



MINISTRY OF TRANSPORT

RAILWAY ACCIDENT

REPORT ON THE COLLISION

which occurred on

10th August 1961

at

LEEDS CITY STATION

in the

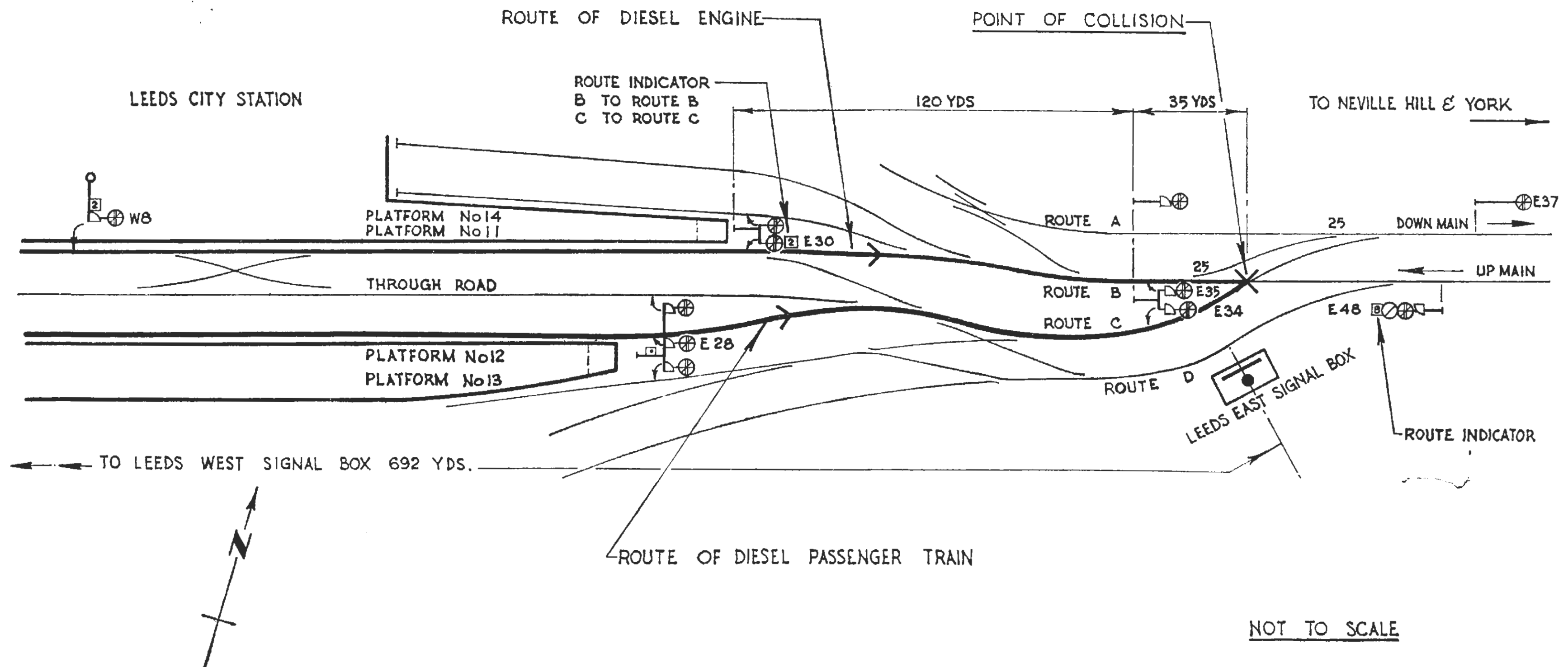
NORTH EASTERN REGION

BRITISH RAILWAYS

LONDON: HER MAJESTY'S STATIONERY OFFICE
1961

ONE SHILLING NET

COLLISION AT LEEDS CITY ON 10th AUGUST, 1961



26th September 1961.

SIR,

I have the honour to report for the information of the Minister of Transport in accordance with the Order dated 11th August, 1961, the result of my Inquiry into the collision that occurred at about 2.46 p.m. on 10th August, 1961, at the east end of Leeds City station in the North Eastern Region, British Railways.

The 2.40 p.m. Class B multiple-unit diesel passenger train from Leeds City to Scarborough had departed under clear signals from No. 12 platform at 2.45 p.m. in the Down (easterly) direction and had travelled only some 250 yards when a diesel engine, which was destined for Neville Hill motive power depot and had passed under clear signals from west to east through No. 11 platform line, failed to stop at the colour light signal protecting the converging junction of the lines on which it and the passenger train were travelling, and collided sidelong with the front coach of the passenger train. The collision occurred on a bridge over a road at a point almost opposite the Leeds East signal box. The driver of the diesel engine had mistakenly accepted the signal which had been cleared for the passenger train as applying to his engine.

The speeds of both the train and the engine were in the region of 10-15 m.p.h. although the train was travelling slightly faster than the engine. The train stopped in 42 yards and the engine in 30 yards. The engine was not derailed but the leading two coaches of the passenger train were forced across the Up line and turned over on to the parapet of the bridge, which was demolished and fell into the street and the surrounding area below. Leaking oil from the damaged fuel tank of the leading coach caught fire. That coach received severe damage to the body panelling but fortunately few of the 150 passengers in the train were occupying it. I regret to report, however, that one of the passengers in that coach was killed and two were injured; the driver of the passenger train suffered from shock. The relief services responded rapidly to the calls for assistance. The fire was extinguished promptly and the injured passengers were removed to hospital without delay, but they were not detained.

Breakdown equipment was summoned from Holbeck and from York and arrived in good time, and the lines were re-opened to traffic, with trains passing at reduced speed, at 6.30 a.m. on the next day. In the meantime, emergency bus services were introduced between the City station and Cross Gates station.

The weather was fine.

DESCRIPTION

The site and signalling

2. The layout of the lines at the east end of Leeds City station, and the position of the signals relevant to this accident and of the Leeds East signal box are shown in the sketch opposite.
3. The signals are 3-aspect or 4-aspect colour lights. Except for signal No. W8 which is worked from Leeds West box, they are worked by switches on a panel situated above a 25 lever frame in East box. The aspects of the signals are repeated on the panel. The signalling was installed in 1936.
4. As shown on the sketch, there are four routes at the east end of Leeds City station and they are known as A, B, C and D. The routes that are mainly relevant to this case are B and C. Movements from No. 11 platform to the Down main line can be made by either route B or route C. In the former case they are controlled by signal No. 30 with the letter B in its route indicator, and by signal No. 35; in the latter case by signal No. 30 with the letter C and signal No. 34. Movements from No. 12 platform to the Down main line must be made by route C and they are controlled by signals No. 28 and 34. Signals No. 34 and 35 are situated 120 yards beyond signal No. 30. They are bracketed on one post which is situated between routes B and C; signal No. 34 is to the left of route C and is slightly higher than No. 35 which is to the right of route B. It will be seen that these two signals protect the converging junction of routes B and C the fouling point of which is 35 yards beyond the signals when crossover No. 25 is set for the straight route (see paragraph 5).
5. In clear weather movements are permitted from signal No. 30 at Yellow with a B indication up to signal No. 35 at Red, with signal No. 34 clear for a movement from route C to the Down main line; also from signal No. 28 at Yellow up to signal No. 34 at Red, with signal No. 35 clear for a movement through route B to the Down main line, or with the Up home signal No. 48 clear for a movement from the Up main line over route B. In the last mentioned case, however, the signal box Instructions lay down that the Down movement must be stopped, or nearly stopped, at the preceding signal (signal No. 28 from No. 12 platform) before it is cleared to Yellow. At the time of the accident the interlocking required crossover No. 25 to be set for the normal (the straight) route when signal No. 34 was clear. This is, however, to be altered (see paragraph 25).

6. From the footplate of a diesel engine moving along platform line No. 11, signals No. 34 and 35 come into clear view from a point well on the approach side of signal No. 30, and they remain in view while the engine passes along route B.

7. There are emergency detonator placers on all the routes operated by stirrups in the lever frame in the East box. On account of the layout, the detonator placer on route B is almost opposite signal No. 35; that on route C is just beyond signal No. 34.

8. The lines between Leeds West box and Leeds East box and between the latter box and Marsh Lane, the next box in the Down direction, are track circuited. There are no block instruments for working between the East and West boxes and trains are "belled". Three-position type block instruments are provided for working trains between the East box and Marsh Lane.

9. The speed of trains passing through the Leeds City interlocking area is restricted to 10 m.p.h.

The trains

10. The 8-coach diesel passenger train comprised two 4-coach units, each of two motor coaches with two trailers between them. The leading motor coach weighed 32 tons and the leading trailer 25 tons. The total weight of the train was 225 tons. The leading unit was built in 1959 and the rear unit in 1958. Each motor coach was powered by two 150 h.p. B.U.T. engines. All the coaches were of modern all steel construction with the body members integral with the underframe. The light engine was of the 1Co-Co1 type and it was equipped with one 12 cylinder 2500 h.p. Sulzer diesel engine. It weighed 136 tons.

The collision and damage

11. The heavy diesel engine struck the very much lighter leading motor coach of the passenger train at a point about one-third of the way from the front end and, as mentioned before, forced it across the Up line. The coach turned over on to its side and slid along the Up line demolishing the parapet wall of the bridge over a length of 108 feet. The second coach was pulled off the rails and it also fell on its side and stopped, overhanging the side wall of the bridge. The trailing wheels of the third coach were also derailed. Fire broke out under the baggage compartment of the leading coach as a result of oil spilling from the damaged fuel tank and becoming ignited by falling on the hot exhaust pipes.

12. The diesel engine was not derailed and it sustained little damage from the collision. It was, however, fairly severely damaged by the subsequent fire. The structural damage to the coaches was remarkably light. The bogies of the leading coach were bent but the integral bodies and underframes of that coach and the next coach did not appear to be in any way distorted. The panelling of the leading coach was, however, severely damaged by its contact with the bridge and by the fire, and that of the next coach was also damaged. The seats were not displaced and the only windows broken were those at the point of the impact and opposite to it, those in the area of the fire, and two in the second coach. The damage to the third coach was light and the rear five coaches were undamaged.

REPORT AND EVIDENCE

13. The 2.40 p.m. Down passenger train left No. 12 platform 5 minutes late, at 2.45 p.m., because the leading 4-coach unit did not reach the platform until 2.42 p.m. For that reason the large majority of the passengers were in the rear unit which had been standing at the platform for some time. "Line Clear" for the train had been obtained from Marsh Lane by Signalman G. C. Cubbon and he and his mate, Signalman J. C. Sykes, had set route C and had cleared signals No. 28, 34 and 37 (the advance starter) for it.

14. Just before this the diesel engine had been "belled" from West box to East box over No. 11 platform line and signal No. W8 was cleared for it by West box. At that time signal No. 30 was at Red and so signal No. W8 was at Yellow. An Up passenger train had been accepted by Signalman Cubbon from Marsh Lane and it was to be taken on to No. 11 platform line.

15. In order to avoid delaying the Up train, therefore, the signalman decided to allow the diesel engine to move forward along route B up to signal No. 35, and Sykes cleared signal No. 30 for it. This would have enabled signal No. 48 to be cleared for the Up train to proceed to No. 11 platform via route D as soon as the Down passenger train had passed beyond signal No. 34. As the weather was fine the clearing of signal No. 30 for the diesel engine to proceed up to No. 35 at Red was in order.

16. Sykes and Cubbon both said that the diesel engine had either stopped or had nearly stopped at signal No. 30 when it was cleared. They both saw the passenger train and the diesel engine approach signals No. 34 and 35 respectively and they both realised almost simultaneously, when the engine had almost reached the signal, that it would not stop at it. At that time the passenger train was slightly ahead of the engine and was overtaking it slowly. They rushed to the stirrup to place the detonators on the line at signal No. 35 but the engine had already passed it.

17. The diesel engine had arrived in Leeds from Derby, on the London Midland Region. It had to be re-fuelled and was to be taken to Neville Hill depot, beyond Marsh Lane, for that purpose. Its driver, C. Dence, did not however know the road from Leeds City to the depot, and a conductor driver, J. Swire, was therefore sent with the engine. He was well acquainted with that type of diesel engine and so he took over the controls.

18. Swire said that signal No. W8 was yellow when he first saw it and that he stopped close to it to pick up a passenger guard who was also going to Neville Hill. As he proceeded along No. 11 platform line, he saw that signal No. 30 was yellow with the letter B in the route indicator. He proceeded past that signal and saw signals No. 34 and 35 ahead, No. 34 at Green and No. 35 at Red. He said that he mistakenly assumed that the green aspect in signal No. 34 applied to the movement of his engine and he accelerated. When he reached the signals the speed of the engine was 10-15 m.p.h. and he then heard an engine sound its hooter and noticed the diesel passenger train which was overtaking him slowly on the right hand side. He realised that a collision was imminent and applied the brakes fully, but he was unable to prevent the impact.

19. Swire, who has been a Passed Fireman since 1941 and a driver since 1949, said that he had learned and signed for the road from Leeds City to Neville Hill on 21st July last, and had worked over it several times since then. He had previously worked in Leeds City for many years and he said that he knew it intimately; when working in that area he had frequently made shunting movements up to signals No. 34 and 35 on routes C and B and up to the corresponding signal on route A, but he had never been required to move beyond those signals. Furthermore, he could not remember ever having travelled from platform line No. 11 up to either signal No. 34 or 35. He was insistent however, that he knew quite well that No. 34 applied to route C and No. 35 to route B, and that he knew that his engine was on route B. He maintained that, if he was to be stopped at signal No. 35, he should have been checked or stopped at signal No. 30 in view of the short overrun beyond the former signal. He said that because he had not been stopped at signal No. 30 he assumed automatically that the green aspect that he saw ahead applied to his engine.

20. Driver Dence was certain that signal No. 30 was red as the engine approached it and that the engine had stopped at it momentarily, and it will be recalled that both signalmen had made very similar statements (paragraph 16). Consequently I re-examined Swire on this point and he agreed that the engine may have been stopped and that he may have forgotten about it. I pointed out to Swire, however, that the Instructions did not invariably require an engine to be checked or stopped at signal No. 30. He said that he was aware that that was the case, but he reiterated that he thought that such movements should be checked because of the short overlaps and that in fact they usually were checked in that way.

21. Swire is 54 years of age and his sight is good. He said, and Dence confirmed, that when the engine passed signal No. 30 there was no talking on the footplate, and he added that the engine was working well and that his attention was in no way distracted. He stated that he was feeling well and not tired, and that he had no worries or anxieties on his mind. He had had a "rest" day three days earlier. On the day before the accident his duty had been from 8.30 a.m. to 4.0 p.m. and it was to be the same on the day of the accident.

CONCLUSIONS AND REMARKS

22. This accident was the result of Driver Swire of the diesel engine passing a red signal (No. 35) having mistakenly accepted the signal for the adjacent line (No. 34) which had been cleared to Green for the passenger train, as applying to his engine. He was a good witness and frankly admitted his mistake.

23. The reason given by Swire for his mistake was that he had not been stopped at the previous signal (No. 30), and that consequently, when he saw signal No. 34 at Green, he assumed that it applied to his engine. I cannot, however, accept that reason because, although there was no need for him to be stopped at signal No. 30 which he later agreed that he knew, there is ample evidence that he was in fact stopped, or very nearly stopped, at it. Swire was insistent that he knew well which of signals No. 34 and 35 applied to route B, on which his engine was travelling and about which he had no doubt, and which applied to route C. If he did know the signals so well it is difficult to account for his mistake. I doubt, however, whether he knew the signals as well as he declared, and it is significant that this was to be his first trip through No. 11 platform line to the Down Main line since he had learned the road on to Neville Hill depot some 3 weeks earlier, and in fact, so far as he could remember, the first occasion on which he had made a movement from No. 11 platform line up to signal No. 35. I think, therefore, that it is more likely that he became muddled and genuinely thought that signal No. 34 was the correct signal for his engine. He may even, not knowing the layout beyond signals No. 34 and No. 35 well, have imagined that they were directing signals from route B to the Down Main line; they certainly resemble such signals. In view of the doubt about the reason for Swire's mistake, the facts of this case have been made known to the Committee of the Medical Research Council that is investigating cases of drivers passing signals at danger.

24. This is the third occasion within the last two years in which mistakes of this nature have been made at signals No. 34 and 35. In the earlier two cases, signal No. 35 at Clear was misread for signal No. 34 which was passed at Danger. Under a scheme for the amalgamation of the Leeds City and Central Stations, this area will be entirely re-signalled, and, as in all modern colour light signalling installations, the signals will be placed immediately to the left of the lines to which they refer and as close as possible to the driver's eye level. The re-signalling is, however, unlikely to be undertaken in the immediate future, and I am glad to report that early steps are to be taken to re-position signal No. 35 further away from signal No. 34 and to the left of Route B.

25. I have no criticism of the Instructions applicable to movements at the east end of Leeds City station. The overlaps beyond signals No. 34 and 35 are short, but speeds are low and drivers should have no difficulty in stopping at the signals when they are at Red. This case was not one of misjudging a stop but of misreading a signal, and the length of overlaps had little bearing on it. I have been informed however, that arrangements are being made to alter the interlocking so as to require crossover points No. 25 to be reversed when signal No. 35 is at Red and No. 34 at Clear. This will increase the overlap beyond signal No. 35 by about 17 yards and give some additional protection against an overrun due to misjudgment. This alteration would not have prevented the accident, but it might have mitigated its results.

I have the honour to be,

Sir,

Your obedient Servant,

D. McMULLEN,

Colonel.

The Secretary,

Ministry of Transport.