



MINISTRY OF TRANSPORT

RAILWAY ACCIDENT

REPORT ON THE COLLISION

which occurred on

8th February 1961

at

ROYTON STATION

in the

LONDON MIDLAND REGION

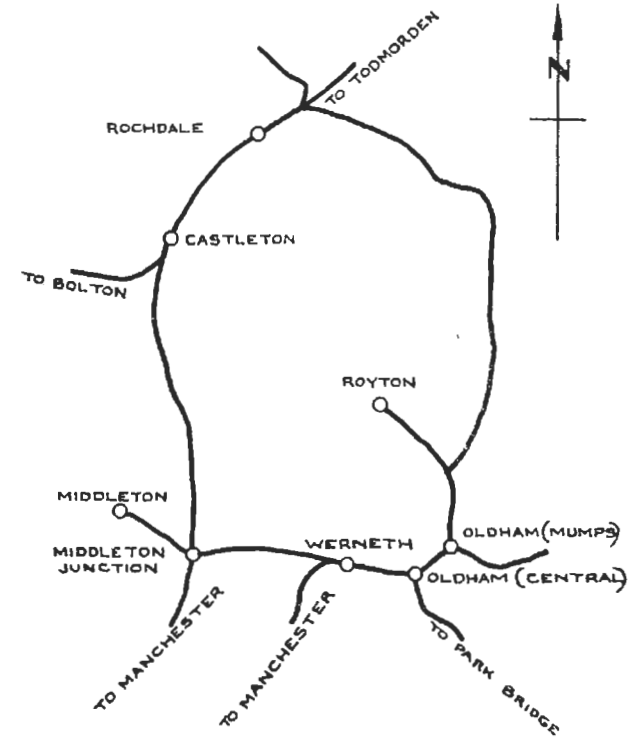
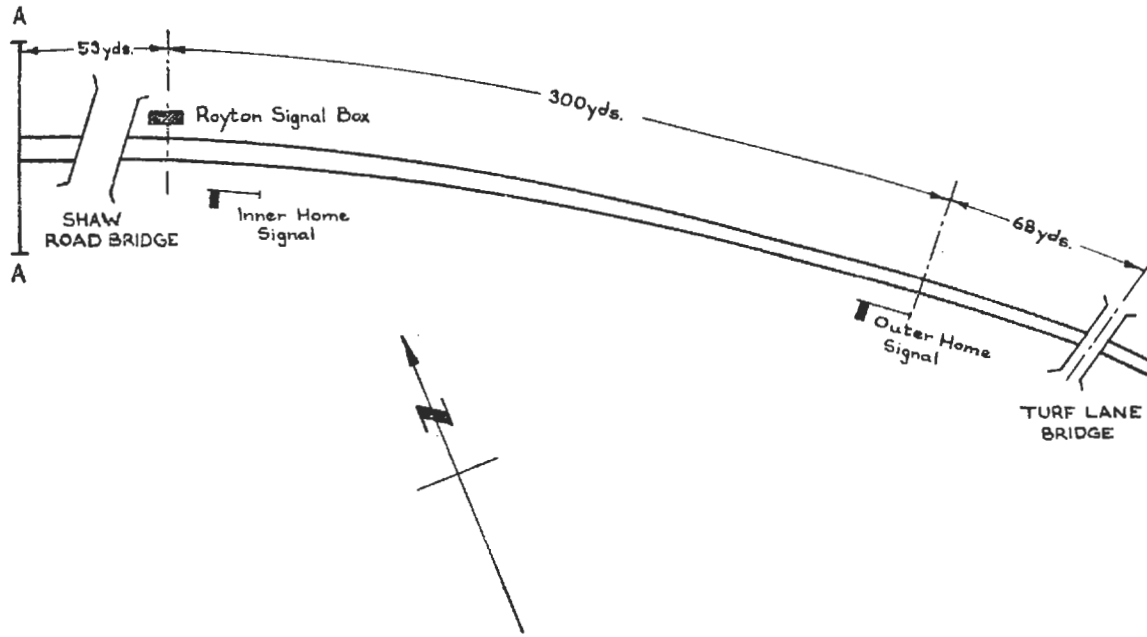
BRITISH RAILWAYS

LONDON: HER MAJESTY'S STATIONERY OFFICE

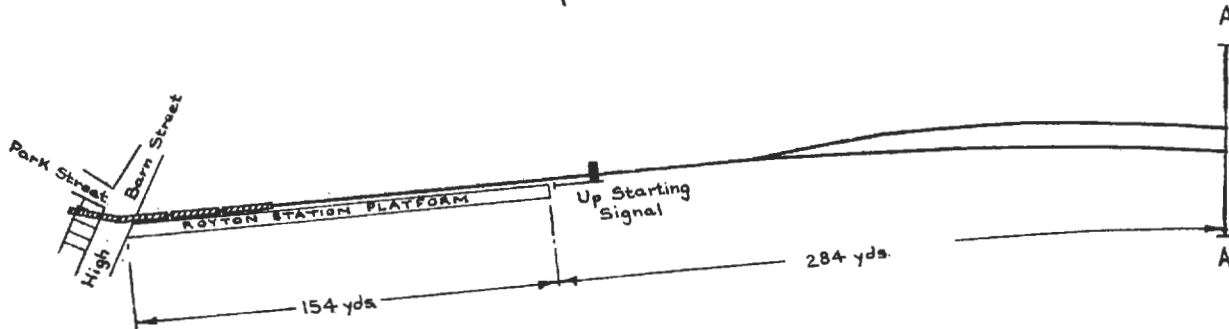
1961

PRICE 1s. 3d. NET

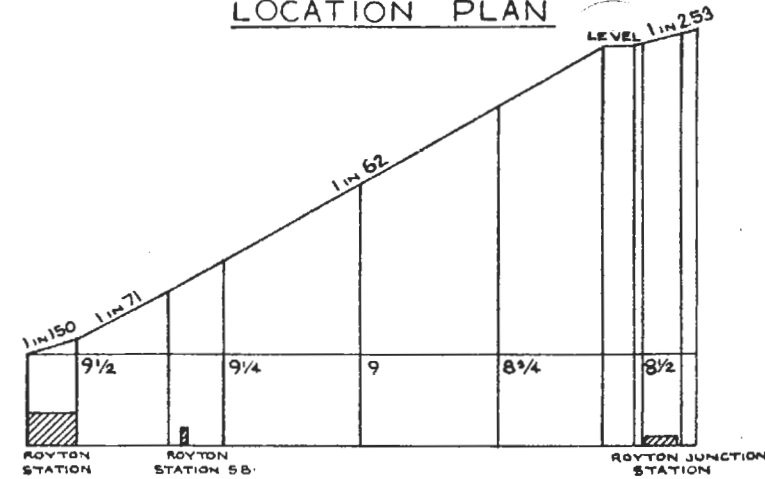
ACCIDENT AT ROYTON STATION 8TH. FEBRUARY, 1961



LOCATION PLAN



SITE SHOWING POSITION IN WHICH TRAIN
CAME TO REST



GRADIENT DIAGRAM

NOT TO
SCALE

MINISTRY OF TRANSPORT,
ST. CHRISTOPHER HOUSE,
SOUTHWARK STREET,
LONDON, S.E.1.

5th May, 1961.

SIR,

I have the honour to report for the information of the Minister of Transport, in accordance with the Order dated 10th February, 1961, the result of my Inquiry into the buffer stop collision that occurred at about 6.12 a.m. on 8th February, 1961 at Royton, a terminal station on a short spur from the Manchester (Victoria) - Rochdale line near Oldham, in the London Midland Region of British Railways.

On a fine morning after rain the driver of the 6.5 a.m. Shaw to Royton four coach empty diesel multiple unit train lost control of it on the steeply falling gradient approaching Royton Station and it collided with the buffer stop at about 40 m.p.h. The buffer stop and a stone wall behind it were destroyed and the leading coach, after dropping some 3 feet to the public road beyond, High Barn Street, and continuing across it, smashed through two houses on the opposite side almost completely destroying them and badly damaging three others.

The train came to rest some 30 yards beyond the buffer stop, its leading coach lying athwart the foundations of what had been Nos. 13 and 15 High Barn Street with its front end projecting into their back yards and with some 14 feet of its rear end still across the street. The leading bogie of the second coach fell from under it into the street, but the front end of the coach did not drop and so overrode the rear end of the front coach, its buffers staving in the end panels. The trailing bogie of the second coach remained on the rails, as did both the two rear coaches which sustained very little damage.

The train, which had earlier formed the 5.30 a.m. stopping passenger train from Manchester (Victoria) to Shaw and which was being worked to Royton to form the 6.18 a.m. passenger train from Royton to Manchester (Victoria), was empty of passengers except for a railway fireman who was returning to his home in Royton after a night's work. This fireman and the train guard were uninjured and the driver, who jumped from his cab to the platform just before the train hit the buffer stop, was very fortunate to escape with scalp lacerations and a shaking: had he remained in his cab, which was stove in and filled with debris when the leading coach smashed through the houses, he would certainly have been killed.

It was also very fortunate that one of the two destroyed houses was a lock-up shop, unoccupied at the time, and that the accident happened early in the morning when the occupants of the other houses were still upstairs. Five of them were taken to hospital suffering from injury or shock, but only one, with bruises and a fractured clavicle, was detained. I am happy to report that this lady, aged 70 years, was discharged from hospital on 28th February.

The emergency arrangements were prompt, having been set in train within three minutes of the accident, by the station porter. The first ambulance arrived at 6.25 a.m. and all the injured had been taken to hospital by 6.40 a.m. High Barn Street was cleared by 6 p.m., temporary buffer stops were in place by 7.30 p.m., and normal rail services were resumed with the 8.55 p.m. train from Manchester (Victoria) to Royton. In the meantime a bus service was run between Royton and Royton Junction, the first bus leaving Royton at 7.15 a.m.

DESCRIPTION

The Site

1. Royton is a small terminal station on a short spur that runs north-east from Royton Junction near Oldham (Mumps) on the Manchester (Victoria) - Rochdale main line. It is served by some 30 passenger and 3 freight trains each way each day. It has a single platform on an Up and Down line into which the separate Up and Down lines to and from Royton Junction converge.
2. The Down line from Royton Junction Station approaches Royton Station in a series of curves, the last of which is gentle and left-handed. The line is level through the Junction Station and then falls steeply at a gradient of 1 in 62 for some three quarters of a mile to Royton Junction signal box, 44 yards beyond which it eases slightly to 1 in 71 for some 293 yards to the east end of the platform, past which it continues to fall at 1 in 150 for 154 yards to the buffer stop.

The severity of the gradient from Royton Junction to Royton is clearly apparent to the eye, and a notice board on the left of the line leaving the Junction instructing drivers of freight trains to pin down wagon brakes is an apt reminder to a passenger train driver that he is running on to the incline. Gradients as steep as and steeper than 1 in 62 are common in the area: on the run that it was to have made from Royton to Manchester (Victoria) this train would have had to negotiate falling gradients of 1 in 44, 1 in 52, 1 in 55 and 1 in 47.

3. The general layout at Royton Station, from the Turf Lane road overbridge on the junction side of the Royton Outer Home signal to the houses through which the train smashed, and the positions in which the coaches came to rest after the accident, are shown on the diagram (for simplicity the running lines only are shown, the numerous sidings having been omitted). Nos. 13 and 15 High Barn Street were typical two-storey terraced houses with brick cavity walls.

4. The signalling had no bearing on the accident, except in so far as the signal posts are landmarks.

5. The buffer stop at the end of the Up and Down line was of the former Lancashire and Yorkshire standard pattern, robustly fabricated from old bull-headed rails. The wall behind the buffer stop, which served as a boundary between the station and High Barn Street beyond, was of masonry 18 inches thick and about 3 feet high on the railway side. The formation level at the buffer stop was some 2 feet above the level of High Barn Street.

The Train

6. The train, which was 243 feet long, comprised two two-coach sets each of two motor coaches. The leading set comprised two Rolls Royce/Craven motor coaches each with one 238 h.p. diesel engine with mechanical drive and they were fitted with screw couplings and Oleo buffers: they were built in September/October, 1959 and had last been given shop repairs (after an accident) in November, 1960, since when they had travelled some 6,000 miles and had been given a depot examination, which included a vacuum efficiency test, on 2nd February, 1961. The trailing set comprised two AEC/Craven motor coaches each with two 150 h.p. diesel engines with mechanical drives and with screw couplings and spring buffers: they were built in March, 1958, and had last been given shop repairs in June, 1960, since when they had travelled some 33,000 miles and had been given a depot examination, which included a vacuum efficiency test, on 7th February, 1961. Of the eight bogies under the train six were thus motored and the total available horse power was 1076. The drive from each engine incorporated a freewheel device and four speed gearbox. The control system was electro-pneumatically operated. Since their last depot examinations the two sets had travelled 470 and 110 miles respectively.

7. The total weight of the empty train was nearly 120 tons, each coach weighing about 30 tons. The maximum load on any one bogie was 16.1 tons and the minimum 13.6 tons. The train was fitted with Gresham's type A.I.V. quick release automatic vacuum brakes without direct admission valves. With this type of brake equipment a quick release of the brakes is obtained by absorbing the air in the train pipe into large vacuum release reservoirs in which a high degree of vacuum has been maintained. A release reservoir is provided on each coach near the exhauster and the degree of vacuum that is available for brake release is recorded on the "Release Pipe" side of a duplex vacuum gauge in the driver's cab. The "top sides" of the vacuum cylinders are charged from the train pipe and do not at any time carry a higher vacuum than 20" or 21", whereas the release reservoirs, which are connected throughout the train by a release vacuum pipe, usually carry up to 29" of vacuum: this is commonly called the "high vacuum". With this equipment release times are very short, even when the exhausters are idling, but they can be reduced still further by simultaneous acceleration of the exhausters. All wheels on the train were braked, the brake blocks being of cast iron. There were no sanders. The brakes were compensated to the extent that the braking force on all blocks operated by the same vacuum brake cylinder was the same, and the braking efficiency through the train was reasonably even. The theoretical available brake efficiencies of the first two (single-engined) coaches were 76.7 and 78.6% respectively at the power bogies, the loads on which were 16.1 tons in the case of the leading coach and 15.7 tons in the case of the second, and 79% at the idling bogies, the load on which was 13.6 tons in each coach, giving average efficiencies for the coaches of 77.4 and 78.8%: a good measure of compensation between the two types of bogie with their different loadings was achieved by braking the power bogie with a 21" vacuum cylinder and the idling bogie with an 18" vacuum cylinder and adjusting the brake leverage to suit. The brake efficiency of each of the two-engined coaches was 81%, the load on the two bogies being nearly equal (15.5 and 14.9 tons) and both vacuum cylinders being 21". (The driver's cab at the time of the accident was over the idling bogie of the first (single-engined) coach).

8. Each coach had a steel underframe and a steel-framed body with a sheet steel skin. The controls in the driver's cab were conveniently placed and the duplex gauge, which shows the train pipe and release reservoir vacuums, was easy to read. The vacuum gauge in the guard's compartment showed only the train pipe vacuum and not the release reservoir vacuum. A speedometer was fitted in the driver's cab and was driven from the leading (non-driving) axle.

9. The driver's cab had doors on both sides, but they had handles only on the outside; a driver wishing to open the door from the inside had to lower the window first and reach out to work the outside handle.

The effects of the Collision

10. The leading coach of the train, having destroyed the buffer stop and the wall behind, dropped to the level of High Barn Street and continued directly across it to hit the houses (Nos. 13 and 15) on its far side at an angle of about 20° from the normal, and just clear of the corner it forms with Park Street. The coach punched a hole through Nos. 13 and 15 and through the rear corner of No. 11, destroying the whole fabric below the level of the roof, which remained intact spanning the gap in which the coach came to rest, with its front end in the back yard and 14 feet of its rear end still athwart High Barn Street. No. 9 was also damaged to the point of danger to its occupants and the roof of No. 17, on the far side of Park Street, was also damaged when wires attached to a chimney were pulled down. The leading end of the second coach did not drop, though its bogie fell from under it into High Barn

Street, and, becoming uncoupled from the front coach, overrode its rear end staving in the end panels to a depth of about 2 feet.

11. The front end of the body work of the leading coach was stove in and wrecked when it smashed through the houses, and its cab and front saloon were filled with rubble and household debris. Some of the plate glass side windows were shattered, and the transverse partition behind the driver's cab and one other had crumbled, but no seats were displaced. Damage below the main frame was also extensive, particularly at the front end where the bogie became detached and fell into the cellar of one of the houses, but the frame itself was not distorted and the buffers were only bent. Much of the brake work was badly damaged and the vacuum pipes were cut: when I examined the cab the brake handle was missing and the brake valve was in the lap position, but I understand that the valve was found to be in the fully applied position immediately after the accident and was moved to the lap position later to allow the removal of the handle.

12. The upper parts of the body panels at the leading end of the second coach were stove in slightly and its leading bogie, which fell from under it, and the associated brake work and machinery were damaged, but the main frame was not distorted and other damage was superficial. The third and fourth coaches were undamaged.

EVIDENCE

13. Carriage and Wagon Examiner D. Booth, had adjusted the brakes on the leading set six days before the accident, and those on the rear set on the day before it: he had adjusted the set-off of the blocks from the wheels to $\frac{1}{8}$ " and the length of the reserve piston strokes to about 5", and had examined the brake rigging and found all in order. He had also changed 12 worn brake blocks on the fourth car on the day before the accident and considered that the replacements might not have fully bedded themselves down by the morning of the next day but the brakes were, in his opinion, in very good fettle.

14. Signalman J. Porter, who had been on duty in Royton signal box, said that in the usual course of events he would expect an incoming diesel train to pass his box at about 30 m.p.h., with its brakes being applied and, in wet weather, with some sparking between its wheels and the track. He had accepted the train on this occasion in the usual way and had pulled off his signals for it: he had heard the driver hooting, which was unusual, but had noticed nothing else unusual about the train, or the sound of its engine, as it passed. He had noticed that it was striking sparks from the track: he was certain that these sparks were coming from rail and not brake block level, and that they came only from the first pair of wheels. He said that it had been raining earlier but that the rain had stopped before the train passed: it was light enough to see whether the wheels were turning or locked, but he did not notice what they were doing.

15. Leading Porter J. W. Langton had come on duty at Royton station at 5.30 a.m. when it had stopped raining, and had lit the station gas lamps and prepared for the arrival of the train. Because of the lamps he could not see further towards the signal box than the platform Starting signal, and he thus got no early view of the train as it approached, and could not say whether it was skidding: he had seen no sparks. He had been a passenger on this train the previous day and it had then entered the platform very slowly, but on this occasion its entrance speed was, in his view, between 30 and 40 m.p.h.: he did not know whether or not it was being braked, and he first heard its horn as it reached the platform Starting signal. He did not actually see the driver in the cab as the train passed and did not see him jump from the cab to the platform: the first he saw of the driver's exit was when he was rolling over and over on the platform near the buffers.

16. Passenger Guard W. Worsley, who said that he normally acted as guard on the 6.5 a.m. Shaw to Royton empty diesel train for one spell of five days each month, had earlier that morning, and with the same driver, worked the two diesel sets that comprised it from Manchester (Victoria) to Shaw as a stopping passenger train. The gauge in his van in the third coach showed only the train pipe vacuum and not the high vacuum, and the former was 20". The stops (at nine stations) between Manchester (Victoria) and Shaw were all made quite normally, the vacuum being reduced from 20" to 15" in each case, and the stop at Shaw itself, the first to be made on a down grade, was also normal, as was the brake release. For the empty trip from Shaw back to Royton Junction he and the driver had not changed ends, and he had occupied the driving cab at what had become the front of the train: he noticed that the train pipe vacuum was 20" there also, but did not observe the high vacuum. He said that the driver, with whom he had worked for three days, was his usual self, and that he had formed the opinion that the driver, in deciding not to change ends at Shaw, was only following a usual habit. Braking to a stop at Royton Junction was also quite normal. The train reversed at Royton Junction, thus bringing the driver to the right end for the final run to Royton station.

17. Guard Worsley said that in the ordinary way the driver of a diesel train running into Royton station first applies the brakes near Turf Lane bridge when approaching the Outer Home signal. On this occasion he had been in the brake van in the third coach making out delay slips and had noticed nothing unusual about the brake application, which he thought had been made at the usual place. He turned on the train lights ready for arrival at Royton as the train passed the signal box at its usual speed, which he estimated at 25-30 m.p.h., and then started to walk back through the train in preparation for changing the tail lamp. As he was passing through the rear coach he suddenly realised that the train was going much too fast and would not stop in the station, and he flung himself to the floor for safety: his impression was that the train's speed had by then increased to about 40 m.p.h., but he could not

himself then apply the brakes because he had already left the brake van. Worsley said that he felt only one brake application, which was apparently a normal one and made in the normal place: the only abnormality was that he could still hear the engines running very fast as the train entered the station. He had never been in a badly skidding train and said that he would not recognise the feeling: when asked whether he had thought the train was running or skidding he replied "I thought (he) the driver had made a wrong movement and increased speed instead of slackening it".

18. Fireman B. Dawson was returning in the train to Royton after a night's work. He is a steam fireman and has no experience of diesels except as a passenger: he lives at Royton and travels frequently on this train. On this occasion he occupied the front seat on the left side of the second saloon in the leading coach. He was sitting in the dark, awake but sleepy and paying no attention to the running, as the train approached Royton, and he felt what he described as "just a small application - a touch of the brake" when the train was about 100 yards short of Royton signalbox: he thought that the speed at this point was some 35 to 40 m.p.h. and that the brake application did not reduce it. As the train passed the signalbox the lights were switched on, and at about this time he heard the hooter begin to sound. He felt, as the train was running into the platform, that it was going too fast, but his first impression that something was seriously wrong was when he suddenly saw the driver rolling over on the platform: he had not seen the driver preparing to jump because the blind was down behind him. He remained in his seat until the train hit the buffers and then started to scramble back towards the rear of the train as fast as he could: he eventually alighted from the nearside rear door of the leading coach. Dawson said that he felt only the one slight brake application and that he did not get any impression that the train was skidding: he did not feel anything unusual in the running of the train that morning.

19. Driver H. Pearse, who is 60 years of age and has been a driver for 13 years of which 1½ years have been spent on multiple unit diesel trains, was the driver of the 6.5 a.m. empty diesel train, having earlier worked its two sets from Manchester (Victoria) to Shaw with Worsley as his guard. He was used to driving diesel multiple unit trains with all coaches motored and had driven such trains regularly into Royton. He had signed on at Newton Heath at 4.5 a.m. after seven hours sleep and had travelled passenger to Manchester (Victoria), where he took over the train at the platform. He stressed that he was feeling very well. He had no difficulty in getting either air for the controls or vacuum (20" in the train pipe and 28-29" in the release pipe); he made a normal brake test and was satisfied with his train. During the trip to Shaw he stopped without any trouble at all stations, was satisfied that the brakes showed no signs of binding, got a quick brake release each time, and considered his brakes to be in good fettle. Pearse admitted that he had not changed ends at Shaw but had driven and braked from the rear cab, on signals from his guard at the leading end and from his own observation of the signals as he leaned out of his cab with his finger on the "dead man's" cancellation button.

20. As regards the trip from Royton Junction to Royton, I first asked Driver Pearse to describe how he had handled the train the previous day when, according to Porter Langton's evidence, it had entered the platform very slowly, and when the conditions had, according to Pearse himself, been somewhat worse since it was drizzling. He said that he had coasted down the steep gradient in fourth gear and had made his first brake application just before passing under Turf Lane bridge, reducing the vacuum from 20" to 15" to check the train and then applying the brakes a little harder until reaching the signalbox, when he had the train well in hand. In reply to a question he said that his initial application at Turf Lane bridge was made well clear of the station and that he regarded it as the brake test that the rules lay down should be made by a driver when approaching a terminal station and on a steeply falling gradient. On that occasion his four coach train had had four and not six motored bogies.

21. Driver Pearse went on to say that his initial brake application next day, when approaching Royton station just before the accident, was quite normal and exactly the same as on the previous day. His train pipe vacuum was 20" and he had plenty of high vacuum, and he first applied the brakes when approaching Turf Lane bridge at about 40 m.p.h., reducing the train pipe vacuum by "the usual 5 inches and a bit more, 6 or 7 inches". He then got the impression, from what he described as the "kicking" of the train, that the brakes were on the point of locking on to the wheels and he released them quickly while running between the two bridges and then applied them again, reducing the vacuum again by 5 or 6 inches. By this time he was "well past the first bridge, Turf Lane" and "was getting nervous since (he) was going faster than (he) should have been". He did not notice by how much the brake release reduced the release vacuum but thought that the reduction was very small. He said the second brake application seemed to hold the train for "a short time - a few seconds" and that then he suddenly "had a real pick-up": he thought that all the wheels had locked completely throughout the train and that the train had begun to skid. To check the skid he put the brake handle into the full release position and then, thinking that the brakes were not being released quickly enough, put the gears into neutral and accelerated the engines to get increased vacuum and to speed release. He said that although by this expedient he quickly raised the train pipe vacuum to 20" the brakes stayed locked and the speed of the train seemed to increase, and he realized that he was in serious trouble and that time was short, since he was now running between the signalbox and the start of the platform. His next action was to try to free his brakes, which he was convinced were still locked, by applying power to the wheels to force them round: he changed from neutral to fourth gear and "just gave her a kick". He said that even this expedient, which he had never had cause to use before, did not release the wheels and that the whole train continued skidding. By this time it was running into the platform, and he realized that the trouble was now very serious indeed and he began to sound the horn. He realized that his only chance of survival was to jump clear so he dropped the already half-open window, pulled the brake handle over to the fully applied

position, and jumped to the platform in a crouching position. He said that the thing he had wished for more than anything else that morning was "two good sanders".

22. Driver Pearse was a good and co-operative witness and his evidence throughout was forthright and clear. He acted for me, in dumb show, his handling of the train controls from Turf Lane bridge to just short of the buffer stop while I timed him, and the resultant picture in time and space suggested that his recollection of events was reasonably good. I did not, however, find his reasons for thinking that the train was in a skid very convincing, and he told me that he had never been in a serious skid before. He said he knew that the train was skidding by the "hissing sound from the wheels and rail" and from the fact that his speedometer went to zero: he kept harking back to his speedometer and I got the impression that his conviction that the train was skidding was really based almost entirely on his observation of it.

23. District Carriage and Wagon Foreman F. Spensley said that he examined the two coaches of the rear set at Royton, starting at about 7.30 a.m., and found them to be undamaged. The brakes were hard on and the reserve piston strokes were 5 and 5½ inches. He did not feel the brake blocks. He examined the wheel tyres for flat places but found nothing abnormal. The release vacuum pipe was correctly connected through the train and there were no bent piston rods or brake rigging. He said that when the rear set had been uncoupled from the set in front and vacuum was created the brakes came off evenly and fast, and without any suggestion of sticking.

24. Carriage and Wagon Examiner D. Booth also examined the coaches after the accident. He said that the reserve piston strokes of the second set were very good: those in the second coach of the leading set were down to 3½ inches, but he did not consider this unreasonable after five days' wear, the set being due for maintenance next day. He examined the wheels by feel for evidence of skidding and did not find any flat places. There were no bent piston rods or brake rigging on the last set: he did not make any special test of the rigging for free movement but said that the brakes came off evenly and fast after vacuum had been created.

25. Mr. J. Dodd, Divisional Outdoor Carriage and Wagon Engineer, Manchester, said that he examined all the wheels under the second set on its return to Newton Heath Depot and those that had been under the first set at Royton. He found only slight marks on the tyres and these were distributed evenly round the wheels' peripheries and were not flat places.

26. Driver D. Irwin, of Newton Heath Motive Power Depot, was sent to Royton after the accident to bring back the undamaged rear set. After examining the coaches he created vacuum, getting 21" in the train pipe and 28" in the release vacuum pipe, and the brakes released quickly and cleanly with no sign of sticking. He made a normal brake test before driving the set away and was satisfied with it. On the return journey to Newton Heath he was behind a stopping passenger train and had to stop his train frequently, at several places on steeply falling gradients, and had no trouble with the brakes. The two cars ran quite smoothly: he did not feel any roughness in the riding, such as he would have done had there been flat places on the tyres.

27. Mr. J. D. Turner, Assistant District Engineer, Blackburn, said that one of his permanent way inspectors examined the Down line rails two hours after the accident for about 500 yards from the Turf Lane side of the signalbox to the start of the platform. He found no significant marks on the rails that might have afforded a clue to the nature of the runaway. He looked for skid marks and found none. When he examined the rails they were wet: only the two coaches of the rear set had run over them since the accident.

EXAMINATIONS AND TESTS

Brake Blocks

28. At my request all brake blocks on the four coaches that had comprised this train were removed and examined in detail. There were no signs of uneven wear or lack of contact on any of the brake blocks except some of those that had been on the rear coach of the train. Of the 16 blocks that had been on this coach, one had developed a slight and one a fairly deep lip and 12 others, which had been substituted for worn blocks on the day before the accident (see Booth's evidence at para. 13), were not yet fully bedded down, the contact area varying from about 25% to about 60%. I am advised that the imperfect condition of the blocks on this coach would not have affected materially the braking power of this four coach train: the effectiveness of the brakes on this coach is in any case shown by the braking performance of the rear two-coach set during its return journey to Newton Heath after the accident. (See Irwin's evidence at para. 26).

29. It was clearly undesirable to make any high speed braking tests into a terminal station such as Royton. Extensive practical tests have however been made on various gradients with diesel sets of this type, from which reliable braking distance curves have been developed. Allowing for the changes of gradient at Royton and assuming that the driver of a train first applies his brakes when passing the signalbox at 40 m.p.h., the equivalent of the train involved in the accident should stop with its cab not more than 247 yards past the signalbox: with an initial speed of 50 m.p.h. the train should stop with its cab rather more than halfway along the platform.

30. Vacuum recreation tests with sets similar to those comprising this train and having a reasonably high initial release vacuum suggest that the release times after the train pipe vacuum pressures have been cut from 20 to 15 or 13 inches should not exceed some 7 to 8 seconds, even with the engines idling,

and that the release reservoirs have enough capacity to keep release times reasonably short even after several quickly successive applications of the brake have been made.

CONCLUSIONS AND REMARKS

31. I am satisfied that the brakes on the train were in good order and that the release vacuum pipe was properly connected throughout the train, thus ensuring a quick brake release on all four coaches. I am also satisfied that if the train and brakes had been properly handled Driver Pearse would have had no difficulty in stopping the train short of the buffer stop. Driver Pearse was alone responsible for this accident.

32. Driver Pearse's demonstration of his actions from Turf Lane bridge to where he jumped from his cab was graphic and convincing, and I consider that his account of what he did was substantially correct, though he may well have made his first brake application rather later than he said he did and possibly, for that reason, a little more sharply than usual. Where he made his first mistake is difficult to say, but I am quite sure that he was mistaken when he thought that his wheels were still locked and the whole train still skidding after he had succeeded in raising the train pipe vacuum to 20 inches after the second brake application and just before he applied power to the wheels. Even if the whole train had been skidding when he started to re-create vacuum the second time – and his lack of experience of skids may have misled him on this point – I believe that it would have stopped skidding as the brakes released and that the brakes were fully off and the train running freely when he put power to the wheels. If this was so the train was accelerated under power into the station and the final brake application could have had little time to take effect. Whatever other mistakes Pearse may have made, his resort to such a desperate and untried expedient was, in my view, his cardinal one.

33. Whether or not the whole train ever got into a real and sustained skid must I think remain a matter for speculation. By Pearse's account it can at worst only have skidded for some 400 to 600 yards but, even with a light train, I would have expected such skidding to have caused appreciable flats on the wheels, such as would have necessitated the tyres being re-turned before the vehicles could go back into service; and I would have expected some signs of skidding on the rails. I am quite sure that Pearse observed the speedometer drop to zero, but I am not so sure that he continued to observe it and, in any case, a zero speedometer reading could only show that the leading wheels were skidding. (Signalman Porter's evidence that sparks were coming only from the leading bogie supports the view that the leading wheels only were skidding, but I did not find Porter in general a very convincing witness).

34. Fireman Dawson felt only one brake application and that a light one and made at about the point where Pearse must have applied the brakes the second time; Guard Worsley also felt only one application, though he thought it was made further back. It may be that Pearse, anticipating a skid, released the brakes too soon after the first application and before they had really taken hold and that he made his second application too firmly so that the train skidded before the brakes had had much effect. Whether Pearse induced a skid by overbraking or whether he imagined that the whole train was skidding when it was not, he made mistakes that should not have been made by a driver of his experience. I have no doubt that Driver Pearse, who had driven similar trains into Royton station many times, mishandled his brakes on this occasion as well as unwittingly accelerating his train when he did. He undoubtedly did his best, however, to gain control of his train once he had lost it, and it is to his credit that he maintained his efforts to the last possible moment.

35. The approach to Royton is not unsafely steep for these trains provided they approach it at a reasonable speed and are brought under control in good time. A questionnaire issued after the accident by the District Motive Power Superintendent, Newton Heath, to the eleven other drivers in Pearse's link elicited a wide variety of views on the speed at which Royton station can safely be approached: approach speeds varied from 20 to 40 m.p.h. In my view, if the risk of another accident similar to this one is to be avoided, a driver should have his train fully under control with his speed reduced to 30 m.p.h. by the time he reaches Turf Lane bridge, which is sufficiently far out for safety and a good land mark. The Railway Officers have agreed to introduce a 30 m.p.h. speed limit into Royton station from this point.

I have the honour to be,

Sir,

Your obedient Servant,

J. R. H. ROBERTSON,

Colonel.

The Secretary,

Ministry of Transport.

© Crown copyright 1961

Printed in England by Jarvis · Porter · Ltd.,
Leeds 11, under the authority of
HER MAJESTY'S STATIONERY OFFICE