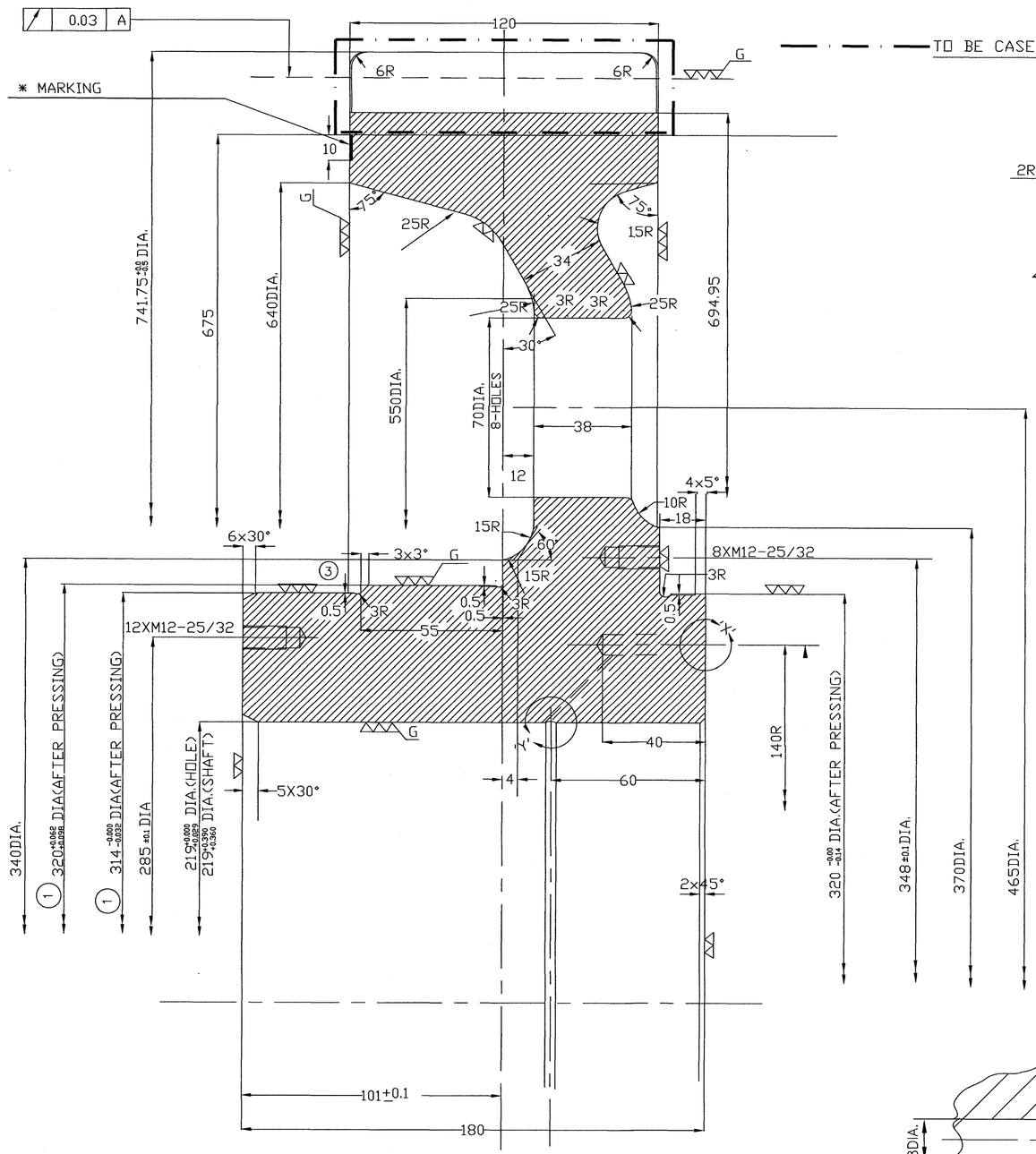
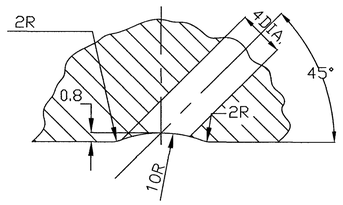
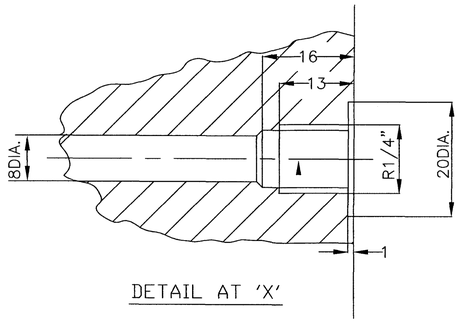
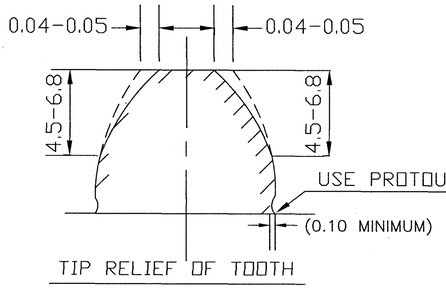




DETAIL AT 'Y'



DETAIL AT 'X'



TIP RELIEF OF TOOTH

1. GEAR PARTICULARS :-

BASIC RACK	DIN 867 & DIN 3960
NO. OF TEETH	72
MODULE (m)	10
PRESSURE ANGLE	20°
ANGLE OF HELIX	4°
DIRECTION OF HELIX	R.H.
DISPLACEMENT OF PROFILE (x.m)	0.05985
BASE TANGENT LENGTH OVER 9TEETH	260.958 MIN./ 260.992 MAX.
TOOL FOR PROTOUBRANCE	REQUIRED
CENTRE DISTANCE	464
PITCH CIRCLE DIA (REF):	721.758
CLASS (ACCURACY GRADE)	7
NUMBER OF TEETH OF MATING PINION	20
DRAWING NO OF MATING PINION	SK.DP-3473

2.

DATA OF MATERIAL
MATERIAL - STEEL 17Cr Ni Mo6 TO DIN 17210
CASE HARDENED-- TEETH TO BE CASE HARDEND.
CASE DEPTH AFTER GRINDING. : 1.8 TO 2.2 mm
SURFACE HARDNESS : 60 - 62 Rc
TEETH - GROUND

(2) (4) 3. FOR MATERIAL, MANUFACTURING & INSPECTION REF. TO RDSO SPECIFICATION NO. MP.0.2800.19 (LATEST REVISION).

*4. MARKING :
(2) ALL GEARS SHALL BEAR THE FOLLOWING MARKINGS ON BOTH END FACES(BY PUNCHING OR BY ELECTRICAL ETCHING) ,WHICH SHOULD BE INDELIBLE AND CLEARLY LEGIBLE.
a)NAME OF SUPPLIER/MANUFACTURER.
b) NUMBER OF MONTH AND LAST TWO DIGITS OF THE YEAR OF MANUFACTURE e.g. 5/96.,& GEAR RATIO.
c) MATERIAL AND SPECIFICATION OF STEEL.
d) DRAWING NUMBER OF THE PART.
e) MANUFACTURER/CONSECUTIVE NUMBER OF THE PART.

5. ▽▽ ALL OVER UNLESS OTHERWISE STATED.
6. G-GROUND AND B- HARDENED TEMPERED & GROUND
7. MACHINING TOLERANCES OF THE GEARING TO DIN 3962 & 3967 OR 3963 TOOTH TOLERANCES :-

(4) ~~DOUBLE FLANK TOTAL COMPOSITE ERROR~~	~~Fi'= 0.056~~
BASE PITCH ERROR	fpe= 0.016
TOOTH TO TOOTH PITCH ERROR	fu= 0.020
PROFILE ERROR	f_f= 0.020
RADIAL RUN OUT	Fr= 0.050
FLANK ANGLE ERROR	$f_{H\beta}$= 0.016

8. BACKLASH SHALL BE 0.254mm MIN. AND 0.458mm MAX.
9. THE HUB OF THE WHEEL HAS TO REMAIN SOFT AFTER HARDENING.
10. SHOT PEEN TEETH & ROOT SECTION OF TEETH BEFORE GRINDING TOOTH PROFILE. USING S330 HARD SHOT TO OBTAIN 200% MINIMUM COVERAGE IN ROOT AREA. PEENING INTENSITY 0.007-0.010 C.
11. MAGNAFLUX INSPECT AS PER I.S:3703
12. AS PER QLTY-11,CONDEMNING SERVICE LIMIT ON BASE TANGENT LENGTH OVER 9 TEETH = 260.451
(2) 13. AFTER FORGING THE FOLLOWING PHYSICAL PROPERTIES ARE REQUIRED.

(A)

TENSIL STRENGTH(MIN.)	YIELD STRENGTH(MIN.)	FATIGUE STRENGTH(MIN.)	ELONGATION(MIN.)
1100MPa	780MPa	470MPa	8%

(B)

C	Si	Mn	Ni	Cr	Mo	S	P
0.15-0.20	0.40MAX.	0.40-0.60	1.40-1.70	1.50-1.80	0.25-0.35	0.035MAX.	0.035MAX.

SYMBOL	Raum (MAX.)	
~	50	
▽	25	
▽▽	6.3	
▽▽▽	0.8	* SURFACE ROUGHNESS TO IS.3073
▽▽▽▽	0.1	WELDING SYMBOLS TO IS:813
		TOLERANCES ON UNTOLERANCED DIMENSIONS TO IS:2102(MEDIUM)

D	R.P.SAHAI
TC	A.K.BRAMHANE
APPD.	Sd/- Vivek Khare
Dt.	01-03-99

ALT.	NO.OF PLACES	REF.NO.	DESCRIPTION	ALT. NOTE NO.	SIGN.	DATE
(4)	2	-	DOUBLE FLANK TOTAL COMPOSITE ERROR Fi' = 0.056 DELETED. AT S.NO. 3, PARA REVISED.	L2-223	Sd/- Tarun Jain	13.06.19
(3)	1		RADIUS 3R AT THE STEP ON GEAR HUB IS ADDED.	L3-129	Sd/- Vivek Khare	08.10.07
(2)	3		SPECIFICATION NO. MP.0.2800.19(OCT2005) WAS SPECIFICATION NO.MP. 0.2800.09(DEC.1990) NOTE NO. 8,10,11,12,AND 13 ARE ADDED.	L3-88	S.Srinivas	03.10.05
(1)	1		ø320 +0.062 +0.098 WAS ø320 +0.062 +0.098 AFTER PRESSING	L3-506	S.MANI	7-7-99
	1		ø314 -0.000 -0.032 WAS ø314 -0.000 -0.032 AFTER PRESSING	L3-506	S.MANI	7-7-99

REF. NO.	I.R. PART NO.	DESCRIPTION	NO./ LOCO	WT.(kg) EACH	MATL.	SPEC.

APPLICABLE FOR WAGS (PASSENGER VERSION) WAP7

GEAR

SCALE:1:1&2:1 AND 4:1 | REF: ABB DRG. NO.1B011-00270. | FIRST ISSUED

INDIAN RLYS. R.D.S.O. (MP) | DRG. NO. SK. DP.-3474 | SUPERSEDES | SUPERSEDED BY