



DEPARTMENT OF TRANSPORT

RAILWAY ACCIDENT

Report on the Collision that occurred on 8th November 1977 at Napsbury

IN THE
LONDON MIDLAND REGION
BRITISH RAILWAYS

LONDON: HER MAJESTY'S STATIONERY OFFICE

£2.20 net

RAILWAY INSPECTORATE,
DEPARTMENT OF TRANSPORT,
2 MARSHAM STREET,
LONDON SW1.
24th October 1980.

SIR,

I have the honour to report for the information of the Minister of Transport, in accordance with the Direction dated 14th November 1977, the result of my Inquiry into the collision that occurred on Tuesday 8th November 1977 at Napsbury in the London Midland Region of British Railways.

At about 18.49 in fine weather with clear visibility the 17.50 Bedford to St. Pancras 4-car diesel multiple-unit passenger train carrying approximately 30 passengers, having been irregularly admitted to the section, collided at about 40 mile/h with the rear of the 18.30 St. Albans to St. Pancras empty coaching stock train, also a 4-car diesel multiple-unit, which was standing at the Napsbury Up Slow Starting Signal awaiting admittance into the Up Slow Intermediate Block Section.

The collision resulted in the derailment of the rear vehicle of the empty coaching stock train and of the two leading vehicles of the passenger train. Two passengers and the driver and guard of the passenger train were taken to hospital in ambulances which arrived quickly at the site and the driver and one passenger were detained. All four lines were initially blocked to traffic but the Down and Up Fast lines were re-opened at 20.04 and 20.08 respectively, whilst the Slow lines were re-opened at 16.13 the following day.

DESCRIPTION

The Site

1. The description is of the line at the time of the accident. St. Albans and Napsbury Signal Boxes have since been closed as part of a resignalling scheme. St. Albans Station, which is just over 19½ miles from St. Pancras, consists of two single-sided platforms with an island platform between them, serving all four tracks of the main line between St. Pancras and Leicester. Cross-overs are provided between the Down and Up Slow lines, allowing trains on the Down Slow line to be terminated and reversed in either Platform 3 or 4, serving the Down and Up Slow lines respectively, and to return to London over the Up Slow line. The signal box is at the London end of the station on the Down side and is reached from Platform 1 by means of a boarded walk about 73 m long; the London ends of all the platforms are connected by a barrow crossing.

2. Napsbury Signal Box is just under 18½ miles from St. Pancras. It is situated at the north end of a derelict island platform which formerly served the Slow lines.

3. In the Up direction St. Albans Station lies on a left-hand curve. At the London end of Platform 4 is the Up Slow Home 2 semaphore Signal (Lever No. 6) on a post to the left of the track to which it applies; at the London end of Platform 3 is the Down Slow to Up Slow Home 3-aspect colour-light Signal (Lever No. 16) level with the other home signal and at ground level to the left of the track to which it applies in the direction of Up movements. In the London direction 498 m from the home signals is the Up Slow semaphore Starting Signal (Lever No. 10) on a post with the track on a left-hand curve and on an embankment. The curvature reverses at about the 19½ mile post and the right-hand curve continues until, just after the tracks pass beneath bridge No. 97 carrying a lane, at about the 18½ mile post, the curve ends and the lines run straight beneath bridge No. 96A carrying the North Orbital Road and a second much smaller bridge, No. 96, to Napsbury Signal Box beyond which there is a slight deviation of the Up Slow line past the site of the former island platform.

4. The Napsbury Up Slow colour-light 2-aspect Distant Signal (Lever No. 23) is positioned to the left of the track to which it applies suspended from a gantry which spans all four lines and is 905 m from St. Albans Signal No. 10. In the London direction and 1363 m from the Distant signal are the Napsbury Up Slow and Up Slow to Up Fast Home semaphore Signals (Levers Nos 22 and 20) on posts to the left of the track to which they apply just to the London side of bridge No. 96. Napsbury Signal Box stands 174 m beyond these signals; the collision point was approximately 114 m in the Up direction beyond the signal box and the Napsbury Up Slow semaphore Starting Signal (Lever No. 21) is 197 m beyond the signal box.

The Signalling

5. Trains are signalled on all the lines under the Absolute Block System using, from Harpenden to St. Albans, British Railways standard block instruments and, between St. Albans and Napsbury, ex-Midland Railway rotary interlocking block instruments. On the Up Slow line the instruments at St. Albans and

Napsbury are maintained at 'Train on Line' by the occupation of the berth track circuit to the Napsbury Home Signals and released by sequential occupation of the track circuits at Napsbury with the Napsbury Home Signal in the 'Off' position. The St. Albans Up Slow Starting Signal has a track circuit (11327) extending in rear of it for 258 m, occupation of which locks lever No. 6 Normal. Semaphore signals are equipped with intensified lights. The Napsbury Home Signals are duplicated and co-acting on tall posts because, at a distance, the road bridges obscure the view of the lower signals round the right-hand curve. The Distant Signal is equipped with AWS.

6. In St. Albans Signal Box the signalman looks over the frame at the running lines with the door to his right at the London end. On the block shelf above the lever frame the instruments are arranged reading from left to right in the order Slow lines to Harpenden (BR standard instrument), Up Slow to Napsbury, Down Slow from Napsbury, and to the right of that instrument the fast line instruments in the same order. Behind the signalman and to his left is the desk on which is kept the Train Register (TR) and at the station end of the signal box is a desk for the train announcer and recorder. At Napsbury Signal Box the signalman has his back to the Up Slow line when he faces the block shelf and levers. Electrical or mechanical interlocking requires that the levers operating signals at both signal boxes for the Up Slow line shall be reversed in a particular sequence, Home Signals first followed by Starting Signals, and then the Distant Signals. Before the signalman at Napsbury can place his block instrument to 'Line Clear' for the Up Slow line the Home Signal at Napsbury must be in the 'On' position. The St. Albans Up Slow Starting Signal cannot be cleared unless the block instruments are at 'Line Clear' and each release allows only one clearance of the signal. Napsbury Up Slow Distant Signal is replaced to Caution by the occupation of the berth track circuit beyond it irrespective of the position of lever 23. The berth track circuit to Napsbury Signals Nos 20 and 22 has an associated timing device which sounds an annunciator (buzzer) in the signal box for 10 seconds from the time the track circuit is first occupied. However the annunciator only sounds for the period during which the signal levers are normal in the frame. A diagram of the track and signalling relevant to the accident is at the back of the report.

The Trains

7. Both trains were 4-car diesel multiple-units (DMU) with class 127 motor cars powered by Rolls Royce diesel engines of 238 b.h.p. driving the wheels through torque convertors. The trains were marshalled as follows:

	5C26 18.30 St. Albans to St. Pancras		2C65 17.50 Bedford to St. Pancras	
Leading	51626	Motor Brake Second	51617	Trailing
	59609	Trailer Second Lavatory	59617	
	59643	Trailer Second Open	58631	
Trailing	51641	Motor Brake Second	51601	Leading

The total weight of each train was 138 tons and its overall length 81.8 m.

The Course of the Collision and Damage Caused

8. Since 5th November 1977 services on the Up Slow line had been subject to delay at Napsbury because of an embankment slip between Radlett and Elstree at which there was a 10 mile/h temporary speed restriction. The empty coaching stock (5C26) of a DMU which had terminated at St. Albans was sent to the St. Albans Up Slow Starting Signal, out of sight of the St. Albans signalman, awaiting acceptance by the Napsbury signalman. Meanwhile 2C65 arrived at St. Albans on the Up Slow line and after a delay, when the signalman found he could not clear the Up Slow Home Signal, the Starting Signal was cleared and the driver was told to pass the Home Signal at Danger. Seeing the clearance of the St. Albans Up Slow Starting Signal the driver of 5C26 set off and shortly after he had stopped his train at the Napsbury Up Slow Starting Signal, 2C65, travelling at about 40 mile/h, collided violently with its rear car. One bogie from the rear motor car of 5C26 was severed from beneath the coach which suffered multiple damage and had to be scrapped. This bogie was found beneath the leading motor car of 2C65. The leading bogies of the leading motor and trailer cars of 2C65 were derailed, the motor car sustaining such other severe damage that it also had to be scrapped. There was some minor track damage.

EVIDENCE

As to the Running of the Two Trains

9. The driver of 5C26 was *Driver A. W. C. Bartlett* who had been a driver on the St. Pancras-Bedford line for 18 months. He told me that he had hooked on at 13.50 at Bedford and driven a DMU to London before taking his break and returning as far as St. Albans where the train arrived at Platform 3 six minutes late at about 18.30. It took 2-3 minutes for him to change ends and he then drove the empty DMU, departing at 18.35, to the Up Slow line receiving a yellow aspect at Signal No. 16 and then coming to a stand at Signal No. 10 where he was held for about four minutes. The signal was then cleared and he drove on to Napsbury, where Signal No. 23 was exhibiting a single yellow aspect and he cancelled the AWS warning, attaining a maximum speed of 40-45 mile/h. Napsbury Signal No. 22 was at Danger as he approached and he had just brought his train to a stand when the signal was cleared and he drew forward to Napsbury Signal No. 21; this he thought was 4-5 minutes after departing from St. Albans Signal No. 10. The accident occurred almost immediately and although the brakes were applied his train was pushed forward about $1\frac{1}{2}$ coach lengths. Thinking there was something wrong with his train he climbed down to shut off the engines, saw what had happened, and ran back to the signalman who told him that protection had been carried out. *Guard G. Burgess*, who was in charge of the train, travelled in the cab with Driver Bartlett and confirmed his evidence, adding that he had checked that the tail-lamp had been placed at the rear of his train. He looked at his watch when the accident occurred noting the time as 18.50, although it was his opinion that this was about a minute after they had stopped.

10. I was unable to interview *Driver L. Bell*, the driver of 2C65, until 9th January 1978 when he had recovered from his injuries sufficiently to be seen at home. He recalled arriving at Platform 4 at St. Albans at about 18.38 with Signal No. 6 at Danger. After a delay the guard came to his cab and said he would try to contact the signal box. The station supervisor then appeared and instructed him to pass Signal No. 6 at Danger telling him that he was clear to Napsbury. He set off past the signal at Danger and noted that Signal No. 10 was clear; on seeing Napsbury Signal No. 23 exhibiting a single yellow aspect he closed the throttle and allowed the DMU to coast, speed falling from 35-40 mile/h to about 25 mile/h. When Napsbury Signal No. 22 came into view it was in the 'off' position and so he re-applied power. As he passed Signal No. 22 he thought he saw a red light on the track ahead and then noticed the dark outline of a train, made an emergency brake application, and vacated the cab. He was by the first seat of the leading passenger compartment when he was knocked down by the impact. He estimated that not less than four or more than six minutes, had elapsed after departing from St. Albans.

11. *Guard A. Jordan* was in charge of 2C65 and provided much the same evidence as his driver. He gave the time of departure from St. Albans as 18.44 and said that he had noticed the engines being throttled back at the Napsbury Distant Signal and then being opened up again but could not recall the use of the brake. He estimated that the train travelled three or four car lengths between the initiation of the emergency brake application and the collision in which he was hurt. Apart from Signal No. 6 he had not seen any signals during the journey.

12. The St. Albans station supervisor was *Mr. T. J. Stevens* who had been in that post on shift work for eight months. He had come on duty at 14.00 and had later noticed the departure of 5C26 from Platform 3 at 18.34 while standing at the door of his office on Platform 4. At 18.42 he was on Platform 1 when he was called on the public address system to the signal box. He stood on the board-walk beneath the signal box and the signalman told him that Signal No. 6 had failed, that he wanted the driver of 2C65 to pass it at Danger, that Signal No. 10 would be at clear, and that the line would be clear to Napsbury. Mr. Stevens walked over the foot crossing to Platform 4 and repeated the message to the driver of 2C65 at 18.44. As the train departed he went back to his office and some 4-6 minutes later the telephone rang, at between 18.48 and 18.50. When he answered, a person whom he was sure he recognised as the St. Albans signalman said to him "The passenger train is catching up with the empty stock train at Napsbury—could be a collision". Mr. Stevens asked him "Do you mean it has not happened yet" and the signalman replied "No" and Mr. Stevens then called the emergency services. Some two or three minutes later the signalman telephoned again to say that a collision had occurred and the supervisor left his office, went to St. Albans Signal Box where the signalman seemed more composed than he had expected him to be, and then walked to Napsbury. On the way he noticed that the Up Main and Up Slow Distant Signals were both at Caution. He recalled being asked to tell other drivers to pass Signals at Danger, probably 4 or 5 times in the eight months he had been at the station. He thought the most recent occurrence was at Signal No. 6 about two months before the accident.

13. *Relief Signalman, Class 2, G. M. Abraham*, who had been a signalman at St. Albans Signal Box for approximately four years and a relief signalman for two years, commenced duty in the signal box at 14.00. He had with him a new train recorder who was spending only his second day at the task although on his first day there had been no traffic because of an industrial dispute. Mr. Abraham gave somewhat confused evidence but it was clear that leading up to the time of the accident he was having to assist and

correct the train recorder, deal with a train service which was running out of course which led to an abnormal number of telephone calls to determine the order in which trains were running and to advise other signalmen of his actions, and work through an exceptionally busy period with freight trains in addition to the normal service because of the industrial dispute on the previous day. He recollected that at a time when there was a freight train waiting at Napsbury to proceed on the Up Slow line into the next section, a DMU (2C18) arrived at Platform 3 to terminate and return empty as 5C26 without stopping to St. Pancras. Approaching from Harpenden on the Up Slow line was 2C65 followed by another freight train and Abraham decided to allow 5C26 to precede 2C65 so that it could follow the freight train on the Up Slow line, allowing 2C65 to make the station stops to St. Pancras. Accordingly he put out an announcement on the public address system asking the crew of 5C26 to prepare to return to St. Pancras as quickly as possible.

14. The crew co-operated and he was able to signal 5C26 through the cross-over at 18.35 to Signal No. 10 to await the clearance of the preceding freight train. He also made an entry in the TR and replaced the cross-over and signal levers. At about that time, when he was on the telephone, a *Signalman Walker* entered the box.

15. Abraham remembered telephoning Bedford control office to ascertain the sequence of trains approaching him on the Up Slow line and claimed that 2C65 arrived while he was making this call. He then telephoned St. Pancras control office to tell them what he intended doing; between these two telephone calls he thought he dealt with up and down express trains. During the second telephone conversation he heard the Napsbury signalman send him the 'Call Attention' bell signal twice but Abraham was unable to attend to it because he was talking on the telephone. After putting the telephone down he passed on the information that he had gained to the train recorder and then noticed that the Up Slow line block instrument to Napsbury was in the 'Line Blocked' position, which meant that the freight train had departed from Napsbury (where the TR shows that 'Train Out of Section' was sent at 18.41 to St. Albans). Abraham then obtained 'Line Clear' for 5C26 and was unable at my inquiry to recall whether he at once cleared Signal No. 10 to permit 5C26 to proceed to Napsbury, or whether the train was still standing at the signal. He remembered Signalman Walker being in the signal box. Walker had asked if Signalman Spellman (who also worked in St. Albans Signal Box) had received notice of a meeting on the next day and what trains were about that could take him to Luton.

16. Abraham then claimed that Walker said to him "Well what happened to you lot down here on Saturday night-Sunday morning" (this, Abraham knew, referred to an unofficial withdrawal of labour by signalmen on the line over a dispute about manning a new signal box. Abraham with others had worked normally). Abraham replied "Well as far as I know he (the local trade union representative) came to some agreement with the Area Manager on Sunday morning that a meeting would be arranged for the early part of the week and they (the signalmen) decided to work normally". He added that this was their decision and he would stick by it, they had decided to work normally, and so he was working normally. He remembered saying to Signalman Walker as he left the box to catch an express train (1F07) from Platform 1 to Luton "Mind how you go Geoff" to which he thought Walker replied "I will". At my Inquiry Abraham commented in respect of Walker's presence in the signal box "I would rather I had no-one there at all really". (The signal box record shows 1F07 as arriving at St. Albans at 18.43 and departing at 18.44). It appears that Walker must have left the signal box at about 18.41 or .42, although his evidence is that he departed earlier.

17. Abraham told me that after Walker's departure he discussed on the telephone with the signalman at Harpenden the situation on the Down Main line where 1E58 was waiting at the intermediate block signal and 1F07 was at St. Albans. He then noticed that the block indicator for the Up Slow line to Napsbury was showing 'Line Clear' but could not recall having heard any bell signals. He telephoned the signalman at Napsbury and asked where the empty stock was (5C26). He received the reply "I have not got the empty stock here". Abraham then said to the Napsbury signalman "I was sure I gave you the empty stock on 46 but I cannot remember now" and the Napsbury signalman repeated "I have got nothing here". Abraham said "I have got the passenger 2C65" and said that the Napsbury signalman replied "Well we will have the passenger then". Abraham then attempted to reverse lever No. 6 but could not release the electric lock. He checked that he had replaced the cross-over used by 5C26 to normal, checked and was sure that lever No. 10 was normal, looked up at the illuminated diagram and did not notice any track circuit occupancy at Signal No. 10, and attempted again to reverse lever No. 6. He said that after trying it a third time unsuccessfully he had come to the conclusion that it was being "temperamental" and claimed that this had happened before. He pressed the economiser plunger for the lock on lever No. 10, heard the lock lift, and knew that he could operate it. He tried the lock for lever No. 6 again and nothing happened.

18. He therefore called the station supervisor to the signal box and spoke to Mr. Stevens from the window. He told him that Signal No. 6 would not function, and asked him to tell the driver of 2C65 to pass Signal No. 6 at Danger, that the Starter would be cleared, and that the train had the section to Napsbury. The driver of 2C65 signified that he understood the message that had been relayed to him by flashing his cab light and Abraham was sure that he then cleared Signal No. 10 after the train moved off. He turned round to catch up with the booking of trains which he had been noting in his head. The telephone rang and

he had a brief conversation with someone and then very shortly afterwards he heard six bells ('Obstruction Danger') given on the Down Fast and Slow block instruments from Napsbury.

19. He replaced his signals to Danger and on telephoning Napsbury discovered that there had been a collision. He was then involved in receiving and making a number of telephone calls about the emergency services because his was the only signal box with a public telephone. Signalman Abraham was very closely questioned as to the sequence of his actions. He had assumed that the Napsbury signalman had omitted to make an entry in his TR for 5C26 and that that was how the confusion had arisen. He was quite sure he had looked at the illuminated diagram when he was unable to clear Signal No. 6 and had not seen a train occupying track circuit 11327 at Signal No. 10. Abraham was sure that after talking to the controller at St. Pancras with 2C65 in Platform 4, and 5C26 at Signal No. 10 he found his Up Slow line block indicator at 'Line Blocked', offered the empty coaching stock forward, but he then could not remember whether or not he cleared Signal No. 10. This was at a time between 18.38-18.40 while he was talking to Signalman Walker. After that he thought he had probably spoken to the Signalman at Napsbury twice between 18.41 and 18.45 on the subject of 5C26 and 2C65. He claimed that Signal No. 6 was subject to intermittent failure and required careful handling and that Signal No. 25 controlling wrong direction movements from the Down Slow to the Up Slow would sometimes not clear because of a detection fault on the facing points.

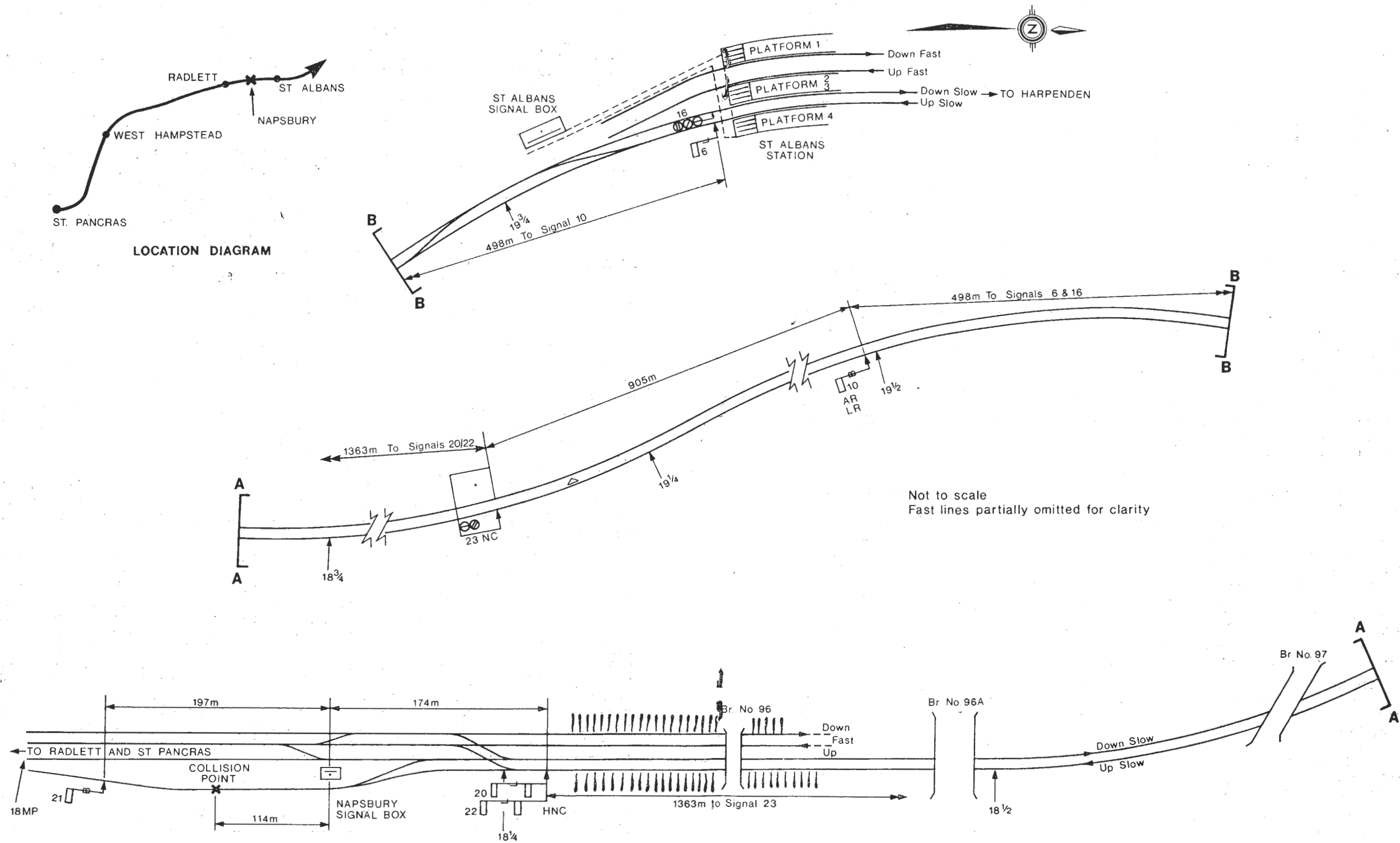
20. On duty in Napsbury Signal Box from 18.00 was *Relief Signalman D. Rawle*. After giving St. Albans the 'Train Out of Section' bell signal at 18.29 for an empty coaching stock train (5C88) on the Up Slow line he at once accepted a fully-fitted freight train (6E38) and was given the 'Train Entering Section' signal at the same time. The freight train arrived at 18.32 and he was able to send it forward to his Up Slow Intermediate Block Signal at 18.41. He then called the attention of the St. Albans signalman twice, but getting no reply gave the 'Train Out of Section' bell signal for the freight train to which he got no reply, changed the position of the Up Slow line block instrument to 'Line Blocked', and entered the time in his TR. As he walked away from the block instrument he heard the 'Call Attention' bell signal from St. Albans and, on replying, was offered an empty coaching stock train on the Up Slow line which he accepted, putting the block instrument to 'Line Clear'. He received the 'Train Entering Section' bell signal for the Up Slow line from St. Albans at about 18.44 and one or two minutes later was called to the telephone by the St. Albans signalman.

21. Rawle could not remember the exact words but he thought Abraham asked him what time he had cleared for the empty stock and Rawle replied that he had cleared for the last set of stock at 18.29 referring to 5C88. No reference was made to the freight train but Rawle gained the impression that there was a passenger train at St. Albans and that Abraham was "confused as to the position of the passenger and the empty stock". Rawle knew that a passenger train was due at that time and thought that Abraham had possibly allowed the passenger train (2C65) to precede the empty coaching stock train (5C26). Accordingly he changed the entry in his TR from empty coaching train to a stopping passenger train. Because of the presence of 6E38 moving towards the Up Slow Intermediate Block Signal, Rawle kept Signal No. 22 at Danger until he heard the annunciator and could see from the berth track circuit that the approaching train was almost at a stand; he then cleared the signal to allow the train to draw forward to Signal No. 21. As the train passed the signal box he saw that all the lights were out and realised that it was an empty coaching stock train (5C26). Accordingly he changed the entry in the TR back to an empty coaching stock train and entered the arrival time at Signal No. 22 as 18.46.

22. I asked Mr. Rawle whether he was concerned at that time about seeing an empty coaching stock train when he expected a passenger train. He said he felt no concern over any confusion because he had only accepted one train. He estimated that 5C26 took about two minutes to come to Signal No. 22 and passed the back of his signal box very slowly, stopping at Signal No. 21 at about 18.49. After entering the arrival time in his TR he watched the train approach and pass, dealt with another train, and then walked back towards lever No. 22 to replace it in the frame. As he did so he heard the annunciator buzz a second time and saw another train (2C65) approaching on the Up Slow line which passed his signal box at speed and collided with the rear of 5C26. He thought Signal No. 22 was left in the 'Off' position for one or two minutes after the passage of 5C26 and that the driver of an approaching train might see the signal from a distance and assume, if the signal was 'Off', that Signal No. 21 was also 'Off'. After the collision he carried out the emergency procedures although, as there was no GPO telephone in Napsbury Signal Box, he was adamant that he had not made any telephone calls to the police. He stated that he had not at any time cancelled a 'Line Clear Release' on that night, and that between 18.30 and the time of the collision he had only one telephone conversation with Abraham and that was one initiated by Abraham.

23. *Signalman G. Walker* was on the 06.00-18.00 duty in West Hampstead Signal Box on the day of the accident and his relief arrived at 17.40. During the day he had been told about a meeting between representatives of management and unions that was to take place the following day. He was unsure whether a Signalman Spellman, who worked at St. Albans, had been told about the meeting and he decided to call in there on his way home to Luton.

COLLISION BETWEEN TWO DIESEL MULTIPLE-UNITS AT NAPSURY 8TH NOVEMBER 1977



24. He travelled from West Hampstead on 2C18, the train that terminated at St. Albans and returned as 5C26. Because it was late arriving at St. Albans he missed his connection and decided to go up into the signal box, whilst he was waiting for a train, to leave a message for Mr. Spellman. He thought his train arrived at Platform 3 just after 18.30 and saw it departing as 5C26 as he walked over the foot crossing between the platforms at the London end of St. Albans Station. He noted Signal No. 16 displaying a single yellow aspect and said that, as he walked up the signal box steps, a Down express passed. When he arrived in the signal box he saw that the berth track circuit of Signal No. 10 was occupied although he was unable to say whether the train was stationary or moving as he had not noticed the position of any lever. He thought he arrived in St. Albans Signal Box at 18.33 and left when St. Albans received the 'Train Entering Section' bell signal for 1F07 from Napsbury which would have been between 18.38 and .39 if 1F07 had been running to time. When told that 1F07 had not departed from St. Albans until 18.44 he amended the time that he left the signal box to 18.40 to .41. He was sure he had not been in the box as long as 10 minutes.

25. Signalman Walker said that he stood or sat just inside the door and claimed that his conversation with Signalman Abraham was restricted to an exchange of pleasantries, finding out if Signalman Spellman had received the message about the meeting, leaving a message for Spellman about what to do if he could not attend, and asking what trains there were to Luton. He said that he had worked previously in St. Albans Signal Box and that while he was in it on the evening of the accident the signal box was busy. He felt that he had dealt with the matters about which he had gone to the signal box in the most expeditious way possible. The conversation was fragmented and drawn out because Abraham was working; he remembered a telephone call being made to the signalman at Harpenden which took 1½ to 2 minutes and was sure this was the only telephone call made by Abraham during his visit. While he was in the signal box Abraham had made entries in the TR and operated levers. He thought Abraham was fully in control while he was in the signal box despite the fact that his conversation with Abraham took up the majority of the time he was there. When I challenged Walker with having raised the matter of the dispute he denied that he had done so as described by Abraham and said that Abraham had referred to the meeting the following day as he was about to leave. Walker said that he pointed out to Abraham that his own representative would advise him of the outcome.

26. I suggested to Walker that, as he knew the signalman would be busy, it was not a good time to go into the box. He replied that this was not for him to say, claimed that it had been customary practice for a signalman to be permitted to go into a box when not on duty there, and that he could see no wrong in it. He denied that he could have distracted Abraham in any way and said that he was surprised that Abraham had claimed he would have been happier if Walker had not come into the signal box at that time. He said that he would not have been distracted if he had been similarly visited whilst working in St. Albans Signal Box and repeated that it was customary practice. Although he could not be absolutely sure he thought he remembered, as he was leaving the signal box, an Up Passenger train arriving in Platform 4 (this would have been 2C65 which was recorded as having arrived at 18.38). He said that he arrived on Platform 1 as 1F07 ran in and that he spoke to its guard for 2 or 3 minutes before the train departed for Luton.

27. The train recorder and announcer at St. Albans Signal Box on the evening of the accident was *Mr. P. Curtis*. His job involved the recording of passing or arrival and departure times of trains, reporting the times on to the control office, and making announcements over the public address system to passengers about the trains. He sat at a desk with his back to the signalman and the signal box door looking out to the north; whilst he remembered someone entering the box he did not know Signalman Walker and could not say at what time he entered or left the signal box. Because he was concentrating on his job he did not hear any of the conversation between Walker and Abraham. He did not bother about bell signals even though at one time he had been passed out as a signalman, but watched the trains and recorded the times he saw them actually pass, or arrive and depart. The only events which he could recall with any clarity were the arrival of an express on the Down Fast, Abraham making an announcement on the public address system asking the station supervisor to contact the signal box, and Abraham asking the supervisor to tell the driver of a train, on the Up Slow line, to pass a signal at Danger. Curtis could not recall Abraham using the telephone at all between 18.30 and the time of the collision.

28. The *Area Signal Engineer Mr. C. H. Humphrey* described the signals, signalling, block instruments, interlocking, and controls at St. Albans and Napsbury Signal Boxes. When called to the scene of the collision he went first to Napsbury Signal Box where he found all the Up Slow line signal levers normal in the frame and the needle of the Up Slow line block instrument for the St. Albans-Napsbury section at 'Train on Line'. Tests carried out at Napsbury involved proving that 'Line Clear' for the Up Slow line could not be given to St. Albans unless Napsbury Signal No. 22 was at Danger and the lever normal, checking the sequential locking between levers, testing the Distant Signal No. 23 and its AWS magnet, and proving that the block instruments were placed to 'Train on Line' by the occupation of the berth track circuit of Signal No. 22.

29. At St. Albans Signal Box tests were carried out of the 'Line Clear' release of Signal No. 10, the track circuit controls on Signal No. 6, the track circuit indications on the diagram in the box, and the sequential locking between levers. Tests were also carried out of Signal No. 6 because of Signalman Abraham's

claim that it was being "temperamental". None of these tests disclosed any irregularities. The only features that were abnormal were that the sealed release for the Up Slow line block instrument at Napsbury was broken and that the cover of the electric lock on the lever operating Signal No. 22 had been removed. The sealed release had been broken on 6th November when, after the passage of a train, the signalman was unable to return the block instrument from 'Train on Line' to 'Line Blocked'; it should have been reported and an entry made in the TR but this had not been done. Mr. Humphrey had been unable to find out when the cover to the electric lock had been removed. The lock was released if the track circuit between Signal Nos. 22 and 21 was clear and the removal of the cover meant that someone who knew the equipment could release the lock with the track circuit shunted or defective.

30. Mr. Humphrey had interviewed the technicians who maintained the signalling equipment at St. Albans and Napsbury. Neither of them had had any cause to carry out repairs, other than normal maintenance, to the Up Slow line equipment at the two boxes. There had been no complaints or requests for attention to St. Albans Signal No. 6 over the previous 4 weeks. The *Chief Signal and Telecommunications Engineer* of the *London Midland Region*, Mr. A. R. Brown, stated that as a result of the tests described above and others carried out by a member of his permanent testing staff he could confirm that the signalling equipment involved was in correct working order.

TESTS

31. Two simple train running tests were carried out. In one, Driver Bartlett reconstructed the way in which he had driven 5C26 over the Up Slow line from St. Albans to the stop at Napsbury Signal No. 21 including almost coming to a stand at Napsbury Signal No. 22. In the test St. Albans Signal No. 10 was cleared and the train was brought to a stand at it. His guard was asked to indicate independently whether he considered the length of time for which the train was stationary at St. Albans Signal No. 10 was the same as on the night of the accident. The departure time from St. Albans was 18.29, arrival at Signal No. 10 was at 18.31 and 50 seconds, and departure 18.34; passing Napsbury Signal No. 22 at 18.37 and coming to a stand at Signal No. 21 at 18.39.

32. In the second test a different driver drove 2C65, in the manner described by Driver Bell in his evidence, with Napsbury Signal No. 23 at Caution, Signal No. 22 'Off', and assuming Signal No. 21 to be clear. The speed on first observing Signal No. 22 had dropped to 25 mile/h but power was then applied and speed had risen to 40 mile/h at Napsbury Signal Box.

RECORDS

33. I arranged for the relevant records to be checked with the following results.
- a. The Station Supervisor's log from 27th September to 29th November 1977 does not record any failures of Signal No. 6.
 - b. Scheduled maintenance at St. Albans Signal Box was carried out on:
4th October 1977—Ground floor, electrical and mechanical
7th October 1977—Operating floor—Electrical
 - c. The last recorded request for a technician to attend to a fault was on 31st October 1977 for a Down Slow line track circuit failure.
 - d. The TRs for both boxes were checked for the occasion when Signalmen Rawle and Abraham last worked on the same turn of duty before the accident and no irregularities were found.
 - e. Police records show that a 999 call was timed as commencing at 18.50 and 42 seconds, after the GPO operator had reported that it originated from St. Albans Railway Station. Consequently the identity of the caller was not established but the text agrees with Mr. Steven's evidence and includes the phrases:
"Well the train left here about 5 minutes ago and the signalman has just informed me that there was already a train in front of it at Napsbury".
"The signalman told me that he sent the second train towards the first one".
 - f. Extracts from the St. Albans and Napsbury TRs and from the log kept by the St. Albans train recorder are at the back of the report.

DISCUSSION

34. There is no doubt that by instructing the driver of 2C65 to pass the St. Albans Inner Home Signal (No. 6) at Danger with the section occupied by a preceding train, the presence of which he had forgotten and for which he had not received the 'Train Out of Section' bell signal, Abraham allowed two trains to be in the section at the same time. What is not certain is why he should do this and at what stage he cleared the St. Albans Up Slow Starting Signal (No. 10). The answer to the first question can only be that he was distracted and became confused. The second question has three possible solutions. The earliest moment he could have done this is when 'Line Clear' had been given by Rawle for 5C26 at about 18.41. The next, and in my view, the most likely, occasion would seem to be when he was endeavouring to clear Signal No. 6 for 2C65 at 18.42 to .43 and refers in his evidence to having pressed the economiser plunger for Signal No. 10. The third possibility is that he cleared Signal No. 10 at 18.44 as Stevens walked over to 2C65 and that the two trains chased one another through the section. I am satisfied that the second possibility is the most likely and that with lever No. 10 reversed and 5C26 moving off the berth track circuit it was the mechanical locking that held lever No. 6 normal. I believe that Abraham did not telephone Rawle until after 2C65 had departed, when he was endeavouring to complete the entries in his TR, although in his evidence he claimed to have spoken to Rawle before 2C65 departed.

CONCLUSION

35. The accident was caused by the failure of Signaller Abraham to signal the trains in accordance with the Absolute Block System. Despite the evidence of his own TR, the signal controls, interlocking, and block instruments, Abraham was attempting to rely on his memory, was distracted, and became confused. The collision might have been averted, or its effects mitigated, if Signaller Rawle had replaced the Napsbury Home Signal to Danger, as soon as he was permitted to, after the passage of 5C26 as required by Section C.4.5.2 of the Rule Book.

REMARKS AND RECOMMENDATIONS

36. At the time of the accident preparations were being made for the conversion of the signals in the area from semaphore to multiple-aspect colour-lights with trains signalled under the Track-Circuit Block Regulations controlled from an entrance-exit panel in a new signal box at West Hampstead. The dispute referred to concerned the manning of this new box and the redundancies which would result from the closure of the existing signal boxes. The first part of this conversion is now complete and Napsbury and St. Albans Signal Boxes have been closed. The controls on the Up Slow line signalling between St. Albans and Napsbury were quite adequate and the collision occurred not through any deficiency but because Abraham irregularly instructed the driver of a train to pass a signal at Danger. Accordingly I have no recommendations to make about additional controls to be placed on signals where trains are signalled under the Absolute Block Regulations and, in any event, a programme for the introduction of such controls resulted from Major Rose's report of his inquiry into a collision at Whitehaven on 27th November 1973(1).

37. The train registers were well kept and, with one or two exceptions, I have accepted the timings for the table of events. The signaller at St. Albans corrected his clock daily if necessary from the Post Office time signal and the Signaller at Napsbury obtained a time check from St. Albans. However between 18.31 and 18.46 the difference between the signal box timings for the same event was as much as three minutes. I think this is almost certainly due to the timing of a bell signal being committed to memory and then recorded when an opportunity arose. This was clearly the case at St. Albans between 18.41 and 18.46 and it was at the latter time, after dealing with what he thought was a signal failure, that I believe Abraham attempted to complete his TR entries, realised that he might have made a mistake, telephoned Rawle, and then told Stevens of the imminent collision.

38. Between 18.30 and 18.50 Signaller Abraham claims to have made at least six telephone calls (Bedford, Harpenden, St. Pancras, Napsbury twice, and Supervisor Stevens). He signalled 12 trains, arranged for a train to pass a signal at Danger, and gave instructions to the train recorder. He also had a conversation with Signaller Walker and, whether Walker intended it or not, I am sure that Abraham found his presence in the signal box distracting.

39. The signal box is normally busy at this time and a train recorder is provided to assist the signaller. The amount of help that Abraham had to give to the trainee train recorder, the presence of freight traffic, and the visit by Signaller Walker must have added to the signaller's burden. There was absolutely no need for the visit and Walker's claim that it was common practice to visit a signal box when off duty is denied by British Railways management. I cannot help feeling that with Walker's part in the dispute there was a slight element of wishing to make his presence felt in an area that was not his.

(1) Published HMSO 1975 — ISBN 0 11 550361 7

40. Major Rose in the report of his inquiry into a collision at Melton Lane near Ferriby on 11th November 1976 (2) commented that those who go into a signal box must do so only when on duty and they must not distract the signalman. I recommend that all railway staff be reminded of the instruction on page 148 of the Regulations for Train Signalling and Signalmen's General Instructions that signal boxes must be kept private and signalmen must not allow any unauthorised person to enter. I also recommend that a check be made that notices are displayed to this effect at all signal boxes.

I have the honour to be,

Sir,

Your obedient Servant,

A. G. B. KING,
Major.

The Permanent Secretary,
Department of Transport,

(2) Published HMSO 1977 — ISBN 0 11 550454 0

APPENDIX

Extracts from the Train Recorder's Records at St. Albans for 8 November 1977.

DOWN			Arrive	Depart	Line
2C18	17.46	St. Pancras-St. Albans	18.30		DS
1E58	18.15	St. Pancras-Sheffield		(18.34)	DF
1F07	18.20	St. Pancras-Leicester	18.43	18.44	DF
2C21	18.06	St. Pancras-Luton	18.44	18.45	DS
UP			Arrive	Depart	Line
6E38	13.00	Rowley Regis-Ripple Lane	18.21	18.30	US
1C76	16.07	Derby-St. Pancras	18.35	18.36	UF
2C65	17.50	Bedford-St. Pancras	18.38	18.44	US
5C26	18.30	St. Albans-St. Pancras		18.34	No. 3/US
IM83	16.00	Sheffield-St. Pancras	(18.44)		UF

Extracts from Train Register Books at St. Albans and Napsbury for 8 November 1977.

NAPSBUURY				UP				
				Rear Section		Advance Section		
Description of Train	Is Line Clear	Train Entering Section	Train out of Section	Train Arrived/Departed	Line	Is Line Clear	Train Entering Section	Train out of Section
	Accepted under Regulation 4	Received	Sent			Accepted under Regulation 4	sent	Received
(5C88) 2.2.1	18.19	18.19	18.29*	18.22	S	18.36	18.36	18.51
(2C63) 3.1	18.14	18.19	18.22		F	18.19	18.22	18.25
(6E38) 5	18.29	18.30	18.41	18.32*	S*	18.51	18.51	19.06
(1C76) 4	18.30	18.35	18.38		F	18.30	18.38	18.40
(1M83) 4	18.38	18.42	18.44		F	18.40	18.44	18.46
†3.1	†2.2.1	18.41	18.44	18.46	S	(This was altered as described in Rawles evidence and related to 5C26 or 2C65)		
	2.2.1							

†These entries were crossed through in the original log.

ST. ALBANS				UP				
(2C63) 3.1	18.12	18.12	18.20	18.19/20	F	18.14	18.20	18.22
(6E38) 5	18.12	18.12	18.25	18.21/30	S	18.30	18.30	18.41
(5C88) 2.2.1	Ex No. 3			18/19	S	18.20	18.20	18.30
(1C76) 4	18.31	18.31	18.37	18.35/37	F	18.31	18.37	18.40
(2C65) 3.1	18.32	18.32	20.25	18.38/44	S	18.46		
(5C26) 2.2.1	Ex No. 3			/18.35	S	18.41	18.41	
(1M83) 4	18.39	18.39	18.44	/18.44	F	18.39	18.44	

NAPSBUURY				DOWN				
(2C18) 3.1	18.20	18.26	18.28		S	18.24	18.28	18.34
(1E58) 4	18.26	18.30	18.33		F	18.29	18.33	18.34
(2C21) 3.1	18.28	18.36	18.41		S	18.38	18.41	18.44
(1F07) 4	18.33	18.38	18.38		F	18.35	18.38	18.44

ST. ALBANS				DOWN				
(2C18) 3.1	18.25	18.29	18.36	18.31/	S/3	TERMINATE		
(1E58) 4	18.31	18.33	18.35	18.35	F	18.38	18.38	18.43
(1F07) 4	18.37	18.41	18.45	18.43/44	F	18.44	18.44	18.51
(2C21) 3.1	18.36	18.39	18.45	18.44/45	S	18.45	18.45	18.54

© Crown copyright 1981
First published 1981

HER MAJESTY'S STATIONERY OFFICE

Government Bookshops

49 High Holborn, London WC1V 6HB
13a Castle Street, Edinburgh EH2 3AR
41 The Hayes, Cardiff CF1 1JW
Brazennose Street, Manchester M60 8AS
Southey House, Wine Street, Bristol BS1 2BQ
258 Broad Street, Birmingham B1 2HE
80 Chichester Street, Belfast BT1 4JY

*Government publications are also available
through booksellers*

ISBN 0 11 550535 0