To
(1) The Chief Project Manager, RE,
    Mathura, Vadodara, Kota, Nagpur, Ranchi and Vijayawada.
(2) The Chief Electrical Engineer, RE, Madras.
(3) The CSTE/RE/Nagpur.
(4) The Chief Engineer, RE, Allahabad.
(5) The Chief Electrical Engineer/RE/Nagpur.

Sub: Tapping of 25 KV OHE for 230 Volts supply to signalling installations.

The matter in regard to power supply arrangements for colour light signalling has been under consideration and it has been decided that the following arrangements may be made on electrified sections:

Way-Side stations:
Power supply for CLS at all the stations irrespective of whether local power supply is available or not, may be provided by tapping both UP and Down OHEs with automatic change-over switch.

Large stations:
In order to cater for large scale shunting operations as well as branch line steam and diesel hauled trains at just junctions of electrified and non-electrified stations, provision of DG sets of adequate capacity is also recommended for consideration as standby in addition to both the sources of power supply for contingencies of traction power supply failures from the concerned state electricity Board’s Gird arising out of strikes etc.

Repeater & control office.
(a) The duplicate OHE power supply tapped from both OHEs should also be extended to all the repeater stations and control office equipment from for efficient functioning of telecom circuits.
(b) At those repeater stations where OHE supply is not available other means of suitable supply may be provided.

3. This may please be acknowledged.

* Please also see Board’s circular
No. 82/RE/250/1 dt. 19.10.83
85/W3/SG/CLS/1 dt. 26.6.85
and 82/RE/250/1 dt. 10.8.88.

Sd/-
(R.N. Malhotra)
Addl. Director (S&T), Railway Board.

No: 82/RE/260/1/ New Delhi, dt. 23.6.82.

Copy to:
(1) General Managers, All Indian Railways.

(2) Chief Signal & Telecommunication Engineers & Chief Signal & Telecommunication Engineers (Constr.), Eastern, Central, Northern, Southern, South Central, South Eastern and Western Railways.
(3) Chief Electrical Engineers, Eastern, Central, Northern, Southern, South Central, South Eastern and Western Railways.

Sd/-

( R.N. Malhotra )

Addl. Director, RE(S&T), Railway Board.

Copy to:

(1) D(S&T).
(2) ADRE/E. | Railway Board for information.
(3) JD(S&T)I.
The General Managers,  
Eastern, S.E., Southern, S.C.,  
Central, Northern and Western Railways.

Sub: Tapping of 25 KV OHE for colour light signalling and other S&T installations.

Ref: Board’s letter No.82/RE/250/1 dtd: 23.6.82.

Since issue of Board’s instructions referred to above which were in the nature of amplification/modification of para 1316 of the A.C. Traction Manual, request from the Railways have been received for a review of the orders in consideration of the following:

I) State Electricity Authorities may object to such large scale tapping from 25 KV power involved in provision of auxiliary transformers at each wayside station;

ii) Large number of tappings will have an impact on the reliability of OHE supply;

iii) Addl. expenditure is involved for full compliance of the orders which can be avoided where existing arrangements viz. local supply with duplicate supply from OHE by tapping from only one line, are satisfactory.

2. The matter has been reviewed and it is clarified as under:

2.1 The supply to colour light signalling and S&T installations like repeaters/RRI cabins is closely interlinked with traction and hence tapping of 25 KV power for these purposes should not be objected to by the supply authorities. Any specific case where such an objection is being raised may be advised to the Board.

2.2 In the sections already electrified where provision of only one OHE supply in addition to local supply has been made, if the arrangements are considered satisfactory by the CEE, no additional expenditure need be incurred in other than suburban sections merely for compliance of Board’s instructions contained in the letter under reference. Board’s instructions in the letter of June’82 refer to the sections which are being electrified where power supply arrangements are to be to the standards stipulated.

2.3 If the protection arrangements in the auxiliary transformer installations both on the HT as well as on the LT side are ensured to be to the approved standards, there is no reason for any tapping for colour light signalling should contribute to unreliability of OHE supply. In cases where authorisation has been given for eliminating provision of lightning arrestors oby a substitute/short-gap arrangement, if in the experience of CEE such arrangement has been given rise to additional trippings on the OHE, provision of adequate capacity lightning arrestors, as approved by RDSO, shall be provided treating the relaxation given for provision of substitute short-gap arrangement, as not acceptable.

2.4 For the purposes of power supply arrangements, repeater stations should also be treated as wayside stations and the supply arrangements are to be confined to battery charging and emergency lightning requirements only.

2.5 At large stations, provision of stand-by diesel generating sets/Arno and transformer stand-by being made by CEE shall take into account the essential requirements of the colour light signalling and other S&T loads and provide adequate capacity in the arrangements being planned by him. Separate D.G. sets for RRI and mechanised humps shall be provided only in inescapable circumstances and by a specific authorisation from the CEE.
3. In Board’s instructions of 23.6.82, it was indicated that the changeover between the supplies from Up and Down OHEs should be with an automatic change-over switch. In modification of the same it is clarified that manual change-over arrangements in the ASM’s rooms as existing now are adequate and automatic change-over need not be provided.

* Please also see Bd’s circular
  No.85/W3/SG/CLS/1 dt.26.6.85,
  82/RE/250/1 dt.10.8.88 &
  87/W3/SG/CLS/2 dt.2.11.88.

Sd/-
(V.C. Cheunulu)
Director Electrical Engineering
Railway Board.

Copy to:
1. Chief Electrical Engineer, Railway Electrification, Nagpur.
2. Chief Project Managers, Railway Electrification, Mathura, Vadodra, Kota, Nagpur, Ranchi and Vijayawada.
3. Chief Electrical Engineers, Railway Electrification, Madras and Vijayawada.
5. Copy to JDEE(D&W)/Elec-I.
Sub: Reliability of power supply for colour light signalling.

The need to enhance the reliability of power supply required for colour light signalling has been engaging the attention of the Board for some time. This aspect also figured in discussion during the General Managers’s Conference held in the Board on 17th and 18th April, 1985.

2. So far as electrified sections are concerned, the power should be tapped from the catenary/as per detailed instructions issued on the subject vide Board’s letter No.82/RE/250/1 dated: 23rd June, 1982 and 19.10.1983. The arrangement can be further augmented by utilising local power supply, stand-by generating sets, where required, to suit the local conditions.

3. In the non-electrified sections, the following guidelines are issued for power supply arrangement:

   (i) Where colour light signalling is to be introduced in a section of reasonably long starter say 5 block sections or more, power cable should be laid with such an arrangement that power can be fed to the cable from local feeders/generating sets installed at suitable points on a pattern which is existing on CTC sections of Gorakhpur-Chhapra of N.E.Railway and Bongaigaon-Changseri of N.F.Railway. It is observed that the power supply arrangement in these two sections has been working very satisfactorily.

   In the 132 Km. long Bongaigaon-Changsari section, with 14 stations in between, there are 5 power stations to feed the entire section.

   The number of such feeding points can be decided keeping in view the cost of power supply equipment, power cable and other relevant factors.

   (ii) where it is not possible to arrange for the laying of power cable as given in para (i) above, it must be ensured that the reliable local power supply backed by stand-by arrangement of generating sets is available.

   The Railway can consider the provision of inverters and use of solar power to improve the reliability of power supply arrangement to suit local requirements.

   (iii) Colour light signalling should not be introduced without ensuring reliability of power.

4. Para 3 above, for non-electrified sections, sets out only guidelines and need not be interpreted to impose any restriction on the Railways for improving the reliability further with an ultimate objective of achieving “no-break” power supply condition for the signalling system.

Receipt of this letter may be acknowledged.

*Please also see Board’s circular

109
No.82/RE/250/1 dt.10.8.88 and
87/W3/SG/CLS/2 dt.2.11.88.

Sd/-
No: 85/W3/SG/CLS/1


Copy to:

1. CSTEs(Const.), All Indian Railways (except NE & NF Railway).
2. The Director Standards(S&T), RDSO, Lucknow.
3. The Principal, IRISET, Secunderabad.
4. The Principal, Railway Staff College, Vadodara.

Sd/-

(Kalyan Singh)
Joint Director(S&T) III
Railway Board.
Sub: Reliability of power supply for colour light signalling.

In order to ensure uninterrupted power supply to colour light signals so that these do not become blank in the event of any interruption in the power supply, RDSO finalised the standard power supply scheme for electrified sections. Board after examining the RDSO’s scheme decided as a measure of economy and for reduction the cost of electrification that inverters should not be provided and instead auto switching between up and down ATs should be provided for colour light signals on a double line section.

Board desire that the report on the performance of auto switches and inverters, wherever provided on your railway, should be submitted so that final view is taken by the Board. You are requested to submit the performance report at the earliest.

Sd/-
(N. K. Goel)
Exec. Director/RE(S&T)
Railway Board.
No: 82/RE/250/1

The General Managers(Elec.)
All Indian Railways.

The General Managers(S&T)
All Indian Railways.

The Chief Project Managers,
Kota,Vadodara,Nagpur,Ranchi,Bhopla,Bilaspur at Nagpur,
Mathura and Vijayawada.

The Chief electrical Engineer,
Railway Electrification,Egmore,Madras.


In connection with the provision of 230V L.T.supply to signalling installations by tapping of 25KV OHE, instructions were issued by Railway Board from time to time, vide their letters mentioned below :-

ii) No.82/RE/250/1 dated: 19.1.1983 and

The present arrangement on the above was reviewed and a joint procedure order on the basis of the practice followed on RE projects has been prepared by CEE/CORE and CSTE/CORE,Allahabad. The joint arrangement recommended by CORE has been approved by the Board. A copy of the guide-lines alongwith the drawings prepared by CEE and CSTE,CORE is sent herewith for uniform adoption on Railway Electrification Projects under construction.

Please acknowledge the receipt.

Enclo: As above.

Sd/-

(A.S.Sant)
Exe.Director,Railway Electrification.
Railway Board.

Copy to General Manager,Central Orgn for Railway Electrification,Allahabad copy to ED(S&T),JD(S&T)I together with a copy of guide-lines alongwith drawings.

DA: As above.
POWER SUPPLY ARRANGEMENTS FOR SIGNALLING INSTALLATIONS THROUGH AUXILIARY TRANSFORMERS BY TAPPING 25 KV OHE.

(A) POWER SUPPLY INSTALLATIONS;

Following works shall be carried out by Electrical Department.

(i) i) At each way side station, 2 nos. Auxiliary Transformers one each connected to OHE of UP & DN lines shall be provided. A2 x 25 sq.mm. aluminium cable shall be laid from each AT to ASM’s room and shall be terminated at the CLS supply panel. Local supply, if available, shall also be terminated at the panel as a third source. A manual three-position change-over switch shall be provided on the CLS supply panel. The CLS panel shall be provided with MCBs and neon indication lamps for the incoming and outgoing supplies. Change-over shall be affected by ASM on duty. From the CLS supply panel, power supply will be extended to either cabin by S&T department, through 2 x 25 sq.mm. aluminium cables.

(ii) (iii) (iv) ii) At big yards, where a number of cabins are located, 2 to 3 cabins shall be grouped together and a set of two ATs one each connected to OHE of UP & DN lines shall be provided at a convenient location to feed each such group. CLS supply panel having a three-position manual change-over switch shall be provided at one of the cabins, by the Electrical Department from where the supply shall be extended by S&T department.

(v) (vi) (iii) Provision of 2 Nos. Auxiliary Transformers one each connected to OHE UP & DN lines shall be arranged at each level crossing located more than 2 Kms. away from the Railway station. If any other level crossings are located within 2 Kms. of the level crossing where a set of ATs have been provided, then supply from the same ATs shall be extended to these level crossings through 2x25 mm aluminium cable to be laid by S&T department. The CLS supply panel along with manual change-over switch shall be provided at the gate lodge. Change-over shall be affected by the gateman on duty.

(vii) (viii) (iv) In case of IBH, separate set of ATs shall be provided. As IBH are unmanned, a two position automatic change-over switch shall be provided.

(ix) (v) In single line sections, one AT connected to the OHE will be provided for supply to CLS. The LT supply will be extended from the AT to ASM’s room by means of the 2x25 Sq.mm Aluminium cable terminated at the CLS supply panel. Local power supply, if available, will also be connected to this panel, which will be provided with a change-over switch. This arrangement will be adopted for the way side stations, level crossings beyond 2 Kms. from the nearest railway stations and at the IBHs.

(iv) At wayside electrified stations, where local supply is prone to prolonged interruptions, an emergency light point shall be provided in ASM’s room and in each cabin from the AT supply, through a separate circuit protected by a fuse of
(v) A 2x25 Sq.mm Aluminium cable will be laid from the ASM’s room each cabin along with the signal control cables in the same trench. An integrated power cubicles including a voltage stabilizer, inverter and battery chargers will be provided in the relay room for signal and relay supplies. A 230 V AC outlet from this power pack will be made available to Electrical department for provision of light points. Similar arrangements will be made at each level crossing and IBH.

(ii) An 80 AH battery capacity, sufficient to cater for 2 hours failure of supply, will be provided at each cabin, level crossing and IBH. One extra 80 AH battery sets shall be provided temporarily at this point until AT supply becomes available.

(iii) At large yards, standby diesel generating sets of 10 KVA rating each will be provided for standby power supply to the signalling installations. The supply from these generators will be brought to the CLS supply panel in the ASM’s room or in the cabin, where the change-over switch will be provided by the S&T department to enable the ASM’s/Cabin man to affect the change-over supply from the normal mode to the generator mode. A push button control will also be provided in the ASM’s room/Cabin to enable the ASM to start/stop standby diesel generator whenever required.

(iv) On sections where automatic block is planned, S&T will lay a power cable all along the section with suitable feeding arrangements to suit local conditions.

(v) At stations where telecom. repeater stations are located, a 2x25 Sq.mm Aluminium cable will be laid from the CLS supply panel in the ASM’s room to the repeater station to avail AT supply to work battery chargers and repeater equipment in the event of failure of local supply. Electrical department will be provide a change-over switch at the repeater station between AT supply and local supply. An emergency light point shall also be provided at repeater station by electrical department from the AT supply.
Sub: Tapping of 25 kv OHE for 240 V power supply signalling installations.

Doubts have been raised by certain Railways in regard to the responsibility of the Electrical Department and the S&T Department in the matter of providing 240 V power supply for signalling installations.

This is to clarify that instructions in this respect have been issued in Railway Board’s letter No.82/RE/250/1 dated: 10.8.88(copy enclosed) clearly indicating that providing and maintaining the L.T. cables from the 25 KV/240 V auxiliary transformer upto the ASM’s room is the responsibility of the Electrical Department, while the responsibility to the S&T Department is to maintain the cable from ASM’s room to the cabin/S&T installations.

The Railways should follow the instructions from the date of commissioning the system/cable.

The receipt of this letter may please be acknowledged.

Sd/-
( A.K.Vohra)
Exe.Director Elec.Engg.(G)
Railway Board.

The General Managers(S&T) and
General Managers(S&T)/Const.
All Indian Railways.

The General Manager,
Railway Electrification,
Allahabad.

The General Manager,
Metro Railway,
Calcutta.

The Director,
IRISET,
Secunderabad.

Sub: Provision of standby diesel Generating sets for colour Light Signalling.

In the conference of CSTEs(C) held on 26\textsuperscript{th} and 27\textsuperscript{th} May 1988 at IRISET, Secunderabad, board observed as under.

“Stand-by generator sets on way-stations should be provided that these can be easily operated by the Operating staff. On larger station the feasibility of providing stand-by supply from the stand-by generators of electrical Department should be investigated to avoid duplication of diesel Generator sets”.

In this connection attention is invited to para 2.5 of this office letter No.82/RE/250/1 dated: 19.10.83(copy enclosed)wherein instructions already exist for provision of stand-by DG sets/Arno and transformer standy-by at large station by Electrical Department taking into account the essential requirement of colour Light signalling and other S&T loads and to provide adequate capacity in the arrangements while planning the power supply at such stations. This would obviate the need for providing separate DG sets by the S&T Deptt. For colour light signalling installation.

The power supply arrangements for colour light signalling installations have been further detailed in this office letter No.85/W3/SG/GLS/1 dated: 26.6.85 a copy of which is enclosed for ready reference.
It is further desired that following additional points should be taken care of while providing power supply for colour light signalling installation from DG sets installed by the Signal Department.

Stand-by DG sets should be conveniently located so that they can be operated by the Operating staff. These should preferably have push button starters.

Frequent starting and stopping of DG sets should be avoided.

At stations where power supply is unreliable/erratic, the DG sets should be run during peak period when there is bunching of trains/important trains are dealt with without waiting for failure of power supply. This would avoid interruption to the working of signals during critical period.

Railways should draw up schedules for running of DG sets for each station accordingly.

Regular supply of fuel should be ensured at each station for uninterrupted operation of DG sets.

At large stations, where the DG sets installed and maintained by Electrical Department provide stand-by power for the signal supply, it should be ensured by the Electrical Department that in case of power failure the stand-by DG set is promptly started either by deputing staff round the clock or by having automatic starting of the same.

Board desire that these instructions should be strictly followed.

Sd/-
( K.N.Jain)
Exec.Director(S&T)(R)

Enclo: 2

No: 88/SIG/G/18
New Delhi, dtd:

Copy to GMs (Electrical), All Indian Railways, for information and necessary action.

Enclo: As above.

Sd/-
Director Elec.Engineer,
Railway Board.
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No. 94/Elec.(G)/150/11

The General Managers (Elec.),
All Indian Railways.

Sub. Provision of Standby Diesel Generating
on the Railways.

1.0 Diesel Generating (DG) sets have been provided on the Railways at a number of locations as a standby sources of power supply for essential as well as some non-essential loads in the event of interruptions/cuts of power supply from the State Electricity Boards (SEBs). The maintenance and operation of these DG sets entails substantial expenditure due to consumption of diesel oil and spares. More importantly, operation of DG sets cause pollution which is required to be avoided.

1.1 Due to several changes on the railways in the recent past such as closure of steam sheds, closure of marshalling yards, as a result of changes in operating patterns, gauge conversion giving alternative routes etc., a review of the requirements of DG sets at each location with a view to keeping their nos. to the barest minimum is called for and wherever DG sets have become redundant or are not required, they should be got removed immediately.

2.0 While the primary responsibility to ensure power supply to Railway installations without any power cuts/power interruptions resets with the SEBs, Railway Administration should continue to persue with higher authorities of SEBs for effecting improvements in power supply system to Railway installations as required. Even so, it may be necessary to provide/retain DG sets at certain important stations to feed essential loads during the period of interruption/cuts to power supply from SEBs to ensure continuity of railway operations. The following factors should be taken into consideration while providing DG sets at Railway Stations:-

1. The importance of the station such as at Zonal Railway Head Quarters, State Capitals, Divisional Head Quarters, District Head Quarters and any other station which the Chief Electrical Engineer considers as important from operational point of view and where the duration of power supply interruptions/cuts are deemed to affect passenger convenience.
2. Normally the loads to be fed essentially from DG sets would be as under:
   
   I) Electric pumps for watering carriages where there is no diesel pump.
   
   ii) Exhausters, vacuum testing plants (till they become redundant), compressors for maintenance/testing of rakes:
   
   iii) Essential minimum lighting during night hours in control offices, sick lines, yard, Telephone exchanges:
   
   iv) Hospitals where operations are performed:
   
   v) Water coolers on platforms:
   
   vi) Electric loco/diesel loco sheds:
   
   vii) EMU/MENU/DMU car sheds:
   
   viii) Any other load considered essential for railways’ operations by CEE of the railways.

NOTE: Where DG sets are provided on the above considerations, station premises like platforms, Booking offices, etc. can also be provided with emergency supplies.

3. Wherever DG sets have been provided by Electrical department as a standby for power supply specifically and exclusively for signalling installations, the maintenance and operation of such DG sets should be handed over to Signal Department.

4. The results of the review indicating numbers of DG sets closed and those existing may be sent to this office.

Please acknowledge receipt of this letter.

Sd/-
(D.D.Pahuja)
Director/Elec.Engg.(G)
Railway Board.

Copy to: 1) General Managers (S&T)/All Indian Railways./S.E.Rly.
        2) Director/IRIEEN/Nasik/Post Box No.233/Nasik Road-422101.
        3) Director General/RDSO/Lucknow.
        4) Principal/Railway Staff College/Vadodara.
The General Manager,
Central Organisation for
Railway Electrification,
Allahabad.

Sub: Capacity of Auxiliary transformers.

At present, 10 KVA auxiliary transformers are provided for power supply to signalling installation at a wayside station. Board have examined the need for revision of capacity of the ATs and have decided that only 5 KVA (25KV/240 volts) ATs should be installed at wayside stations provided with MACLS signalling with end cabins. 10 KVA ATs should be provided at panel interlocked stations. Replacement of 10 KVA ATs, if needed should also be made as per the above requirements.

Sd/-
(S.K. Nanda)
Director Railway Electrification
Railway Board.

Copy to: CEES, CSTES
All Electrified Rlys.
No: 96/RE/250/1  New Delhi, dt.26.6.96.

The Director General,
R.D.S.O.,
Lucknow.


Board desires that the development and standardisation of 5 KVA ATs should be expedited and sufficient sources developed. The use of 10 KVA AT should be reduced to lowest minimum in quickest possible time and instead 5 KVA AT should be used. This will not only reduce the initial cost but also result in reduction of losses due to very low load of MACLS.

Sd/-
( R.B.SINGH)
Jt. Director Railway Electrification
Railway Board.

Copy to:
1. General Manager/CORE/Allahabad
2. CEEs,CSTE of all electrified Rlys.
The General Managers,
All Indian Railways.


At present power feeding of Signal aspects in A.C. Electrified area is being done by the following two alternative system:

I) 110 V a.c. feed system.
ii) 300 V a.c. feed system.

Board on the experience gained, the 67th Signal Standard Committee (SSC) deliberated on the above two alternative design and have recommended adoption of uniform 110 V a.c. feed system for all future Colour Light Signal installations.

Board have approved the above recommendation of the SSC. The 110 V a.c. feed system should be provided on all future Colour Light Signal Installations.

SD/-
(Chandrika Prasad)
Addl.Member(Signals)

Copy to:
Director General, RDSO, Lucknow.
GM/Rly.

Electrification, Allahabad.
GM/Con.N.F.Rly, Railway.
Principal Railway Staff College, Vadodara.
Director/IRISET, Secunderabad.
CSTE & CSTE(C), All Indian Railways.
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No:95/RE/161/Misc.           New Delhi, dt.8.3.96.

The General Manager,
Central Organisation for
Railway Electrification,
Allahabad.

Sub: Capacity of Auxiliary transformers.

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at a way side station. Board have examined the need for revision of capacity of the ATs and have decided
that only 5 KVA (25KV/240 volts)ATs should be installed at wayside stations provided with MACLS
signalling with end cabins. 10 KVA ATs should be provided at panel interlocked stations. Replacement of
10 KVA ATs, if needed should also be made as per the above requirements.

Sd/-
(S.K.Nanda)
Director Railway Electrification
Railway Board.

Copy to; CEES,CSTES
All Electrified Rlys.
The General Managers,
All Indian Railways.


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SD/-
(Chandrika Prasad)
Addl.MemberSignals

Copy to:
Director General, RDSO, Lucknow.
Director General, Electrification, Allahabad.
Principal Railway Staff College, Vadodara.
Director/IRISET, Secunderabad.
CSTE & CSTE(C), All Indian Railways.
The Director General,  
R.D.S.O.,  
Lucknow.


Board desires that the development and standardisation of 5 KVA ATs should be expedited and sufficient sources developed. The use of 10 KVA AT should be reduced to lowest minimum in quickest possible time and instead 5 KVA AT should be used. This will not only reduce the initial cost but also result in reduction of losses due to very low load of MACLS.

Sd/-  
(R.B.SINGH)  
Jt. Director Railway Electrification  
Railway Board.

Copy to:

1. General Manager/CORE/Allahabad  
2. CEEs, CSTEs of all electrified Rlys.
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No.ERB-I/96/2344

New Delhi, dt.

ORDER

Ministry of Railways (Railway Board) have decided to set up an Expert committee to study Specification No.73/96 of RDSO and to give specific recommendations about the transreceiver sets to be used in locomotives for satisfactory performance taking into consideration the results of trials on Southern, Central & Western Railway and to study recommendations of Telecom Standards committee/CCE’s meeting and studies made in RDSO. The Committee will consist of the following :-

S/Shri

1. R.K. Jain, Retd. Adv.(Signal), Railway Board - Chairman
2. S. Anantharaman, CCE/Western Railway - Member.
3. P.M. Kakaatpure, CCE/Central Railway - Member.
4. R.N. Kumar, CSTE/S.E. Railway - Member.
5. M. Subramani, CCE/S. Railway - Member.
6. B.P. Agarwal, ED/Tele.RDSO - Secretary.

2. All the above officers except Shri R.K. Jain, retired Adv. (Signal), Railway Board, who will act as Chairman of the committee will continue to hold their substantive charges. They will be entitled to normal TA/DA as on duty when they move out in connection with work of the Committee.

3. The tenure of the committee would be 15 days from the date it starts working.

4. The terms and conditions of appointment of Shri R.K. Jain, retired Adv. (Signal), Railway Board would be as under :-

(I) Remuneration

He will be paid a sum of 4,000/- p.m. in addition to his pension and other retirement benefits.

(ii) Travelling facilities

For journeys in connection with the work of the committee, he will be issued a First class Duty Card Pass with permission to travel in 1st AC including Rajdhani & Shatabdi Expresses for self only. He will be paid TA/DA as admissible to serving officers of equivalent status. He will be his own controlling officer for this purpose.

(iii) Staff car facility

He will be entitled to staff car facility for undertaking journeys in connection with the work of the Committee. Alternatively, he will be paid a conveyance allowance Rs.750 p.m. for actual use of his own car for local journeys. He will be entitled to staff car facility while on tour.

(iv) Rest House

He will be entitled to railway rest house facility while on tour on the same terms and conditions for serving Railway officers of equivalent status.

(v) Telephone

He will be provided with a railway & P&T telephone in the office and a P&T telephone at his residence with the facility of free calls to the extent applicable to serving railway officers. In case, he is already having the facility of private telephone at his residence, reimbursement of telephone charge
may be allowed to the extent admissible to serving officers of his status.

(vi) Secretarial assistance He will be provided with supporting staff from within the cadre by the Railway Board/Railways as may be deemed necessary.

(vii) Office accommodation He will be provided with room duly furnished by Railway Board.

5. In respect of other terms and conditions of his appointment, if any, not indicated above, the decision of the Railway Board will be final.

6. The expenditure is chargeable to grant No.2 annexure ‘C’, item No.3 (I), 1996-97.

7. The headquarter of the committee will be at New Delhi.

8. The P&AO, Railway Board will be the Accounts and Disbursing officer.

9. This has the sanction of the President and issues with the concurrence of the Finance Dte. of the Ministry of Railways.

Sd/-
( A. C. Rakshi )
Jt. Secretary(G)
Railway Board.

CC : Pay & Accounts Officer,
Railway Board.

No.ERB-1/96/2314 New Delhi, dt.2.5.96.

Copy to the Principal Director of Northern Railway, New Delhi, Directors of Audit, Western, Central, S.E.Rly., Southern Railways.

Sd/-
For Finance Commissioner/rlys.

Copy to:

1. PSs to MOS(R),PSs to CRB,FC,NE,NS,ML,SC, C.RB.,All Advisers, All Directors,JDF(E),JS(P),DS(G),US(A),OS(E),II,NS(G),DDF(G),Railway Board.
2. The General Managers,All Indian Railway including CLW,DSM,ICF,DG/RDSO and Heads & Subordinate Officers.
3. The FA & CAO,Northern,Southern,Western,Central and South Eastern Railways.
5. Shri R.K.Jain, Retd. Adv. (Signal), Chairman of the committee.
7. Shri B.P.Aggarwal, Secretary of the Committee.
Sub: Reliability of power supply for colour light signalling.

In order to ensure uninterrupted power supply to colour light signals, so that these do not become blank in the event of any interruption in the power supply, RDSO finalised the standard power supply scheme for electrified sections. Board, after examining the RDSO’s scheme decided as a measure of economy and for reduction of the cost of electrification that inverters should not be provided and instead auto switching between up and down ATs should be provided for colour light signals on a double line section.

Board desire that the report on the performance of auto switches and inverters, wherever provided on your railway, should be submitted so that final view is taken by the Board. You are requested to submit the performance report at the earliest.

Sd/-
( N. K. Goel )
Exec. Director/RE(S&T)
Railway Board.
Sub: Tapping of 25 kv OHE for 240 V power supply signalling installations.

Doubts have been raised by certain Railways in regard to the responsibility of the Electrical Department and the S&T Department in the matter of providing 240 V power supply for signalling installations.

This is to clarify that instructions in this respect have been issued in Railway Board’s letter No.82/RE/250/1 dated: 10.8.88(copy enclosed) clearly indicating that providing and maintaining the L.T. cables from the 25 KV/240 V auxiliary transformer upto the ASM’s room is the responsibility of the Electrical Department, while the responsibility to the S&T Department is to maintain the cable from ASM’s room to the cabin/S&T installations.

The Railways should follow the instructions from the date of commissioning the system/cable.

The receipt of this letter may please be acknowledged.

Sd/-
(A.K.Vohra)
Exe.Director Elec.Engg.(G)
Railway Board.

In connection with the provision of 230V L.T. supply to signalling installations by tapping of 25KV OHE, instructions were issued by Railway Board from time to time, vide their letters mentioned below:

ii) No.82/RE/250/1 dated: 19.1.1983 and

The present arrangement on the above was reviewed and a joint procedure order on the basis of the practice followed on RE projects has been prepared by CEE/CORE and CSTE/CORE, Allahabad. The joint arrangement recommended by CORE has been approved by the Board. A copy of the guidelines along with the drawings prepared by CEE and CSTE, CORE is sent herewith for uniform adoption on Railway Electrification Projects under construction.

Please acknowledge the receipt.

Enclo: As above.

Sd/-

(A.S.Sant)
Exe. Director, Railway Electrification.
Railway Board.

Copy to General Manager, Central Orgn for Railway Electrification, Allahabad

Copy to ED(S&T), JD(S&T)I together with a copy of guidelines along with drawings.
POWER SUPPLY ARRANGEMENTS FOR SIGNALLING INSTALLATIONS THROUGH AUXILIARY TRANSFORMERS BY TAPPING 25 KV OHE.

(A) POWER SUPPLY INSTALLATIONS;

Following works shall be carried out by Electrical Department.

(I) At each way side station, 2 nos. Auxiliary Transformers one each connected to OHE of UP & DN lines shall be provided. A2 x 25 sq.mm. aluminium cable shall be alid from each AT to ASM’s room and shall be terminated at the CLS supply panel. Local supply, if available, shall also be terminated at the panel as a third source. a manual three-position change-over switch shall be provided on the CLS supply panel. The CLS panel shall be provided with MCBs and neon indication lamps for the incoming and outgoing supplies. Change-over shall be affected by ASM on duty. From the CLS supply pan, power supply will be extended to either cabin by S&T department, through 2 x 25 sq.mm. aluminium cables.

(ii) At big yards, where a number of cabins are located, 2 to 3 cabins shall be grouped together and a set of two ATs one each connected to OHE of UP & DN lines shall be provided at a convenient location to feed each such group. CLS supply panel having a three-position manual change-over switch shall be provided at one of the cabins, by the Electrical Department from where the supply shall be extended by S&T department.

(iii) Provision of 2 Nos. Auxiliary Transformers one each connected to OHE UP & DN lines shall be arranged at each level crossing located more than 2 Kms. away from the Railway station. If any other level crossings are located within 2 Kms. of the level crossing where a set of ATs have been provided, then supply from the same ATs shall be extended to these level crossings through 2x25 mm aluminium cable to be laid by S&T department. The CLS supply panel along with manual change-over switch shall be provided at the gate lodge. Change-over shall be affected by the gateman on duty.

(iv) In case of IBH, separate set of ATs shall be provided. As IBH are unmanned, a two position automatic change-over switch shall be provided.

(v) In single line sections, one AT connected to the OHE will be provided for supply to CLS. The LT supply will be extended from the AT to ASM’s room by means of the 2x25 Sq.mm Aluminium cable terminated at the CLS supply panel. Local power supply, if available, will also be connected to this panel, which will be provided with a change-over switch. This arrangement will be adopted for the way side stations, level crossings beyond 2 Kms. from the nearest railway stations and at the IBHs.

(vi) At wayside electrified stations, where local supply is prone to prolonged interruptions, an emergency light point shall be provided in ASM’s room and in each cabin from the AT supply, through a separate circuit protected by a fuse of proper rating. AT non-electrified stations, a separate lighting circuit shall be provided in ASM’s room and in each cabin from the AT supply. From the lighting circuit in ASM’s room one light point each in ASM’s room and platform outside the stations building at the ticket window/waiting hall and in the cable hut shall be provided. On the lighting circuit at the cabins, one light point each in the cabin, relay room, battery room and cabin basement shall be provided.
(v) All the power supply installations provided by the electrical department as detailed in Paras (I) to (vi) above, will be maintained by the Electrical department.

(B). S&T INSTALLATIONS.

The following works shall be carried out by the S&T department.

(i) A 2x25 Sq.mm Aluminium cable will be laid from the ASM’s room each cabin along with the signal control cables in the same strench. An integrated power cubicles including a voltage stabilizer, inverter and battery chargers will be provided in the relay room for signal and relay supplies. A 230 V AC outlet from this power pack will be made available to Electrical department for provision of light points. Similar arrangements will be made at each level crossing and IBH.

(ii) An 80 AH battery capacity, sufficient to cater for 2 hours failure of supply, will be provided at each cabin, level crossing and IBH. One extra 80 AH battery sets shall be provided temporarily at this point until AT supply becomes available.

(iii) At large yards, standby diesel generating sets of 10 KVA rating each will be provided for standby power supply to the signalling installations. The supply from these generators will be brought to the CLS supply panel in the ASM’s room or in the cabin, where the change-over switch will be provided by the S&T department to enable the ASM’s/Cabin man to affect the change-over supply from the normal mode to the generator mode. A push button control will also be provided in the ASM’s room/Cabin to enable the ASM to start/stop standby diesel generator whenever required.

(iv) On sections where automatic block is planned, S&T will lay a power cable all along the section with suitable feeding arrangements to suit local conditions.

(v) At stations where telecom. repeater stations are located, a 2x25 Sq.mm Aluminium cable will be laid from the CLS supply panel in the ASM’s room to the repeater station to avail AT supply to work battery chargers and repeater equipment in the event of failure of local supply. Electrical department will provide a change-over switch at the repeater station between AT supply and local supply. An emergency light point shall also be provided at repeater station by electrical department from the AT supply.
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

The General Manager (S&T),
Northern Railway, New Delhi,
Western Railway, Bombay.

Sub.: Modification of home signal slot circuit: recommendations of CRS,
North Circle in connection with Firozabad train accident.

Ref.: I) GM (S&T), N.Rly’s letter Nos. 256-SIG/O/SG/Pt.VI dated. 8.12.95 &
23.1.96

On the above subject, instructions were issued to the Railways vide Railways vide Railway
Board’s letter No. 93/SIG/W3/11 Pt. dated. 28.11.95 (Item IV) for providing interlocking so that home
signal slot can be released only after starter and advance starter are put back to ‘ON’.

In this connection, following clarifications have been sought by Northern and Western Railways
vide their letters quoted above :-

a) Whether such facilities have to be provided at all
   stations on this railway irrespective of the section
   being single or double line and the type of block
   working.

b) It is presumed that such facilities are not required
   at stations where there is complete track circuiting
   between the starter and the advance starter.

c) At junction stations in modifications of home signal
   slot circuit instead of all departure signals only line
   starter signals may be proved to have been put back
   to ‘ON’.

3. These issues have been studied and following is the item-wise clarification of the above:-

a) Irrespective of single/double line and type of block working this is to be
   provided.

b) It is confirmed that the modification is not required at stations provided
   with complete track circuiting from starter to advance starter.

c) All relevant departure signals have to be proved and not only the line
   starter signal.

Sd/-
(S.B.Bhamu)
Joint Director (Signal),
Railway Board.

Copy to General Manager (S&T), of all railways for necessary action.
No. 94/Elec.(G)/150/11

The General Managers (Elec.),
All Indian Railways.

Sub. Provision of Standby Diesel Generating
on the Railways.

1.0 Diesel Generating (DG) sets have been provided on the Railways at a number of locations as a standby sources of power supply for essential as well as some non-essential loads in the event of interruptions/cuts of power supply from the State Electricity Boards (SEBs). The maintenance and operation of these DG sets entails substantial expenditure due to consumption of diesel oil and spares. More importantly, operation of DG sets cause pollution which is required to be avoided.

1.1 Due to several changes on the railways in the recent past such as closure of steam sheds, closure of marshalling yards, as a result of changes in operating patterns, gauge conversion giving alternative routes etc., a review of the requirements of DG sets at each location with a view to keeping their nos. to the barest minimum is called for and wherever DG sets have become redundant or are not required, they should be got removed immediately.

2.0 While the primary responsibility to ensure power supply to Railway installations without any power cuts/power interruptions resets with the SEBs, Railway Administration should continue to pursue with higher authorities of SEBs for effecting improvements in power supply system to Railway installations as required. Even so, it may be necessary to provide/retain DG sets at certain important stations to feed essential loads during the period of interruption/cuts to power supply from SEBs to ensure continuity of railway operations. The following factors should be taken into consideration while providing DG sets at Railway Stations:-

1. The importance of the station such as at Zonal Railway Head Quarters, State Capitals, Divisional Head Quarters, District Head Quarters and any other station which the Chief Electrical Engineer considers as important from operational point of view and where the duration of power supply interruptions/cuts are deemed to affect passenger convenience.

2. Normally the loads to be fed essentially from DG sets would be as under:

   i) Electric pumps for watering carriages where there is no diesel pump.

   ii) Exhausters, vacuum testing plants (till they become redundant), compressors for maintenance/testing of rakes:

   iii) Essential minimum lighting during night hours in control offices, sick lines, yard, Telephone exchanges:

   iv) Hospitals where operations are performed:

   v) Water coolers on platforms:

   vi) Electric loco/diesel loco sheds:
vii) EMU/MENU/DMU car sheds:

viii) Any other load considered essential for railways’ operations by CEE of the railways.

NOTE: Where DG sets are provided on the above considerations, station premises like platforms, Booking offices, etc. can also be provided with emergency supplies.

3. Wherever DG sets have been provided by Electrical department as a standby for power supply specifically and exclusively for signalling installations, the maintenance and operation of such DG sets should be handed over to Signal Department.

4. The results of the review indicating numbers of DG sets closed and those existing may be sent to this office.

Please acknowledge receipt of this letter.

Sd/-
(D.D. Pahuja)
Director/Elec.Engg.(G)
Railway Board.

Copy to: 1) General Managers (S&T)/All Indian Railways./S.E.Rly.
2) Director/IRIEEN/Nasik/Post Box No.233/Nasik Road-422101.
3) Director General/RDSO/Lucknow.
4) Principal/Railway Staff College/Vadodara.
Sub: Provision of standby Diesel Generating sets for Colour Light Signalling.

In the conference of CSTEs(C) held on 26th and 27th May 1988 at IRISET, Secunderabad, Board observed as under:

“Stand-by generator sets on way-stations should be so provided that these can be easily operated by the Operating staff. On larger station the feasibility of providing stand-by supply from the stand-by generators of Electrical Department shouyld be investigated to avoid duplication of Diesel Generator sets”.

1.1 In this connection attention is invited to para 2.5 of this office letter No.82/RE/250/1 dated: 19.10.83 (copy enclosed) wherein instructions already exist for provision of stand-by DG sets/Arno and transformer stand-by at large station by Electrical Department taking into account the essential requirements of Colour Light Signalling and other S&T loads and to provide adequate capacity in the arrangements while planning the power supply at such stations. This would obviate the need for providing separate DG sets by the S&T Deptt. for colour light signalling installation.

2. The power supply arrangements for colour light signalling installations ohave been further detailed in this office letter No.85/W3/SG/CLS/1 dated: 26.6.85 a copy of which is enclosed for ready reference.

3. It is further desired that following additional points should be taken care of while providing power supply for colour light signalling installation from DG sets installed by the Signal Department.

3.1 Stand-by DG sets should be conveniently located so that they can be operated by the Operating staff. These should preferably have push button starters.

3.2 Frequent starting and stopping of DG sets should be avoided.

3.3 At stations where power supply is unreliable/erratic, the DG sets should be run during peak period when there is bunching of trains/important trains are dealt with without waiting for failure of power supply. This would avoid interruption to the working of signals during critical period.
3.4 Railways should draw up schedules for running of DG sets for each station accordingly.

3.5 Regular supply of fuel should be ensured at each station for uninterrupted operation of DG sets.

4. At large stations, where the DG sets installed and maintained by Electrical Department provide stand-by power for the signal supply, it should be ensured by the Electrical Department that in case of power failure the stand-by DH set is promptly started either by deputing staff round the clock or by having automatic starting of the same.

Board desire that these instructions should be strictly followed.

Sd/-
(K.N.Jain)
Exec.Director(S&T)(R)
Railway Board.

Enclo: 2

No: 88/SIG/G/18

New Delhi. dtd:

Copy to GMs(Electrical), All Indian Railways, for information and necessary action.

Enclo: As above.

Sd/-
Director oElec. Engineering,
Railway Board.

The General Managers(Elec.)
All Indian Railways.

The General Managers(S&T)
All Indian Railways.

The Chief Project Managers,
Kota, Vadodara, Nagpur, Ranchi, Bhopal, Bilaspur at Nagpur,
Mathura and Vijayawada.

The Chief Electrical Engineer,
Railway Electrification, Egmore, Madras.


In connection with the provision of 230V L.T. supply to signalling installations by tapping of 25
KV OHE, instructions were issued by Railway Board from time to time, vide their letters mentioned below :-

i) No. 82/RE/250/1 dated: 23.6.1982,

ii) No. 82/RE/250/1 dated: 19.10.1983 and


The present arrangement on the above was reviewed and a joint procedure order on the basis of
other practice followed on RE projects has been prepared by CEE/CORE and CSTE/CORE, Allahabad. The
joint arrangement, recommended by CORE has been approved by the Board. A copy of the guide-lines
alongwith the drawings prepared by CEE and CSTE, CORE is sent herewith for uniform adoption on
Railway Electrification projects under construction.

Please acknowledge the receipt.

Enclo: As above. Sd/-
(A.S. Sant)
Exe/Director, Railway Electrification, Rly. Board.

Copy to General Manager, Central Orgn. for Railway Electrification, Allahabad.

Copy to ED(S&T), JD(S&T) I together with a copy of guide-lines alongwith drawings.

DA: As above.
POWER SUPPLY ARRANGEMENTS FOR SIGNALLING INSTALLATIONS THROUGH AUXILIARY TRANSFORMERS BY TAPPING 25 KV OFF.

(A) POWER SUPPLY INSTALLATIONS:

Following works shall be carried out by Electrical Department:-

(I) At each way side station, 2 nos. Auxiliary Transformer one each connected to OHE of UP & DN lines shall be provided. A 2 x 25 sq.mm. aluminium cable shall be laid from each AT to ASM’s room and shall be terminated at the CLS supply panel. Local supply, if available, shall also be terminated at the panel as third source. A manual three position change-over switch shall be provided on the CLS supply panel. The CLS panel shall be provided with MCB’s and neon indication lamps for the incoming and outgoing supplies. Change-over shall be affected by ASM on duty. From the CLS supply panel, power supply will be extended to either cabin by S&T department, through 2x25 sq.mm aluminium cables.

(ii) At high yards, where a number of cabins are located, 2 to 3 cabins shall be grouped together and a set of two ATs one each connected to OHE of UP & DN lines shall be provided at a convenient location to feed each such group. CLS supply panel having a three position manual change-over Electrical department, from where the supply shall be extended by S&T department to other cabins.

(iii) Provision of 2 nos. Auxiliary Transformers one each connected to OHE of UP & DN lines shall be arranged at each level crossing located more than 2 Kms. away from the Railway Station. If any other level crossings are located within 2 KM of the level crossing where a set of ATs have been provided, then supply from the same ATs shall be extended to these level crossing through 2 x 25 sq.mm aluminium cable to be laid by S&T Deptt. The CLS supply panel along with manual change-over switch shall be provided at the gate lodge, change-over shall be affected by the Gateeman on duty.

(iv) In case of IBH, separate set of ATs shall be provided. As IBH are unmanned, a two-position automatic change-over switch shall be provided.

(v) In single line sections, one AT connected to the OHE will be provided for supply to CLS. The LT supply will be extended from the AT to ASM’s room by means of 2 x 25 sq.mm. power supply, if available, will also be connected to this panel, which will be provided with a change-over switch. This arrangement will be adopted for the way side stations, level crossings beyond 2 Kms. from the nearest Railway Station and at the IBHs.

(vi) At way-side electrified stations, where local supply is prone to prolonged interruptions, an emergency light point shall be provided in ASM’s room and in each cabin from the AT supply, through a separate circuit protected by a fuse of proper rating. At non-electrified stations, a separate lighting circuit shall be provided in ASM’s room and in each cabin from the AT supply. From the lighting circuit in the ASM’s room, one light point each in ASM’s room, on the platform outside the station building, at the ticket window/waiting hall and in the cablell hut shall be provided. On the lighting circuit at the cabins, one light point each in the cabin, relay room battery room and cabin basement shall be provided.

(vii) All the power supply installations provided by the Electrical department as detailed in paras (i) to (vi) above, will be maintained by the Electrical department.

(B) S&T Installations:

The following works shall be carried out by the S&T department:-

(I) A 2 x 25 sq.mm. aluminium cable will be laid from the ASM’s room to each cabin along with the signal control cables in the same trench. An integrated power cubicles including a voltage stabiliser, inverter and battery chargers will be provided in the relay room for signal and relay supplies. A 230 V AC outlet from this power pack will be made available to Electrical Department for provision of light points. Similar arrangements will be made at each level crossing and IBH.
(ii) An 80 AH battery capacity, sufficient to cater for two hours failure of supply, will be provided at each cabin and level crossing. One extra 80 AH battery set shall be provided temporarily at these points until AT supply becomes available. AT IBH 200 AH battery capacity may be provided to cater for four hours failure of supply.

(iii) At large yards, standby diesel generating sets of 10 KVA rating each will be provided for standby power supply to the signalling installations. The supply from these generators will be brought to the CLS supply panel in the ASM’s room or in the cabin, where a change-over switch will be provided by S&T Deptt. to enable the ASM/Cabinman to affect the change-over supply from the normal mode to the generator mode. A push-button control will also be provided in the ASM’s room/cabin to enable the ASM to Start/stop standby diesel generator whenever required.

(iv) On sections where automatic block is planned, S&T will lay a power cable all along the section with suitable feeding arrangements to suit local conditions.

(v) At stations where telecom repeater stations are located, a 2 x 25 sq.mm. aluminium cable will be laid from the CLS supply panel in the ASM’s room to the repeater station to avail AT supply to work battery chargers and repeater equipments in the event of failure of local supply. Electrical Department will provide change-over switch at the repeater station between At supply and local supply. An emergency light point shall also be provided at Repeater stations by Electrical Department from the AT supply.
The General Managers(S&T)
All Indian Railways.

The Addl. General Manager,
Railway Electrification,
Allahabad.

Sub: Reliability of power supply for colour light signalling.

The need to enhance the reliability of power supply required for colour light signalling has been engaging the attention of the Board for some time. This aspect also figured in discussion during the General Managers’ Conference held in the Board on 17th and 18th April, 1985.

2. So far as electrified sections are concerned, the power should be tapped from the catenary as per detailed instructions issued on the subject vide Board’s letter No.82/RE/250/1 dated: 23rd June, 1982 and 19.10.1983. The arrangement can be further augmented by utilising local power supply, stand-by generating sets, where required, to suit the local conditions.

3. In the non-electrified sections, the following guidelines are issued for power supply arrangement:

   (i) Where colour light signalling is to be introduced in a section of reasonably long starter say 5 block sections or more-power cable should be laid with such an arrangement that power can be fed to the cable from local feeders/generating sets installed at suitable points on a pattern which is existing on CTC sections of Gorakhpur-Chhapra of O.N.E.Railway and Bongaigaon-Changseri of N.F.Railway. It is observed that the power supply arrangement in these two sections has been working very satisfactorily. In the 132 Km long Bongaigaon-Changseri section, with 14 stations in between, there are 5 power stations to feed the entire section.
   The number of such feeding points can be decided keeping in view the cost of power supply equipment, power cable and other relevant factors.

   (ii) where it is not possible to arrange for the laying of power cable, as given in para(i) above, it must be ensured that the reliable local power supply backed by stand-by arrangement of generating sets is available.

   The Railway can consider the provision of inverters and use of solar power to improve the reliability of power supply arrangement to suit local requirements.

   (iii) Colour light signalling should not be introduced without ensuring reliability of power.

4. Para 3 above, for non-electrified sections, sets out only guidelines and need not be interpreted to impose any restriction on the Railways for improving the reliability further with an ultimate objective of achieving “no-break” power supply condition for the signalling system.

   Receipt of this letter may be acknowledged.

*Please also see Board’s circular No.82/RE/250/1 dt.10.8.88 and 87/W3/SG/CLS/2 dt.2.11.88.

Sd/-

( Kalyan Singh )
Joint Director(S&T)/III
Railway Board.
No: 85/W3/SG/CLS/1


Copy to:

1. CSTEs(Const.), All Indian Railways (except NE & NF Railway).
2. The Director Standards(S&T), RDSO, Lucknow.
3. The Principal, IRISET, Secunderabad.
4. The Principal, Railway Staff College, Vadodara.

Sd/-
(Kalyan Singh)
Joint Director(S&T) III
Railway Board.
The General Managers,
Eastern, S.E., Southern, S.C.,
Central, Northern and Western Railways.

Sub: Tapping of 25 KV OHE for colour light signalling and other S&T installations.

Ref: Board’s letter No.82/RE/250/1 dtd: 23.6.82.

Since issue of Board’s instructions referred to above which were in the nature of amplification/modification of para 1316 of the A.C. Traction Manual, request from the Railways have been received for a review of the orders in consideration of the following:

I) State Electricity Authorities may object to such large scale tapping from 25 KV power involved in provision of auxiliary transformers at each wayside station;

ii) Large number of tappings will have an impact on the reliability of OHE supply;

iii) Addl. expenditure is involved for full compliance of the orders which can be avoided where existing arrangements viz. local supply with duplicate supply from OHE by tapping from only one line, are satisfactory.

2. The matter has been reviewed and it is clarified as under:

2.1 The supply to colour light signalling and S&T installations like repeaters/RRI cabins is closely interlinked with traction and hence tapping of 25 KV power for these purposes should not be objected to by the supply authorities. Any specific case where such an objection is being raised may be advised to the Board.

2.2 In the sections already electrified where provision of only one OHE supply in addition to local supply has been made, if the arrangements are considered satisfactory by the CEE, no additional expenditure need be incurred in other than suburban sections merely for compliance of Board’s instructions contained in the letter under reference. Board’s instructions in the ir letter fo June’82 refer to the sections which are being electrified where power supply arrangements are to be to the standards stipulated.

2.3 If the protection arrangements in the auxiliary transformer installations both on the HT as well as on the LT side are ensured to be to the approved standards, there is no reason for any tapping for colour light signalling should contribute to unreliability of OHE supply. In cases where authorisation has been given for eliminating provision of lightning arrestors by a substitute/short-gap arrangement, if in the experience of CEE such arrangement has been given rise to additional trippings on the OHE, provision of adequate capacity lightning arrestors, as approved by RDSO, shall be provided treating the relaxation given for provision of substitute short-gap arrangement, as not acceptable.

2.4 For the purposes of power supply arrangements, repeater stations should also be treated as wayside stations and the supply arrangements are to be confined to battery charging and emergency lightning requirements only.

2.5 At large stations, provision of stand-by diesel generating sets/Arno and transformer stand-by being made by CEE shall take into account the essential requirements of the colour light signalling and other S&T loads and provide adequate capacity in the arrangements being planned by him. Separate D.G. sets for RRI and mechanised humps shall be provided only in inescapable circumstances and by a specific authorisation from the CEE.
3. In Board’s instructions of 23.6.82, it was indicated that the changeover between the supplies from Up and Down OHEs should be with an automatic change-over switch. In modification of the same it is clarified that manual change-over arrangements in the ASM’s rooms as existing now are adequate and automatic change-over need not be provided.

* Please also see Bd’s circular
No. 85/W3/SG/CLS/1 dt. 26.6.85,
82/RE/250/1 dt. 10.8.88 &
87/W3/SG/CLS/2 dt. 2.11.88.

Sd/-
( V.C. Cheunulu)
Director Electrical Engineering
Railway Board.

Copy to:
1. Chief Electrical Engineer, Railway Electrification, Nagpur.

2. Chief Project Managers, Railway Electrification, Mathura, Vadodra, Kota, Nagpur, Ranchi and Vijayawada.

3. Chief Electrical Engineers, Railway Electrification, Madras and Vijayawada.


5. Copy to JDEE(D&W)/Elec-I.

To
(1) The Chief Project Manager, RE,
    Mathura, Vadodara, Kota, Nagpur, Ranchi and Vijayawada.
(2) The Chief Electrical Engineer, RE, Madras.
(3) The CSTE/RE/Nagpur.
(4) The Chief Engineer, RE, Allahabad.
(5) The Chief Electrical Engineer/RE/Nagpur.

Sub: Tapping of 25 KV OHE for 230 Volts supply to signalling installations.

The matter in regard to power supply arrangements for colour light signalling has been under consideration and it has been decided that the following arrangements may be made on electrified sections:

Way-Side stations:
Power supply for CLS at all the stations irrespective of whether local power supply is available or not, may be provided by tapping both UP and Down OHEs with automatic change-over switch.

Large stations:
In order to cater for large scale shunting operations as well as branch line steam and diesel hauled trains at just junctions of electrified and non-electrified stations, provision of DG sets of adequate capacity is also recommended for consideration as standby in addition to both the sources of power supply for contingencies of traction power supply failures from the concerned state electricity Board’s Gird arising out of strikes etc.

Repeater & control office.
(a) The duplicate OHE power supply tapped from both OHEs should also be extended to all the repeater stations and control office equipment from for efficient functioning of telecom circuits.
(b) At those repeater stations where OHE supply is not available other means of suitable supply may be provided.

3. This may please be acknowledged.

* Please also see Board’s circular
No.82/RE/250/1 dt.19.10.83
85/W3/SG/CLS/1 dt.26.6.85
and 82/RE/250/1 dt.10.8.88.

Sd/-
( R.N. Malhotra )
Addl. Director(S&T), Railway Board.

No: 82/RE/260/1/
Copy to:
(1) General Managers, All Indian Railways.
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