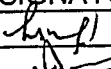

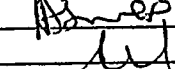
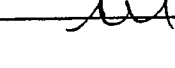


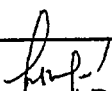
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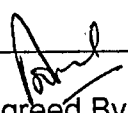
SCHEDULE	SCHEDULE OF INFRASTRUCTURAL REQUIREMENTS FOR MANUFACTURING & TESTING FOR WATER TANK MODULE TO DRAWING. NO. CC63723	MDST: 31 Rev: NIL PAGE 1 OF 4
		Dated 11.12.2005

SCHEDULE OF INFRASTRUCTURAL REQUIREMENTS FOR MANUFACTURING & TESTING FOR WATER TANK MODULE

NAME	DESIGNATION	SIGNATURE	DATE	LEVEL
Harish Kumar	SSE/VD		12/12/05	Prepared
Joginder Singh	ADE/VD		12/12/05	Agreed
Amitabh Sinha	Dy CME/TOT		12/12/05	Reviewed
S K Aggarwal	CDE		13/12/05	Approved

Issue/Rev	Details of Changes	Date


Prepared By


Agreed By

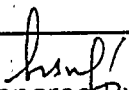
SCHEDULE	SCHEDULE OF INFRASTRUCTURAL REQUIREMENTS FOR MANUFACTURING & TESTING FOR WATER TANK MODULE TO DRAWING. NO. CC63723	MDST: 31 Rev: NIL PAGE 2 OF 4
		Dated 11.12.2005

1.0 REQUIREMENTS

1.1 This schedule is applicable for water tank module to drawing no. CC63723. The vendors seeking approval shall comply with all the requirements mentioned below :

2.0 GENERAL & MANUFACTURING FACILITIES

- 2.1 Covered area with adequate space underneath for storage of raw materials e.g. sheets, billets, round corner squares, rounds etc. The covered area should have display board showing different colour shades nominated to different grades of steel to avoid mix up of materials. Arrangement of painting the billets, RCS rounds etc. with particular paint shade previously nominated according to the grade of steel should be available.
- 2.2 At least 1 No. Fork-lift or 1 No. Over-head crane of 2t (Min.) capacity shall be available for material handling.
- 2.3 Minimum 1 No. of band saw /power hacksaw machine should be available.
- 2.4 Atleast one shearing machine of suitable capacity and of standard make shall be available.
- 2.5 Atleast one roll forming machine of suitable capacity and of standard make shall be available.
- 2.6 Adequate machining facilities comprising of universal milling machine, drilling, lathe with pipe threading facility etc. of suitable capacities and standard makes should be available.
- 2.7 At least one no. of profile cutting machine with suitable facilities shall be available.
- 2.8 The firm shall have atleast one press brake of suitable capacity along-with punch and dies for component forming.
- 2.9 Atleast one number of TIG welding machine of suitable capacity and standard make shall be available.
- 2.10 Adequate Nos. of hand grinders for removal of fins & burrs shall be available.
- 2.11 The raw material should be procured from authorized distributor of original manufacturer of steel and firm should procure material with test certificate from primary manufacturer.
- 2.12 The raw materials e.g. electrodes, hardware, rubber gaskets should be procured from the authorized distributor of original manufacturer and firm should procure material with test certificate.
- 2.13 The firm shall comply with IS:822 regarding selection of weld wire, storage of consumables, calibration of welding equipment , training of welder, testing of welding and remedies for welding defects.


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SCHEDULE	SCHEDULE OF INFRASTRUCTURAL REQUIREMENTS FOR MANUFACTURING & TESTING FOR WATER TANK MODULE TO DRAWING. NO. CC63723	MDST: 31 Rev: NIL PAGE 3 OF 4
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- 2.14 The welder shall have a minimum of 2 years experience of the same type of welding.
- 2.15 The fabricator shall have adequate fabrication and process capability to obtain all the tolerances and geometrical tolerances and shall have arrangement of jig/fixture/clamping device for main assembly & sub-assembly work.
- 2.16 The firm shall have in-house suitable facility of doing pickling and passivation of the tank and it's components.
- 2.17 The firm shall have separate painting booth with suitable exhaust facilities for application of red oxide zinc chromate primer and black enamel paint on flange & mounting surfaces.

3.0 TESTING FACILITIES

3.1 **Chemical Lab:** The firm should have permanent arrangement with NABL certified Lab or a reputed steel making company for arranging the spectro analysis of the material.

3.2 **Physical Testing Lab:** The firm must possess a well-equipped physical lab with following facilities:

- Universal Testing machine of 40t capacity with load/ deflection plotting arrangement to conduct UTS, Yield strength .
- The firm shall have arrangement for conducting non- destructive test for welding as per requirement of the purchaser in house.

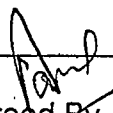
3.3 **Other Testing Facilities:** The firm shall possess the following:

- The firm shall have suitable arrangement at a pressure of 5 Kg/cm² in house for testing the leakage's etc.
- The firm shall have adequate facilities for preparation of test sample. Facilities like machining, grinding, polishing etc. should be available in house.
- Adequate number of fine punches for stamping marking particulars on finished components.
- Adequate numbers of measuring instruments such as:
 - Digital Vernier Calipers - 0 mm to 300 mm
 - Measuring scales – 3 meter
 - Inside & outside Micrometers - Ranging from 0 to 150 mm
 - GO & NO-GO gauges.
 - Profile gauges

4.0. QUALITY CONTROL REQUIREMENTS

4.1 There should be a system to ensure the traceability of the product from raw material stage to finished product stage. This system should also facilitate to identify the raw material


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SCHEDULE	SCHEDULE OF INFRASTRUCTURAL REQUIREMENTS FOR MANUFACTURING & TESTING FOR WATER TANK MODULE TO DRAWING. NO. CC63723	MDST: 31 Rev: NIL PAGE 4 OF 4
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composition from the finish product stage.

4.2 Ensure that there is a QAP for the product detailing various aspects: -

- QA Organisational Chart
- Flow Process Chart
- Stage inspection details
- Various parameters and to ensure control over them

4.3 There should be at least one full time technologist having a minimum bachelor's degree in relevant field & 5 years experience or a person with diploma in relevant field with 12 years experience.

4.4 The firm should have acquired ISO: 9000 series certification and the product for which an approval is sought should be broadly covered in the scope of the certification for manufacture and supply.

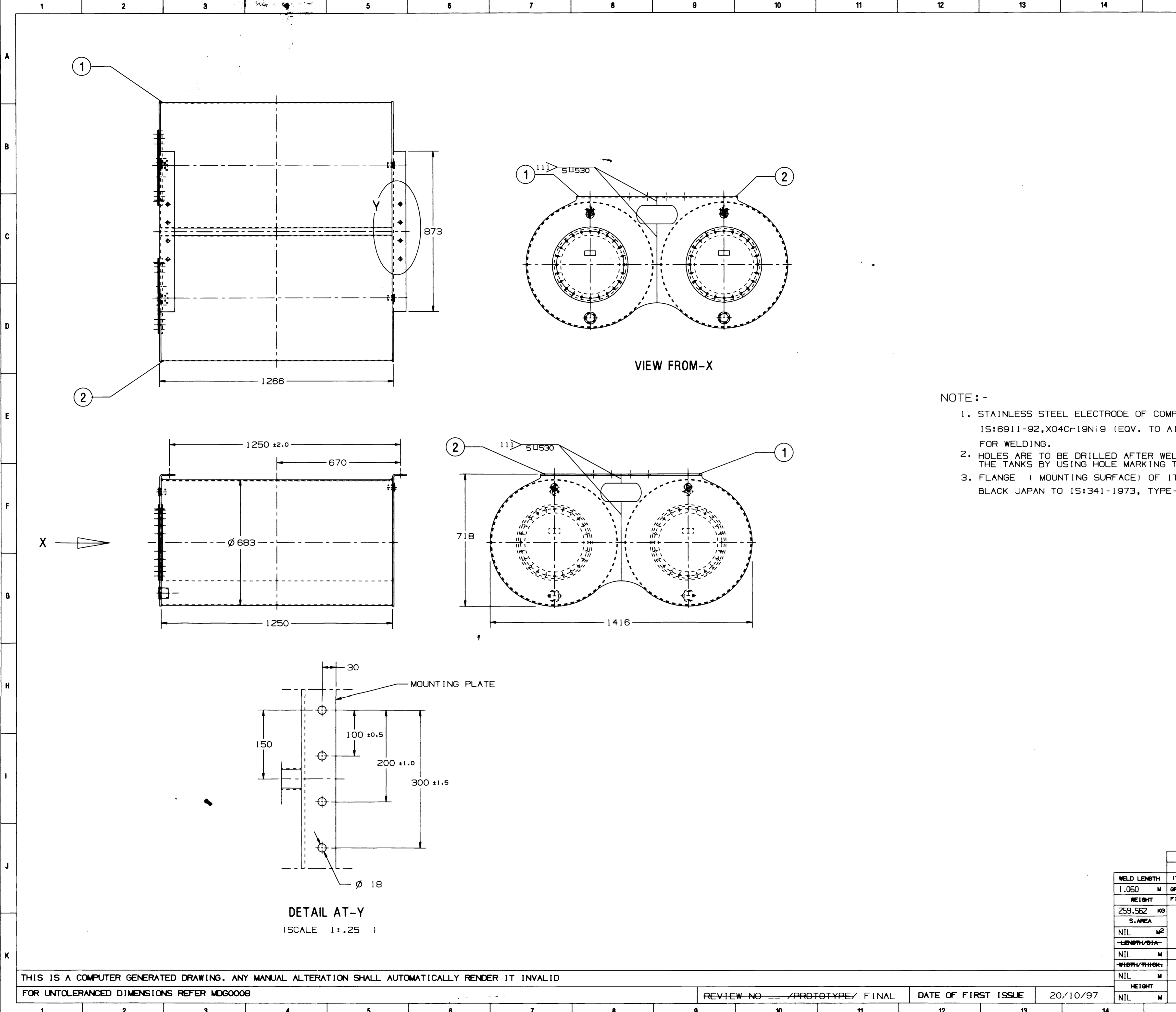
4.5 The Quality manual of the firm for ISO: 9000 should clearly indicate at any stage the control over manufacturing and testing of the said railway product.

4.6 The firm shall ensure that proper analysis is being done on monthly basis to study the rejection at various internal stages and it is documented.

4.7 The firm shall ensure that all the relevant specifications, IS standards are available with them.


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ALT. NO	ALT. DATE	ZONE	ALTERATIONS	AUTHORITY
0	02/08/99	C10, F10	1. VIEW MODIFIED AS PER COMPONENT DRGS.	MD990170
		I4	2. DETAIL AT Y ADDED.	
		C3, C7	3. 8 HOLES OF DIA 18 INCORPORATED.	
		C3, C7	4. DIM. 300 DELETED.	
		F5	5. DIM 1250 ± 2 WAS 1250	
		E5	6. DIM. 670 ADDED.	
		C10	7. WELDING SYMBOLS MODIFIED.	
		J14	8. WELD LENGTH ADDED.	
		J14	9. WEIGHT CORRECTED.	
		ALL	10. DRG. PROFORMA REVISED.	
		F14	11. NOTE - 2 UPDATED.	

NOTE :-

1. STAINLESS STEEL ELECTRODE OF COMPOSITION SIMILAR TO IS:6911-92, X04Cr19Ni9 (EQV. TO AISI : 304) SHOULD BE USED FOR WELDING.
2. HOLES ARE TO BE DRILLED AFTER WELDING BOTH THE MOUNTING PLATE OF THE TANKS BY USING HOLE MARKING TEMPLATE TO DRG. NO. XTO05201.
3. FLANGE (MOUNTING SURFACE) OF ITEMS 1 & 2 TO BE PAINTED WITH BLACK JAPAN TO IS:341-1973, TYPE-B (TWO COATS)

2	WATER TANK 450 LITRE (R.H.)	1	CC63722	NIL	NIL	
1	WATER TANK 450 LITRE (L.H.)	1	CC63710	NIL	NIL	
WELD LENGTH	ITEM	DESCRIPTION & DIMENSIONS	OPASSLY	DETAIL DRG	MATL. & SPEC.	REMARKS
1.060	M	GROUP	LAVATORY & ITS FITTINGS. SUPERSEDES: CC63723 ALT NIL			
WEIGHT	FILE	/USERS2/FURNISH/LVTRY/CC63723G.PRT				
259.562	KG	WATER TANK MODULE				SCALE
S.AREA					1:10	SSE/REC
NIL	M ²					CD
LENGTH/DIA					DN	AVTR
NIL	M	RAIL COACH FACTORY, KAPURTHALA				REF.DWG. NO.
HEIGHT					NIL	
NIL	M	INDIAN RAILWAYS STANDARD				PL NO. 01153274
HEIGHT					DRG.NO.	CC63723
NIL	M	DATE/SHE	DY. CODE	N.R	ALT.	SHEET
					0	1/1

THIS IS A COMPUTER GENERATED DRAWING. ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER IT INVALID FOR UNTOLERANCED DIMENSIONS REFER MDG0008

REVIEW NO. --- /PROTOTYPE/ FINAL DATE OF FIRST ISSUE 20/10/97