

1. GEAR PARTICULARS :-
- | | |
|---------------------------------|--------------------------|
| BASIC RACK | DIN - 867 & DIN 3960 |
| NO. OF TEETH | 20 |
| MODULE (m) | 10 |
| PRESSURE ANGLE | 20° |
| ANGLE OF HELIX | 4° |
| DIRECTION OF HELIX | L.H. |
| DISPLACEMENT OF PROFILE (x.m) | 2.88. |
| BASE TANGENT LENGTH OVER 3TEETH | 78.470 MIN./ 78.491 MAX. |
| TOOL FOR PROTOUBRANCE | REQUIRED |
| CENTRE DISTANCE | 464±0.2 |
| PITCH CIRCLE DIA (REF) | 200.488 |
| CLASS (ACCURACY GRADE) | 6 |
| NUMBER OF TEETH OF MATING GEAR | 72 |
| DRAWING NO OF MATING GEAR | SK.DP-3474 |

2. DATA OF MATERIAL

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| MATERIAL - STEEL 17 CrNi Mo6 TO DIN 17210 |
| CASE HARDENED - TEETH TO BE CASE HARDENED. |
| CASE DEPTH AFTER GRINDING - 1.8 TO 2.2 mm |
| FLANK SURFACE HARDNESS 60 - 62 Rc |

3. FOR OTHER TECHNICAL REQUIREMENTS WORK TO R.D.S.O. SPECIFICATION NQ.MP.02800.19 (OF OCT. 2005). FOR MATERIAL MANUFACTURING TECHNIQUE AND HEAT TREATMENT REFER TO CLAUSE 2,3,4,5 AND 8 RESPECTIVELY OF THE ABOVE SPECIFICATION. TOTAL DEPTH SHALL CONFIRM TO THE REQUIREMENTS OF PROTOUBRANCE CUTTER.

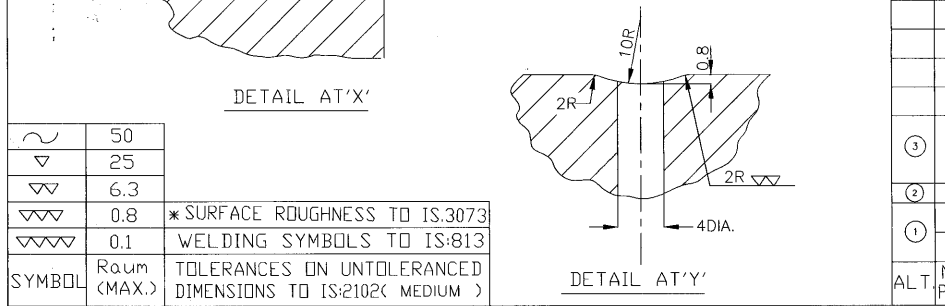
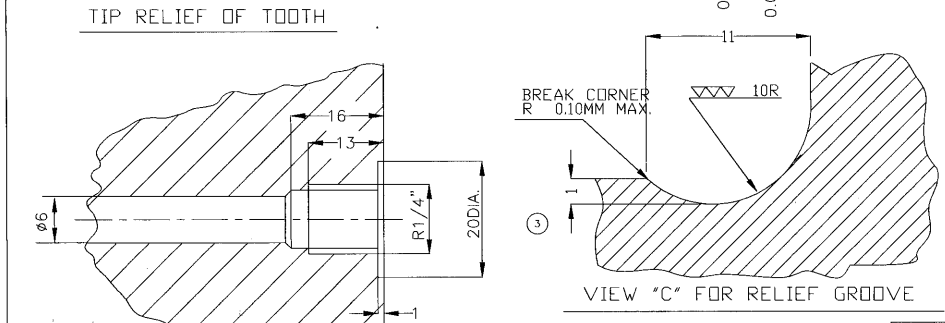
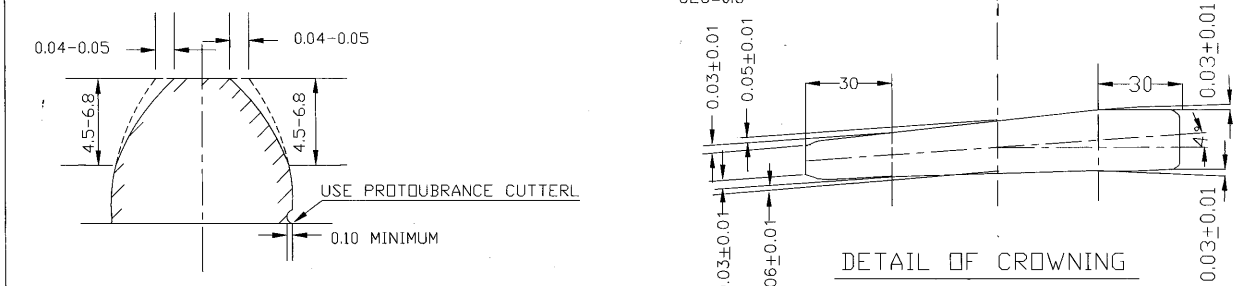
- *4. MARKING :
 ALL GEARS SHALL BEAR THE FOLLOWING MARKINGS ON BOTH END FACES BY PUNCHING OR BY ELECTRICAL ETCHING WHICH SHOULD BE INDELIBLE AND CLEARLY LEGIBLE.
 a) NAME OF SUPPLIER/MANUFACTURER.
 b) NUMBER OF MONTH AND LAST TWO DIGITS OF THE YEAR OF MANUFACTURE e.g. 5/96 & GEAR RATIO.
 c) MATERIAL 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.
 7. B- HARDENED, TEMPERED AND GROUND.
 8. MACHINING TOLERANCES OF THE GEARING TO DIN 3962 & 3967 OR 3963
 TOOTH TOLERANCES :-
 DOUBLE FLANK TOTAL COMPOSITE ERROR $F_i'' = 0.032$
 BASE PITCH ERROR $f_{pe} = 0.011$
 TOOTH TO TOOTH PITCH ERROR $f_u = 0.014$
 PROFILE ERROR $f_f = 0.014$
 RADIAL RUN OUT $f_{rR} = 0.028$
 FLANK ANGLE ERROR $f_{H\alpha} = 0.011$
 9. BACKLASH SHALL BE 0.254 mm MIN. AND 0.458 mm MAX.
 10. SHOT PEEN TOOTH ROOT & FILLET RADIUS BEFORE GRINDING TEETH. USE S330 HARD SHOT TO OBTAIN 200% MINIMUM COVERAGE IN ROOT AREA. PEENING INTENSITY 0.007-0.010 C.
 11. MAGNAFLUX INSPECT AS PER IS:3703
 12. THE PINION SHAFT AND BORE $\phi 25$ HAVE TO REMAIN SOFT AFTER HARDENING.
 13. RC 34-40 AT SURFACE OF RELIEF GROOVE SHOWN IN VIEW 'C' AND ALONG SHAFT TAPER.
 14. END FACE MAY ALSO BE CARBURISED & HARDENED. TAPPED HOLE SHALL NOT BE CARBURISED.
 15. AS PER QLT-10, CONDEMNING SERVICE LIMIT ON BASE TANGENT LENGTH OVER 3 TEETH = 78.129
 16. FOR BLUE MATCHING PRESS PLUG GAUGE BY HAND, KEEPING DISTANCE PIECE OF 15± 0.3mm AT PINION NECK 'C'
 17. AFTER FORGING THE FOLLOWING PHYSICAL PROPERTIES & CHEMICAL COMPOSITION ARE REQUIRED.

| TENSILE STRENGTH(MIN.) | YIELD STRENGTH(MIN.) | FATIGUE STRENGTH(MIN.) | ELONGATION(MIN.) |
|------------------------|----------------------|------------------------|------------------|
| 1100MPa | 780MPa | 470MPa | 8% |

(B) CHEMICAL COMPOSITION

| 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. |



| | |
|--------|-------------|
| ~ | 50 |
| ▽ | 25 |
| ∇ | 6.3 |
| ∇∇ | 0.8 |
| ∇∇∇ | 0.1 |
| SYMBOL | Raum (MAX.) |

* SURFACE ROUGHNESS TO IS:3073
 WELDING SYMBOLS TO IS:813
 TOLERANCES ON UNTOLERANCED DIMENSIONS TO IS:2102 (MEDIUM)

| ALT. | NO. OF PLACES | REF. NO. | DESCRIPTION | ALT. NOTE NO. | SIGN. | DATE |
|------|---------------|----------|---|---------------|--------|--------|
| 3 | 9 | | NOTE NO. 12 TO NOTE NO. 17 & ENLARG VIEW 'C' ARE ADDED. RADIUS R10 WAS R8 & R2 AND DEPTH 1 MM WAS 0.60MM. 2 PRESS OFF BORE $\phi 6$ mm WAS $\phi 8$ mm. MATERIAL SPECIFICATION REVISED AND DRAWING RETRACED. | L3-85 | | 7-9-05 |
| 2 | 1 | | IS : 3703 WAS E.T.I. - 157 | L3-510 | S.MANI | 10/99 |
| 1 | 1 | | NOTE 10 AND 11 ARE ADDED. | L3-506 | S.MANI | 7-7-99 |
| 1 | 4 | | TAPER 1 IN 25, DIA. $\phi 106.15$ & $\phi 107.15$ ARE ADDED. | L3-506 | S.MANI | 7-7-99 |

TENTATIVE

| REF. NO. | I.R. PART NO. | DESCRIPTION | NO. OF LOCS | WT.(kg) EACH | MATL. | SPEC. |
|----------|---------------|--|-------------|--------------|-------|-------|
| | | APPLICABLE FOR WAG9(MOD) WAP7(PASS.) ABB | | | | |
| | | SHAFT PINION | | | | |
| | | SCALE: 1:1, 2:1 & 4:1 | | | | |
| | | INDIAN RLYS. DRG. NO. SK. DP.- 3473 | | | | |
| | | R.D.S.O. (MP) | | | | |

REF: ABB DRG. NO.-18011-00269 1209-01-111-004, REF. NO.5

FIRST ISSUED
 SUPERSEDED BY

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 APPD
 Dt p1-03-99
 26/12