOR ONE WHEEL IS 0.01mm;
    TOLERANCE ON TOOTH PROFILE ERROR f_f 0.013mm
11. QUALITY OF TEETH ENGAGEMENT SHOULD BE CHECKED BY BLUEING BY RUNNING-IN WITH STANDARD GEAR. IN THIS CASE, THE IMPRINT SHOULD COVER THE TEETH FLANK IN HEIGHT – 55% MIN. AND IN LENGTH – 80% MIN. THE IMPRINT SHOULD MEET THE REQUIREMENTS OF INSTRUCTIONS UB-89-3Д AFTER ASSEMBLY.
12. DIMENSIONS GIVEN IN BRACKETS SHOULD BE OBTAINED AFTER ASSEMBLY.
13. TOLERANCE ON DIMENSION E IS 0.5mm AND DIMENSION И IS 1mm FOR ONE YEAR.
14. CHAMFERS Ж ARE TO BE MACHINED BEFORE CARBURIZATION AND POLISHED ALONG THE ENTIRE PROFILE OF TOOTH; FINISHING AFTER CARBURIZATION IS ALLOWED.
15. BURNS ON THE GROUND SURFACE OF TEETH PROFILE ARE NOT ALLOWED.

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

EST. MASS 1.2 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.

ISSUE	DATE	NATURE OF AMENDMENTS

DRN
CHD
TCD
APPD
DATE 10-4-95
SCALE – 1:1
DIMENSIONS IN mm.
TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS 2102-69.
ALL THREADS TO CONFORM TO

MATERIAL:- STEEL 12X2H4A SELECT C=0.11.....0.15 GOST 4543-71 FORGING

USED ON:- CB3338-409

CONTROLLERATE OF QUALITY ASSURANCE(HEAVY VEHICLES) AVADI

TITLE
IDLER GEAR

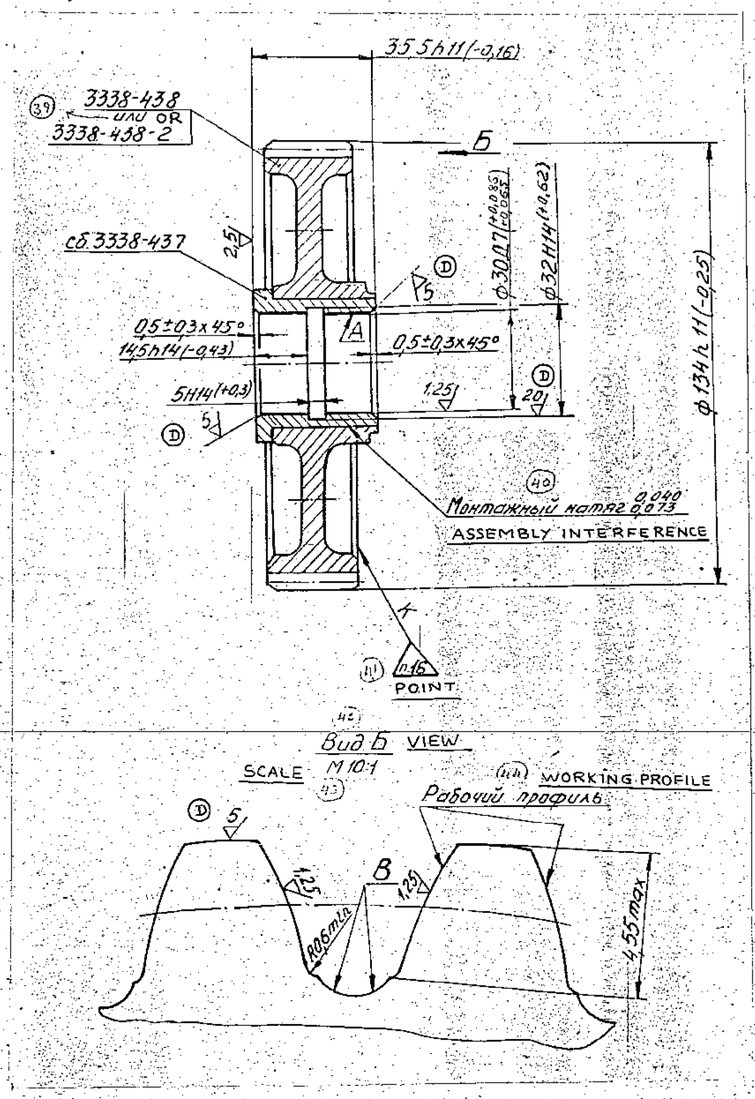
D S CAT NUMBER

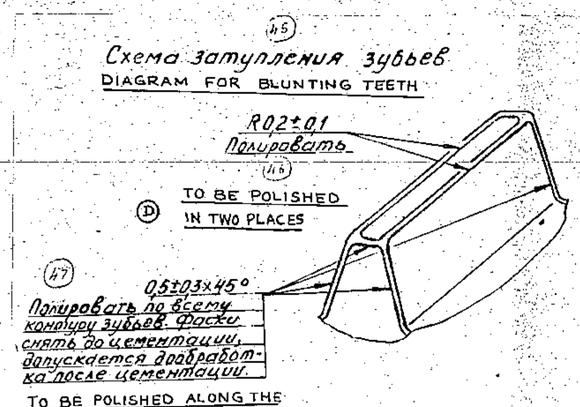
DRAWING NUMBER 3338-438-2

ALTERNATIVE TO 3338-438

SIZE A1

DRAWING NUMBER
СБ 3338-409





1. BEFORE PRESS-FITTING THE BUSH, THE GEAR SHOULD BE HEATED IN OIL UPTO THE TEMPERATURE OF 100 .... 120°C.
2. REFITTING IS ALLOWED NOT MORE THAN ONCE WITH REPLACEMENT OF BUSH.
3. CARBURIZING DEPTH FOR TEETH PROFILE IS h 0.6 ....0.9mm, FOR TIP CIRCLE IS h 0.5 ....0.9 mm ; HRC э ≥ 59.
4. FINISH OF SURFACE "A" SHOULD BE ACCEPTED AS PER STANDARD.
5. (D) TOOL LONGITUDINAL MARK TO A DEPTH OF NOT MORE THAN 0.03mm IS ALLOWED ON THE SURFACE A.
6. RUN-OUT OF TEETH TIP CIRCLE RELATIVE TO SURFACE 'A' SHOULD NOT EXCEED 0.05mm.
7. CONICITY AND ELLIPTICITY OF SURFACE A SHOULD NOT EXCEED 0.01mm.
8. AFTER FINAL MACHINING THE THICKNESS OF LEADED BRONZE LAYER ALONG THE END FACE OF ASSEMBLED COMPONENT SHOULD BE $(0.6 \pm {}^{0.74}_{0.17})$ mm. AFTER FINAL MACHINING THE RADIAL THICKNESS OF LEADED BRONZE LAYER OF ASSEMBLED COMPONENT SHOULD BE (0.75 ± 0.25) mm ; TO BE ENSURED BY TECHNOLOGY.
9. SHARP EDGES ARE TO BE BLUNTED.
10. QUALITY OF TEETH ENGAGEMENT SHOULD BE CHECKED BY BLUEING BY RUNNING-IN WITH STANDARD GEAR. IN THIS CASE, BLUE-IMPRINT SHOULD COVER 55% OF MIDDLE PORTION OF TOOTH FLANK IN HEIGHT AND 80% MIN IN LENGTH. THE IMPRINT SHOULD BE AS PER ЦВ-89-3 Д.
11. TOTAL ERROR OF DISTORTION SHOULD BE CHECKED, IF THE TEETH ARE NOT CHECKED BY BLUEING.
12. GEARING ENGAGEMENT SHOULD BE CHECKED RELATIVE TO SURFACE A.
13. MACHINING, DENTS AND CUTS ARE NOT ALLOWED ON SURFACE B.
14. BURNS ON THE GROUND SURFACE OF TEETH PROFILE ARE NOT ALLOWED.
15. AFTER GRINDING THE TEETH, THE UNIT IS TO BE CHECKED ON MAGNETIC-FIELD FLAW DETECTOR AND ACCEPTED ACCORDING TO T T ЦВ-17.
16. TO BE STAMPED BY ELECTRO-CHEMICAL METHOD.

MODULE		m	2.5
NUMBER OF TEETH		z	52
BASIC RACK: PROFILE ANGLE		α_0	20°
BASIC RACK: CO-EFFICIENT OF	ADDENDUM	f'	0.8
BASIC RACK: CO-EFFICIENT OF	DEDENDUM	f''	1.15
BASIC RACK: FILLET RADIUS		z_i	1
ADDENDUM MODIFICATION CO-EFFICIENT		ξ	0
DEGREE OF ACCURACY AS PER GOST 1643-56		–	6-6-5
BASE TANGENT LENGTH		L	$42.41^{-0.07}_{-0.11}$
TOLERANCE ON BASE TANGENT LENGTH		$\delta_0 L$	0.022
TOLERANCE ON COMPOSITE ERROR DOUBLE FLANK	TOTAL	$\delta_0 a$	0.058
TOLERANCE ON COMPOSITE ERROR DOUBLE FLANK	TOOTH TO TOOTH	δ_{ya}	0.022
BASE PITCH		t_0	7.38±0.01
MAXIMUM DIFFERENCE OF BASE PITCHES OF SIMILAR PROFILES WITHIN THE GEAR		–	0.01
TO BE CHECKED IN CASE THE GEAR IS NOT CHECKED BY RUNNING-IN WITH STANDARD GEAR.	TOLERANCE ON PROFILE	δf	0.012
	TOLERANCE ON TOTAL ERROR OF DISTORTION.	δB_0	0.01
	TOLERANCE ON RADIAL RUN-OUT OF TOOTHED RIM	E_0	0.038
BASE CIRCLE DIAMETER		d_0	122.16
RADIUS OF INVOLUTE CURVATURE AT THE START OF PROFILE WORKING SECTION		ρ_0	16.9

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

EST. WT.	TO BE STAMPED OR MARKED WHERE INDICATED THUS #
1.28 Kg	LETTERS

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

ISSUE	DATE	NATURE OF AMENDMENTS
D	23-8-95	AUTHY NOTN. No. BK-86-714, BK 30-374.

DRN
CHD
TCD
APPD
DATE 18-05-96
SCALE :- 1 : 1
DIMENSIONS IN mm
TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS 2102 - 69
ALL THREADS TO CONFORM TO

MATERIAL :- –

USED ON :- СБ 3338-401-10

CONTROLLERATE OF QUALITY ASSURANCE (HEAVY VEHICLES) A V A D I

TITLE: IDLE GEAR WITH BUSH ASSY

D S CAT NUMBER

DRAWING NUMBER СБ 3338-409

USED ON CB 3338-431-10

ITEM NO	DRAWING NUMBER	D S CAT NUMBER	DESCRIPTION	NO OFF	REMARKS
	CB 3388-409 & ITEM LIST		ASSEMBLY IDLE GEAR WITH BUSH		
1	CB 3338-437 & ITEM LIST		GEAR BUSH	1	
(B) 2	3338-438 OR 3338-438-2		IDLER GEAR	1	
(A) ~~3~~	~~356-57~~		~~LOCK WOOD SCREW~~	~~1~~	

ISSUE	DATE	NATURE OF AMENDMENTS	ISSUE	DATE	NATURE OF AMENDMENTS
B	11-2-95	AUTHY NOTN No BK 83-95			
A	5-7-88	Authy [illegible]			

DRN	[illegible]	CONTROLLERATE OF INSPECTION (HEAVY VEHICLES) AVADI		
CHD	[illegible]	TITLE:- ASSY. IDLE GEAR WITH BUSH		
TCD	[illegible]			
APPD	[illegible]	SHEET 1 OF 1	D S CAT NUMBER	ITEM LIST FOR CB 3338-409
DATE	12-7-88			

L/L SEPARATELY CREATED BASED ON RUSSIAN ORIGINAL ISSUE-14 (BK 82-441)