

TENDER SPECIFICATION

Page
Sheet - 1

No. CLW/ES/R2

ALT.	A	B	C	D	E	F	G	H	I	J	K
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ENCLOSURES :

1. DRG. No. CLW/ES/SK-1/R-1

ALT.											
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2. DRG. No. CLW/ES/SK-2/R-2

ALT.											
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TOTAL No. OF SHEETS IN THIS SPECN.

ALT.	A	B	C	D	E	F	G	H	I	J	K				
SHEETS	1	1	1	1	1	1	1	1	1	1	1				

SPECIFICATION FOR
SEQUENCE AND SIGNALLING
RELAYS FOR
25 KV AC ELECTRIC LOCOMOTIVES
CLASS: WAM4, WAG5A, WAG5B,
WAP, WAG-7, WCM-6/WC4-3.

ISSUED BY

DY. CHIEF ELECTRICAL ENGINEER (DE/D)

CHITTARANJAN LOCOMOTIVE WORKS

P.O : CHITTARANJAN - 713331

DIST. BURDWAN, WEST BENGAL, INDIA.

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CHKD.अधीन
DRN.

SEQUENCE & SIGNALLING

[Signature]
रप.पु.नि.व.(अधि.)
DY. CEE. (D)

चिन्नारंजन रेल इंजन कारखाना
पलियम बंगाल, भारत
CHITTARANJAN LOCOMOTIVE WORKS
WEST BENGAL, INDIA

अंक/ NO. :

DETAILS OF ALTERATIONS

Page
Sheet 2

ALT	DATE	DESCRIPTION	SIGNATURE	REMARKS
A	3.10.77	Annexure B added	Sd/-	
B	23.12.77	Sl.No.9 added and Qty/Loco indicated in Annexure A.	Sd/-	
C	10.8.78	Sl.No.9 deleted in Annexure A as the Schematic modified.	Sd/-	
D	18.2.81	OSI relay contacts modified	Sd/-	
E	27.12.84	Clause 11 added		
F	07.2.85	Sheet 8 added for English Electric relays procurement.		
G	24.7.86	1/48 and 1/49 size of M/s. English Electric Co. drgs are added in sheet 12 & 13		
H	8.7.87	SPACE AVAILABLE INDICATED IN SHT.No.10		
I	23-9-88	Annexure A & B deleted. Contact configuration and model no. in sheet no. 9 modified to get more interchangeability of relay for loco production.		23/9/88
J	4-1-94	Item no 4 in sheet No 9 deleted for implementation of Head light complete with Emergency Lamp.		4/1/94
K	30-3-99	CLAUSE 12 IS ADDED IN SHEET 7		30-3-99

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SPECIFICATION FOR
SEQUENCE AND
SIGNALLING RELAYS

यु.ए.वि.ए.(सि.)
DY. CEE. (D)

चिन्नारंजन रेल इंजन कारखाना
पश्चिम बंगाल, भारत
CHITTARANJAN LOCOMOTIVE WORKS
WEST BENGAL, INDIA
आंक/ NO. : CLM/SS/3-3/4 F-K
दिनांक/ DATE : 14

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 2.0 Service conditions
 3.0 Conditions of contract
 4.0 Technical Documents and Drawings to be furnished by the Supplier as part of the contract.
 5.0 Guarantee
 6.0 Quotations Proforma.
 7.0 Technical Specification
 8.0 Standard
 9.0 Drawings
 10.0 Tests
 11.0 SPECIAL CONDITION

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SPECIFICATION FOR

CHITTARANJAN LOCOMOTIVE WORKS
WEST BENGAL, INDIA.

No. CLW/83/R-7/2 JK

DATE: MAY, 1972.

DY. C.E.E.

1.0 Scope of the contract.

1.1 This specification covers the manufacture and supply of Relays 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 relays covered by the specification are mounted on Locomotives, they shall be subject to considerable vibrational and buffing shocks during service.

2.2 The Relays shall be suitable for working satisfactorily in an ambient temperature varying from 0°C to 50°C and a maximum relative humidity of 100%. The locomotive shall be working in an altitude upto a maximum of 1000 metres above mean sea level.

3.0 Conditions of contract.

3.1 The standard I.R.S. conditions of contract will be applicable for the supply of the equipment.

4.0 Technical Documents and Drawings to be furnished by the supplier as part of the contract.

4.1 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 of 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 supplier's engineers and CLW's engineers. Ordinarily 10 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 batch of the relays in 6 copies.

III. Maintenance Manuals:

Maintenance Manuals shall be prepared in standard 'A4' size paper with punched holes for filing, 6 (Six) copies of the maintenance manual shall be supplied at the same time as the first lot of bulk supply of relays.

IV. DRAWINGS:

Detailed dimensioned drawings in ten (10) copies shall be supplied in standard sizes of paper viz. 'A4', 'A3', 'A2' etc. indicating the constructional features to such a scale as to enable appreciating details of construction, assembly etc.

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SPECIFICATION FOR

BY: C.E.E. (1)

CHITTARANJAN LOCOMOTIVE WORKS
WEST BENGAL, INDIA.

No. CLW/BS/R-2/1 & K

DATE: MAY, 1972.

5.0 Guarantee:

5.1 The supplier shall give a guarantee of clear 12 months on all components from the date of commissioning of the relays on the locomotive and any damage or defect noticed during the period due to defective material or workmanship, will be replaced by the supplier free of cost.

6.0 Submission of Tender quotation:

6.1 All tender documents including the quotation shall be submitted in duplicate including any correspondence till a contract is finalised.

6.2 List of recommended spares for maintenance of the relays for two years.

6.3 Technical data as per data sheet given in Annexure 'B'.

7.0 TECHNICAL SPECIFICATIONS7.1 RATING

Rated Voltage = 100 Volts, DC.

Range of working voltage = 70 to 125 Volts DC

Auxiliary Contact :-

Making rating = 10 A.

Continuous rating = 10 A

Braking rating = 2 A Inductive load at 100V.dc
(L/R = 40 ± 5 ms)

Contact arrangement . . . As shown in Annexure 'A'
enclosed, Duty Continuous.

7.2 TEMPERATURE RISE

The maximum temperature rise of the various components shall not exceed the following values when subjected to maximum operating voltage/current.

Operating Coil with Class 'B' insulation 60°C

" " " 'E' Insulation 50°C

Contacts 50°C.

7.3.0 TERMINALS

7.3.1 The terminals shall be such that they cannot turn or be displaced when the connecting screws are tightened and such that the conductors cannot become displaced.

7.3.2 The terminals intended for the connections of external conductors shall be so arranged that they are readily accessible. Each terminal connection shall be suitable for connecting two cables of 3mm² with cable lugs.

Contd. 6

SPECIFICATION FOR
SEQUENCE AND SIGNALLING
RELAYS

CHITTARANJAN LOCOMOTIVE WORKS
WEST BENGAL, INDIA.

No. M CLW/ES/R-2/2 JK

DATE: May, 1972.

DR. G. E. E. D.

7.8.0 CLEARANCE AND CREEPAGE DISTANCE

7.8.1 The values of the minimum clearances and creepage distances shall correspond to those given in IEC 255-I-1967.

7.9.0 Mounting

7.9.1 The relay shall be flush panel mounted type having rubber resilient mounting.

7.10.0 ENCLOSURE

7.10.1 The relay shall be provided with a totally dust proof case. The supporting frame work shall not be liable to distortion as a result of change of temperature, presence of moisture or other normal service conditions.

7.10.2 The enclosure, shall be so arranged that when it is opened, the terminals are readily accessible.

7.11.0 All components, including bolts, nuts, washers, screw etc. of the relay shall be suitably protected against corrosion and rust.

7.12.0 RATING PLATE

7.12.1 Each relay shall be provided with a rating plate carrying the following data, marked in a durable manner and located in a place such that they are visible and legible when the relay is installed.

- Manufacturer's name and trade mark
- Type designation and serial number
- Rated operating voltage
- Rated insulation voltage

8.0 STANDARDS:

8.1 The relays shall be manufactured to IS:3231-1965.

9.0 DRAWINGS:

9.1 The firm shall arrange to send along with their quotation all the drawings so as to appreciate the constructional and design features and overall mounting dimensions. The drawing shall also indicate reference or code numbers of each individual component of the relay, material specification, quantity per relay, etc.

10.0 TESTS:

10.1 Type tests: - As per IS: 3231-1965

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SPECIFICATION FOR
SEQUENCE AND SIGNALLING
RELAYS

BY: C.E.E. (D)

CHITTARANJAN LOCOMOTIVE WORKS
WEST BENGAL, INDIA.

No. CLW/ES/R-2/208K

DATE: May, 1972.

10.1.1 Six copies of complete type test certificates along with results of oscillographic tests if any for this type of relay shall be prepared and sent to Dy. Chief Electrical Engineer(Des.&Dev)/Chittaranjan Locomotive Works/Chittaranjan before the consignment is despatched. The relay shall be type tested as per IS:3231-1965.

10.2 Routine tests:

10.2.1 Routine test certificates for each relay shall be sent along with each consignment to facilitate CLW's internal reception and control. The firm shall carry out any further routine tests as considered necessary by the purchaser at no extra cost. The relay shall be routine tested as per IS: 3231-1965 stipulated above.

11.0 Special Conditions:- Once a prototype is approved no contractor shall change his source of supply or sub-contractor for purchased components and sub-assemblies without CLW's approval.

12.0 REVALIDATION OF TYPETEST :

As per RDSO/Lucknow L/No. EL/01/16 dt. 22/27.01.'99 the mandatory typetest will be repeated at interval of every 5 years.

13.0 CLW RESERVE THE RIGHT TO PROCURE MATERIAL ONLY FROM ISO CERTIFIED FIRMS.

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SPECIFICATION FOR
SEQUENCE AND SIGNALLING
RELAYS

BY: C.E.E.

CHITTARANJAN LOCOMOTIVE WORKS
WEST BENGAL, INDIA.

No. CLW/ES/R-2/17 K
DATE: May, 1972.

Technical data to accompany tender quotation.

ANNEXURE 'C'

- i) Construction.
(Signature movement)
- ii) Number of pairs of contacts with maximum number that can be normally closed.
- iii) Contact ratings:-
 - a) Continuous current carrying capacity.
 - b) Maximum making current.
 - c) Breaking capacity at 110V D.C.
 - 1. resistive load
 - and
 - 2. inductive load.
- iv) Coil ratings:-
 - a) Nominal voltage
 - b) Minimum operating voltage
 - c) Minimum operating voltage (pick-up voltage with tolerance)
 - d) Coil resistance
 - e) Power consumption.
 - f) Size and particulars of wire
 - g) Number of turns.
- v) Operating speed:
 - a) Pick-up time at rated and minimum voltage
 - b) Drop-off time at rated and minimum voltage.
- vi) Temperature:-
 - a) Maximum ambient temp.
 - b) Temperature rise above ambient.
- vii) Dielectric test voltage:
 - a) Between adjacent contacts for one minute.
 - b) Between coil and earth for one minute.
 - c) Between contacts and earth for one minute.
- viii) Contact gap, with tolerance.
- ix) Contact pressure with tolerance.

SEE SHEET - 9

 SPECIFICATION FOR
SEQUENCE AND SIGNALING
RELAYS

 CHITTARANJAN LOCOMOTIVE WORKS
WEST BENGAL, INDIA.

No. CLW/SS/10-2/X JK

DATE: MAY, 1972.

DY. C.E.E.

CHKD.

DRN.

SPECIFICATION FOR SIGNALING RELAYS OF ENGLISH ELECTRIC CO. FOR WATER LOCKS

Sl. No.	Part No.	Designation	Relay Type	Spec No.	Quantity	Material	Notes	Remarks	
1.	F 345/167	Relay CV 60	VAA 11 SPEC M2YP	251A	1	MC	NO	NO	0-11
2.	F 345/161	Relay CV 60	VAA 11 SPEC M2YP	251A	1	MC	NO	NO	0-11
3.	F 345/162	Relay CV 61	VAA 11 SPEC M2YP	251A	1	MC	NO	NO	0-11
4.	F 345/163	Relay CV 62	VAA 11 SPEC M2YP	251A	1	MC	NO	NO	0-11
5.	F 345/164	Relay CV 63	VAA 11 SPEC M2YP	251A	1	MC	NO	NO	0-11
6.	F 345/165	Relay CV 64	VAA 11 SPEC M2YP	251A	1	MC	NO	NO	0-11
7.	F 345/166	Relay CV 51	VAA 11 SPEC M2YP	251A	1	MC	NO	NO	0-11
8.	F 345/168	Relay CV 52	VAA 11 SPEC M2YP	251A	1	MC	NO	NO	0-11

Added Entry
94-97 &
CHANDAS

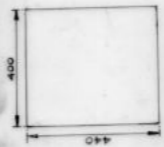
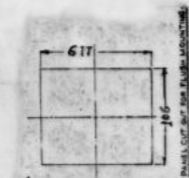
This relay is modified with 200 ohm contact B terminals.

Also Term. 11-12. N/O rectifier contact.

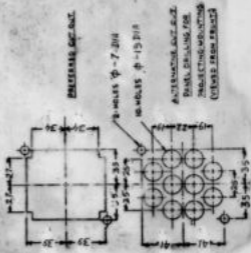
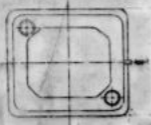
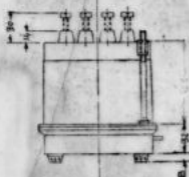
SPECIFICATION FOR SEQUENCE AND SIGNALING RELAYS.

M. J. S. A. (M. J.)
DY. CEE. (D)

चिटारनान लोकोमोटिव वर्क्स
वर्क इन्डिया
CHITTARANJAN LOCOMOTIVE WORKS
WEST BENGAL INDIA
मि./मो. NO. CLW/ES/R-2/23-K
TYPE/ALT



MAX. SPACE AVAILABLE FOR
 GV60, GV61, GV62, GV63,
 GV64, G51, GYL501 & GCVAR



RECESS 5/8" DIA.

8 HOLES ϕ - 7 DIA

SCREWS ϕ - 15 DIA

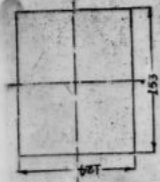
ATTENTION: NOT TO BE
 PANEL DRILLING FOR
 MOUNTING MOUNTING
 (CHECK FROM FRONT)

सं/सं
 DRN. CHKD.

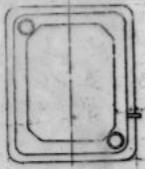
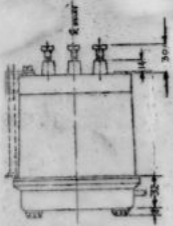
Signalling Relays
 Ref: Type "1/4 N" size of
 (V/s English Electric Co.)

डी.यू.सी.ए. (डी.यू.)
 DY. CEE. (D)

चितरंजन रेल इंजन कारखाना
 पश्चिम बंगाल, भारत
 CHITTARANJAN LOCOMOTIVE WORKS
 WEST BENGAL, INDIA
 क्रमांक/ NO. : CLM/ES/SK-2/R-2/3K
 दिनांक/ DATE : 24.7.1986



PANEL CUT OUT FOR ENGLISH MOUNTING

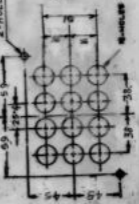


3-HOLES ϕ 7 - DIA.



PANEL CUT OUT

2-HOLES ϕ - 7 DIA



ALTERNATIVE CUT OUT

8-HOLES ϕ - 10.3 DIA

-- END

संशोधन
DRN.
संशोधन
CHKD.

Sequence and Signalling
Relays.
(Ref: Type "L/E" size of
M/s English Electric Co.)

स.प.नि.क. (संश.)
DY. CEE. (D)

चिन्नरंजन रेल इंजन कारखाना
पश्चिम बंगाल, भारत
CHITTARANJAN LOCOMOTIVE WORKS
WEST BENGAL INDIA
आशु/ NO. : CLW/ES/SK-1/R-2/SK
दिनांक/ DATE : 24.7.1986