



DEPARTMENT OF TRANSPORT

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**Report on the Collision that  
occurred on 16th April 1979  
near Paisley (Gilmour Street)**

**IN THE  
SCOTTISH REGION  
BRITISH RAILWAYS**

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RAILWAY INSPECTORATE,  
DEPARTMENT OF TRANSPORT,  
2 MARSHAM STREET,  
LONDON SW1P 3EB.  
16th February 1981

SIR,

I have the honour to report for the information of the Secretary of State, in accordance with the Direction dated 20th April 1979, the result of my Inquiry into the collision that occurred at 19.50 on Monday, 16th April 1979, between two passenger trains at Wallneuk Junction, immediately to the east of Gilmour Street Station, Paisley, in the Scottish Region of British Railways.

The 19.40 6-car electric multiple-unit (EMU) passenger train from Glasgow Central to Wemyss Bay was crossing from the Down Fast line to the Down Gourock line at Wallneuk Junction under clear signals when it was struck, head on, by the 18.58 special diesel multiple-unit passenger train from Ayr to Glasgow Central, consisting of two 3-car diesel multiple-units (DMU). The latter train had just departed from Gilmour Street No. 2 Platform on the Down Ayrshire line and had passed Paisley Signal No. 31, protecting the junction, at Danger.

The leading vehicles of both trains were extensively damaged, the leading part of the first vehicle of the EMU being driven into the leading vehicle of the DMU, which rode up over the EMU, although the rear end of the vehicle remained on the rails. The leading bogie of the EMU became dislodged and the right hand wheels were raised above the rail, but otherwise there was no derailment of any of the EMU vehicles. The leading bogie of the DMU became detached from its vehicle and was derailed all wheels.

The Emergency Services were summoned at 19.51 and arrived extremely promptly, the Police at 19.54, the Ambulance Service at 19.55 and the Fire Service at 19.58. In addition, an emergency surgical team from Paisley Royal Alexandria Infirmary attended the accident, arriving on the scene at 20.30. The Salvation Army also rendered valuable assistance.

I regret to report that 5 passengers and the drivers of both trains were killed. A further 67 passengers and the guard of the EMU were taken to hospital where all but three were treated and discharged. The remaining three had been discharged at the time of my public Inquiry and I was assured that all the injured were progressing satisfactorily.

The overhead line equipment, which had been de-energised immediately after the accident, was set aside early the following morning to enable the breakdown trains, together with their cranes, to be positioned. The separation of the damaged coaches and re-railing commenced at 03.00 and the site was finally handed back for the operation of normal services at 23.00 on 17th April.

During the period of the emergency the Ayrshire trains were diverted via the Paisley Canal line and bus services were introduced to convey passengers over the portion of the line not being served by the Glasgow-Gourock-Wemyss Bay trains.

The weather was fine and dry, and it was daylight when the collision occurred.

#### DESCRIPTION

##### *The Site and Signalling*

1. Wallneuk Junction lies immediately to the east of Paisley, Gilmour Street Station. Four passenger lines approach the junction from the Glasgow direction, all electrified on the overhead system at 25kV AC; these are, from north to south, the Up Slow, Down Slow, Up Fast, and Down Fast lines. At the east end of the junction there are two parallel crossovers with switch diamonds leading from Up Fast to Up Slow and Down Slow to Down Fast lines, while there is a further double junction at the west end, again with switch diamonds, leading from the Up Gourock to the Up Fast and the Down Fast to the Down Gourock lines. The Fast lines to the east of the junction continue through Platforms 1 and 2 at Gilmour Street and form the Ayrshire lines, which are not electrified, while the Slow lines pass through Platforms 3 and 4 and form the Gourock lines. A general plan of the lines in the Gilmour Street and the Wallneuk Junction areas, together with the relevant signalling, will be found at Figure I at the end of this report. Figure II shows the layout of the junction together with the position where the trains came to rest after the collision and a location diagram is at Figure III.

2. The Glasgow, Gourock and Wemyss Bay lines were re-signalled in 1966/67 concurrently with their electrification. Colour-light signalling was installed throughout, that between Glasgow and Paisley being four aspect; all signals are fitted with the standard British Railways design of Automatic Warning System. Paisley Signal Box, located to the north of Wallneuk Junction, some 270 yards to the east of Gilmour Street Station, is equipped with an NX control panel incorporating entrance/exit buttons and indicating what routes have been set, together with the state of all track circuits and signals, and the position of all points. An all-relay train describer is provided on the panel, giving the signalman a small C.R.T. display of the train identification against each signal berth on the panel. The train descriptions step forward automatically with each train, providing that the route has been set. If a train passes a signal at Danger, however, the description does not step forward with the occupation of track circuits in advance of the signal, but remains in the display panel of the berth track circuit of the signal.

3. All the points are operated by electric point machines with the exception of the switch diamonds at Wallneuk Junction which were installed in 1976 and are fitted with hydraulically operated clamplocks. The positions of all points are continuously detected by the signals controlling the routes over them and track circuits are provided throughout to detect the occupation of any line. All the signalling equipment is immunised against the effects of the 50 cycle 25kV electric traction current, direct current track circuits being employed throughout.

4. Apart from the immediate approaches to Paisley, the line between Paisley and Glasgow is controlled from Glasgow Central Signal Box through remote interlockings at Shields Junction and Cardonald. On the Ayrshire lines, on which the direction of traffic is Down towards Glasgow, the fringe signal box from Paisley is Elderslie No. 1 which is equipped with semaphore signals and mechanically-operated points. On the Down Ayrshire line the signals are the Elderslie No. 1 Down starter, the Paisley Down Distant, P 35R, the Paisley Home, P 35, and the No. 2 platform starting signal, P 31, which is also the signal protecting Wallneuk Junction. In the event of the signalman setting a route and then replacing Signal P 31 to Danger, it is approach locked for a period of two minutes. This signal is that which was passed at Danger by the DMU immediately prior to the collision.

#### *The Course of the Accident*

5. At 19.50 the 19.40 Glasgow-Wemyss Bay EMU passenger train, 1N35, was crossing under clear signals from the Down Fast line to the Down Gourock line at Wallneuk Junction when it was struck, head on, by the Ayr-Glasgow DMU passenger train, 1Z62. The latter train had stopped at platform No. 2, Gilmour Street Station, to detrain passengers and then proceeded past Signal P 31 at the Glasgow end of the platform at Danger, ran through No. 221(C) switch diamonds, which were set for the Glasgow-Gourock train, and was diverted by the facing half of the switch diamonds towards the Down Fast line, thus causing the head-on collision.

#### *The Trains*

6. The Glasgow-Wemyss Bay EMU, 1N35, consisted of two 3-car class 303 units, each unit composed of a Battery Driving Trailer, a Motor Composite and a Driving Trailer vehicle. The length of the train was 396 ft and its weight 256 tonnes. Both units were fitted with electro-pneumatic brakes and, for emergency applications only, the Westinghouse automatic air brake. The total brake force for the train was 227 tonnes.

7. The Ayr-Glasgow DMU, 1Z62, consisted of two 3-car inter-city type units, Class 126/2, each unit composed of a Motor Brake Second (L), Trailer Composite (C) and a Motor Second (L). The length of the train was 397 ft and its weight was 219 tonnes. Both units were fitted with vacuum brakes, giving a total brake force of 175 tonnes.

#### *Damage to the Trains*

8. The leading vehicle of the EMU 1N35, BDT 75840, was extensively damaged, the leading cab and half of the passenger saloon being completely destroyed. The leading buffer beam was extensively damaged and the underframe behind it badly distorted; the buffing and drawgear was severely damaged. The leading bogie was also severely damaged with the side frames and transoms badly bent. The damage to the remaining vehicles of 1N35 was not so severe, being mainly confined to the bogies, the frames and transoms of which were bent. In addition, minor damage occurred to the door operating equipment and several seats were dislodged from their mountings.

9. The leading vehicle of the DMU 1Z62, power car MBSL 51031, was extensively damaged and subsequently had to be cut up adjacent to the site of the collision. The leading headstock was damaged and the frames and solebars forced backwards over a distance of 17 ft. The driving compartment and the leading half of the adjoining passenger saloon were demolished. The leading bogie was extensively damaged, as were the No. 1 end transmission components including fuel tanks and battery box. This led to a minor fire which was rapidly extinguished, however, without causing further appreciable damage. The remaining



*Photograph No. 1. General view of site of collision showing leading coach of DMU on top of leading coach of EMU.*



*Photograph No. 2.* Close-up showing the extensive damage caused to the front part of the leading coach of the EMU, the driver's cab and leading section of the passenger accommodation having been totally demolished by the DMU.

vehicles of 1Z62 were all repairable, the damage in the main being confined to gangway connections, doors and seats being dislodged and mirrors, washbasins and other toilet fittings being either broken or misplaced.

#### *Damage to Track, Overhead Line Equipment and Signalling Equipment*

10. No damage was done to the track or to the overhead line equipment, and the only damage to the signalling equipment was to one clamp lock assembly. The lack of damage contributed to the speed with which the tracks involved in the collision were reopened to ordinary traffic.

#### EVIDENCE

11. *Signalman S. Sloan* was on duty in Paisley Signal Box at the time of the accident, working the Glasgow end of the panel, while *Signalman Kerr* was working the country end. At approximately 19.40 Sloan received an audible warning and a visual indication on the berth track circuit on the Down Ayrshire line indicating that train 1Z62, the 18.58 return special from Ayr to Glasgow Central, was approaching. He said he took no immediate action to signal the train forward towards Gilmour Street because of other movements taking place in the station area and in the Arkleston Junction area. When 1Z62 occupied track circuit 694 in rear of Signal P 35R, Sloan immediately set up the route from Signal P 35 to P 31, selecting an unrestricted overlap at the latter signal. He did not set up the route beyond Signal P 31, however, because he was not certain whether to give this train preference over the 1N35 EMU from Glasgow Central to Wemyss Bay which, at that time, was in the Hillington West area.

12. At the time that 1Z62 arrived in Platform No. 2 at Gilmour Street, 1N35 was approaching Signal P 7 and, as far as Sloan could remember, was occupying track circuit 671. At that time other trains were occupying Arkleston Junction which prevented him from routing 1N35 from the Down Fast to Down Slow line at that junction. Consequently he routed 1N35 from Signal P 7 to Signal P 25 and, when the overlap route strip lights for Signal P 31 were extinguished, indicating that the overlap was no longer locked, he immediately set up the route from Signal P 25 through Wallneuk Junction to Signal P 34 at the country end of Platform No. 3 at Gilmour Street Station. The white route lights were immediately illuminated and Sloan noted that the Signal P 25 indicator light on the panel had cleared to Green.

13. Sloan said that at about this time another special passenger train from Wemyss Bay to Glasgow, 1Z75, was in Platform No. 4 and he proceeded to set the route from Signal P 32 to Signal P 22 and thence to Signal P 13 along the Up Slow line for this train. While doing that he noticed that 1N35 was occupying the track circuits ahead of Signal P 25 and soon afterwards there was a loud bang. On looking out of the signal box window it was at once apparent that a serious accident had occurred. While *Signalman Kerr* telephoned Cathcart Electric Control to arrange for an emergency isolation, he telephoned the station supervisor at Gilmour Street and requested him to summon the emergency services. He then sent the 'Obstruction Danger' signal to the signalman at Elderslie No. 1 and informed Glasgow Central Signal Box what had occurred. Finally, he replaced Signal P 34 to Danger and placed reminder appliances on all the other entrance and exit buttons in the area of the collision.

14. Sloan, an excellent witness, explained that, when setting the route from Signal P 35 to Signal P 31 he used the full overlap as opposed to selecting a delayed Yellow aspect at Signal P 35 and a shorter overlap beyond Signal P 31, as he knew he could get 1Z62 into Platform No. 2 before he required to signal 1N35 across Wallneuk Junction. The shorter overlap was used when the junction was occupied and it was necessary to get a train on the Down Ayr line into Platform No. 2. The approach control and resulting single Yellow aspect on Signal P 35 forced a driver to reduce his speed on approaching the signal and clearly indicated to him that Signal P 31 was Red.

15. Sloan was adamant that at no time during the approach of 1Z62 did he set up a route for the train to proceed from Signal P 31 to Signal P 19. Signal P 31 was displaying a Red aspect in the panel indicator throughout the time 1Z62 was approaching Gilmour Street, while the train was in Platform No. 2 and when 1N35 was approaching Wallneuk Junction immediately prior to the collision. Had he set up the route and then changed his mind and cancelled it, he would have had to explain to the driver of 1Z62 why Signal P 31 had been replaced to Danger and instruct him to await a further 'proceed' aspect. In addition, the route would have been approach locked for a period of two minutes from its cancellation in order to ensure that 1Z62 had come to a halt at Signal P 31. This in turn would have held up setting the route across Wallneuk Junction for 1N35 and such a delay had not occurred.

16. *Signalman J. Kerr* was on duty in Paisley Signal Box, working the panel at the country end from 15.00 on the day of the accident. During the whole time he was on duty prior to the accident both panels were working correctly and there were no untoward incidents. Immediately after the accident he requested

an emergency isolation from Cathcart Electrical Control and generally assisted Signaller Sloan. On examining the indications on the panel Kerr said it was obvious to him that the Ayr-Glasgow train had passed Signal P 31 at Danger and had then collided with the Glasgow-Wemyss Bay train at Wallneuk Junction. The panel indication of Signal P 31 was showing Red and the point indication for switch diamonds 221 was flashing, showing that the two halves of the diamonds were out of correspondence. From this Kerr deduced that the 1Z62, having passed Signal P 31 at Danger, must have run through 221C switch diamond and struck the Wemyss Bay train head on.

17. I asked Kerr whether he had noticed what train descriptions were displayed on the panel immediately after the accident and was told that he had only noticed the description of 1Z62 which was still in the berth of Signal P 31. It had not stepped forward to the berth of Signal P 19 as he would have expected had the route been set from the Down Ayr line to the Up Fast line with Signal P 31 clear and this he considered confirmed that Signal P 31 must have been passed at Danger.

18. *Area Traffic Supervisor G. Barclay* was leaving No. 1 Platform, Gilmour Street, when he heard the noise of the collision. He immediately ran towards the site of the collision, instructing a driver to use the signal post telephone at the end of No. 4 platform to tell the signaller to summon the Emergency Services and to request an immediate isolation of the O.L.E. On arriving at the site of the collision he found the leading coach of the DMU resting on the remains of the leading coach of the EMU and there was a lot of burning debris in the area and spilt diesel fuel. He entered the front coach of the EMU after ensuring that the guard was protecting the rear of the train and, together with two members of the public, he assisted several injured passengers from the coach but was unable to get to passengers nearer the front due to debris. He then felt the coach move and more debris fell from overhead, whereupon he instructed the people assisting him to evacuate the coach, as he did. The emergency services then arrived and took control of the rescue operations.

19. Mr. Barclay then visited Paisley Signal Box and confirmed the evidence given by Signaller Sloan and Kerr. In particular, he noted that the train description for 1N35 was in berth track circuit 717 on the approach to Signal P 34, while that for 1Z62 was in berth track circuit 697 on the approach to Signal P 31. He visited the junction and found points 221D set for the Down Fast to Down Gourock line, switch diamonds 221C and 221B were under the wreckage of the collision, but appeared also to be set for the same route.

20. Mr. Barclay said that he interviewed Guard McNeil, the guard of 1Z62, during the evening of the accident and that he had recorded the details in his notebook. He had asked McNeil what aspect Signal P 31 was showing when the train was standing in the platform and the latter had stated that the signal had been at Red. McNeil had then stated that he had not noted the signal aspect when he had 'belled' the train away or when his guard's van was approaching the signal.

21. Mr. Barclay confirmed that immediately after the accident he had noted that Signal P 31 was displaying a Red aspect and Signal P 34 a Green aspect; he considered that this confirmed that the route through Wallneuk Junction had been set from the Down Fast to the Down Gourock line and that 1Z62 must have passed Signal P 31 at Danger.

22. *Area Supervisor C. Cook* was on duty at Gilmour Street Station at the time of the accident. As 1Z62 entered No. 2 Platform he was standing near the indication boards between Nos 2 and 3 Platforms and he helped to attend to the train while station duties were being carried out. He noticed that the guard of the train was standing in the doorway of his van with the door open; at no time did he see him get out onto the platform. Cook said that the train came to a stand with the driver's cab roughly opposite the end of the platform canopy and he confirmed that the guard from the fourth coach back would be able to see Signal P 31 from his guard's van door in that position. Leading Railman Breslin gave the 'platform duties completed' signal to the guard as he had to assist a lady passenger which necessitated him going to his office. On the way he noted that Signal P 34 was displaying a Green aspect, but he did not notice Signal P 31 as this was behind him.

23. Mr. Cook heard the noise of the collision from his office. He immediately summoned the Emergency Services and then made his way to the site of the accident. He instructed the guards of the two trains to go back and protect the rear of their trains and help to detain the passengers. Later he interviewed both guards. Guard Fisher of 1N35 had no knowledge that anything was amiss prior to the actual collision when he felt a surge and was knocked against the guard's van bulkhead. Guard McNeil stated that he braced himself for the accident that he knew was coming, but that he had neither attempted to apply the emergency brake nor to pull the communication cord. He also stated that he did not know if the signal at the end of the platform P 31, was displaying a Red aspect or not, despite the fact that he said that he braced himself for what he knew was coming.



24. *Guard J. Fisher* was the guard of the Glasgow-Wemyss Bay EMU, 1N35. On joining the train he found Driver Burns already in the driver's compartment: he seemed to be his usual affable self. The journey from Glasgow Central was uneventful and on approaching Hillington East he saw the Green aspect of one of their signals. On approaching Arkleston Junction their speed dropped to about 20 mile/h and he thought that they would be going through the Junction onto the Down Slow line, but they continued along the Down Fast line to be routed through Wallcreek Junction at the east end of Gilmour Street Station. There was suddenly a terrible crash and he was catapulted out of his chair, landing on his head on the floor of his van. After regaining his senses, he made his way to the front of the train where he found Driver Burn's cab totally demolished. On the instructions of Area Supervisor Cook he proceeded to protect the rear of his train. Fisher was absolutely certain that there was no application of the brakes prior to the collision, nor did he hear any blasts on the train's horn.

25. I asked Fisher whether he had discussed the accident with McNeil, the guard of the DMU, and was told that the latter had stated that he could remember giving the driver the 'two bells' signal and also seeing the Platform Starting Signal P 31 at Danger. Despite detailed questioning I was unable to determine when McNeil had alleged he saw Signal P 31 at Danger, but Fisher added that McNeil said he attempted to apply the emergency brake.

26. The guard of the Ayr-Glasgow DMU, 1Z62, *Guard H. McNeil*, stated that he joined the train at Ayr when it arrived in the station. Earlier he met Driver McNeish and they agreed the station stops for the train between Ayr and Glasgow. He examined the train on its arrival in Platform No. 2 at about 18.30 and then carried out a brake test which was satisfactory. McNeil said that McNeish seemed in good health both when he first talked to him and then in the cab shortly before the train's departure from Ayr.

27. The journey to Gilmour Street was uneventful and they arrived in Platform No. 2 one minute early at 18.47, where he said he opened the guard's van door and stood with one foot on the platform and the other on the running board, watching passengers getting into and out of the train. He received the 'right away' signal from the platform railman who was near the front of the train and gave the driver the 'two bells' signal which was immediately acknowledged and the train started to move.

28. In his statement to the Railway Officers which he repeated to me, McNeil stated:—"As the train was gathering speed I was proceeding to put the brakevan window up when I observed that the signal at the end of the platform was at Danger. At this time I estimate that the front two vehicles had gone by the signal but it struck me that the signal had gone back early. It was then that I saw another train approaching in the opposite direction and I rushed to apply the vacuum brake but I missed the handle, so I braced myself in the guard's chair for the collision". I questioned McNeil at length on this statement as it was completely at variance with what Mr. Barclay alleged McNeil had told him when he interviewed him after the accident and with the entry Mr. Barclay made in his notebook, namely that he had seen Signal P 31 showing Red when the train was standing in the platform but had not noted the signal aspect when he 'belled' the driver or as his guard's van approached the signal (see paragraph 20). McNeil maintained that his statement was true and that it was only when his guard's van was some two coach lengths from Signal P 31 that he first observed the signal at Red; he was at a complete loss to understand why Mr. Barclay should have recorded him as saying that he saw the signal from the platform and not when he approached the signal.

29. In view of McNeil's insistence that he saw Signal P 31 at Red when he was approximately two coach lengths from it and also that he saw another train approaching in the opposite direction, I questioned him concerning his subsequent actions. He stated that he dived for the vacuum brake valve handle but, due presumably to his panic, missed it and then sat down in the guard's seat without making any further attempt to apply the brakes. He agreed that seeing the other train approaching and at the same time noting that Signal P 31 was at Red gave him the firm impression that the two trains were on a collision course. If one accepted this evidence, I suggested to McNeil that his subsequent action after his alleged initial dive for the brake valve handle was totally irrational. To miss grasping the brake handle which was on the platform side of the guard's van near where he had been standing while looking out of the window was inexplicable but, if he was in such a panic over the impending collision, it was totally incomprehensible that he should not make further attempts to apply the brake. McNeil was quite unable to explain why he made no further attempts to apply the brakes and merely sat down on his seat.

30. Following the collision McNeil obtained a fire extinguisher to put out a fire in the vicinity of the forward DMU engine. He then got ladders out of the train to assist in detrainng the passengers. Area Supervisor Cook then instructed him to protect the rear of his train which he did by placing detonators down a quarter of a mile in rear and then a further three at Signal P 35, after which he spoke to the signalman on the SPT who confirmed that the protection was all that was required.

31. *Driver A. Lamond* said that he had arrived at Platform No. 4 at Gilmour Street Station with a Wemyss Bay-Glasgow Central train at 19.49 on the evening of the accident: after stopping he noted the Ayr train standing in No. 2 Platform. His Starting Signal, P 32, changed to a single Yellow for the Up Slow line and then, as soon as the collision occurred, it went back to Red. Lamont said he did not notice the aspect of Signal P 31 as he entered Platform No. 4 but he did see that it was at Red after the accident.

32. Lamond said he had been driving electric trains on the Glasgow-Wemyss Bay-Gourock route for six years and that he had never experienced any signalling faults in the Paisley area. He was thoroughly satisfied with the integrity of the signalling.

33. *Mr. H. Robson, the Station Supervisor, Ayr*, could not attend my Inquiry but submitted a written statement. On the evening of the accident at about 17.30 he had met Driver McNeish, whom he had known for many years; he was his usual bright self. At about 18.30, as his shunter was handling another train, Robson acted as McNeish's shunter to bring the stock round from Kyle Street to the station. He made sure that the train was ready for its 18.58 departure and he was sure that shortly before that time there was no-one other than McNeish in the driver's cab.

34. *Technical Officer J. Conway* said he had been on duty at Paisley Signal Box at the time of the accident. As soon as he saw that the two trains had collided he went up to the operating floor to check the indications on the signalling panel; these were as follows:—

Track Circuits 685 and 698-occupied.

Points 215 and 218-'normal'.

Points 221-out of correspondence.

Part of route indication from Signal P 25 to Signal P 34 plus overlap illuminated white.

Signals P 25 and P 31 indications showing Red.

He immediately telephoned S&T Supervisor J. Tounsley to inform him of the accident and he then returned to the signal box to obtain more details from the signalmen. Signalman Sloan informed him that he had only signalled the 18.58 train from Ayr as far as Signal P 31 and that, after the overlap, which consisted of track circuit 698, had been timed out, he had signalled the 19.40 Glasgow to Wemyss Bay train from Signal P 25 to Signal P 34.

35. After the arrival of Supervisor Tounsley they visited the site of the accident and inspected the position of 221 points. They found that 221 A, B and D were in the 'reverse' position, while 221 C was lying approximately one inch open from the 'reverse' position, having been run through. They also visited Signal P 31 and found it was displaying a good Red aspect.

36. Mr. Conway, whose room in the signal box was immediately adjacent to the relay room, was certain that no-one had been working in the relay room after he came on duty at 19.00 and that the door was locked from that time until the accident occurred.

37. *S&T Supervisor J. Tounsley* said that he was informed of the accident by Conway and immediately made his way to Paisley Signal Box. He went to the operating floor and noted the various items listed by Conway. In addition, he stated that the train description for 1N35 was showing in the berth for Signal P 34 and the description for the Ayr train, 1Z62, was showing in the berth for Signal P 31, thus indicating that the route had been set for 1N35 to proceed from Signal P 25 to Signal P 34 and that no route had been set on the Down Ayr line beyond Signal P 31. He confirmed Conway's evidence regarding the lie of points 221; in particular that the C end of the switch diamonds was lying approximately  $\frac{1}{2}$  inch open after having been run through by the leading coach of the Ayr train.

38. Mr. Tounsley said that he had been the S&T supervisor at Paisley since 1970. He had known of only one other occasion when Signal P 31 had been passed at Danger. This was on 20th October 1978, when the driver concerned admitted that he had passed the signal at Danger, had realised he was doing so and had made an emergency brake application, bringing the head of his train to a halt five yards beyond the signal.

39. *Mr. J. Simpson, the Maintenance Assistant, Divisional Signal and Telecommunications Engineer, Partickhill*, said that he has been informed of the collision by Supervisor Tounsley. He proceeded to the site and first checked the indications on the signalling panel; his findings confirmed those of previous witnesses as did his observations of the positions of points 221C. He then made arrangements for the following tests to be carried out:—

(1) Interlocking tests.

(2) Insulation resistance testing of cables (multi-core and tail).

(3) Aspect sequence and AWS tests.

- (4) Signal sighting.
- (5) Lamp voltage tests.
- (6) Earth leakage tests.

All the tests of the signalling were found to be correct in accordance with the Control Tables and the Authorised Scheme Plan with the sole exception that a timing relay in the sectional release locking for 221 points operated after 38 seconds and not 60 seconds as laid down in the Control Tables. This did not have any serious effect on the integrity of the control.

40. Mr. Simpson agreed that the extensive testing that he and his staff carried out regarding the setting of routes from Signals P 25 and P 31 proved conclusively that with points 221 locked 'reverse' no routes could be cleared from Signal P 31 and with points 221 locked 'normal' the route from Signal P 25 to Signal P 34 could not be cleared. The evidence on the signalling panel immediately after the collision showing that half the white route setting lights between Signals P 25 and P 34 were still illuminated and the fact that points 221, apart from points 221C which had been run through by the Ayr train and were showing 'out of correspondence', were reversed proved beyond all doubt that Signal P 31 could in no way have been cleared from Red.

41. Mr. Simpson confirmed that the train description for 1N35 had stepped forward into No. 3 Platform berth but that the description for 1Z62 had remained in the No. 2 Platform berth. He explained that the description would step forward only if the signal route had been cleared and the track circuit ahead of the signal occupied. Since the description for the Ayr train had remained in the Platform No. 2 berth, this clearly indicated that Signal P 31 had not been cleared. The stepping forward of the description for the Wemyss Bay train into Platform No. 3 proved that the route had been set up for this train from Signal P 25 to Signal P 34.

42. Finally, Mr. Simpson pointed out that as the Ayr train, after passing Signal P 31 at Red, had run through the trailing set of the pair of switch diamonds while the facing set was still set for the Down Fast line to Down line, the train would have been turned onto the line on which the Wemyss Bay train was approaching. Thus a full head-on collision in these circumstances was inevitable.

43. Mr. G. H. Passey, the Chief Electrical and Mechanical Engineer, Scottish Region, said that the brakes of the two trains involved in the accident, apart from the two seriously damaged coaches, were tested after the accident. On both trains they were satisfactory, with good brake blocks and adequate reserve cylinder stroke. After the accident the brake controller of the EMU was found jammed in the emergency application position. From the evidence available Mr. Passey considered that the controller had been placed in that position by the driver of the train. Marks on the heads of the rails immediately behind and under the EMU were consistent with the driver having made an emergency brake application from about the position of the 35 mile/h speed limit board located some 130 yards before the point of collision.

44. Mr. Passey stated that there was no conclusive evidence regarding the position of the DMU brake controller prior to the actual collision, but a detailed examination of the track had revealed no signs of any heavy braking. It had been possible to retrieve from the wreckage the various pieces of equipment that formed the AWS of the two trains. Some of the equipment was damaged but it was capable of being tested and was found to be satisfactory. The evidence, in his opinion, clearly indicated that neither of the two systems had been isolated. Investigations also revealed that no defects concerning braking or the AWS equipment had been entered in the Defect Report Books or either train.

#### CONCLUSIONS

45. This collision was caused by Driver McNeish driving the Ayr-Glasgow Central DMU, 1Z62, past Signal P 31 at Danger until it collided head-on with the Glasgow Central-Wemyss Bay EMU, 1N35, which was crossing from the Down Fast line to the Down Gourock line at Wallneuk Junction, some 127 yards beyond the signal.

46. Due to the death of the drivers of both trains, it was impossible to obtain their evidence regarding the aspects of the signals on each route approaching the point of collision. The evidence from the two signalmen on duty in Paisley Signal Box, together with that of the signal and telecommunications staff who examined the signalling immediately after the accident and subsequently carried out comprehensive tests of all the relevant signalling equipment, however, indicates conclusively that Signal P 31 was displaying a Red aspect when Driver McNeish drove the Ayr-Glasgow Central DMU into Platform No. 2 at Paisley, Gilmour Street, that it remained at Danger while the train was in the station and was still at Danger as the train passed it immediately prior to the collision. Evidence from members of the station staff and other witnesses also support this conclusion.

47. The evidence of Guard McNeil, the guard of the Ayr-Glasgow Central DMU, was most inconsistent. I accept that he did not notice the aspect of Signal P 31 when the train was approaching the station or when it was standing in Platform No. 2. I do not believe that, if he had seen the signal at Danger as his guard's van approached it and at the same time had seen a train approaching from the opposite direction on what he believed to be a collision course, he would have made only one abortive attempt to apply the emergency brake. Having considered McNeil's evidence to the station supervisor immediately after the accident, to the Railway Officers at their Inquiry, and to me at my public Inquiry, I can only conclude that he never saw the aspect of Signal P 31 at any time, nor did he see the approaching Glasgow-Wemyss Bay train, but that, after giving the driver the 'train ready to start' bell signal, he went and sat down on the guard's seat as the train left the station. I cannot believe that, had he really thought that a major collision was about to happen, he would not have made repeated attempts to apply the emergency brake and indeed have successfully applied it very rapidly.

#### REMARKS AND RECOMMENDATIONS

48. The reason that Driver McNeish drove the Ayr-Glasgow Central DMU past Signal P 31 at Danger must, due to his unfortunate death, be a matter of conjecture. Certain possibilities, however, can be dismissed. The post-mortem examination clearly showed that McNeish had not consumed any alcohol or taken any drugs which could have affected him at the time of the accident. The doctors carrying out the examination were also able to show that he was not suffering from any disease which would have impaired his ability to carry out his driver's duties in any way. In particular there was no evidence of any heart attack or other sudden illness which might have affected his ability to drive. In my opinion, the most likely reason for McNeish's action is that he received the 'train ready to start' bell signal from McNeil and, without further thought, started the train even though Signal P 31 was clearly displaying a Red aspect some 60 yards ahead of him. Indeed a similar incident had occurred with an Ayr-Glasgow Central DMU running past Signal P 31 in 1978, but luckily in this case, the driver realised his error in time to bring his train to a halt short of Wallneuk Junction and thus no accident occurred.

49. In 1972, when the current British Railways Rule Book was issued, the former Rule 141(b) was modified so that the signal from the guard to his driver was specifically defined as meaning 'Train Ready to Start' in an attempt to tighten up train starting disciplines. Despite this, in 1977 and 1978 there were 36 cases reported of drivers passing Starting signals at Danger after receiving the 'Train Ready to Start' signal from their guard. In 1977 there were 20 such cases involving 14 EMU, 2 DMU and 4 locomotive-hauled trains, 18 incidents occurring at colour-light signals and 2 at semaphore signals. In 1978 16 cases were reported involving 9 DMU, 6 EMU and one locomotive-hauled train at 13 colour-light and 3 semaphore signals. In recent years there have been a number of accidents reported to the Railway Inspectorate from this same cause. Luckily these have, for the most part, been of a minor nature, derailments at trap points or slow speed collisions. Two more serious accidents from this cause, however, were the subject of formal Inquiries by this Inspectorate; these were the collision at Clapham Junction in September 1972 and the collision at Pollockshields East Junction in June 1974. As a result of the general unsatisfactory situation outlined above and of the Inquiries into the two accidents, the Inspectorate and the Board's Officers have on several occasions discussed possible ways of reducing these incidents. One possibility considered was to alter the meaning of the bell signal given by the guard or the 'Right Away' hand signal given by the platform staff or the guard where there is no bell communication with the driver, so that the signal would only be given after the Starting signal had cleared to a proceed aspect. The great drawback to this proposal was that it could not be made universal, as at many stations platforms are on curves and it is not possible for the platform staff, if any, or guard, to see the Starting signal. The general view taken during the discussions prior to the accident at Paisley was that if the rule was changed the effect would be to erode the driver's sole responsibility of obeying running signals. In addition, the uncertainty of whether or not the bell or 'Right Away' hand signal indicated that the Starting signal had been cleared or not was considered a possible source of confusion which might well cause as many cases of drivers passing Starting signals at Danger as hitherto. Thus at that time it was decided not to change the parts of Section H of the Rule Book dealing with bell and 'Right Away' hand signals.

50. After the accident at Paisley I also discussed with the Chief Signal and Telecommunications Engineer at the Railways Board the possibility of installing additional AWS equipment adjacent to platform Starting signals so that a driver closely approaching such a signal at Danger or showing a restrictive aspect would receive an audible warning and the brakes would be applied unless he acknowledged it. Alternatively, this additional permanent inductor could be suppressed when the signal showed a proceed aspect, albeit a restrictive one. While the proposal, apart from its cost, was superficially attractive, a detailed examination

showed that it would not be a particularly efficient means of stopping drivers passing platform Starting signals at Danger.

The drawbacks include:—

- a. AWS is advisory in concept and acknowledgement cancels the brake application.
- b. Starting signals would have to be maintained in the 'Off' position until the train-borne AWS equipment had passed over the inductor which might well have to be located beyond the signals.
- c. The AWS horn is to alert drivers to observe and act upon lineside signals or signs but, as stated in sub-paragraph b above, the signal would not be in view when the AWS inductor was placed at or beyond the signal.
- d. This particular use of AWS would be the only case where the emergency brake application would be required as distinct from a service brake application.
- e. All terminal and bay platform Starting signals are not fitted with AWS and there are gaps in the provision of AWS at many large through stations where speeds are of a low order.
- f. Some Starting signals are positioned at the fouling point of switch and crossing areas and the time delay in automatic brake applications might well not prevent a collision in these situations. It would also be inconsistent if only the situations with tight clearances were treated in this manner.

51. In view of the reasons outlined above, it was decided not to proceed further with possible fitting of additional AWS inductors but to examine again the possible alterations to the rules governing the guard's bell or 'Right Away' hand signals to drivers and the platform staff's 'Right Away' hand signals which should be given to guards but are often given direct to drivers. After considerable discussion and, despite the drawbacks outlined in paragraph 49, it was decided to alter parts of Section H of the British Railways Rule Book so that, as far as is practicable, the bell or 'Right Away' signal is only given when the Starting signal has been cleared. The following detailed alterations to the Rule Book were brought into operation with effect from 2nd February 1980:—

*"Section H. Working of Trains*

**5. Additional Duties of Guards in charge of Passenger Trains and, as applicable, Empty Coaching Stock Trains and Parcels, etc., Trains (cont'd)**

**5.3 Starting the train**

5.3.2 Where platform staff are in attendance, the person in charge of the platform will give a signal to the Guard to indicate that station work is complete. This signal by day is given by one arm raised above the head, and at night, if the use of a handlamp is necessary, by a white light held steadily above the head. The guard, after satisfying himself that all is right so far as he is concerned and, where practicable, that the fixed signal, where provided, has been cleared, must then give his signal to the Driver that the train is ready to start. By day the signal must be a green flag waved above his head, but in periods of bad visibility or at night a green light held steadily above the head. In addition, the Guard must use his whistle when necessary.

5.3.4 Where no platform staff are in attendance, the Guard must see that station work is complete and, where practicable, that the fixed signal, where provided, has been cleared before signalling to the Driver.

**13. Additional Duties of Station Managers, Supervisors, Shunters and Persons in Charge of Stations, Platforms or Yards**

**Applicable to Passenger, Empty Coaching Stock and Parcels Trains**

**13.1 Starting of passenger trains**

13.1.2 The person in charge of the platform must give a signal to the Guard of the train to indicate when station work is complete, that the doors of all vehicles are properly closed and secured, that the train is ready to leave and, where practicable, that the fixed signal, where provided, has been cleared. By day this signal must be given by raising one arm above the head, and at night, if the use of a handlamp is necessary, by a white light held steadily above the head."

52. In addition, while it was accepted that it was quite impracticable to alter all platform Starting signals so that they were visible to the guard, or alternatively to fit 'Off' indicators on all platforms where signals cannot be seen, the Railway Officers agreed to examine where the signals could not be seen with a view to taking remedial action where the consequence of passing such a signal at Danger is likely to be particularly serious, such as at Paisley, Gilmour Street, where the signal protects a junction. I was assured that in such cases action would be taken to re-site the Starting signal, if that was practicable, or to fit a banner repeater on the platform, or an 'Off' indicator if the latter was more appropriate.

53. As stated in paragraph 49, my main concern with these alterations in the Rules, as outlined in paragraph 51, is that with responsibility also being placed on others to ensure that the Starting signal is clear before giving the bell or 'Right Away' signal, drivers may come to rely upon such signals instead of closely observing the running signals. Despite this possibility, however, Section H of the Rules now quite positively identifies the driver's responsibility for obeying running signals and, on balance, I think that there is good reason to believe that the revised rules make for safer working.

54. It is early yet to draw any firm conclusions from incidents that have been reported to the Inspectorate since 2nd February, 1980, but two derailments have been caused by drivers passing Starting signals at Danger since the Rule was revised. One of these was a minor one where the guard clearly gave the 'Right Away' bell signal when the Starting signal was at Danger at Saint Margarets, Southern Region, where an 'Off' indicator is provided on the platform to show that the Starting signal is displaying a proceed aspect. The driver started the train without observing the Starting signal and the front of the train was derailed at a sand drag at the Richmond end of the station. A more serious accident occurred on 28th April 1980 at Hyndland East Junction, Scottish Region, where a Dalmuir to Motherwell EMU, after stopping at Jordanhill Station, passed platform Starting Signal HY 37 at Danger and was derailed at the junction. This again was caused by the guard failing to check that the signal had been cleared prior to him giving the driver the 'Right Away' signal and the driver accepting the signal without satisfying himself that Signal HY 37 had cleared before starting the train. Fifteen of the forty passengers in the train were injured, as were the driver and guard. In both the above accidents the guard was able to see clearly whether the signal or signal indicator was 'Off' and his failure to do so before sounding the 'Right Away' bell signal to the driver must be a partial cause of the accident.

55. I am glad to state that no accidents have as yet been reported where guards, unable to see the Starting signal, have sounded the 'Ready to Start' signal to the driver and the latter has driven past the Starting signal at Danger. I hope that this good record will continue.

I have the honour to be,

Sir,

Your obedient Servant,

P M OLVER

*Major*

The Permanent Secretary  
Department of Transport

APPENDIX 1

RAILWAY INSPECTORATE,  
DEPARTMENT OF TRANSPORT,  
2 MARSHAM STREET,  
LONDON, SW1P 3EB.  
16th February 1981.

SIR,

I have the honour to report for the information of the Secretary of State of Transport that, in accordance with the appointment dated 22 November 1979, I acted as Assessor to the Sheriff Principal for North Strathclyde at the Fatal Accident Inquiry into the circumstances of the deaths of five passengers and the drivers of two trains who lost their lives as a result of the railway accident that occurred at Gilmour Street Station, Paisley, on 16th April 1979.

The Fatal Accident Inquiry was held at Paisley on Wednesday, 28th and Thursday, 29th November, 1979; Sheriff Principal J. A. Dick, MC, QC, determined as follows:—

- “(A). Five passengers and the drivers of the two trains were killed when the Ayr to Glasgow DMU and the Glasgow to Wemyss Bay EMU collided at Wallneuk Junction.
- (B). All seven persons died from multiple injuries caused by the collision.
- (C). The collision was caused by the driver of the DMU, on receipt of an acknowledgement of the ‘Train Ready to Start’ bell signal from the guard, passing the Starting signal, P 31, at Red and driving the train onto Wallneuk Junction in the path of the Glasgow-Wemyss Bay train proceeding under clear signals across the Junction to Platform No. 3, Gilmour Street Station.
- (D). The deaths and the collision between the two trains could have been avoided if the driver of the Ayr to Glasgow DMU had correctly observed Signal P 31 at Red and not proceeded past it.
- (E). There was no evidence of any defects in the trains, permanent way, or signalling which could have contributed to the deaths caused in this collision.
- (F). The reason why the Ayr to Glasgow train was driven past Signal P 31 at Red remains unexplained on the evidence. The Rule Book makes the driver responsible to satisfy himself before starting a train from a station that the Starting signal is clear and there is no specific duty for the guard or a member of the platform staff to see that the signal is clear before giving the ‘Train Ready to Start’ signal to the driver. The explanation by Mr. F. C. Walmsley, Chief Operating Manager, British Railways, Scottish Region, that the Rule Book is to be amended with effect from 2nd February, 1980, to place responsibility on both the platform staff and the guard for not giving the signal before they can see that the Starting signal is cleared could conceivably help to lessen the risk of unilateral human error without weakening the primary responsibility of the driver. The risk which may arise from some diffusion of responsibility on the other hand cannot be ignored and is a factor which must be kept under review in the light of experience arising from the proposed alterations to the Rule Book. So far as technical matters are concerned, considering the suggestion by Mr. Walker that detonators might be placed on the line as a warning and that such a method had been used at Paisley up to 1966, my understanding from my Assessor is that such a system is not possible in that there no longer exists the physical ability in Paisley Signal Box to put such detonators on the line. So far as the suggestion made by Mr. Blair that some recommendation should be made into possible technical improvement of back up of safety arrangements for trains leaving stations such as Paisley, I would hope that such matters are considered and kept continually under review by the British Railways Board but, on the evidence available, I would not myself propose to suggest what might be technically reasonable and possible.”

I am fully in agreement with Sheriff Principal Dick's determination.

I have the honour to be,

Sir,

Your obedient Servant,

P. M. OLVER

*Major,*

Inspecting Officer of Railways.

The Permanent Secretary  
Department of Transport

# COLLISION AT PAISLEY, GILMOUR STREET, SCOTTISH REGION ON 16th APRIL 1979.

Fig. I General Site Plan showing Signalling and Track Layout.

Scale:- 1:500

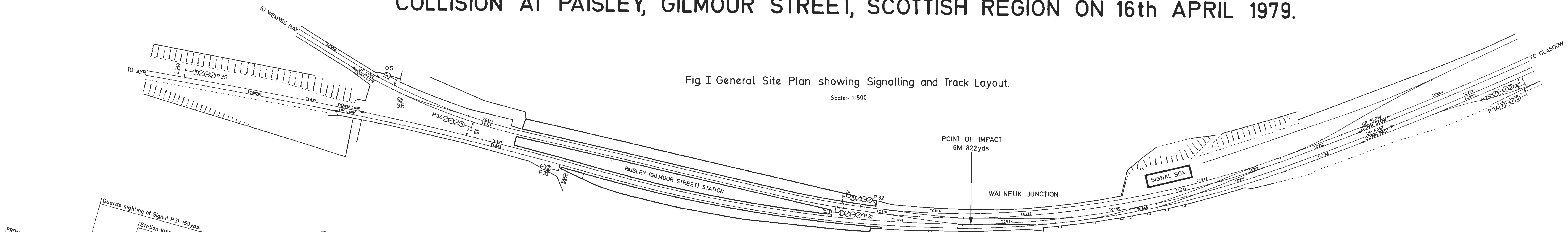


Fig. II Plan showing Site of Collision and positions where trains came to rest.

Scale:- 1:1250

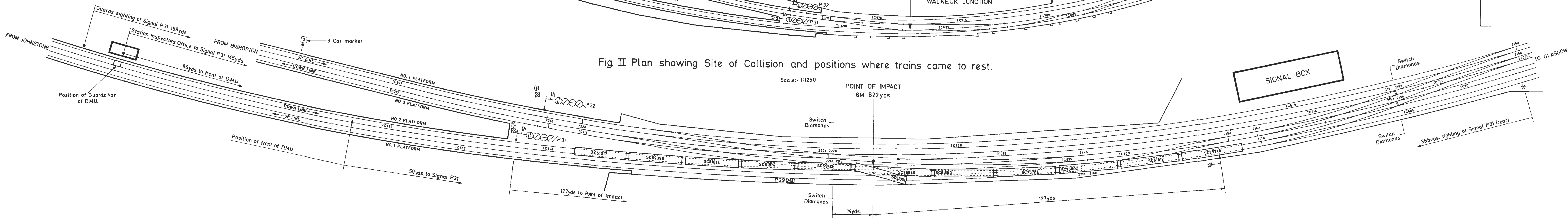
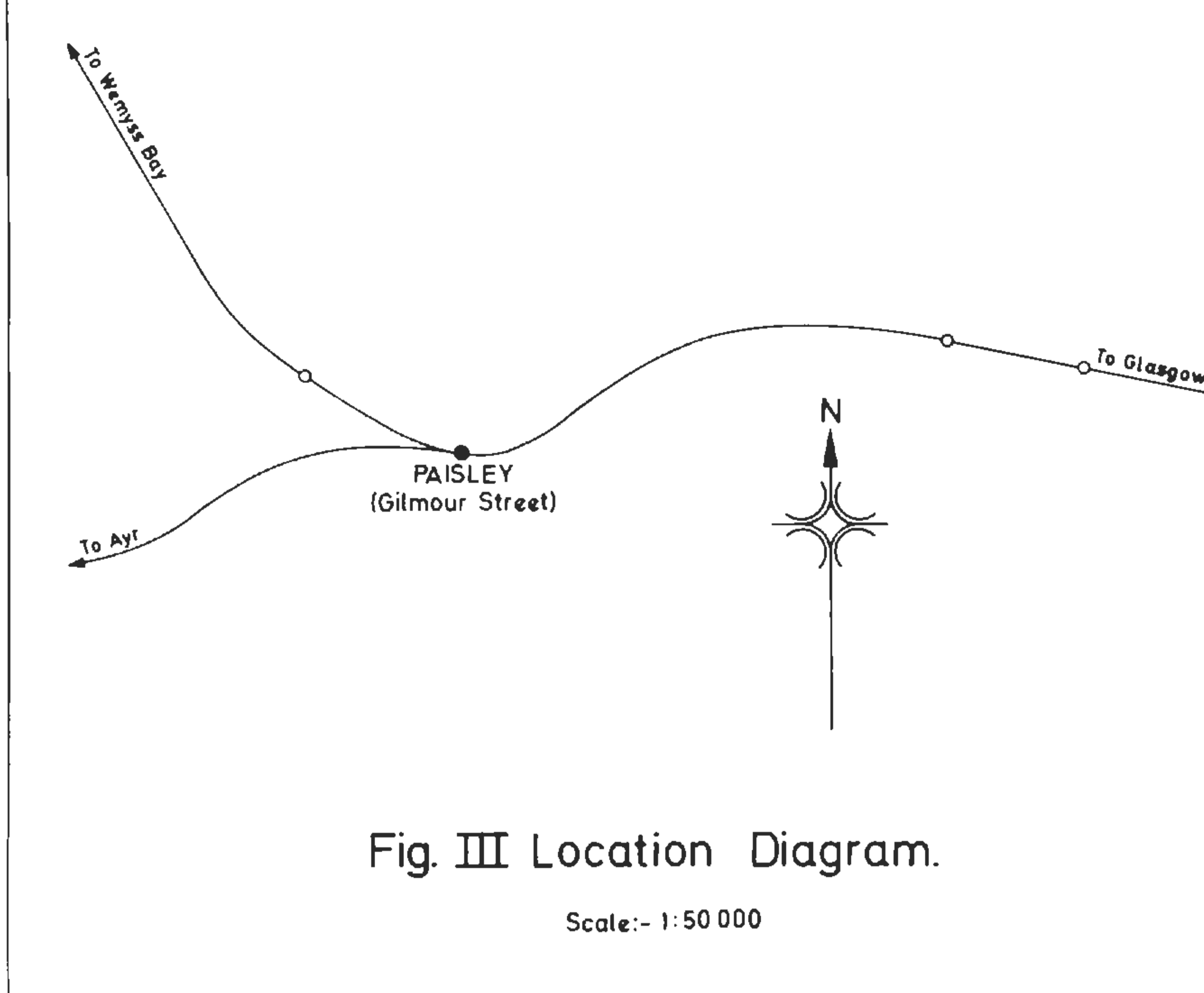


Fig. III Location Diagram.

Scale:- 1:50 000



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