

# APPENDIX 2A: WORKING METHODOLOGY FOR OPERATION OF LC GATES ISSUED BY N.C RAILWAY

(Extract of CTPM/NCR's letter no. : T/Gen./LC/Inst./04/05 dated 08.05.2014)

- I. Operation of Level Crossing gates when DFCC and IR tracks are on the Parallel Alignment and Automatic Block System of Working is in force on DFC as well as IR and the Level Crossing Gate is Interlocked with DFCC and IR System and Normal position is 'OPEN' to road traffic:
  - 1.0 Normal position of the lifting barriers shall be 'OPEN' to road traffic.
  - 2.0 Single set of electrically operated common lifting barriers shall be provided outside both the Railway and DFC tracks so as to protect both the Railway as well as DFC tracks.
  - 3.0 The Gateman shall work under the Administrative control of Railway.
  - 4.0 The booms shall be interlocked with the gate signals on DFC as well as IR system and wherever required gate signal and automatic signal will be clubbed.
  - 5.0 There will be single gate hut and single Gateman to operate the lifting barriers in each shift. An additional gateman will be provided by DFC, wherever required.
  - 6.0 A common indication panel shall be provided in the gate hut, wherein the indications for the 'On' and 'Off' aspect of gate signals for both the systems as also the occupation/clearance of the controlling track circuits up to the point of approach warning shall be displayed. Direction of movement of the trains shall also be displayed in the panel.
  - 7.0 An operating panel for the operation of the booms shall also be provided wherein buttons for raising/lowering of booms as also for stopping them midway during operation shall be provided so that the booms can be stopped during operation should a vehicle come under the booms or enter into the level crossing gate during closure.
  - 8.0 Arrangement for manual emergency operation of the booms shall also be provided which can be used when it is not possible to close the booms electrically due to some defect or otherwise.
  - 9.0 Road signals as well as hooter shall be provided to warn the road users regarding the approach of a train. The road signals shall normally show a steady yellow aspect towards the road users.
  - 10.0 As soon as the train reaches a predetermined point of 8 kms on DFC and 5 kms on the IR track in rear of the gate, a buzzer will start sounding in the gate hut intimating the Gateman of the approach of a train. Hooter shall also start sounding simultaneously to warn the road users of the proximity of a train. The Gateman shall thereafter get ready to close the gate in time against road traffic for the passage of the train. As soon as the

lowering of booms is started, the road signals shall start displaying a flashing red light towards the road users which shall turn to steady red when the booms are fully lowered.

- 11.0 Another warning buzzer shall also sound when the train reaches a distance of 4 kms on DFC and 2 kms on the IR system if the gate is in open position. If the gate is already in closed position, the buzzer shall not sound but an indication shall be displayed in the indication panel and track locking of the booms shall take place so that the booms cannot be opened thereafter till the passage of the train from the level crossing. The gate signals shall assume 'off' aspect.
- 12.0 After passage of the train from the level crossing, the Gateman shall open the gate for the passage of road traffic after ensuring from the indication panel that no train is approaching on the IR/DFC track.
- 13.0 Arrangement for fixing of safety chain shall also be provided in case of failure of lifting barriers. Indication for fixing of safety chain shall also be provided on the panel of Station Master. An arrangement shall be provided for talking off the relevant gate signal when the safety chain is properly locked and detected by the system.
- 14.0 Procedure for closure of the gate:

As soon as a train leaves a station on IR/DFC system, the concern Station Master shall intimate the Gateman that the train has left. If, however, the running time of the train from the station to the level crossing is less than five minutes, the Station Master shall intimate the Gateman as soon as the train leaves the station in rear so that the gateman has enough time at disposal to close the gate for the passage of the train. The Gateman shall thereafter be ready to close the gate in time to pass the train.

As soon as the train reaches a predetermined point of 8 kms on DFC/ 5 kms on IR in rear of the gate, a buzzer will sound in the gate hut and indication regarding the approach of the train will appear in the indication panel. The Gateman shall then immediately close the gate against road traffic by operating the relevant button taking care that no road vehicle is trapped inside the gate or under the lifting barriers.

As soon as the booms are fully lowered, the relevant gate signal shall assume 'off' aspect. After passage of train from the level crossing, the same shall be opened to pass road traffic after ensuring from the track indications on the indication panel that there is no train either on DFC or IR track.

- 15.0 Provision of Sliding Boom:

Gate shall be provided with one additional sliding boom on each side of power operated lifting barrier. Each sliding boom will be parallel to the existing power operated lifting barrier of it's side and would normally so positioned that the complete body of the boom is laying away from the road i.e. no part of the sliding boom shall normally project on to the road leading to the L.C. gate. The sliding booms installed are meant to be used in the case of emergency when the power operated lifting barrier are damaged or closed indication is not found due to any reason.

II. Operation of Level Crossing gates when DFCC and IR tracks are on the Parallel Alignment and Automatic Block System of Working is in force on DFC as well as IR and the Level Crossing Gate is Interlocked with DFCC and IR System and Normal position is 'CLOSED' to road traffic:

- 1.0 Normal position of the lifting barriers shall be 'CLOSED' to road traffic.
- 2.0 Single set of electrically operated common lifting barriers shall be provided outside both the Railway and DFC tracks so as to protect both the Railway as well as DFC tracks.
- 3.0 The Gateman shall work under the Administrative control of Railway.
- 4.0 The booms shall be interlocked with the gate signals on DFC as well as IR systems and Wherever required gate signal and automatic signal will be clubbed.
- 5.0 There will be single gate hut and single Gateman to operate the lifting barriers in each shift. An additional Gateman will be provided by DFC, wherever required.
- 6.0 A common indication panel shall be provided in the gate hut, wherein the indications for the 'On' and 'Off' aspect of gate signals for both the systems as also the occupation/clearance of the controlling track circuits up to the point of approach warning shall be displayed. Direction of movement of the trains shall also be displayed in the panel.
- 7.0 An operating panel for the operation of the booms shall also be provided wherein buttons for raising/lowering of booms as also for stopping them midway during operation shall be provided so that the booms can be stopped during operation should a vehicle come under the booms or enter into the level-crossing gate.
- 8.0 Arrangement for manual emergency operation of the booms shall also be provided which can be used when it is not possible to close the booms electrically due to some defect or otherwise.
- 9.0 Road signals as well as hooter shall be provided to warn the road users regarding the approach of a train. The road signal shall normally show a steady red aspect towards the road users.
- 10.0 As soon as the train reaches a predetermined point of 8 kms on DFC and 5 kms on the IR track in rear of the gate, and if the gate is in open position, a buzzer will start sounding in the gate hut intimating the Gateman of the approach of a train. The Gateman shall thereafter get ready to close the gate in time against road traffic for the passage of the train. As soon as the lowering of the booms is started, hooter shall also start sounding to warn the road users of the proximity of a train. At this time, the road signals shall start displaying a flashing red light towards the users which shall turn to steady red when the booms are fully lowered.

If the gate is already in the closed position, the buzzer shall not sound but only an indication shall be displayed in the indication panel.

- 11.0 Another warning buzzer shall also sound when the train reaches a distance of 4 kms on DFC and 2 kms on the IR system if the gate is in open position. If the gate is already in closed position, the buzzer shall not sound but an indication shall be displayed. At this stage, if the gate is in closed position, track locking of the booms shall take place so that the booms cannot be opened thereafter till passage of the train from the level-crossing. The gate signals shall assume 'off' aspect.
- 12.0 After passage of the train from the level crossing, the Gateman shall open the gate for the passage of road traffic, if required, by checking from the indication panel that no train is approaching on the IR/DFC track.
- 13.0 Arrangement for fixing of safety chain shall also be provided in case of failure of lifting barriers. Indication for fixing of Safety chain shall also be provided on the panel of Station Master. An arrangement shall be provided for talking 'off' the relevant gate signal when the safety chain is properly locked and detected by the system.
- 14.0 Whenever the gate is required to be opened for the passage of road traffic, following action shall be taken by Gateman:-
- (i) The gate shall be opened for the passage of road traffic when no train is anticipated on the DFC as well as IR system by checking from the indications available in the indication panel.
  - (ii) The position of trains on the DFC as well as IR tracks shall be known to the Gateman from the indications in the indication panel.
  - (iii) The Gateman shall remain extra vigilant during the time the gate is open to road traffic and shall be prepared to close the gate in time for the passage of a train if any on the DFC/IR track.
  - (iv) After passage of the road traffic, the Gateman shall lower the lifting barriers to close the gate against road traffic and keep them in that position until required again for passage of road traffic.

15.0 Provision of Sliding Boom:

Gate shall be provided with one additional sliding boom on each side of power operated lifting barrier. Each sliding boom will be parallel to the existing power operated lifting barrier of it's side and would normally so positioned that the complete body of the boom is laying away from the road i.e. no part of the sliding boom shall normally project on to the road leading to the L.C. gate. The sliding booms installed are meant to be used in the case of emergency when the power operated lifting barrier are damaged or closed indication is not found due to any reason.

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