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RAILWAY ACCIDENT AT HOLTON HEATH

A report on a collision that occurred
on 20 April 1989

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The Permanent Under Secretary of State
Department of Transport

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London W2 4TF

Sir

I report for the information of the Secretary of State, in accordance with the Direction dated 27 June 1989, the result of my Inquiry into the accident which occurred on Thursday 20 April 1989 at Holton Heath in the Southern Region of British Railways.

At about 12.02, a light locomotive, that is one travelling without a train, collided with the rear of a freight train at Holton Heath. I regret to report that the driver of the light locomotive, Mr R C Brooker, died as a result of the accident. The driver and the guard of the freight train suffered minor injuries.

On a dry clear day, the diesel locomotive, No 33107, was travelling at speed under clear signals along the Up line between Wareham and Hamworthy Junction, when it struck the rear of the 11.45 Wool to Eastleigh freight train 6W54 as it was accelerating away from a stand after carrying out shunting duties at Holton Heath Siding. Train services between Poole to Weymouth were suspended for the remainder of the day and a bus service substituted.

Public hearing of the evidence commenced on 20 July 1989 at the Tree Tops Hotel, Bournmouth. At that hearing a number of witnesses were advised not to give evidence on the grounds that it might prejudice further legal proceedings unless limited immunity was granted by the Director of Public Prosecutions; such immunity was not forthcoming and the Inquiry was adjourned on 21 July 1989. The Director of Public Prosecutions decided during March 1990 that no prosecution proceedings should be brought and the Inquiry was reconvened on 15 and 16 May 1990 at the Chesterwood Hotel, Bournemouth.

I was assisted throughout the Inquiry by Mr Myles Sibley, an Inspecting Officer of HM Railway Inspectorate. My report and recommendations are submitted herewith.

W J May
HM Principal Inspecting Officer of Railways

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THE ACCIDENT

1 At about 12.02 on a dry but overcast day, a diesel locomotive, No 33107, en route between Winfrith and Bournemouth Depot, was travelling light at speed under clear signals along the Up line between Wareham and Hamworthy Junction. At the same time the 11.45 Wool to Eastleigh freight train 6W54 was accelerating away from a stand after carrying out shunting duties at Holton Heath Siding.

2 After travelling about 450 m from the siding, the freight train was struck heavily in the rear by the light locomotive; the rearmost wagon being a Type VAA four-wheeled covered van with long sliding doors and loaded with bagged and palletised ball clay. The locomotive overrode the solebar of the VAA van, sheared off the rearmost corner posts and end wall, and pushed the load forward almost 2 m. Both trains came to a stand 130 m from the point of impact. Although the locomotive was extensively damaged and the leading bogie derailed, the integrity of the driver's cab remained intact. The traction current was automatically discharged due to the conductor rails being earthed by a short circuit that resulted from the derailment.

3 Evidence was adduced that Driver Brooker, after applying the brakes, probably realized that a collision was inevitable, attempted to escape being crushed in the cab by standing either in a cab doorway or on the cab steps, and met his death by being thrown to the ground in the collision. It remains a matter for speculation whether he had made his way to the rear cab before the collision. The driver and the guard of the freight train were not injured except for shock and minor bruising.

4 Train services from Waterloo to Wareham and Weymouth were terminated at Poole and a bus service substituted. The line remained closed for the remainder of the day while the locomotive was rerailed and repairs to minor track damage completed; normal services were restored the following morning.

DESCRIPTION

Site and signalling

5 The line between Wareham and Hamworthy Junction is a 7.6 km long section of the main line between Weymouth and London Waterloo, electrified on the 750 V dc third rail system. There are two lines of way lying more or less east to west with the Up line to London to the north. Trains are controlled by multi-aspect colour light signals operated from signalboxes at Wareham and Hamworthy Junction and are signalled under the BR Absolute Block Regulations. The location and general layout at the site of the accident is shown in Figure 1 overleaf.

6 Holton Heath Siding is 3950 m from Wareham and 188.5 km from London. It is a siding with a single track parallel to and adjacent to the Up line. The siding is privately owned, fenced and gated from the railway, and connected to the Up line by trailing points controlled and operated from a switch-type ground frame, electrically released from Wareham Signalbox. A two-aspect colour light signal, No WR6, controls the egress from the siding to the running line.

7 The Up line between Wareham and Holton Heath Siding was fully track circuited. The easternmost track circuit section, 'R', was divided into three sub-sections numbered 'R-1', 'R-2' and 'R-3', with sub-section R-3 including both point ends of the connection to the siding. Neither the siding itself nor the Up line between the point ends and the approach to Hamworthy Signalbox were track circuited. Therefore should the illuminated track diagrams within Wareham or Hamworthy Signalboxes be showing clear, the signalmen would be unable to determine solely from the indication on their panels whether a train was standing within the siding or on the running line to the east of the siding points.

8 Travelling eastwards from Wareham to Holton Heath Siding the line is straight on a falling gradient of 1 in 670 as far as the siding. Opposite the west end of the siding a right-hand curve of radius 1200 m (60 chains) commences. Both sides of the line on the curve are bounded by trees restricting forward visibility to about 450 m (508 yards). The collision occurred about 200 m from where the line again straightened.

The Holton Heath ground frame

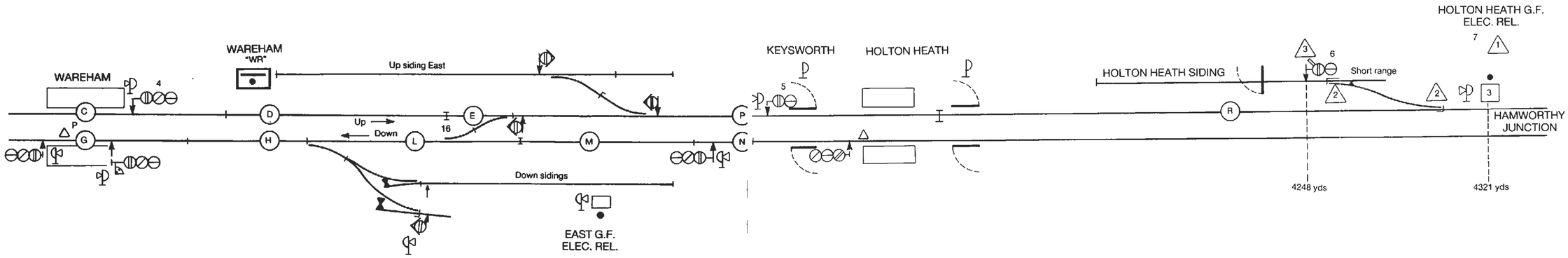
9 A modern form of ground frame is installed at Holton Heath with electrical switches, mounted in a lineside cabinet, which operate the power points and a colour light signal. A diagram showing the fascia plate on which are mounted the switches and indication lamps for the ground frame control panel is shown in Figure 2. The control panel has three switches each with indicator lamps to confirm the state of the switches. The sequence of operation of the ground frame controls is as follows:

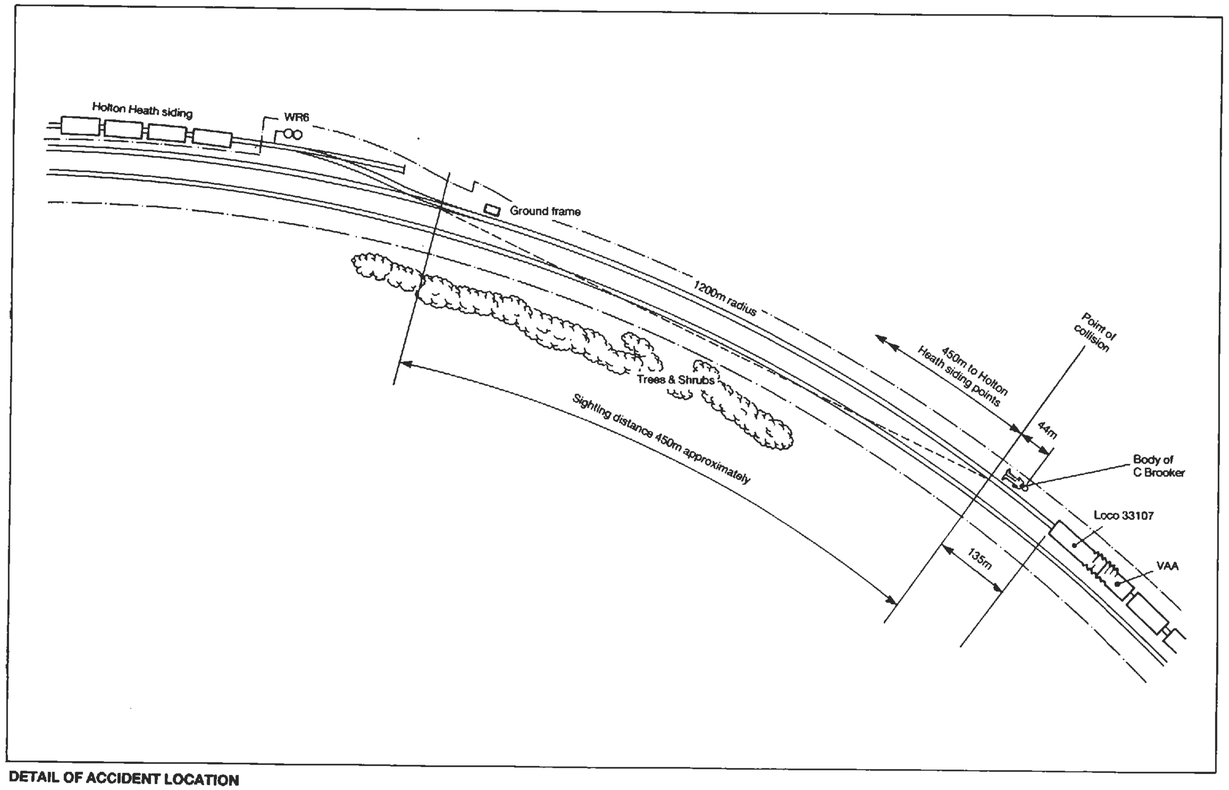
(a) with Release Switch No 1 and Release Lever 7 in Wareham Signalbox both reversed, the lamp marked 'Free' is illuminated to indicate that control of the ground frame has been handed to the guard or shunter;

(b) simultaneously Lever 5 in Wareham Signalbox is locked to prevent the Up Advanced Starting Signal WR5 showing a proceed aspect;

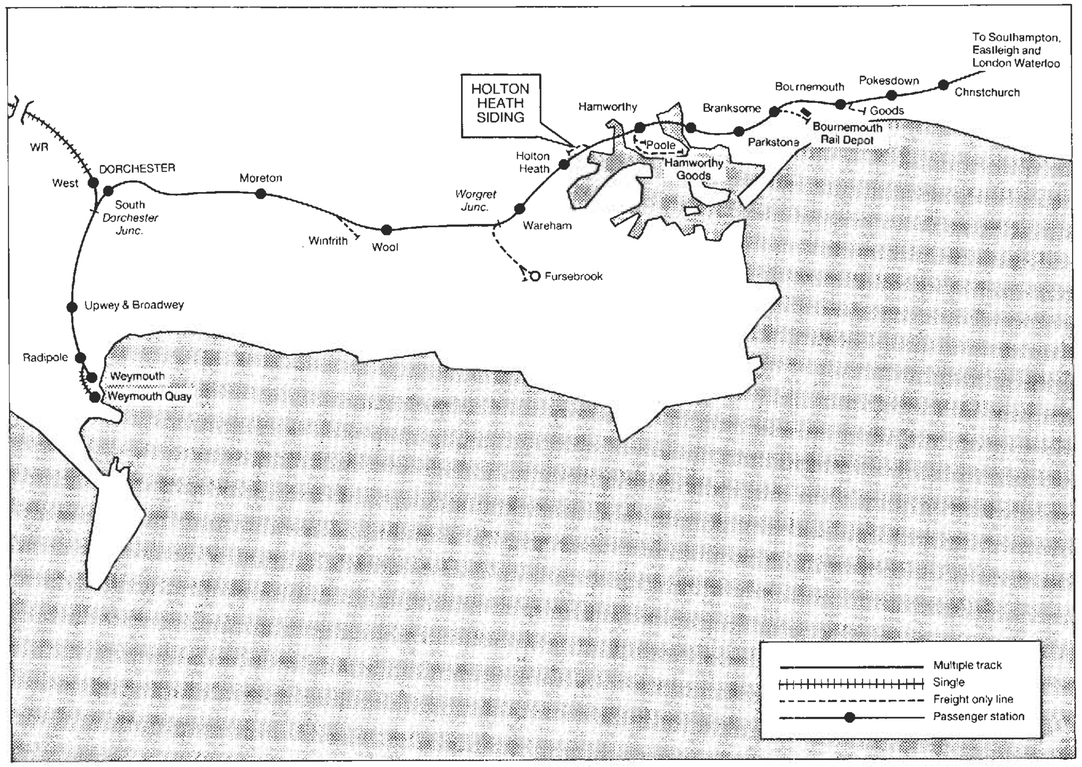
(c) Points Switch No 2 may be reversed or normalized providing track sub-section R-3 is not occupied; the white indicator lamps will illuminate as

Figure 1 Location and general layout at site of accident





DETAIL OF ACCIDENT LOCATION



MAP OF AREA

appropriate when point detection has been proved;

(d) wagons detached and left on the running line during shunting are required to stand on track sub-section R-2.

(e) Signal Switch No 3 may be operated at any time. However Signal WR6 will not show a proceed aspect nor will the console indicator lamps change unless Points Switch No 2 is reversed **and** track sub-section R-3 is not occupied **and** the 'Slot' Lever 6, in Wareham Signalbox, is reversed.

The trains

10 The trains involved were the 11.45 Wool to Eastleigh freight train 6W54 and the unscheduled Winfrith to Bournemouth Depot light diesel locomotive 0Y77.

11 The freight train consisted of eight wagons hauled by an electro-diesel locomotive No 73002; the rearmost wagon being the Type VAA four-wheeled covered van with long sliding doors and loaded with bagged and palletised ball clay. The freight train, including the locomotive, had a gross weight of 227 tonnes and a total brake force of 135 tonnes. Its overall length was 114 m. The freight train, being a Class 6 train with the above weight and brake force characteristics, was subject to a maximum speed limit of 60 mile/h (100 km/h). The light locomotive weighed 79 tonnes. It was fitted with dual air and vacuum brakes with a maximum brake force of 35 tonnes. The maximum operating speed of a Class 33 locomotive is 85 mile/h (136 km/h) but is restricted when travelling light to 75 mile/h (120 km/h). However since the line speed between Wareham and Hamorthy Junction is 85 mile/h (136 km/h), light locomotives are restricted to 60 mile/h (100 km/h).

Operating instructions

12 The operation of the railway is subject to the provisions of the British Railways' Rule Book. Sections B. 2.5, C. 6.3.2, D. 2.1 and J. 3.1 are particularly relevant and are reproduced at Appendix 1 at the end of this report. General instructions regarding electrically released ground frames are contained within Part 4 of the Southern Region Sectional Appendix to the Working Timetable and Books of Rules and Regulations and are reproduced at Appendix 2.

EVIDENCE

13 *Mr K Hacker, Operations Manager (SW)* Southern Region, made an opening statement giving brief details of the accident. He had been directed by the Regional Operations Manager to hold an internal inquiry into the accident and, whilst not attempting to indicate the conclusions reached or the recommendations made, stated that nothing amiss was found with either the rolling stock or signalling equipment involved.

Evidence of design and installation of signalling

14 *Mr C Porter, Signal Engineer Southern Region*, gave a brief description of the working of the line between Wareham and Hamworthy Junction under the Absolute Block Regulations. He explained that although the system was old in principle, it remained in extensive use throughout British Railways and is common in many parts of the world.

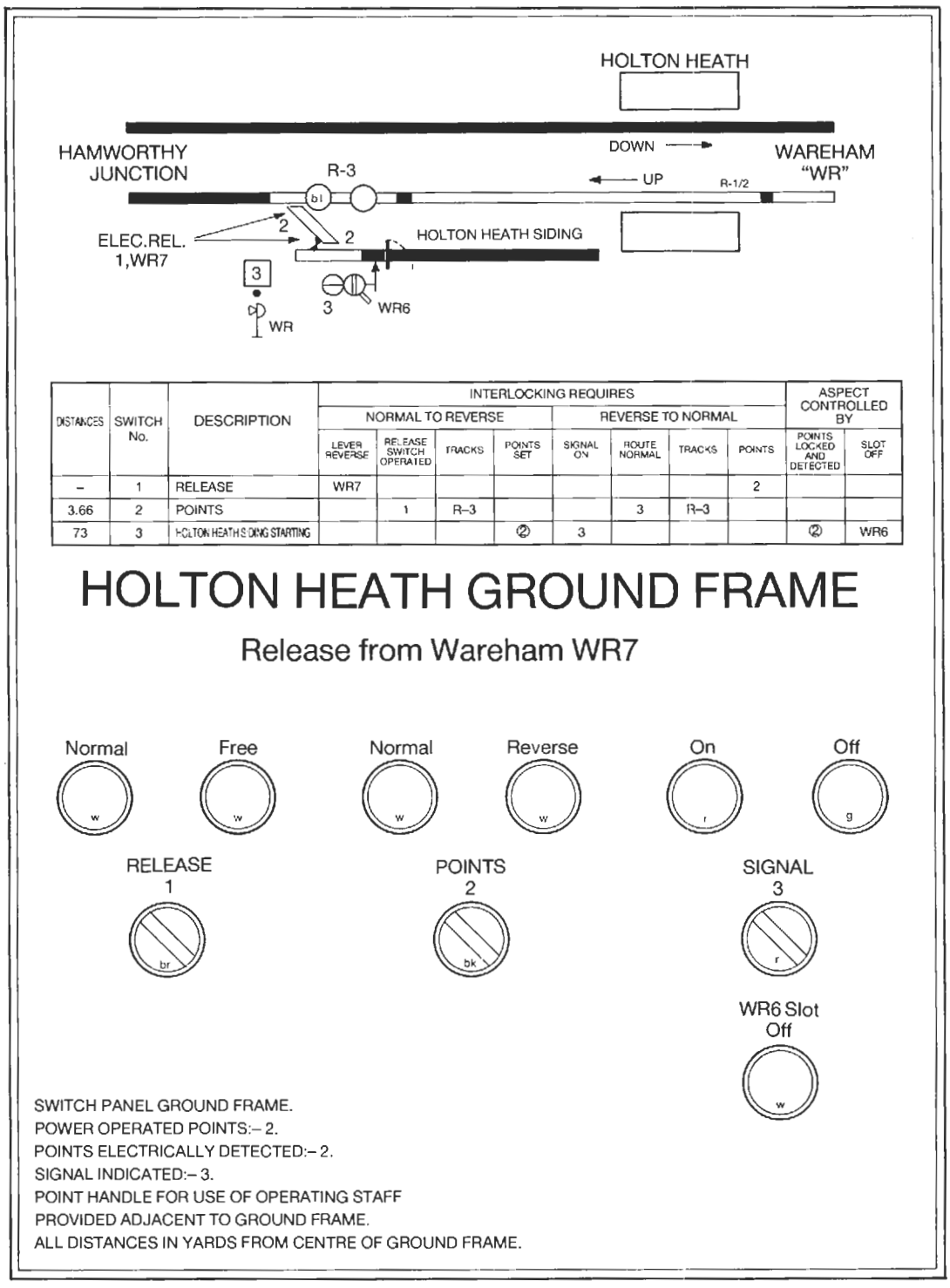
15 Where a siding or goods yard is located within a block section but out of sight of either signalbox, and access is not frequently required, a separate fully-equipped signalbox is usually not justified. Provision is made to operate the points and signals controlling access to and egress from the siding by means of a set of remote controls known as a ground frame. Traditionally, this has been a manually operated lever frame, usually in the open air, and normally operated by a shunter, secondman or guard under the direction of the signalman. The frame comprises as many levers are there are points and shunt signals which it controls and an additional locking lever to prevent the unauthorized movement of the other levers. The locking lever is locked and released either electrically from the controlling signalbox or by a release key.

16 The modern form of ground frame, as installed at Holton Heath, is a lineside cabinet, in which the levers are replaced by electrical switches mounted on a console and from which power points and colour light signals can be operated. Turning the switches will have no effect until a release is given electrically by the controlling signalman.

17 Notwithstanding the use of up-to-date equipment, the same principles of operation apply to the modern switch-type ground frame as the traditional lever frame. When a train is required to enter the Holton Heath Siding, the Wareham signalman first offers the train to the Hamworthy Junction signalman by bell signal who, if he is able to accept it, sets his block instrument to 'Line Clear' which is repeated at Wareham. Signal WR5 signals the train forward into the block section which the signalman at Wareham confirms by bell signal; the signalman in advance then places his block instrument to 'Train on Line' which locks the signals at Wareham and prevents another train being signalled into the section.

18 A train required to use the intermediate siding at Holton Heath would come to a stand at the ground frame clear of track circuit R; the shunter or guard requests the signalman at Wareham to release the ground frame in order to allow operation of the points. If required, and provided the whole train is able to stand inside the siding

Figure 2 Ground frame control panel at Holton Heath



DISTANCES	SWITCH No.	DESCRIPTION	INTERLOCKING REQUIRES								ASPECT CONTROLLED BY	
			NORMAL TO REVERSE				REVERSE TO NORMAL					
			LEVER REVERSE	RELEASE SWITCH OPERATED	TRACKS	POINTS SET	SIGNAL ON	ROUTE NORMAL	TRACKS	POINTS	POINTS LOCKED AND DETECTED	SLOT OFF
–	1	RELEASE	WR7							2		
3.66	2	POINTS		1	R–3			3	R–3			
73	3	HOLTON HEATH STARTING				②	3				②	WR6

Diagram 2 Ground frame control panel at Holton Heath.

Figure 3 *(above)* View of off-side of vehicles after collision

Figure 4 *(left)* View of near-side of vehicles after collision. Note the major displacement of the wagon compared to the distortion of locomotive cab

clear of the running line, the ground frame switches may be returned to 'Normal' and a clear understanding must be reached between the signalman and the shunter or guard as to the position of the train. The signalman withdraws the ground frame release to prevent further operation of the points, arranges for the cancellation of the 'Train on Line' on the block instrument, and continues to work other trains along the running line in the usual manner. The outlet Signal WR6 from the siding will remain at Danger.

19 When the train is ready to depart from the siding, the shunter or guard telephones the Wareham signalman to request the release of the ground frame. The signalman first offers the train to the signalman in advance and, when it is accepted, reverses Levers 7 and 6 to release the ground frame and allow the local operation of the outlet signal respectively. After the train has moved to the running line, all switches in the ground frame are returned to 'Normal' and the signalman withdraws the release for the ground frame. The train then proceeds.

20 *Mr D A Hotchkiss, Acting Signal Engineer (Works),* was in charge of the Croydon Project Office of the

Director of Signalling & Telecommunication Engineering and told me that he had been involved in the initial design of the installation at Holton Heath during 1988. During planning of the electrification of the line between Poole and Weymouth, a decision was taken at managerial level to retain the existing Absolute Block System of signalling between Branksome and Dorchester South where the mechanical signalboxes at Branksome, Poole, Hamworthy and Wareham were in an acceptable state of repair and maintenance. When the electrification programme was completed in 1987, approximately 19 km of line without track circuiting and three semaphore signals remained between London and Weymouth.

21 He said that the construction of the Holton Heath Siding had provided an opportunity to replace one of the semaphore signals and to reduce the length of non-track circuited line to 17 km by the installation of track circuit R on the Up line. When questioned about the extent of track circuiting provided, Mr Hotchkiss replied that had the track circuiting been extended to Poole, the project to construct the siding would have become unviable. The installation had therefore been carried out in accordance with Standard Signalling Principles published by the British Railways Board which did not require continuous track circuiting of sections containing intermediate sidings. Standard Signalling Principle No 58 required the exit from Holton Heath Siding to be protected by a main colour light signal, for which purpose Signal WR6 was provided.

22 The siding was constructed with the assistance of a grant under Section 8 of the Railways Act 1974. The scheme for this installation was submitted to the Department of Transport for approval which was given on 13 October 1988. No inspection was made by the Railway Inspectorate and the siding was taken into use on 7 November 1988.

23 Mr Hotchkiss stated that since the accident occurred, an additional track circuit of the Up line had been installed extending the track circuited section a further 250 m from the siding connection toward Hamworthy. By this addition, any train standing on the main line immediately to the east of the siding would be indicated to the signalman at Wareham Signalbox and lock the Up Advanced Starting Signal WR5 at Danger.

Evidence as to the circumstances leading to the accident

24 *Mr C G Hopkins, Station Manager, Poole*, said that during the morning of the day of the accident, he was telephoned by the Regional Controller and advised that a locomotive was *en route* to Winfrith Nuclear Power Station and he was required to provide a shunter. Because nobody else was available, he decided to accompany the locomotive to Winfrith and act as the shunter. He travelled in the cab of the locomotive with Driver Brooker who, in the course of their conversation, said that he had not driven a Class 33 locomotive for: "a couple or three months or even longer", because they had been superseded on passenger operations on the Weymouth route by Class 442 EMU stock. Driver Brooker made no complaints about the functioning of the locomotive and appeared to have no problems in driving it.

25 He had found Mr Brooker to be his normal cheerful self and no different from other times that they had spoken together. After the shunting had been completed at Winfrith, Mr Hopkins had returned in the locomotive cab to Dorchester South where he alighted to resume his normal duties. Mr Brooker was alone in the locomotive cab when he departed from Dorchester South in order to return to Bournemouth Depot.

26 Mr Hopkins was in the signalbox at Dorchester South when he was advised of the accident by telephone at 12.23. He travelled by taxi to Wareham Signalbox arriving about 13.00 and spoke to the signalman in order to ascertain the location of the accident. He then obtained a lift from a colleague to Holton Heath Siding. As he was walking along the cess from the siding to the site of the accident, he noticed a group of two or three men looking inside the ground frame control cabinet. He was unable to see inside the cabinet and therefore was unable to determine whether anything more than a cursory examination was being undertaken.

27 As the senior British Railways' employee on site, Mr Hopkins was effectively the incident officer. Although the emergency services were still on site and preparing to withdraw, he did not question anyone about the state of the traction current but assumed that it had been discharged. Mr Hopkins could see that the line had been protected with detonators but, as far as he could recall, short circuiting devices had not been placed to prevent restoration of the traction current.

28 The signalman on duty at Hamworthy Junction Signalbox at the time of the incident was *Signalman S J Jenkins*. He told me that at 11.38 the Wareham signalman sent a bell signal offering the 11.45 Wool to Eastleigh Freight Train 6W54, which he accepted. In a telephone conversation with the Wareham signalman he had learned that the train was to enter the Holton Heath Siding. At 11.58 he received the 'Cancelling' signal and was immediately offered a light locomotive which he accepted. After receiving the 'Train Entering Section' signal, the normal running time for a train between Wareham and Hamworthy is about six minutes. When sufficient time had elapsed for the light locomotive to have travelled through the section and it had not made an appearance on his illuminated track diagram, he telephoned the Wareham signalman who advised that

Figure 5 Entrance to Holton Heath Siding looking west

the light locomotive had cleared the Wareham track circuits and that he did not know its whereabouts.

29 A few minutes later the Electrical Traction Controller telephoned to advise that the circuit breakers supplying the traction current to the section between Hamworthy and Wareham had opened and it was presumed that a short circuit had occurred. Mr Jenkins received an Obstruction Danger signal from Wareham and, in a subsequent telephone call, learned that the collision had occurred; he therefore agreed to complete arrangements for the isolation of the electrical traction supply and to block the lines while the Wareham signalman made arrangements to summon the emergency services.

30 He said that prior to the accident there had been several occasions when a freight train had been unable to completely enter Holton Heath Siding, either because the siding was already partly occupied or because the train was too long, and arrangements had to be made to stable the train elsewhere.

31 *Signalman P Anken* was on duty at Wareham Signalbox at the time of the accident. He was an experienced signalman and had worked at Wareham for about five years. He told me that he had been there during the construction of the new siding at Holton Heath and was aware of the extent of the track circuiting. He had received no specific training in the operation of the ground frame at Holton Heath but was confident that he was aware of its working principles and was able to carry out the signalman's duties in connection with its operation. Nevertheless, although he was aware that the track circuiting did not extend beyond the points at Holton Heath Siding, he agreed that he rarely asked for confirmation from the ground frame operator that the train was clear of the running line before offering another train to Hamworthy Junction in accordance with the requirements of the BRB Rule Book . The relevant section of the Rule Book states:

J. 5.2.3 *"Where necessary, the Signalman must obtain an assurance from the Shunter or Driver when shunting is completed that all running lines are clear."*

32 He told me that during the morning before the accident, he was advised by the duty shunter that Train 6W54 was to enter Holton Heath Siding and leave two wagons. Signalmen at Wareham had no prior indication of the length of the freight trains with which they were dealing or whether wagons were already stabled in the siding. He presumed it was intended that the train would enter the siding, be shut in and wait there until it was scheduled to depart.

Figure 6 View from Holton Heath Siding looking east towards Hamworthy

33 He signalled the freight train into the section and saw the position of the train indicated on the illuminated track circuit diagram as it proceeded along the track. At 11.40, after Track Circuit R had shown occupied and then clear, the guard telephoned from the siding and requested a release of the ground frame. Mr Anken reversed Lever No 7 and saw an indication that the guard had operated Switch 1 and accepted the release. Track Circuit R again showed 'occupied' while the shunting movements took place. The guard telephoned again after about ten minutes and, said to Mr Anken: "Frame's normal, mate", and immediately hung-up the telephone receiver. Mr Anken saw that all the track circuits showed clear and, since he had neither enquired nor been told about the location of the train, he believed this to mean that the train was shut inside the siding and clear of the running line. He therefore sent the 'Cancelling' signal message to Hamworthy Junction Signalbox at 11.58. He then offered the light locomotive forward and this was accepted. The light locomotive departed from Wareham at 12.00.

34 While the freight train was working at Holton Heath, the light locomotive had come to a stand at Signal WR4 outside the signalbox and Mr Brooker, the driver of the light locomotive, had come to the signalbox in order to enquire about the cause of the delay. The 12.02 Wareham to Portsmouth Harbour passenger train was held in Wareham Station behind the starting signal awaiting its scheduled starting time. Since the light locomotive was not constrained by a timetable, Mr Anken decided to allow the light locomotive to precede the passenger train. When told, Driver Brooker said to Signalman Anken that he would: " not hang around" once the line ahead was clear in order to avoid delay to the passenger train. He was still standing in the signalbox when the release of the ground frame was given up. Signalman Anken said, addressing Mr Brooker: "It looks like you're on your way, Clive". The starting signal was cleared at 12.00 and the light locomotive departed normally. At about 12.15 Guard Galle telephoned Wareham Signalbox to advise that a light locomotive had struck the freight train in the rear.

35 When questioned about whether, in addition to releasing the ground frame, he had given permission for the train to proceed from Holton Heath Siding towards Hamworthy, Mr Anken denied either giving verbal permission or reversing the 'slot' lever to allow the siding exit signal, No WR6, to be operated from the ground frame.

36 *Driver A W R Kingswell* was at the controls of locomotive No 73002, at the head of the freight train. He had booked on duty at Eastleigh at 06.38 and had prepared the locomotive. He was joined in the

locomotive cab by Guard Galle who was to work the train with him that day. They departed from Eastleigh at 07.18, initially with 14 wagons. After shunting the train at Wareham, Furzebrook, Wool and, again, Wareham, they arrived at Holton Heath Siding at 11.48 hauling ten various wagons and were required to uncouple and stable the rearmost two of these in the siding.

37 Driver Kingswell noted that four wagons were already stabled in the siding and it was obvious to him that the partly occupied siding would not accommodate the freight train. The train was brought to a stand on the Up main line opposite where the siding owner's employees were loading or unloading the stabled wagons. Guard Galle called out a warning that the freight train was about to make a propelling movement into the siding and that the loaders should get off the wagons.

38 The train was again brought to a stand, with the locomotive opposite the ground frame, and Guard Galle alighted. Mr Galle gave the driver a hand signal to draw the train forward until the rearmost wagon was clear of the points. Being unable to see the driver, Guard Galle signalled the train to stop by operating the brake cock on the rearmost wagon. After Guard Galle had taken possession of the ground frame, he then crossed the main line and, from the cess of the Down line, hand signalled the driver to set back into the siding.

39 The train pushed the four wagons already stabled in the siding to within 25 m of the buffer stop. Three wagons and the locomotive remained standing outside the siding gates and foul of the main line while the two wagons were uncoupled by Guard Galle. Driver Kingswell said that his locomotive did not go in rear of Signal WR6 and he therefore did not know at any time what aspect it displayed. On completion of the shunting duties, a brake continuity test was carried out and Guard Galle gave hand signals for the freight train to proceed to the main line and come to a stand clear of the points.

40 After walking the length of the train, Guard Galle rejoined the driver in the cab and told him that everything was alright. Mr Kingswell then took the train forward and after travelling about 450 m and with the train travelling between 30 and 50 km/h the train was struck from the rear.

41 Mr Kingswell was questioned about the application of Rule C. 6.3.2 which states:

C. 6.3.2 *"When, however, any part of a train is ahead of a controlling signal in the direction in which it applies, the Driver must not start any movement in that direction until the signal has been cleared. If the Driver cannot see the signal, he must if necessary obtain an assurance from the Guard or Shunter that the signal is cleared. Where the signal cannot be cleared because of the occupation of track circuits and the train cannot be moved so that it is completely in rear of the signal, the Driver must personally obtain the Signalman's permission before moving in the opposite direction."*

42 He told me that the locomotive and at least three wagons remained foul of the running line and did not go behind Signal WR6. He therefore considered he had remained on the running line and was authorized to continue to Hamworthy Junction. He admitted that he had not specifically asked Guard Galle whether Signal WR6 was off. He said that Guard Galle was in charge of the ground frame and had spoken to the signalman by telephone. Therefore, when Guard Galle, who was an experienced man and in charge of the train, gave the hand signal to start, he had assumed that Guard Galle had either seen Signal WR6 showing a proceed aspect or that authority to proceed had been obtained.

43 Driver Kingswell confirmed that he was aware that the Absolute Block System applied but did not know and was not required to know the extent of the track circuiting in the area. He would not necessarily have been aware that, when his train was occupying Track Circuit R-3, Signal WR6 could not be released, or that when the train cleared the siding entrance, it would, to all intents, have been invisible to the signalman at Wareham.

44 The man in charge of Train 6W54 was *Guard E Galle*. Between the opening of my Inquiry and the reconvened hearing, Mr Galle reached the age of 65 and had retired after 38 years' service with the Southern Region of British Railways. I was most grateful that he had attended my Inquiry in order to provide valuable evidence. He said that he had worked trains into Holton Heath Siding on five or six occasions prior to the day of the accident and on the first occasion had been accompanied by a supervisor.

45 Mr Galle confirmed the evidence that Driver Kingswell gave regarding the events prior to the arrival of the train at Holton Heath Siding. He said that the siding held 11 wagons and, because there were already wagons stabled in the siding, he appreciated that the train would be too long to be locked inside the siding. He was required to uncouple two wagons from the trailing end of his train, and stable them in the siding.

46 Having alighted from the locomotive opposite the ground frame and on the outside of the curve, Mr Galle hand signalled the train to draw away. He waited until the last vehicle passed him and stepped into the four-foot way and operated the air-brake cock on the head stock of the trailing vehicle in order to bring the train to a stand. He said that he did not make a habit of using the air brake as a means of signalling to the driver from the ground, but in this instance he had little option because the locomotive was out of sight from where he was standing.

47 On the first occasion that Mr Galle spoke by telephone to the signalman at Wareham, he said: "Release for the frame, please", and he immediately hung up the telephone receiver. Having obtained the ground frame release, Mr Galle reversed the points switch and the switch for Signal WR6 for which, he claims, he obtained a change from red to green in the signal indicator lamps on the console. He said that he was not aware that a 'slotted signal' arrangement applied at Holton Heath. He then walked across the electrified main line in order to hand signal the driver to set back into the siding. The train was brought to a stand clear of the stabled wagons. Mr Galle uncoupled the requisite wagons, attached a tail-lamp to the last vehicle on the train and carried out a brake continuity test.

48 Mr Galle walked the length of the train, passing Signal WR6 but admitted he did not look at it because he was certain that it was already showing a 'Proceed' aspect following his operation of the signal switch and his seeing a green indication on the console. He gave a hand signal for the freight train to move from the siding out to the main line where it was standing, unbeknown to Guard Galle, on a non-track-circuited section of line. He restored the ground frame to normal and then telephoned the signalman for the second and last time and claimed he said: "We are leaving now." He told me that the message meant everything had been completed and that he had no option but to move and depart from the siding. He locked the ground frame cabinet, rejoined Driver Kingswell on the locomotive, and the train departed without any discussion about the telephone conversation with the signalman at Wareham or the aspect being shown by Signal WR6. As far as Guard Galle was concerned, because his train had not fully entered Holton Heath Siding, he had retained control of the Up line and had authority to proceed to the home signal at Hamworthy Junction.

49 Mr Galle considered that it was the responsibility of the Wareham signalman to be aware of the number of wagons stabled at sidings under his control and the length of trains attempting to enter such sidings, or the duty of the Freight Manager to plan movements in order to avoid such an occurrence. He did not consider it his responsibility to advise the signalman that he could not stable the train inside the siding and that it was necessary to continue along the running line. He considered that he knew how to operate the switch-type ground frame at Holton Heath which, as he said, was a matter of common sense. He confirmed that had he to carry out the same operation again he would do it in an identical manner.

50 *Police Constable G J Ruffel, British Transport Police,* was based at Bournemouth. He was notified of the accident at 12.25 and, accompanied by a police sergeant, attended the incident at about 12.50. He said that he found evidence of the initial point of impact at the location identified as 118 miles 62 yards from London, which is about 450 m from the connection to the siding. A body, later identified as that of Driver Brooker, was found 44 m on the London side from the point of impact. He was in the cess, laying parallel and close to the running rail with his head towards London. The rear of the light locomotive had come to a stand 132 m from the initial point of impact.

51 Between the point of impact and the body, the track and conductor rail showed typical signs of a derailment with damaged components of a locomotive and wagon laying beside the line. In the vicinity of the body were a pair of track circuit clips and, just under the body, was a broken buffer head with a second buffer head laying close by on the cess.

Evidence as to the testing and examination of Locomotive No 33107

52 *Mr A Goodman, Workshop Area Supervisor,* arrived on site at 13.45. Accompanied by the on-call engineer, Mr J Perry, he was able to see the interior of No 2 driver's cab that was at the leading end of the light locomotive. Access by way of the cab doors at No 2 cab was impracticable because of damage to the leading end; access was therefore made via the rear cab and through the engine room. The door between the engine room and the No 2 cab was jammed and nobody was able to enter the cab. Mr Goodman was able to see through the door window that the driver's master switch was in the 'engine only' position, the controller was off and the key was still in place. The driver's brake valve was in the emergency application position. Although the Automatic Warning System (AWS) indicator displayed an all-black aspect, indicative that the last signal passed was at green, no reliance can be placed on its aspect after a collision as it may have been changed by the impact. The brake timing selector switch was set in the 'passenger' position.

53 After recovery, the locomotive was mounted on temporary bogies and transferred to Eastleigh Depot where it was tested by *Mr R G Jupp, Technical Support Engineer,* based at Stewarts Lane, during the weekend of 22 and 23 April. Mr Jupp said that whilst the cab had been severely damaged in the collision, it was not totally crushed as is usual in such accidents. It was found that the air reservoirs for the braking system and the batteries had been ripped from the underframe.

54 In order to allow the brakes to be tested, electrical wiring was replaced, the ends of broken brake piping sealed and another locomotive was used to provide auxiliary power. The time for a full straight air brake application was within the specified five seconds. The automatic air brake application time was slightly outside the specified time of eight seconds for passenger

operation which Mr Jupp accounted for by the failure to completely seal the damaged brake pipes. He was confident that the brakes on the locomotive were working within their normal parameters immediately prior to the accident. The cast iron brake blocks on both bogies were examined and were found to be in almost new condition; they had been fitted two days prior to the accident. The blocks were almost fully bedded in and were slightly coloured blue due to heating indicating that they had been subjected to a heavy brake application. The AWS was tested and found to work normally.

55 In describing the damage to the driver's cab, Mr Jupp estimated that the collision occurred when the light locomotive was travelling at a speed between 40 and 80 km/h faster than the freight train. He stated that the extent of the damage was far less than he would have anticipated after such a major collision. Because of their lighter weight, carriages or wagons were frequently thrust upwards in end-on collisions with a locomotive, resulting in the complete destruction of the locomotive cab. However, in this accident, the locomotive had over-ridden the buffers and underframe of the covered van and the effects of the impact were apparently cushioned by the load of bagged clay. Although the footwell in the driver's cab was slightly distorted, he said that he was able to sit in the driver's seat and carry out the testing at the driver's controls. The cab windscreen frames and cab doors were distorted but the glass was complete; only the small quarter lights were broken.

56 *Signalling and Telecommunications Supervisor Mr J A Sweet*, was based at Bournemouth. He told me that he was working in the vicinity of Hamworthy Signalbox when he learnt of the accident and he went to Holton Heath Siding, arriving at 12.20. He immediately noted that Signal WR6 was showing a Danger aspect and No 2 points were in the 'Normal' position. The points were undamaged indicating that they had not been run through. The ground frame cabinet covers were securely locked and he was unable to find anything amiss on a cursory inspection.

57 Mr Sweet said that he had asked the guard of the freight train, whom he learned was Mr E Galle, what had occurred. Mr Galle told him that after obtaining a release from Wareham Signalbox, he had operated the ground frame and, after the train had carried out its movements and returned to the main line, he had closed the ground frame and reported to the signalbox. Mr Galle was insistent that Signal WR6 at the exit to the siding was displaying a green light before the train moved out.

58 At the time of the incident *Mr D Lamb* was the *Acting Area Signal Engineer (Works) South-Western Division* and one of the 15 most senior Grade 1 signalling testers employed within the Southern Region. He confirmed that he had not been previously involved with the signalling equipment at Holton Heath and that the initial testing after installation had been carried out by another Grade 1 tester. Mr Lamb arrived on site on the day following the incident and headed a team of signalling testers who carried out full functional testing of the signalling at Holton Heath Siding and Wareham Signalbox. In his report to British Railways, Mr Lamb stated that the wiring, interlocking and signalling functions were found to be fully in accordance with the designed system. Nevertheless in his report he expressed personal reservations about the absence of track circuiting beyond the siding points.

59 Mr Lamb said that Signal WR6 had slotted controls. He said that the interlocking of Signal WR6 with the slotting arrangement and the occupation of Track Sub-circuit R-3 had been specifically tested and was found to operate correctly.

Evidence as to the training and examination of the operating department staff

60 *Area Traction Inspector T W Johnson* told me that he reviewed the performance of drivers in order to ensure standards were being maintained, and examined new developments involving train and track layouts in the Bournemouth area. He had known both Driver Brooker and Driver Kingswell, the driver of train 6W54, for many years and found both to be very conscientious in the performance of their duties. He had accompanied Driver Brooker on a routine journey two months before the incident in which he lost his life and had no criticism of his performance.

61 Advice to staff that Holton Heath Siding had been commissioned and was in use was first published by the Regional Operations Manager in the Weekly Operating Notice for the week 5 to 11 November 1988 which stated:

"Monday, 7 November - Holton Heath - A new 2-aspect Red/Green signal numbered WR6 will be provided at the exit of the new siding 530 yards London side of Holton Heath Station. The red aspect will be 12 feet above rail level. A green aspect at WR6 indicates that the line is clear as far as signal No HW7. A signal post telephone will be provided.

The new points, previously clipped and padlocked, will be brought into use and will be controlled from a new ground frame. A direct line telephone to Wareham signal box will be provided at the ground frame."

62 Mr Johnson said that since Holton Heath was a comparatively simple layout, the operation of which was governed by existing rules and instructions, it would not have required the publication of a 'Special Notice' which would have included a layout drawing and a full description of the signalling. The Absolute

Block Signalling remained unchanged and the train crew would have no need to know that the track circuiting had been extended to include the points to the siding.

63 Subsequent to the accident an amendment to the instructions contained in the Sectional Appendix was published on 15 July 1989 which read:

"Up freight trains working to this siding may be shunted for other trains to pass and, in this connection, the following instruction must be observed.

When the train arrives at the siding, the ground frame operator must ask the Signalman for the siding points to be released. Before giving the release, the Signalman will come to a clear understanding with the ground frame operator as to whether the train is to be shut in the siding.

If the train is to be shut in the following procedure must be carried out.

When the train has been shunted clear of the running line, the Up line is clear and the siding points have been replaced to normal, the ground frame operator must advise the Signalman.

When the train is ready to leave, the ground frame operator must advise the Signalman and request him to release the ground frame and clear Signal No WR6. When the train has been brought out of the siding and the siding points have been replaced to normal, the ground frame operator must advise the Signalman. The train must not depart until the Signalman indicates that it is in order to do so."

64 *Mr P G Whiting, Area Movements Inspector,* told me that among other duties he was required to examine signalmen in their knowledge of the rules and regulations appertaining to the working of the railway. He explained that although a formal organisation existed for the initial training of signalmen, when new arrangements were introduced, such as that at Holton Heath, additional training was not formalized. There are other sidings between Wareham and Hamworthy which are within station limits, that is within the control of Signal WR5, and notwithstanding that Holton Heath was the first at this location to be in the block section, no official written instructions were issued for the operation of the ground frame. Nevertheless, Mr Whiting was confident that all signalmen likely to operate Wareham Signalbox were aware of the length of Holton Heath Siding and the number of wagons it could accommodate, the procedures required for its operation and the implications of the limited track circuiting provided. The illuminated track diagram within Wareham Signalbox had been amended to include Track Circuit R and Holton Heath Siding.

65 When questioned about the provision of instructions, Mr Whiting said that, of his own volition and assisted by Peter Baker, the Area Trains Inspector based at Bournemouth, he had prepared the instructions shown at Appendix 3 which were issued informally to guards, and a copy was posted in the Wareham Signalbox. The instructions were prepared and distributed without reference to regional headquarters because they understood senior management did not consider additional instructions were necessary.

66 Regulation of the timing of trains is one of the duties of a signalman. The working timetable in force at the time of the accident shows Train 6W54, to arrive at Holton Heath at 12.16 and to depart at 13.31 or to continue to Hamworthy and remain there between 12.21 and 13.34. The timetable made no provision for the train to call at both locations. Mr Whiting explained that, had the signalman been aware that the freight train had to run early and out of course, he was required first to seek and obtain the agreement of all the signalmen controlling the line ahead of the freight train up to the point where it could be routed into a siding or clear of the running line. This is to ensure the safety of the line and to prevent undue delay to other passenger trains.

67 *Mr J Bartlett, Area Trains Inspector* based at Eastleigh, told me that he was responsible for testing the competency of guards based in his area in the performance of their duties. Newly recruited or promoted guards attend a course lasting seven weeks at a training school at either Basingstoke or London and normally they are instructed in the use of a conventional lever ground frame. Guards then undergo further training in the company of an experienced guard in order to learn the routes over which they will be employed. Examination of guards is carried out every two years and is a mixture of an interview and a set of predetermined questions.

68 Where equipment of a novel design is installed, guards would, where practicable, make their initial visit in the company of a supervisor or experienced guard. However no formal provisions existed at the time of the accident to familiarise qualified guards with new forms of ground frame beyond what appeared in Weekly Notices and the Sectional Appendix.

69 Mr Bartlett had received a copy of the local instructions prepared by Mr Whiting and Mr Baker which had arrived without a covering letter. He said that his initial reaction to the instructions was to consider that while they were useful, they were nevertheless superfluous since instructions for the operation of a ground frame were already contained within the Sectional Appendix. Nevertheless he made a number of photocopies and placed them on a shelf in the mess room used for the distribution of commercial publications and similar notices to guards.

70 The guards based at Eastleigh were required to operate alone at the ground frames at Winfrith and Holton Heath: at all other locations they would be accompanied by a locally-based shunter. The question of supplementary instructions had never previously arisen.

71 *Mr K C Hood, Area Traincrew Manager, Southampton* was the Chairman of a local departmental safety committee on which *Mr S C Runciman, a Guard,* sat as a representative appointed on behalf of the Eastleigh guards under the Safety Representatives and Safety Committees Regulations 1977. Mr Runciman told me that, with three colleagues representing the Staff Side, he had attended a meeting on 5 January 1989 at which discussions about the recently introduced siding at Holton Heath were held. The minutes of the meeting were produced which read:

"The Staff Side were concerned that no Guard had been trained to work in the sidings and that it involved working with a ground frame. The Chairman acknowledged what Staff Side said and would try to obtain radios to overcome the problems."

72 Mr Hood agreed that the question of additional training for guards at Holton Heath had been requested by the Staff Side. Mr Hood explained to me that he did not consider additional training was necessary as the principle of the operation of the ground frame at Holton Heath was the same as for a lever frame except that levers had been replaced by electrical switches and no further action was taken. There was agreement that sighting of hand signals was difficult due to track curvature and that radio-telephones should be provided to afford communication between the guard and the driver during shunting operations. Radios were delivered in June 1989 but due to technical difficulties, they were not finally commissioned until March 1990, some 11 months after the accident.

Commentary on the British Railways Rules applicable

73 The operation of a train while it is shunting is governed by the rules contained within Section J of the British Railways Rule Book.

74 Among the rules applicable to the circumstances at Holton Heath are the following definitions and rule:

J. 2.1 *" 'Shunting movements' - movements of trains or vehicles other than the normal passage along running lines.*

J. 2.5 *'Signalman' and 'points worked from a signalbox' - include a ground frame operator and points worked from a ground frame.*

J. 5.1.1 *'Before a movement is made over points worked from a signalbox, the Shunter (or Driver when not accompanied by a Shunter) must unless a signal is cleared for the movement, obtain the signalman's permission...The Signalman must give this permission verbally or by handsignal...' "*

75 I asked Mr J N Gibbons, Operation Standards Manager for the Southern Region, to comment on the rules in Section J and Rule C. 6.3.2 (shown at Appendix 1). Mr Gibbons explained that while the train was moving from the running line to the siding and was carrying out movements within the siding albeit having to use the running line, shunting movements were deemed to be taking place and Section J of the Rule Book was applicable. The 'Ground Frame Operator' became the 'Signalman' for the purposes of the Rules and was authorised to give permission for a train to pass a signal at Danger. Since there were no position light signals at Holton Heath, the ground frame operator could authorise Signal WR6 to be passed while it was at Danger providing the ground frame was released and shunting was taking place.

76 Once the decision had been made that shunting operations were complete and the train was ready to depart from the siding and continue along the running line, Section J no longer applied and Section H 'Working of Trains' became applicable; the 'Ground Frame Operator' reverted from the status of 'Signalman' to that of 'Shunter' and was then unable to authorise the train to pass Signal WR6 while it was at Danger.

Issues raised by the evidence

77 Before setting out my conclusions and recommendations, I consider it essential to address a number of issues, which, though subsidiary to the principal causes of the accident, are nevertheless germane to the circumstances leading up to the accident.

Were adequate instructions issued and training provided for the Holton Heath ground frame?

78 A great deal of conflicting evidence was heard about the adequacy of the instructions issued following the introduction of ground frame controls novel to the Southern Region: the official British Railways view was that the working principles of a switch-type ground frame were identical to those of mechanical lever ground frames which were in extensive use and familiar to all guards on the Southern Region and that additional instructions would be superfluous.

79 Nevertheless the safety representative of the guards rostered to work at Holton Heath had formally requested that additional training be given. In addition,

the supervisors of the staff required to operate Holton Heath Siding, Mr Whiting and Mr Baker, considered that the existing instructions were inadequate and took it upon themselves to draw up and issue additional instructions. The fact that these instructions could be criticized for lack of precision should not detract from the fact that they attempted to remedy a shortcoming that they believed management failed to recognize.

80 Signalman Anken said in the course of his evidence that he had received a number of telephone calls from guards at Holton Heath Siding asking for advice about the operation of the ground frame.

81 Whilst I agree with the contention of British Railways that the principles of operation of the switch-type ground frame were similar to lever-operated ground frames, the evidence suggests that there was sufficient uncertainty in a considerable body of employees to have justified additional training being provided for the staff required to work the equipment at Holton Heath. The Southern Region should, in my opinion, have produced an official description of the switch-type ground frame and carried out a safety audit of the operation of Holton Heath Siding.

Was Guard Galle adequately trained?

82 At the time of the accident, Mr Galle had completed about 37 years' service with British Railways and should have been thoroughly competent in his knowledge of the rules. However Mr Galle had considerable difficulty in expressing his interpretation of the rules applicable to the operation of a ground frame within an absolute block section and of the signalling that applied to it. Nevertheless, I believe he had a good understanding of the physical operation of the switch-type ground frame having been accompanied on his initial visit by a supervisor.

83 I consider that Guard Galle's ignorance of the rules applying to the operation of a siding within an absolute block section was such that, had he not already retired, I would have recommended that he be suspended from guard's duty until he received further training and examination in the rules. For the failure to monitor the performance of Guard Galle, the management of the Southern Region must bear responsibility.

Should the track circuiting have been extended beyond Holton Heath Siding and was the protection adequate?

84 It is not a requirement of the principles established by the British Railways Board for continuous track circuiting of the block sections to be provided where trains are signalled by the Absolute Block Regulations. The rules governing the location of trains carrying out shunting duties within a block section require that a complete understanding between the signalman and the shunter be achieved. Prior to the opening of my Inquiry I was shown a copy of a publication entitled *Standard Signalling Principles*, published by the Southern Railway in 1939, which, had it still been extant, required at Section 6, the provision of track circuits over the entire length of the block section within which a ground frame is located. In the course of his evidence, Mr Hotchkiss said that when he had joined the Southern Region in 1966, the 1939 'Principles' were already considered obsolete. He had been unable to determine whether it had been formally withdrawn. On 1 June 1987 a comprehensive index of instructions was published by British Railways which staff of the S&T Department of the Southern Region were expected to observe. The index did not include the Southern Railway's publication.

85 Where the line is continuously track circuited, as it was for most of the line between Waterloo and Weymouth, the location of a train can be determined from the indication displayed on a signalbox panel. Therefore the failure of a shunter and a signalman to come to a correct understanding about the whereabouts of a train is protected by the system. It is therefore significant that neither Signalman Anken nor Guard Galle considered it important to clarify the whereabouts of the train where track circuiting had not been provided at the critical area to the east of the siding points.

86 Had shunting been required to take place within Holton Heath Siding with wagons temporarily stabled on track sub-circuit R-2, it would have been necessary for the train to pass Signal WR6 at Danger, by authority of the Ground Frame Operator, and travel from the siding to the running line at least once to collect the wagons. The Ground Frame Operator would have to be concious of the difference between shunting operations and running movements so that he would be aware when he had authority to allow the train to pass a main aspect signal and when he had to refer to the signalman. I am therefore critical of an arrangement which requires a running signal to be passed at Danger during normal working which is contrary to the operating principles of the railway.

CONCLUSIONS

87 I conclude that the accident happened because of a series of failures in the application of operating procedures, principally by Guard Galle but also by Signalman Anken, and to a lesser extent, by Driver Kingswell. These mistakes were exacerbated by shortcomings in the design of the signalling protection.

88 I find that Guard Galle failed to advise Signalman Anken during either of their telephone conversations that Train 6W54 was too long to be shut away in Holton Heath Siding and that the train was standing on the

running line when the release of the ground frame was given up. Guard Galle further failed to advise Driver Kingswell that Signal WR6 was showing a Danger aspect when he hand signalled the train to move from the siding to the running line. Nevertheless it was the responsibility of the driver to obtain the assurance that the signal was clear or to personally obtain the signalman's permission to pass the signal. Signalman Anken did not know where the train was located and was therefore required to obtain an assurance that the running lines were clear when shunting was completed but failed to do so.

89 The positioning of Signal WR6 to control the exit from Holton Heath Siding to the running lines served no purpose when the train was too long to enter the siding. The operating method for shunting in the siding required this signal to be passed at Danger contrary to the operating principles of the railway.

90 There is no evidence to justify any criticism of the conduct of Driver Brooker, who sadly lost his life in the accident. Mr Brooker was driving his light locomotive under clear signals and he was unable to slow his locomotive sufficiently in order to avoid a collision when the freight train came into view. From the information provided by Police Constable Ruffel, it is probable that Driver Brooker was standing either in the threshold of the cab door or on the cab steps when the collision occurred and that he was thrown to the track where he met his death. I do not consider there is sufficient evidence to determine from which cab he was thrown.

91 The Clapham Junction Railway Accident Report* was published after the events of this report took place. Recommendation 91 required that BR fault-finding teams be accompanied by a police officer and a photographer to provide for the proper recording and retention of evidence. It is therefore unlikely that there will, in future, be a repetition of the circumstances witnessed by Mr Hopkins where a group of people were seen examining the ground frame control cabinet without a senior S & T tester or police officer being in attendance. Nevertheless I am confident that the equipment was not interfered with before it was examined and the signalling system was functioning as it was designed to operate at the time of the collision.

92 I similarly conclude that the examination and testing revealed no problems in performace or braking with either the light locomotive or freight train involved.

93 Sections 2, 3 and 7 of the Health and Safety at Work etc Act 1974 applied to the operations being undertaken at the time of the accident. I do not consider that enforcement action under the Act would be appropriate in this case.

*_Investigation into the Clapham Junction Railway Accident_ by Anthony Hidden QC Published by HMSO 1989
ISBN 0 10 108202 9

RECOMMENDATIONS

94 Whilst it is regrettable that the accident resulted in the tragic death of Driver Brooker, it was chance that the collision involved an unscheduled light locomotive. Had the 12.02 Wareham to Portsmouth Harbour passenger train been the next Up train, the toll of casualties could possibly have been much higher. Therefore the circumstances of this accident and the recommendations made must be considered in the light of this eventuality.

95 I am pleased to report that British Railways has already taken action on many of the short-comings that the circumstances of this accident have revealed. In August 1989, a new Standard Signalling Principle, No 56, (reproduced at Appendix 4) was published which requires, *inter alia*, a track circuit to be provided to cover the ground frame points at intermediate sidings at a maximum train length plus 100 m on the approach side and extending to 200 m beyond the toe of the points. This track circuit is to be indicated in the controlling signalbox. In addition, the Signalman's General Instructions relating to the working of ground frames have been amplified.

96 A review was undertaken of the likely numbers of existing intermediate sidings without track circuiting on British Railways and it was estimated that the number was small. I recommend that similar track circuiting be provided at all such sidings retrospectively within a period to be agreed with HM Chief Inspecting Officer of Railways.

97 Nevertheless Rules C. 6.3.2 and J. 5.1.1 remain complex as to when a Shunter may authorize a Driver to pass a signal at Danger and when authority must be given only by the Signalman. In my opinion the Rule Book is not explicit as to when the Ground Frame Operator is acting as a Shunter and when he is to act as the agent for the Signalman and I recommend that instructions be issued to clarify the Rules.

98 Rule C. 6.3.2 should further be altered to make clear that it is mandatory for the Driver to ask the Shunter or Guard specifically what aspect an obscured signal is showing by the deletion of the words "if necessary" in the existing Rule.

99 At Holton Heath Siding, where trains are required to pass Signal WR6 at Danger during shunting operations and there is the possibility that trains are unable to be shut inside, the provision of outlet signal serves little purpose. I therefore recommend that a main running signal be placed at the limit of shunt on the running line to extend the existing station limits of Wareham Signalbox; an outlet signal will not be essential since access to and egress from the siding may be undertaken only after the release of the ground

frame. Standard Signalling Principle No 58, published since the events described in this Report, requires a main outlet signal to be provided at siding exits where this is considered to be necessary either for safety reasons or for operating expediency. It would be provided where there are regular right of way movements from the siding and the signal may not be seen when entering the running line. I recommend that this Principle be amplified to reflect the restrictions imposed by small sidings.

100 Although I do not believe that ignorance of the operation of the ground frame electrical controls at Holton Heath was a major contributory factor in the cause of the accident, it was evident that there was considerable uncertainty surrounding its method of operation amongst a large proportion of the staff required to use it. I therefore recommend that British Railways review its procedures for staff training when novel equipment is first introduced to an area.

101 The monitoring of Guard Galle in the performance of his duties and implementation of the rules is a matter of concern and I recommend that British Railways must review its monitoring of performance of long established staff in safety related tasks.

APPENDIX 1 Extracts from the British Railways Board Rule Book, issued June 1988

SECTION B. DUTIES OF EMPLOYEES ON OR NEAR THE LINE

2 SAFETY OF TRAINS

2.5 Messages concerning safety

2.5.1 Messages concerning train movements or safety of the line must be properly understood by both parties whether by radio, telephone or face to face.

2.5.2 The person giving the message must:

(a) identify himself and ensure he is speaking to the correct person

(b) say from where he is speaking when using the radio or telephone

(c) ensure that the message is repeated back and fully understood before finishing the conversation

2.5.3 The person receiving the message must:

(a) identify himself and establish the identity and, when using the radio or telephone, the location of the caller

(b) repeat the message to the caller and ensure he clearly understands it

2.5.4 The phrase "not clear" must not be used in a message intending to mean that a line is blocked. The message must be given positively by using the phrase "... line blocked".

2.5.5 Instructions to pass a signal at Danger must be given in accordance with Section D. Other instructions from the Signalman to the Driver must be communicated directly or via the Guard, Pilotman, Handsignalman or employee not below the grade of Senior Railman. If this cannot be arranged, the Signalman must arrange for the Driver or Guard to come to the telephone.

2.5.6 Where fixed radio equipment is provided on the train but the Signalman does not have facilities to call the Driver, he must, if practicable, avoid sending messages via a third party and instead arrange for the Driver concerned to call him.

2.5.7 The word "over" must be used at the end of each message given by radio except for the message concluding the conversation, in which case "out" must be used.

SECTION C. SIGNALS

6 DUTIES OF DRIVERS - GENERAL INSTRUCTIONS CONCERNING THE OBSERVANCE OF SIGNALS

6.3 Observance of signals when train or movement reverses

6.3.2 When, however, any part of a train is ahead of a controlling signal in the direction in which it applies, the Driver must not start any movement in that direction until the signal has been cleared. If the Driver cannot see the signal, he must if necessary obtain an assurance from the Guard or Shunter that the signal is cleared. Where the signal cannot be cleared because of the occupation of track circuits and the train cannot be moved so that it is completely in rear of the signal, the Driver must personally obtain the Signalman's permission before moving in the opposite direction.

SECTION D. PASSING SIGNALS AT DANGER AND/ OR MAKING MOVEMENTS IN THE WRONG DIRECTION

2 AUTHORITY FOR MOVEMENTS

2.1 Circumstances in which signals may be passed at Danger

The Signalman must not authorize a signal to be passed at Danger nor must the Driver pass a signal at Danger except in accordance with the appropriate Rules and instructions when:

(e) the signal cannot be cleared because a train or movement which has reversed is required to start from ahead of the signal.

SECTION J. SHUNTING

3 DUTIES OF DRIVERS AND SHUNTERS - CONTROL OF MOVEMENTS

3.1 General

Before shunting starts, the Driver and Shunter(s) must reach a clear understanding as to what is required and how movements will be controlled. The Driver must then work under the control of the Shunter and must not make any movement, even when a signal is cleared, unless authorised by him or by a shunting or other indicator operated by him. The movement must not pass a signal at Danger.

APPENDIX 2 Sectional Appendix to the Working Timetable and Books of Rules and Regulations, Part 4 General Instructions

WATERLOO
January, 1987

By order of the
General Manager

ELECTRICALLY RELEASED GROUND FRAMES

On arrival of a movement requiring use of the ground frame, the person-in-charge must ask the signalman for the ground frame to be released.

The signalman will advise the person-in-charge when the release has been operated. Where a visual indication is provided at the ground frame, the person-in-charge must ensure that a "free" or "release" indication is displayed before operating any switch or lever.

Note A time delay may occur before the release becomes effective.

When he is satisfied that the release has been given, the person-in-charge must reverse the release lever or operate the release switch to the "free" position which will permit the points to be operated.

At ground frames equipped with point indications, the position of the points need not be checked before a movement is made over them provided the appropriate normal or reverse indication is illuminated and, where provided, the signal controlling movements over them is cleared. Such signal must not be operated until the point indication is correctly illuminated.

When shunting has been completed the person-in- charge must ensure that the normal point indications, where provided, are illuminated before replacing the release to normal. The signalman must then be advised, whereupon he will cancel the release and advise the person-in-charge that this has been done, after which normal working may be resumed.

Should a point indication not become correctly illuminated within approximately 15 seconds of the switch being operated, and a signal worked from the ground frame is provided, the points must be examined. If they are in the correct position and it is possible to clear the signal, the person-in- charge may assume that the indication has failed and the movement may proceed. When this is not possible or where no signal is provided, no movement must be authorized and the person-in-charge must advise the signalman and act on his instructions.

The person-in-charge must not authorize a movement to pass a signal at danger without the signalman's permission. Before giving permission, the signalman will require confirmation as to whether the point indication is correctly illuminated.

Failure of any equipment must be reported to the signalman. If it is necessary for any points to be manually operated the procedure in the instruction headed "Clipped and padlocked emergency cross-over" must be observed.

APPENDIX 3 Locally produced operating instructions for Holton Heath ground frame

OPERATION OF HOLTON HEATH GROUNDFRAME
(THESE INSTRUCTIONS SHOULD BE READ IN CONJUNCTION WITH SECTIONAL APPENDIX PART 4 page 27/2t)

1. INWARD MOVEMENTS

1.1 Access to groundframe cabinet is by BR1 key.

1.2 The track circuit covering the points area MUST be clear, i.e. the two red lights on the diagram MUST be extinguished.

1.3 Telephone the signalman at Wareham for release.

1.4 When release is obtained, the 'free' light on the release switch will be illuminated.

1.5 Turn the release switch to the 'release' position.

1.6 Turn the points switch to the 'FREE' position, and ensure that the 'reverse' indication is illuminated.

1.7 A movement into the siding can now take place, controlled by hand signals/radio (in accordance with P.C.E.)

1.8 When the whole of the train is inside clear and the track circuit is unoccupied, replace the points switch to 'normal' place the release switch to 'locked' and advise the signalman.

2. OUTWARD MOVEMENTS

2.1 Telephone the signalman and request release.

2.2 When release is obtained, the 'free' light on the release switch will be illuminated.

2.3 Turn the release switch to the 'FREE' position.

2.4 Turn the points switch to the 'reverse' position, and ensure that the 'reverse' indication is illuminated.

2.5 When WR6 'slot off' indicator is illuminated, turn the signal switch to 'off'. Signal WR6 will now show a proceed aspect.

2.6 When the train has cleared the points area and the track circuit has occupied and cleared, replace the signal switch to 'on' the points switch to 'normal' (check for normal indication), the release switch to 'locked' and advise the signalman.

2.7 Re-lock groundframe cabinet.

N.B. When a portion of a train is left on the UP MAIN line, and a movement is to be made out of the siding, it will not be possible to clear WR6 signal. In this event movements must be controlled by hand signals.

IN CASE OF DIFFICULTY CONTACT THE SIGNALMAN IMMEDIATELY

AREA MANAGER SOUTHAMPTON

APPENDIX 4 Standard Signalling Principle No 56

CONTROL OF TRAILING CONNECTION WORKED BY INTERMEDIATE GROUND FRAME: RELEASED FROM THE SIGNAL BOX IN REAR: ABSOLUTE BLOCK LINE

1 INTRODUCTION

1.1 A Ground Frame contains a lever or an assembly of levers (in certain cases a small switch panel) to provide the means for the local operation of connections in the running lines. When the connection provides access to sidings it will be necessary to provide facilities for shutting a train in the siding to permit other trains to pass on the running line.

1.2 A Ground Frame is not a block post and may be operated by train crew, shunters or other suitably qualified staff.

1.3 The safety of movement through the connections operated from a frame is achieved by controls, including a release, which vary according to the system of signalling.

1.4 These requirements assume that the signal box which controls or protects the ground frame operation will have been equipped with Block Controls in accordance with the laid down minimum standards for the line classification.

2 REQUIREMENTS

2.1 Indicator to be provided at the ground frame to show when the release is available.

2.2 Telephone (not omnibus) to be provided for communication between the ground frame and the controlling signal box.

2.3 A track circuit to be provided to cover the ground frame points commencing at maximum train length plus 100 metres on the approach side and extending to 200 metres beyond the toe of the points. This track circuit to be indicated in the controlling signal box.

2.4 The ground frame release to require either the track circuit clear or the track circuit occupied for a time sufficient to ensure that the train has come to a stand. The signal protecting the ground frame to be locked normal unless the track circuit is clear and the ground frame is normal.

2.5 If the signal protecting the ground frame is released by the block at 'line clear' then the ground frame release requirements shall be amended as follows:-

either the track circuit clear and the block indicator at 'line clear' or the track circuit occupied for a time sufficient to ensure that the train has come to a stand and the block indicator at 'train on line'.

Operation of the ground frame release lever/switch in the controlling signal box shall prevent the release of the signal protecting the ground frame by the same 'line clear' and conversely.

SSP 56 August 1989

APPENDIX 5 List of parties and their representation

Mr Charles Utley * and *Mr Howard Leaderman* † of Counsel, instructed by Messrs Robin Thompson and Partners, appeared on behalf of the Associated Society of Locomotive Engineers and Firemen and the family of the late Driver R C Brooker.

Ms Laura Cox of Counsel, instructed by Messrs Robin Thompson and Partners, appeared on behalf of the Associated Society of Locomotive Engineers and Firemen and Driver A W R Kingswell.

Mr Barry Cotter of Counsel, instructed by Messrs Pattinson and Brewer, appeared on behalf of the National Union of Railwaymen ** and Signalman P Anken.

Mr Toby Kempster of Counsel, instructed by Messrs Pattinson and Brewer, appeared on behalf of the National Union of Railwaymen** and Guard E Galle.

Mr Keith Hacker, Operations Manager (South West) and *Mr Colin Porter*, Regional Signal Engineer, appeared on behalf of the British Railways Board.

Mr P Bralyk • and *Mr J Stevenson* † appeared on behalf of the National Union of Railwaymen**.

Mr E A Staton appeared on behalf of the Associated Society of Locomotive Engineers and Firemen.

Mr W A Frew • and *Mr P Davis** appeared on behalf of the Transport Salaried Staffs Association.

• Representatives attended on 20 and 21 July 1989 only.

† Representatives attended on 16 and 17 May 1990 only.

** During September 1990 the National Union of Railwaymen merged with the National Union of Seamen to form the National Union of Railway, Maritime and Transport Workers.

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