(58)

GOVERNMENT OF INDIA
MINISTRY OF RAIWAYS
(RAILWAY BOARD)

No.2009/Safety(A&R)/26/1 New Delhi, dated 13-8-2010

Chief Safety Officer,
All Zonal Raiways.

Sub:- Provision of GPS based fog safe devices on Electric Locos/EMUs/ MEMUs.

Ref (i) This office letter of even No. dated 12.8.10.
(ii) North Central Rly's letter No. NCR/Safety/Signal/64/10 dt. 9.8.10.
(iii) DME/Traction Rly.Bd's letter No. 2010/M(L)/466/Misc.dt.4.8.10.

With reference to above instructions issued by Railway Board, one of the Zonal Railway has expressed doubts as to how the CSO, should certify the reliability and safety features of the Fog-Safe device.

In this regard, a report received from Northern Railway (Copy enclosed) expressed doubts of the Fog-Safe device in its present form. The report provides an insight on the safety features which need to be kept in view before the CSOs finally give their clearance for use of this device. This is especially important as the use of this device will eliminate the need for warning the Loco Pilot through Detonators, of the location of the approach stop signal during fog.

CSOs are also advised to consider the specification to be issued by RDSO based on directives given by the Nodal Dte. (Mech Traction) Rly Board vide letter mentioned above. It may be ensured that the Fog-Safe device in use meets all the specifications laid down.

For the technical aspects of the device the Safety Deptt. Of Zonal Railways may involve the Electrical/Mechanical Safety Officer available on their Railway.

DA :As Above

कृपया जारी करें
दीपचन्द
16.8.10

O/C
हस्ताक्षर
Signature
जारी की तिथि
Date of Issue ....

13/8/10
(Vijaylaxmi Kaushik)
Director/Safety-V

S.No.6

NORTHERN RAILWAY

Headquarters Office,
Baroda House,
New Delhi.

No. 403-T/5/Pt-15 /Optg./ Rule/B/Policy/Loose dated:. 9 Feb.2010

Director (Safety) Signal
Ministry of Railways
Railway Board
New Delhi

Sub:-Use of 'FOGSAFE' device during foggy weather.
Ref: - Rly Bd letter No98/Safety/(A&R)/19/16 dated 01.02.2010.

The 'FOGSAFE' Device is a hand held tiffin sized device using GPS technology for informing the driver of the location of various signals. It is based on Radio frequency hence it remain unaffected during bad climatic condition like fog, rains etc. Some trials of this 'Fog safe' device were conducted on Diesel Engine in Ambala and Moradabad divisions in UMB-BTI, SRE-LDH, MB-GZB & MB-BE sections of Northern Railway during foggy seasons.

2. The feedback about the performance of this device has been generally satisfactory and it is reportedly been found to be of great help to the crew in train operation during foggy weather for guiding the driver about the location of the approach signal / caution in terms of fog. However, some observations were made by the drivers which need attention as under:-

a) Since GPS instrument is kept on the drivers control stand, hence the LP's attention is diverted from the track every time he looks down to see it.
b) Attention of Drivers is also diverted to certain extant by the LED red light, LCD display light and also by the beep sound.
c) Some sets are calibrated for one section & some are for other section which leads to limited usage.
d) Defective percentage of the devices was very high.

3. Some suggestions have been incorporated to overcome the drawbacks as under-

a.) The backlit display LCD should be changed to LED cluster display.
b.) Arrangement to keep the device on the control should be in such a way that it creates minimum disturbance in the line of sight of the driver while sighting the signals & track.
c.) The beep sound reminder interval should be readjusted for fewer disturbances. Low interval, high pitch beeps for the first signal/caution and high interval, low pitch beeps for subsequent signals.
d.) The reliability of the device usage in general handling by loco pilots should be improved by provision of quality display unit, key pads, antenna jack/lid.

e.) The battery life is a major drawback. The LION battery packs should be used instead of MIMH battery packs to give higher time of charge as well as longer life. Provision for 2 spare batteries is essential as they have to be kept charged in the lobby.

f) All devices should be universal having all routes of the division pre-fed in the system.

g). The devices should be standardized and used universally on all trains on all fog prone divisions and its training shall be given to drivers in the refresher courses itself.

h.) It may also be combined with other advanced features, for improvement in safety standards in the long run such as -

a) TAWS (Train Actuated Warning System) should be used at all LC gates for triggering a hooter on approach of the engine.

b) The GPS can be combined with a GSM based system and can be used as a loco tacking device, even to the extent of feeding dynamic location of the trains in Computerized Control Charting Database.

4. Delhi Division has also taken up a small pilot project of **Multi Route Approaching Feature Annunciating System on electric traction.** This device is also intended to be a tool for the Loco Pilot especially during low visibility condition and assist the LP by an Auto-visual, alert on approaching signals, LC Gate, Bridges, Neutral section and Permanent Speed restriction area and any such location that needs LPs attention and pre-warns him to take appropriate action. The salient features of this **MRAFAS** device are as under:-

a) It consists of a buzzer for audio indication to the Loco Pilot and also LED's to indicate the approaching point.

b) It is a battery backed (15 hrs back up) composite electronic device that uses GPS signals.

c) It is a portable device and can be easily carried by the LP for placement in cap and its operation remains unaffected by weather condition.

d) Accuracy of the instrument is 5 Metre.

e) Audio Visual Display comes in form of a rolling screen where the movement one point is negotiated; the next is the sequence gets fl.. hed.

f) Route selection on multiple lines is intended to be automatic where the system automatically selects the route under negotiation.

g) It works on main line area and the loops/yards have not been covered.

h) In addition it provides speed of the train on the screen of the system. Speed can also be retrieved from the system for a particular location or time by using 232 ports and a PC.

5. The trails of this GPS system was conducted for 3 weeks in DLI area and DUK sec on M/Exp and Goods trains. The following discrepancies were observed which are still under settlement with the OEM-

a. Due to complexity of track geometry on the division & closely placed multiple, twins, bidirectional lines, the automatic mode of route selection at times goes haywire. Present proposed/working solution is manual intervention as an alternative option.

b. The display screen of GPS is small thereby a small font.

6. Some suggestions for improvement in the device have been given by Sr. DEE/RSO New Delhi as under:-

a) Instead of 2 ½ indications, 1 ½ indications with a bigger font is acceptable.
b) Distance like 0 56 KM should be shown as 560 M instead.
c) Instead of indicating the time left to reach the location we may have the TP No. of the location which will have stay permanently till approach of location.
d) All locations should have pre-warning system of fixed 500 M.
e) Fog signal post should be removed.
f) Only one indication is required for neutral section at the DJ Open board.
g) Some different color display which would help improves visibility.
h) Sometimes system hang and show please wait for lone time ... 10-15 minutes.
i) Between the gate signal and actual gate, audio visual alarm at 500 M only be provided for the gate.

for GM/Optg.