

3.61. Placing of detonators in thick, foggy or tempestuous weather impairing visibility.—

- (1) In thick, foggy or tempestuous weather impairing visibility, whenever it is necessary to indicate to the Loco Pilot of an approaching train, the locality of a signal, two detonators shall be placed on the line, by a railway servant appointed by the Station Master in this behalf, about 10 metres apart, and at least 270 metres outside the signal or signals concerned.
- (2) (a) The Station Master may comply with the provisions of sub-rule (1) at his discretion; but shall always do so when visibility conditions from any cause prevent him from seeing a prescribed visibility test object from a distance of not less than 180 metres or a lesser distance if expressly sanctioned by the Railway Board.
- (b) The Visibility Test Object may be—
 - (i) a post erected for the purpose and lighted at night or
 - (ii) the arm by day and the light or the back light by night of a fixed semaphore signal specified by special instructions or
 - (iii) the light of a fixed colour light signal both by day and night specified by special instructions.

SR 3.61. Train Operation during Foggy & Inclement weather - Precautions:

Following precautions/preparations be done for train operation during foggy/ inclement weather:

SR 3.61.1. Infrastructure/Additions/Alterations:

(1) Provision of Fog Safe Device:

Reliable Fog Safe Devices, if available, may be provided to the Loco Pilots in all Locomotives running in fog affected areas during fog. Placement of detonators under conditions as prescribed in S.R. 3.61.8.2 shall be dispensed with, where reliable Fog Safe Device is available and is in working order; (S. No. 3 of AS 08 dt. 03.03.2023).

(2) Modification of Automatic Signalling System:

Introduction of Modified Automatic Signalling System as per GR 9.01 (3) & (4) and GR 9.03 (3) and (4) and GR 5.18 to be followed strictly;

SR 3.61.2. Works to be completed before foggy weather to strengthen Rail Infrastructure:

- (1) Adequate supply of detonators to be ensured;
- (2) Lime marking across the track at the Sighting Board (or at Distant Signal in case of Double Distant Signals) must be done;
- (3) All Signal Sighting Boards, Whistle Boards, fog signal posts and busy vulnerable level crossing gates which are accident prone should either be painted or provided with yellow/black luminous strips. The work of repainting for their proper visibility should be completed before onset of winter/foggy season;
- (4) Lifting barriers at busy level crossings, where necessary, to be provided with Yellow/Black luminous indication strips;
- (5) It should be ensured that retro reflective strip in Sigma shape for identification of stop signal is provided as per the existing instructions.

- (6) Existing SLRs with fixed Red tail lights should also be modified and fixed with LED lights. This will be very important step to ensure safety in foggy weather. This work should be undertaken on war footing. When the train is held up in Automatic territory (on double and multiple line sections) in abnormal situation including fog, the Guard will put the LED light to 'on' position. This will be in addition to Flashing Red Tail Lamp;

S.R. 3.61.3. The following points are to be kept in mind during operation of trains in foggy weather:

- (1) Reduced Movements During Fog:

Rationalization of movements in the Coaching yards, approach to terminals, and at/near terminals etc. has to be done to reduce pressure on congested areas. This may be achieved by reduction in loco changes, reduced shunting, etc. and cancellation of trains. 20% reduction in movements during the fog has to be ensured i.e. by reduced movement of locos from and to shed, shunting in major yards, etc., and mainly by cancellation of trains – Mail/Express and Passenger trains running in and via Delhi area as also up to an equal no. also in other fog affected sections (other than the trains passing via Delhi area) to be proposed to be cancelled. A review be done in consultation with concerned Zonal Railways to identify which Mail/Express and Passenger trains are to be cancelled and proposals sent to the Coaching Directorate, Railway Board. This will also help in tackling extra requirement of Loco pilots/Assistant Loco pilots and Guards for changing enroute on sections where there is abnormal increase in duty hours of crew. This will also increase availability of spare rakes to cater to late running of trains;

- (2) Fog affected Divisions should review the crew changing locations. In view of increased hours on road infrastructure at new/additional crew changing locations maybe created. Simultaneously the loco/crew/rake links shall be reviewed during the period of fog. All crews (Loco Pilots, Assistant Loco Pilots and Guards) on stationary duty should be utilized for train working especially during fog;
- (3) PME/Refresher Training and other Safety/Promotional Courses of Loco Pilots/ Assistant Loco Pilots and Guards in ZRTIs/ STCs, etc. who become due between 15th December and 31st January should be completed by 15th December.

S.R. 3.61.4. Visibility Test Object (VTO):

- (1) 3.61.4.1. The check of adequacy of visibility through the VTO is to guide the SM/ASM so as that he can decide when detonators are to be placed to warn the Loco Pilot of the location of an approach stop signal;
- (2) 3.61.4.2. VTO for Semaphore Signalling and for two aspect CLS:

The VTO may be the light (or arm by day) of a Starter Signal (where exists) or the back light of the Home Signal etc. as defined in GR.3.61/(2)(b). In such cases, the VTO is normally located 300-350 meters at a place from where it is to be seen by the SM. During foggy or tempestuous weather, when such a VTO is not seen by the SM, it shall determine that fog has set in.

- (3) Prescribed VTO for Multiple Aspect Colour Light Signalling:

- (a) Stations with MACLS shall have a prescribed VTO located at a distance of 180 metres from a nominated location where the SM shall stand.
- (b) When a prescribed VTO is not visible from 180 metres or more during dense fog, the SM shall not use his discretion as per GR.3.61 (2) (a) but will arrange to place the detonators to warn the Loco Pilot, unless specified otherwise in these instructions.

Note: There should be one Visibility Test Post in MACLS territory (at stations which qualify for placement of detonators) located at a distance of 180 meter from the place where the SM shall normally stand to see the prescribed VTO.

- (4) 3.61.4.4. The Visibility Test Object to be defined in the SWR of stations, which qualify for placement of detonators, should be on each end of a station (for junction stations there may be more than two VTOs).

S.R. 3.61.5. Visibility Test Post:

When VTO cannot be prescribed, Visibility Test Post (VTP) shall be erected in either direction at a distance of 300-350 metres in Semaphore and Two Aspect signalling and 180 metres in Multiple aspect signalling from a nominated place where the SM shall stand. VTP shall be a post fixed vertically in the ground painted with yellow self luminous paint or provided with yellow self luminous strips along with the provision of fixed white light. The white light shall be switched 'on' by Station Master during day and night when there is fog;

S.R. 3.61.6. Fog Signal Post:

Fog Signal Posts are erected at 270 metres in rear of FSS in all directions of approach, to indicate the location for placing detonators by Fog Signalman. Fog signal post may be a steel trough sleeper fixed vertically in the ground which shall be painted alternatively with black and yellow self luminous paint or provided with black and yellow self luminous strips.

S.R. 3.61.7. When the VTP (or the prescribed VTO) provided under conditions laid down is not visible to the Station Master, he/she shall take action as under:-

- (1) Ensure that signals are lit during night as well as during day in Semaphore Signalling sections when visibility is impaired due to fog, and VTO is also lit.
- (2) Observe the VTO before granting Line Clear to a train.
- (3) In case prescribed VTO is not visible:-
 - (i) Depute fog signalman with detonators to place detonators in situations prescribed under para 3.61.8.2 at 270 – 280 metres from the first stop signal to inform in advance the location of this signal to the Loco Pilot of the approaching train.
 - (ii) Engineering Department will make all efforts to provide fog signalman.
 - (iii) No shunting should be carried out on non-isolated lines after granting Line Clear to an approaching train.
- (4) Provisions given as per GR. 5.18 to be followed strictly and no train to be advanced beyond the Starter, or beyond intermediate Starter Signal where these exists, upto the Advance Starter at stations which do not have track circuiting in this zone.

S.R. 3.61.8. Necessity of placement of detonators:

- (1) Where Not Necessary to Place Detonators:-

It is not necessary to place detonators to indicate 'location of a Stop signal' to the Loco Pilot in the following circumstances:-

- (a) In sections where a reliable Fog Safe Device has been provided on locomotives and notified to stations by the Divisional authorities;
- (b) Where adequate pre-warning is provided; i.e., at stations where double distant signals are provided;
- (c) Where maximum speed allowed in the station section is upto 15 KMPH even at stations where pre-warning signal is not available, but a Warning Board exists;

- (d) Where speed of the section is less than 50 KMPH (but more than 15 KMPH) and the first signal of a Station is not a stop signal.
 - (e) In Automatic Signalling territory;
 - (f) On Gate Signal;
 - (g) On Departure Signal;
 - (h) At the site(s) of Temporary Speed Restriction imposed due to maintenance of Track/OHE/Signal;
- (2) Where it is necessary to Place Detonators:

The Detonators should be placed at 270 meters short of the First Stop Signal at stations detailed as under:

- (a) At 'A' class stations where Warner exists – Detonators to be placed short of Home signal and not the Warner;
- (b) At 'B' class station equipped with Lower Quadrant Signals – Detonators to be placed short of Outer signal.
- (c) In Multiple Aspect Signalling, where single Distant Signal is provided Detonators to be placed short of Home signal.

Note: Fog Signal Posts will be provided only at stations where there may be a requirement to place detonators. Such post may, therefore, be shifted suitably based on the above mentioned position(s).

S.R. 3.61.9. Procedure for placing detonators during fog:

- (1) SM shall observe the VTO / VTP before granting Line Clear to every train during thick, foggy or tempestuous weather impairing visibility. If the VTO / VTP is not visible, it shall be taken as fog has set in and SM shall arrange to place detonators in rear of FSS.
- (2) SM shall send two trained railway servants i.e., Pointsman / Gangman to act as Fog signal men, one in either direction with 20 detonators to the Fog Signal Posts which are erected at 270 metres in rear of First Stop signal.
- (3) Each of these Fog signal man shall proceed speedily to the respective FSP and place two detonators 10 metres apart from each other on the centre of the head of the rail, with the label or brand upwards, which shall be securely fastened to the rail by bending the clasps round the upper flanges of the rail, which on explosion under the wheels of an engine, will warn the Loco Pilot of his proximity to the Outer / Home signal of the station as the case may be.
- (4) SM shall not grant Line Clear unless he receives information on walkie-talkie from Fog signal man that detonators have been placed at the FSP. In case of no intimation from Fog signalman due to walkie talkie not being available or out of order etc., Station Master can grant Line Clear for the first train after a time lapse of 30 minutes from the departure of Fog signalman.
- (5) Line Clear shall not be granted for a train during fog when all the running lines are occupied at the station.
- (6) After placing detonators on the line, the Fog signal man shall withdraw beyond the safety radius of 45 metres from the detonators before they are exploded by an approaching engine or train. He shall warn any other

persons in the vicinity of the safety radius to keep away. Staff while observing the safety radius of 45 metres shall place themselves as far as possible in rear of the locomotive, train or wagon passing over the detonators.

- (7) After passage of each train, over the detonating (fog) signals, which have been so placed on the rails, the Fog signal man shall immediately replace them by two fresh detonators. On single line sections, for trains leaving the station, the Fog signal man deputed to place detonators shall show to the Loco Pilot a Proceed Hand Signal (PHS).
- (8) Each of the trained Fog signal men sent out with detonating (fog) signals, shall carry a flashing hand signal lamp. If the Fog signal man is aware of any obstruction on the line, he shall show a Stop hand signal in the direction in which a train is expected or approaching.
- (9) DRM will notify the names of stations at which fog prevails persistently. At each such station, two Pointsmen and two Gangmen shall be nominated to act as Fog signal men. All four men shall be fully trained in fog signalling duties.
- (10) At a double line station, if the fog appears for about seven days in a month, it should be treated as persistent fog and separate Fog signal men should be appointed. If the fog is less than seven days in a month, the Station Master shall call out two of the trained Fog signal men, who are off duty to work for fog signalling duties.
- (11) At single line stations, the DRM should examine the duration of fog and number of days in a month on which it appears and determine whether separate Fog signalmen are required or not. If fog appears only on one or two days in a month and for short duration, it is not necessary to have separate Fog signal men.
- (12) On branch lines or sections, on which the traffic is light, instead of a Fog signal man remaining continuously on duty at each fog signal post, a Fog signal man may be sent out to place detonating (fog) signals for each individual train. This procedure may be adopted under special instructions. In such cases, Line clear shall not be given for a train, unless the Fog signal man has been sent out at least 30 minutes before the train is due to leave the station in rear or the Fog signal man informs the SM on walkie-talkie after placing detonators.
- (13) A 'Station Detonator Register' in the prescribed Form (see Appendix VII) shall be maintained at each station, and shall show the names of Fog signal men on duty, periods of duty, the stock of detonators, the number of detonators sent out with each Fog signal man, the number of each train under which detonators have been exploded and the number of unused detonators and used cases (including those which have failed to explode) returned each time by fog signal men to the Station Master.
- (14) The Station Master will obtain in the 'Station Detonator Register', the signature or thumb impression of all men deputed and / or proposed to his station as Fog signal men as an acknowledgement that they understand the rules relating to the fog signalling duties. Instructions for maintaining Station Detonator Register are given in Appendix VII.

S.R. 3.61.10. Precautions by Loco Pilot:

The Loco Pilot shall take action in regard to speed of the train during fog as under:-

- (1) During fog when the Loco Pilot in his judgment feels that visibility is restricted due to fog, he shall run at a speed at which he can control the train so as to be prepared to stop short of any obstruction; this speed shall in any case not be more than 75 KMPH;
- (2) Loco Pilot to whistle frequently to warn the Gateman (where provided) and road users of an approaching train at level crossings;
- (3) In Absolute Block System the speed should not exceed 75 KMPH as detailed at item (i) above;
- (4) In Automatic Block Territory the speed will be subject to the judgment of the Loco Pilot as mentioned in item (i) above and shall not exceed as under:-
 - (a) After passing Automatic stop signal at 'Green' the speed not to exceed 75 KMPH;
 - (b) After passing an Automatic stop signal at 'Double Yellow', the speed not to exceed 30 KMPH;
 - (c) After passing an Automatic stop signal at 'Yellow' the Loco Pilot to run at a further restricted speed so as to be prepared to stop at the next stop signal.

- Note (i) In case fog safe device is not available in locomotives or the device fails enroute, the maximum speed of 75 KMPH as indicated above shall be reduced to 60 KMPH or less subject to judgment of Loco Pilot.
- (ii) As provided under GR.4.16 (1) (b) a red tail lamp of approved design displaying a flashing red light, during day or night, to indicate last vehicle check device in foggy weather should be provided and lit on the last vehicle.
- (iii) First Stop Signal location kilometre chart of every station be provided to each Loco Pilot either as an easy to carry Card or in the Working Time Table.
- (iv) Prevailing Fog situation should be advised to Crew and Guard in lobby during "Sign ON".

S.R. 3.61.11.Precautions by Guard:

- (1) During foggy weather a red tail lamp of approved design displaying a flashing red light, during day or night, should be provided on the last vehicle.
- (2) LED Red Light in rear of SLRs etc., should be switched 'on' when the train is held up in Automatic territory in abnormal situations including fog. This will be in addition to the Flashing Red Tail Lamp.

S.R. 3.61.12. The staff shall be advised and counseled regarding provisions in the G&SRs before the onset of Fog. Each and every crew is to be imparted with necessary training for up to two days about the systems of working of trains during fog. This process shall be completed by 1st December every year positively.

S.R. 3.61.13. All the above instructions including cancellation of trains are applicable from 20th December to 31st January every year. However, if the fog sets in early before 20th December and continues beyond 31st January the above instructions should be followed accordingly at an early date or beyond 31st January respectively as the case may be.