

DEPARTMENT OF THE ENVIRONMENT

RAILWAY ACCIDENT

Report on the Collision that occurred on 27th April 1973 at Kidsgrove Station

IN THE

LONDON MIDLAND REGION

BRITISH RAILWAYS

LONDON: HER MAJESTY'S STATIONERY OFFICE

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RAILWAY INSPECTORATE,
DEPARTMENT OF THE ENVIRONMENT,
2 MARSHAM STREET,
LONDON, SW1P 3EB.

17*th April* 1974.

SIR,

I have the honour to report for the information of the Secretary of State, in accordance with the Order dated 27th April 1973, the result of my Inquiry into the collision between a goods train and a stationary newspaper train at 04.20 on that day, at Kidsgrove Station in the London Midland Region of British Railways.

In the half light of dawn on a dry morning with good visibility, the 03.55 Crewe to Stoke-on-Trent newspaper train, consisting of 6 bogie vans and hauled by two Class 24 diesel-electric locomotives, was standing in Kidsgrove Up Main Platform when it was struck in the rear by the 02.20 Ordsall Lane to Cresswell goods train, travelling at about 12 m.p.h. The goods train, which consisted of 9 empty mineral wagons, 30 empty hopper wagons, and a brake-van, and was also hauled by two Class 24 diesel-electric locomotives, had previously run past a four aspect colour light signal at Danger and it was not until immediately before the collision that the brakes on the two locomotives and the fitted head were applied.

The collision caused extensive damage to the cab of the leading locomotive of the goods train and I regret to report that the secondman, who was driving at the time, was killed. The driver, who had been sitting in the secondman's seat, managed to escape from the cab and take refuge in the boiler compartment of the locomotive a few seconds before the collision occurred, thus escaping serious injury. The rear vehicle of the newspaper train, a brake-van, on being struck, was forced upwards with the result that it came into contact with the electric overhead line equipment, causing the circuit breakers to be tripped.

The emergency services were called out immediately, the fire services arriving at 04.29 and the first ambulance at 04.39. In addition to the fatal injuries to the secondman, four railway staff and two employees of newsagents suffered minor injuries, but did not require hospital treatment.

The damaged brake-van and the locomotive were cleared and the Up and Down Main lines, which had been blocked, were opened to traffic at 10.50 the same morning. During the period of the blockage, main line services were diverted via Crewe, whilst local services were terminated and reversed at Kidsgrove and Congleton, a special bus service being operated between the two stations.

DESCRIPTION

The Site and Signalling

1. Kidsgrove is the junction between the two-track main line from Manchester via Cheadle Hulme and Macclesfield to Stoke-on-Trent and the two-track branch line from Crewe to Stoke-on-Trent: the lines join in a double junction at the south end of the station. The station has a platform to serve the Down Branch line towards Crewe, a central island platform serving the Up Branch from Crewe and the Down Main line to Manchester, and a further platform serving the Up Main line from Manchester. Details of the track layout in the Kidsgrove area, together with the signalling associated with it, are shown on the plan at the back of this report.

2. Signalling on the Manchester to Stoke-on-Trent main line is on the Track Circuit Block System controlled locally from Kidsgrove Central Signal Box, located immediately to the south of the station: the adjacent signal boxes on this line are Mow Cop 11¼ miles towards Manchester and Bradwell Sidings 2 miles in the Stoke-on-Trent direction. The Absolute Block System of signalling is used on the Up and Down Branch lines between Kidsgrove Central and Alsager East Junction in the Crewe direction. The main lines are fully track circuited and are provided with four aspect colour light signals, together with British Railways standard AWS located 200 yards on the approach side of the signals. Kidsgrove Central Signal Box has a mechanical lever frame with mechanical interlocking, electrical controls and is provided with a track diagram above the frame, illuminated indications being given as track circuits are occupied by a train. Trains travelling from Manchester first appear on the track diagram when they are between 2 and 3 miles from Kidsgrove. The controlled signal on the Up Main line approaching Kidsgrove is No. 27, some 915 yards before the point of collision and 1,022 yards from Kidsgrove Central Signal Box. When signal No. 27 is at Danger, automatic signal No. 102, some 1,130 yards in rear, shows a single Yellow aspect, whilst automatic signal No. 104, a further 1,194 yards back, shows a double Yellow aspect.

3. Signal No. 27 must be maintained at Danger for any movement to be signalled off the Up Branch line through the junction onto the Up Main line south of it. The route from the Up Branch to the Up Main line cannot be restored to normal until the rearmost vehicle of a train has passed subsidiary signals Nos 49 and 50 at trap points No. 48. Then, before signal No. 50 can be cleared to allow a train to set back along the Up Main line into Kidsgrove Up Main platform, it is necessary, in addition to restoring the junction to normal and reversing No. 48 trap points, for levers Nos 24 and 25 to be reversed to provide a trap route away from the Main line at the Manchester end of the platform and for signal No. 27 to be at Danger.

The Electrification

4. The main line from Manchester to Stoke-on-Trent via Cheadle Hulme and Macclesfield is electrified on the 25 kV, 50 Hertz overhead system. Circuit breakers are provided at intervals along the line and those at Kidsgrove Central and Stoke-on-Trent were tripped as a result of the collision.

The Trains

5. The Crewe to Stoke-on-Trent newspaper train, 1K00, consisted of Class 24 diesel locomotives Nos 5032 and 5145 with a brake second corridor coach followed by a BG, a GUV, and three further BGs. The combined brake power of the locomotives and train was 80·5 per cent of their total weight of 342 tons and the total length was 449 feet.

6. The Ordsall Lane–Cresswell goods train, 8K52, consisted of Class 24 diesel locomotives Nos 5042 and 5049, 9 empty 16-ton vacuum fitted mineral wagons, 12 empty 24-ton hopper wagons, 18 empty 21-ton hopper wagons and a 20-ton guards van. The combined brake power of the locomotives and the fitted head of 9 'minfits' was 112 tons, the total weight of the locomotives and train was 529 tons, and the total length was 980 feet.

The Driver's Safety Device (DSD)

7. The DSD on Class 24 locomotives is operated by a solenoid valve arranged to control venting of the vacuum train pipe and to initiate an emergency brake application under specific operational conditions. The electrical control circuit is normally completed by the depression of the driver's pedal, but can also be completed by depressing a hand operated push button located on the secondman's side of the cab. The energisation of the solenoid valve isolates the vacuum train pipe from atmosphere. If the pedal, which is approximately 11 ins wide by 11 ins deep, is released while the locomotive's direction selector is in either the 'Forward' or 'Reverse' position, the valve is de-energised and, unless re-energised during a 6-second delay period, an emergency brake application will be made as the vacuum train pipe is vented to atmosphere.

The Course of the Accident

8. It is the normal procedure for train 1K00 to travel from the Up Branch line onto the Up Main line at Kidsgrove and then to set back into the Up Main Platform to unload. On the morning of the accident, it arrived at Kidsgrove at 04.14 and at the same time train 8K52 appeared on the track circuit diagram in Kidsgrove Central Signal Box. The signalman decided that the newspaper train should be given preference over the goods train and thus it drew forward beyond No. 50 subsidiary signal and then set back into the Up Main Platform, coming to a stand at about 04.17. About a minute after the newspaper train had stopped in the platform the signalman at Kidsgrove Central saw from his track circuit diagram that train 8K52 had passed No. 27 signal. Soon after he was able to see the train approaching the station. Realising that a collision was inevitable, he attempted to warn the people on the platform, but he was unable to do so due to the noise of the locomotives of the newspaper train. As train 8K52 approached the Up Platform more closely, it was seen by a civil police sergeant and constable at the station and also by the guard of the newspaper train, all of whom shouted warnings to the men unloading newspapers from the vans. Moments later the leading locomotive of train 8K52 struck the rear of train 1K00.

Damage to the Trains

9. Damage to the front locomotive, No. 5049, which had No. 2 end leading, of train 8K52 included the crushing of the front cab and the forcing back of all equipment above cab floor level towards the bulkhead between the cab and the boiler compartment. The bulkhead itself was bent backward and the door between the cab and the boiler compartment was jammed in the closed position. The buffers on the front of the locomotive were bent and the buffer faces sheered off. The rear locomotive and the wagons in the train suffered little or no damage.

10. The damage to the rear vehicle of train 1K00 was remarkably little and consisted of a buckled bogie frame, a bent gangway frame, two bent buffer rods, a broken buckeye tail piece and a damaged electric jumper cable terminal box. The 5th vehicle in the train had a bent bogie headstock and the 4th vehicle a fractured dynamo bracket.

Evidence

11. *Police Constable D. V. Lewis* of the Staffordshire County and Stoke-on-Trent Constabulary was standing on the Up Main Platform at Kidsgrove Station some 5 yards from the rear of the newspaper train when he saw a train approaching from the Manchester direction. Realising that a collision was imminent, he shouted a warning to the men unloading newspapers and stepped back from the platform edge. He did not hear the locomotive's horn being sounded as the train approached, but heard the screeching of brakes when the leading locomotive was about 20 yards from the rear of train 1K00 and noticed slight smoke coming up from underneath the locomotive.

12. Lewis estimated that the goods train was travelling at about 10–12 m.p.h. when it struck the rear of the newspaper train. Describing the actual collision, he said that the front cab of the locomotive was

crushed on impact and the rear of the brake-van was lifted up until it touched the electric overhead line equipment, whereupon there was a blinding blue flash.

13. He immediately contacted Kidsgrove Police Station by radio and requested that the fire and ambulance services should be called out. He then examined the front cab of locomotive No. 5049 and found that one man was trapped in the cab, and had received fatal injuries. He then saw a man, who proved to be *Driver Handley*, come out of the door of the rear cab of the locomotive. By this time he had been joined by *Sergeant Simpson* who questioned Handley as to what had happened. He and Handley then went to the back of the train to check that the guard had not been injured and, finding him in a shocked condition, they accompanied him back to the station.

14. *Sergeant S. K. Simpson* of the Staffordshire and Stoke-on-Trent Constabulary was sitting in a police car in the station forecourt when he first heard the approaching goods train. He immediately got out of the car and saw the train when it was 100–120 yards from the point of impact. From the sound of the diesel engines it seemed to him that they were idling and that neither locomotive was under power.

15. Simpson said that he did not hear the locomotive sound any audible warning as it approached the rear of the newspaper train. He was unable to estimate the speed of the goods train when he first saw it, but confirmed that at the moment of impact it was travelling at 10–12 m.p.h. He agreed that as a Police Sergeant he had had considerable experience in judging the speed of road vehicles and he considered that this estimate was accurate. He agreed with the description of the collision given by P. C. Lewis and stated that he was not aware of any appreciable forward movement of the newspaper train as a result of the collision. The main movement was the locomotive going into and under the rear end of the brake-van and lifting the latter up. He estimated that the newspaper train had been standing in the platform for at least a minute before the collision occurred.

16. Sergeant Simpson also summoned the emergency services by means of a radio message to the police control room, after which he went onto the platform and examined the crushed front cab of the locomotive with P.C. Lewis. In his opinion, *Secondman Green*, whose body was trapped between the front of the cab and the bulkhead, had been killed instantaneously at the time of the collision.

17. Sergeant Simpson said that he then saw Handley coming out of the door of the rear cab of the locomotive and he asked him what had happened. Handley stated that he did not know, as he had left the front cab two or three minutes before the collision occurred to investigate in the engine room the cause of a blue fault light that had come on in the cab. In answer to my questions, Sergeant Simpson said that he did not notice any smell from Handley's breath while he was questioning him.

18. Sergeant Simpson then tried to get through to the front cab of the locomotive from the rear cab, via the engine room and boiler room, but was unable to do so as the door from the boiler room to the front cab was jammed shut. After this he went over to the signal box to ensure that the necessary protection had been carried out.

19. Sergeant Simpson said that when he interviewed Handley again later that day he had admitted that his original statement was incorrect and that he had been in the cab immediately prior to the collision. He had said that he had been sitting in the secondman's seat and that Secondman Green had been driving. Handley had said that he must have fallen asleep and been awakened by an emergency application of the brakes followed by Green saying "hold tight Len". Handley had looked up and seen that they were about 60 yards from the rear of the newspaper train. Realising that a collision was inevitable, he had got out of the cab through the door immediately behind his seat leading into the boiler compartment and had then shouted to Green to follow him, but he had not done so.

20. The driver of the newspaper train, *Driver T. K. Baker*, said that he had a good run from Crewe. As he approached Kidsgrove Central signal No. 30 it cleared and he drove the train over the junction onto the Up Main line towards Stoke-on-Trent until the guard in the rear brake-van applied the brakes to inform him that the rear of the train was beyond signals Nos 49 and 50 and clear of trap points No. 48. The brakes were kept on by the guard until signal No. 50 cleared to allow the train to set back into the Up Main Platform. Baker explained that this was a regular arrangement he had with the guard when working this train because it was difficult for a driver to tell when the rear of a train was clear of the trap points.

21. As soon as the guard released the vacuum brake, Baker set the train back into the Up Main Platform at about 10 m.p.h., controlling its speed by using the locomotive's straight air brake. He stopped the train in the platform using the vacuum brake and then released it and held the train stationary with the front locomotive's air brake.

22. Baker estimated that the collision took place approximately two minutes after he had brought the newspaper train to a stand in the Up Main Platform. He was in the course of getting out of his seat when the impact occurred and he fell on the floor. He did not immediately realise that there had been a collision and thought that there had been an explosion. He re-applied the vacuum brakes and then got out of his locomotive to find out what had happened. On discovering that the rear vehicle of his train was sticking up in the air and resting on the crushed cab of the front locomotive of the goods train, Baker thought that the Down Main line had probably been fouled and so made his way to the signal box where the signalman assured him that

the necessary action had been taken to protect the obstruction. He then returned to the platform where he assisted the police in their attempts to release Secondman Green.

23. The guard of the newspaper train, *Guard H. V. Wild*, confirmed the evidence of his driver: he had signalled the driver to stop the train in the Up Main Platform using a red lamp, knowing from experience where the various vans should come to a stand in the platform. After his train came to a halt, he got out on to the platform and was about to jump down into the 'four foot' at the rear of the last vehicle to close the steam heating cock when he heard the goods train approaching. He looked up and saw the train approaching closely. He immediately shouted a warning to the men unloading newspapers and ran clear of the rear of his train.

24. Wild said it was difficult to estimate the speed of the goods train at the moment of impact, but he considered it was probably in the region of 15–20 m.p.h. He confirmed the details of the collision and, like other witnesses, did not think that his train moved forward on being struck in the rear. After the collision he telephoned the signalman and requested him to summon the emergency services, and then made his way to the rear of the goods train to check if the guard was all right. On finding him in a shocked condition, Wild carried out the necessary protection on the Up Main line, proceeding to signal No. 27, which he found displaying a Red aspect and at which a light diesel locomotive was waiting, and put three detonators on the line. The driver of the light locomotive in turn sent his secondman back to protect his locomotive from the rear by placing a further set of detonators. Wild said he did not think he had a track circuit operating clip in his guards van and in any event he had never used one to protect a train, nor had he ever been trained how to use one.

25. *Signalman J. H. Stubbs* was on duty in Kidsgrove Central Signal Box at the time of the accident, having started work at 18.00 the previous evening. He confirmed the entries in his Train Register Book showing that he had accepted train 1K00 from Alsager East at 04.05, received the 'Train Entering Section' bell signal at 04.08, and sent the 'Train Out of Section' bell signal at 04.14. As soon as the train came to a stand on the Up Main line beyond the junction and No. 48 trap points, he had reversed Nos 48 and 24 points, cleared No. 25 disc signal, and then No. 50 disc signal for the train to set back into the Up Main Platform.

26. Stubbs said that he had the route set for train 1K00 from the Up Branch to the Up Main line before he had any indication of the approach of train 8K52 on his track circuit diagram. He told me that he had restored the lever of Kidsgrove Central Up Main Home signal No. 27 to its normal position in the frame after the passage of the previous train on the Up Main line at 04.08, and that he had at no time during the approach of train 8K52 changed his route setting and cleared signal No. 27 to a proceed aspect. His indicator for the aspect of No. 27 signal had shown Red throughout the time train 8K52 was approaching it.

27. He was first aware of the approach of train 8K52 when he was altering the route to enable train 1K00 to set back into the Up Main Platform and he expected the train to come to a stand at signal No. 27 about ½ mile before the station. After the newspaper train had come to a stand in the Up Main Platform, Stubbs said he noticed from the track circuit indications that train 8K52 had passed signal No. 27 at Danger and soon after he saw it approaching the station. He endeavoured to shout a warning to the men on the platform, but found he could not be heard due to the noise of the diesel engines of the two locomotives of the newspaper train.

28. Moments later he heard the sound of the collision and saw a flash from the electric overhead line equipment. He immediately sent the 'Obstruction Danger' bell signal to the signalman at Mow Cop and telephoned the Traffic and Electric Controllers to report what had happened, to ask for the emergency services to be summoned, and for the overhead line equipment to be isolated.

29. *Mr. P. J. Owen, a Senior Technical Officer* on the staff of the Crewe Divisional Signal and Telecommunications Engineer's Department, said that he carried out a series of tests on the signalling to prove the integrity of the installation at Kidsgrove Central. He first checked the mechanical interlocking and proved that with lever No. 27 reversed, it was impossible to set up the route from the Up Branch to the Up Main line and conversely that, when the route was set up, lever No. 27 was locked normal in the frame. He then tested the electrical locks on levers Nos 27, 30 and 31 that prevent the levers being put fully back to the normal position unless a train has passed over the appropriate track circuits and cleared them, and that there was a timed release in the event of a train not occupying the track circuits. The electric locks all operated correctly and the timed release on lever No. 27 was 40 seconds as opposed to the 30 seconds delay which was officially laid down. Thus there was an additional safety period of 10 seconds before the signalman could restore lever No. 27 to normal. He then tested the cable and connections between lever No. 27 in the signal box and signal No. 27 to prove that there was no contact between any two wires or any one wire and the earth: all was found to be in order. The aspect sequences leading up to signal No. 27 were checked and found to be correct, as were all lamp voltages. He checked the actual wiring circuits for the AWS and the magnets, and found them to be correct, in particular the AWS for signals Nos 104, 102 and 27. Mr. Owen confirmed that the tests proved that all the signalling was correct, as was the integrity of the equipment and installation.

30. Mr. Owen then described some further tests that he had carried out, accompanied by two other senior members of the Divisional Signal and Telecommunications Engineer's Staff, to ascertain, if lever No. 27 had been reversed and replaced to normal in order to set up the route from the Up Branch to the Up Main line, the nearest position at which train 8K52 could have been on the approach to Kidsgrove when signal No. 27 was replaced to Danger. The tests clearly indicated that the train would have been on the

approach side of signal No. 104 and thus the driver would have received a double Yellow aspect at that signal, a single Yellow at signal No. 102, and a Red at signal No. 27, with AWS horns at each signal if the AWS in the front cab of the locomotive had been working correctly.

31. *Rolling Stock Inspector J. M. Breese* had examined the vehicles of both trains after the accident. He confirmed that the vacuum hoses were correctly coupled between the rear locomotive and the fitted head of the goods train, and that the brakes were still applied at the time of his examination. He examined the track leading up to the point of impact and found a number of skid marks on the rails, 9–10 feet long, underneath the wagons of the fitted head. In his opinion these were due to the wheels skidding as a result of a full brake application made shortly before the collision. He also confirmed that the handbrake of the guards van was firmly applied and that the brakes were in good condition. There were no signs of flats on the tyres of any of the fitted head, but there were brake markings indicating that the brakes had been fully applied for a short period.

32. *Rolling Stock Inspector J. M. Skellon* said that he had examined the two locomotives which had hauled train 8K52. His examination of the leading locomotive, No. 5049, did not reveal any fault that could have contributed to the accident or diverted the attention of the train crew from their normal duties. He found two fault indicator lights showing in the engine compartment of the rear locomotive No. 5042, but no actual faults. The indications could have been caused by the collision or have resulted from the 'trips' not being reset when these faults had been put right at an earlier date. He tested locomotive No. 5042 after the accident and found it in working order: its brakes were fully tested later and found to be in good condition.

33. Mr. Skellon, after describing the damage to the leading cab of locomotive No. 5049, said that he had found the AWS isolation switch in the isolated position. The equipment had been damaged by the accident but, in his opinion, the switch could not have been knocked into the isolated position by the collision and thus the AWS must have been isolated prior to the collision.

34. Mr. Skellon said that he also had found the brake switch in the position for hauling fitted trains, whereas it should have been in the 'unfitted' position when the locomotive was hauling a goods train with a fitted head. He explained that with the switch in the 'fitted' position the rate of application of the locomotive's brakes was too rapid for a train in which the majority of wagons were unfitted and, if a full brake application was made by the driver, the brakes on the locomotive would be fully applied in about 8 seconds as opposed to some 30 seconds if the switch was in the 'unfitted' position. The rapid application of the brakes would result in the excessive buffering-up of the unfitted portion of the train.

35. From his considerable experience in examining locomotives involved in rear end collisions, Mr. Skellon assessed that the speed of the goods train at the time of impact was about 15 m.p.h.

36. The guard of the goods train, *Guard T. J. Larvin*, aged 42, told me that he had joined Driver Handley and Secondman Green in the leading cab of the two locomotives, earlier on the night of the accident, at Stoke-on-Trent Station, prior to proceeding 'light engine' to Cresswell to pick up a goods train to go to Ordsall Lane. He confirmed that Driver Handley was driving at that time and that both Handley and Green seemed quite normal. After they had picked up 15 fitted wagons from one siding and 25 wagons, the first 4 of which were fitted, from another, Larvin said he carried out a brake test by taking the rear vacuum pipe off the rear fitted wagon and testing that the brake blocks on the last two fitted wagons were fully on. He then made his way to the front of the train to give the details of it to Driver Handley. He had no loading slip to give to Handley, but the latter put the details on his driver's form.

37. He travelled in the brake-van at the rear of the train from Cresswell to Ordsall Lane and the journey was uneventful. On arrival there at 00.30, the yard staff disposed of the train and the two locomotives were put into one of the empty sidings until they went to Longsight diesel depot for refuelling at about 01.15. The locomotives returned at about 02.50 and were coupled up to the train of empty wagons to be taken back to Cresswell. Larvin walked up the train from the brake van, checked that all the wagons were correctly coupled and carried out a vacuum brake test at the rear end of the fitted head of nine wagons. As he walked past the fitted head he noticed that the change over levers had been put in the empty position, whereas when he had walked down to the rear of the train one or two had been in the loaded position. When he arrived at the leading locomotive, Secondman Green told him that he had put the levers in the correct position. Again, Larvin did not give Handley a loading slip, but informed him that the train consisted of 40 wagons, 570 tons, a fitted head of 9 wagons and a total brake force of 112 tons. He also told him that the train speed was restricted to 35 m.p.h. due to the 21-ton hoppers in the train. Larvin confirmed that at that time Handley was sitting in the secondman's seat and Green in the driver's seat.

38. The return journey was normal until they approached Stockport, where they were diverted to the goods line until coming back onto the main line at Adswood Road. Larvin said that he saw most of the signals on the journey until they got to Congleton, when he went to the desk in the brake-van to complete his guard's journal, fill in his bonus sheet, and prepare the form for the guard who would be relieving him at Stoke-on-Trent. He was under the impression that the train slowed down as it approached Kidsgrove to about 15 m.p.h., but he did not get up from his desk to check the signals, as he said he knew there was ample brake force for the train and he had already applied the hand brake of the brake-van at Macclesfield Moss, as the gradient is largely falling from there to Kidsgrove. There was suddenly a violent impact of the type which Larvin had experienced previously when a driver had allowed the Driver's Safety Device (DSD) to

make an emergency application of the brakes and he was thrown to the floor. He had just regained his seat when a second more violent impact threw him to the floor again. Larvin estimated that the interval between the two impacts was about 15 seconds.

39. Larvin, dazed by being thrown to the floor twice, stayed there for several minutes before getting to his feet and making his way to the front verandah of the brake-van, from where he saw someone running towards him flashing a light. This was the guard of the newspaper train, who seeing Larvin's condition, said he would carry out the necessary protection in rear of the goods train. Later Handley and a police officer came back to the brake-van and accompanied him to Kidsgrove Station.

40. *Driver L. Handley*, the driver of train 8K52, who had been passed out as a driver for some 10 years and passed to drive Class 24 locomotives for 4–5 years, told me he had finished his previous duty at 06.10 on the Thursday morning and had arrived at his home by car at 06.30. After having a cold bath, he went to bed at about 07.00 and slept until about 11.00. After getting up, he went to see the manager of a local vehicle self-drive hire firm at about 11.45 who asked him if he would go to Preston to deliver a vehicle to the Preston Division of British Railways. I asked Handley whether this work for the vehicle hire firm had been arranged beforehand and was assured that it had not been. He said that some deliveries were arranged beforehand, but much of the work he carried out for the company was arranged when he arrived at the garage. He agreed that some weeks he carried out three or four vehicle deliveries or collections, but at other times he might not do any such work for a week or more. On the Thursday, having delivered the vehicle to Preston, he was brought back in another car and arrived back at his home at about 16.00, after which he rested on the settee until 17.00. After having his tea at about 18.00, Handley said he read the paper and did the crossword until it was time for him to get ready for work at about 19.30. He assured me that he did not have any alcoholic drink before reporting for duty.

41. Handley arrived at his booking on point at Stoke-on-Trent at about 20.00, although he signed on for duty as if he had arrived at 19.40. He went down to the diesel depot at Cockshute with his secondman, H. Green, in an empty electric multiple-unit to collect diesel locomotives Nos. 5042 and 5049, which had previously been prepared for him and the engines of which were running. He did not check that the brake selection levers in the locomotives were in the correct 'unfitted' position for the train he was to work, nor did he check that the locomotives were coupled correctly together and that the air cocks were open, as he considered that this was the duty of the train crew that prepared the locomotives.

42. Driving the locomotives in multiple, Handley stopped in Stoke-on-Trent Station to pick up Guard Larvin, and then proceeded to Cresswell where they drew forward onto the front portion of the train they were to take to Ordsall Lane. Secondman Green coupled the locomotives to the front part of the train, all the wagons of which had vacuum brakes and thus formed a fitted head, and they then pulled forward and set back onto the rear portion of the train. Handley did not question the guard when he came to the locomotive to give him the details of the train, including the size of the fitted head and the brake power of the train, whether he had carried out a vacuum brake test, but he did recall noting the vacuum gauge dropping to zero for a short period which he assumed to be while such a test was being carried out.

43. Handley had not driven to Ordsall Lane previously, but had learnt the route and was quite confident of his ability to drive there on this occasion. The journey there was uneventful and, after disposing of the front part of the train in the sidings, Handley asked the shunter in charge of the operation to put the locomotives in another siding so that he and Green could take their meal break before taking the locomotives to Longsight diesel depot for fuel and examination. After they had had their food, he and Green played cards for about 30 minutes before setting out for Longsight at 01.40. I asked Handley whether he knew that, in addition to the locomotives being refuelled at Longsight, a fitter had tested the Automatic Warning System (AWS) on locomotive No. 5042 and, finding no fault, had sealed the AWS isolating lever in the normal position. Handley said that he had been in the front cab of locomotive No. 5049 at that time, and was unaware that any testing had taken place. He confirmed however that the AWS had not been isolated and had operated correctly during the journey from Cresswell to Ordsall Lane.

44. Handley said that, on returning to Ordsall Lane, Green coupled the locomotive onto the train for Cresswell and, when they got into the leading cab of locomotive No. 5049, he stopped on the secondman's side of the cab and said to Green "Right, Henry, it's your turn", or words to that effect. Handley agreed he did not know whether Green had driven this class of locomotive previously on a partially fitted train, nor did he ask him. Handley said he was aware that Green was not qualified to drive, but he considered that he was a competent person to drive under his supervision. He was quite clear that he was still completely responsible for the driving of the locomotive while Green was at the controls and considered he could supervise Green's driving effectively while sitting in the secondman's seat.

45. The return journey was uneventful, apart from the train's being diverted to the goods line from Stockport to Adswood Road, until they reached Cheadle Hulme, when Handley admitted that he had suggested to Green that they should isolate the AWS to cut out the noise made by the bell or the horn. According to Handley, Green agreed to this and moved the isolating lever as far as he could from his position in the driver's seat and Handley moved to the driver's side of the cab to complete the isolation.

46. Handley said that on the journey from Ordsall Lane they had the main cab heaters half on and the foot heaters fully on; the ventilators in the cab roof were shut throughout, as were the windows apart from a few short periods when he felt that the cab had got too warm.

47. After passing through Cheadle Hulme at about 30 m.p.h., they continued to run under clear signals until the train reached Mow Cop. From there to Kidsgrove, Handley was unable to remember the signals and admitted that he must have dozed off. He said that he was awakened by a full application of the brakes on the immediate approach to Kidsgrove Station. He jumped up and he said that Green shouted to him "Hold tight, Len". He saw the banner repeater at the Manchester end of Kidsgrove Up Main Platform and then saw the rear of the newspaper train some 70 yards ahead. Realising that a collision was inevitable, he dived for the door behind the secondman's seat to take shelter in the boiler compartment of the locomotive. As soon as he was in the compartment, he shouted "Come on out, Henry", but Green did not appear to move. The collision occurred two or three seconds later and the door between the cab and the boiler room slammed shut with Handley still hanging on to the handle. He tried to open it to get to Green, but found it was jammed and so went back through the engine room and out onto the platform through the door of the rear cab.

48. Handley estimated that the goods train was travelling at about 10 m.p.h. immediately before the collision occurred. He was unable to explain why he had waited until he was safely in the boiler compartment before shouting to Green to vacate the cab. Handley agreed that, as far as he could tell, the locomotives were in no way defective and that all the brakes on the locomotives and the fitted head were working satisfactorily. The only explanation he could offer for the accident was that Green, on approaching Kidsgrove, after seeing signal No. 104 showing a double Yellow aspect, had shut off power on both locomotives and had then dozed off himself, only waking shortly before the train reached Kidsgrove Station.

49. Handley confirmed that he made a false statement to Sergeant Simpson when he first met him on the platform, but affirmed that the subsequent statements that he made to Sergeant Simpson, to the Railway Officers, and to myself, concerning the events leading up to the collision were true.

50. *Driver G. H. Evans*, based at Stoke-on-Trent, had worked trains with Green as his secondman on no less than 37 occasions during the six months prior to the accident. He had found Green to be a conscientious man, enthusiastic about his work, and a person who got on with his job without having to be told what to do. Evans said that during the period that Green had been working with him they had been rostered to work Class 24 diesel locomotives on a large number of occasions and on quite a number of these he had allowed Green to drive the locomotive under his supervision. Evans considered that Green handled this class of locomotive well, commenting "he drove it as I would drive . . . otherwise he would not have done any driving for me".

51. Evans did not know Green socially but he knew he was a family man and said that he always gave the impression that he was serious-minded. In short, Evans regarded him as a good and thoroughly responsible secondman.

Conclusions

52. The immediate cause of this collision was the failure of Secondman Green to control goods train 8K52 properly on the approach to Kidsgrove Station, with the result that he passed Signal No. 27 at Danger and only applied the brakes seconds before the impact took place at between 10 and 15 m.p.h.

53. The responsibility for the accident lies entirely with Driver Handley who, as the driver in charge of the locomotives, should have strictly supervised the actions of his secondman, who was not qualified to drive, throughout the period that the latter was driving. In particular, Handley is to blame for suggesting to Green that the AWS should be isolated because it was making too much noise and for assisting in its actual isolation as the train was passing through Cheadle Hulme. By carrying out this grossly irresponsible act, Handley removed from Green the main safety aid that could have prevented the collision. Had the AWS not been isolated, it is probable that the noise of its bell or horn would have kept both Handley and Green alert as they approached Kidsgrove and, even if they had fallen asleep, as Handley admitted he did, and as is the most likely explanation why Green failed to bring the train to a stand on the approach to Signal No. 27, which was at Danger, the brakes would have been applied automatically and the train stopped well short of the newspaper train.

54. I consider that there is no doubt that the fact that Handley only had a maximum of about 4 hours sleep on the day prior to the accident contributed to a large extent to his going to sleep in the cab of the locomotive from the time the train passed Mow Cop until he was awakened by the emergency application of the brakes shortly before the collision. Had Handley had a normal period of sleep and rest before going on duty, instead of delivering a vehicle to Preston for the self-drive car hire firm, he would have been more alert throughout his tour of duty and, in my opinion, the accident would probably have been averted. Again, I consider that Handley's failure to take proper sleep and rest between successive turns of duty to be a most irresponsible act.

55. It is not possible to say definitely why Green apparently fell asleep or at least let his attention wander for a short period after having reduced the train's speed on the approach to Signal No. 104, which was showing a double Yellow aspect, but I have no doubt that the conditions in the cab with the windows and ventilators closed and the heaters on produced conditions which were very conducive to sleep. It is probable that Green was woken up by the noise and movement of the locomotive over the points and

crossings in the Up Main Line some 500 yards from the Manchester end of the Up Main Platform. All the evidence available, including a post mortem carried out at the Coroner's request, shows that Green had not been drinking prior to coming on duty nor were any conditions revealed which could have caused him to 'black out' momentarily while approaching Signal No. 27 at Danger. His action in making an emergency brake application on the immediate approach to the Up Main Platform, presumably on sighting the newspaper train, and his shout to Handley to hold tight, both indicate that Green, during the last few seconds before the collision, was awake and fully aware that a collision was imminent.

56. While Green appears to have aided Handley in acting in an irresponsible way on the night of the accident, first by playing cards after his meal break at Ordsall Lane instead of going to Longsight to refuel, which resulted in the goods train leaving 45 minutes late and second, according to Handley, by agreeing to isolate the AWS when passing Cheadle Hulme, I am satisfied from the evidence of Driver Evans that he was in general a thoroughly responsible man.

57. I am quite satisfied that the brakes of the locomotives and the fitted head were operating correctly on the return journey from Ordsall Lane. There is also no reason to suppose that the signalling at Kidsgrove Central functioned other than correctly and I accept the evidence of Signalman Stubbs that he did not clear Signal No. 27 and then replace it to Danger to set up the route for the newspaper train to travel over the junction from the branch. Finally, while it is unfortunate that Guard Larvin did not observe any of the signals between Mow Cap and Kidsgrove, it is very doubtful whether he would have managed to attract the attention of the sleepy locomotive crew by a series of applications of the handbrake in his guards' van.

Remarks and Recommendations

58. The most serious aspect of this accident, in my opinion, was the deliberate irregular isolation of the AWS by the driver abetted by the secondman because the driver considered that its audible indications were making too much noise. The British Railways General Appendix to Working Timetables and Books of Rules and Regulations, 1972, lays down specifically that the driver must isolate the AWS only if the operation of cancellation fails to stop the brake application or the sound of the horn, or should a locomotive or multiple-unit train come to a stand with the AWS receiver directly over a magnet, when it will not be possible to cancel it and the brake will be fully applied. In the former case the driver is required to report that the AWS is out of action both at the first convenient signalbox and also at the first depot or stabling point at which he arrives. If he is relieved by another driver before he reaches a depot or stabling point, he must inform the relief driver that the AWS has been isolated and the latter must take the action outlined above. As soon as a locomotive has moved clear from standing over a magnet, the apparatus must again be made operative. As before, the driver must report that the isolating handle seal has been broken on his arrival at a depot or stabling point. A signalman receiving a driver's report that the AWS has been isolated must advise the Traffic Control Office who in turn must arrange for the locomotive to be taken out of service and the AWS repaired and resealed as quickly as possible. The action to be taken in the event of an AWS failure, as outlined above, clearly indicates how seriously British Railways view the use of a locomotive with its AWS isolated and Driver Handley must have been well aware of the serious nature of his action.

59. The British Railways Board inform me that it is their current practice to put the AWS isolating lever high on the cab back bulkhead, so that it is virtually impossible for a driver to isolate unaided the AWS while running without initiating a DSD brake application. The Board are also examining the reliability record of the British Railways' design of AWS to see whether it is necessary to provide a means of isolating it. If it is found practicable to abolish the AWS isolating equipment, the risk of its unauthorised isolation will, of course, be eliminated while, if the lever cannot be abolished, its location on the back bulkhead virtually ensures that the driver must stop the locomotive or multiple-unit before he can carry out the isolation although, where locomotives or multiple-units are double-manned, the secondman is able to use the lever at any time. To reduce the risk of unauthorised AWS isolation still further, I recommend that consideration should be given to placing the isolating lever on the outside of new designs of locomotives and multiple-units. This will have the added advantage that it will be more readily observed whether or not the AWS is isolated.

60. I am glad to report that following this accident, the London Midland Region quickly included the examination of the AWS isolation lever and seal as part of the duty of locomotive running inspectors when travelling in the cabs of locomotives or multiple-units. The inspectors are required to report any cases of isolated AWS or broken seals found and also to check that the driver enters the details in the locomotive's or multiple-unit's repair book and ensure that he reports it (as described in paragraph 58). I am assured by the Chief Operations Manager, British Railways Board, that instructions exist for all locomotive running inspectors of all the other Regions of British Railways to be watchful that the AWS is not isolated and that the seals are not broken.

61. I examined at some length the functioning of the Driver's Safety Device (DSD) of a Class 24 locomotive similar to that involved in the collision and I do not consider that Secondman Green would have had to make any effort to keep it applied. The provision of a DSD in no way relieves a driver of his responsibility for staying awake, but I think in this case the DSD did not give Green much help and that he could have dozed off without the brakes being applied. Had the locomotive been fitted with the modern design of

driver's vigilance device however, which applies the brakes automatically if a driver does not move its pedal or operate the AWS at least once a minute, there is no doubt that the train would have been brought to a stand before reaching Kidsgrove Up Main Platform and the accident avoided.

62. The British Railways Board at the present time do not propose to fit the new Driver's Vigilance Device to existing classes of diesel or electric locomotives, although it will be incorporated in all new designs of locomotives and High Speed Trains. With the programme of installing AWS on all main lines now nearing completion, the importance of fitting the new device to existing locomotives running on main lines has grown less. In the event of drivers going to sleep, becoming unconscious, or even dying at the controls, the brakes will be fully applied and the power then cut off by the non-cancellation of the AWS on the locomotive on passing the first signal at any aspect other than green. This should always result in a train being brought to a stand before a collision or a derailment occurs. On lines without AWS, however, the DSD is still of vital importance in bringing trains to a halt in the circumstances outlined above and I strongly recommend that consideration should be given to fitting the new design of Driver's Vigilance Device to that part of the existing locomotive fleet that is and will be used extensively on the many branch and goods lines that are not to be provided with AWS.

63. The fact that Secondman Green drove the locomotive from Ordsall Lane to Kidsgrove, although not qualified to do so, was in itself no breach of the rules. The traditional way for firemen and now secondmen to learn to drive locomotives is for their drivers to allow them to drive under supervision, the driver still being entirely responsible for the correct handling of his locomotive. The fact that secondmen before being 'passed out' to drive a locomotive are now given a course of instruction, in no way lessens the importance of their gaining experience by driving under the supervision of their drivers. I see no reason for this arrangement to be altered, provided it is clearly understood by all drivers that they remain entirely responsible for the correct handling of their locomotives during the periods that they allow their secondmen to drive.

64. Finally, I consider that the importance of railwaymen with jobs that directly affect the safety of others, such as drivers and signalmen, taking proper rest between successive tours of duty cannot be stressed too strongly. It is only by so doing that they can be in a fit condition to carry out their duties efficiently and safely. British Railways under normal circumstances allow men at least 12 hours rest between successive tours of duty and it is the responsibility of individual members of the staff to ensure that they are properly rested before they report for duty. I am sure that most railwaymen take adequate rest between tours of duty, but I hope that the irresponsible few who do not do so will learn from this unfortunate accident and take steps to ensure that they do take adequate rest in future.

I have the honour to be,

Sir,

Your obedient Servant,

P. M. OLVER,
Major

The Permanent Secretary,
Department of the Environment.

NOTE: Driver L. Handley was tried on charges of manslaughter and endangering the safety of persons on the railway at Stafford Crown Court on 16th October 1973. He denied the charge of manslaughter but admitted to that of endangering safety. He was found not guilty of manslaughter but guilty of the second charge and was made the subject of an order of conditional discharge for 12 months.

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COLLISION AT KIDSGROVE STATION-LONDON MIDLAND REGION

27th APRIL, 1973

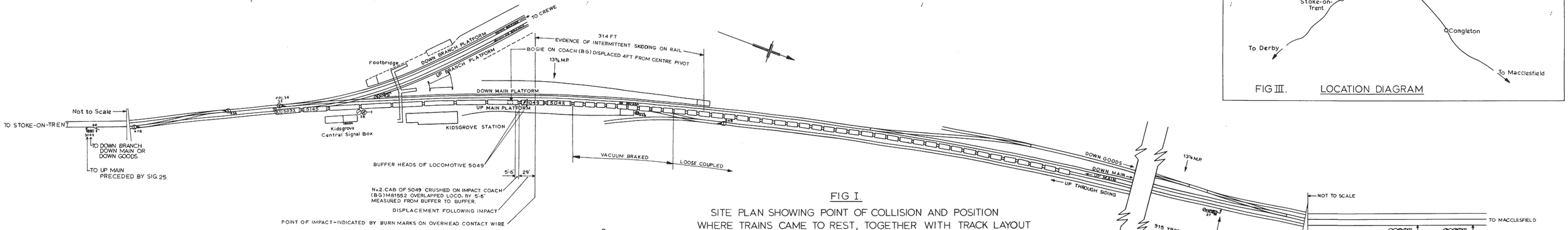


FIG I.

SITE PLAN SHOWING POINT OF COLLISION AND POSITION WHERE TRAINS CAME TO REST, TOGETHER WITH TRACK LAYOUT AND LOCATION OF SIGNALS.

FIG III. LOCATION DIAGRAM

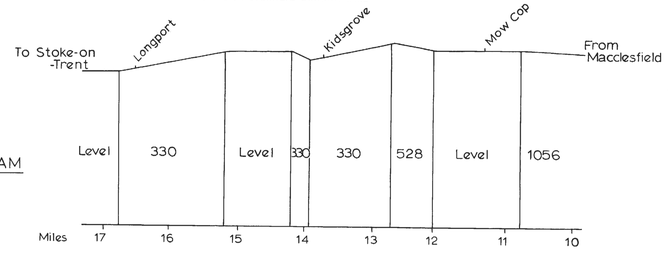


FIG II
GRADIENT DIAGRAM

FEET. 20 10 0 20 40 60 80 100 150 200 300