MINISTRY OF TRANSPORT & CIVIL AVIATION

RAILWAY ACCIDENTS

REPORT ON THE COLLISION which occurred on 21st February 1955 at LUDDENDENFOOT in the NORTH EASTERN REGION BRITISH RAILWAYS

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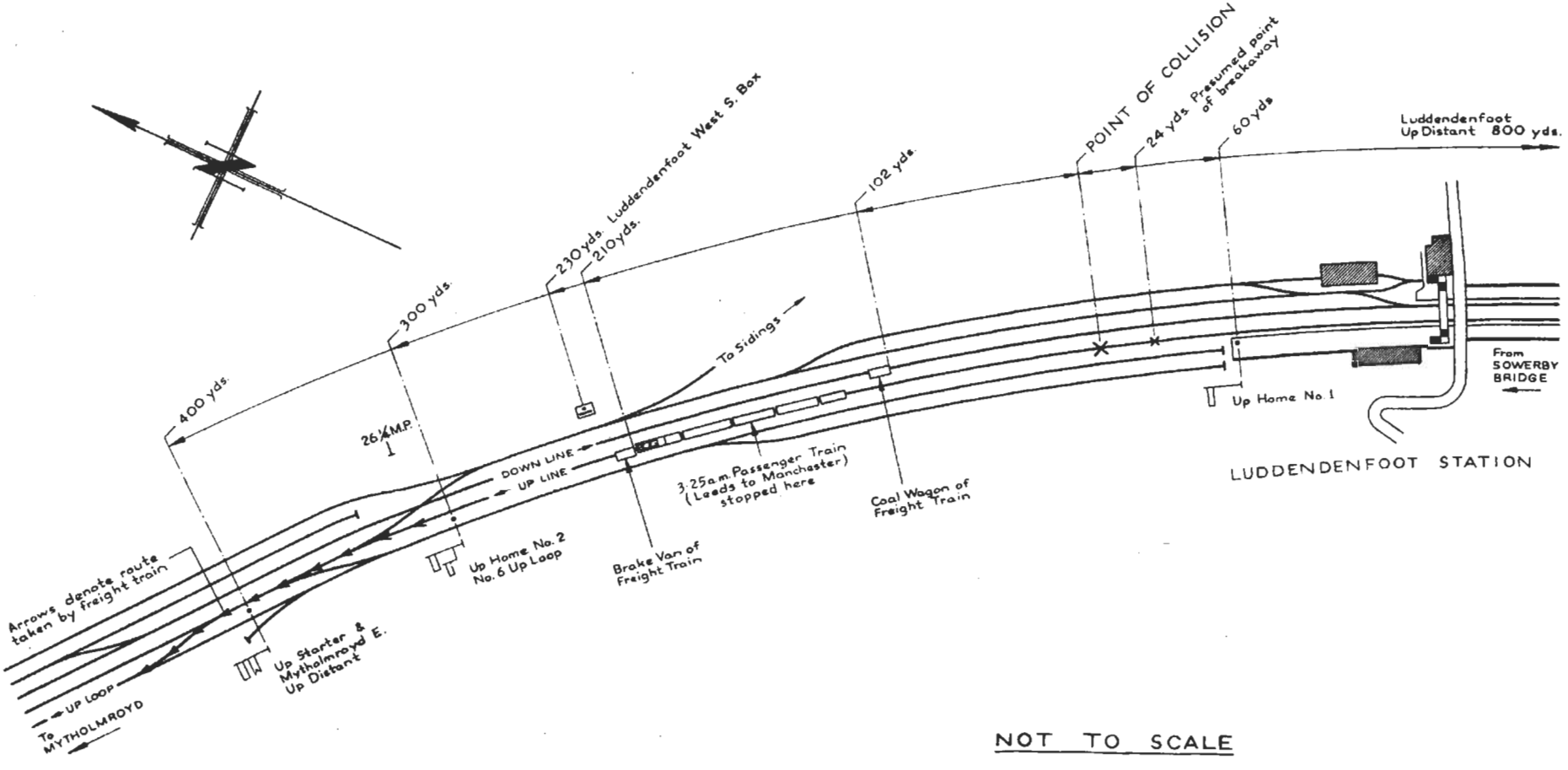
SIXPENCE NET

COLLISION AT LUDDENDENFOOT ON 21ST. FEBRUARY, 1955



NOT TO SCALE

J.W.W.

MINISTRY OF TRANSPORT AND CIVIL AVIATION,
Berkeley Square House,
London, W.1.

23rd May, 1955.

SIR,

I have the honour to report for the information of the Minister of Transport and Civil Aviation, the result of my Inquiry into the collision which occurred at about 4.28 a.m. on 21st February 1955 at Luddendenfoot, in the North Eastern Region, British Railways. This station is on the main line between Lancashire and Yorkshire, which is operated by the Central Division of the London Midland Region.

The 3.25 a.m. Up Passenger train from Leeds to Manchester was passing through Luddendenfoot station under clear signals at about 40 m.p.h. when it collided with a brakevan and a loaded coal wagon which had become detached owing to a broken coupling from the 1.40 a.m. Calder Bridge (Wakefield) to Burnden Junction (Bolton) freight train. The two vehicles were carried forward in front of the passenger train until the leading one was pushed to the right and came to rest across the opposite line 102 yards from the point of collision. The train stopped 108 yards further on with the brakevan still in front of it.

None of the 40 passengers in the express nor any of the staff of this train was hurt but I regret to say that Goods Guard J. H. Hart, who was in the brakevan, sustained severe injuries from which he died eight days after the accident. Prompt steps were taken to protect the Up and Down main lines and assistance was quickly forthcoming. A local doctor and an ambulance arrived within 20 minutes, and the injured guard was taken to hospital without delay. The passengers from the express were conveyed to Hebden Bridge by bus and continued their journey from there to Manchester by special train. A bus service was also put into operation between Sowerby Bridge and Hebden Bridge until normal working was resumed at 9.40 a.m. the same morning.

The passenger train was hauled by a Class 6P engine with 4-6-0 wheel arrangement, and it was made up of three coaches and a luggage van. The total weight of the engine and train was 236 tons and the length overall was 95 yards. The vacuum brake operated on all wheels of the coaches and van and the steam brake on the tender and the coupled wheels of the engine, giving a total power of 150.6 tons equivalent to 63.7% of the total weight.

The freight train consisted of 38 loaded coal wagons and a 20-ton brakevan of a total weight of approximately 745 tons. It was hauled by a Class 8 tender engine with 2-8-0 wheel arrangement which weighed 128 tons. The steam brake operated on all wheels of the engine and tender and exerted a total force of 66.2 tons. The length of the engine and train was about 300 yards with the couplings extended. The length of the detached wagon and brakevan was about 16 yards and their weight was approximately 36 tons.

The brakevan, which was of modern all steel construction, stood up remarkably well to the shock of the collision; the rear headstock and buffers were broken and the steel back of the verandah was bent backwards, the two solebars and some other steel members were bent, but the vehicle was not derailed and it was pulled away on its own wheels.

The front buffer beam of the passenger engine was badly buckled and torn, the front foot framing was bent, and there was other superficial damage. The waist panels of the three passenger coaches were dented and grazed where they had been struck by the derailed wagon and a number of window lights were broken. Damage to the track was slight.

It was a dark and frosty morning; visibility was fair, with a little mist in places. There were six to eight inches of snow on the ground.

DESCRIPTION OF THE SITE

1. The line from Wakefield ascends the valley of the River Calder in a general westerly direction as far as Todmorden, where it turns south to cross the Pennines through the Summit Tunnel near Littleborough. On leaving Wakefield the track is level for two miles and then the line rises steadily for 29 miles to the summit; Luddendenfoot is about two-thirds of the way up the incline. The line from Leeds via Halifax Town joins the Wakefield line at Sowerby Bridge 2½ miles east of Luddendenfoot. The next station, Mytholmroyd, is 1¼ miles further on.

The gradient through Luddendenfoot is 1 in 400 and the Up line is on a left-handed curve of 75 chains radius. The layout of the tracks and the position of the relevant signals are shown on the accompanying sketch. The signal box is to the north of the line alongside a Down goods siding and the tracks at this place are, from North to South, Down goods siding, Down Main, Up Main, Up goods siding. There are four running lines about 170 yards further to the west where the Up Goods loop begins and the Down Slow joins the Down Main.

The Up Home No. 1 signal is at the west end of the station platform where there is a berth track circuit 230 yards in length. Up Home No. 2 and No. 6 Up Loop signals are 70 yards to the west of the box and the Up Starter is at the loop entrance 100 yards further on.

2. The fractured coupling link which caused the breakaway (see para. 11) was found 36 yards beyond the Up Home No. 1, and it is presumed that the division of the train occurred here. The approximate point of collision was located by pieces of the broken brakevan and quantities of spilt coal scattered over the tracks some 24 yards further on.

3. Principal distances from the point of collision are:—

Wakefield (Calder Bridge)	21½	miles east
Sowerby Bridge	2½	„ „
Luddendenfoot Up Distant signal	800	yards east
Luddendenfoot Up Home No. 1	60	„ „
Presumed point of breakaway	24	„ „
Point of collision	–	–
Position of derailed coal wagon	102	yards west
Goods brakevan resting on the front of the passenger engine	210	„ „
Luddendenfoot West signal box	230	„ „
Up Home No. 2 and No. 6 Up Loop Home signals ...	300	„ „
Luddendenfoot Up Starter and entrance to the Up Loop ...	400	„ „
Mytholmroyd Station	1¼	miles „

Relevant Rules and Regulations

4. The Rules and Regulations which are relevant to this accident are given in the Appendix and are summarised as follows:—

Each train when on any running line must always have a tail lamp.

The engine crew must look back frequently during the journey to see that the whole of the train is following; they must exchange signals with the guard at the commencement of the journey and when restarting.

Whenever a train stops the guard must endeavour to find out the cause bearing in mind that the train may be divided, and if this occurs he must advise the signalman promptly, or if the box is some distance away he must go back and protect the detached section of the train.

The signalman must watch each train as it passes and must satisfy himself that it is complete with tail lamp before sending the "Train out of Section" signal.

Evidence

5. Signalman J. L. Halliday, who was in charge of Luddendenfoot West box, had come on duty just before midnight after a rest of 18 hours. He stated that it was a very cold night and although it was rather hazy he had no difficulty in seeing the signals in the vicinity of his box. There was little traffic on the Down line but on the Up line a freight train had entered the Mytholmroyd loop at 3.19 a.m., and the next movement was a light engine which passed through on the main line just ahead of the Calder Bridge to Burnden Junction freight train.

The latter train, which was booked to stop at Mytholmroyd, was accepted at 3.55 a.m. and it entered the section eight minutes later. Halliday checked it at the Up Home No. 1 signal when it arrived there at 4.11 a.m. (17 minutes before the accident), and as the train was approaching the signal box he displayed a green hand signal from the window to warn the driver that he would be entering the loop under caution. He followed this up by calling out to the fireman "There is one in the loop". Both messages were correctly acknowledged so the signalman closed the cabin window and cleared No. 6 Up Loop signal. The engine was level with the box by this time and the train, which had never actually stopped, passed at about walking pace. Halliday did not hear any snatching of couplings nor anything unusual to suggest there had been a breakaway.

He was not clear about his further actions. He said he made the necessary entries in the register and he may have put some coal on the fire but when he looked out again the train was well into the loop. He did not open the door or the window but looked through the glass and saw a red light in the distance. He accepted this as the tail light, although he admitted he did not see the side lights of the brakevan. Without making any further check he returned the loop signal to Danger and then gave "Train out of Section" to Sowerby Bridge at 4.13 a.m.

Seven minutes later he accepted the passenger train, and on receipt of the "Train Entering Section" signal at 4.26 a.m., he obtained clearance from Mytholmroyd West and lowered all the main line signals. About two minutes afterwards he heard a crash in the direction of the station and saw a lot of sparks. He put all signals to Danger and sent the "Obstruction Danger" signal for the Down line. On investigation it was found that the express had run into the last wagon and brakevan of the freight train.

6. Driver A. Hampson, who was in charge of the Calder Bridge to Burnden Junction freight train said that he left Calder Bridge at 2.20 a.m. with a load of 38 mineral wagons and brakevan. He had no difficulty in starting and he had no trouble in observing signals from his position on the left-hand side of the cab, though it was hazy and at times he could not see the length of his train. At Sowerby Bridge the train was put into the loop and stopped there for a few minutes.

Again he had no difficulty in starting and a few minutes later he saw the Luddendenfoot Distant signal at Caution. He stated that his speed was only between 15 and 20 m.p.h., so he closed the regulator and allowed the train to drift up to Luddendenfoot Station, where the Home No. 1 signal was at Danger. He was about to apply the brake when the signal was cleared. He did not open the regulator and continued to drift forward till the Home No. 2 came in sight. Both this signal and the Loop signal to the left of it were at Danger so Hampson made a light brake application, but before the train stopped the fireman told him there was a green light at the cabin. As the engine reached the box the signalman, who was looking out of the window, held up his finger and called out "One in".

Hampson acknowledged this message with a pop on the whistle, and he released the brake when the Loop signal was cleared immediately afterwards. He opened the regulator very slightly when he felt that all couplings were stretched and the train travelled gently up the loop, where he stopped it without difficulty. He did not look back to see whether the whole of his train was following because in the first place he could not see the end of it owing to the smoke and haze and secondly he had to keep a sharp lookout because of the other train ahead of him in the loop. There was no snatching of couplings, and Hampson had no idea that the train had become divided until he was informed of the collision.

7. Passed Fireman H. T. Didnah confirmed that the train ran without incident to Sowerby Bridge, where it was stopped in the loop. He had exchanged signals with the guard on leaving Calder Bridge and he had looked back several times during the journey. He did not always see the side light on the brakevan but he remembered seeing it at least three times. It was not possible to exchange signals with the guard on leaving Sowerby Bridge because the train ran into a tunnel and thereafter the smoke obscured his view.

Didnah also said that the Luddendenfoot Distant was at Caution and the speed, which was about 15 m.p.h., began to slacken when the driver closed the regulator. The train had nearly stopped at the Home signal before it was cleared and shortly afterwards he saw a green light at the signal cabin. He turned to his mate and told him "A green one at the cabin", and as the train passed he saw the signalman put up one finger and call out "One in". The driver acknowledged these messages with pops on the whistle after which the signal was lowered and they ran into the loop.

The brake was released when the loop signal was cleared and Didnah was quite sure that the driver did not open the regulator again until he felt the train pulling behind him with the couplings fully stretched. The speed was very low and he did not feel any plucking such as would have been caused by a breakaway. He kept a sharp lookout as they entered the loop and he did not look back again—in any case he would not have been able to see the brakevan owing to the left-hand curvature.

8. Driver E. T. Humphreys was in charge of the 3.25 a.m. Leeds to Manchester passenger train. He confirmed that the night was very dark and slightly hazy but he also had no difficulty in seeing the signals. The train made the usual booked stop at Sowerby Bridge, after which it ran under clear signals to Luddendenfoot, where the Distant was off. The station buildings and curvature obscured the view of the Home No. 1 signal which only came into sight when the train passed under the road overbridge 100 yards away. This signal was also clear but almost immediately afterwards Humphreys saw the lights of the brakevan ahead of him. He just had time to make an emergency brake application and to open the sanders before the collision occurred at a speed of about 40 m.p.h. Passenger Guard W. Downing confirmed that the brake was applied just before the collision.

9. Sub-Ganger M. Murgatroyd who was on duty at Luddendenfoot that night attending to the points and signals which had been sticking in the frost, had just entered the signal cabin when he heard the crash of the collision. He saw sparks flying and then the passenger train with a brakevan in front of it stopped about 50 yards from the box. He could see flames inside the van, so he called out to the signalman to block all lines, and he and his mate ran across to give assistance. He found the guard in a sitting position inside the van with his foot jammed in the door at the rear and his coat on fire. He put out the fire and got the guard out of the van. A doctor arrived in about half an hour, and soon after this the guard was taken to hospital.

10. There was no direct evidence about the position of the brakes on the brakevan at the moment of collision but they were off when the vehicle was moved away on its own wheels an hour or so after the accident. The comparatively light damage to the engine and van and the distance moved after the collision suggest that the van brakes were also off when it was hit.

11. Carriage and Wagon District Foreman H. Ward produced a broken coupling link which he had found 36 yards west of the No. 1 Up Home signal and he said that six yards further along he found two sound links from the same set of couplings which had become detached from the rear of the 37th wagon. From this it can be concluded that the breakaway occurred just after the freight engine had passed the signal box.

12. The 37th wagon was of all timber construction and it had received its last heavy repair in Scotland in August 1953. The couplings were new ones and they were little worn; the broken link was fractured cleanly at each end. The metallurgical report showed that the coupling was made of wrought iron of average quality. There was no evidence of embrittlement from cold working of the surface; both fracture faces were reasonably clean and bright and showed a crystalline fracture surface typical of a sudden break. This was confirmed by examination under the microscope when unmistakable signs of heavy shock loading were clearly visible.

Conclusion

13. The primary responsibility for this accident rests on Signalman J. L. Halliday who failed to observe that the tail light was missing when the freight train passed his box. He should have had no difficulty in seeing it if he had been looking out at this time, but having lowered the starting signal for the train to enter the loop he took no further notice until it had passed beyond his sight. I have no doubt that he assumed it was complete, and without attempting to verify this he cleared the section and accepted the passenger train.

14. The detached brakevan with only one open coal wagon in front of it must have been stationary for about 15 minutes; it is therefore surprising that late Goods Guard J. H. Hart apparently failed to notice the breakaway and took no steps to protect the line or to advise the signalman, though the box was little more than 200 yards away. The reason for the guard's failure to carry out this duty will never be known because the unfortunate man died from his injuries without making a statement.

15. Although the broken coupling link failed from shock loading I am satisfied that Driver Hampson was handling the freight train with reasonable care and I do not blame him for the breakaway. The train must have come virtually to a stand before the driver opened the regulator again and in these circumstances some snatching with loose-coupled unfitted freight trains is unavoidable. It is possible that the broken coupling had previously been subjected to severe strain, which would not necessarily have been noticed, and thus on this occasion it broke when a pluck occurred between the 37th and 38th wagons.

16. I am also satisfied that both Driver Hampson and Fireman Didnah were watching the running of the train so far as circumstances would permit. The fireman exchanged signals with the guard on leaving Calder Bridge and I accept his statement that he looked back several times on the journey but only saw the brakevan side lights on three occasions. It was a very cold and hazy morning, and under such conditions smoke is liable to hang about, especially along the sides of a steep valley when a train is working heavily up a long rising gradient. The atmosphere should, however, have been fairly clear whilst the train was approaching Luddendenfoot signal box with the regulator closed, and a test showed that the brakevan light could have been seen from the footplate as the engine passed the box. Driver Hampson was entering the Goods Loop with another train ahead of him and he had therefore to keep a sharp lookout. In these circumstances I do not think he should be criticised for failing to observe that the brakevan was missing, especially as its light would probably have been obscured by smoke as soon as the regulator was opened again. Curvature prevented the fireman from seeing the rear of the train and hence neither man was aware of the breakaway.

17. Driver Humphries of the passenger train was in no way responsible for the accident. He was on the alert and promptly made an emergency brake application when he saw the detached van on the line in front, but the station buildings and curvature restricted his view so much that the brakes had scarcely begun to take effect before the collision took place.

REMARKS

18. This accident would not have occurred but for the failure of two men in independent positions; the signalman who did not carry out the fundamental duty of satisfying himself that the train had passed complete with tail lamp before sending the "Train out of Section" signal, and the guard who apparently did not realise there had been a breakaway and thus failed to protect the train.

19. So long as unfitted loose-coupled freight trains remain in use in this country failure of coupling apparatus will continue to occur from time to time. In 1954 there were 1,541 such failures on freight trains of which 489 were due to broken coupling links. The dangers arising from these breakaways will be lessened when all freight trains are fitted with continuous automatic brakes as envisaged in the British Transport Commission's Modernisation Plan, though it must not be expected that accidents of this type will be entirely eliminated. Coupling failures also occur on passenger trains, but the danger of collision or derailment in such circumstances is much reduced owing to the automatic application of the brakes, which stops both sections of the train and gives immediate warning to the enginemen.

I have the honour to be,

Sir,

Your obedient Servant,

C. A. LANGLEY,
Brigadier.

The Secretary,

RULES

Signalmen to observe trains.

66(b). Signalmen must be careful to watch each train as far as practicable as it approaches, and notice each train as it passes to ascertain whether there is any need to take emergency action.

Tail lamp to indicate last vehicle.

120 (a). Each train when on any running line must always have a tail lamp, properly cleaned and trimmed, attached to the rear of the last vehicle, and this lamp will furnish evidence to the Signalman and others that the train is complete. After sunset, or during fog or falling snow, or when the block apparatus has failed in a section where there is a tunnel, or where otherwise provided, the tail lamp must be alight and show a red light and, except in the case of passenger and other trains composed of coaching stock, fully fitted freight trains, and light engines, two red side lights must also be carried.

Looking back.

126 (ix). The Driver and Fireman MUST in the case of trains not fitted throughout with the continuous brake, look back frequently during the journey, particularly when accelerating after speed has been reduced, to see that the whole of the train is following in a safe and proper manner.

When train comes to a stand.

131 (iv). Every Guard when in charge of a Freight train MUST when the train of which he is in charge comes to a stand endeavour to ascertain the cause, bearing in mind that the train may be divided.

Fireman and Guard of freight train to exchange hand signals.

142 (d). At the commencement of the journey and when re-starting after being stopped from any cause, the Driver must, as soon as practicable, after the train has started, satisfy himself that his Fireman has exchanged hand signals with the Guard in rear to ensure that the Guard is in his van and the train complete. The Driver must, if necessary, give a short whistle to gain the attention of the Guard for the purpose. The Guard's signal to the Fireman must be shown from the guard's van and by day will be given by holding one arm above the head, and at night or during fog or falling snow by waving a green light slowly from side to side, which latter signal must be acknowledged by the Fireman holding a white light steadily.

Protection of obstruction.

178 (b). *****

In the event of the Guard of a train which has arrived at the home signal becoming aware that his train has been accidentally divided, he must, provided the signal box is in close proximity, advise the Signalman if this can be promptly done. If, however, the signal box is some distance away, or the Guard is aware that the block apparatus has failed, the provisions of Rule 183, clause (c) must be immediately carried out and the Signalman afterwards advised.

Protection of train when only one line obstructed.

179 (a). Should the train not foul or not be dangerously near to any other line, the Guard if there be only one, or the rear Guard if there be more than one, must go back not less than ¾-mile, unless he arrive at a signal box within that distance, exhibiting a hand Danger signal to stop any train approaching on the obstructed line, and he must place detonators upon one rail of the obstructed line, as under, viz:—

1 detonator ¼-mile from his train,

1 detonator ½-mile from his train, and

3 detonators, 10 yards apart, not less than ¾-mile from his train.

Should a train approach on the obstructed line before the detonators have been laid down as prescribed, the Guard must immediately place 3 detonators on the line affected, as far as possible from the obstruction, and exhibit a hand Danger signal.

183 (c). *****

In the case of the train being accidentally divided the Guard in charge after protecting the rear portion must then return and place 3 detonators, 10 yards apart, on the line not less than 100 yards ahead of the portion left behind, afterwards taking the most expeditious steps to obtain assistance. *****

ABSOLUTE BLOCK REGULATIONS.

10. *Train out of section.* (2—1)—(a) Except where instructions to the contrary are issued, trains must not be considered out of section and the *Train out of section* signal must not be sent and the block indicator placed to the normal position until the train with tail lamp attached has passed at least ¼ mile beyond the home signal *****

19. *Train passed without tail lamp.* (9 consecutively to box in advance, 4—5 to box in rear).—(a) Signalmen must carefully watch each train as it passes, and satisfy themselves that it is complete with tail lamp attached before sending the *Train out of section* signal.

(b) (i) Should a train pass without a tail lamp, or the Signalman be unable to satisfy himself whether or not the tail lamp is on the train, he must immediately place or maintain his signals at Danger to stop the first train proceeding on each line in the opposite direction, ***** The Signalman must also send the *Train passed without tail lamp* signal (9 consecutive beats) to the box in advance; he must not send the *Train out of section* signal to the box in rear, but must send the *Train passed without tail lamp* signal (4—5) and maintain the block indicator at *Train on line.* *****