

TENDER SPECIFICATION

No. CLW/MS/3/110

ALT. ① ② ③

ENCLOSURES:

1. ANNEXURE:

- 2. DRG. NOS:- (i) 1209-07.132-010 ALT. ④
- (ii) 1209-07.132-011 ALT. ④
- (iii) 1209-07.132-012 ALT. ③

TOTAL NO. OF SHEETS: 5 (FIVE) + 1 ALT. SHEET ①

ALT.	1	②
SHEETS	6	2

SPECIFICATION FOR

AIR RESERVOIRS COMPLETE (MOUNTING TYPE) TO BE USED IN BRAKE SYSTEM OF 3 PHASE A.C. LOCOMOTIVE (WAG/9). (WAP-5)

ISSUED BY

DY. C.E.E./D II

CENTRE FOR DESIGN & DEVELOPMENT
CLW/CHITTARANJAN

PREP. BY.	CHECKED BY.	REVIEWED BY.	APPROVED BY.
SE	[Signature]	[Signature]	[Signature]
	SSE	AME/D II	DY. CEE/D II

Specification for
Air Reservoirs complete
(mounting type) to be
used in Brake System
of 3 Phase A.C. Locomotive
Live (WAG/9) (WAP-5)

CENTRE FOR DESIGN & DEVELOPMENT
C.L.W. CHITTARANJAN - 713331
NO. CLW/MS/3/110
DATE: 22.02.2000
ALT. NO. ① ② ③

2-8

SCOPE:

This specification covers the manufacture and supply of Air-Reservoirs for compressed air for Pneumatic Brake System in WAG-9 locomotive. Normal system working pressure is 10 Kg/sq.cm while operating air pressure may be as high as 11.5 Kg/sq.cm.

SCOPE OF SUPPLY :

Reservoirs to be supplied shall be as per CLW Drg.Nos. 1209-07.132-010 for Main Reservoir 450 ltrs. and 1209-07.132-011 for Brake supply Reservoir 240 ltrs. One loco Set of Reservoirs shall consist of 2 (two) Nos. of Main Reservoirs 450 ltrs. & 1 (one) No. of Brake Supply Reservoir 240 ltrs.

② - Drg. No. 1209-07.132-012 for 4 Nos. For WAG-5 Loco ONLY.

CLIMATIC & ENVIRONMENTAL CONDITIONS :

- a) Maximum atmospheric Temperature : Under Sun 70°C
In shade 50°C
- b) Humidity : 100% saturation during rainy season.
- c) Reference site conditions : i) Ambient Temp. Max. 47°C,
Min. 0°C
ii) Humidity - 60%
iii) Altitude - 160 mtrs. above sea level.
- d) Atmosphere during hot weather : Extremely dusty and desert terrain in certain areas.
- e) Coastal Area : Locomotive and equipment will be designed to work in coastal areas in humid and salt laden atmosphere.
- f) Vibration : The equipment and their mounting arrangement will be designed to withstand vibrations and shock encountered in service as specified in corresponding IEC Publication, unless otherwise stated.

GENERAL AND TECHNICAL DATA :

1. Normal working pressure : 10 Kg/sq.cm
2. Design Pressure : 11.5 Kg/sq.cm
3. Test Pressure: 1½ times Design Pressure (Hydraulic) - 17.0 Kg./sq.cm
4. The barrel of the reservoir is to be made by cold bending and the dishends by cold-pressing processes.

DETAILS OF MANUFACTURING PROCESS:

Given below are the stagewise process-descriptions of manufacturing in respect of cleaning, painting, testing & preventive measures.

CHECKED BY	REVIEWED BY	APPROVED BY	SPECIFICATION FOR AIR RESERVOIRS COMPLETE (MOUNTING TYPE) TO BE USED IN BRAKE SYSTEM OF 3-PHASE A.C. LOCOMOTIVE (WAG/9) (WAP-5)	CENTRE FOR DESIGN & DEVELOPMENT C. I. W. CHITTARANJAN-713331
SSS	AME/D III	DY.CEE/D II	NO. CLW/MS/3/110 DATE : 22.02.2000 ALT. NO. ① ② ③	

about the reservoir.

5.1 Removal of scale, rust & paint:

Before rolling and pressing of the steel plates used for the manufacture of the reservoirs, care must be taken to ensure that these are free from surface defects such as scale, rust, cracks etc.

5.2 Shot Blasting :

After rolling of the barrel and the barrel seam welding is complete the internal surface of the barrel is to be properly cleaned by shot blasting. The internal surfaces of the dish-ends are to be cleaned in the same process.

5.3 Cleaning with air and application of Red-lead :

After shot blasting of the barrel and the dish-ends, the internal surfaces of these components are to be cleaned by air at a pressure of 8 - 10 Kg./sq.cm. Then the same surfaces are to be coated with Red-lead primer, leaving a margin of about 50 mm for welding the dish-ends with the barrel. This operation should be done as quick as possible to avoid accumulation of dust particles on cleaned surfaces.

5.4 Welding of dish-ends and the Bosses :


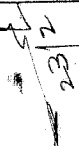


Welding of dish-ends to the barrel and the Bosses to the dish-ends and other weldings are to be done by CO₂ welding process. Types of various welding and edge preparations shall be according to what have been shown in reservoir drawing.

5.5 Application of Black Paint and Painting outer Surface :

On completion of all the welding, the reservoir should be thoroughly cleaned internally with air pressure at 8 to 10 Kg./sq.cm and then coating of special carbon black paint manufactured by reputed companies like M/s. Jhonson & Jhonson/M/s. I.C.I/M/s. Asia Paints etc. is to be given to the entire internal surface by providing the requisite quantity of the paint into the reservoir and rolling them in all directions. The entire outer surface of the reservoir is to be given first 2 coats (150 μ thick) of Primer-Sigma cover and then final 2 coats (70 μ thick) of Stone-Grey RAL 7030. Outer surface painting to be done only after the reservoir is being passed successfully the leakage test. The threaded surface shall be free from painting.

5.6 Leakage Test :

On completion, the reservoirs are to be tested with pneumatic pressure at 11.5 Kg./sq.cm and then with hydraulic pressure at one and half times of the pneumatic pressure (17.00 Kg./sq.cm) for detection of any leakage.

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				NO. CLW/MS/3/110 DATE : 22.02.2000 ALT. NO. ①②③	

5.7 Provision of Test Plate :

A suitable test plate must be provided on each reservoir. After testing of each reservoir various related/test data will have to be stamped under the supervision of competent inspection personnel. Each reservoir will have a serial number.

5.8 Threaded Safety Device :

On completion of the stage-wise manufacturing processes, threaded entries welded on the reservoirs are to be plugged with PVC/plastic caps (as indicated in reservoir drawings) to prevent any damage to the threads.

6. INSPECTION & ACCEPTANCE :

6.1 Type Test :

- a) The manufacturer shall indicate along with their offer kind of type tests to be carried out at the time of inspection at firm's premises. They shall have complete test equipments (including test racks) at their works to conduct such tests.
- b) The manufacturer shall offer one loco set of reservoirs for inspection at their works premises to be witnessed by an authorised representative of the purchaser ^{twice (i) Stage-wise inspection of the components i.e. barrel, dishes, & ram bosses, mounting angles etc. as separate items & in mounting (ii) final inspection of the Reservoir asssly. Complete.}

6.2 Routine Test :

Routine Inspection with various tests will be carried out by an authorised representative of the purchaser as per approved routine test programme supplied by the manufacturer.



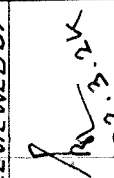

6.3 Inspection Plan :

The tenderer shall indicate the sample size including minimum size for routine inspection of each lot and the acceptance criteria for acceptance of the purchaser.

7. SUPPLY OF DOCUMENTS :

- 7.1. Any deviation if any from the specified values/drgs. shall be submitted by the tenderer at the time of offering the tender.
- 7.2 The tenderer shall submit all test procedures (both for type tests and routine tests), documents to conduct type tests and routine tests at the time of inspection.
- 7.3 The successful tenderer shall submit along with supply required copies of material/test certificates from a Central Govt./Rlys./RDSO/CLW approved test laboratory. Maintenance/overhaul manuals and instructions if any are also to be submitted.

8. QUALITY ASSURANCE : As per ISO 9000.

PREP. BY 	CHECKED BY 	REVIEWED BY  D. S. PV D. 2. 7. 2000	APPROVED BY  DY.CEE/DII	SPECIFICATION FOR AIR RESERVOIRS COMPLETE (MOUNTING TYPE) TO BE USED IN BRAKE SYSTEM OF 3 PHASE A.C. LOCOMOTIVE (WAG/9) WAP-5	CENTRE FOR DESIGN & DEVELOPMENT C.L.W. CHITTARANJAN - 713301
	SSS	AME/DIII		NO. CLW/MS/3/110 DATE : 22.02.2000 ALT. NO. ① ② ③	

9. MARKING FOR IDENTIFICATION :

9.1 Each assy. shall have clear readable marking on a marking plate provided on each reservoir. The marking shall be as follows :

- a) Manufacturer's Name/Trade Mark
- b) Drg.No./Part No./Type No.
- c) Year & Month of manufacture.
- d) Capacity in Litres.
- e) Minimum and Maximum working pressure.
- f) Batch No. if any.

10. GUARANTEE :


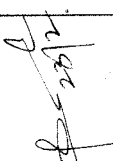
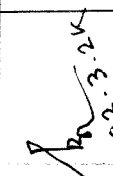
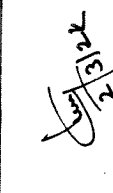
10.1 The reservoir assy. shall be guaranteed for satisfactory performance for a period of 6 (six) years from the date of delivery or 5 (five) years from the date of commissioning of the locomotive whichever is earlier. All the aspects of workmanship and material will be covered by the guarantee.

10.2 The component/material which fails during the guarantee period must be replaced by the manufacturer/contractor free of cost.

11. PACKING :

The threaded bosses shall be properly plugged with PVC/Plastic Cap and the entire reservoir assy. shall be properly packed to avoid damages during transit and storage.

① Dummy plates of suitable thickness are to be bolted to reservoir legs to avoid damage to the legs which occurs during loading/unloading and transit of the reservoirs.

PREPARED BY	CHECKED BY	REVIEWED BY	APPROVED BY	SPECIFICATION FOR AIR RESERVOIRS COMPLETE (MOUNTING TYPE) TO BE USED IN BRAKE SYSTEM OF 3 PHASE A.C. LOCOMOTIVE (WAG/9) (WAP-5)	CENTRE FOR DESIGN & DEVELOPMENT C.L.W. CHITTARANJAN - 715001
		 02.3.24 A.M.E./D.III	 2/3/24 D.Y.CEE/D.II		
					NO. CLW/MS/3/110 DATE: 22.02.2000 ALT. NO. ①②③

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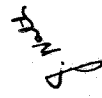


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PREP. BY	CHECKED BY	REVIEWED BY	APPROVED BY	SPECIFICATION FOR AIR RESERVOIRS COMPLETE (MOUNTING TYPE) TO BE USED IN BRAKE SYSTEM OF 3 PHASE A.C. LOCOMOTIVE (WAG/19) (WAP-5)	CENTRE FOR DESIGN & DEVELOPMENT C.T.W. CHITTARANJAN - 713201
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DETAILS OF ALTERATIONS

SL. NO.	DATE	DESCRIPTIONS	SIGNATURE	REMARKS
①	29.1.2002	ALT. SHEET (SHEET 6) ADDED. " DUMMY PLATES... OF THE RESERVOIRS" ADDED UNDER CLAUSE NO. 11 (PACKING).	 29.1.02	
②	22.8.11	DRG. NO. 1209-07-132-012 ALT. ③ ADDED. FOR WAP-5 LOCO.	 22.8.11	
③	12.1.15	IN SHEET NO-1 ALT NO OF DRG NO. 1209-07-132-011 ALTERED FROM ③ TO ④	 12.1.15	

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				SPECIFICATION FOR AIR RESERVOIRS COMPLETE (MOUNTING TYPE) TO BE USED IN BRAKE SYSTEM OF 3 PHASE A.C. LOCOMOTIVE (WAG/9) (WAP-5)	CHITTARANJAN LOCOMOTIVE WORKS CHITTARANJAN - 713331
SE	SSE	AME/D&D	DY.CME/D&D		DATE:- 29.1.2002 NO. CLW/MS/3/110
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