

Annexure - 7  
(Revision - I)

Rules for LC Gates operation between Durgawati -- Karwandiya when Automatic Block System of working on DFC and Absolute Block System of working on Indian Railways.

### Level Crossing Equipments

1.0 The arrangements and the equipments, provided at Level Crossing Gate lodge are given below:-

1.1 (a) A common indication panel: It is provided with following indications:

- "ON" and "OFF" aspect of gate signal on UP, DN & Reversible line on IR system and UP & DN for DFCCIL system.
- Display of occupation/clearance of the controlling track circuit upto the point of approach warning.
- Display of direction (UP & DN) of movement of the train.

(b) Booms operation panel :

- Buttons for raising/lowering and stopping midway i.e. opening & closing of gate button.
- (c) - Emergency key for manual operation (closing/opening) of booms during failure.

1.1.2 Road Traffic Signals :

Road Traffic Signals are provided on tubular posts on each side of the level crossing for road users at a suitable location so as to be visible clearly to the approaching road vehicles.

The road traffic signals shall show the following aspects:

- Steady red aspect to indicate the "CLOSED" condition of the new booms are fully lowered.
- Steady yellow aspect to indicate the "OPEN" condition of the new booms are open for road users.
- Flashing yellow aspect to indicate that barriers are being raised and in the process of being opened.
- Flashing red aspect to indicate that barriers are being lowered and in the process of being closed.

1.1.3 Hooters :

Colour light road signals as well as hooters shall be provided to warn the road users.

1.1.4 Telephone :

With selective ringing arrangement shall be provided between Gateman and IR Station Master as well as between the Gateman of the adjacent gate.

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1.1.5 **Electrically operated common lifting barrier :**

(RDSO/SRW/180/2005/From RDSO approved source only) shall be provided outside of both the Indian Railway & DFCCIL track so as to protect both the Indian Railway as well as DFCCIL track by one set of booms.

2. **Method of closing and opening the gate :**

As soon as the train reaches at a distance of 8 Km on DFCCIL in rear of the gate at either side, a buzzer will start sounding in the gate lodge to intimate the gateman of the approaching train on DFCCIL and shall not stop sounding till acknowledged by the gateman.

When the train reaches at a distance of 4 km on DFCCI., another warning buzzer shall also sound at the gate lodge.

Similarly, on IR system when the train reaches at a distance of 2.7 Km\* in rear of the LC gate at either side, this warning buzzer will start sounding till acknowledged by the gateman.

At this stage if the gate is in closed position, approach locking of the booms shall take place so that the booms can not be opened thereafter till the passage of the train from the level crossing gate.

Since all the 16 gates are closed to road traffic and all gates will be interlocked, the opening & closing of gates are as follows:-

(i.) **Opening of the gate :**

After passage of the train/trains from the level crossing and when all the three (UP, DN & Reversible) approach tracks of IR and UP & DN tracks of DFCCIL are clear ensuring from the indication panel, the gateman shall operate "OPEN" push button on panel. The lifting barriers start lifting up displaying flashing yellow indication. When the barriers are fully opened i.e. in vertical position, road signal display steady yellow for the passage of road vehicles.

(ii) **Closing of the gate**

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 an approaching train. At this time, the road signals shall start displaying a flashing red light towards the road users which shall turn to steady red when booms are fully lowered.

The gate signal can be taken "OFF" any time after closing the LC gate. It will be independent of approach locking but after sounding of buzzer, if the gate is closed and gate signal has been taken 'OFF' it cannot be opened as the approach locking of the booms shall take place.

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### 3. Mode of operation for closing LC gate by Sliding Booms :

The gate is provided with one additional Sliding Boom on each side of the lifting barrier. Each sliding boom shall be parallel to the lifting barrier of each side and normally so positioned that complete body of the boom is lying away from the road i.e. no part of the sliding boom shall normally project on to the road leading to the LC gate. The sliding booms installed are meant to be used in case of emergency when the lifting barriers are damaged or closed indication not shows on the panel due to any reason. Sliding booms are normally locked on its posts with padlock. The keys inside the locks are provided on the boom's stands.

Sliding booms are used in the following conditions:-

- When the gate barriers are damaged during opening/closing of the gate or the gate is in open condition.
- When the close indication failed due to any reason.

Whenever the gate is broken during opening, closing or in opened/closed position, the gateman will inform the ASM/SM on-duty at controlling station/cabin who in turn will inform the S&T staff for rectification/replacement of the damaged lifting barrier. The gateman, after getting instruction from ASM/SM on-duty of the controlling station/cabin under exchange of private number, will restrict the road traffic by closing the sliding booms. In this process, he will slide the sliding boom of one side in "CLOSE" position up to stand provided for the purpose, by pulling the handle of sliding boom. Then he will insert the chained key marked "X" in the boom stand lock and lock it, a key marked "Y" will be released. Thereafter, he will proceed to the other side of the sliding boom and by pulling the handle to "CLOSE" position of the sliding boom up to boom stand, will insert the chained key marked "X" in the boom stand lock and lock it. Also insert the "Y" key in the lock marked "Y" and turn it clock-wise in boom lock stand of this side. After locking both keys in this side a third key "Z" will be released. The gateman will take this key, insert it to the T-2 lock/KLCR fitted in the gate lodge and turn it.

When the gate is secured by the sliding boom by above process and "CLOSE" indication appears on the panel, gate signal will be taken "OFF".

For opening of the sliding boom after passage of the train/trains, gateman will take permission from ASM/SM on-duty of the station/cabin under exchange of private number to open the sliding boom to clear road traffic. After getting permission from ASM/SM, gateman will take out "Z" key from T-2 lock/KLCR, insert it in sliding boom of "Z" lock and adopt procedure in reverse order of closing procedure the sliding boom to clear the traffic.

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4. **Failure of Telephonic communication :**

- a) When telephonic communication fails or it does not get any response from the gateman ASM/SM shall advise S&T staff for maintenance of the telephone to rectify the same at the earliest.
- b) If pre-indication buzzer failure is reported by gateman and subsequently telephone communication also became failed between controlling SM & gateman then following procedure should be adopted:-
  - In case of an approaching train, ASM/SM shall advise the ASM/SM at the dispatching end, under exchange of private number that the telephone at the gate has failed.
  - The ASM/SM at the dispatching end shall then issue a caution order to the loco pilot before dispatching a train in the DFCCIL as well as IR system from his end to whistle continuously and proceed cautiously while approaching the LC gate.
  - In case the gate signal is in "ON" position, the Loco Pilot should stop the train short of the gate signal and follow the procedure laid down under GR-3.73.
  - Normal working will be resumed only after S&T staff rectify the failure and issue a rectification memo for the same.

5. **Failure of electrically operated lifting barrier :**

- When gate can not be closed/opened due to failure of electrically operated lifting barriers, the gateman will immediately inform the ASM/SM on-duty of the concerned station/cabin under exchange of private number
- ASM/SM should advise S&T staff responsible for the maintenance of the lifting barriers to rectify the same at the earliest.
- Emergency gate keys locked in the EKT fixed on the gate lodge having crank handle and crank handle key chained to it. Gateman shall release the key and use the crank handle to manually operate the lifting barriers.
- Date and time of uses of emergency key shall be recorded and signed with reasons.

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*S. K. Singh*

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After manually closing/opening of the gate, the gateman shall insert the emergency key back in its position and inform the ASM/SM on-duty.

Normal working will be resumed only after S&T staff rectify the failure of lifting barriers and issue rectification memo.

6. Failure of the emergency gate key :

If the emergency gate key is extracted from the key transmitter, gateman must immediately inform the ASM/SM on-duty over telephone under exchange of private number.

The gate must be treated as Non-Interlocked if the gate is in open position or in unlock position and procedure for reception/dispatch of trains shall be done as prescribed for Non-Interlocked gates.

ASM/SM shall advise S&T staff responsible for maintenance of LC gate to rectify the defect at the earliest.

Normal working will be resumed only after S&T staff rectify the failure.

In case gateman fails to close the gate in spite of the above operations, he shall secure the gate against road traffic by means of chains and padlocks and pass the trains on hand signals.

7. Obstruction at the gate :

If the gate is broken by a road vehicle which is fouling the track or if lifting barriers or any other part of the gate foul the track or if there is any other obstruction at the gate, the gateman shall immediately fix red banner flag by day and flashing red lamp by night or posts provided at both ends of the gate for this purpose.

Immediately after this, the gateman shall advise the ASM/SM on-duty about the obstruction under exchange of private number.

ASM/SM on-duty shall put the reception/departure signals back to "ON" position if taken "OFF" for a train.

Gateman shall then rush with detonators and red flag by day and flashing red hand signal lamp by night in the direction of the approaching train and protect the gate as instructed in the GR-

Thereafter he shall protect the gate from other directions.

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- He shall note down the particulars of road vehicle, name of the driver, owner and relay these details to the ASM/SM on-duty who shall not start the train unless he has been assured by the gateman that the road vehicle or the lifting barriers are not fouling the track.
- ASM/SM shall also inform the ASM/SM at the dispatching end, under exchange of private number, advising him not to dispatch any train from his end until the track has been cleared of all obstructions.
- After the track has been cleared of all obstructions, the gateman shall inform ASM/SM on-duty accordingly, under exchange of private number.
- ASM/SM shall then issue a caution order to drivers of all trains to proceed cautiously and pass the gate signal at "ON" position on green hand signal of the gateman, if the gate is broken but is clear of any obstructions.
- ASM/SM shall advise maintenance staff responsible for maintaining the lifting barriers.
- Normal working will be resumed only after maintenance staff rectify the failure of lifting barriers and issue rectification memo.
8. **Obstruction on the track near level crossing :**
- If there is a rail fracture or obstruction on the track due to falling of a tree, fouling by a road vehicle or derailment which is visible to the gateman, the gateman and ASM/SM will adopt the procedure given under item No.7 above. If the obstruction fouls the level crossing gate, gateman must keep the gate closed against road traffic till the track is free from obstruction.
- Putting road signal at "ON" position - in any a normal situation warranting to warn the road users, the first action gateman should do is to put the road signal in "ON" position.
9. Backup power supply will be provided through AT power at all gate for panel & signals working.
10. Any repair / maintenance work of Level crossing gates for DFCCIL will be arranged by flying gang of DFCCIL.

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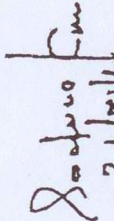
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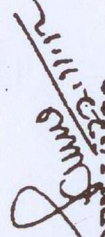
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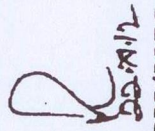
\* NOTE:-

Item No.20.1.3.3 of SEM Part-II, which pertains to approach warning, says that "The audible & visual train approach annunciation shall be such that Gateman gets adequate warning time. This time shall normally be 60 seconds for the fastest train, for closing the LC gates before train approaches within the sighting distance of relevant gate signals." i.e. 2.2 Km at 130 kmph. Regarding approach locking, item No.20.1.3.2(b) of SEM Part-II says "Approach locking should be effective from a distance not less than braking distance required for maximum permissible speed on that section." i.e. 2 Km at 130 kmph.

It is also to be noted that buzzer shall be provided only on special class level crossing gates situated outside station limit.

  
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