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सत्यमेव जयते

भारत सरकार - रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ - 226011
Government of India - Ministry of Railways
Research, Designs & Standards Organization,
LUCKNOW - 226011

No. EL/3.1.10/2

Dated 31.03.2011

Chief Electrical Engineer,

1. Central Railway, Mumbai CST-400 001.
2. Northern Railway, Baroda House, New Delhi-110 001.
3. North Central Railway, Allahabad- 211001
4. Eastern Railway, Fairlie Place, Kolkata -700 001.
5. East Central Railway, Hazipur-844101.
6. East Coast Railway, Chandrashekharpur, Bhubaneswar-751016.
7. Southern Railway, Park Town, Chennai-600 003.
8. South Central Railway, Secunderabad-500 371.
9. South Eastern Railway, Garden Reach, Kolkata -700 043.
10. South East Central Railway, Bilaspur-495004
11. Western Railway, Churchgate, Mumbai-400 020.
12. West Central Railway, Jabalpur-482 001.
13. Chittranjan Locomotive Works, Chittranjan-110 001

Sub: RDSO modification sheet no. RDSO/2011/EL/MS/0394 dated 09.02.2011 for electric locomotive auxiliary circuit for isolating complete air conditioner circuit in case of earth fault in air condition unit.

Enclosed please find modification sheet no. RDSO/2011/EL/MS/0394 dated 09.02.2011 for "Electric locomotive auxiliary circuit for isolating complete air conditioner circuit in case of earth fault in air condition unit" which is to be implemented in loco fitted with air conditioners in electric locomotives.

(S. K. Gupta)
for Director General/Elect.

Encl: MS 0394



No. EL/3.1.10/2

Dated 09.02.2011

MODIFICATION SHEET NO. RDSO/2011/EL/MS/0394 Rev '0' Dated: 09.02.2011

1. Title:

Modification in electric locomotive Auxiliary circuit for isolating complete Air conditioner circuit in case of earth fault in air condition unit.

2. Object:

BHEL Jhansi has supplied 30 newly built WAG-7 locomotives to Indian Railways which are equipped with Air conditioners (ACs) in both cabs. CLW has also provided air conditioners in 8 locomotives.

A problem of SIV tripping has been reported by Jhansi shed in case of earth fault in air conditioner system. In the existing circuit design, If there is an earth fault in any subsystem of air conditioner like compressor motor, condenser etc. there is no provision for isolating the complete circuit of air conditioner from 3-phase output of Static inverter (SIV). This in turn result in tripping of SIV.

3. Modified Arrangement:

One 32A contactor (K0) is to be in the auxiliary circuit of SIV contactor should be fitted in back side of TK panel in cab-2 side. Two spare toggle contacts (pole nos. 1,2) of HRAVT programme switch at position 2 is to be used for isolating contactor (K0) for air conditioner.

The modified circuit arrangement is shown in RDSO Drg. No. SKEL-4845 in place of existing circuit arrangement of CLW Drg. No. CLW.3W.15000.004 sheet no. 17 of 21. In case of earth fault complete air conditioning system can be isolated through HRAVT. The positions of programme switch HRAVT in modified arrangement is as shown below:-

| HRAVT switch position | AC | Cab fan | Notch repeater | Charger for walkie-Talkie |
|-----------------------|----|---------|----------------|---------------------------|
| 0 | x | x | x | x |
| 1 | ✓ | ✓ | ✓ | ✓ |
| 2 | x | ✓ | ✓ | ✓ |
| 3 | x | x | ✓ | x |

Note: ✓ = in service

x = Isolated

In CLW Drg. No. CLW.3W.15000.004 sheet no. 19 of 21. 3 contacts of K0 isolating contactor are to be used with wire no. 965 (R-phase), 966 (Y phase) & 967 (B phase) in 3-phase output of Static inverter as per modified drg no. SKEL-4844.

4. Application to class of locomotive:

All conventional AC electric locomotive provided with cab air conditioner as per RDSO specification no. RDSO/2007/EL/Spec/0055 (Rev '0').

5. Material Required:

One contactor BCH make 32 Amps and control cable 3 mm²/2.5 mm² together with suitable insulation cable lug as per requirement.

6. Material Rendered Surplus:

NIL

7. Reference:

CEE/NCR letter no. EL/Loco/NCR/Loco circuit date 13.08.2010

8. Modification Drawings:

SKEL/4844 &
SKEL4845

9. Agency of Implementation:

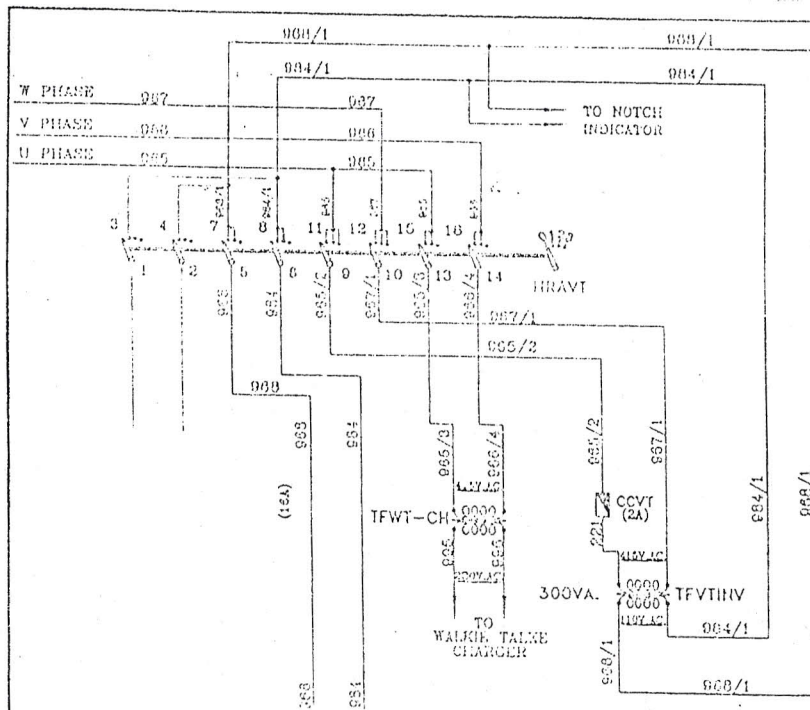
Loco shed and CLW.

Encl: As above



(S. K. Gupta)

for Director General/Elect.

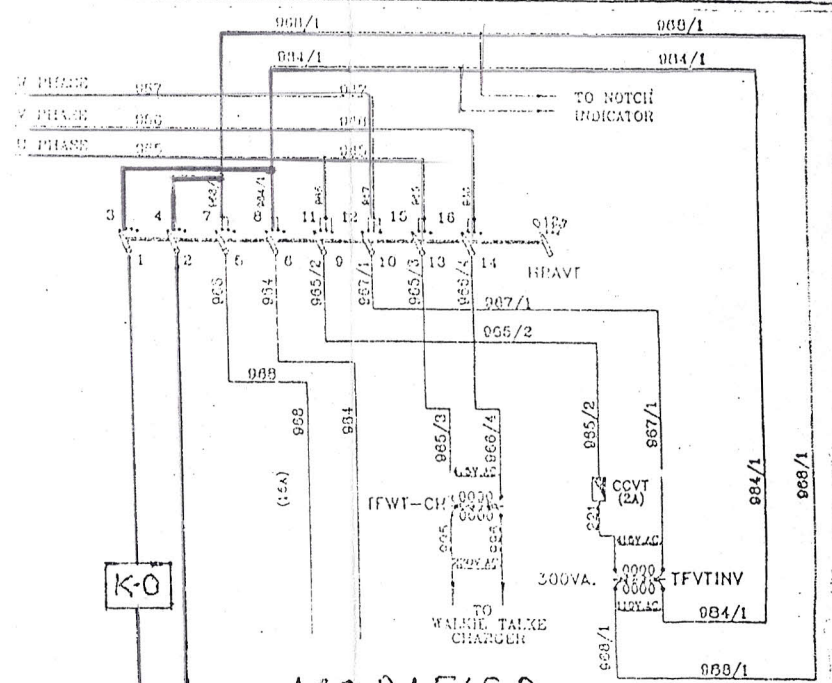


EXISTING

K-0 = 32 Amp.

K-1 }
K-2 } = 25 Amp.

MAKE = BCH CONTACTOR.

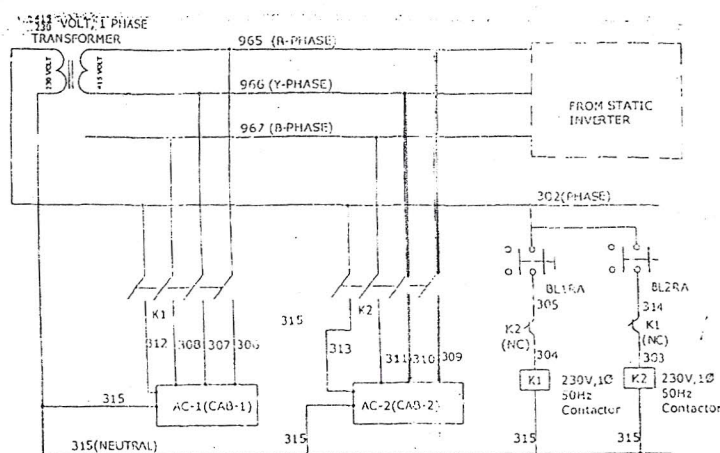


MODIFIED

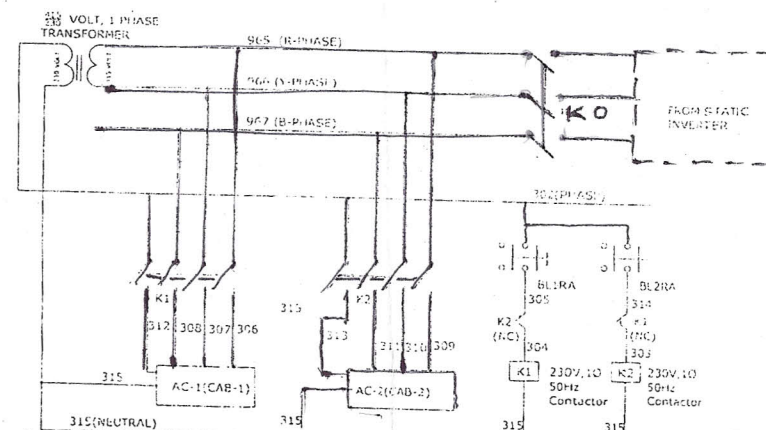
| | |
|-----|---------------|
| Dt. | 20-10-10 |
| D | <i>Blue</i> |
| C | <i>Orange</i> |
| T | |

| STATUS | ALT | REF. NO. | DESCRIPTION | APPD. BY | DATE |
|--------|-----|----------|-------------|----------|------|
| | | | | | |

| REF. | PART NO. | DESCRIPTION | DETAIL DRG. NO. | NO./LOCC | HAUT. | SPEC. |
|---|----------|-------------|-----------------|---------------------|---------------|----------|
| REF | | | SCALE MTS | APPD. BY <i>Roy</i> | | (FOR DG) |
| PROVISION OF ONE ADDITIONAL CONTACTOR K-0 FOR BHEL LOCOMOTIVE | | | | | FIRST ISSUED | |
| RDSO. ELECT. DTE. | | | | | SUPERSEDES | |
| SKEL-4845 | | | | | SUPERSEDED BY | |



EXISTING



MODIFIED

| | |
|-----|---------------|
| Dt. | 20-10-10 |
| D | <i>Blanch</i> |
| C | <i>Don</i> |
| T | |

| STATUS | ALT | REF. NO. | DESCRIPTION | APP'D. BY | DATE |
|--------|-----|----------|-------------|-----------|------|
| | | | | | |

| REF. | PART NO. | DESCRIPTION | DETAIL DRG. NO. | NO./LOCC | HALT. | SPEC. |
|---|----------|-------------|-----------------|------------------------------|--------------|----------|
| REF. | | | SCALE NTS | APP'D. BY <i>[Signature]</i> | | (FOR DG) |
| ARRANGEMENT FOR ISOLATING AC CIRCUIT INCASE OF EARTH FAULT | | | | | FIRST ISSUED | |
| | | | | | SUPERSEDES | |
| RDSO. ELECT. DTE. | | | | SKEL- 4844 | SUPERDED BY | |