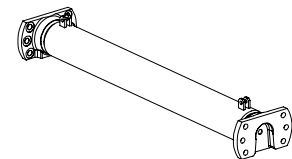


KEEP THE FRONT SIDE FLANGE FACING FREE OF PAINT

COAT THE INNER CENTERING SURFACES BEFORE ASSEMBLY

ADJUST THE FLANGES - POSITION1 - SYMMETRICAL BEFORE WELDING, DON'T STAGGER ROTATIONALLY.



| DIMENSIONS | | | USED FOR LOCOS | REF. ABB. DRG. NO. | C&D NO |
|--------------------|------|--------|----------------|--------------------|----------|
| A | B | C | | | |
| 1300 ^{±1} | 1060 | (1158) | WAG-9 | IB011-00191 ALT 3 | T212/011 |
| 1284 ^{±1} | 1044 | (1142) | WAP-5 | IA011-00129 ALT 1 | B212/010 |

*

PAINT ACC. TO PAINT SPEC. ES1213 PART 1
STONE GREY RAL 7030 FOR WAG-9 LOCO
BLACK GREY RAL 7021 FOR WAP-5 LOCO
USE PROPER FIXTURE FOR WELDING.

NOTE

- PUSH PULL ROD TO BE SUPPLIED WITH MODIFIED TRACTION LINK BOLT AS PER DRG. NO. 1209-01413-024. AND EXTRA 02 NOS. PER LOCO QUANTITY TO BE SUPPLIED AS MANUFACTURING SPARE. THIS BOLT TO BE PROCURED ONLY FROM CLW'S APPROVED SOURCE FOR 3 PHASE LOCOMOTIVE.
- RADIOGRAPHY TEST OF WELDING JOINTS:-
A. 100% CHECKING BY RADIOGRAPHY.
B. RADIOGRAPHY TEST TO BE DONE AS PER AS1554.1-1991
SUBJECT FURTHER TO:-
C. ACCEPTABLE CRITERIA FOR IRREGULARITY
i) SIZE EACH ≤ 1 mm
ii) TOTAL NUMBERS ≤ 8 NOS. (IN TOTAL WELDING LENGTH) EACH SIDE.
iii) INNER DISTANCE ≥ 10 mm.
- SURFACE FINISH AFTER WELDING TO BE DONE WITH HAND GRINDING LIGHTLY.
- APPROVAL TO BE OBTAINED FROM CLW FOR THE SOURCE OF TUBE
- A) RADIOGRAPHIC STANDARD LEVEL FOR TESTING OF WELDING TO BE FOLLOWED AS PER ASTM390 AS MENTIONED BELOW.

| SN | TYPE OF DEFECTS | AS PER ASTM390 REFERENCE RADIOGRAPHICS |
|----|---|--|
| 1 | COARDE SCATTERED POROSITY | GRADE - II |
| 2 | FINE SCATTERED POROSITY | GRADE - II |
| 3 | CLUSTERED POROSITY | GRADE - II |
| 4 | LINEAR POROSITY | GRADE - II |
| 5 | SLAG INCLUSION | GRADE - II |
| 6 | TUNGSTEN INCLUSION | GRADE - II |
| 7 | INCOMPLETE PENETRATION, LACK OF FUSION, ANY TYPE OF CRACK, UNDER CUT AND OTHER DEFECT | NOT ALLOWED OF ANY GRADE |

B) RADIOGRAPHY TEST OF WELDING JOINTS TO BE DONE ON 100% OF MATERIAL.

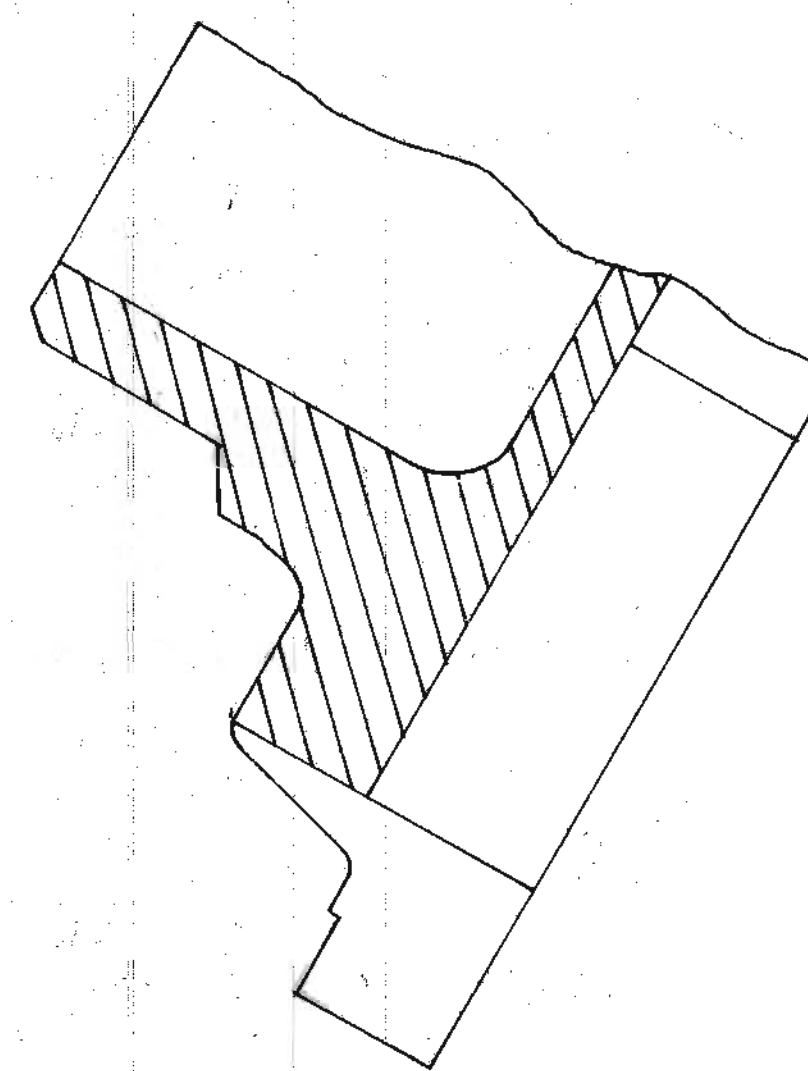
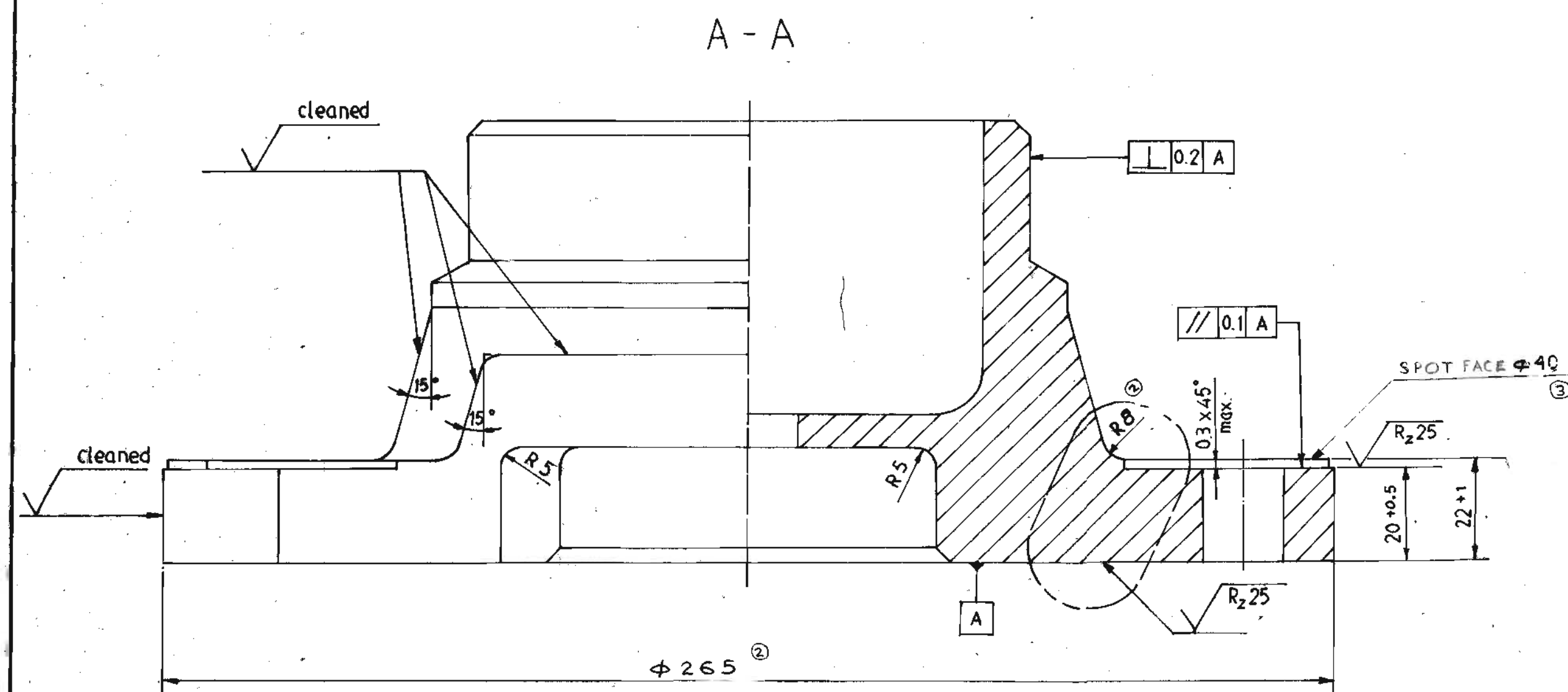
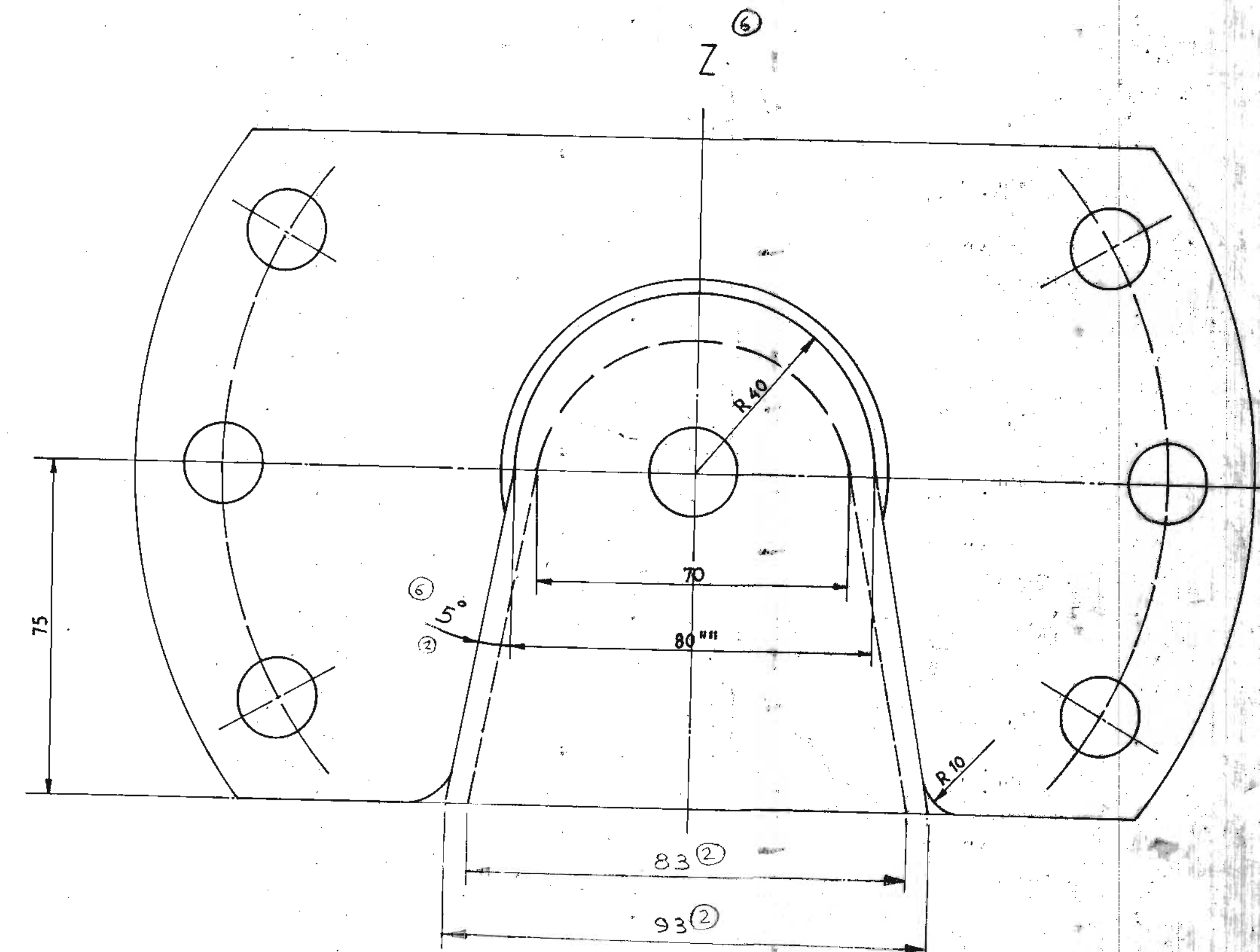
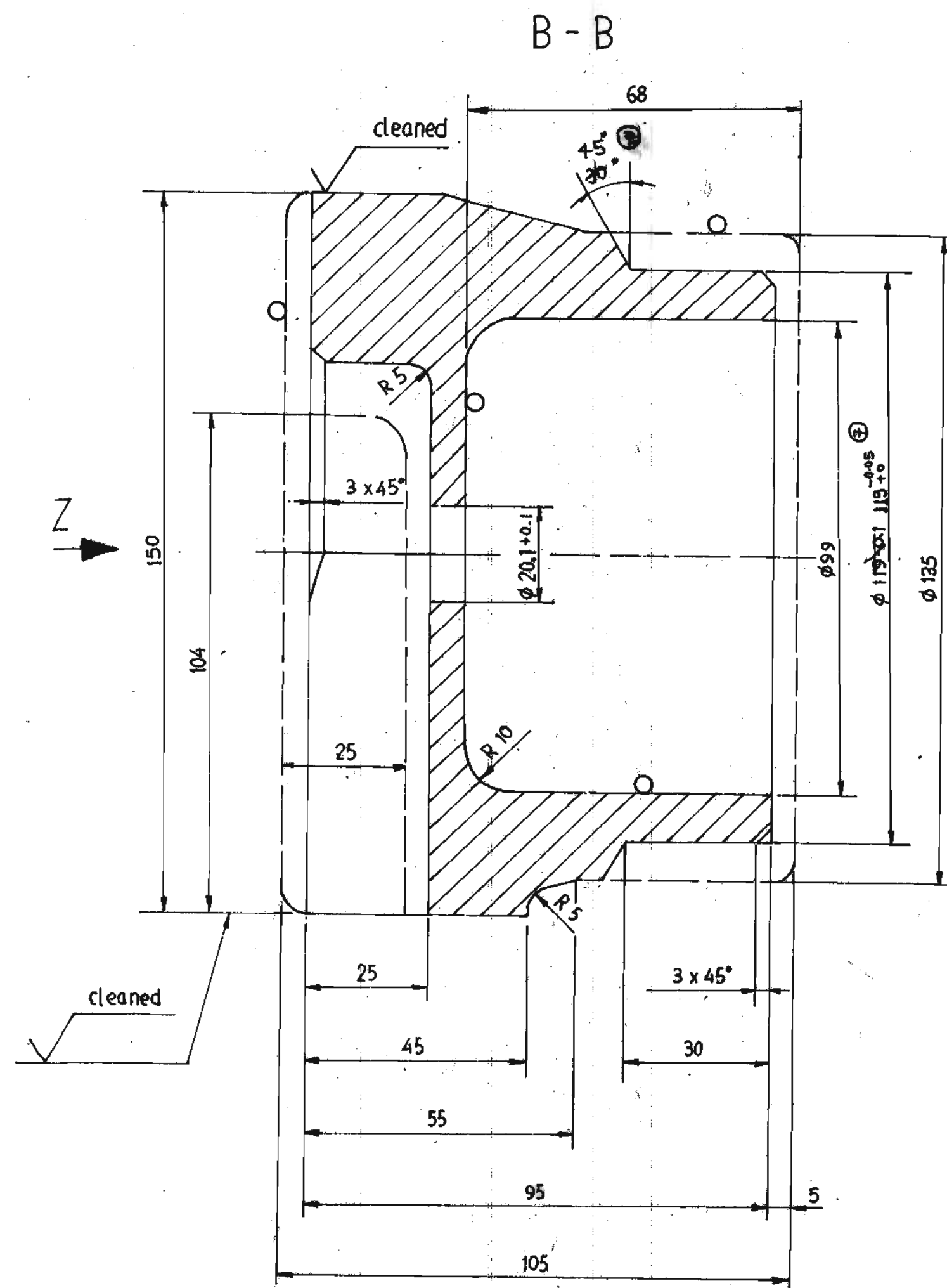
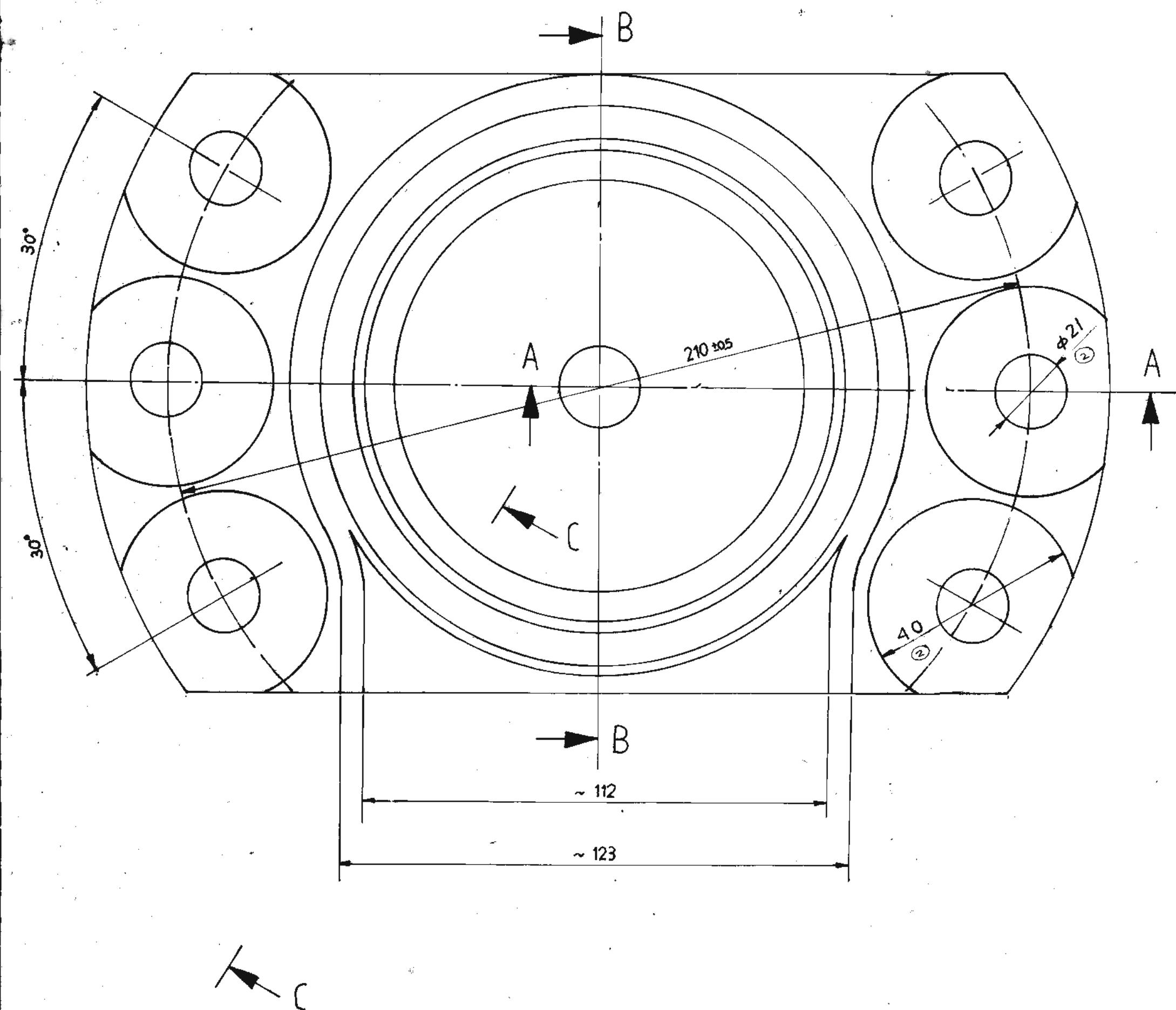
- DPT & MPT TO BE DONE ON 100% PUSH PULL ROD WELDING AREA TO CHECK SURFACE CRACK & TO REMOVE WELDING VALLEY.
- STEP FORMED NEAR WELDING JOINT IS TO BE REMOVED BY MAKING SMOOTH TAPER ALONG THE LENGTH OF APPROX 20mm. AT BOTH ENDS OF TUBE.
- ALL DIMENSIONS ARE IN mm
- NEXT LEVEL ASSEMBLY DRG. NO. 1209-01.113-001 REF-11
- USED FOR LOCO-WAG-9, WAG-9HC, WAP-7& WAP-5
- QTY./LOCO-2
- UNSPECIFIED TOLERANCE IN THE DIMENSIONS MENTIONED AT DRAWINGS TO BE FOLLOWED AS PER IS:2102(PART 1):1993-TOLERANCE CLASS-MEDIUM.

| DRG. NO. | REV. | DATE | DESCRIPTION | QTY. | MATL. | SPECN. | WT. EACH IN K.G. |
|----------|------|----------|------------------------------|------|---------------|--------|------------------|
| B212/014 | 4 | T212/015 | 1209-01413-010 SEALING PLATE | 2 | STEEL | | 0.02 |
| B212/013 | 3 | T212/014 | 1209-01413-009 PLATE | 4 | STEEL | | 0.06 |
| B212/012 | 2 | T212/013 | 1209-01313-008 TUBE WELDING | 1 | STEEL | | 28.40 |
| B212/011 | 1 | T212/012 | 1209-01113-007 FLANGE | 2 | STEEL CASTING | | 8.80 |

| | | | | | | | | | |
|--|--|-------------------------------|------------------------------|------------------------------------|----------------------------------|---------------------------|----------------------------|-----------------------------|---------------------------------------|
| वितरण नंबर C&D NO. FOR WAP-5 | | वितरण नंबर REF. NO. | वितरण नंबर C&D NO. | वितरण नंबर PART DRG. NO. | वितरण नंबर DESCRIPTION | वितरण नंबर QTY. | वितरण नंबर MATL. | वितरण नंबर SPECN. | वितरण नंबर WT. EACH IN K.G. |
| 1209-01.113-006 | | 1209-01.113-006 | 1209-01.113-006 | 1209-01.113-006 | 1209-01.113-006 | 1209-01.113-006 | 1209-01.113-006 | 1209-01.113-006 | 1209-01.113-006 |

| DRG. NO. | REV. | DATE | DESCRIPTION | QTY. | MATL. | SPECN. | WT. EACH IN K.G. |
|----------|------|----------|------------------------------|------|---------------|--------|------------------|
| B212/014 | 4 | T212/015 | 1209-01413-010 SEALING PLATE | 2 | STEEL | | 0.02 |
| B212/013 | 3 | T212/014 | 1209-01413-009 PLATE | 4 | STEEL | | 0.06 |
| B212/012 | 2 | T212/013 | 1209-01313-008 TUBE WELDING | 1 | STEEL | | 28.40 |
| B212/011 | 1 | T212/012 | 1209-01113-007 FLANGE | 2 | STEEL CASTING | | 8.80 |

| | | | | | | | | | |
|--|--|-------------------------------|------------------------------|------------------------------------|----------------------------------|---------------------------|----------------------------|-----------------------------|---------------------------------------|
| वितरण नंबर C&D NO. FOR WAP-5 | | वितरण नंबर REF. NO. | वितरण नंबर C&D NO. | वितरण नंबर PART DRG. NO. | वितरण नंबर DESCRIPTION | वितरण नंबर QTY. | वितरण नंबर MATL. | वितरण नंबर SPECN. | वितरण नंबर WT. EACH IN K.G. |
| 1209-01.113-006 | | 1209-01.113-006 | 1209-01.113-006 | 1209-01.113-006 | 1209-01.113-006 | 1209-01.113-006 | 1209-01.113-006 | 1209-01.113-006 | 1209-01.113-006 |


$$\sqrt{R_{z40}} \quad \left(\sqrt{R_{z25}} \quad \sqrt{\text{cleaned}} \right)$$

Note:

Model No. 663 - 155.30 - 05, cast raised - see marked location.
Type height: extra medium-spaced lettering, 10 high DIN 1451.

*** Define test procedures/amount of inspection in such a way that quality requirements are guaranteed.

Work piece edges DIN 6784

Q Preturned surfaces, if required

Traffic safety component acc. to WN 193 01

The areas (safety areas) which are especially used are marked with — — — — — lines.

information acc. to SEB 120 B01

| | | | |
|--|-------------|--|-----|
| Kind of casting | Designation | GS - 20 Mn S | |
| | | DIN 17 182 | |
| Quality grade acc. to DIN 1650 Part 2 | | see WN 193 01 section 7.2 | |
| Heat treatable steel casting | | $R_m = 500 - 650 \text{ N/mm}^2$ $R_{p0.2} = 300 \text{ N/mm}^2$ Elongation at rupture $\epsilon_{min} = 22 \%$ | |
| Heat treatment | | N | |
| Degree of accuracy | | GTB 17/5, DIN 1683 | |
| State of delivery | | pre - fabricated; or refer to ordering references. | |
| Model quality grade acc. to DIN 1511 | | H 1 | |
| Machining allowance | | BZ 5 to DIN 1683 | |
| Drawn | | + according to DIN 1680 | |
| Cast rods without dimensions | | R = 3 - 5 mm | |
| Inspection | Type | M | ★ R |
| | Amount | 100 % | *** |
| Proof of mechanical properties | | DIN 17 182 / DIN 1650 T 1 per melting charge | |
| Certificates | | DIN 50 049 - 3. 1B with confirmation that required quality grades have been observed | |

ASTM-E-446
 (5) ACCEPTABLE RADIOGRAPHIC
 (4) QUALITY LEVEL FOR CASTINGS

④
NOTE

5. 100% CHECKING BY RADIOGRAPHY (X-RAY).
6. AT LEAST 2/3 PHOTOGRAPHS AT AN ANGLE TO BE TAKEN PER PIECE TO COVER ENTIRE NECK PORTION OF THE FLANGE (PHOTOGRAPHY ALONG THE AXIS IS NOT RECOMMENDED).
7. RADIOGRAPHY CAN BE DONE FROM LOCAL NABL LABS IN PRESENCE OF REPRESENTATIVE FROM CMM LAB/CLW.
8. FIRM TO BEAR COST OF PHOTOGRAPHY.


②
NOTE

1. CASTING TO BE TAKEN ONLY FROM RDSO APPROVED CLASS 'A' FOUNDRY AND DOCUMENTARY EVIDENCE TO BE SUPPLIED DURING INSPECTION.
2. ~~UTFT TESTING TO BE DONE FOR AT LEAST ONE SAMPLE PER LOT OR LON OF THE TOTAL QUANTITY OFFERS WHICHEVER IS HIGHER.~~
3. CASTING SHOULD NOT BE SUBJECTED TO ANY WELD RECLAMATION.
4. HARDNESS TEST SHOULD BE DONE DURING INSPECTION.

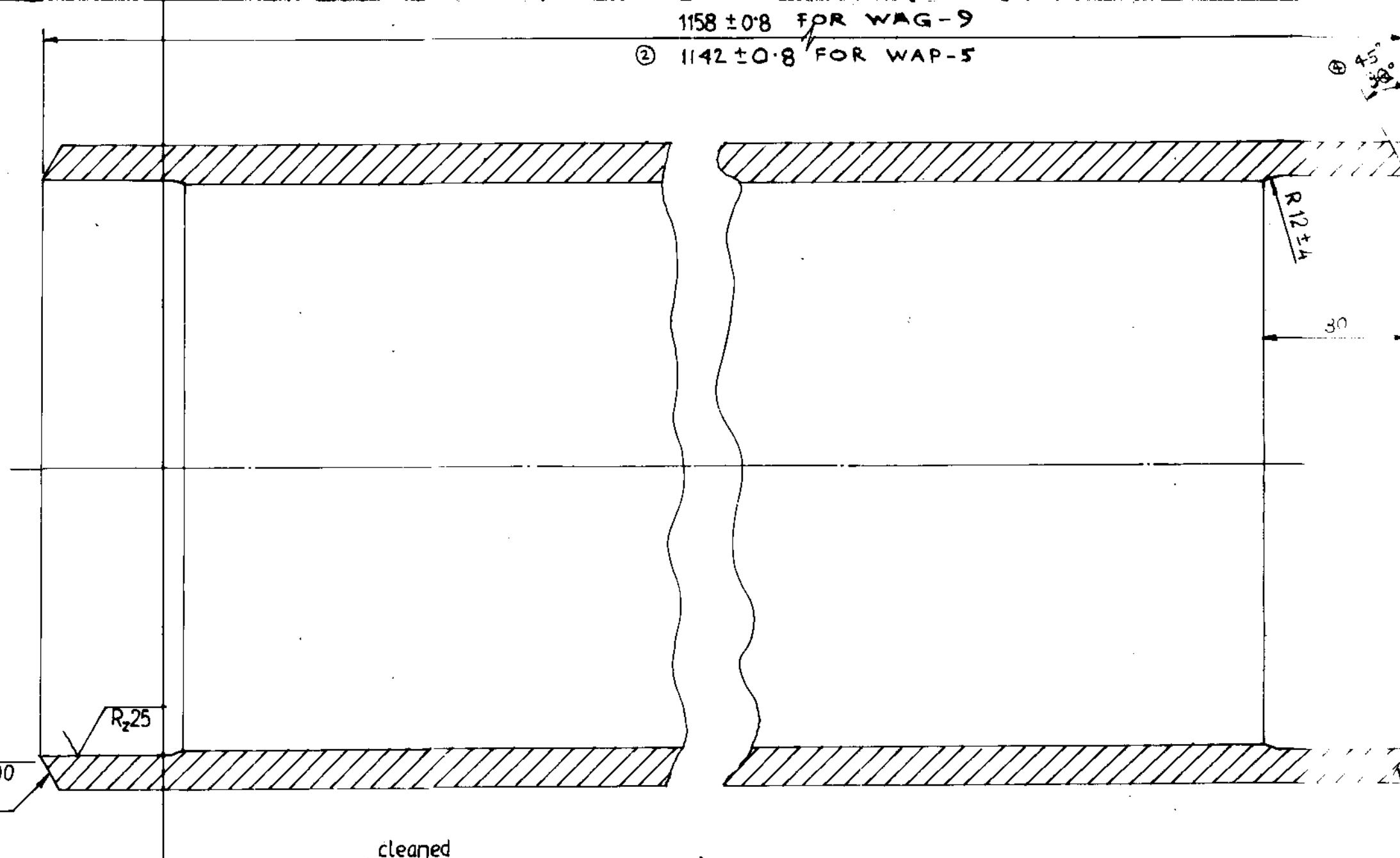
| | | | |
|----------|---------------------------|---|------------------|
| ⑦ | DY. CEE/ CONV- D-II | DIMENSION 1150.5 WAS 1151- K 45 WAS 30" FOR WELDING GRADE | ALL FPH-5 |
| ⑧ | DY. CEE/ CONV- D-II | IN VIEW OF ANGLE 5" WAS 10" TYPEOGRAPHY ERROR CORRECTED AS PER RADIO LETTER # 51 DO NOT RE-CAST | OK |
| ⑨ | DY. CEE/ CONV- D-II | SPEC. NO. ASTM E 716 ADDED. WORK ANGLE WAS AXLE "U" DELE- TED. | OK 9/10/71 |
| ⑩ | DY. CEE/ CONV- D-II | RADIOGRAPHIC QUALITY LEVELS FOR CASTINGS ADDED AS PER DY. CEE SPEC. NOTE NO. MISC 1187 AS PER #33A D-15-70-71 NOTE NO. 516-70-71 AS PER NOTE NO. CEE/PL # 111-N.D. 2-27-70, NOTE NO. 2 DELETED. | OK 9/8/71 |
| ALT. NO. | AUTH. | DESCRIPTION | DATED INITIAL |

| CATEGORY | TYPE | ACCEPTABLE RADIOGRAPHIC QUALITY LEVELS | |
|-----------|------|--|------------------------|
| | | FOR CRITICAL AREAS | FOR NON-CRITICAL AREAS |
| SHRINKAGE | CA | 1 | 2 |
| | CB | 1 | 2 |
| | CC | 2 | 2 |
| | CD | 1 | 2 |
| INCLUSION | B | 1 | 2 |
| SAFETY | A | 1 | 2 |
| CRACK | D | NIL | NIL |
| HOT TEARS | E | NIL | NIL |
| HAZARDS | F | NIL | ALLOWED |

[illegible][illegible]

| | | | | |
|--|--|--|--|--|
| <p>FLANGE</p> | <p>4</p> | <p>STEEL CASTING</p> | <p>DIN 17102</p> | <p>8.8</p> |
| <p>वर्ग DESCRIPTION</p> | <p>वर्ग NO. OF LOCS</p> | <p>वर्ग MATERIAL</p> | <p>वर्ग SPEC.</p> | <p>वर्ग IN 8.8</p> |
| <p>अनुमत संकेत REF. ASSY. DRG. NO. IA011-00381 1209-01113-006, REF. NO.1</p> | <p> CHITTARANJAN LOCOMOTIVE WORKS</p> | <p>DEPT. OF D & D CENTRE एच. ए. ए. ए. लोकोमोटिव वर्क्स</p> | <p>एच. ए. ए. ए. लोकोमोटिव वर्क्स</p> | <p>एच. ए. ए. ए. लोकोमोटिव वर्क्स</p> |
| <p>FLANGE</p> | <p>1ST ANG PROJECTION</p> | <p>USED FOR LOCOS</p> | <p>WAG-9 & WAG-12</p> | <p>WAG-9 & WAG-12</p> |
| <p>FLANGE</p> | <p>अनुमत संकेत DRAWING NO.</p> | <p>1209-01113-007</p> | <p>1209-01113-007</p> | <p>1209-01113-007</p> |

| ALT. NO. | AUTHY. | DESCRIPTION | DT. INITIAL |
|----------|--------------|--|-------------|
| ④ | DY. CEE/D-II | DIMENSION 119±0.5 WAS 113±0.5 & 137±0.2 WAS 133x8, V ADDED IN O.D., EDGE PROFILE WAS 30° | 2/11/15 |
| ⑤ | DY. CEE/D-I | DIMENSION 139.7 WAS 137±0.2 AND 'V' DELETED IN O.D. | |



119±0.5
137±0.2
133x8, 137±0.2
119±0.5

①

NOTE:-

1. FOR OTHER DETAILS, REFER TO TECH. SPECN. NO. CLW/MS/3/055

②

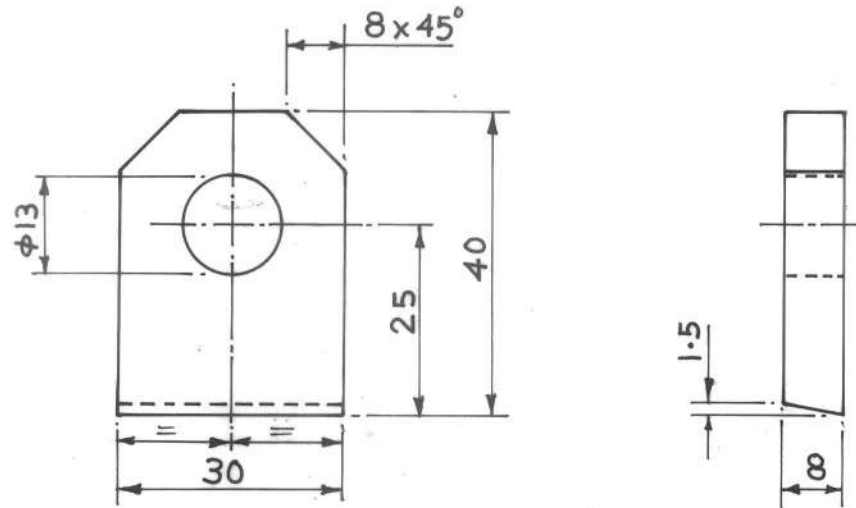
2. TUBES TO BE SUPPLIED IN FINISHED CONDITION WITH APPLICATION OF RED OXIDE/ZINC PHOSPHATE OR ANY OTHER CORROSION RESISTING COATING APPROVED BY CLW.

③ 3. Approval to be obtained from CLW for the source of Tube

| | | | |
|-----------------|--------------|--|---------------|
| ③ | DY. CEE/D-II | NOTE 3 ADDED | |
| ② | DY. CEE/D-II | TO MAKE COMMON DRG. DIMENSIONS, USED FOR LCOs, CHD NOS FOR WAP-5 ADDED. TENTATIVE WITHDRAWN. DRG. MODIFIED AS PER RDSO. ADVISE LETTER NO. EL/3-1/35/2 DT. 16-1-2007. | 14/3/17 |
| ① | DY. CEE/D-I | NOTE 1 DELETED NOTE 2 ADDED | |
| परिवर्तन संख्या | प्राधिकार | वर्णन | दिनांक |
| ALT. NO. | AUTHY. | DESCRIPTION | DATED INITIAL |

| WELDING SYMBOLS TO IS: 813 | | | | | | | | | | | | |
|---|---|--|-------|------|------|------|------|------|------|------|------|------|
| अनिर्दिष्ट संख्या - सीमा भा.भा. 2102 के अनुसार UNSPECIFIED TOLERANCE TO IS: 2102 C-MEDIUMS | सतह-रूखाता प्र.भा.भा.भा. 3073 के अनुसार SURFACE ROUGHNESS VALUE TO IS: 3073 | पदांक GRADE NUMBER R _a /μm | सं 1 | सं 2 | सं 3 | सं 4 | सं 5 | सं 6 | सं 7 | सं 8 | सं 9 | |
| | | | N1 | N2 | N3 | N4 | N5 | N6 | N7 | N8 | N9 | N10 |
| | | | 0.025 | 0.05 | 0.1 | 0.2 | 0.4 | 0.8 | 1.6 | 3.2 | 6.3 | 12.5 |
| | | | 25 | 50 | | | | | | | | |
| | | चिह्न SYMBOL | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

UNLESS STATED OTHERWISE CUTTING EDGES $\sqrt{R_2 100}$

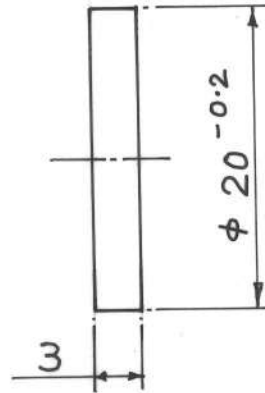
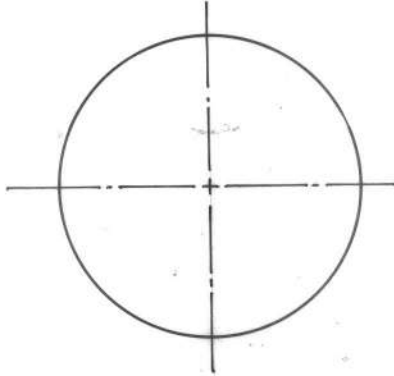


C&D NO. FOR WAG-9 — T 212/014.

C&D NO. FOR WAP-5 — B 212/013.

| | | | | | | | | | |
|--|--|--|--|---|--|---|----------------|------------------|---|
| | | | | PLATE | | 8 | STEEL | IS:2062 GR.C | 0.06 |
| | | | | वर्णन DESCRIPTION | | संख्या / रेलइंजन NO./ LOCO | पदार्थ MATL | विशिष्ट SPECN | प्रति भार कि. ग्रा. WT. EACH IN K.G. |
| | | | | अभिज्ञापित DGN | | आरेखण संदर्भ 1209-01-113-006, REF. 3 | | | |
| | | | | जोचा CHD | | चितरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS | | | |
| | | | | अर्धशिक्षित SUPDT. | | संस्करण क. C & D NO. | | | |
| | | | | समीक्षित व.अ (अ/वि) REVIEWED SE (M/E) | | प्रयोग में USED FOR LOCOS | | | |
| | | | | अनुमोदित (अ.वि.) APPROVED उ.मु. वि.अ DYCEE | | WAG/9 WAP-5 | | | |
| | | | | दिनांक DATE | | 1ST. ANGLE PROJECTION | | | |
| | | | | रेखिक अनुपात SCALE | | आरेखण संख्या DRAWING NO. | | | |
| | | | | संदर्भ/REF. ABB'S DRG NO. IAD12-00216 | | 1209-01-413-009 | | | |

UNLESS STATED OTHERWISE CUTTING EDGES $\sqrt{R_z 100}$



C&D No. FOR WAG-9 - T212/015.

C&D No. FOR WAP-5 - B 212/014.

[illegible]

