

CHAPTER XVII
WORKING OF TRAINS ON ELECTRIFIED
SECTIONS OF RAILWAYS

17.01. Applicability of General Rules:-

All rules referring to the working of trains shall also apply to electrified sections except as otherwise provided in the rules contained in this chapter.

17.02. Special definitions applicable to this Chapter:-

In these rules, unless the context otherwise requires:-

- (1) “Electrical way and works” means the traction installations including overhead equipment and other connected works provided on the electrified sections of the railway;
- (2) “Feeding post” means a supply control post, where the incoming feeder lines from grid sub-station are terminated;
- (3) “Neutral section” means a short section of insulated and dead overhead equipment which separates the areas fed by adjacent sub-stations or feeding posts;
- (4) “Power Block” means blocking of a section of line to electric traffic only;
- (5) “Supply control post” means an assembly of interrupters, isolator switches, remote control equipment and other apparatus provided for controlling power supply to overhead equipment. It includes feeding posts, sectioning and paralleling posts, sub-sectioning and paralleling posts and sub-sectioning posts;
- (6) “Tower wagon” means a self-propelled vehicle which is used for the maintenance and repairs of overhead equipment;
- (7) “Traction Power Controller” means a competent railway servant who may for the time being be responsible for the control of power supply on the traction distribution system.

Note: -

- (1) “Traction distribution official” means an authorised official of the overhead equipment and/or power supply installation.
- (2) “Traffic Block” means line block
- (3) “Authority-to-work” means an authority to work on overhead equipment given by a Traction distribution official who has obtained Power Block from Traction Power Controller, to another Traction distribution official.
- (4) “Power Block” as defined in G.R.17.02(4) is usually accomplished by switching off power to the section concerned.
- (5) “Supply control post” as defined in G.R.17.02(5) is also referred to as “Switching station”.
- (6) “Traction Power Controller” as defined in G.R. 17.02(7) is abbreviated as “TPC”
- (7) “Traction Loco Controller” means a competent railway official who is responsible for booking of electric locomotives and running staff to meet the requirements of traffic and maintenance. It is abbreviated as “TLC”

S.R.17.02 (i) Unwired track. –

To distinguish unwired tracks taking “off” from wired tracks, Caution Boards as per figure 1 shall be provided at the first overhead equipment mast ahead of the point of take-off. The driving crew of electric locos/Electric Multiple Units shall be alert and stop short in case they are erroneously signalled on to unwired track.

S.R.17.02(ii) Electric traction limits –

For tracks which are not equipped with overhead equipment i.e., unwired track, a special board shall be provided as per figure 2 ahead of the point of entry to the track. These should not be closer to the point than the overhead equipment structure ahead of it. No electric locomotive/Electric Multiple Unit shall normally be admitted into an unwired track. Any special movement of electric rolling stock on unwired track shall be done under competent written authority as provided for in Station Working Rules and such movement shall take place only with pantographs lowered and locked. In certain lines, partial wiring is provided for a portion of the length of the line. When entering such partial lines, the Loco Pilot of the electric locomotive/Electric Multiple Unit shall ensure that his locomotive/Electric Multiple Unit is stopped within the run of the overhead equipment well ahead of its end.

S.R.17.02(iii) Overhead equipment power failure:-

- (a) In the event of failure of overhead equipment power supply the TPC shall advise Controller that emergency feeding arrangement are being introduced, mentioning the selected stations on either side of the affected section as also the structure numbers at which Loco Pilots shall have to lower and raise pantographs. The TLC and Controller shall repeat this information to all loco sheds and Notice stations.
- (b) The selected stations on either side of the affected section shall fulfil the following conditions:-
 - (i) They shall be situated at a distance sufficiently away from the feeding post overlap to enable the Loco Pilot to attain sufficient speed to negotiate, without stalling, the “lower” and “raise” panto zone at the feeding post overlap.
 - (ii) They should have been provided with signals which can be manually controlled by the Station Masters. The Divisional Electrical Engineer/Traction Distribution shall nominate the selected stations for every feeding post overlap and inform all concerned.
- (c) The Controller shall also inform these two selected stations with exchange of Private Numbers to stop all trains immediately, instructing that, when permission is granted to resume traffic, all Loco Pilots entering the affected sections should be issued with Caution Orders to “lower” and “raise” pantographs at the specified structure numbers.
- (d) After this has been done, Controller shall inform the TPC that the Station Masters concerned have been instructed to issue Caution Orders. The TPC shall then take steps to introduce emergency feed and advise Controller with exchange of Private Numbers that traffic can be resumed.

- (e) During the period when emergency feed is arranged, the TPC shall inform the Controller of the likelihood of abnormal voltage drop, if any, and Controller shall regulate the traffic suitably in consultation with TPC.

S.R.17.02(iv) Programmed Power Block-

A weekly programme of Power Blocks for overhead equipment maintenance purposes shall be formulated by the Divisional Electrical Engineer/Traction Distribution in consultation with the Divisional Operations Manager. The Divisional Electrical Engineer/Traction Distribution shall circulate this weekly programme to all concerned furnishing full particulars. The concerned overhead equipment official shall request the TPC for Power Block in accordance with the weekly programme furnishing the following particulars: -

- (a) The section and location at which the work will be undertaken;
- (b) The nature of work proposed to be done; and
- (c) The time and the probable duration of the Power Block.

The TPC shall request Controller for the proposed programmed Power Block in Form ETR.1. After having ensured that there is no train in the concerned section, Controller shall inform the Station Masters at either end, with exchange of Private Number, that Power Block is being imposed, furnishing the duration of Power Block; the elementary section/sections in which the Power Block is being imposed; and the kilometrage at which the work is being undertaken. The Station Masters concerned shall immediately take protective measures in accordance with the Station Working Rules. The Controller shall then inform the TPC that Power Block may be imposed with due exchange of message in Form ETR.1. The TPC shall then switch off power to the section concerned and grant the Power Block to the authorised overhead equipment official in Form ETR.2. During the period of Power Block, steam/diesel locomotives may be permitted to enter the section provided that Caution Orders are issued to the Loco Pilots at Notice station/stations concerned that overhead equipment staff are working on line, furnishing the specified kilometrage, and also indicating that the driving crew shall exercise caution when passing over that section and obey all signals at the place of work. After completion of the work, the authorised overhead equipment official shall ensure that everything is in order, remove the temporary earths and then inform the TPC of cancellation of the Power Block in Form ETR 2. The TPC shall then energise the section and inform Controller of cancellation of Power Block in Form ETR. 1, who shall, in turn, inform the Station Masters concerned with exchange of Private Number. The TPC shall also inform the concerned overhead equipment official that the section has been energized and this official shall remain at the work-spot until this confirmation has been received.

S.R.17.02(v)Emergency Power Block. –

On receipt of first information of any unusual occurrence on overhead equipment or accident, the TPC shall, depending upon the merits of the case, immediately arrange to switch off power to the affected section. The TPC shall advise Controller who shall, also immediately, in turn, advise the Station Masters concerned with exchange of Private Number to take protective measures as per Station Working Rules. An overhead equipment official of rank not less than that of a skilled artisan shall first inspect the actual site of unusual occurrence or accident and then request the TPC for an emergency Power Block, furnishing the following particulars: -

- (a) The nature of defect;
- (b) The section and location at which the work has to be done;
- (c) The nature of work that has to be done;
- (d) The probable duration of the work; and
- (e) Whether trains, other than those hauled by electric locomotive can be permitted to enter into the section.

In case the TPC has already switched “off” power, emergency Power Block shall be granted immediately to the overhead equipment official concerned in Form ETR 2. In case the TPC has not switched off power, emergency Power Block shall be granted in Form ETR. 2, only after the procedure as laid down in S.R.17.02(iv) has been complied with except that the TPC shall not wait for the clearance of all trains from the affected section prior to granting of the emergency Power Block. Under conditions of emergency Power Block, Controller/Station Master concerned shall not permit movement of non-electric trains except with the prior concurrence of the TPC. Such concurrence shall be recorded both at the Control office and in the TPC Log Book.

If the nature of incident is such that no trains can be run in the affected section, the TPC shall also arrange for a Traffic Block in accordance with S.R.17.09 (iv). If trains other than electrically hauled trains can be run, the procedure for running of these trains shall be in accordance with S.R.17.02 (iv). After the work has been completed, the emergency Power Block shall be cancelled by the TPC in accordance with the procedure for cancelling programmed Power Block as laid down in S.R.17.02 (iv).

S.R.17.02 (vi) Communication between overhead equipment Official and TPC during Power Block. –

The overhead equipment official requesting for Power Block from the TPC shall ensure that a railway servant is specifically deputed with telephone to be in constant contact with the TPC from the time that such a request has been made till confirmation of re-energisation is received from the TPC.

S.R.17.02 (vii) Emergency Power Block for Loco Pilots of Electric Loco. –

The Loco Pilot of an electric loco shall obtain emergency Power Block from TPC for the purpose of inspecting and securing, if necessary, roof equipment, including pantograph. On receipt of request from the Loco Pilot for emergency Power Block, the TPC shall immediately arrange to cut off supply to the affected section, informing simultaneously Controller of the concerned section in Form ETR. 1. The Controller, in turn, shall inform the Station Masters concerned to take protective measures in accordance with the Station Working Rules. After TPC has assured himself that this information has been transmitted by due exchange of Private Number with Controller concerned, he shall grant emergency Power Block to the Loco Pilot exchanging Private Number with him. After the Loco Pilot has completed his work, he shall ensure that everything is in order, remove the temporary earths and then issue a message to the TPC supported by a Private Number to energise the line. The TPC shall then energise the concerned section and inform the Loco Pilot and Controller in Form ETR.1. The Controller shall inform the Station Master concerned with exchange of Private Number that the emergency Power Block has been cancelled.

S.R.17.02 (viii) Local Power Block-

Power supply for sidings which do not affect movement of trains on the main line/loop lines shall be isolated manually by the authorized overhead equipment official when required after informing the TPC that such a shut-down is being effected and after exchange of message in Form ETR 4 between the authorized overhead equipment official and the Station Master/cabin Station Master/Engine Turner/Loco Pilot (shunting) concerned. Necessary precautions as laid down in the Station Working Rules shall be followed during the period of local power Block After the work has been completed, the overhead equipment official shall re-energise the line and inform the Station Master/Cabin Station Master/Engine Turner/Loco Pilot (shunting) concerned in form ETR.4. The overhead equipment official shall also inform the TPC that the work has been completed and the line re-energised.

S.R.17.02 (ix) Intimation by TPC to overhead equipment officials regarding adjacent Power Blocks.-

Whenever Power Blocks of any type are issued by TPC in Form ETR.2 to the authorized overhead equipment official, he shall clearly indicate therein full particulars of Power Block/Blocks which has/have been granted/are likely to be granted as also the names of the overhead equipment officials to whom such Power Blocks have been granted/are likely to be granted in the adjacent sections. If no Power Blocks has been granted/are likely to be granted in the adjacent sections, this shall be specifically mentioned in Form ETR.2.

S.R.17.02 (x) Cancellation of Power Blocks-

When more than one section is under Power block at any time, the TPC shall energise each section only when the authorized overhead equipment official concerned who has taken the Power Block for that section cancels his Power Block in Form ETR 2.

S.R.17.02 (xi) Cancellation of simultaneous Power Blocks in adjacent sections when all communications have failed.-

When all means of communications with the TPC have failed and when Power Blocks are required to be cancelled, the senior most overhead equipment official, to whom the Power Block was issued, shall take steps to locally arrange for restoration of normal (live) conditions on the portion of the traction equipment specified in Form ETR 2. He shall then proceed to the next section and after exchanging messages with the overhead equipment official in charge of the next section that all men and material have been removed and everything is all right, he shall take steps to locally restore normal (live) conditions on that section also. After all sections have been energised, the senior most overhead equipment official shall advise in writing the Station Masters concerned that all Power Blocks have been cancelled. The senior most overhead equipment official shall be solely responsible for local energisation and cancellation of simultaneous Power Blocks in adjacent sections when all means of communications with the TPC have failed.

S.R.17.02 (xii) Maintenance of Power Block registers by Station Masters-

Each station shall be provided with a separate "Power Block" register. All messages relating to the imposition/cancellation of any type of Power Block shall be entered in red ink by the Station Master concerned in this register furnishing full particulars of time, Private Numbers etc.

S.R.17.02 (xiii) Maintenance and issue of keys of isolator switches and switching posts by station Masters.-

Duplicate keys for all isolator switches and switching posts shall be kept in separate locked glass fronted boxes in the custody of Station Master/Cabin Station Master or any other authorized person stationed conveniently near the switches/switching posts. These keys shall be issued on demand in emergencies only to the authorized overhead equipment officials, whose signatures for the receipt of such keys shall be obtained in separate books maintained for the purpose. These keys thus taken by the overhead equipment official shall be returned to the station staff after the work has been completed, necessary entries to the effect being made in the relevant registers. The Station Master shall hand over duplicate keys of the isolator switches and switching posts to the authorized overhead equipment officials only after obtaining permission from the TPC. A list of authorized overhead equipment officials who can withdraw the duplicate keys from the Station Master should be displayed at each station. This list should be duly signed by an officer of the traction distribution department.

S.R.17.02 (xiv) Operation of Isolator switches by Station Master / Pointsman:-

In case of emergencies, Station Master/Cabin Station Master / Pointsman shall operate such isolator switches, as may be necessary, under the specific instructions of the TPC after exchange of Private Number. In case Pointsman is required to operate isolator switches, the Station Master under the specific instructions of TPC after exchange of Private Number shall handover the key to the Pointsman for operation of the same. A record of each such operation carried out shall be maintained by the TPC as well as by the Station Master/Cabin Station Master / Pointsman in the Power Block register.

(Ref: Railway Board's letter No. 2001/Elec (G)/138/4 Pt-1 dated 10.01.2013)
(Correction Memo No. 03/2019; 19.06.2019).

S.R.17.02(xv) Multiple Traction Distribution working parties in the same section.-

Whenever more than one traction distribution official requests the TPC for Power Block in the same section, the TPC shall grant the Power Block to only one official in Form ETR.2. The traction distribution official selected by TPC for the grant of Power Block shall be the one who has requested for the Power Block for the longest duration. The TPC shall advise this traction distribution official the names and particulars of other traction distribution officials who have also requested for Power Block in the same section. The TPC shall also inform the other traction distribution officials concerned who have asked for Power Block the same and full particulars of the traction distribution official, to whom he proposes to grant the Power Block. The traction distribution official to whom the Power Block has been granted by the TPC shall exchange Private Number with the other traction distribution officials concerned grant them individual "Authority-to-work" by messages supported by Private Number, duly advising the time at which the Power Block is proposed to be cancelled. This traction distribution official shall inform the TPC full particulars of the "Authority to-work" granted by him in the same section, in Form ETR.2. Each traction distribution official who has been given "Authority-to work" shall be responsible for making his own earthing arrangements and taking all other precautions necessary. After each traction distribution official has completed his work, he shall remove the temporary earths, ensure that everything is in order and then only shall he cancel the "Authority-to-work" to the traction distribution official to whom the Power Block was granted with exchange of Private Number The traction distribution official to whom the Power Block, was granted shall cancel the Power Block only after having ensured that all other traction distribution officials have completed their work.

17.03. Inspection of electrical way and works:-

The electrical way and works shall be inspected regularly in accordance with special instructions by officials nominated for the purpose and in accordance with the duties assigned to them.

S.R.17.03 (i) Periodic inspection of overhead equipment:-

The overhead equipment shall be regularly inspected by staff during foot patrol. The frequency of patrolling shall be so arranged as to cover the entire suburban section every day and the entire non-suburban section twice a week. The persons in-charge of each group or gang of foot patrol on duty shall be not below the rank of a skilled artisan.

S.R.17.03 (ii) Equipment to be carried by the Linesman on patrolling duty:-A Linesman on patrolling duty shall carry with him the following equipment:-

- (a) One Red and one Green hand signal flag;
- (b) A box containing 10 detonators;
- (c) A set of spanners; and
- (d) A portable telephone.

S.R.17.03. (iii) Periodic Testing of Emergency telephone Sockets:- The emergency telephone sockets shall be tested by the patrolling Linesman every week. A record of such testing shall be maintained by the TPC in a separate register for this purpose.

S.R.17.03(iv) Periodic Maintenance Schedules of the overhead equipment:-

Periodic maintenance schedules of the overhead equipment such as POH; IOH; PM (Periodical measurements); CG (Contact wire greasing); PMW (Preventive maintenance work); RTW (Re-tensioning work); Pre-monsoon precautions; TWI (Tower wagon inspection) shall be carried out by Traction distribution staff strictly in accordance with the schedules and periodicity laid down by special instructions. A weekly programme of Power Blocks referred to in S.R.17.02(iv) shall be prepared to comply with the above schedules and Power Blocks shall be granted in order to ensure that these schedules are carried out in time.

17.04. "Permit-to-work" on electrical equipment:-

If work is to be carried out adjacent to the electrical equipment or any other part thereof by other than the competent railway servant, such work shall be done only when and for such time as the person-in-charge of the work has obtained a written permit-to-work, duly signed and given by the railway servant authorized for the purpose by special instructions. He, in turn, shall issue the same only with the knowledge of the Traction Power Controller.

S.R. 17.04 (i) Works requiring "Permit-to-work" Form ETR-3.-

No work shall be done by the railway staff within a distance of two metres from the live parts of the overhead equipment, or on service buildings and structures in close proximity of 25 KV. AC traction overhead equipment without a "Permit-to work" form ETR-3 issued by a competent Traction distribution official.

(ii) Procedure for grant of "Permit-to-work" Form ETR-3:-

The concerned department official of rank not less than an Assistant Inspector shall request the concerned Traction distribution official of rank not less than that of Chargeman for the issue of a written "permit-to-work" in Form ETR-3 as per the weekly programme. The concerned Traction distribution official shall request the TPC for Power Block and the TPC shall grant this Power Block in Form ETR-2 to the concerned Traction distribution official after the procedure laid down in S.R.17.02(iv) has been complied with. After the concerned Traction distribution official has obtained the Power Block in Form ETR-2 he shall earth the electrical equipment specified and then hand over "permit-to-work" form ETR-3 to the person in-charge of the work getting his acknowledgment on the other copy. This Traction distribution official or his nominated representative shall be present at the work-spot throughout. On completion of the work and when all men and materials have been withdrawn from the vicinity of the electrical equipment, the person in-charge of the working party shall cancel his "permit-to-work" form and return it to the authorized Traction distribution official who issued it. The concerned Traction distribution official shall then cancel the Power Block in Form ETR-2 in accordance with the procedure laid down in S.R.17.02(iv).

(iii) Simultaneous "Permit-to-work" forms issued by the same Traction distribution official. In case the Traction distribution official has issued more than one "Permit-to-work" form, he shall ensure that all "Permit-to-work" forms have been returned to him before taking action to cancel the Power Block

17.05. Warning to staff and public:-

- (1) All electrical equipment shall be regarded as being live, at all times and consequently dangerous to human life, save and except in cases, where the electrical equipment has been specially made dead in accordance with special instructions. Caution notices shall be prominently fixed near all vulnerable places to warn staff and public to exercise due caution.**
- (2) No person shall climb on the top of engines or tenders or on the roofs of carriages or wagons when those vehicles are located beneath overhead equipment except when the overhead equipment is dead and earthed in accordance with special instructions.**

S.R. 17.05 (i) Electric shock treatment charts.-

The Traction distribution department shall ensure that painted boards in English and in the regional languages containing instructions regarding treatment of persons in the event of electric shock are exhibited in every overhead equipment maintenance depot, equipment room, switching station, tower wagon shed, loco shed, tower wagon and wiring trains as also in stations, cabins, yards and depots.

S.R.17.05(ii) Steam locomotives under overhead equipment.-

No steam locomotive shall be left standing with the chimney under an overhead equipment insulator. Stabling of steam locomotives with chimneys under traction structures is prohibited. Continuous blowing of safety valves, sudden opening of blowers and priming of the exhaust steam shall be strictly avoided to prevent flash-over of insulators.

S.R. 17.05 (iii) Care while firing/spraying coal.-

Special care shall be taken while firing coal or raking fire to ensure that the tools do not get within the danger zone of the overhead equipment spraying of coal with water under overhead lines is prohibited.

S.R.17.05 (iv) Height of coal in steam locomotive tenders.-

The height of coal loaded in steam locomotive tenders shall not be more than 4.30 metres above rail level on Broad Gauge and 3.70 metres above rail level on Metre Gauge.

17.-06. Alterations to track:-

Before any alteration to alignment or level of electrified tracks is commenced, due notice shall be given to those responsible for the overhead equipment so that the overhead equipment may be adjusted to conform to the new conditions.

S.R.17.06(i) Electrical clearances between track and overhead equipment structures/contact wires.-

Each overhead equipment mast shall be painted with a horizontal black line indicating rail level on the mast. In addition, the distance from center of track to the face of the mast shall also be painted on each overhead equipment mast. No variation above 30 mm in setting distance and 20 mm in rail level from that stipulated on the overhead equipment mast shall be permitted. No major track work like pulling back creep, renewal of rails, realignment of track and raising/lowering of track shall be undertaken by Permanent Way staff without written permission of the Assistant Electrical Engineer/Traction distribution and without the presence of a Traction distribution official of rank not less than that of a skilled artisan.

S.R. 17.06 (ii) Electrical continuity of earth and return currents.-

During maintenance or renewal of track, continuity of rails serving electrified tracks shall have to be maintained for bridging gaps which may be caused during removal of fish plates or rails, defective broken rail bonds etc. Temporary metallic jumpers of approved design shall be provided by the Permanent Way staff. Bonds connecting structures to track, bonds connected to earth pits adjacent to structures and return conductor connections from the midpoint of booster transformer pairs to rail return feeder connections from feeding posts to rail; rail bonds and cross-bonds shall, on no account, be disturbed, damaged or interfered with by permanent Way staff. Any alteration necessary shall be done by Traction distribution staff.

S.R. 17.06 (iii) Maintenance of minimum adequate distance.-

Whenever any excavation work is required to be done by any branch, Traction distribution officials shall be advised in order to ensure that the minimum adequate distance between underground cables/structures and masts/live equipment is maintained.

S.R. 17.06 (iv) Minimum distance for working in the vicinity of 25 KV .AC live equipment.-

While working in the vicinity of 25 K V. AC live equipment, the person working shall ensure that he/his equipment shall always remain at a distance greater than two metres from the live equipment.

17.07. Tripping of circuit breakers of locomotives and electrical multiple units at neutral section:-

Unless otherwise allowed by special instructions, the Loco Pilot of the locomotive or electrical multiple unit shall coast through the neutral section, duly switching off power. Necessary indication boards to this effect shall be provided to guide the Loco Pilot to switch off and switch on power.

S.R. 17.07 (i) Warning boards for neutral sections.-

Warning boards as per figures 4 and 5 shall be fixed at a distance of 500 metres and 250 metres respectively ahead of the neutral section. Similarly, the points at which power shall be switched 'OFF' and 'ON' shall be indicated by boards as per figures 6 and 7. No Loco Pilot shall pass the neutral section between warning boards 6 and 7 with power ON. In order to negotiate the neutral section without stalling, the Loco Pilot shall approach the neutral section at speed of not less than 30 Kmph. Assistant Loco Pilots of locomotives shall call out all permanent display boards in the section and this shall be repeated by Loco Pilots in the same manner in which Assistant Loco Pilots call out and Loco Pilots repeat the aspect of signals controlling the movement of trains.

S.R. 17.07 (ii) Warning boards for temporary neutral sections.-

Due to speed restrictions of less than 30 Kmph being imposed within one kilometre on either side of the neutral section, emergency feeding arrangements in case of sub-station failures, etc., it may be necessary to provide a temporary neutral section to negotiate which the Loco Pilots would have to lower and raise pantographs while passing the temporary neutral section, Boards as per figures 4 and 5 shall be fixed at a distance of 500 metres and 250 metres respectively ahead of the temporary neutral section.

Similarly, the points at which the pantographs would have to be lowered and raised shall be indicated by boards as per figures 8 and 9. Warning boards shall be provided only if temporary neutral section working is to be continued for a duration in excess of 24 hours. All Loco Pilots shall be given Caution Orders at Notice station/stations concerned indicating the location at which he would have to lower and raise pantographs In order to enable the train to negotiate the temporary neutral sections, without stalling, the Loco Pilot shall approach the temporary neutral section at a speed of not less than 30 Kmph.

S.R.17.07 (iii) Programmed speed restrictions at neutral sections.-

Whenever speed restrictions of less than 30 Kmph. are required to be imposed within one kilometre on either side of the neutral section for programmed works, such speed restrictions shall not be imposed until the Divisional Engineer has arranged with Divisional Electrical engineer/Traction Distribution for temporary energisation of the neutral section. After the neutral section has been temporarily energized by the Traction distribution staff and temporary neutral section provided with necessary warning boards, the Traction distribution staff shall authorize the Station Master/Controller to permit movement of Electric trains/Electric Multiple Unit stock into the section after due exchange of Private Number also informing the TPC that the neutral section has been jumpered and temporary neutral section provided specifying the location. No Electric train/Electric Multiple Unit stock shall be permitted to enter into the section with speed restriction of less than 30 Kmph unless the Station Master/Controller has received this authorization from the Traction distribution staff. Under such conditions, Loco Pilots of all Electric trains/Electric Multiple Unit stock shall be issued with Caution Orders at Notice station/stations concerned permitting them to pass the neutral section "on power" and also indicating to them the location of the temporary neutral section where they would have to lower and raise pantographs.

S.R.17.07(iv) Emergency speed restrictions at neutral sections.-

Whenever emergency speed restrictions of less than 30 Kmph. are required to be enforced within one kilometre on either side of the neutral section, the Permanent Way staff shall immediately arrange to protect the affected section on either side and take all steps to bring to a halt any train ahead of the neutral section. The JE/SSE/P.Way shall also inform the nearest Station Master regarding imposition of speed restriction This Station Master shall inform the Station Master at the other end of the neutral section as also Controller and the TPC. The controller and Station Master at either end of the neutral section shall not permit the entry of any Electric train/Electric Multiple Unit stock into the section until advice has been received from the TPC. The TPC shall make immediate arrangements for energizing the neutral section and for the provision of a temporary neutral section. After this has been completed, movement of Electric trains/Electric Multiple Unit stock shall be permitted in accordance with S.R. 17.07(iii). The Traction distribution official who has jumpered the neutral section shall issue a Caution Order to the Loco Pilot of the train which may have been stopped ahead of the neutral section, advising him that he can pass the neutral section "on power" and also informing him, if necessary, of the locations at which he would have to lower and raise pantographs at the temporary neutral section.

17.08. Tower Wagon:-

The rules for the movement and working of tower wagons shall be laid down by special instructions.

S.R. 17.08 (i) Movement of Tower Wagon:-

For all purposes, tower wagons shall be treated as light engines. When working in section, preference shall be given to the movement of tower wagons in case of emergencies/failures/ breakdowns if the Official-in-charge gives it so in writing. The maximum speed of 4 wheeler tower wagon shall be restricted to 40 Kmph. The maximum speed permitted for 8 wheeler B.G. tower wagon is 100 Kmph. However, this is subjected to sectional and other speed restrictions.

S.R. 17.08 (ii) Overhead equipment ladder trolley.-

Overhead equipment ladder trolley is a vehicle fitted with a collapsible ladder on a four wheel truck, not self-propelled. It shall be deemed to be a lorry and all rules applicable to lorry shall be applicable to overhead equipment ladder trolley also.

S.R. 17.08 (iii) Block sections for working of overhead equipment ladder trollies.-

For the purpose of availing of line blocks for the working of the overhead equipment ladder trolley on the suburban sections, the stations between which such working can be done shall be nominated by the Divisional Railway Manager. Such nominated stations shall necessarily be equipped with semi-Automatic/Manual Stop signals.

S.R. 17.08 (iv) Procedure for working of the ladder trollies in suburban section.-

The Traction distribution official requesting Controller for a line block to place the overhead equipment ladder trolley on line in any section shall do so furnishing the following particulars.:-

- (a) Identification number of the overhead equipment ladder trolley;
- (b) Section /Up line/Down line/both Up and Down lines, on which the overhead equipment ladder trolley is required to be worked.
- (c) The originating and terminating stations between which the ladder trolley is required to be worked; and
- (d) The timings and trains between which the overhead equipment ladder trolley is required to be worked.

The Controller shall advise the Station Masters of the nominated stations at both ends as also the intermediate stations by messages supported by Private Numbers regarding the proposed working of the overhead equipment ladder trolley. The Controller shall permit the working of the overhead equipment ladder trolley, only after he has ensured that the concerned section is free of trains. The Station Masters at either end of the nominated section shall change “automatic working” into “manual working”, place the appropriate signals controlling the movement of trains into the section at “on and place “trolley on line” collars/caps on the controlling levers/knobs. The Station Masters at either end shall then inform Controller accordingly by messages supported by Private Number. The Controller shall then permit the Traction Distribution official to place his overhead equipment ladder trolley on the line by a message in the prescribed form supported by a Private Number. The Station Master shall, on no account, remove the “trolley on line” collars/caps from the levers/knobs and permit movement of trains into the section until proper advice has been received by them from Controller duly supported by Private Number. After completion of work, the Traction distribution supervisor shall remove his overhead equipment ladder trolley from the line and shall then advise Controller who shall, in turn, inform Station Masters concerned (duly supported by Private Number) to resume normal working. The Station Masters of the affected section shall only then remove the “trolley on line” collars/caps from the levers/knobs.

S.R. 17.08(v) Multiple party working on the same line block.-

Whenever the engineering department has already obtained line block, the traction distribution official who also requires line block at the same time and in the same section, shall instead of requesting Controller, request the Permanent Way official concerned for permission to place the overhead equipment ladder trolley in section by a written memo.. The Permanent Way official shall give a written authority to the Traction distribution official authorizing him to place his ladder trolley on line and also indicate the time by which the ladder trolley should be removed from the track. After receiving a written authority from the Permanent Way official, the Traction Distribution official shall inform the TPC requesting for Power Block. The Permanent Way official shall not cancel the line block until the Traction Distribution official has given him a written memo to the effect that his work has been completed and the overhead equipment ladder trolley has been removed from the track.

S.R. 17.08(vi) Procedure for the working of overhead equipment ladder trollies on non-suburban section.- The overhead equipment ladder trollies shall work on regular line clear.

S.R. 17.08 (vii) Protection of overhead equipment ladder trolley:- When overhead equipment ladder trolley is in section and work is in progress, it shall be protected in accordance with rules for protection of lorry.

S.R. 17.08 (viii) Competency certificate for working of ladder trollies:- The Traction Distribution officials in charge of ladder trollies shall be in possession of a valid competency certificate.

S.R.17.08 (ix) Competency certificate for working of tower wagon.-

The tower wagon Driver shall be in possession of a competency certificate in Form TR-4, issued to him by Divisional Electrical Engineer/Traction Distribution after the tower wagon Driver has undergone-

- (a) a training in General and subsidiary Rules in the approved Training Institute;
- (b) the prescribed test by Chief Traction Foreman (overhead equipment);
- (c) training for a period of one month to learn the road followed by a written declaration that he is fully conversant with the road;
- (d) a period of practical training for two months in the actual driving of the tower wagon followed by the prescribed test by Divisional Electrical Engineer/Traction Distribution; and
- (e) prescribed medical examination

S.R. 17.08 (x)All manned level crossing gates shall be closed against road traffic for the passage of tower wagon. However the tower wagon Driver, while 'Working on line' in a block section shall ensure that all manned level crossing gates are closed against road traffic before passing the same. He shall whistle intermittently while approaching the level crossings and obey the aspect of the Gate Stop signal if any. In the case of non-interlocked gates, and in the case of interlocked gates in double line sections while proceeding on the wrong direction, the tower wagon Driver shall bring his tower wagon to a stop 30 metres short of the level crossing and then restart and pass the gate after confirming that the gate is closed against road traffic

(Correction memo No. 6 dated 06.11.06).

17.09 Additional rules for electrified sections.-

Special instructions for working of trains on electrified section shall be notified by authorized officer.

S.R.17.09(i) Duty of the railway officials to report abnormalities in overhead equipment.- It is the duty of every railway official who notices any abnormalities on the overhead equipment, to inform the TPC either directly or through any Station Master or through the nearest railway telephone regarding the nature of the defect / abnormality noticed by him. The person conveying such information to TPC shall not leave the vicinity of the telephone without TPC's permission since the latter may want to contact him again to elicit further information.

S.R. 17.09(ii) Duty of driving crew to report abnormalities in overhead equipment- The driving crew of all trains shall keep a sharp look-out and report any defects in overhead equipment noticed by them to the TPC from the nearest station

S.R.17.09(iii)Duty of Station Masters to report abnormalities in overhead equipment:- The Station Master receiving first information report of any unusual occurrence on the overhead equipment shall immediately report the same to the TPC and to Controller and shall assist the TPC to quickly isolate the faulty section.

S.R.17.09(iv)Emergency traffic block:-Whenever a line is required to be blocked against the movement of all traffic whether steam, electric or diesel, due to defects in overhead equipment, such emergency traffic block shall be granted by Controller on a request from the TPC/TRD. official. This emergency traffic block shall be granted in addition to the emergency Power Block referred to in S.R. 17.02(v).

S.R.17.09(v)Special Instructions regarding Line Block on the suburban Double Line electrified section.-

(1) Requisition for Line Block-(a)

When it is necessary to obstruct totally both the Up and Down suburban electrified lines for engineering purposes, the Assistant Engineer or JE/SSE/P.Way must apply to the Division at Railway Manager for the Line Block order with copy to the Chief Controller. Line Block need not be imposed for minor works, such as removing or replacing a rail, which must be done under the protection of the prescribed rules.

Note:- When only one line on the double line is or is to be obstructed, Trains shall be worked in accordance with S.R. 9.12(iii)

(b) Line Block must always be applied for and imposed between any two of the stations nominated by the Divisional Railway Manager. Such nominated stations shall necessarily be equipped with Semi-Automatic/Manual Stop signals.

WORKING OF TRAINS ON ELECTRIFIED SECTIONS

(c) The time for blocking the line must be arranged so as to interfere as little as possible with the train services. Not less than twenty-four hours' notice must be given to the Divisional Railway Manager that Line Block is required, and the application must be in the following form from which no deviation whatsoever is authorized:-

"Block double line section between..... (Station) and (Station) from after No clears the section until..... hours on (Date)".

Note:- Applications for more than one Line Block period falling on the same date and between the same stations may be consolidated in one letter, provided the standard form application laid down above is repeated for each of the Line Block period applied for.

- (2) Instructions to staff: (a) The Divisional Railway Manager must issue orders to the Station Master of the Stations at either end of the section on which the double line is to be blocked with copy to:-
- (i) The Station Masters of intermediate stations on the section on which the double line is to be blocked.
 - (ii) The Station Masters of train starting stations.
 - (iii) Chief Controller.
 - (iv) The Engineering, signalling and Electrical Official concerned.

(b) The Divisional Railway Manager must be equally precise in his orders, which must be issued by letter, in the following form, from which no deviation whatsoever is authorized:

From D.R.M. to S.Ms.....and.....Block double line section between yours and.....station from after Train No.....clears the section until.....hours on.....(date) for engineering purposes. Copy JE/SSE/P.Way or A.E.N. (as the case may be) S.Ms. of the notified stations. CHC., Senior D.E.E.(R.S.) and D.E.E.(T.R.D.) concerned.

Note:- Line block orders with regard to more than one Line Block period falling on the same date and between the same stations may be consolidated in one letter as required, provided the standard form (so far as the body of the order is concerned) laid down above is repeated for each of the Line Block periods ordered.

WORKING OF TRAINS ON ELECTRIFIED SECTIONS

(c) The Officials noted in paragraph S.R. 17.09(v)(2)(a) must immediately acknowledge the order in the following form by letter to the Divisional Railway Manager with copy to:-

- (i) The Station Masters at either end of the section on which the double line is to be blocked.
- (ii) Chief Controller and the engineering official concerned.

I note double line section between (Station) and (Station) must be blocked from after Train No clears the section until.....hours on(date).

Copy- JE/SSE/P.Way or A.E.N. (as the case may be), S.Ms. of the two stations between which the line is blocked and C.H.C.

Acknowledgement copy to the individual official is not necessary when he himself issues the message.

- (3) Action taken by staff :- (a) (i) When an order is received from the Divisional Railway Manager, that a double line section is to be blocked, this order must be copied in red ink, in bold hand-writing across each page in the Station Dairy at stations and signal cabins and across each sheet of the log maintained in the Control Office day-by-day until the line Block actually takes effect i.e. upto and until the last train has cleared the double line section before it is blocked for the Engineering purposes.

(ii) A copy of the message must be secured on the signal lever handle of the signal which controls the entrance of trains into the double line section to be blocked at the stations at either end of the double line section.

b) (i) Before the train mentioned in the Line Block order is allowed to enter the double line section to be blocked, it must be ensured that there is no train-

(1) Either on the other line of the double line section to be blocked, or

(2) at the station at the other end of the double line section waiting to enter the section prior to the arrival of the train mentioned in the Line Block order. The Station Masters at both ends of the double line section to be blocked are jointly responsible for ensuring this .

WORKING OF TRAINS ON ELECTRIFIED SECTIONS

(ii) The Chief Controller/Traction controller must take care that no goods or extra train is ordered whose running would be affected by the Line Block and must take all possible steps to ensure that the Line Block can commence at the time applied for and that no undue delay takes place owing to the late running of suburban trains.

(c) (i) The Guard of the last train entering the section before it is to be obstructed, must be furnished by the Station Master with necessary copies of a certificate (which need not be addressed to any one) in the following form:-

<p>“The double line section between (Station).....and.....(Station) will be blocked for engineering purposes from after Train No.....clears the section until.....hours on.....(date)”.</p> <p>Date.....</p> <p>..... (Station Master)</p>
--

The Station Master must hand over a Caution Order to the Loco Pilot warning him that he should be on the look-out for a hand danger signal from the engineering official-in-charge, vide clause (iii) below. If the last train is a run through train, it must be stopped out of course at the station, immediately before authorizing the train to leave the station. The Station Master must advise by telephone the Station Master at the other end of the double line section to be blocked who must at once acknowledge the advice and place the “Line Block” collar on the signal lever handle / knob of the signal, which controls the entrance into the double line section to be blocked, and this collar must not be removed until a traffic train is ready to enter the section under the provisions of S.R. 17.09 (v)(6).

(ii) Immediately on the train leaving the station, the Station Master must place the “Line Block” collar on the signal lever handle / knob of the signal, which controls the entrance into the double line section to be blocked, and this collar must not be removed until a traffic train is ready to enter the section under the provisions of S.R. 17.09(v)(6).

(iii) The last train must, in any case, be stopped at the site of the work by the engineering official-in-charge by the exhibition of a hand danger signal. The Guard must also be on the look-out and, on the train being stopped, deliver a copy of the certificate to the official-in-charge and obtain a receipt. Copies of the certificate must also be delivered by the Guard to the Station Masters of intermediate stations and receipts obtained. Run through trains must be stopped out of course for the purpose.

Note:- If, on the train coming to a stand at the site of the work, the Guard is not in possession of the certificate, the engineering official-in-charge must issue a message through the Guard, to the Station Masters at both end of the double line section to be blocked, with copy to the Divisional Railway Manager and the Chief Controller intimating the fact that the work is being proceeded with as arranged. Immediately on arrival at the station ahead, the Guard must hand over the message to the Station Master and obtain a receipt. The Station Master must immediately communicate the message to the Station Master at the other end and obtain his acknowledgment and also advise the Divisional Railway Manager and the Chief Controller by telephone.

(iv) The last copy must be delivered by the Guard to the Station Master at the other end of the double line section to be blocked and a receipt obtained, the train being stopped out of course for this purpose, if booked to run through.

(v) Line block must not be considered to be in operation, nor must the work of obstructing the line be commenced, until the official-in-charge at the site of the work is in possession of the copy of the certificate referred to in clause (iii) above or has issued the message referred to in the note under clause (iii) above.

(vi) Until the time specified, in the Line Block order, for the obstruction to be removed, the Station Masters of the Stations at both ends of the double line section must not allow the signal levers controlling the entrance into the section, to be operated, nor must they allow any train to enter the section, except as provided for in S.R. 17.09(v)(4).

(3) Entry of trains into the Obstructed Double Line Section:

(a) While the Line Block is in force, no traffic train must be allowed to enter the obstructed section in any circumstances whatsoever.

(b) Engineering material trains may be allowed into the obstructed section on the responsibility of the Engineering official-in-charge, provided that this official is not lower in rank than a Permanent Way Inspector, Grade III. Before taking any Engineering material train into the obstructed section, the Engineering official-in-charge must give the Guard of such train the following written authority:-

“You are authorized to take your train into the obstructed double line section between.....(Station) and.....(station) on.....(date) at.....hours. The section must be cleared beforehoursminutes. The line is obstructed from kilometres.....to kilometresfor engineering purposes, and the working of the Automatic Block system and the signals relating thereto is to be treated as suspended.”.

(c) (i) Before he takes his train into the obstructed Section, the Guard must hand over this voucher to the Station Master and obtain from him in return a certificate in following terms:-

“I note you are authorized by the Engineering Branch to take your train into the obstructed Double Line section between (Station).....and (Station).....on (date).....at hours.....and that the line is obstructed from kilometres.....to kilometres.....for engineering purposes and the working of the Automatic Block System and the signal relating there to be treated as suspended.”.

(ii) If this certificate has been handed over to the Guard directly, the Station Master must send the following telephone message to the Station Master at the other end of the obstructed section:-

“Engineering material train entering double line section obstructed for engineering purposes. Give private number”

- (iii) The Station Master at the other end of the obstructed section on receiving this message must give a Private Number from his Private Number book and acknowledge the message as follows:-
“I understand Engineering material train entering double line section obstructed for engineering purposes. Private Number.....”
 - (iv) Similar message must be exchanged and a Private Number allotted to each Engineering material train which enters the obstructed section.
 - (d) The Loco Pilot of a Engineering material train must enter the obstructed section on the authority of an “Authority to Proceed without Line Clear” and work his train in accordance with S.R. 15.06(iii). The following must be entered on the “Authority to proceed without Line Clear”:-
 - (i) the Private Number relating to the train, and
 - (ii) a remark to the effect that the working of the Automatic Block System and the signal relating thereto is to be treated as suspended.
 - (e) Lorries may be allowed to enter into the obstructed section, provided they are treated in the same way as ballast or Engineering material trains, except that the duties of both the Guard and the Loco Pilot of the ballast or Engineering material train must devolve on the person in-charge of the lorry.
- (5) Use of emergency crossovers in obstructed section:- On the responsibility of, and in accordance with instructions issued by the Engineering official-in-charge, the emergency crossovers at intermediate stations in a section obstructed for engineering purposes may be utilized for working Engineering material trains from one line to the other.
- (6) Resumption of normal working:- (a) The running of traffic trains over the section obstructed for engineering purposes, must not be resumed until all engineering material trains have cleared the obstructed section and the following messages have been exchanged between the Station Master at either end of the obstructed section:-

My/Your Private Number.....Engineering materials train cleared, double line section here at.....hours.....minutes.
--

My/Your Private Number.....understand. Engineering materials train cleared, double line section at yours at.....hours.....minutes.
--

These messages must be exchanged for each Engineering material train that entered and cleared the obstructed section.

(b) Provided that the above messages have been exchanged for each Engineering material train that has entered and cleared the obstructed section, the running of traffic trains over the section ordered to be obstructed may be resumed on expiry of the Line Block period unless the Engineering official-in-charge of the work specifically notifies that the obstruction has not been removed. A Caution Order, warning Loco Pilots that they must be prepared for Danger or Caution signals, must be handed over to all Loco Pilots of trains entering the section until the Station Master has received either a written notice from the Engineering Official-in-charge of the work that the obstruction has been removed or an advice communicating this written notice, from the Station Master at the other end of the section. The Station Master, receiving the written notice, must immediately communicate it to the Station Master at the other end of the section.

(c) The running of Traffic trains over the section ordered to be obstructed may be resumed before expiry of the obstruction period specified in the Line Block order provided that-

- (i) The Engineering official-in-charge of the work notifies the Station Master at one end of the section., in writing that the obstruction has been removed.
- (ii) The Station Master receiving the written notice from the Engineering official-in-charge of the work has communicated the notice to the Station Master at the other end of the section, the officials noted in S.R. 17.09(v)(2)(a) and the Divisional Railway Manager and
- (iii) The provisions of S.R. 17.09(v)(6)(a) have been complied with.

Note:- The notice referred to above must be recorded in the Station Diaries of all the stations on the obstructed section and in the log sheets of the Control Office.

(7) Extension of Line Block period- (a) If the Line Block is, on the notification of the Engineering official-in-charge of the work, extended beyond that time stated in the original line Block order, the Station Master, who receives the advice notifying extension of the time from the Engineering official-in-charge, must advise the Station master at the other end of the obstructed section, the officials noted in S.R. 17.09(v)(2)(a) and also the Divisional Railway Manager of the revised time upto which the Line Block has been extended by the Engineering Branch.

(b) The advice extending the time of Line Block received from the Engineering official-in-charge of the work must be recorded in the Station Diaries of all the Stations, on the obstructed section, and in the log sheets of the Control Office. At the expiry of the extended time Traffic trains may resume running over the section as provided for in S.R. 17.09(v)(6).

S.R.17.09(vi) Immediate action for safety of moving trains in case of O.H.E. break down:- In the event of Traction Power Controller isolating a faulty section of Overhead Equipment, caution order shall be issued to look out for overhead Equipment defects and for any obstruction etc. on the track in the following manner:-

- (1) Traction Power Controller shall inform the Section Controller of the isolated faulty section to enable him to check the movement of trains on adjacent tracks.
 - (2) The Section controller shall immediately inform the Station Master to stop, if necessary, the first train entering the other line in the relevant section and issue a Caution Order to the Loco Pilot to observe a speed restriction of 20 Kmph. by day and 10 Kmph. by night and to keep a sharp look out for any defects/obstructions on the line/lines.
 - (3) The Caution Order should instruct the Loco Pilot to stop short of obstruction or at the next station and report the condition of the track and Overhead Equipment or any other infringement to the Section Controller/Traction Power Controller and advise whether the following trains should observe any caution or speed restrictions.
 - (4) The Section controller, on receipt of this information from the Station Master or Loco Pilot, should immediately intimate the Traction Power Controller to take suitable action to continue or switch off power in the affected section.
- S.R.17.09(vii)(1)(i) Whenever station staff notice a train worked by an electric engine passing with hot axle/any wagon/coach running in dangerous condition or smoke/fire emanating from a wagon/coach or with any other abnormality in the running train which is likely to endanger safety of the train/passengers, the Switchman/Station Master shall immediately take steps to stop the train. In case they fail to stop such train by normal means as laid in G&SR 4.42 then, they shall immediately inform the Traction Power Controller either directly or through the Section Controller to switch off the power supply of the OHE of the affected section under exchange of Private number. In case TPC has been directly informed, Section Controller has also to be informed subsequently.
- (ii) Whenever any train gets held up for more than 3 minutes in the block section on account of no tension, the Loco Pilot of the train shall depute his Assistant Loco Pilot to check the train in order to look for any abnormality, and to advise the Guard of no tension in OHE. Together with the Assistant Loco Pilot, the Guard shall then check the entire train.

If in the meantime, power supply is restored, the Loco Pilot shall call back his Assistant Loco Pilot to the locomotive and resume journey.

Otherwise, after the train is checked, the Loco Pilot/Guard shall inform the Section Controller/Traction Power Controller of the details of abnormality, if any, or otherwise, and assistance required, through the nearest emergency telephone circuit/by other available means.

Further, the Loco Pilot and Guard shall arrange protection of the line affected in accordance with GR.6.03 which deals with the protection of trains stopped between stations. In case of automatic territory, the lines must be protected in accordance with GR.9.10.

After ascertaining from the affected train of the nature of abnormality, decision regarding recharging of the OHE shall be taken by the Section Controller in consultation with Deputy Chief Controller, Guard, Assistant Loco Pilot and concerned Station Master shall be advised accordingly. Necessary steps shall be taken by Deputy Chief Controller, thereafter, for clearance of the abnormality.

(iii) Restoration of OHE supply will be undertaken by Traction Power Controller only on the advice of the Section Controller under exchange of private numbers.

2. If the switching off of the OHE takes place at a graded section and there is a chance that the train may start rolling back, then the staff should also follow the instructions laid down vide SR.6.05(i) to avoid rolling down of train. In addition, the train brake must also be applied along with the locomotive brake in all such cases.

FIGURES PERTAINING TO CHAPTER XVII

