

APPENDIX 'C'

(Cl. 6.2)

METHOD OF USABILITY TEST AND ACCEPTANCE CRITERIA (For F & G class of Electrodes)

C1 Details of test piece and welding:

- C 1.1 **Material:** Test plates shall be grey iron casting conforming to Grade FG-200 of IS: 210-2014 or its equivalent and shall be reasonably free from porosity and other harmful defects. The groove shall be prepared as per Fig. 2 by machining or grinding.
- C 1.2 **Test piece dimension:** The test plates shall conform to the dimensional requirements shown in Fig. 2. Table 11 below gives the diameter of electrodes and the corresponding dimensions of 'Width (W)', 'Depth (D)', 'Thickness (T)' and the minimum number of layers required for the preparation of the test pieces. Two test pieces shall be prepared using 3.15 & 5.0 mm size electrodes.

TABLE 11

MINIMUM DIMENSION OF TEST PIECE AND ELECTRODE

| Dia. of electrodes | 'W' in mm | 'D' in mm | 'T' in mm | Number of layers |
|--------------------|-----------|-----------|-----------|------------------|
| 2.5 | 4.0 | 3.50 | 13.0 | 2 or 3 |
| 3.15 | 5.0 | 4.0 | 13.0 | 2 or 3 |
| 4.0 | 6.0 | 5.0 | 13.0 | 2 or 3 |
| 5.0 | 8.0 | 6.0 | 25.0 | 2 or 3 |
| 6.3 | 10.0 | 8.0 | 25.0 | 2 or 3 |

- C 1.3 **Welding & Machining:** The groove in the test plate shall be completely welded in flat position. The welding parameters to be used shall be as recommended by the manufacturer. The weld and plate shall be machined or ground 1 to 2 mm below the surface of the plate for visual examination.

C2 Acceptance criteria:

- C 2.1 Cracks & Pores:** Weld area shall be reasonably free from cracks, and porosity not exceeding six pores per 10 Sq. cm area, with no pores greater than 1.5 mm in diameter.
- C 2.2 Hardness:** Brinell hardness survey shall be carried out on the weld deposit. The hardness number shall be within 175 to 200 BHN for class G electrode.

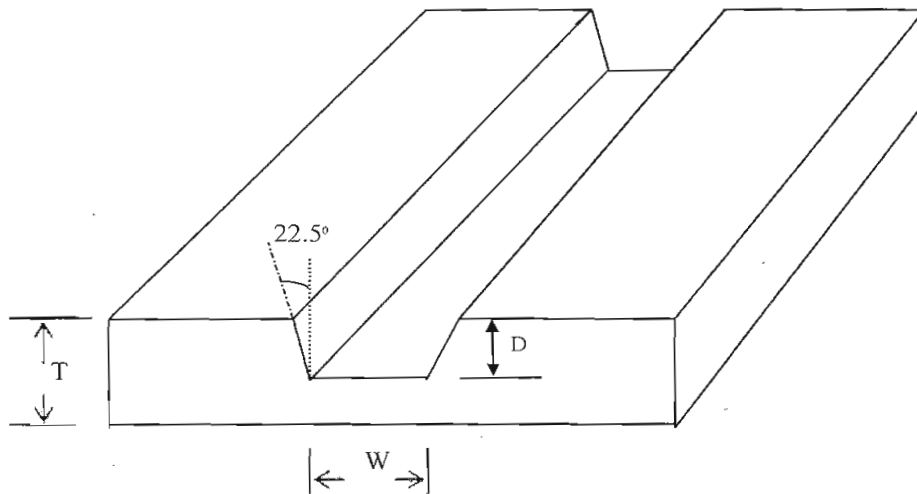


Fig: 2. Dimension of Test Piece

APPENDIX 'D'
(Cl. 6.2)

**METHOD OF PREPARATION OF CORROSION RESISTANCE TEST
PIECE AND ACCEPTANCE CRITERIA**

(For D class of electrode)

D1 Preparation of Corrosion Resistance Test Assembly:

D 1.1 **Material:-** Parent metal shall conform to IRS M-41 or IRS M-42 or their equivalent.

D 1.2 **Dimensions:** The dimensions of plates shall be as given below:

| | | |
|------------|---|--------------------|
| Length | - | 150 mm \pm 10 mm |
| Breadth | - | 75 mm \pm 10 mm |
| Thickness | - | 10 mm \pm 2 mm |
| Edge Angle | - | 10° \pm 1° |

D2 Pre - setting and Welding:

D 2.1 The plates shall be tacked together with a root gap of about 2-3 mm. The faces to be welded shall be free from dust, dirt, grease, oil or any other foreign material.

D 2.2 The assembly shall be welded in flat position using 4.0mm size of electrode.

D 2.3 The temperature of weld assembly shall be kept between 110° C - 180° C. For this, inter pass time gap, if necessary shall be maintained.

D 2.4 Each run shall be properly de-slagged before putting another run on or adjacent to previous run.

D 2.5 The welding parameters shall be kept within the range as recommended by the manufacturer.

D 2.6 Two such test assemblies shall be prepared as shown in **fig. 3**.

D3 Preparation of Test Pieces:

- D 3.1 A square panel of 100 mm x 100 mm x 10 mm shall be removed from centre as shown in **fig. 4**.
- D 3.2 A test panel of 100 mm x 100 mm x 6 mm shall be prepared as shown in **fig. 5** by shaping.
- D 3.3 The whole test panel shall be thoroughly polished.
- D 3.4 Two such panels shall be prepared from two test assemblies.
- D 3.5 One blank panel of same dimensions shall be prepared using same material of parent plates.

D4 Testing:

- D 4.1 Two test panels with weld bead at middle along with one blank panel shall be subjected to corrosion test at a temperature of 42⁰ C to 48⁰ C at relative humidity 100% as per section 1 of IS: 101-2015, Pt-6. Condition of the weld and parent metal surfaces shall be examined after a period of seven days exposure as follows:

| | |
|----------------|---|
| 1st 24 hours | The weld assembly shall be exposed as indicated in Cl. D 4.1. |
| 2nd 24 hours | Air-dried at ambient temperature. |
| 3rd to 7th day | The weld assembly shall be exposed as indicated in Cl. D 4.1. |

D5 Acceptance Criteria:

- D 5.1 The number of corrosion spots per 5 Sq. cm of the unwelded panel and the parent metal of the welded panel shall not vary by more than one. The severity of corrosion shall not be significantly different.
- D 5.2 The number of corrosion spots in the HAZ or weld metal shall not be more than that of unwelded panel or parent metals whichever is more.
- D 5.3 The severity of corrosion in parent metal and HAZ shall not be significantly more than that of parent metal of unwelded panel.
- D 5.4 The electrode shall be considered satisfactory in case all the 3 clauses mentioned above are fulfilled.
- D 5.5 The test shall be discarded and repeat test is to be carried out in case clause D 5.1 is not fulfilled.
- D 5.6 The electrode shall be considered unsatisfactory only if clause D 5.1 is fulfilled but either clause D 5.2 or clause D 5.3 is not fulfilled and retest shall be carried out.

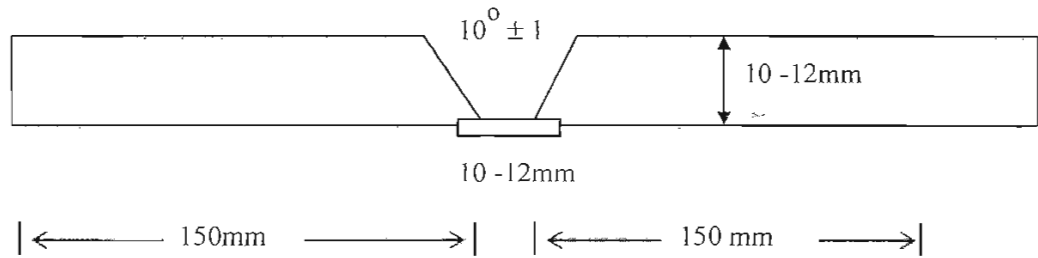


Fig. 3. Presetting of plates & back strip before welding.

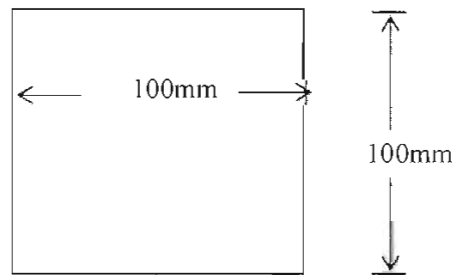


Fig. 4. Middle part of the assembly for making the test panel.

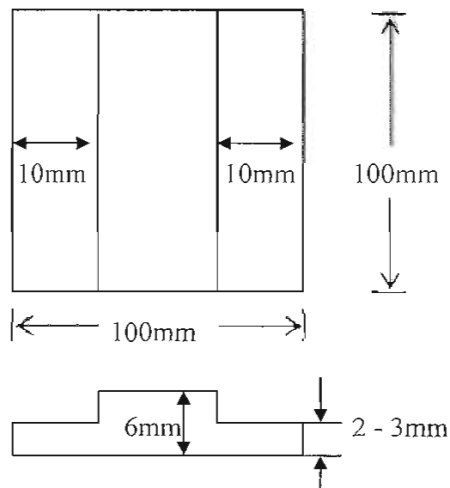


Fig. 5. Plan & Elevation of the test panel.

APPENDIX 'E'

SAFETY CONSIDERATIONS IN WELDING

E1 Burn Protection:-

- E1.1** Molten metal, sparks, slag & hot work surfaces are produced by welding, cutting & allied processes. These can cause burns.
- E1.2** To avoid burns worker should wear protective cloths made of fire resistance material.
- E1.3** Pant cuffs, open pockets or other places on clothing that can catch & retain molten metal should not be worn.
- E1.4** High top shoes or leather leggings & fire resistant gloves should be worn.
- E1.5** Helmet or hand shields that provide protection for face, neck, ear & head covering to protect the head should be used.
- E1.6** The clothing should be kept free of grease & oil.
- E1.7** Wear insulated gloves.

E2 Electrical Hazardous:-

- E2.1** All electrical instrument and work pieces should be grounded.
 - E2.2** To prevent shock, the work area, equipment & clothing should be kept dry all the times.
 - E2.3** Welder should wear dry gloves & rubber sole shoes.
 - E2.4** Cables & connection should be kept in good condition.
 - E2.5** Correct cable size should be used to avoid over loading & subsequent failure of cable.
 - E2.6** All electrical connections should be tight, clean & dry.
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E3 Fumes and gases:-

- E3.1** Fumes are solid particles which originates from welding filler metals and fluxes, the base metal and any coating presents in base metal.
- E3.2** Sufficient ventilation & exhausts should be used to keep fumes and gases away from breathing zone when welding is performed in the confined spaces.
- E3.3** Use auto- darkening helmets.
- E3.4** Follow the recommendations of manufacturers (if any) in this regard.

E4 Radiation:-

- E4.1** Welding, cutting and allied operations may produce radiant energy.
- E4.2** One should not look at welding arc except through welding filter plates.
- E4.3** Exposed Skin should be protected with adequate gloves & clothing.

APPENDIX 'F'

(Cl. 6.2)

METHOD OF PREPARATION OF TEST PAD FOR MACRO TEST, HARDNESS SURVEY AND CHEMICAL ANALYSIS AND ACCEPTANCE CRITERIA (For H4 series of Electrodes)

F1 Preparation of Test weld Pad:

F 1.1 **Material:** The parent metal for plates used in preparing test pieces shall be any grade of IS: 2062-2016.

F 1.2 **Welding:** The weld shall be deposited in flat position in longitudinal beads. The deposit shall be of about 15mm thickness which after machining will have deposited thickness of 12mm as shown in figure 7 for chemical analysis. The pad for macro/DPT/MPT and hardness testing shall also be prepared by depositing longitudinal beads to obtained deposited thickness of about 15mm which after machining will have deposited thickness of 10mm as shown in figure 6. The pad shall be prepared by using 3.15mm dia and either 4.0mm or 5.0mm dia electrodes.

F2 Macro examination & DP test:

The surface of weldment shall show no crack or other welding defects on dye penetrant/ magnetic particle test. The weldment pad shall be sectioned across the direction of welding and etched suitably to examine the cross section and interface. The sectioned surface shall be free of any welding defects within HAZ, fusion line and weld metal.

F3 Hardness survey:

F 3.1 Hardness test shall be conducted at five places, one at the centre and four corners at a distance of $D/4$, where D being the diagonal of the pad as shown in Fig. 6. Hardness number obtained shall be recorded.

F 3.2 The hardness requirement of different hard facing electrodes shall be as given in Table-4.

F4 Sampling for Chemical analysis:

F 4.1 Sufficient samples shall be taken from the test weld pad by an appropriate means (drilling or shaping). Post heat treatment may be carried out to soften the test pad for easy removal of metal. Metal for the analysis purpose shall not be taken closer than 5 mm from the base metal. No oil or other lubricant shall be used while removing the sample.

- F 4.2 Wet analysis for different elements shall be carried out in accordance with IS: 228.
- F 4.3 Spectrometric analysis may also be carried out on solid and smooth surface of the pad after removing about 5 mm from top on at least on 3 spots. The average of 3 readings shall be taken as the value for a particular element.
- F 4.4 In case of any controversy in the spectrometric analysis, wet analysis shall be considered as referee method.
- F 4.5 The chemical composition of the weldment shall conform to the range given in **Table - 8**.

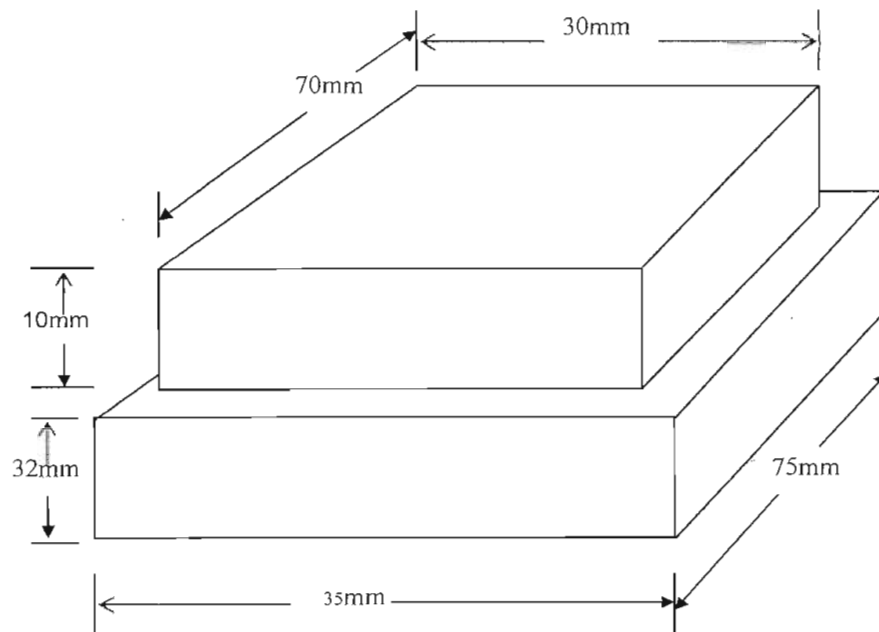


Fig: 6. Dimension of Weld Pad for hardness and macro examination

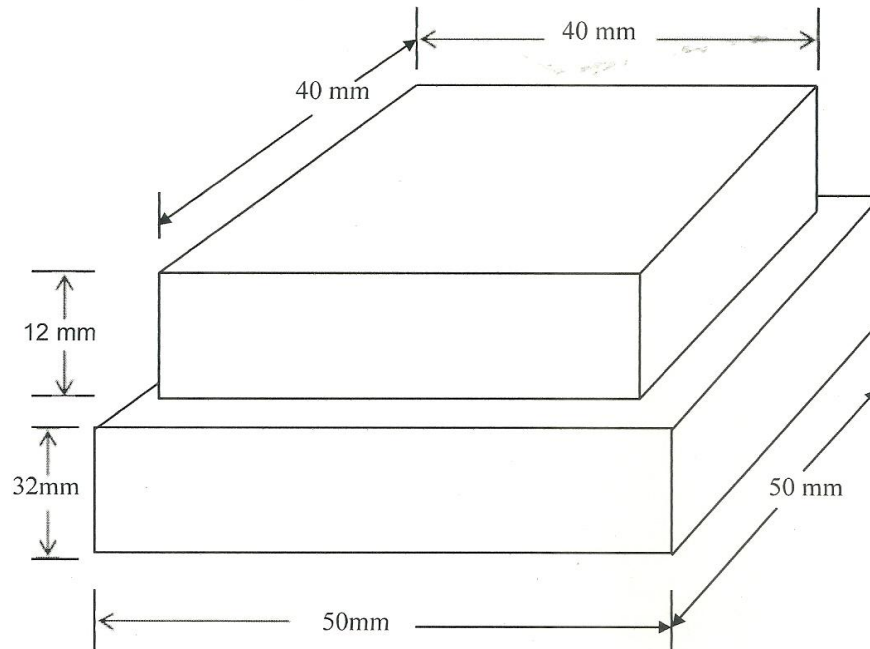
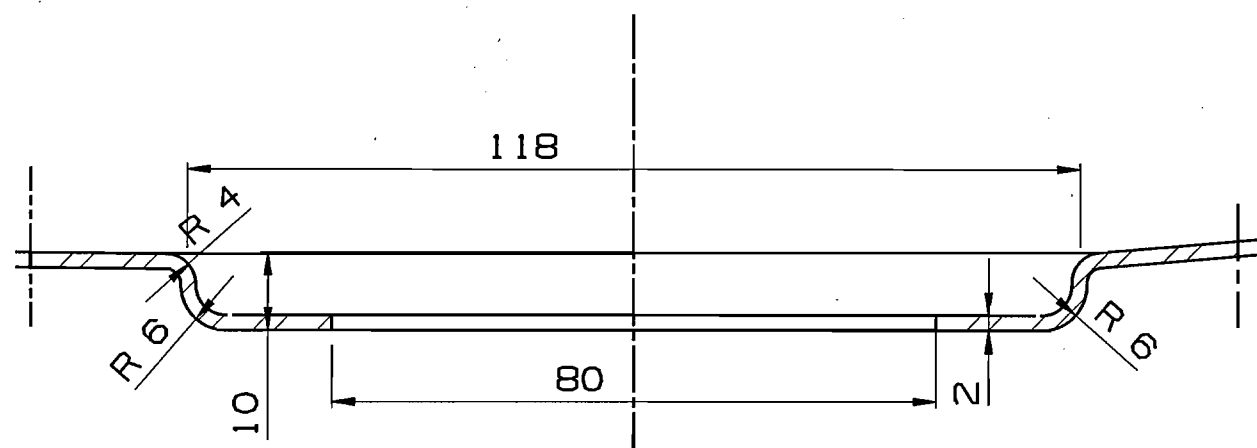
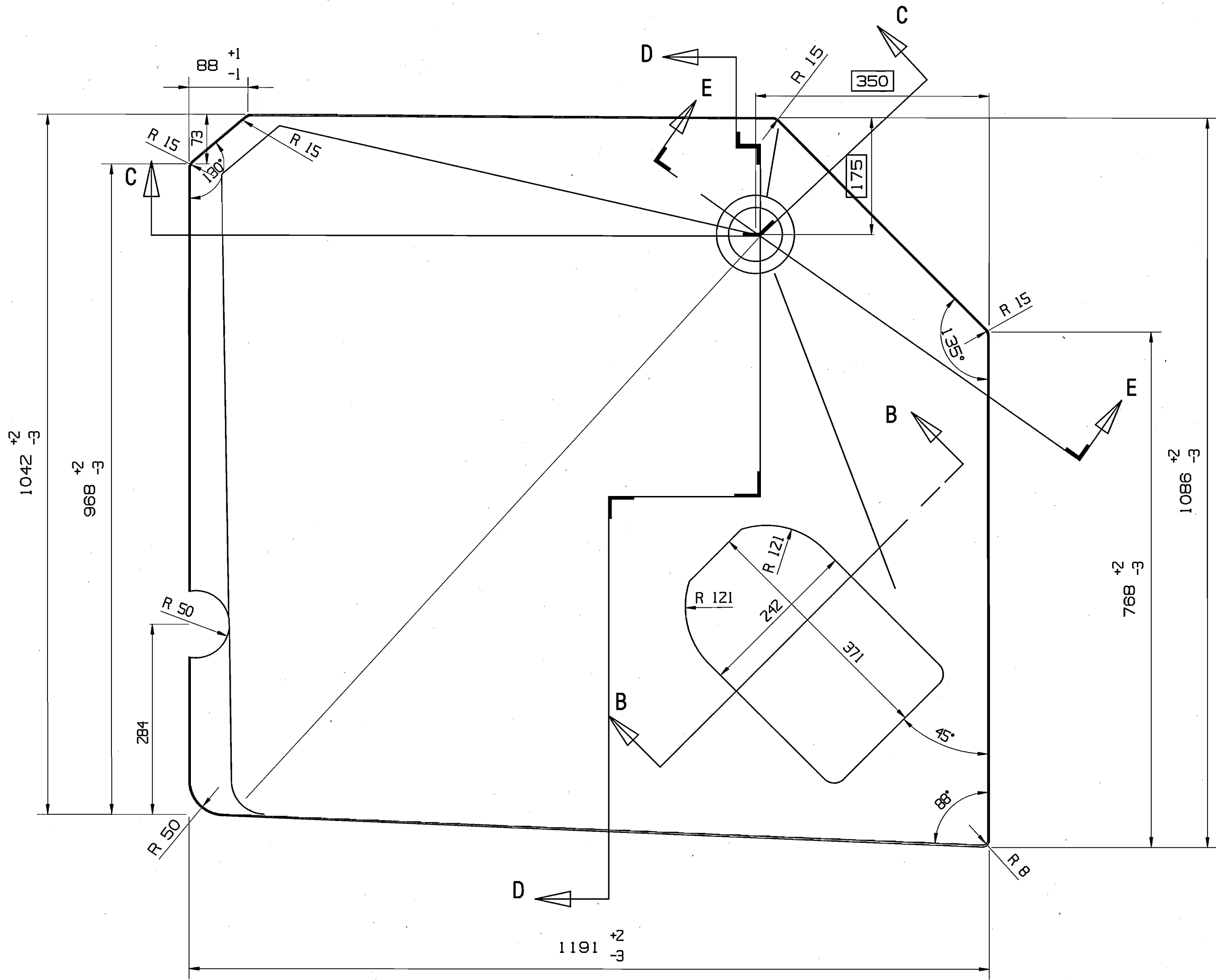


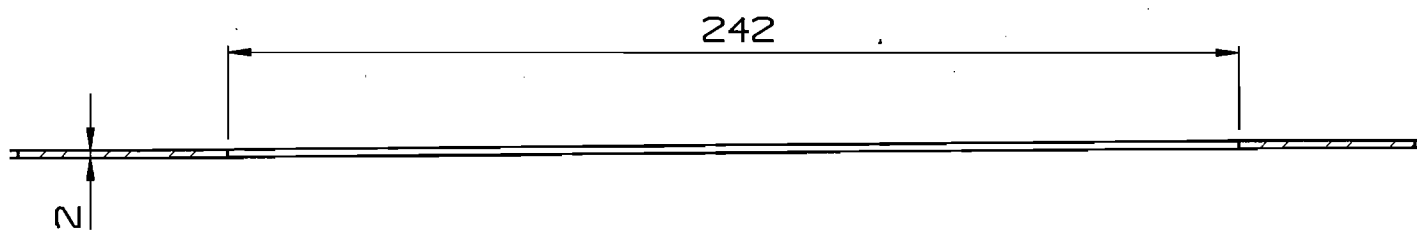
Fig: 7. Dimension of Weld Pad for Chemical analysis

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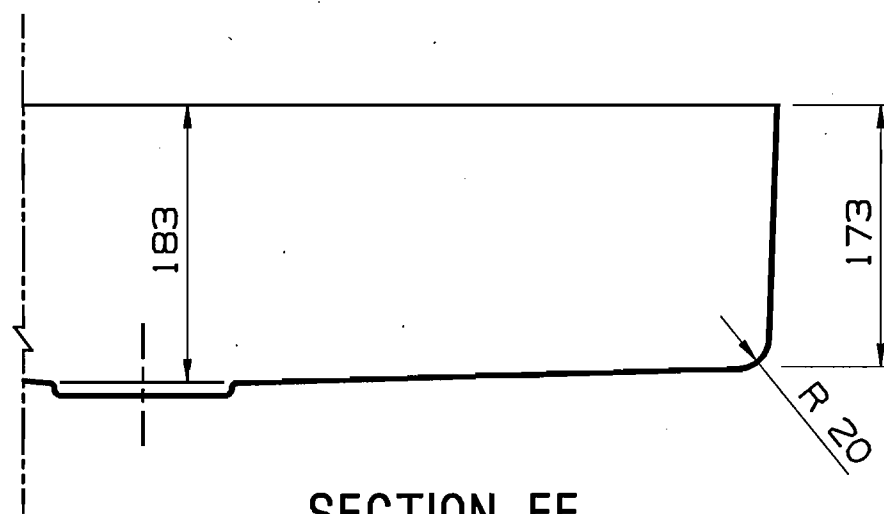
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DETAIL L



DETAIL M



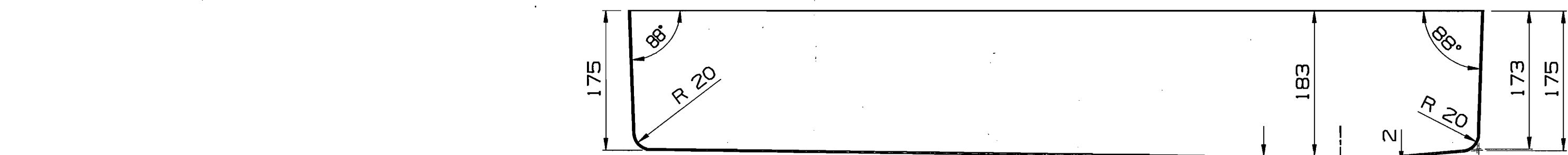
SECTION-EE

- NOTE: -
- THE FOLLOWING DETAILS SHALL BE PUNCHED WITH 10MM HIGH LETTERS TO A DEPTH OF 0.5MM ON SKIRTING AT THE LOCATION MARKED # THUS
 - NAME OF MANUFACTURER
 - DATE OF MANUFACTURING
 - DRG. NO.
 - WELDING ELECTRODE SHALL BE CONFIRM TO IRS-M-28-86, TAB-8, CLAUSE- M1 E 19.9' OR EQUIVALENT.
 - * AISI304 OR C-K-201 X5CrNi1810.
 - PROTOTYPE SAMPLE MAY PLEASE BE APPROVED BEFORE BULK SUPPLY.
 - DIMENSIONS MARKED THUS SHOULD BE MAINTAINED STRICTLY.

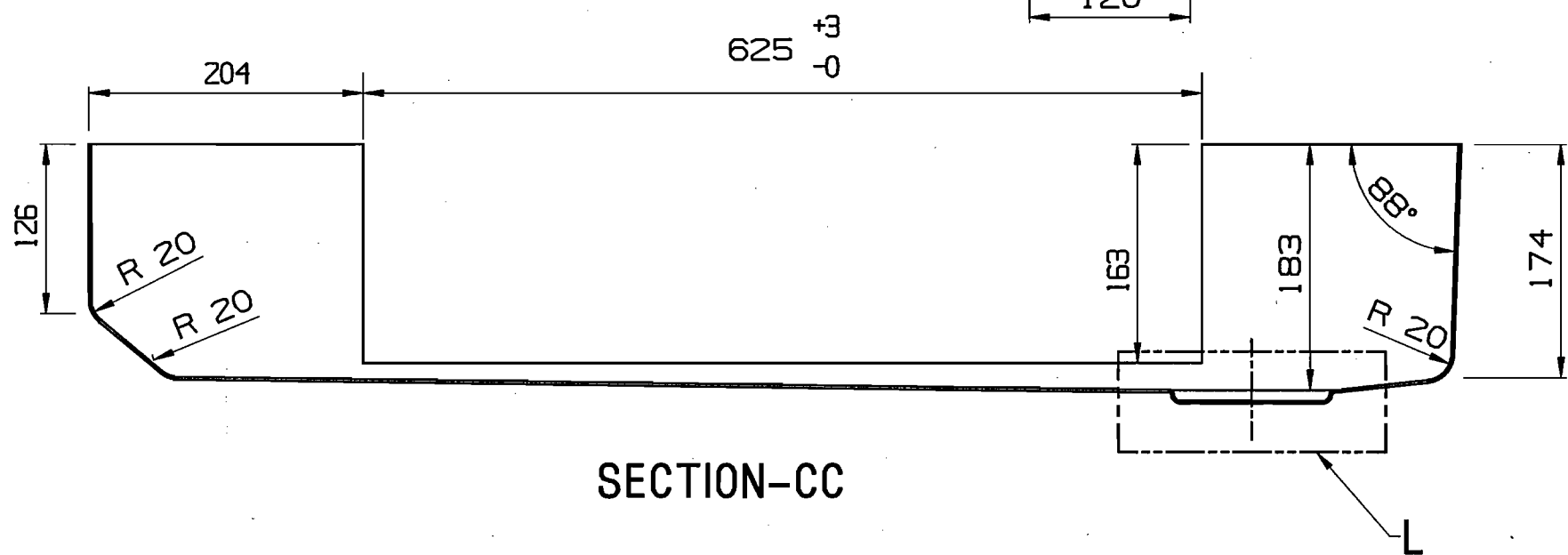
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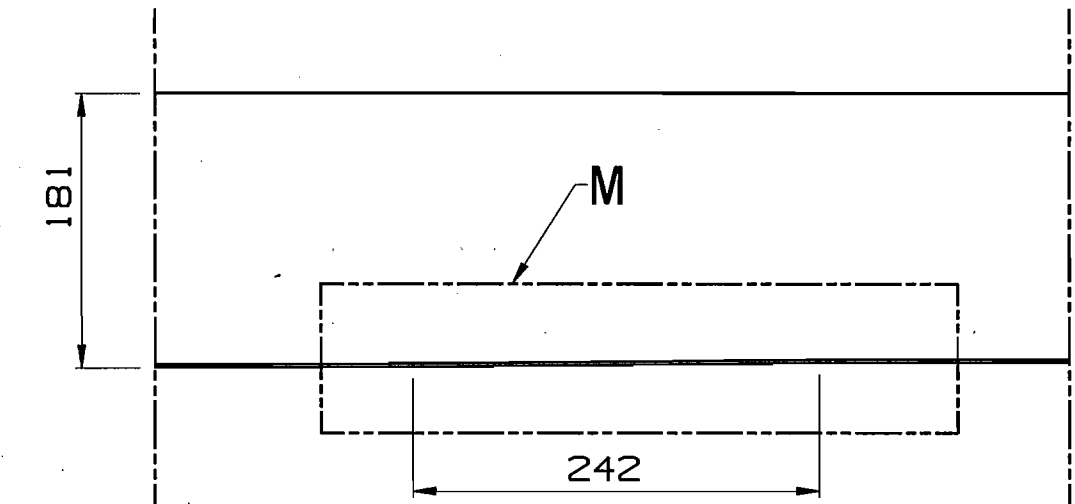
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SECTION-DD



SECTION-CC



SECTION-BB

| NIL PAN FLOOR | | | | NIL | | NIL | | * | | NIL | |
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| WELD LENGTH | ITEM | DESCRIPTION & DIMENSIONS | | QPASSLY | DETAIL DRG | MATL. & SPEC. | | REMARKS | | | |
| NIL | M | GROUP LAVATORY & ITS FITTINGS | | SUPERSEDES: | | NIL | | | | | |
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PAN FLOOR

RAIL COACH FACTORY, KAPURTHALA

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IRS

PL NO. NIL

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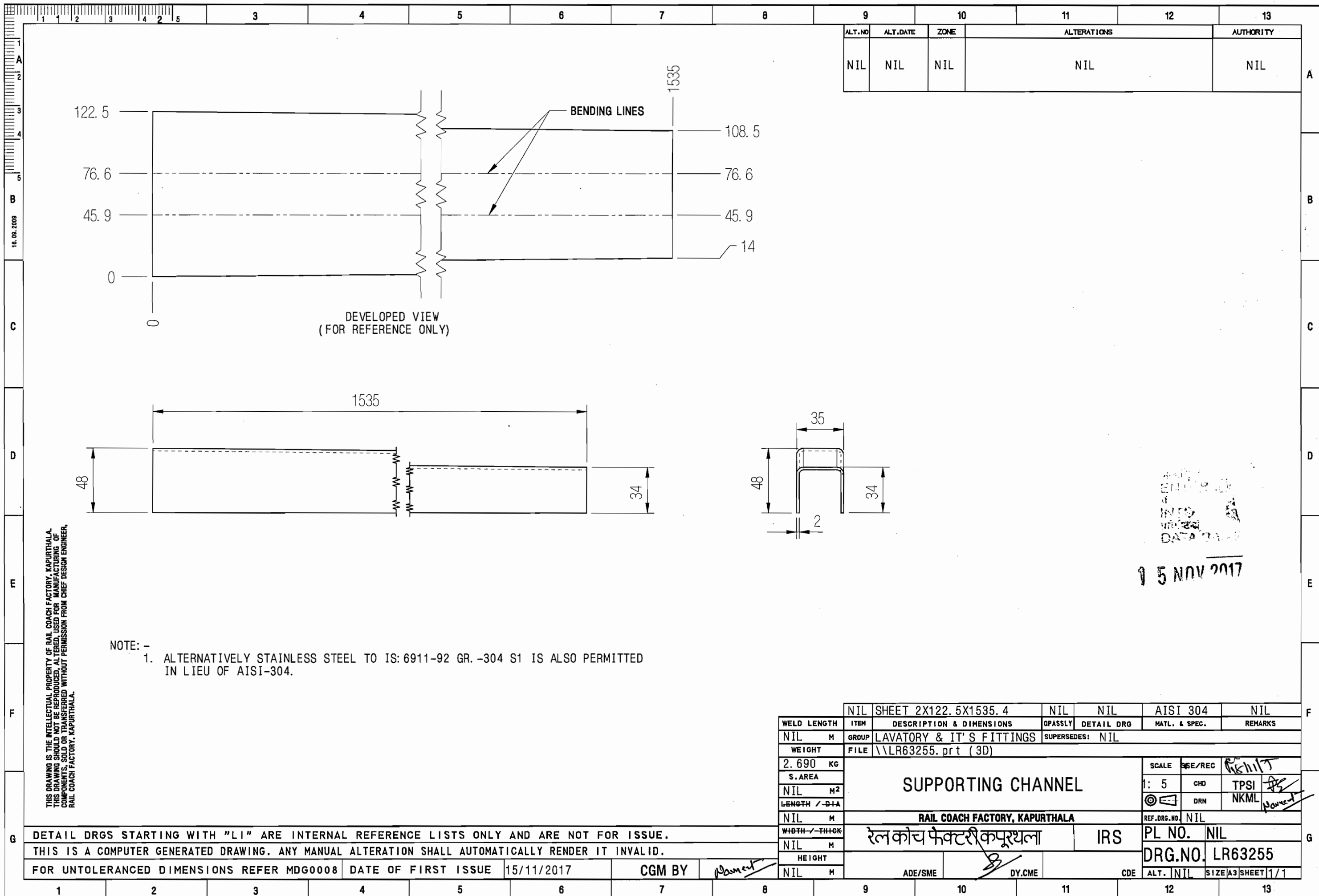
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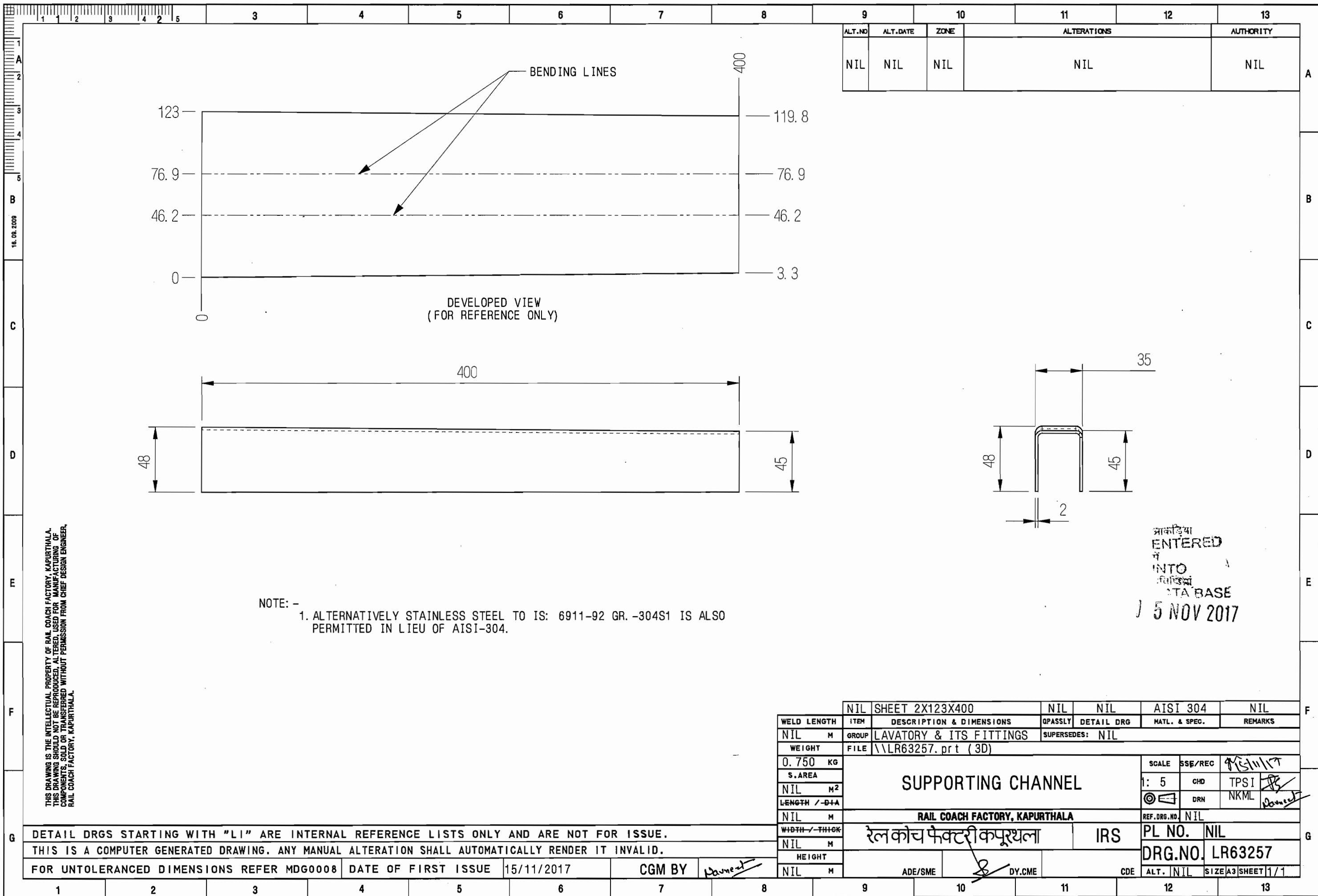
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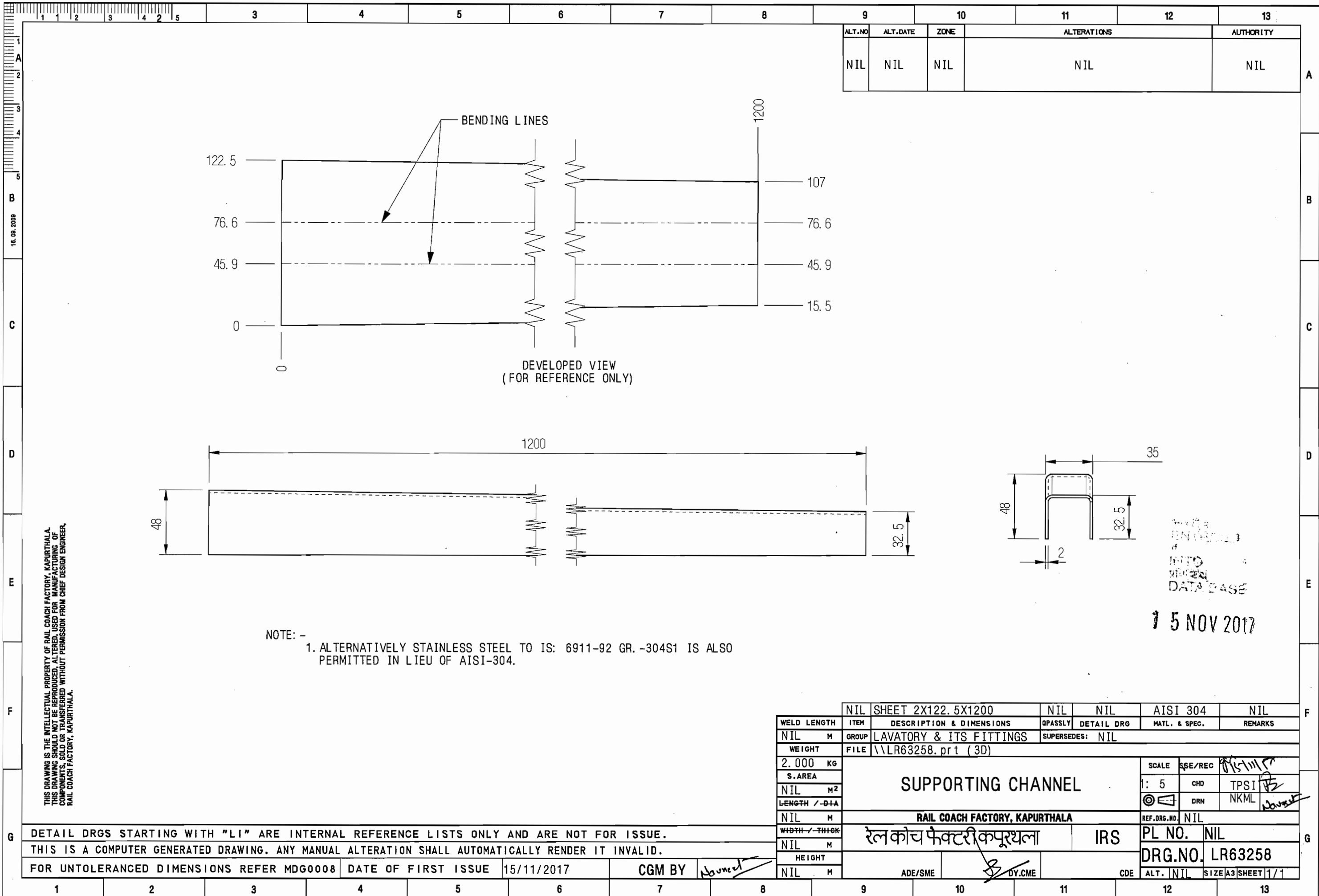
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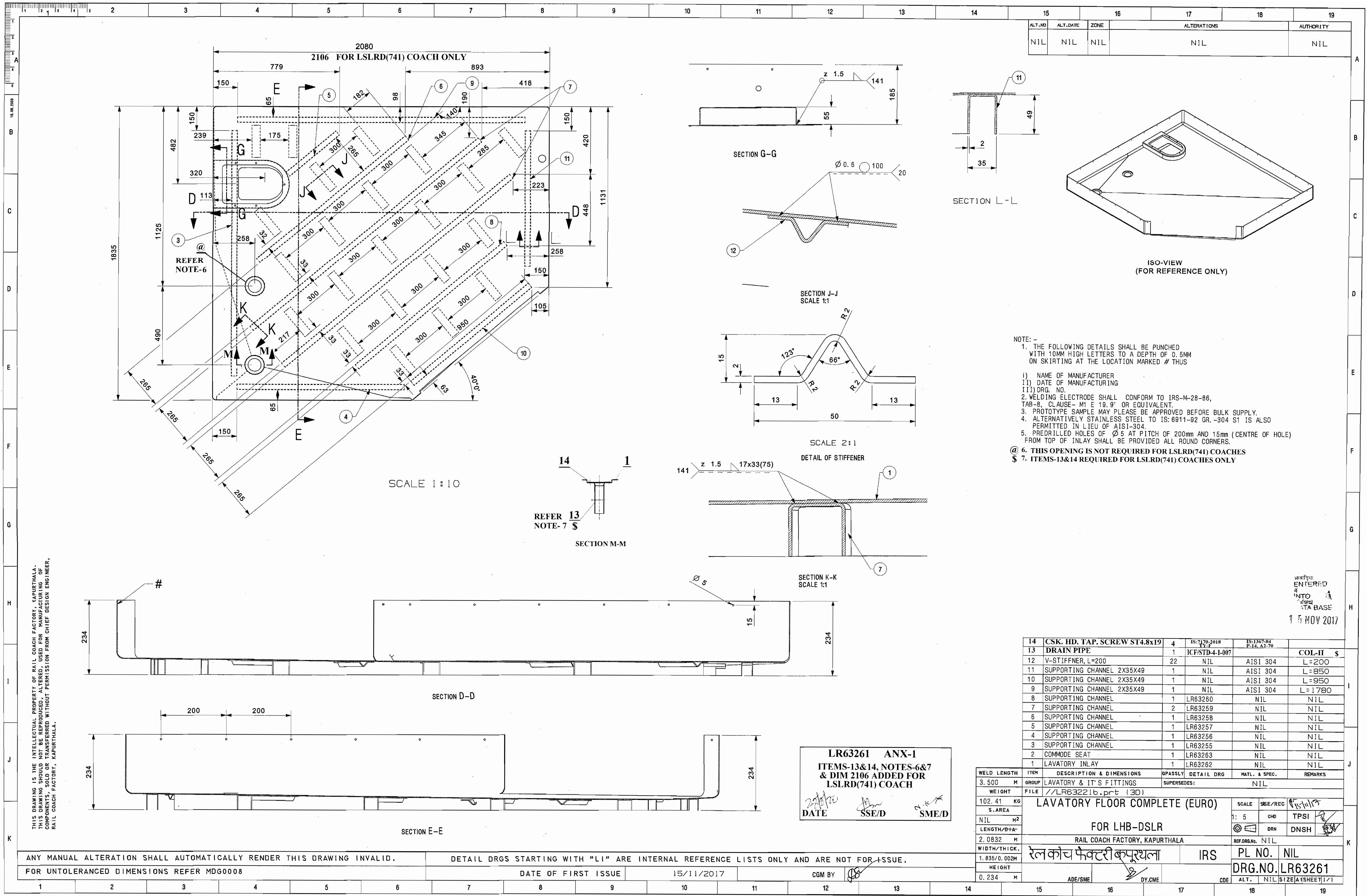




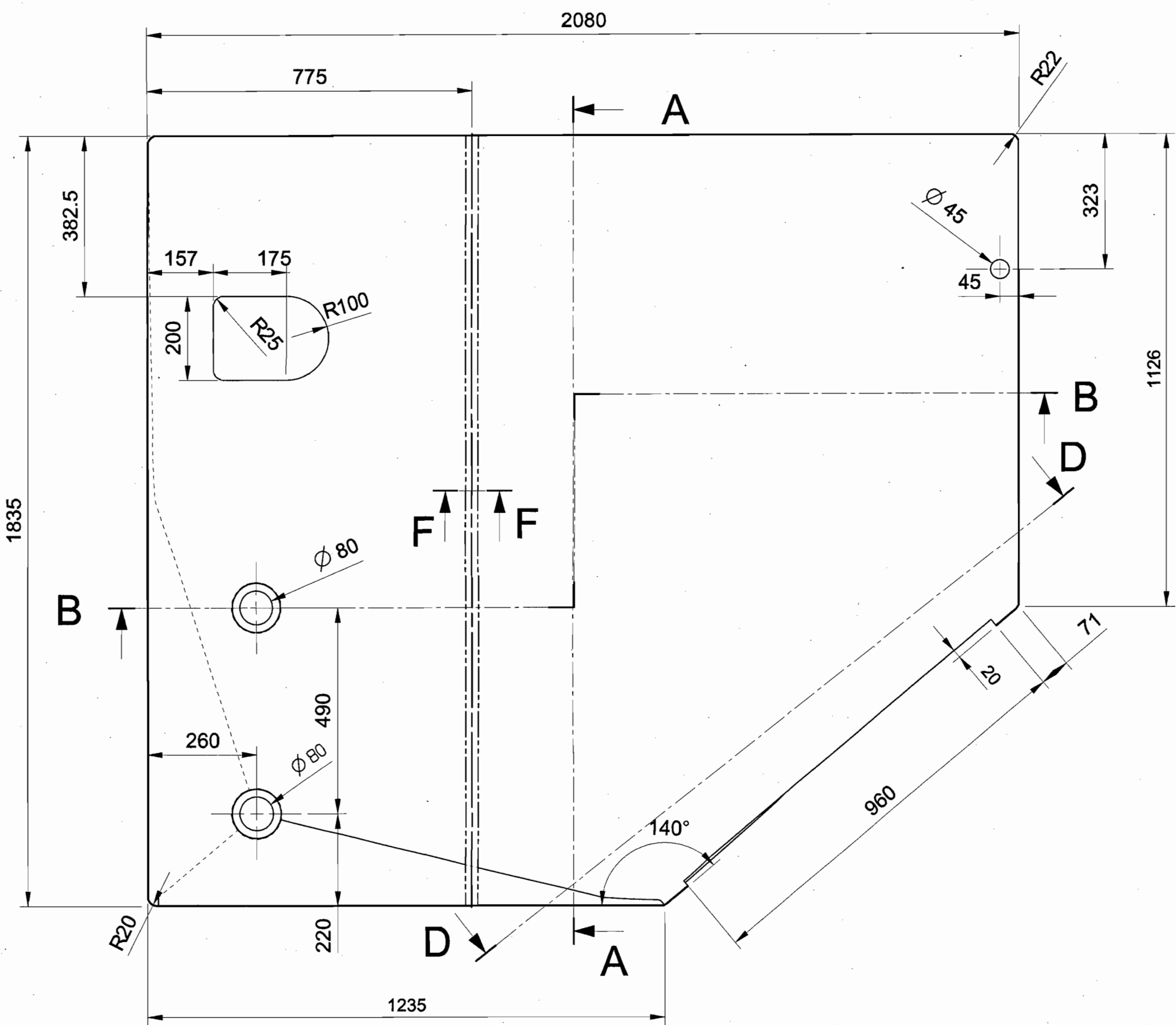
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| <div>NOTE: - 1. ALTERNATIVELY STAINLESS STEEL TO IS: 6911-93 GR. -304 S1 IS ALSO PERMITTED IN LIEU OF AISI304</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div>THIS DRAWING IS THE INTELLECTUAL PROPERTY OF RAIL COACH FACTORY, KAPURTHALA. THIS DRAWING SHOULD NOT BE REPRODUCED, ALTERED, USED FOR MANUFACTURING OF COMPONENTS, SOLD OR TRANSFERRED WITHOUT PERMISSION FROM CHIEF DESIGN ENGINEER, RAIL COACH FACTORY, KAPURTHALA.</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div>WELD LENGTH ITEM DESCRIPTION & DIMENSIONS QPASSLY DETAIL DRG MATL. & SPEC. REMARKS</div> <table><tr><td colspan="2">WELD LENGTH</td><td colspan="2">ITEM</td><td colspan="2">DESCRIPTION & DIMENSIONS</td><td colspan="2">QPASSLY</td><td colspan="2">DETAIL DRG</td><td colspan="2">MATL. & SPEC.</td><td colspan="2">REMARKS</td></tr><tr><td colspan="2">NIL</td><td colspan="2">M</td><td colspan="2">GROUP</td><td colspan="2">LAVATORY & IT'S FITTINGS</td><td colspan="2">SUPERSEDES: NIL</td><td colspan="2"></td><td colspan="2"></td></tr><tr><td colspan="2">WEIGHT</td><td colspan="2">FILE</td><td colspan="2">\\LR63260.prt (3D)</td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr><tr><td colspan="2">2.110</td><td colspan="2">KG</td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr><tr><td colspan="2">S.AREA</td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr><tr><td colspan="2">NIL</td><td colspan="2">M²</td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr><tr><td colspan="2">LENGTH /-DIA</td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr><tr><td colspan="2">NIL</td><td colspan="2">M</td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr><tr><td colspan="2">WIDTH /-THICK</td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr><tr><td colspan="2">NIL</td><td colspan="2">M</td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr><tr><td colspan="2">HEIGHT</td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr><tr><td colspan="2">NIL</td><td colspan="2">M</td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr></table> | | | | | | | | | | | | | | | | | | WELD LENGTH | | ITEM | | DESCRIPTION & DIMENSIONS | | QPASSLY | | DETAIL DRG | | MATL. & SPEC. | | REMARKS | | NIL | | M | | GROUP | | LAVATORY & IT'S FITTINGS | | SUPERSEDES: NIL | | | | | | WEIGHT | | FILE | | \\LR63260.prt (3D) | | | | | | | | | | 2.110 | | KG | | | | | | | | | | | | S.AREA | | | | | | | | | | | | | | NIL | | M ² | | | | | | | | | | | | LENGTH /-DIA | | | | | | | | | | | | | | NIL | | M | | | | | | | | | | | | WIDTH /-THICK | | | | | | | | | | | | | | NIL | | M | | | | | | | | | | | | HEIGHT | | | | | | | | | | | | | | NIL | | M | | | | | | | | | | | |
| WELD LENGTH | | ITEM | | DESCRIPTION & DIMENSIONS | | QPASSLY | | DETAIL DRG | | MATL. & SPEC. | | REMARKS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NIL | | M | | GROUP | | LAVATORY & IT'S FITTINGS | | SUPERSEDES: NIL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WEIGHT | | FILE | | \\LR63260.prt (3D) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.110 | | KG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S.AREA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NIL | | M ² | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LENGTH /-DIA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NIL | | M | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WIDTH /-THICK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NIL | | M | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HEIGHT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NIL | | M | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div>RAIL COACH FACTORY, KAPURTHALA</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div>रेल कोच फैक्टरी कपूरथला</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div>PL NO. NIL</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div>DRG.NO. LR63260</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div>ALT. NIL SIZE A3 SHEET 1/1</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div>DATE OF FIRST ISSUE 15/11/2017 CGM BY <i>Parneet</i></div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div>FOR UNTOLERANCED DIMENSIONS REFER MDG0008</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



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ENTERED
व
INTO
विलियं
DATA BASE
15 NOV 2017

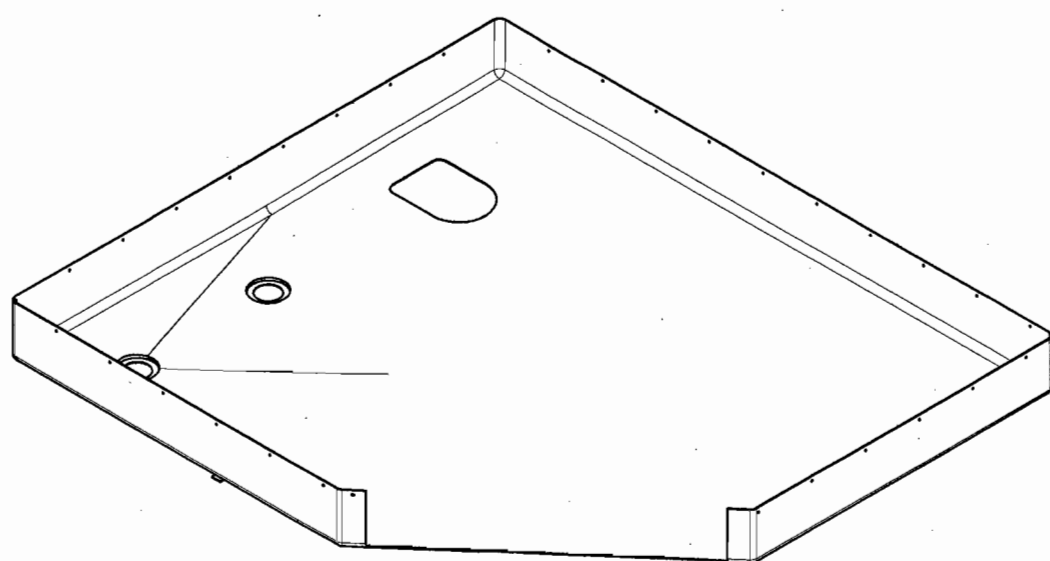


| ALT. NO | ALT. DATE | ZONE | ALTERATIONS | AUTHORITY |
|---------|------------|------------|--|-----------|
| α | 23/11/2019 | H15 B11 | 1. NOTE NO. 2 & 3 ADDED. 2. SECTION FF ADDED. | MD190036 |



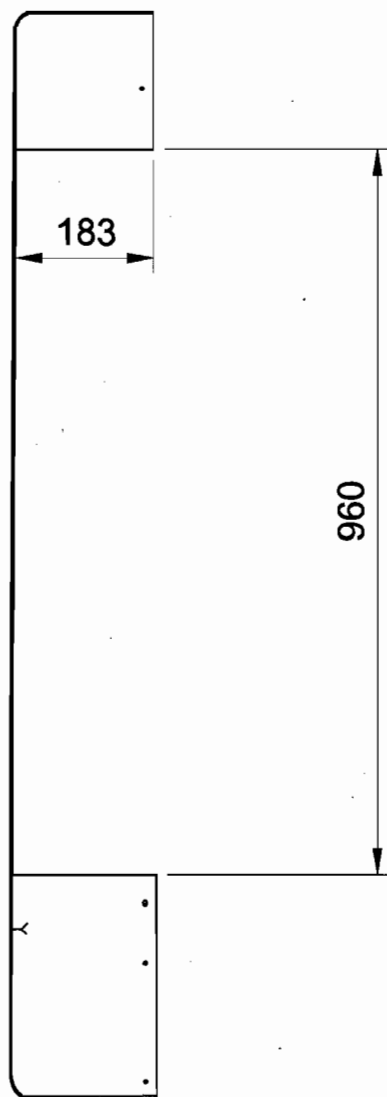
@ THIS WELDING SHALL PROPERLY BE MADE WITH PROVISION OF A SEALING RUN AND UPPER SURFACE GROUND & FINISHED

SECTION F-F
SCALE 1:2

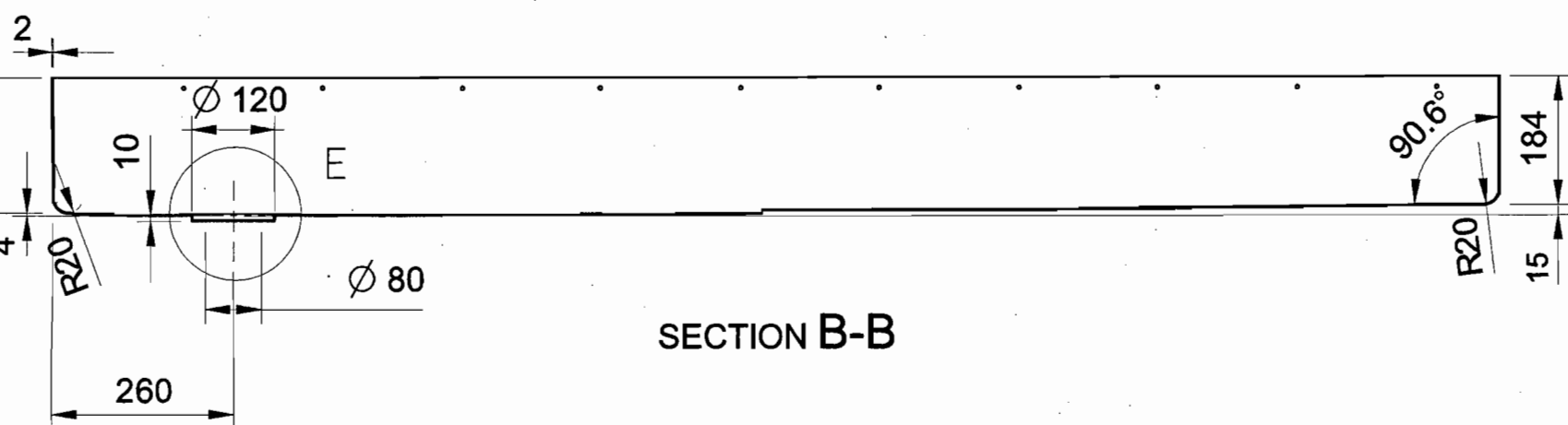


ISO-VIEW
(FOR REFERENCE ONLY)

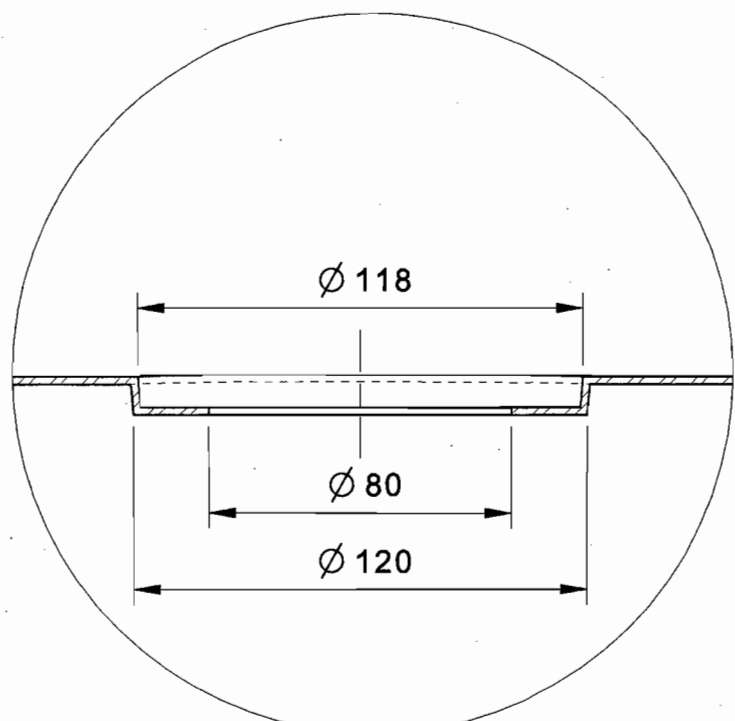
SECTION D-D



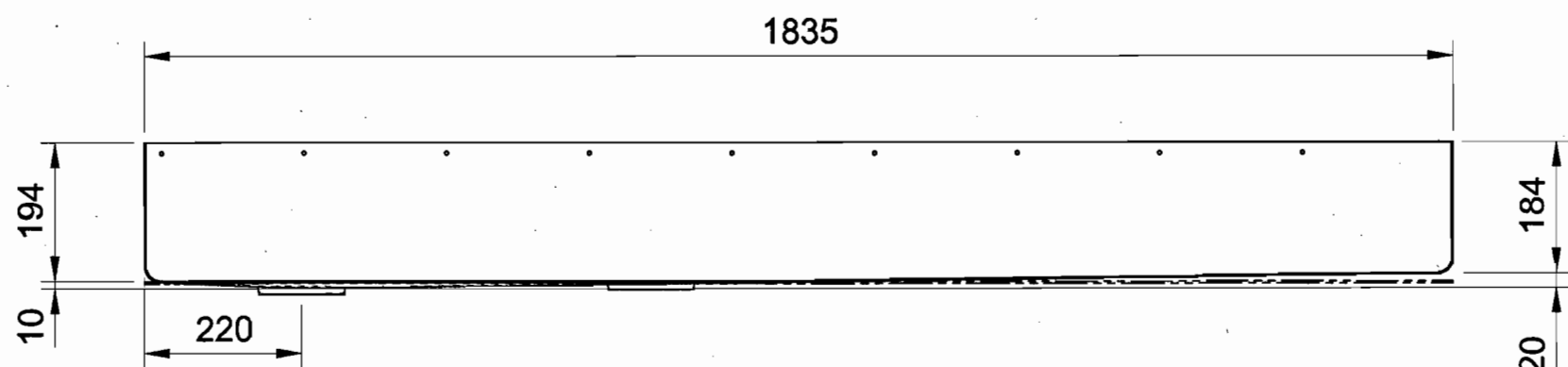
THIS DRAWING IS THE INTELLECTUAL PROPERTY OF RAIL COACH FACTORY, KAPURTHALA. THIS DRAWING SHOULD NOT BE REPRODUCED, ALTERED, USED FOR MANUFACTURING OR FOR ANY OTHER PURPOSE WITHOUT PERMISSION FROM CHIEF DESIGN ENGINEER, RAIL COACH FACTORY, KAPURTHALA.



SECTION B-B



DETAIL E
SCALE 1:2



SECTION A-A

NOTE:

1. ALTERNATIVELY STAINLESS STEEL TO IS:6911-92 GR.-304 S1 IS ALSO PERMITTED IN LIEU OF AISI-304.
2. ONE SUITABLE WELD JOINT IS ALLOWED AT ONE SIDE MARKED THUS @ SO AS TO OBTAIN THE REQUIRED SIZE OF THE INLAY BASED ON THE NORMAL SIZE OF THE RAW MATERIAL.
3. PREDRILLED HOLES OF Ø 5 AT PITCH OF 200mm AND 15mm (CENTRE OF HOLE) FROM TOP OF INLAY SHALL BE PROVIDED ALL AROUND CORNERS.

| WELD LENGTH | ITEM | DESCRIPTION & DIMENSIONS | QPASSLY | DETAIL DRG | MATL. & SPEC. | REMARKS |
|--------------|----------------|--|---------|---------------------|---------------|---------|
| NIL | M | LAVATORY & IT'S FITTINGS | | SUPERSEDES: LR63262 | ALT: NIL | |
| WEIGHT | FILE | \\\\LR63262a.prt (3D) | | | | |
| 74.000 | KG | SS INLAY FOR DISABLED LAVATORY OF LUGGAGE & BRAKE VAN CUM GENERATOR CAR LHB TYPE | | | | |
| S. AREA | | | | | | |
| NIL | M ² | | | | | |
| LENGTH/DIA | | | | | | |
| NIL | M | | | | | |
| WIDTH/THICK. | | | | | | |
| NIL | M | | | | | |
| HEIGHT | | | | | | |
| NIL | M | | | | | |
| WELD LENGTH | ITEM | DESCRIPTION & DIMENSIONS | QPASSLY | DETAIL DRG | MATL. & SPEC. | REMARKS |
| NIL | M | LAVATORY & IT'S FITTINGS | | SUPERSEDES: LR63262 | ALT: NIL | |
| WEIGHT | FILE | \\\\LR63262a.prt (3D) | | | | |
| 74.000 | KG | SS INLAY FOR DISABLED LAVATORY OF LUGGAGE & BRAKE VAN CUM GENERATOR CAR LHB TYPE | | | | |
| S. AREA | | | | | | |
| NIL | M ² | | | | | |
| LENGTH/DIA | | | | | | |
| NIL | M | | | | | |
| WIDTH/THICK. | | | | | | |
| NIL | M | | | | | |
| HEIGHT | | | | | | |
| NIL | M | | | | | |

ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID.

DETAIL DRGS STARTING WITH "LI" ARE INTERNAL REFERENCE LISTS ONLY AND ARE NOT FOR ISSUE.

FOR UNTOLERANCED DIMENSIONS REFER MDG0008

DATE OF FIRST ISSUE

15/11/2017

CGM BY

Anil kumar

MADE/SME

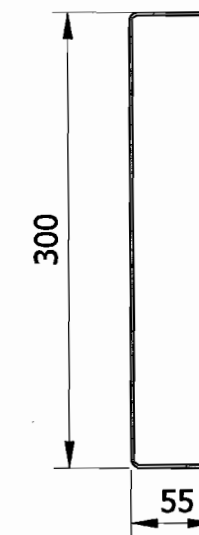
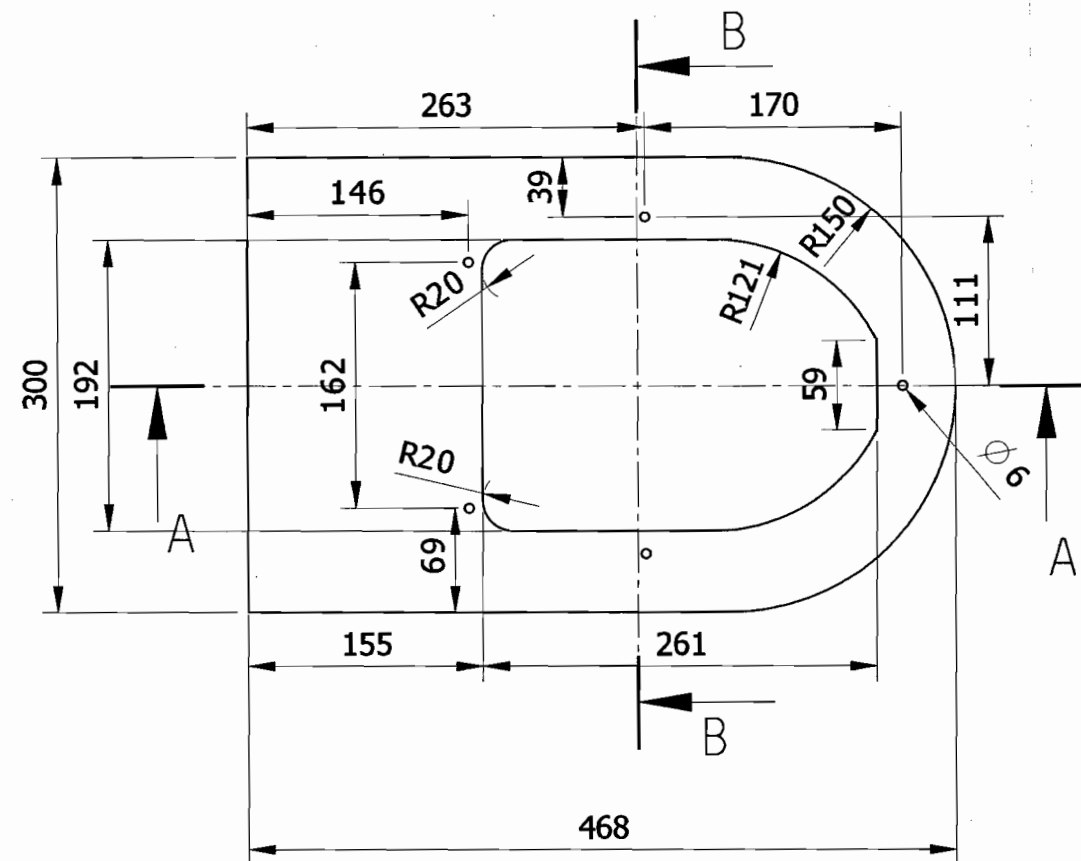
BY CME

CDE

ALT.

α

SIZE A1 SHEET 1/1

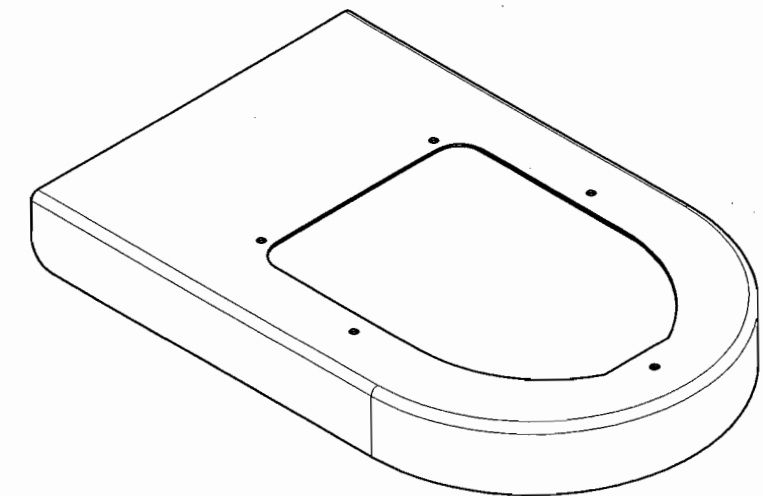


SECTION B-B



SECTION A-A

| ALT. NO. | ALT. DATE | ZONE | ALTERATIONS | AUTHORITY |
|----------|------------|------------|---|-----------|
| a | 16/07/2019 | B3, B4, B5 | 1. CUT OUT SIZE MODIFIED & DIM. CHANGED ACCORDINGLY. 2. SIZE AND LOCATION OF Ø9 DIA. CHANGED TO SIZE Ø6. | MD190009 |




ISO-VIEW
(FOR REFERENCE ONLY)

आकडिया
ENTERED
से
INTO
प्रविष्टियां
DATA

10 AUG 2019

- NOTE: -
1. ALTERNATIVELY STAINLESS STEEL TO IS: 6911-92 GR. -304 S1 IS ALSO PERMITTED IN LIEU OF AISI-304.

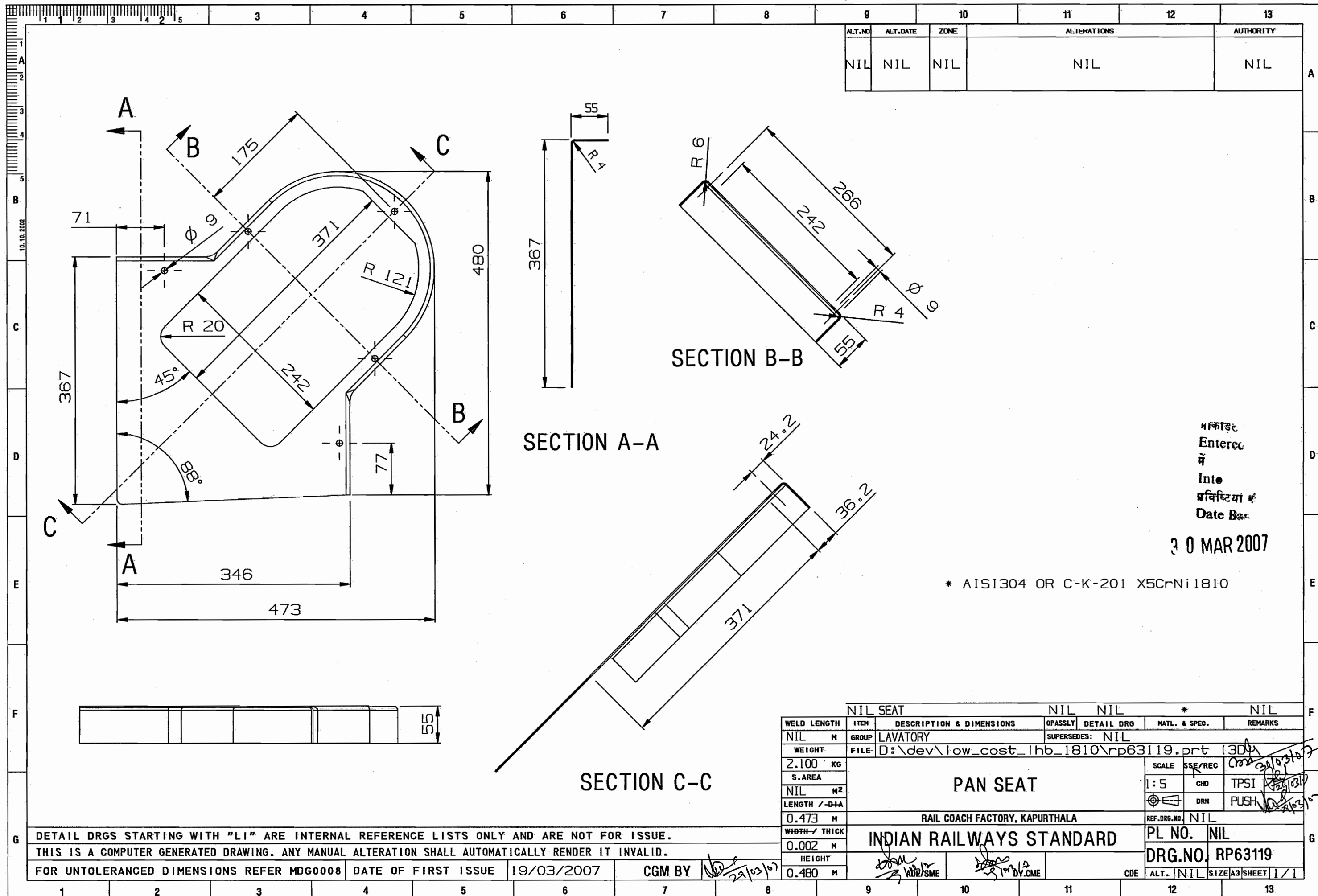
| | | | | | | | | | | | | | | | | | |
|---------------|--|----------------|--|--------------------------------|--|-------------------------|--|-----------------------------|--|---|--|---------|--|-------------------|--|-------------|--|
| NIL | | COMMODE SEAT | | NIL | | NIL | | AISI 304 | | NIL | | | | | | | |
| WELD LENGTH | | ITEM | | DESCRIPTION & DIMENSIONS | | OPASSLY | | DETAIL DRG | | MATL. & SPEC. | | REMARKS | | | | | |
| NIL | | M | | GROUP | | LAVATORY & ITS FITTINGS | | SUPERSEDES: LR63263 ALT NIL | | | | | | | | | |
| WEIGHT | | FILE | | \\LR63263a. pr t (3D) | | | | | | | | | | | | | |
| 2.250 | | KG | | COMMODE SEAT FOR SS INLAY | | | | | | SCALE | | SSE/REC | | 80% 1:10 ड्राइंग | | | |
| S. AREA | | | | | | | | | | 1: 5 | | CHD | | TPSI | | Handwritten | |
| NIL | | M ² | | | | | | | |  | | DRN | | ANLR | | Amil | |
| LENGTH / -DIA | | | | | | | | | | | | | | | | | |
| NIL | | M | | RAIL COACH FACTORY, KAPURTHALA | | | | | | REF. DRG. NO. | | NIL | | | | | |
| WIDTH / THICK | | | | रेल कोच फैक्टरी कपूरथला | | | | IRS | | PL NO. | | NIL | | | | | |
| NIL | | M | | | | | | | | DRG. NO. | | LR63263 | | | | | |
| HEIGHT | | | | DATE/SME | | DY. CME | | CDE | | ALT. | | a | | SIZE A3 SHEET 1/1 | | | |
| NIL | | M | | | | | | | | | | | | | | | |

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FOR UNTOLERANCED DIMENSIONS REFER MDG0008 DATE OF FIRST ISSUE 15/11/2017 CGM BY Anil



| 1 2 3 4 5 6 7 8 9 10 11 12 13 | | | | | | | | | | | | |
|-------------------------------|--|------------|--|------|--|--|--|--|--|-----------|--|--|
| ALT.NO | | ALT.DATE | | ZONE | | ALTERATIONS | | | | AUTHORITY | | |
| a | | 31/01/2011 | | ALL | | DIMESIONS 52 & 64 WERE 49 & 58 RESPECTIVELY. 2. NOTE MODIFIED. | | | | MD100026A | | |
| | | | | E-9 | | | | | | | | |

SECTION A-A

DEVELOPED VIEW

NOTE: -
ALTERNATIVELY STAINLESS STEEL TO IS: 6911-92 GR. -304S1 IS ALSO PERMITTED IN LIEU OF RDSO/SPEC. CK-201 X5CrNi1810(304).

04 FEB 2011

| WELD LENGTH | | ITEM | | DESCRIPTION & DIMENSIONS | | GROUP | | DETAIL DRG | | MATERIAL & SPEC. | | REMARKS | |
|---------------|--|----------------|--|--------------------------|--|---------------------|--|--------------------------------|--|------------------|--|-------------------|--|
| NIL | | M | | LAVATORY | | GROUP | | SUPERSEDES: RP63120 | | ALT NIL | | | |
| 1.300 | | KG | | FILE | | \\rp63120a.prt (3D) | | | | | | | |
| S.AREA | | M ² | | 0.631 | | M | | SUPPORTING CHANNEL | | SCALE 1:5 | | SEE/REG 04/02/11 | |
| LENGTH / DIA | | 0.035/0.002 | | M | | M | | RAIL COACH FACTORY, KAPURTHALA | | REF.DWG. NO. NIL | | SONI | |
| WIDTH / THICK | | 0.035/0.002 | | M | | M | | रेल कोच फैक्टरी कपूरथला | | IRS | | PL NO. NIL | |
| HEIGHT | | M | | NIL | | M | | DY.CME | | CDE | | DRG.NO. RP63120 | |
| | | | | | | | | | | | | SIZE A3 SHEET 1/1 | |

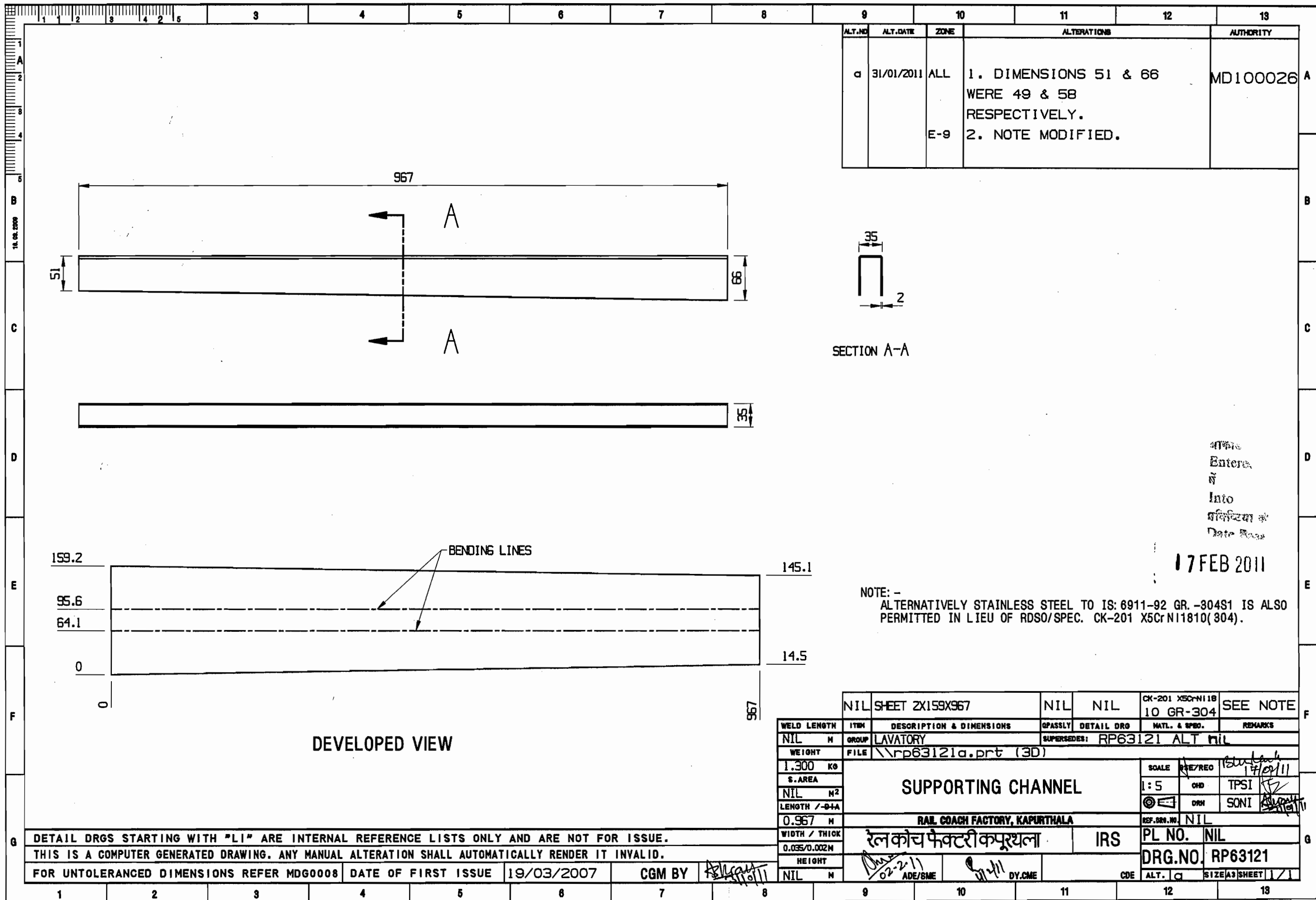
DETAIL DRGS STARTING WITH "LI" ARE INTERNAL REFERENCE LISTS ONLY AND ARE NOT FOR ISSUE.

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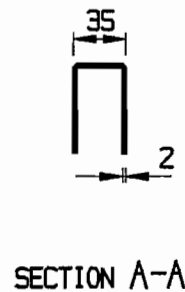
FOR UNTOLERANCED DIMENSIONS REFER MDG0008

DATE OF FIRST ISSUE 19/03/2007

CGM BY



| ALT.NO | ALT.DATE | ZONE | ALTERATIONS | AUTHORITY |
|--------|------------|------------|---|------------|
| a | 31/01/2011 | ALL E-9 | 1. DIMENSIONS 51 & 66 WERE 49 & 58 RESPECTIVELY. 2. NOTE MODIFIED. | MD100026 A |



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Date

17 FEB 2011

NOTE: -
ALTERNATIVELY STAINLESS STEEL TO IS: 6911-92 GR. -304S1 IS ALSO PERMITTED IN LIEU OF RDSO/SPEC. CK-201 X5CrNi1810(304).

| | | | | | |
|---------------|-----------------|--------------------------------|----------|--------------------------|----------|
| NIL | SHEET 2X159X967 | NIL | NIL | CK-201 X5CrNi1810 GR-304 | SEE NOTE |
| WELD LENGTH | ITEM | DESCRIPTION & DIMENSIONS | GROUP | DETAIL DRG | REMARKS |
| NIL | M | GROUP | LABATORY | SUPERSEDES: RP63121 ALT | NIL |
| WEIGHT | FILE | \\rp63121a.prt (3D) | | | |
| 1.300 | KG | SUPPORTING CHANNEL | | | |
| S. AREA | | SCALE 1:5 | | | |
| NIL | M ² | CHD | | | |
| LENGTH / DIA | | DRN | | | |
| 0.967 | M | RAIL COACH FACTORY, KAPURTHALA | | | |
| WIDTH / THICK | | REF. DRG. NO. NIL | | | |
| 0.035/0.002M | | PL NO. NIL | | | |
| HEIGHT | | DRG. NO. RP63121 | | | |
| NIL | M | ALT. a | | | |
| | | SIZE A3 SHEET 1/1 | | | |

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