



**A report of a train accident
that occurred on 27 February 1989
at Warrington
in the London Midland Region of British Railways**

SUMMARY

Nature of accident

A freight train travelling along a line on which 'permissive' working was allowed struck the rear of another freight train that was standing at a signal that had just changed to a clear aspect.

Conclusions

The cause is subject to conjecture but the driver may have read the signal wrongly as applying to his train, the tail light of the train in front may have been extinguished or the driver may have been distracted by another man in the cab or extraneous lights.

Recommendations

- 1 British Railways must examine this and other lines on which 'permissive' working of freight trains applies to see if it is still necessary and that there are no easily removeable obstructions to the sighting of tail lights.
- 2 British Railways to investigate the possibility of encapsulating the electronic circuit of tail lights.
- 3 A record to be kept of all tail lights repaired.
- 4 Investigations to be undertaken to examine whether the fitting of reflective strips to tail lights would overcome the problem of light failure.

CASUALTIES

Name	James Hodgson	David Knight
and age	56	32
Grade	Driver	Rolling Stock Technician
Length of service	42 years	5 years 10 months
Injuries	Fatal	Fatal

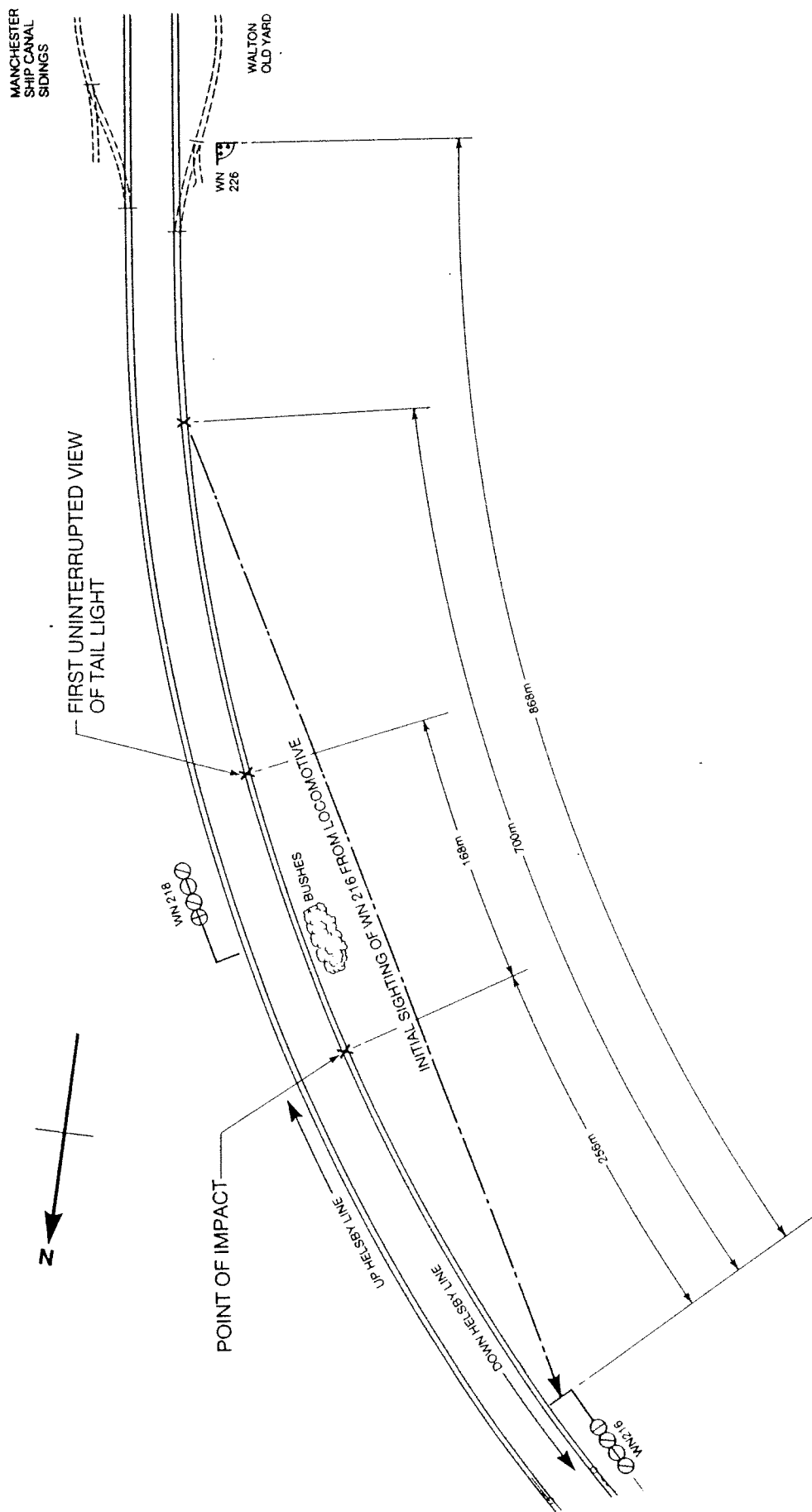


Figure 1 Collision at Warrington, 27 February 1989 (Not to scale)

**Letter to the Permanent Under Secretary of State
Department of Transport**

Sir, I report for the information of the Secretary of State for Transport in accordance with the Direction of 6 March 1989, the result of my Inquiry into the causes of the collision that occurred on 27 February 1989 at Warrington in the London Midland Region of British Railways that resulted in the deaths of James Hodgson, a driver aged 56, and David Knight, a rolling stock technician aged 32.

1 The collision occurred at 21.30 hours when 6S73, the 11.00 Dover to Mossend freight train, collided with the rearmost vehicle of 6E26, the 21.25 Walton Old Junction to Doncaster freight train, resulting in the deaths of the two men who were in the leading cab of locomotive No 85020 hauling 6S73.

2 The incident occurred on the Down Helsby line, which is a northbound passenger line on which 'permissive' working is allowed for freight trains; that is, freight trains are permitted to follow each other into the same section when drivers must be prepared to stop short of any train ahead. The location is about one mile south of Warrington Bank Quay Station and the Up and Down Helsby lines are part of the West Coast Main Line which is electrified by the 25 kV ac system. Sidings known as Walton Old Yard and Manchester Ship Canal lie respectively to the West and East of the Helsby lines. Entry to the Down Helsby from Walton Old Yard is by controlled ground position light signal WN226; this signal permits trains to proceed only as far as the line is clear. The departure, some 950 yards northwards, is controlled by WN216, a four aspect signal. A main line signal WN218 located close to the accident site controls movements on the Up Helsby line and into the Manchester Ship Canal sidings.

3 Shortly before 21.30, after the trainman (guard) had carried out a brake test and switched on the tail light, the train 6E26 left Walton Old Yard and came to a stand at signal WN216 waiting for it to clear. This train was followed shortly afterwards by train 6S73, which is normally operated by a driver only but Mr Knight was also travelling in the leading cab. At about this time, signal WN216 cleared from a red to a green proceed aspect and immediately after it did so, the driver of 6E26 felt a severe bump at the rear of his train. On investigation, it was discovered that 6S73 had run into the rearmost wagon, causing two wagons loaded with lorries to be tipped down an embankment and resulting in severe damage to locomotive No 85020 and the fatalities described. During rescue and recovery operations, the tail light of 6E26 was found on the ground but still operating.

4 Immediately before the accident, a southbound freight train 7T77 was proceeding along the Up Helsby

line, having just been signalled into Manchester Ship Canal sidings by the subsidiary aspect of WN218 which would leave the main red aspect still illuminated. As the driver of this train passed the locomotive of 6S73 he noticed that the cab lights were on and he saw two people.

5 From my own observations at night, when the traffic movements were simulated using the same tail light and locomotives similar to those of 6S73 and 7T77, it was noted that there are a number of lights and other features that could have distracted the driver of 6S73. Although it was possible to see the aspect of WN216 it was not possible to see the tail light of the train until it was very close because of overhead line equipment masts and a bush to the left of the Down Helsby line that curves gently to the left. The tests also revealed three distinct bright flashes of light reflected from signal WN218 by the cab windows of the freight train 7T77 on the Up Helsby line and these also could have distracted the driver of 6S73.

6 Subsequent examination of the flashing light emitting diode tail light No 007741 taken from 6E26 revealed that when compared with a traditional oil tail light it was in all respects superior. Nevertheless, there were a number of defects of which the most serious concerned the female connection from the lamp to the male connection of the battery of a type outlined in BS 397. At certain positions, contact was broken and the tail light was extinguished. When examined in detail the female connection did not conform to the British Standard.

7 Because Walton Old Yard is remote from Warrington Station, I accept that it was reasonable for Mr Knight to seek a lift on a locomotive towards the end of his turn if his duties had been completed; he should, however, not have travelled in the leading cab unless he had duties therein and was in possession of the requisite authority, which he was not. To what extent his presence, the cab lights being on, the distraction of the surrounding illumination and the reflected flashing from signal WN218 distracted Mr Hodgson can only be a matter for conjecture. On the Down Helsby line, for one train to follow closely behind another under the 'permissive' working arrangements is fairly infrequent. The driver may have taken the clearing of signal WN216 to apply to his own train since he could not see the tail light of the train ahead because of the obstructions and, as indicated, it may also have been extinguished.

8 The principal reason for retention of the 'permissive' facility along the Down Helsby line is the requirement to allow the recessing of a train arriving at Walton Old Yard while another train is standing at signal WN216. I recommend that the necessity to retain the 'permissive' facility in the light of present day traffic movements be reviewed or whether some other

arrangement could be substituted. I would further recommend that all lines where 'permissive' working is allowed, also be reviewed to establish whether continuance is still required and further that such lines be checked to ensure that there are no easily removable obstructions to the sighting of tail lights such as bushes.

9 Immediately following this accident I am pleased to report that the London Midland Region of British Railways instituted a check on all electric tail lights, withdrawing for repair any found to be defective. My enquiries revealed that, except for changing batteries, no repair work is undertaken other than at the Signal Workshops at Crewe. Once the case is opened, however, the person changing the battery has ready access to the electrical circuit in addition to the flexible connections to the battery. It is essential, therefore, that anyone authorised to change batteries shall be suitably instructed particularly as to defects to be recognised and have reasonably clean facilities in which to carry out the task. My enquiries at the Signal Workshops revealed that no detailed record of the serial numbers of the tail lamps repaired existed nor were total numbers kept accurately. Experience indicates, however, that of all lamps repaired about half have broken leads to a capacitor in the circuit but this does not, in itself, cause failure of the lamp. Besides other duties, the effect of this capacitor when connected, allows several more flashes of the tail lamp after the battery supply has been disconnected, which it would do if vibration of train movement caused the disconnection. The broken leads of the capacitor in lamp No. 007741 may have contributed to the accident. It is recommended that consideration be given to the encapsulation of the components fitted to the printed circuit board of the tail lamps so that they cannot easily become detached. I have also enquired of British Railways as to whether the movements of tail lamps about the rail system could be recorded; this however, does not seem to be reasonably practicable. Nevertheless, I recommend that records be kept of serial numbers of tail lamps that are repaired together with details of the faults. This will help frequently recurring faults to be identified and any necessary modifications to be instituted.

10 In the course of the Inquiry, attention was drawn to the present use of only one tail light on freight trains that use 'permissive' lines whereas more than one tail light, often under close observation by a guard used to be the case. The possibility of fitting reflectorised strips to tail lamps that could be illuminated by either surrounding light or by the headlights now being fitted to traction units should be investigated. If this proves to be effective, then it will go some way to minimising the problem of failed tail lamps on trains working over 'permissive' lines.

J H TAYLOR