

TENDER SPECIFICATION  
NO. CLW/ES/15-5/R/0

WITH DRAWING NO. CLW/ES/15-1/15-5

TOTAL NO. OF SHEETS IN THIS SPEC.

ALT	A	B		
SHEETS	10	10		

SPECIFICATION FOR 25 KV  
SINGLE PHASE 50 C/S A.C.  
ELECTRIC LOCOMOTIVES

SIGNALLING HORN B

4 WAG7

( SON & BOP FOR WAG7 LOCOMOTIVES )

( SON, BOP & B FOR RAJDHANI LOCOMOTIVES )

DATE OF ISSUE: 8th January, 1993.

SIGNALLING HORNS  
( SON, BOP & B )

*Opal Chatterjee*  
০৪/০১/৯৩  
সুপ.মু.নি.অ.(অধি.)  
DY. CEE. (D)

বিশ্বজেন টেল ইন্ডিয় কারখানা  
পশ্চিম বঙ্গাল, ভারত  
CHITTARANJAN LOCOMOTIVE WORKS  
WEST BENGAL, INDIA  
কর্মসংখ্যা NO. CLW/ES/15-5/R  
দিন/তারিখ DATE:

ALT NO	DATE	DESCRIPTION	SIGNATURE	REMARKS
A	15.5.98	BURRER 'B-122' INTRODUCED FOR WAG-7 (MODULAR) IN CLAUSE (9) OF SHEET 6 VIDE L. No. ELDD/3205/KENDRA/1998	Aojl 15.5.98	
B	25.7.98	Min. 24 mm amended in place of 'min 30mm' of the third line of Cl. No. 925 Sheet No. 8.	Aojl 25.7.98	

SIGNALING WORKS  
(S&M, ROR & R)

Gopal Chandra  
08/1/93

उप.सु.वि.म. (अधि.)  
f DY. CEE. (D)

चितरंजन रेल इंजन कारखाना

पश्चिम बंगाल, भारत  
CHITTARANJAN LOCOMOTIVE WORKS  
WEST BENGAL, INDIA

क्रमांक/NO. CS.M/20/71-5/A  
दिनांक/DATE:

अधीन  
CHKO.

अधीन  
DRN.

I N D E X

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- 2.0 SERVICE CONDITIONS
- 3.0 DEVIATION
- 4.0 SUBMISSION OF TENDER *quotation.*
- 5.0 APPROVAL OF SAMPLE
- 6.0 CONDITIONS OF CONTRACT
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- 8.0 GUARANTEE
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- 10.0 STANDARD
- 11.0 TESTS
- 12.0 ENCLOSURE: Drg. No. CLW/ES/SIC-1/74-5

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CHKD.

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DRN

SIGNALLING HORNS  
(SOM, SOP & S)

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WEST BENGAL, INDIA

ड्रॉइंग नं०. CLW/ES/74-5/17  
दिनांक/DATE :

1.0 SCOPE

1.1 This specification covers the manufacture and supply of electric signalling horns for installation on the 25 KV, Single Phase 50 C/S A.C. Electric Locomotives of the Indian Railways.

2.0 SERVICE CONDITIONS.

2.1 As the equipment covered by the specification are routed on Locomotives, they shall be subjected to considerable vibrations and buffing shocks during service.

2.2 The equipment shall be suitable for working satisfactorily in an ambient temperature varying from 0°C to 60°C and maximum relative humidity of 100%. The locomotive shall be working on an altitude upto a maximum of 1000 metres above mean sea level.

3. DEVIATION

3.1 Any deviation from the standards laid down with a view to improve the performance, may be given due consideration provided, full particulars with justification, thereof, are furnished.

4.0 SUBMISSION OF TENDER QUOTATION.

4.1 All tenders documents including the quotation shall be submitted in duplicate. The tenderer shall inter-alia furnish the following along with the quotation.

- 1) Detailed dimensional drawings in three(3) copies.
- 11) Full technical particulars of the offer.

5.0 APPROVAL OF SAMPLE

5.1 The supplier shall make available at least two prototypes of the equipment proposed to be supplied by him for inspection and tests at his works and advise the Dy. Chief Electrical Engineer(Design), Chittaranjan & Controller of Stores, Calcutta as and when he is ready with the prototype and necessary testing and measuring apparatus and facilities for carrying out the tests.

5.2 After the above tests, if it is considered necessary by the Dy. Chief Electrical Engineer(Design) or his authorised representative to carry out any further tests or trials of the prototypes at Chittaranjan, the supplier will arrange for the same by the quickest means.

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SIGNALLING HORNS  
(SON, BCR & B )

*Copy of Chandan*  
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पौडवा बंगल, बरत  
CHITTARANJAN LOCOMOTIVE WORKS  
WEST BENGAL, INDIA  
क्रमांक/NO. CLM/SS/1500/11  
दिनांक/DATE:

- 5.3 Any short comings or defects in the design and workmanship of the equipment, shall be pointed out after the tests, to enable the manufacturer to incorporate the necessary improvements before bulk manufacture is commenced, without affecting the guaranteed deliveries or guaranteed performance characteristics.
- 5.4 Any testing and approval by the purchaser of the design, working drawing and prototype shall in no way absolve the supplier of his responsibilities under the terms of the contract for the equipment supplied.
- 5.5 The supplier shall not offer equipments of series production to the Inspector authorised under the contract until the prototype has been finally approved. The supplier shall provide all facilities to the Inspecting Officer at his works, to inspect and test the equipment.

6.0 CONDITIONS OF CONTRACT.

- 6.1 The standard I.R.S. conditions of contract will be applicable for the supply of the equipment.
- 6.2 Special Conditions Once a prototype is approved no contractor shall change his source of supply or sub-contractor for purchased components & sub-assemblies without CIW's approval.
- 7.0 Technical Documents and Drawings are to be furnished by the supplier as part of the contract, in 6 copies to Dy.CEE/D/CIW/Chittaranjan.
- 7.1 The following drawings and documents shall be supplied by the supplier.

I. TYPE TEST REPORT OR CERTIFICATE.

This shall be supplied in standard 'A4' size sheets with punched holes for filing. It shall be suitably enclosed in a cover. Type test reports shall have to be signed both by the suppliers engineers and CIW's Engineer or the Director of Inspection as the case may be-six(6) copies of the report shall be supplied.

II. ROUTINE TEST CERTIFICATE.

This shall be supplied in standard 'A4' size of sheets with punched holes for filing. Routine test certificates shall be submitted along with each individual equipment in 6 copies.

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SIGNALLING HORNS  
(SCH, ICR & S )

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पश्चिम बंगाल, भारत  
CHITTARANJAN LOCOMOTIVE WORKS  
WEST BENGAL, INDIA  
क्रमांक/NO. CLW/BS/11-5/R  
दिनांक/DATE:

III. DRAWINGS

The supplies shall submit at least ten(10) copies of drawings for the signalling horn ordered on his within two weeks from the date of receipt of the purchase order to Dy.Chief Electrical Engineer (Des & Dev) for approval. Any discrepancy, correction considered necessary will be indicated on the drawings, and suppliers shall take due note of them and effect Supplies accordingly.

8.0 GUARANTEE

8.1 The supplier shall give a guarantee of clear 24 months on all components from the date of despatch of the equipment. Any damage or defect noticed during the period due to defective material or workmanship, will be replaced by the supplier free of cost. The manufacturer shall arrange to send his Technical Officer for investigation to anywhere on the Indian Railways where the equipment will be working on the locomotive and shall submit a report of his investigation together with his proposals for any modification or improvements to the Dy.Chief Electrical Engineer (Design) for approval before commencing the repair works under guarantee.

9. TECHNICAL SPECIFICATION

The signalling horns covered by this specification will be used to indicate :-

- i) Over voltage to the traction motor armature (SCN-1 & 2)
- ii) Low pressure in air brake reservoir (BCR-1 & 2) <sup>(A)</sup>
- iii) Passenger alarm (B-1& 2) - for Rajdhani <sup>and WAG-7 (Modular)</sup> Locomotives.

9.1 Technical Specification for piezo buzzer type signalling horn

- 9.1.1 Piezo buzzer covered by this specification shall be mounted in the driving cab of the locomotive for giving audible warning to the driver.
- 9.1.2 Piezo buzzer shall generally conform to sketch No. CLW/ES/SK-1/  
Ms. The above sketch is for guide line only. Firms should submit their drawings to Dy.Chief Elect.Engg.(Des. & Dev)/CLW/Chittaranjan for scrutiny and approval.
- 9.1.3 Piezo buzzer shall be suitable for operation from DC supply of nominal voltage of 110V with a voltage range varying from 60V to 130V which can be capable of giving an intensity of sound of 100 ± 3 decibel measured at a distance of 1 mtr. along the axis of the buzzer.

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SIGNALLING HORNS  
(SCN, BCR & B )

*General Check*  
08/1/93  
अनुमोदित (अध.)  
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चितरानजन लोकोमोटिव वर्क्स  
वर्स्ट बंगाल, इण्डिया  
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WEST BENGAL, INDIA  
क्रमांक/NO. CLW/ES/11-5/A  
दिनांक/DATE:

- 9.1.4 The buzzer shall be protected against failure due to polarity reversal and transient voltages.
- 9.1.5 The terminals provided for electric connection shall be suitable for connection of 3 mm Sq. crimped elastomeric cables. The terminals shall have minimum 30 mm distance between them to avoid short circuit. The terminals shall be of MS threaded brass stud with double nut, flat washer and spring washer.
- 9.1.6 The PCB used should be glass epoxy-base of suitable grade and tracks conforming to relevant clause of IEC-571. All steel surfaces shall be treated as anti-corrosive/rusting properties.
- 9.1.7 The manufacturer shall provide one name plate with the following particulars : -
- i) Permanent identification mark.
  - ii) Manufacturer's name.
  - iii) Year and month of manufacture.
  - iv) R a t i n g.
  - v) Serial number.
  - vi) Ref. IEC No.
- 9.2 Technical specification for electronic type of signalling horns.
- 9.2.1 Electronic type of signalling horn covered by this specification shall be mounted in the driving cab of the locomotive for giving audible warning to the driver.
- 9.2.2 Electronic type of signalling horn shall generally conform to sketch No. CLW/ES/5X-1. The above sketch is for guide line only. Firms can submit their drawings to Dy. Chief Elect. Engineer (Des & Dev) /CLW/Chittaranjan for scrutiny and approval.
- 9.2.3 Electronic type of signalling horn shall be suitable for operation from DC supply of nominal voltage of 110V with a voltage range varying from 68V to 136V, which can be capable of giving an intensity of sound of  $100 \pm 3$  decible measured at a distance of 1 mtr. along the axis of the horn.
- 9.2.4 The horn shall be protected against failure due to polarity reversal and transient voltages.

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SIGNALLING HORNS  
(SON, SCR & H)

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23/1/95  
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चितरंजन लोकोमोटिव वर्क्स  
वीरवार नगर, बंगलूर  
CHITTARANJAN LOCOMOTIVE WORKS  
WEST BENGAL INDIA  
REF. NO. CLW/ES/5X-1/A  
दिनांक:

9.2.5 The terminals provided for electric connection shall be suitable for connection of 3 mm sq. crimped elastomeric cables. The terminals shall have minimum 30 mm distance between them to avoid short circuit. The terminals shall be of M5 threaded brass stud with double nut, flat washer and spring washer.

9.2.6 The manufacturers shall provide one name plate with the following particulars : -

- i) Permanent identification mark.
- ii) Manufacturer's name.
- iii) Year and month of manufacture.
- iv) Rating.
- v) Serial number.
- vi) Ref. IEC No.

10. STANDARD

Indian standard specification 4 IEC

The latest shall be applicable with respect to electronic and piezo buzzer type of signalling horns and the materials used in their manufacture. The drawings for the 2 types of signalling horns enclosed are hereby for the purpose of guidance.

NOTE: 1. Suppliers shall have the option to quote for both the 2 types of signalling horns as mentioned above.

2. CLW reserves the right to procure material only from ISO certified firms.

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WEST BENGAL, INDIA  
अनुसंधान NO. CLW/RS/H-5/R  
दिनांक/DATE:



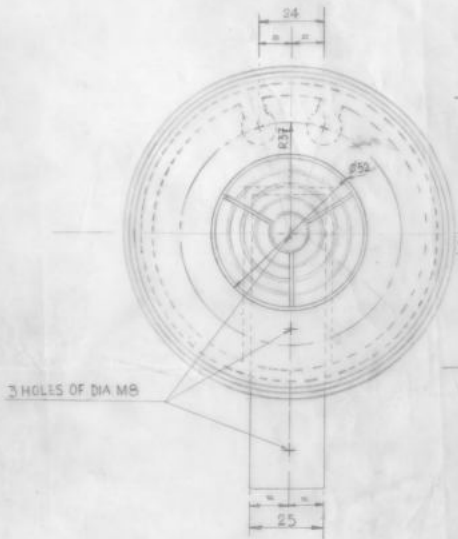
The following type test and Routine Tests shall be carried out: -

Type Tests	Routine Tests
1. <u>Visual Examination:</u> The horn shall be examined for finish, workmanship, electrical connection, overall dimensions.	Same as type test.
2. <u>Load Test:</u> The max. current consumption of the horn shall be observed at rated voltage.  The load current shall not exceed 0.5A	-do-
3. <u>Performance test:</u> The horn when connected to the following limits of voltage (68V to 136V) shall function satisfactorily.  Rated voltage of the horn-110V performance limits of voltage: Max-136V Min-68V	-do-
4. <u>Vibration test:</u> As per IS 1884:1993	Not required.
5. <u>Endurance test:</u> The horn shall be suitably mounted and operated for 100,000 operation. The duration of each blast should be one second followed by an interval of 3 Sec. The horn should give full volume and satisfactory tone through out the operation.	-do-
6. <u>Sound Loudness test:</u> The horn shall be capable of giving an intensity of sound measured at a distance of one metre along the axis of the horn, with a voltage range varying from 68V to 136V, $100 \pm 3$ decible.	Same as type test.
7. <u>High voltage test:</u> The test piece shall be subjected to one min. electrification with an AC 1KV RMS at 50 C/S between shorted terminals and the earthed body.	Same as type test.
8. <u>Insulation Resistance test:</u> The insulation resistance shall be measured with 500V megger. The resistance shall not be less than one megohms.	-do-

SIGNALLING HORN  
(SCN, SCR & S )

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CHITTARANJAN LOCOMOTIVE WORKS  
WEST BENGAL, INDIA  
कर्मचारी नं. CLW/ES/11000/19  
दिनांक/DATE :



3 HOLES OF DIA 18

- 1 APPLICABLE FOR WAG-5, WAG-7, & WAP1P LOCS.
- 2 ASSLY DRG. No. FOR :-
  - i) WAG-5:- CLW.1W.7002.12
  - ii) WAG-7:- CLW. 1W.7002.12
  - iii) WAP1P):- CLW.3W.8009.92 ALT.C

F244/526		P244/526 R 244/5031	SIGNALLING HORN PIEZO BUZZER TYPE		4	4	6
WAG5		WAG7	WAP1P	SIGNALLING HORN ELECTRONIC TYPE			
C & D No.				WAG5			
WAG7		WAP1P		WAG7			
WAP1P				WAP1P			
REF. NO.		REF. NO.		REF. NO.		REF. NO.	
C & D NO.		PART DRG. NO.		DESCRIPTION		QUANTITY PER LOCO	
DRAWN		CHECKED		APPROVED		BY	
BY		BY		BY		BY	
DATE		DATE		DATE		DATE	
SCALE		SCALE		SCALE		SCALE	
APPROVED		BY		WAG-5, WAG-7 & WAP1P		CHITTARANJAN LOCOMOTIVE WORKS	
SIGNALLING HORN		ELECTRONIC TYPE & PIEZO BUZZER TYPE		APPROVED		BY	
APPROVAL REF.		APPROVAL REF.		APPROVAL REF.		APPROVAL REF.	



संशोधन संख्या	संशोधन संख्या	वर्णन	परिशीलन
REV. NO.	REV. NO.	DESCRIPTION	INITIAL

वर्णन संख्या	वर्णन संख्या	वर्णन संख्या	वर्णन संख्या	वर्णन संख्या	वर्णन संख्या	वर्णन संख्या	वर्णन संख्या	वर्णन संख्या	वर्णन संख्या	वर्णन संख्या	वर्णन संख्या
REV. NO.	REV. NO.	REV. NO.	REV. NO.	REV. NO.	REV. NO.	REV. NO.	REV. NO.	REV. NO.	REV. NO.	REV. NO.	REV. NO.