DEPARTMENT OF TRANSPORT

RAILWAY ACCIDENT

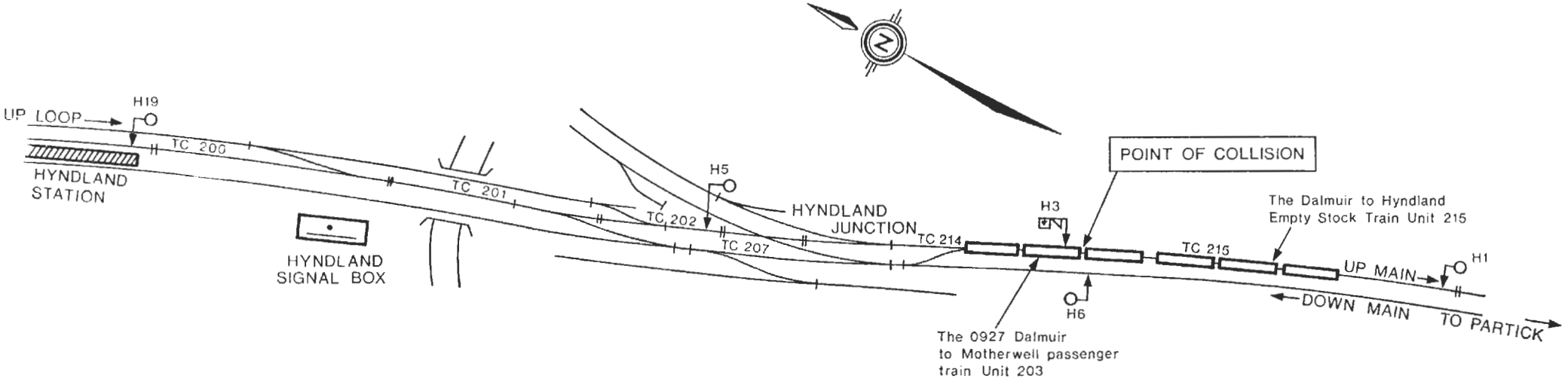
Report on the Collision that occurred on 5th June 1980 at Hyndland Junction, near Glasgow

IN THE
SCOTTISH REGION
BRITISH RAILWAYS

LONDON: HER MAJESTY'S STATIONERY OFFICE

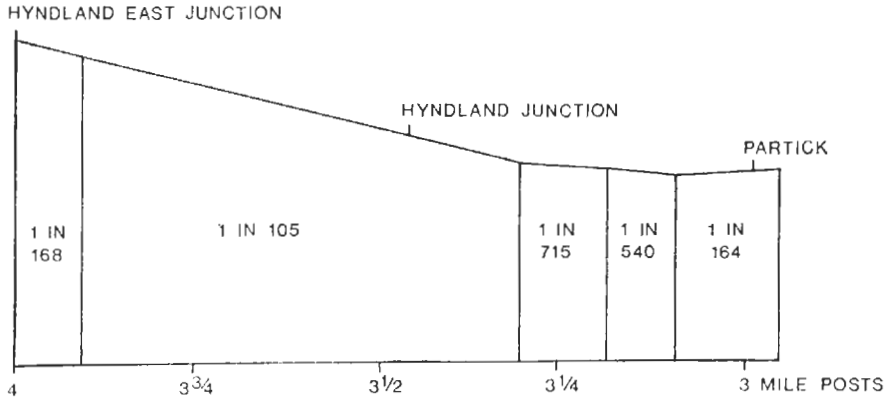
£2.20 net

COLLISION AT HYNDLAND JUNCTION ON 5 JUNE 1980

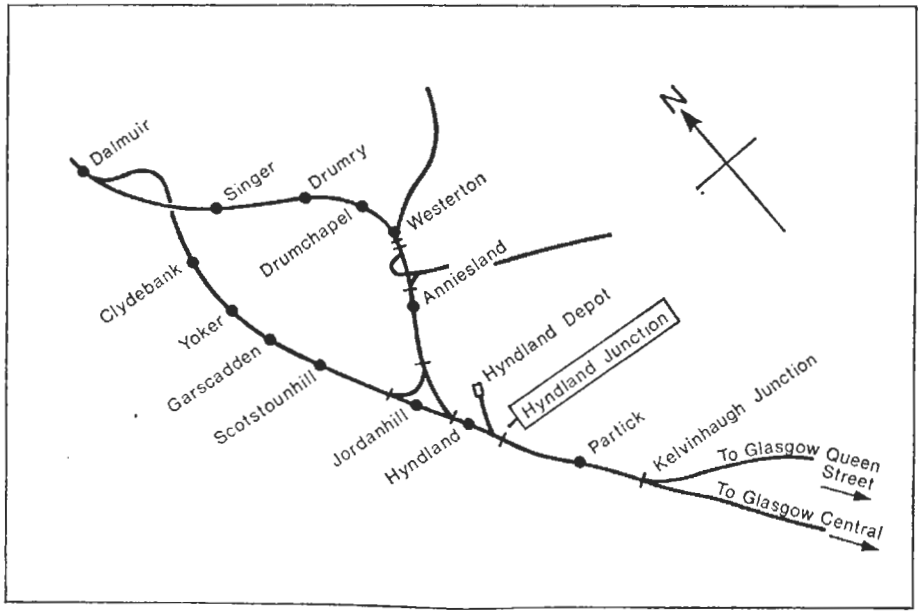


PLAN SHOWING THE POSITION IN WHICH THE TRAINS CAME TO REST AFTER THE COLLISION

NOT TO SCALE



GRADIENT DIAGRAM



LOCATION DIAGRAM

RAILWAY INSPECTORATE,
DEPARTMENT OF TRANSPORT,
2 MARSHAM STREET,
LONDON SW1P 3EB.
26th February 1981.

SIR,

I have the honour to report, for the information of the Secretary of State, in accordance with the Direction dated 10th June 1980, the result of my Inquiry into the collision between a passenger train and an empty coaching stock train that occurred at about 10.25 on Thursday, 5th June 1980 at Hyndland Junction, near Glasgow, in the Scottish Region of British Railways.

During the early morning of 5th June a signalling failure occurred in the Hyndland area. The trouble was put right soon after 09.00, but by mid morning the earlier disruption to traffic was still affecting train services. One effect was the cancellation of the 08.57 Dalmuir to Motherwell service, and the train that was to have formed this service was worked empty from Dalmuir to Hyndland Junction. There it came to a stand on the Up Main line to await clearance of the signal for its reverse move into Hyndland Depot. At about this time, a transient fault led to the disappearance from the Hyndland signalling panel of the train description for the empty stock train. The signalman, who was working under some pressure, was unsure whether the track-circuit occupation shown on his diagram represented the empty stock train or a failure of the track-circuit. He therefore requested the driver of a Down train to examine the line, but his instructions were not precise and as a result the driver reported the line clear. Satisfied that the occupation was due to a track-circuit failure and not to a train, the signalman authorised the driver of the 09.27 Dalmuir to Motherwell passenger train, which was running late, to pass the protecting signal at Danger. The driver accelerated his train to between 25 and 30 mile/h, even though his forward visibility was severely limited by the curvature of the line, and he was thus unable to prevent his train colliding violently with the empty stock train, which was propelled forward some 18 metres.

The signalman was immediately advised of the collision and the emergency services were quickly on the scene. Thirty-five passengers and three members of the train crews were taken to hospital, where five passengers were detained. Extensive damage was caused to both trains, each a 3-car unit of the newly introduced Class 314 stock, and one pair of wheels on each train was derailed. Re-railing was completed by 11.40 and, following removal of the trains and temporary repairs to the track, the line was re-opened at 13.26.

The weather at the time of the accident was wet and thundery but visibility was not unduly restricted.

DESCRIPTION

The Site and Signalling

1. Hyndland Junction is situated between Partick and Hyndland Stations on the line from Glasgow Central (the Argyle Line) and Glasgow Queen Street to Helensburgh. It is located some 500 m on the Glasgow side of Hyndland Station, and Hyndland Signal Box is situated between the station and the junction, the distance between the signal box and the junction being about 300 m. The junction provides access to and exit from Hyndland Depot via Arrival and Departure lines, the latter being signalled for bi-directional working. The Main line is classified C2 with a permanent speed restriction of 40 mile/h over the Up and Down lines. A permanent speed restriction of 15 mile/h applies through Hyndland Junction from the Down line towards the Depot. The driver of the 09.27 train was instructed to pass Signal H 5 at Danger. From this signal, the Up line follows a left-hand curve of 392 m radius up to the point of collision, and falls at a gradient of 1 in 105. All the lines concerned are electrified on the overhead system at 25 kV.

2. The signalling in the vicinity of Hyndland Junction is of modern design, dating from 1960, with multiple-aspect colour-light signals and the standard British Railways Automatic Warning System (AWS). Track Circuit Block Regulations apply and control of the signalling in the area is exercised from Hyndland Signal Box which is equipped with two separate control panels of the entrance-exit type. One of these two panels (No. 1) was installed at the time of the resignalling. The routes on this panel are operated by turning a switch at the route entrance and subsequently pressing the button at the route exit. The second panel (No. 2) was installed in 1979 and it controls the Argyle line with the junctions at Finnieston East and West. The routes on this panel are operated by pressing a button at the route entrance and subsequently pressing a button at the route exit. Each panel is operated by one signalman. Train description on both panels is of the 4-digit Alpha type (which is route but not train specific) except on the Argyle line, which is Alpha-numeric. The train describer displays on Panel 1 are positioned in a separate indication panel, but on Panel

2 the displays are located adjacent to the relative signal. The train describer displays on Panel 1 extend to Westerton Junction on the Anniesland line and to Clydebank Dock Junction on the Jordanhill line. There is a third panel on the operating floor which is used only in connection with the provision of passenger information. Train descriptions are keyed into this system as the trains approach the Hyndland control area to enable train destinations to be displayed automatically at the approaching stations as each train proceeds through the controlled area.

3. The drawing at the front of the report shows the general layout of the lines and signals.

The Trains

4. Both trains were formed of Class 314 electric multiple-unit stock. The empty train, Dalmuir to Hyndland, comprised unit 215, and 2F13, the 09.27 Dalmuir to Motherwell, comprised unit 203. Both units were marshalled Driving Motor Second, Trailer Second, Driving Motor Second, the coaches being coupled together by 'Tightlock' automatic couplers. Each train was 60.8 m in length, weighed 103 tonnes, and had an average brake force of 48 tonnes.

Evidence

5. *Driver J. Nimmo*, based at Bridgeton, was driving a train of empty coaches from Bridgeton to Hyndland depot and arrived at Signal H 6, which was at Danger, at about 10.15. When he stopped at the signal, his cab was opposite that of a train on the Up line which was standing at Signal H 3, also waiting to go into the Depot. He spoke to the driver of this train, Driver Eadie, whom he knew. Eadie did not say how long he had been waiting, nor whether he had contacted the signalman; he remained in his cab during the whole time that Nimmo was at Signal H 6. About a minute after arriving, Nimmo went to the telephone at Signal H 6 and reported that he was the driver of the empty coaches from Bridgeton, standing at Signal H 6 and waiting to proceed into Hyndland Depot. The signalman told him to await clearance of the signal. Nimmo did not recognise the signalman's voice. He said that there was one signalman at Hyndland whose voice could always be recognised because he spoke with an English accent; he did not think it was this signalman to whom he spoke. About 30 seconds after he had returned to his cab, the signal cleared for a move into the depot and he started the train. Whilst going through the junction, he noticed a train at a stand at Signal H 5 on the Up line.

6. *Driver J. Gordon*, based at Bridgeton, was driving the 07.48 train from Dalmuir to Motherwell and the return service from Motherwell. The train arrived at Partick on the return journey at approximately 10.15, running nearly an hour late. The telephone at Signal H 4 was ringing and he answered it. He did not recognise the signalman's voice, but was sure that he had an English accent. The signalman informed him that his train was to terminate at Partick and afterwards continue as empty coaching stock to Hyndland Station. The telephone rang again as he was walking back to his train and the same signalman told him that there was a track-circuit failure "ahead of Signal H 1 on the opposite line", and asked him to check for any obstruction on this line and to report when he reached Signal H 6. Gordon interpreted "ahead of Signal H 1" as meaning ahead of the signal in the normal direction of travel on the Up line, that is the stretch of line between Signal H 1 and Partick Station.

7. On leaving Partick, he travelled at about 10 mile/h, keeping a close watch on the Up line. He saw nothing obstructing the track, and nothing that could have caused a track-circuit failure, and he stopped at Signal H 6 and telephoned the signalman, reporting the line clear. The signalman, the same one to whom he had spoken earlier, appeared satisfied with this and asked no further questions. Gordon exchanged a few words with Driver Eadie, whom he knew, and who was in the cab of a train standing on the Up line awaiting clearance of Signal H 3 before going into the depot. Signal H 6 then cleared and he continued towards Hyndland, noting that a train was standing at Signal H 5 on the Up line. The driver of this train was walking back to his cab from the signal having apparently just used the signal post telephone. Driver Gordon was quite sure that the signalman had not asked him to examine the line between Signals H 1 and H 5, nor whether there was a train on this section of the line; he himself had made no mention of the train standing at Signal H 3 when he spoke to the signalman.

8. *Driver J. Eadie*, based at Hyndland Depot, had booked on duty at 22.55 on Wednesday, 4th June. He was due to finish duty at 10.55 on Thursday, 5th June, but at about 01.00 he was asked by Control whether he would be prepared to stay on beyond this time and cover another turn. He agreed to do this. The additional turn included driving the 08.57 passenger train from Dalmuir to Motherwell but, because of the disruption to traffic, this service was cancelled. Eadie agreed to drive the empty stock to Hyndland Depot, where he would book off duty. After a slow journey, with many signal checks, the train arrived at Hyndland shortly after 10.00. Signal H 5 was showing a single yellow aspect and Signal H 1 was at Danger.

Eadie stopped with the rear of the train inside Signal H 3 with the rear cab about half a coach length from the signal. He then changed ends, joining his guard in the other cab where he inserted the control key, placed the controller to the neutral position and applied the 'Westcode' brake. Signal H 3 remained at red, and after about 2 minutes another train arrived alongside on the Down line and stopped at Signal H 6. Eadie spoke to the driver of this train, Driver Nimmo, their conversation being limited to the extra turn that Eadie had undertaken. He could not remember whether Nimmo had gone to telephone the signalman or not, but soon afterwards Signal H 6 cleared for the depot and Nimmo's train moved off.

9. About 5 minutes after arriving in the cab nearest to Signal H 3, Eadie went to the telephone at this signal and informed the Hyndland signalman that he was "the empties off Dalmuir for the depot" and identifying the signal from which he was speaking. The signalman replied "Jesus, I forgot all about you". He made no other response, so Eadie replaced the receiver, returned to the cab and informed his guard what the signalman had said. He had recognised the signalman by his voice and English accent as one he had often spoken to in the past. He said that this signalman was usually calm and the expression he had used seemed out of character. Soon afterwards another train arrived alongside and stopped at Signal H 6. Eadie exchanged a few words with its driver, Driver Gordon, but again he could not recall whether Gordon had made a telephone call from the signal or not. Signal H 6 then cleared and Gordon's train moved off towards Hyndland. Some time after this, Eadie got down from the cab and went to Signal H 3. He picked up the receiver, but before he could speak to the signalman he saw a train approaching on the Up line at a speed he estimated as between 25 and 30 mile/h. The train was already very close and he recognised the driver in the front cab as Driver Rodger. He tried to attact his attention, but it was much too late and he jumped down the embankment only a second or two before the collision. After the collision, he telephoned the signalman, reported the facts and asked for the emergency services to be called. He then went into the passenger train, obtained track-circuit operating clips and placed them on the Down line in rear of Signal H 6, assisted by a signalman who had been travelling on the passenger train.

10. In giving his evidence, Driver Eadie seemed unsure about the sequence of events, in particular about the length of time that had elapsed before he reported his presence at Signal H 3 to the signalman, and whether this telephone call had been made before or after Driver Nimmo's train had been signalled into the depot.

11. *Guard A. Crawford*, of Bridgeton, was the guard on the empty stock train driven by Driver Eadie. He had travelled in the rear cab during the journey from Dalmuir to Hyndland. He confirmed Eadie's description of their arrival at Signal H 3, except that he thought the train stopped with the rear cab only some 6 ft away from the signal. On arrival, he switched off the twin red tail lights and switched on the twin white marker lights. After a few minutes Driver Nimmo's train arrived alongside, and about 2 minutes later Crawford saw Nimmo go to the telephone at Signal H 6 and speak to the signalman. Soon afterwards Nimmo's train went on into the depot. Some time later, about 10 minutes after they had arrived at Signal H 3, Driver Eadie went to the telephone at Signal H 3. Crawford heard him say "This is the Dalmuir empties for the depot", but he could not be sure whether he quoted the signal number or not. Eadie then returned to the cab and said that the signalman had forgotten all about them. About 5 minutes later Eadie went again to the telephone but as he reached it Crawford saw the other train approaching round the curve at about 20 mile/h. Eadie shouted out "Stop him!" but Crawford had time only to get back into the passenger compartment before the collision occurred. After the collision he went into the other train, checked that its driver was not seriously hurt, and then telephoned the signalman, who already knew about the accident. He then went to protect the obstruction.

12. *Driver J. C. Rodger*, based at Bridgeton, had been a driver for about 18 months and a driver's assistant for some 6 years before that. On the day of the accident he booked on duty at 07.40 and travelled as a passenger to Dalmuir where he carried out some shunting. He then took charge of the 09.27 Dalmuir to Motherwell train, which is routed via Singer and stops at all stations. As a result of the earlier signalling failure he was delayed along the route, arriving at Hyndland Station over 30 minutes late. Signal H 19, which is at the end of the platform, cleared to a single yellow and the next signal, Signal H 5, was at Danger. After stopping at this signal he waited for two to three minutes and then telephoned the signalman, reporting that he was the Motherwell train standing at Signal H 5. The signalman, who had a distinct English accent, told him to pass the signal at Danger and to obey all other signals. He was not instructed to proceed with caution nor was he told why it was necessary for the signal to be passed at Danger. In view of the late running caused by the earlier signalling failures, he assumed that this was part of the same trouble. He could not remember whether he had repeated the signalman's instructions or not.

13. He rejoined the train and started off and accelerated up to about 25 mile/h. Rounding the curve through the junction, he became aware of another train ahead. He thought at first that it was on the opposite line but then realised that it was on his line and that he was fast approaching it. He released the Driver's Safety Device, which caused an immediate emergency application of the brakes, and went back into the passenger compartment where he warned the dozen or so passengers to brace themselves for a collision.

The collision happened seconds later and he was thrown to the floor, injuring his back. Driver Rodger admitted that he had been fully aware at the time of the requirements of Rule E.8.1, which requires a driver to proceed with caution when instructed to pass a signal at Danger. He had thought at the time that it was safe to take the train up to 25 mile/h but after the accident he had realised that this was an excessive speed in view of the strictly limited visibility due to the sharp curvature of the line.

14. *Signalman R. Collins* was the signalman with the English accent referred to by the drivers. He had been a signalman for about 25 years and had worked in Hyndland Signal Box since 20th February 1980. Before that he had worked for some 6 years at Greenhill Junction, on the Glasgow to Edinburgh line. During his time at Hyndland he had had no difficulty in operating the panel but there had been problems with the transmission of train descriptions from Westerton; occasionally one of these would be correctly transmitted to Hyndland from Westerton but would then 'disappear'. The fault, which was intermittent, had been reported but had not been cured. There had also been occasional track-circuit failures but not an abnormal number.

15. On the day of the accident, Collins had started work at 07.40. He was in sole charge of No. 1 panel until the accident happened. Throughout the morning trains were running late or being terminated or cancelled due to the earlier signalling fault and he described the conditions as "terrible". Early in his shift some of the train descriptions coming through from Westerton appeared in the 'Leaving Westerton' berth but then failed to step forward into the berth of Signal 73. This had happened before and, as on these previous occasions, he reinstated the descriptions at either Signal 59 or 31, these being the only locations on No. 1 panel where he could reinstate them. At about 10.15 he had indications of trains standing at many of the signals on his panel and was doing his best to keep traffic moving. He noticed that track circuit 215, between Signals H 3 and H 1, was showing occupied but, so far as he could remember, there was no corresponding description in the signal berth. He had an idea that a train had been signalled through on to that section of line and he asked his colleague on No. 2 panel, Signalman Walker, whether he could remember one going through but Walker could not be sure. Collins did not think to telephone to the next signal box ahead, nor did he ask the signalman operating the public address panel whether his panel showed a train on that section of line. Instead he contacted Driver Gordon at Partick and, after telling him that there was a track-circuit failure on the opposite line, asked him to examine the line between Signals H 1 and H 5 and report the situation when he arrived at Signal H 6. He was certain that he had not used the phrase "ahead of" in relation to any of the signals.

16. Before Driver Gordon could report, the driver of the 09.27 Dalmuir to Motherwell train (Driver Rodger) telephoned from Signal H 5. This train was correctly described in the signal berth. Collins asked him to await clearance of the signal. Shortly afterwards, Gordon reported from Signal H 6 that the opposite line appeared to be clear and Collins recalled Rodger to the telephone at H 5. He told him that there was a track-circuit failure ahead and that he was to pass the signal at Danger and proceed with caution. He thought that he had also told Rodger to be prepared to stop short of any obstruction and to obey all other signals, but he could not be sure of this. Nor could he remember whether Rodger repeated the message or not. Soon afterwards, someone telephoned from Signal H 3 to say that there had been a collision. The caller, who did not identify himself, added "What the hell are you doing running a train down on top of us". Collins handed the telephone to an Inspector, who had just arrived on the operating floor, and replaced his signals on the Down line.

17. Having listened to the drivers' evidence, Collins accepted that he must have received a telephone call from Driver Nimmo at Signal H 6 and have subsequently signalled his train into the depot, although he had no recollection at all of having done so. He was positive, however, that he had not received a telephone call from signal H 3 until the one that reported the collision. He was equally positive that he had not confused the two trains—Driver Nimmo's and the 'missing' one—and, having signalled Nimmo's train into the depot, become satisfied that the missing train had been found and cleared from the main line.

18. *Signalman J. Walker*, who had worked at Hyndland Signal Box for the past two years, had started his tour of duty at 06.30 and was operating No. 2 panel. At about 06.46, a signalling fault affected all the indications on the Argyle line. This was rectified at about 09.18 but traffic remained disrupted and Walker described conditions as the worst he had ever seen. At about 10.05 he received from Westerton a train described for Airdrie and accordingly set the route for Queen Street. Soon afterwards the driver of this train telephoned from beyond Partick to say that he was wrongly routed since his destination was Lanark. Walker re-set the route but then found that he could not cancel the train description for the wrongly routed train. He therefore telephoned Mr. Dickson, the Technician Officer at Hyndland, who came to the box. All this had occupied about 10 minutes and during this time he had been busy signalling other trains. Signalman Collins then asked him whether he could remember a set of empty coaches going to High Street for Bridgeton Depot. Walker remembered that this train had been described from Westerton but that its description had become lost at Signal 73 and that Signalman Pearce, who was operating the public address panel, had identified it and told Collins to reimpose it as a CE (empty stock train) at Signal 59. He could not, however, remember signalling this train and said as much to Collins.

19. During the course of the discussion about the apparently 'missing' empty stock train, Walker noticed that track circuit 215 was showing occupied whilst there was no train description in the berth of Signal H 1. It was after this that Collins decided to have the line examined. Walker did not hear Collins speak to Driver Gordon at Partick but shortly afterwards he heard him call out that the line was clear. He then overheard Collins speaking to a driver and heard him instruct the driver to pass a signal at Danger and to proceed with caution because there was a track-circuit failure ahead. At various times he had heard Collins speaking to drivers on the telephone and telling them to await the clearance of signals but he did not think that any such call had come from Signal H 3. He had not himself answered any telephone calls on No. 1 panel.

20. *Relief Signalman R. Pearce* was operating the Passenger Information Panel in Hyndland Signal Box. As far as the Up line was concerned, he would see the description (in alphabetical code) of trains coming from Westerton on the main panel and would then enter them in numeric code on his own panel. He was aware that train descriptions would sometimes disappear from the main panel but when this had happened in the past the corresponding numeric code had always remained either displayed on or stored in his panel. Shortly after 10.00 on the day of the accident an empty coaching stock train was described from Westerton on the main panel as a CEBB, which meant that it was destined for Bridgeton, and he entered the corresponding code number, 64, on his panel. The description stepped forward on the main panel but then disappeared from the berth of Signal 73. Pearce called out the description to Signalman Collins, who reimposed it at either Signal 59 or 31 as a CEHE—an empty stock train proceeding to High Street.

21. Shortly afterwards, Pearce overheard a conversation between the two signalmen about 'empties' and reference to the fact that track circuit 215 was showing occupied. He looked at the main panel and saw that there was no train description in the berth of Signal H 1. His own panel likewise showed no train in the 'first train' Partick berth although the passenger train standing at Signal H 5 was displayed in the 'second train' berth. He could not remember whether or not a train was shown on the Down line at this time. He next overheard Collins speaking to a driver, advising him that there was a track-circuit failure on the Up line, and requesting him to examine the opposite line and report at the next signal. He could not remember Collins referring specifically to the signals between which the opposite line was to be examined. When the driver reported the opposite line as clear it was accepted amongst them all that the occupied indication on track circuit 215 was a false one. Between then and the time of the collision the signalmen were speaking on the telephone to various drivers but he could not remember anything of what was said.

22. *S & T Technician Officer D. Dickson* was called to the operating floor of the signal box at about 09.45 and advised that train descriptions were being lost at the berth of Signal 73. He remained for about 10 minutes during which time 6 or 7 trains passed through with their descriptions stepping forward correctly. He was recalled at about 10.10 and assisted Signalman Walker who was having difficulty in transmitting a cancel code for a train that had been wrongly routed. He was about to leave when Signalman Collins advised him that there was a failure affecting track circuit 215. Before this he had gathered that there was some doubt whether an empty stock train had been signalled through or not. He checked that there was no description in the berth of Signal H 1 and then alerted the duty lineman. In the meantime Collins was arranging for the Up line to be examined; he could not recall the exact words used when Collins was speaking to the driver but he remembered Collins saying "Okay, mate, that's the line clear now" when the driver reported. He then heard Collins instruct a driver to pass a signal at Danger but he could not remember any details of what was said. Shortly afterwards he became aware that a collision had occurred and he noted the position of all the panel switches and the panel indications. The berth of Signal H 1 was now showing BEHL, the description of a Motherwell via Bellshill train; this was the description of Driver Rodger's train, which had stepped forward from Signal H 5. Mr. Dickson confirmed that he had not previously been advised of trouble with train descriptions dropping out at Signal 73 and that at the time of the accident the relay room was locked and secure with no-one working in it.

23. *Mr. J. A. Simpson*, the Maintenance Assistant in the Divisional S & T Engineer's Office at Partickhill, learned of the accident at about 10.30. He went to the site and checked the position of the relevant points and signals and, after the damaged trains had been removed, he carried out functional tests on all the signalling equipment involved, including the signal post telephones and the train describers. Everything seemed to be working as it should. Earlier, he had been involved in investigating the signalling fault that had led to the widespread disruption of train services. The cause of this fault had been found to be an unsoldered joint in the time division multiplex equipment in Hyndland Signal Box. It had been put right by 09.18 and Mr. Simpson confirmed that, apart from causing the late running of trains, this earlier fault had no connection with the circumstances of the accident. Mr. Simpson also confirmed that there was no record of previous trouble with track circuit 215, such as might have encouraged the signalmen to believe that the track circuit had failed.

24. Evidence on the subsequent testing of the train description system was given by *Mr. C. Hale*, the Chief Signal and Telecommunications Engineer, Scottish Region. It had been found that under a particular pattern of traffic, with 3 trains occupying successive signal berths between Westerton and Hyndland, it was possible for a train description to be correctly transmitted from Westerton to Hyndland but for it then to be deleted by the stepping forward, or the attempted stepping forward, of the description of the following train. This was not due to a malfunction of the equipment but was a feature of the design. The equipment had been installed, and tested, in 1960 but it was only comparatively recently, with the introduction of more intensive train services, that traffic conditions had arisen in which trains might occupy the 3 successive berths concerned. Even so, it would be a rare event and this explained why the loss of descriptions appeared to be a transient phenomenon. Mr. Hale reported that he was considering what might be done to eliminate the fault. Further details as to the action taken are given in paragraph 35.

25. Mr. Hale emphasised that the train description system is a valuable aid to the signalman but that it in no way controls or affects the signalling safety system. From the comprehensive tests carried out immediately after the accident, Mr. Hale was satisfied that the signalling equipment responsible for the safe running of trains through Hyndland Junction was in proper working order. He pointed out that track circuit 215 was correctly detecting and indicating the presence of a train and that the protecting signal, H 5, was correctly held at Danger by the occupation of the track circuit.

26. Technical evidence on the trains involved in the accident was given by *Mr. J. Bryceland*, Performance Engineer in the Chief Mechanical and Electrical Engineer's Department. The trains were examined immediately after the collision. On unit 215, Driver Eadie's train, the brake controller was in position 2 and both the forward/reverser and the power handle were in the off position. The brakes would have been fully on at the moment of collision. The head and marker lights and destination blind were switched on at the end nearest to Signal H 3 and the tail lights at this end were switched off. On unit 203, Driver Rodger's train, the brake controller was in the emergency position, the forward/reverser was in the forward position, and the power handle was in notch 1. The speedometer and windscreen wipers were so badly damaged that they could not be tested. Damage to the braking system was such that only the two rear coaches could be tested, and on these the brakes were found to be working correctly.

27. Mr. Bryceland described the theoretical calculations that had been carried out to establish the probable speed of the colliding train. These showed that if Driver Rodger had accelerated his train from rest at Signal H 5 and taken no further action the speed achieved at the point of collision would have been 33 mile/h. Coming round the sharp curve, the best sighting distance that Rodger would have had of the train ahead was 80 metres. If an emergency brake application had been made at this point, where the speed of the train would have been about 25 mile/h, the speed at the point of collision would have been about 13 mile/h. However, on Rodger's own evidence, there was an interval between his seeing the train ahead and his applying the brake. If this interval had been 3 seconds, the train's speed would have risen to 30 mile/h before the brakes were applied and the speed at collision would have been 26 mile/h. This assumes wet rail conditions, which applied at the time. Mr. Bryceland concluded that the most probable speed at the point of collision was between 23 and 27 mile/h. Such a speed would be consistent with the damage done to the trains and with the fact that unit 215 was pushed forward some 18 metres in spite of the brakes being fully applied.

Discussion

28. At both the British Railways internal inquiry, held five days after the accident, and at my public Inquiry, held some three weeks later, there were discrepancies in the evidence of some of the key witnesses. The significant ones were as follows:

a. Regarding the examination of the line, Signalman Collins claimed that he contacted Driver Gordon at Partick, told him that there was a track-circuit failure on the opposite line, and asked him to examine the line between Signals H 1 and H 5 and to report on arrival at Signal H 6. Driver Gordon denied that Signals H 1 and H 5 were mentioned and said that he was asked to examine the line "ahead of Signal H 1". None of the other people in the signal box could remember Collins referring to Signals H 1 and H 5. It was pointed out to Collins that if he had really called for examination of the line between Signals H 1 and H 5 it would not have been sensible to ask Gordon to report from Signal H 6 since this signal is some 170 m short of Signal H 5. On balance I am inclined to believe that Driver Gordon's version was the correct one. What is clear from the evidence is that Gordon was not asked to check whether a train was occupying the line but to examine the line for the cause of a "track-circuit failure". When he came alongside the train standing at Signal H 3 he had no reason to connect it with his examination of the line.

b. Regarding the disputed telephone call to the signal box from Signal H 3, Driver Eadie claimed that he made this call five minutes after arriving in the cab nearest to the signal, which would imply anything up to ten minutes after the train had arrived. He thought that his call was made after Driver Nimmo's train had been signalled into the depot from Signal H 6 but before Driver Gordon's train had arrived at this signal. Guard Crawford confirmed that Driver Eadie had telephoned from Signal H 3 to remind the signalman that his was an empty stock train waiting to go into the depot. He too thought that the call was made after Nimmo's train had gone into the depot. By contrast, Signalman Collins had no recollection of either Eadie's or Nimmo's telephone call, although he agreed that he must have received the latter. Neither could he remember having signalled Nimmo's train into the depot although, again, he agreed that he must have done so. Eadie was vague about some of the events but his evidence on the telephone call was convincing and I think it probable that he did make the call. Collins at this time was under great pressure and, with calls coming in quick succession from Nimmo, Eadie, and then Gordon, I think he became confused; by the time Gordon telephoned to report the opposite line clear he had perhaps overlooked the fact that two drivers had reported that they were waiting to go into the depot and, having signalled Nimmo's train into the depot, he convinced himself that he had cleared that particular problem. Alternatively, if Eadie's call had come in after Nimmo's, but before Collins had cleared the signal for Nimmo's train, he might have thought it was Nimmo telephoning again.

c. Regarding the instruction to Driver Rodger to pass Signal H 5 at Danger, Rodger claimed that he was merely told to pass the signal and to obey all other signals. Collins, however, said that he informed Rodger that there was a track-circuit failure ahead and that he was to pass the signal at Danger and proceed with caution. Signalman Walker corroborated Collins' evidence and I believe that Collins did instruct Rodger in the way he claimed, which was nearly, although not quite, the way he was supposed to do it under Rule E.4.9.3.

29. Most of these apparent conflicts of evidence stem from the fact that Signalman Collins was under pressure at the time and had difficulty in remembering afterwards just what had happened. This pressure also probably explains why Collins did not try by other means to establish that no train was occupying the line between Signals H 5 and H 1 before he instructed Driver Gordon to examine the opposite line. Regulation 25(d) of the Regulations for Train Signalling on Double Lines by the Track Circuit Block System, which deals with track-circuit failures, reads as follows (omitting sub paragraphs (ii) and (iii)):

"(d) TRACK CIRCUITS

If a track circuit fails to clear after the passage of a train, or otherwise shows occupied, and the signalman is satisfied (after consultation with the signalman at the box in advance, or in the rear, if necessary) that there is no train occupying that portion of line, the following instructions will apply:—

(i) The first train requiring to pass over the affected line must be stopped at the signal held at Danger and when an assurance has been obtained from the driver that the line is clear as far as can be seen, he must be told to pass the signal at Danger, and to proceed cautiously towards the next Stop signal, prepared to stop short of any obstruction. He must also be told to stop at the latter signal, even if it is showing a proceed aspect, and to report the state of the line to the signalman at the box ahead, from the telephone there.

(iv) Unless it has previously been ascertained that the line is clear the first train travelling towards the affected track circuit on an opposite or adjoining line which can be stopped must be stopped, the driver advised of the circumstances and told to proceed cautiously and to report to the signalman from the telephone at the first signal ahead of the affected portion of the track."

If he had been working strictly to this, Collins would first have telephoned the signalman in advance in order to try to establish that there was no train in the section concerned and would have instructed Driver Rodger to examine the Up line. Instead, he applied only part d(iv) of the Regulation.

30. One aspect of the signalmen's evidence did not seem to make sense. This was the claimed absence from Signalman Pearce's passenger information panel of the description of Driver Eadie's train. This panel operates independently of the main signal box panels and, whilst there was no doubt that train descriptions were being lost on the main panels, these should have remained on the passenger information panel. Pearce himself said that when descriptions had disappeared from the main panels in the past the corresponding numeric code had always remained either displayed on or stored in his panel. I therefore asked for tests to be carried out in the signal box to simulate the actual movements of Driver Eadie's and Driver Rodger's trains. These showed that Driver Eadie's train, occupying track circuit 215, should have been shown in

numeric code in the Partick Station berth on the passenger information panel at the time when it appears to have been 'lost'. If this was so, and I see no technical reason why it should not have been, it may be thought surprising that Signalman Pearce did not see it. However, these displays are not provided to assist signalmen in the control of traffic and they are associated with stations and not with signal berths as are the train descriptions on the two control panels. I can only assume that, with so much going on, any assistance that may have been derived from the passenger information panel was missed or perhaps not connected with the missing train.

Conclusions

31. The immediate cause of the accident was the failure of the driver of the 09.27 Dalmuir to Motherwell train, Driver Rodger, to drive his train with the necessary caution after being instructed to pass Signal H 5 at Danger. There was doubt as to whether the instructions given to him by the signalman were strictly in accordance with the Rules, but Rodger knew that he was passing a signal at Danger and that he was required by the Rules to drive with proper caution. On his own admission, he accelerated his train to a speed that was clearly excessive in the circumstances and was thus unable to stop when he found the line ahead obstructed by the other train. Driver Rodger impressed me as a young and keen driver; he accepted that he had been careless on this occasion and I do not think that he will make the same mistake again.

32. It would not have been necessary for Driver Rodger to pass the signal at Danger, and the accident would not have happened, if Signalman Collins had taken proper steps to satisfy himself that no train was occupying the section of line concerned. He assumed too readily that the 'occupied' indication of track circuit 215 was due to a track-circuit failure rather than to the presence of a train. In mitigation it must be said that Collins was working under pressure and that the disappearance of train descriptions from the panel, at a time when so many train movements were taking place, must have been very disconcerting. Although he had previously given no indication that he might be unable to cope with the kind of conditions that prevailed that morning, I believe that with so much going wrong he found himself unable to cope and began to lose control of the situation.

33. A contributory factor was the general laxity in the passing of verbal messages concerning train movements and the safety of the line. The Rule Book, Section B.5.4, lays down the procedure to be followed, including the need for the person receiving a message to repeat it to the sender. It was clear from the evidence that this requirement was largely ignored.

Remarks and Recommendations

34. The circumstances of this accident are similar in many respects to those of the collision at Castlecary, on the Glasgow to Edinburgh Main line, in September 1968.* Following that accident the then General Manager of Scottish Region wrote to all drivers, secondmen, and guards in the Region, drawing their attention to the vital need for a strict observance of the rules when signals have to be passed at Danger, and when messages affecting safety are passed by telephone. Similar letters were addressed to all drivers and signalmen following the accident at Hyndland Junction and I reproduce them in Appendix 1.

35. The reason for the occasional loss of a train description from the panel in Hyndland Signal Box was given by Mr. Hale in his evidence (see paragraph 24). Following the accident, Mr. Hale's staff examined the design of the describer equipment and found that a modification could be made which would prevent the loss of descriptions when closely running trains were approaching Hyndland. This modification was made and since then there has been no recurrence of the problem.

36. I discussed with the responsible Officers the possibility of replacing the existing alpha type train describers at Hyndland and other boxes on the line with the Board's current standard equipment, which is train specific. This would be an expensive operation and their view was that there were more urgent claims on the limited resources available, for example the provision of modern colour-light signalling on main lines in place of outworn mechanical signalling. I agree with this view. Although of great help to a signalman, train describers are not an integral part of the safety signalling, and in the case of Hyndland there is no evidence that the existing equipment is not capable of serving its purpose, especially now that its one important failing has been identified and put right.

*See report on the collision that occurred on 9th September 1968 at Castlecary, H.M.S.O. 1970, SBN 11 550110 X.

37. Scottish Region plans eventually to replace most of the signalling and to rationalise the track on the original electrified lines north of the River Clyde. But under present conditions of financial stringency, this is more likely to be in the medium rather than the short term.

38. Hyndland Signal Box is therefore likely to remain in its present form for some time. Its operating floor is not large and, with two signalling panels and the passenger information panel, space is restricted. At busy times, especially when trains are running out of course, the restricted space, and especially the presence of the passenger information panel, is not helpful to the signalmen. It is not easy to see what might be done to improve the situation, short of major modification to the box, but I recommend that the position be examined to see whether some improvement can be made.

39. The accident at Hyndland Junction on 5th June followed a derailment at Hyndland East Junction on 28th April which also involved a 3-car unit of the new Class 314 stock and in which 14 passengers and the guard of the train were slightly injured. Not unnaturally, the near coincidence in place and time of these two accidents led to the safety of the line, and especially the integrity of the signalling, being questioned by press and public. A full report on the 28th April accident was submitted by Scottish Region to the Inspectorate and it shows that there was no common element in the cause of the two accidents. The earlier accident resulted when the guard of the train, the 11.48 Dalmuir to Motherwell, gave the 'train ready to start' bell signal at Jordanhill Station without first satisfying himself that the platform Starting signal had been cleared. The driver immediately started the train, apparently without looking at the signal, which was at Danger, and the train passed the signal and was derailed after running through switch diamonds at Hyndland East Junction which were set for another route.

40. I have also examined the general safety record of the line since the Argyle Line services started (in November 1979) to see if there is any evidence of a fall in the level of safety when compared with other similar lines on British Railways. Taking the lines between Glasgow Central, Glasgow Queen Street, and Dalmuir, there were 4 reportable train accidents during 1978, 2 during 1979, and 4 during 1980. One each of the accidents in 1978 and 1980 was caused by vandals. There is thus no evidence of a significant change in the level of safety and the record for the line is not significantly different from that of other lines carrying a similar volume of traffic.

I have the honour to be,

Sir,

Your obedient Servant,

C. F. ROSE,
Major.

The Permanent Secretary,
Department of Transport.

BRITISH RAILWAYS : SCOTTISH REGION

GENERAL MANAGER,
Buchanan House,
Glasgow
June 1980

TO ALL DRIVERS AND RELIEF DRIVERS

PASSING SIGNALS AT DANGER

I know you share my concern regarding the safety record on our Railways which we wish to preserve and this prompts me to write you personally at this time.

There are circumstances when signals require to be passed at danger when you personally become involved.

When a signal is passed at danger its clear and concise message and its inbuilt safeguards are lost.

It is VITAL, therefore, that when you PASS a signal AT DANGER, for whatever the reason, under whatever authority, you must :—

i) Be able to STOP short of any obstruction

ii) Proceed with the CAUTION necessary and at such a SPEED as to enable you to do so, having due regard to visibility, curvature of the line, weather, etc.

Nothing should be assumed or taken for granted—in your communication with the signalman you must clearly and fully understand what is expected of you in the interests of safety.

L. J. SOANE

GENERAL MANAGER

BRITISH RAILWAYS : SCOTTISH REGION

GENERAL MANAGER,
Buchanan House,
Glasgow
June 1980

TO ALL SIGNALMEN

GIVING AUTHORITY TO PASS SIGNALS AT DANGER

I know you share my concern regarding the safety record on our Railways which we wish to preserve and this prompts me to write you personally at this time.

There are circumstances when signals require to be passed at danger when you, personally, become involved.

You must remember when a signal is passed at danger its inbuilt safeguards are lost.

It is VITAL, therefore, that you must :—

i) Fully understand the circumstances under which you are authorising a driver to pass a fixed signal at danger,
and
ii) Ensure when transmitting such verbal messages that you do so CLEARLY AND CONCISELY so that the driver knows what he is expected to do.

Nothing should be assumed or taken for granted—the essence of proper communication is that each person concerned fully understands what is to be done in the interests of safety.

L. J. SOANE

GENERAL MANAGER

Printed in England by Her Majesty's Stationery Office at HMSO Press, Manchester
5828 Dd 0718867 C8 4/81