



MINISTRY OF TRANSPORT & CIVIL AVIATION

RAILWAY ACCIDENTS

REPORT ON THE COLLISION

which occurred on

19th February 1957

near

LEICESTER CENTRAL STATION

in the

LONDON MIDLAND REGION

BRITISH RAILWAYS

LONDON: HER MAJESTY'S STATIONERY OFFICE

1957

ONE SHILLING NET

6th June, 1957.

SIR,

I have the honour to report for the information of the Minister of Transport and Civil Aviation, in accordance with the Order dated 22nd February 1957, the result of my Inquiry into the collision which occurred in daylight at about 7.34 a.m. on the 19th February 1957, between a passenger and freight train on the former Great Central line near Leicester Central station. This line is in the London Midland Region, British Railways, but is included in the Eastern Region Operating Area.

Falling snow had broken the block telegraph and telephone wires a few hours earlier, and trains were being worked under the time interval system. It was still snowing heavily and visibility was bad when the 6.20 a.m. passenger train from Nottingham Victoria to Marylebone passed the Up Outer Home signal for Leicester Passenger North signal box in the clear position at about 30 m.p.h. and ran into the rear of a slowly moving freight train a short distance ahead. The signal had not been restored to danger after the passage of the freight train as the signalman could not see through the falling snow that the train had passed it. The driver of the passenger train must have assumed that the clear signal was meant for him, although the rules expressly warn against such an assumption when proceeding at caution with a block failure.

There was no damage to the coaches and only one passenger was slightly injured. The last eight wagons and the brake van of the freight train were damaged and some were overturned, but the guard saw the approach of the passenger train engine and jumped clear.

Both lines were blocked; the Down line was cleared by 11.0 a.m. and normal working was resumed that evening.

DESCRIPTION

The Route

The former Great Central line from Nottingham runs southward in the Up direction to Leicester. Belgrave and Birstall is the last station before Leicester Central and the block section is normally between Belgrave and Birstall signal box, which is on the Leicester side of the station close to the Up line, and Leicester Passenger North signal box, a little over 2 miles away. An intermediate signal box for Abbey Lane sidings, which has Distant, Home and Starting signals in both directions, is only open for short periods and was closed at the time of the accident.

Leicester Central station is between Leicester Passenger North and South boxes which are about 600 yards apart. Between the boxes there are the Up and Down Fast lines on either side of the island platform, and three additional Up lines and two more Down lines. Permissive working is authorised between the boxes.

The Up Inner Home signals at Leicester Passenger North box for the Fast, Slow and Goods lines are close to the box and are the section signals for the block to the South box; the single Up Outer Home signal is about 530 yards away. The directing Inner Distant signals for the Fast and Slow lines are another 500 yards towards Belgrave and Birstall, on the same bracketed post as the Starting signal for Abbey Lane, and the Outer Distant signal is 840 yards beyond. All these signals are semaphores. A berth track circuit, which is indicated in the box, extends from a point 207 yards on the approach side of the Up Outer Home signal for 470 yards beyond it, and to within 15 yards of the post supporting the Home signals.

The gradient falls generally from Belgrave and Birstall through Abbey Lane, but for the last $\frac{1}{4}$ mile or so to Leicester Passenger North box it rises at 1 in 176. On the Leicester side of Abbey Lane the line is on a high embankment leading to a viaduct nearly $\frac{1}{2}$ mile long which crosses the River Soar, the Grand Junction Canal and a number of roads, and extends to Leicester Passenger North signal box. A gradual left handed curve on the embankment changes to right handed over the viaduct, where there are a number of through girder spans which tend to curtail the view from the signal box as well as from the footplate.

The trains

The freight train (No. 271) consisted of 17 vacuum braked wagons and a brake van, weighing about 240 tons, drawn by a class V.2 engine weighing 145 tons. The length over buffers was approximately 500 ft. The 6.20 a.m. Passenger train from Nottingham to Marylebone comprised 9 corridor coaches weighing 278 tons drawn by a class B.1 engine No. 61269, with 4-6-0 wheel arrangements and a 6-wheeled tender, weighing 123 tons. This class of engine is equipped with the steam brake and is driven from the left hand side. The length of the train over buffers was 627 ft. and the combined brake power of the engine and coaches was 79% of the total weight of 401 tons.

Rules and Regulations

The system of train operation when block and telephone communication is interrupted, is authorised in Regulation 25 of the Regulations for Train Signalling, and the relevant instructions to drivers and guards when working under this system are contained in Rules 38, 56 and 127 of the Rule Book. The extracts applicable in this case read as follows:—

Regulations for Train Signalling

Regulation 25.—Failure of Instruments, Bells or Gongs.—In the event of any failure of the block instruments, bells or gongs, so that the necessary signals cannot be forwarded and received in the ordinary way, the following instructions must be observed:—

- (a)(i) a train must not in any circumstances be allowed to pass a signal box into that section of the line where the failure exists without being previously brought to a stand, and the Driver and Rear Guard, also the Driver of an engine assisting in rear, if any, advised of the failure. The Driver or Drivers must, in addition, be instructed to proceed cautiously through the section.

.....

- (a)(iii) When the bells or gongs only, or bells, gongs and block instruments have failed and a speaking instrument is available, the Signaller must, unless instructions to the contrary are given, send the necessary bell signals as messages on the speaking instrument,

A train must not be allowed to enter the section until the Is Line Clear signal has been accepted by the Signaller in advance.

.....

- (a)(iv) When the bells or gongs have failed, and speaking instruments are not available, a train must not be allowed to follow another train until the time usually taken by the preceding train to clear the section, after allowing for the train having been stopped, has elapsed, but in no case with a less interval than three minutes. When a tunnel intervenes in a block section an interval of not less than ten minutes must be allowed between two trains, unless the signaller can satisfy himself that the tunnel is clear.

.....

- (g) When trains are being worked in accordance with Clause (a), paragraph (iv), all trains must be brought within the protection of the Home signal as promptly as possible, and to obviate a train standing with its rear portion outside the Home Signal, the Signaller must, if necessary, authorise the Driver to draw forward a sufficient distance to bring the rear portion within the Home Signal.

Rule Book

Rule 38 (b) Home signals where starting signals are not provided, starting signals where advanced starting signals are not provided, and advanced starting signals, control the entrance of trains into the section ahead, and must not be passed at Danger except as follows:—

Exceptions

- (i) }
to } (Not applicable to the circumstances of this accident).
(xii) }

(xiii) When a train is required to enter a section during failure of instruments and/or bells and the Driver is instructed verbally by the Signaller (Block Regulation 25).

Rule 56 On lines used by passenger trains, when Train men have been advised . . . that trains are being worked on the time interval system

(a)

- (b) During fog or falling snow, should a train be delayed due to the outermost signal being at danger, the Guard must immediately apply the brake and go back not less than 100 yards in rear of his train and protect it by placing one detonator on the rail. After doing so he must at once rejoin his train

Rule 127 The Driver must—

- (xxiii) When informed by the Signaller that the block apparatus has failed and permission has been given for the train to go forward, proceed cautiously as there may be an obstruction on the line or the section may be occupied by one or more trains. He must also not assume on approaching the signal box ahead that the fact of the signals being in the Clear position is an indication that the line is clear for his train.

REPORT

There was a heavy fall of snow during the night of the 18th/19th February which broke the telegraph and telephone wires and stopped communication between signal boxes at a number of places on the line between Nottingham and Leicester. Breaks occurred in the telephone wires at about 5.10 a.m. between Ruddington (the first station after Nottingham) and Gotham and between Swithland and Belgrave and Birstall, and both the Block telegraph and telephone wires were broken at 5.18 a.m. between that signal box and Leicester North box. Communication between Leicester North and South boxes was normal.

Signalman P. H. Gibbs, who had taken duty in Belgrave and Birstall box shortly after 6.0 a.m., continued the time interval system of sending forward trains to Leicester which had been instituted by his predecessor, whose last action before handing over had been to send forward Up freight train No. 3025 at 6.02 a.m. Gibbs sent forward the next freight train No. 3005 at 6.42 a.m. and No. 271 (the one involved in the collision) at 6.55 a.m. He stopped both these trains at his box and instructed the driver and guard of each that the wires were broken and that they were to proceed at caution under the time interval system, and that they must pass the Starting signal at danger. He could not lower this signal as it was locked by the Block. He said that the tail lamp of No. 271 was showing a good light.

The next Up train was the 6.20 a.m. passenger train which stopped at the platform at 7.28 a.m. Gibbs told Porter A. W. Pentelow to advise the guard and driver that the block had failed and that they were to proceed under the time interval system and pass the Starter at danger. This instruction was given so that he would not have to stop the train again at his signal box after it had started from the platform; it was in accordance with directions given to him by the station-master. He knew Pentelow well and was satisfied that he had understood the instructions. The passenger train left at 7.29 or 7.30 a.m. Snow was driving from the North during the whole of this time.

Porter Pentelow confirmed that he had received the instructions from Gibbs, though he thought that they had been given to him rather earlier than the time that Gibbs had said. He believed, however, when he warned the guard and driver of the passenger train, that he might have omitted to say that the train was to proceed under the time interval system, though he was sure he had said that it was to pass the Starter at danger, and had emphasised that the driver must proceed at caution. He said that he "understood that the crew had been warned all the way from Ruddington". Pentelow was obviously honest and conscientious; he had walked 4 miles through the snow that morning to attend duty and had arrived early for work.

The first of these Up freight trains (No. 3025) arrived at Leicester Passenger North Inner Home signal at 6.15 a.m., 13 minutes after leaving Belgrave and Birstall. It was held there until 7.19 a.m. because of the derailment of a light engine at Leicester Passenger South box, which blocked the outlet from the Up lines at that end of the station. The signalmen at the two Leicester Passenger boxes might have arranged for the train to go into the station on one of the Up lines but did not do so, nor was it signalled forward promptly after the obstruction was cleared at 7.6 a.m., for insufficient reasons which will be discussed later on. The second Up freight train (No. 3005), an unfitted mineral train, arrived at the Outer Home signal at about 6.55 a.m. and was held there until 7.23 a.m. when it was signalled forward past the North box after the previous train had passed the South box. The third train (No. 271) arrived behind the second one while it was still at the Outer Home signal at about 7.03 a.m.

It was quite clear from the evidence of the drivers of the second and third freight trains that they had been properly warned by Signalman Gibbs and that they thoroughly understood the conditions under which they were entering the block section. Guard W. G. Gowing of train No. 271 had also received the instructions clearly and he was prompt in protecting the train; he could see that there was a train standing ahead, and he walked forward between the Up and Down lines to meet the fireman and told him that he was going back to place a detonator at 100 yards distance in rear. Gowing said that he placed one detonator on the rail nearest to the Down line close to a girder bridge about 50 yards on the approach side of the Inner Distant signals, and then went back to his brake van. He said that there was about one foot of snow on the ground. The fireman had gone forward after meeting the guard to notify the presence of the train to the signalmen and did not therefore see the guard going back, but Driver J. F. Oakhill of No. 271 said that he saw the guard returning to the brake van after he had gone back to protect the train.

No. 271 moved forward to the Outer Home signal after the train in front had gone, and the signal was lowered for it in turn at about 7.31 a.m. The rear of the train was about 150 yards past the signal when the fireman, who was looking back, saw the engine of the passenger train come into sight through the storm and shouted to the driver to open the regulator, just before the collision occurred at about 7.34 a.m. Guard Gowing was looking out from his van and saw the engine of the passenger train in time to jump clear from the slowly moving van into the Down line before the collision. He did not fall over on landing. The freight train became divided between the ninth and tenth vehicles and the last eight wagons and the brake van were damaged, some severely, before both trains came to a stop in about 45 yards. The damage to the engine of the passenger train was not heavy.

Driver A. Chafer of the passenger train said that his engine was in good trim and the brakes were satisfactory. He was told by Porter Pentelow at Belgrave and Birstall that there was a block failure and that he was to pass the Starting signal at danger and travel at caution to Leicester, but he was not told that there was a total block failure and that the train was proceeding under the time interval system. He said Pentelow had been shouting something as he came towards the engine along the snow covered platform, which was on the fireman's side, and he had told the fireman to call him to the footplate to deliver the message properly. He had then made Pentelow repeat the instructions.

Visibility varied during the run according to the density of the falling snow, but Chafer said that he saw the Outer Distant and then the Inner Distant signals at caution at about 200 yards range, and he checked the train with a partial brake application. He had closed the regulator some time earlier. Owing to the right handed curvature of the line the Outer Home signal first became visible to the fireman, who told him that he had seen it, and that it was off, so Chafer did not apply the brake again; he thought the train was travelling at about 20 m.p.h. He then saw the signal from his side of the engine, and also was aware that the fireman had turned to put on the injector. A few moments later, as the engine was pass-

ing the signal, his fireman looked ahead again from the right hand side of the footplate and saw the brake van of the freight train and shouted a warning. Chafer on the left hand side could not see the brake van owing to the curvature, but he made a full application of the brake; it had taken effect before the collision occurred.

Chafer insisted that he was not misled by the Outer Home signal for Leicester Passenger North box being off, and did not assume when he saw it in that position that the line was clear for his train as far as the Inner Home signal. He added, however, that he could have stopped if the signal had been at danger. He had not heard a detonator explode, and said so to Guard Gowing who asked him a short time after the accident. The distance from the place where Gowing said he had placed the detonator to the point of the accident is about 750 yards. Some time later Gowing went to the site and found an explosion mark on the rails; it was not, however, verified independently.

Fireman K. G. Issett of the passenger train was quite clear that the information given by the porter conveyed the meaning that there was a block failure between Belgrave and Birstall and Leicester Passenger North signal boxes, and that the train must proceed at caution after passing the Starting signal at danger. He was sure that the speed was much less than normal, and estimated it to be about 20 m.p.h. He saw all the signals at Abbey Lane, and the Outer Distant and Inner Distant for Leicester Passenger North at caution, but did not hear a detonator. He then saw the Outer Home in the off position from a distance of about 150 yards and moved across the footplate to put on the injector which was behind the driver's position. He said that he had returned to his side of the engine and was looking forward again before the brake van of the freight train came into view about 100 yards ahead. He believed that the driver applied the brake as soon as he shouted.

After the collision appropriate action was taken to protect both lines and to conduct the passengers to the station.

Signalman R. H. Cooper had been on the night shift at Leicester Passenger North box and had stayed over time after 6.0 a.m. until about 7.15 a.m. when Signalman J. C. Vokes arrived. Vokes said in evidence that he had been delayed by the storm. Neither of these men signed the Block Register when changing duty, as required by the rules, and Signalman Cooper said that they were not accustomed to record the time of handing over. Both men had worked at the box for a number of years. As a consequence of Vokes' late arrival Cooper was working after his allotted hours of duty awaiting relief, while Signalman R. H. Vincent at Leicester Passenger South box, who had reported for duty at 5.55 a.m., was at the beginning of his shift. Vincent also had worked at his signal box for a number of years, and all three men knew very well from experience that it was customary for a number of Up freight trains to run through Leicester during the early morning hours.

Vincent sent the "Obstruction Danger" signal to Leicester Passenger North box at 6.01 a.m. when a light engine became derailed opposite his box, blocking the connections from the Up lines at the South end of the station. After train No. 3025 had arrived at the North box Inner Home signal at 6.15 a.m., Cooper spoke on the telephone to Vincent, who had been told of the total failure of communications between Belgrave and Birstall and Leicester Passenger North boxes, about the possibility of signalling it forward up to the South box Home signal on the Up Slow or Up Goods line, but they decided that the lines should be left clear in case either was required for the breakdown vans. Cooper apparently did not press the matter in any way, nor did he suggest taking the train into the Up loop line. When asked why, he said that the train might have been too long for it and he did not know whether any of the points would work in the snow. He did not however try the points. He said that he had not asked for snow duty men or flagmen as he knew that none would be available for his end of the yard. He also said that as he had no means of communication with Belgrave and Birstall he did not know what trains there were in the section.

The light engine was re-railled at 7.06 a.m. but Vincent still did not accept No. 3025 until 7.17 a.m. while he was waiting to hear what the Motive Power staff proposed to do to the engine. This was just after the hand over from Cooper to Vokes who pulled off the Inner Home signal at the North box for No. 3025 at about 7.18 a.m. and the Outer Home signal for No. 3005 which had been standing at it for half an hour at about 7.23 a.m., after the first train had passed the South box. He could, and should, have pulled off this signal a minute or two earlier to bring the train within its protection as soon as No. 3025 had passed his box, and he could also have operated the signal again some minutes earlier than 7.31 a.m. for No. 271, since he recorded Train Entering Section for No. 3005 to South box at 7.25 a.m., though he said later that it passed his box at 7.28 a.m. If he had operated the signal at the earliest possible moment No. 271 might have arrived within sight of the box and the Outer Home signal have been restored to danger before the passenger train reached it.

CONCLUSION

I am satisfied that Driver Chafer was adequately warned at Belgrave and Birstall. I accept his statement that Porter Pentelow did not tell him that time interval working was in force; Chafer should have been told this as it affected the protecting action which his fireman was required to take if the train was stopped outside the Home signal. He was told however that there was a block failure and that he was to pass the Starting signal at danger and proceed at caution and be prepared to stop short of any obstruction.

The result of the collision, and the distance of 45 yards taken by the passenger train in coming to a stand with the brakes fully applied after it happened, suggest that the speed must have been at least 30 m.p.h. before braking. This is confirmed by the time of not more than 5 minutes taken to travel the distance of $1\frac{1}{2}$ miles from a start at Belgrave and Birstall to the point of the collision. Visibility, from all accounts, varied between about 100 yards and 250 yards, and I consider that the speed was excessive in the circumstances.

I accept Guard Gowing's statement that he placed a detonator on the rail in rear of his train. It will be apparent though that in these special conditions of working the single detonator placed 100 yards in rear of a halted train is a further precaution to advertise its presence to the driver of the following train, who should in any case be exercising special vigilance and caution. The detonator cannot be lifted before the halted train moves forward, and the message it gives to the driver of the following train is therefore ambiguous though it is of some service as a warning. On this occasion the noise of the detonator may have been blanketed by the snow.

I have no doubt that Driver Chafer allowed himself to be misled when the fireman told him that the Outer Home signal was off, into thinking that the line was clear for his train, though he denied it. Had the signal been at danger he would have applied the brake earlier and his train would then have stopped short of No. 271 ahead, though it would have overrun the signal.

The prime responsibility for this accident rests therefore on Driver Chafer who failed to exercise sufficient care, when running at caution under block failure conditions, in a heavy snow storm. I am of the opinion, however, that Signalmen Cooper and Vokes cannot escape criticism since, if they had shown more initiative and had made a sustained effort to carry out Regulation 25 (g) to bring trains promptly within the protection of the Home signal, the immediate conditions under which the accident occurred might not have arisen.

REMARKS

The system of train operation when block and telephone communication is interrupted has stood the test of time well, and the few accidents that have occurred have, in general, been due to insufficient caution and excessive speed by drivers combined with some unforeseen circumstance or distraction. In the collision near Hatfield in 1939 there were four passenger trains outside the Home signal extending back an unexpected distance towards Welwyn Garden City; at Alloa Junction in 1951 the distant signal had failed in the clear position, and on this occasion the Outer Home signal was in the clear position when seen by the fireman of the passenger train. This undoubtedly contributed to the accident, although the rule is plain that a driver must not assume when running under block failure conditions, that a signal in the clear position is an indication that the line is clear for his train. Long habit in the observance of signals, however, may well lull a driver into a false sense of security for a few moments when he sees the first stop signal at the end of the block section at clear without any obstruction in view ahead of it.

It would be possible in a number of ways to reduce the chance of a stop signal being in the clear position in such circumstances, but each method gives rise to difficulties in other directions. It must be recognised that train operating when there is a block failure is inherently less safe than normal working, and that unremitting vigilance by enginemen is vital when running at caution under block failure conditions. The rarity of accidents on these occasions shows that drivers in general are fully alive to their responsibilities in this respect.

Instances of total failure of communication between signal boxes due to broken block and telephone lines are very infrequent and do not of themselves justify any change in the normal method of carrying the wires on poles. Cabling is, however, being substituted for suspended wires in major re-signalling schemes and where electrification is being carried out, and the chances of storm damage will therefore diminish as the electrification programme is extended.

I have the honour to be,

Sir,

Your obedient Servant,

W. P. REED,

Colonel.

The Secretary,

Ministry of Transport and Civil Aviation.

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