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ENCLOSURES:
CLW/ES/3/SK-1/0072

TECHNICAL SPECIFICATION FOR
INDICATION LAMP AND ILLUMINATED PUSH BUTTON

FOR 3-PHASE ELECTRIC LOCOMOTIVES.

Specification No : CLW/ES/3/0072/G H

ISSUE DATE : 20.04.1998

ISSUED BY:

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ALTERATION RECORD SHEET

Amendment No	Date of amendment	Page no.	Alt no.	Reason	Authority
1	12/06/98	5	A	Total specification modified & sheet no 5 added.	Sd/-
2	18/08/99	4,5	B	ABB Identification no of each switch included & qty, rating of the bulb for BPFL added.	Sd/-
3	03/01/2000	8	C	Fig no. 2 of sheet no 8 for LED added.	Sd/-
4	09/6/10	9	D	Alternating type of Illuminated Push pull buttons has been included in page. 9.	Sd/-
5	09/07/19	5	E	i) 02 nos BPPB is required for WAP 5 loco only. ii) BPVG has been deleted all three phase loco.	Sd/-
6	10/12/21	5	F	For implementation of RDSO/2018/EL-MS/0475 dated 12.12.18, 01 no of push button for VCU Reset has been included at sheet 5 (Similar BPVR green)	Sd/-
7.	01/02/2023	5	G	02 NOS of indication lamp hotel load supply has been deleted for WAG-9 loco only as per SSE/testing /shop/19 letter no SSE/Testing/01 dt.28.07.22	Sd/-
8.		7	H	i) Green Indication LED Lamp for HOG ON command indication has been introduced as per RDSO MS 489 in WAP-7 & WAP-5 loco only. ii) RDSO/2018/EL/MS/0475 (Rev. '1') dated 26.10.2023 has been implemented. Qty. of CE Reset Switch has been changed for WAG-9 only.	

Note: The specification has been digitized and all the alterations have been incorporated.

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INDICATION LAMP AND ILLUMINATED PUSH BUTTON
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1.0 SCOPE :

This specification covers the manufacture and supply of INDICATION LAMP AND ILLUMINATED PUSH BUTTONS in 3-phase Electric Locomotive for 25KV 50 HZ System.

2.0 SERVICE CONDITION

2.1 Climatic and Environmental condition: -

Sl. no.	Climate and Environment conditions	Range
a.	Maximum atmospheric temperature	+ 70°C (Under Sun) & + 50°C (in Shade)
b.	Ambient temperature (operating)	-20....+70°C
c.	Ambient temperature (storage)	-30....+80°C
d.	Normal Humidity	60%
e.	Maximum Humidity	100% saturation during rainy season.
f.	Altitude	160 m above mean sea level.
g.	Rainfall	Very heavy in certain areas. The equipment should be designed in such a way to withstand its running at 10 Km/hr in flood water level of 102 millimeter above rail level.
h.	Atmosphere during hot weather	Extremely dusty and desert terrain in certain areas.
i.	Coastal areas	Locomotive and equipment will be designed to work in coastal areas in humid and salty laden atmosphere.
j.	Vibration	The equipment, subsystem and their mounting arrangement will be designed to withstand vibrations and shocks encountered in service as specified in correspondence unless otherwise prescribed.

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3.0 **STANDARDS :**

The design and construction of all the equipment shall confirm to the standards IEC 60947-5-1, IEC. 60337-1, VDE. 0660-2#, ASE 0119, ASE. 1003, IEC. 60068-2-6

Protection class IP 65, IP 40, IP 66.

4.0 **TECHNICAL DESCRIPTION**

Ratings	: Pilot light body for multi-LED 18 Ma. 24V/ DC
Vibration resistance	: 15 gms. Confirming to IEC 60068-2-6
Insulating parts	: Glass fibre reinforced polyamide.

CONTACT BLOCK CHARACTERISTICS :

Rated insulation voltage	Ui = 500V. degree of pollution 3 conforming to-IEC 60947-1
Rated impulse withstand voltage	Ui = 6 KV. Conforming to IEC. 60947-1
Contact operation	Slow break N/C or N/O
Operating force	Flush and projecting push button with 1 N/O contact 1 daN with 1 N/C contact : 0.8 daN
Additional contact	N/O: + 0.5 daN and N/C : + 0.3 daN
Short circuit protection	10 Amp Fuse type gl
Operating rate	3600 operating Cycle/hr. load factor: 0.5
Electrical reliability	Failure rate < 1 fault for 100 million operation cycle.
Cabling	Screw and captive cable clamp terminals
Capacity	Minimum: 1 x 0.5 mm ² , Maximum: with or without cable end 2 x 1.5 mm ² or 1 x 2.5 mm. 6.3 mm ² faston connectors.
Life	3 million operating cycles.

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5.0 DETAILS OF INDICATION LAMPS AND ILLUMINATED PUSH BUTTONS:

ITEM	FUNCTIONAL DESCRIPTION	NO.	ITEM DESCRIPTION	NOMINAL VALUE	TYPE	ABB IDEN. NO.
81.5	Indication Lamp Train Parting "LSAF"	2	Pilot Light Head	Red LED	TEL-ZB2-BV043	3EHP585818P1014
81.5	Indication Lamp Train Parting "LSAF"	2	Pilot Light Body	380 VAC Standard	TEL-ZB2-BV6	3EHP585819P1010
81.5	Indication Lamp Train Parting "LSAF"	2	Multi LED BA9S	18mA-24VDC RED	EAO-700.002.22	3EHP585726P0022
92	Indication Lamp Wheel Slipping "LSP"	2	Pilot Light Head	Yellow LED	TEL-ZB2-BV	3EHP585818P1015
92	Indication Lamp Wheel Slipping "LSP"	2	Pilot Light Body	380 VAC Standard	TEL-ZB2-BV6	3EHP585819P1010
92	Indication Lamp Wheel Slipping "LSP"	2	Multi-LED BA9S	18mA-24 VDC YELLOW	EAO-700.002.24	3EHP585726P0024
137.3	Indication Lamp VCB "LSDJ"	2	Pilot Light Head	Red LED	TEL-ZB2-BV043	3EHP585818P1014
137.3	Indication Lamp VCB "LSDJ"	2	Pilot Light Body	380 VAC Standard	TEL-ZB2-BV6	3EHP585819P1010
137.3	Indication Lamp VCB "LSDJ"	2	Multi-LED BA9S	18mA-24VDC RED	EAO-700.002.22	3EHP585726P0022
151.4	Illum. Push Button Constant Speed Control "BPCS"	2	Booted Push Button Head	Green-Black Bezel	TEL-ZB2-BW537	3EHP585818P2131
151.4	Illum. Push Button Constant Speed Control "BPCS"	2	Illum. Push button Body	01 NO Standard	TEL-ZB2-BW061	3EHP585819P2010
151.4	Illum. Push Button Constant Speed Control "BPCS"	2	Multi LED BA9S	18mA-24 VDC GREEN	EAO-700.002.25	3EHP585726P0025
161	Illuminated Push Button Configuration	1	Booted Push Button Head	Yellow-Black Bezel	TEL-ZB2-BW557	3EHP585818P2151
161	Illuminated Push Button Configuration	1	Illum. Push button Body	18mA-24 VDC YELLOW	TEL-ZB2-BW06	3EHP585819P2010
161	Illuminated Push Button Configuration	1	Multi LED	18mA-24 VDC YELLOW	EAO-700.002.24	3EHP585726P0024
163	Fault Status lamp "LSFI"	2	Pilot Light Head	Red LED	TEL-ZB2-BV043	3EHP585818P1014
163	Fault Status lamp "LSFI"	2	Pilot Light Body	380 VAC Standard	TEL-ZB2-BV6	3EHP585819P1010
163	Fault Status lamp "LSFI"	2	Multi-LED BA9S	18mA-24 VDC	EAO-700.002.22	3EHP585726P0024
163.1	Illum. Push button Fault Indic./Acknowledge "BPFA"	2	Booted Push Button Head	Yellow-Black Bezel	TEL-ZB2-BW557	3EHP585818P2151
163.1	Illum. Push button Fault Indic./Acknowledge "BPFA"	2	Illum. Push button Body	1 SCHLIESS Standard	TEL-ZB2-BW061	3EHP585819P2010
163.1	Illum. Push button Fault Indic./Acknowledge "BPFA"	2	Multi LED BA9S	18mA-24 VDC YELLOW	EAO-700.002.24	3EHP585726P0024
166	Indication Lamp Temp. of Control Electronics "LSCE"	2	Pilot Light Head	Yellow LED	TEL-ZB2-BV053	3EHP585818P1015
166	Indication Lamp Temp. of Control Electronics "LSCE"	2	Pilot Light Body	380 VAC	TEL-ZB2-BV6	3EHP585819P1010
166	Indication Lamp Temp. of Control Electronics "LSCE"	2	Multi LED BA9S	18mA-24 VDC YELLOW	EAO-700.002.24	3EHP585726P0024

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ITEM	FUNCTIONAL DESCRIPTION	NO.	ITEM DESCRIPTION	NOMINAL VALUE	TYPE	ABB IDEN. NO.
169.3	Indication Lamp Hotel Load Supply	2	Pilot Light Head	Yellow LED	TEL-ZB2-BV053	3EHP585818P1015
169.3	Indication Lamp Hotel Load Supply	2	Pilot Light Body	380 VAC Standard	TEL-ZB2-BV6	3EHP585819P1010
169.3	Indication Lamp Hotel Load Supply	2	Multi LED BA9S	18mA-24 VDC YELLOW	EAO-700.002.24	3EHP585726P0024
237.5	Push Button Reset Vigilance Control "BPVR"	2	Booted Push Button Head	Green-Black	TEL-ZB2-BW587	
237.5	Push Button Reset Vigilance Control "BPVR"	2	Push Button Body Assembly	01 NO Standard	TEL-ZB2-BZ101	
CE Reset Switch	Push Button VCU Reset Similar to "BPVR"	1 * 01 no. for P-7&5, 02 nos. for G-9	Booted Push Button Head	Green-Black	TEL-ZB2-BW587	* 01 no. for WAP-7&5, 02 nos. for WAG-9 loco
CE Reset Switch	Push Button VCU Reset Similar to "BPVR"	1	Push Button Body Assembly	01 NO Standard	TEL-ZB2-BZ101	
242.1	Indication Lamp Vigilance Warning "LSVW"	2	Pilot Light Head	Yellow LED	TEL-ZB2-BV053	3EHP585818P1015
242.1	Indication Lamp Vigilance Warning "LSVW"	2	Pilot Light Body	380 VAC Standard	TEL-ZB2-BV6	3EHP585819P1010
242.1	Indication Lamp Vigilance Warning "LSVW"	2	Multi LED BA9S	18mA-24 VDC Standard	EAO-700.002.24	3EHP585726P0024
268	Illuminated Push Button Parking Brake "BPPB" for WAP-5 Only	2	Booted Push Button Head	Red-Black Bezel	TEL-ZB2-BW547	3EHP585818P2141
268	Illuminated Push Button Parking Brake "BPPB" for WAP-5 Only	2	Illum. Push button Body	01 NO Standard	EAO-700.002.24	3EHP585819P2010
268	Illuminated Push Button Parking Brake "BPPB" for WAP-5 Only	2	Multi LED BA9S	18mA-24VDC RED	EAO-700.002.22	3EHP585726P0022
316.2	Illum. Switch Emergency Flasher Light "BPFL"	2	Selector Switch Head	Yellow-Black Bezel	TEL-ZB2-BK1257	3EHP585818P2141
316.2	Illum. Switch Emergency Flasher Light "BPFL"	2	Flasher Light Body	24 VDC Standard	TEL-ZB2-BV191	3EHP585819P2010
316.2	Illum. Switch Emergency Flasher Light "BPFL"	4	Contact Block	01 NO Standard	TEL-ZB2-BE101	3EHP585726P0022
		2	Bulb Instead of Multi LED	24 VDC, 18 mA	TEL-ZB2-BV191	-----
HL1 & HL2	Green Indication LED Lamp	4	Multi LED	110 VDC 10-15 mA	-----	-----

Note: All the above type nos. are indicative and are for reference only.

6.0 STANDARDS/ UNITS

IS/ IEC-Standards will be accepted. Internally used BBC/ABB/Adtranz- Standard if any should be mentioned together with corresponding IEC- Standard. Only SI Units will be accepted.

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7.0 SCOPE OF SUPPLY

The equipments will be as given in the scope in clause 5 and duly tested as per clause 12 of this document.

8.0 INSPECTION :

- Type/ routine inspection will be carried out by authorized representative of Dy.CEE/Design.
- The complete testing to be carried out as per clause 12 of this document.

9.0 SUPPLY OF DOCUMENTS (In addition to those indicated in bid documents of CLW.)

- Technical details composition and characteristics of the material including fasteners to be used for manufacture of the item.
- Source(s) of raw materials and hardware's.
- Manufacturing process.
- Type test plan including checks for vibration and welding.
- Routine test plan.
- Details for similar items supplied for locomotives, if any.
- Source of the components being offered.

10.0 SUBMISSION OF VENDER QUOTATION:

- The tenderer shall give sufficient information to prove that his factory has adequate facilities and capacity to manufacture the equipment to meet fully the technical requirements of the specification and quality of materials and workmanship.
- Quotation shall not be considered complete unless all information is furnished and are therefore liable to be rejected.
- Detailed drawing of indication lamp and illuminated push buttons.

11.0 DRAWINGS:

The following drawings are attached with the specification: CLW/ES/3/0072

Technical documents and drawings to be furnished by the supplier as part of the contact.

12.0 TESTS:

All tests should be confirming to the standard as mentioned in sl. no 6 of this specification.

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13.0 TECHNICAL DOCUMENTS TO BE SUPPLIED BY THE SUPPLIER:

- i) Type test reports
- ii) Routine test report along with each set
- iii) Maintenance manual
- iv) Detailed drawings

14.0 Name Plate

The tenderer shall fix name plate on the equipment indicating (i) manufacturer's name and also monogram/brand ii) Range of electrical ratings in watts, (iii) Maximum rated voltage. iv) Month and year of manufacture (v) serial no. of equipment.

15.0 Location: Complete Panel A, C (without Diagnostic Terminal), D and SB-1

16.0 REFERENCE:

This specification refers to the original -manufacturer of

M/S. TELEMECHANIC

Schneider-MGTE AG
Sche#men w#'dstrasse

11

Pcs# ittigen

Phons. (U) 74 92188

L- (41)71921 80 35

They should furnish the detailed drawing for approval before manufacture.

17.0 Tenderer should give their fill, credential for manufacture of such items without which tender will not be technically acceptable.

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18.0 Alternating Type of Illuminated Push Button

Sl. no.	DESCRIPTION
1.	Illuminated Push Button configuration in SB-1, Ref No. ZB4BW3537+ZB2BP0I5 ZB4BW0B51 or similar
2.	Illuminated Push Button-1 a) Fault Status Lamp b) Indication Lamp for VCB. c) Indication Lamp Train Parting. Ref No. ZB4BV043 +ZB4BVB4 or similar
3.	Illuminated Push Button-2 a) Indication Lamp vigilance Warning. b) Indication Lamp Hotel Load Supply. c) Indication Temp, of Control Electronic d) Indication Lamp Wheel Slipping. Ref No. ZB4BV053 +ZB4BVB5 or similar
4.	Illuminated Push Button Constant Speed Control. Ref No. ZB4BW5337 + ZB4BW0B31 or similar
5.	Illumination Push Button Parking Brake. Ref. No. ZB4BW5437 + ZB4BW0B41 or similar
6.	Illuminated Push Button for Failure acknowledge. Ref. No.ZB4BW3537 + ZB2BP0I5+ZB4BW0B51 or similar
7.	Illuminated Push Button Emergency Flasher Light. Ref No. ZB4BK12537 + ZB4BVI8B5 + 2X ZBEI01 + ZBEI02 or similar
8.	Illuminated Push Button for Vigilance Control. Ref. No. ZB4BP387+ ZB4BZI01 or similar
9.	Push Button Reset Vigilance Control. Ref No. ZB4BP587+ ZB4BZI01 or similar

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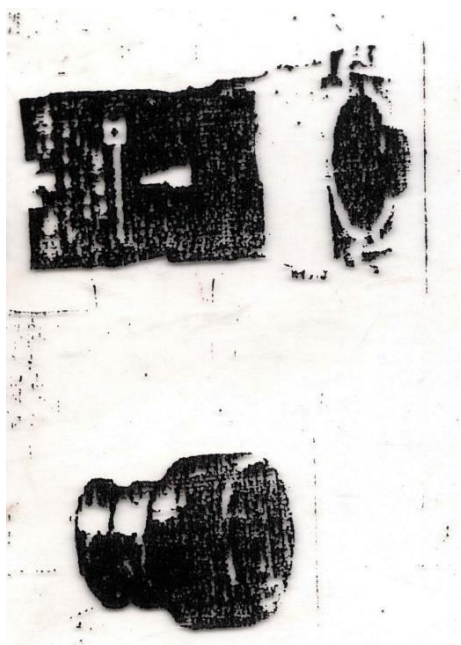
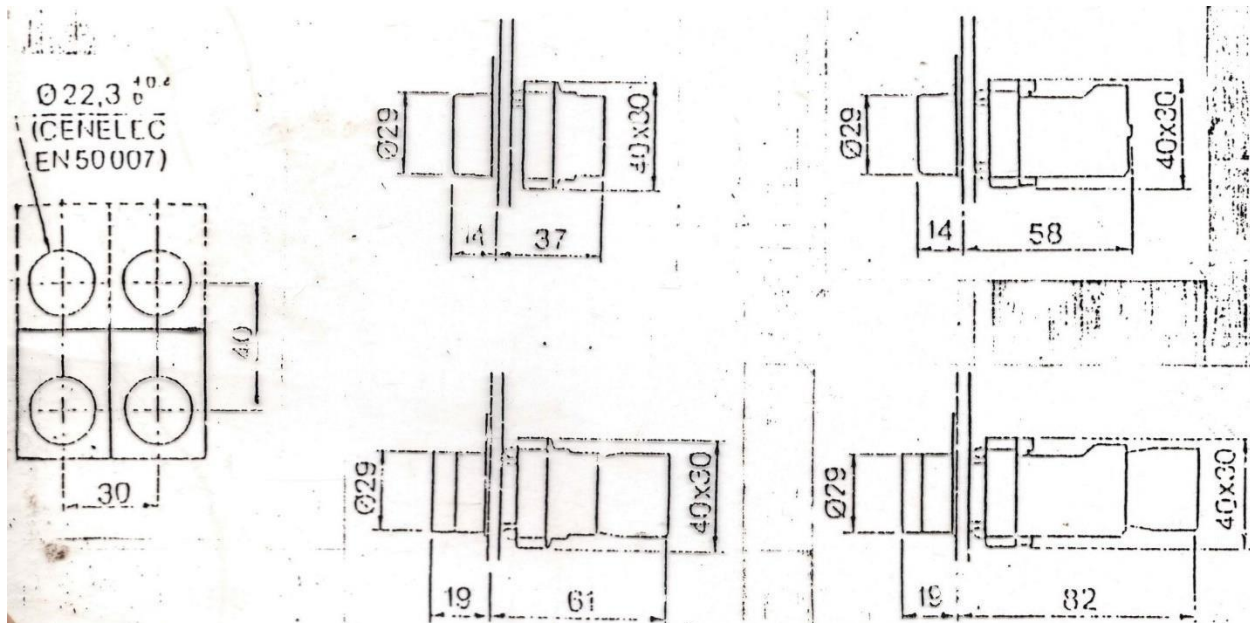
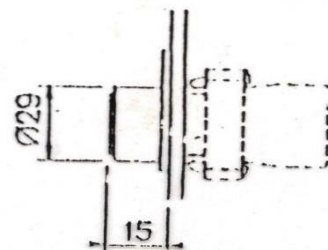


FIG.-1



MULTI LED
24 V. DC - 18 mA
Type - BA 9S (Base)

FIG.-2

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APPROVED BY:

CHITTARANJAN LOCOMOTIVE WORKS



Date: 30.03.1997

Checked By: AEE/Design

SPECIFICATION FOR INDICATION
LAMP AND ILLUMINATED PUSH
BUTTONS

DY.CEE/D-II

DRG. NO. CLW/ES/3/SK-1/0072