

IN CLUB TAPES BEFORE 0030 Hrs. ON

Tuesday 11 June 1960



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MINISTRY OF TRANSPORT

RAILWAY ACCIDENTS

REPORT ON THE COLLISION

which occurred on

**23rd November 1959 at
SLADE LANE JUNCTION
LEVENSHULME**

in the

**LONDON MIDLAND REGION
BRITISH RAILWAYS**

LONDON: HER MAJESTY'S STATIONERY OFFICE
1960

THREE SHILLINGS NET

1st March 1960

SIR,

I have the honour to report for the information of the Minister of Transport, in accordance with the Order dated 26th November 1959, the result of my Inquiry into the collision between two passenger trains which occurred at 4.51 p.m. on Monday, 23rd November 1959, at Slade Lane Junction, Levenshulme, on the main line between Crewe and Manchester (London Road), in the London Midland Region, British Railways.

The trains concerned were the 9.45 a.m. Bournemouth to Manchester Down express passenger (The Pines express) and the 3.59 p.m. Down local diesel passenger from Buxton to Manchester, and they were approaching Slade Lane Junction more or less simultaneously on the Down Fast and Down Slow lines respectively. The diesel train was to be stopped at the home signal protecting the converging junction between these lines to permit the express to be crossed to the Slow line and to precede it over that line to Manchester. The driver of the diesel, however, failed to stop at the signal which was showing a red aspect, and the two trains came into sidelong collision at a point about 280 yards beyond it. The Fast and Slow line home signals are alongside each other and each is to the left of the line to which it applies, and the driver had evidently taken the former, which had been cleared for the express, as applying to his train.

The two trains ran in contact with each other for some 100 yards, and they stopped with the engine and tender and the three leading coaches of the express and the three leading and the rearmost coach of the diesel train derailed. All these vehicles were damaged as also were the remaining two coaches of the diesel train. Both the trains were lightly loaded and three passengers and one member of the railway staff were slightly injured; they were removed to hospital but were not detained. An ambulance and the fire service were called at 5.0 p.m. and arrived on the site at 5.10 p.m., and they rendered valuable assistance to the passengers.

The Down Fast and Slow lines were blocked and the track and signalling equipment were extensively damaged. The damage disturbed the track circuiting in the area generally and restricted the use of some of the other lines. Breakdown equipment was ordered without delay and the leading two coaches of the diesel train were re-railed with jacks. Lifting by the steam cranes was delayed whilst arrangements were made for the overhead contact wires, which had been erected but not yet energised, to be slewed to allow the jibs to be raised. All the coaches were re-railed and removed by 11.30 a.m. on the following day, and the Down Slow and Fast lines were brought into use with hand signalling at 1.17 p.m. and 9.40 p.m. respectively, after the track had been repaired. The signalling equipment could not be repaired until 6.10 a.m. on the next day, 25th November, when normal working was reintroduced with a speed restriction of 20 m.p.h. on the Down Slow and Fast lines. In the meantime train working was considerably upset, and the re-routing and termination of trains short of their destination was necessary. Special bus services were introduced as required.

The weather was fine and clear and at the time of the accident darkness was falling.

DESCRIPTION

The site and signalling

As shown in Figure No. 1 on the attached plan, Slade Lane Junction lies on the 4-track main line between Stockport ($2\frac{1}{2}$ miles south) and Manchester (London Road) ($3\frac{1}{2}$ miles north). It is the point where the double track branch loop line from Wilmslow to Manchester via Styal, now electrified on the overhead contact wire system, joins the main line. Heaton Norris ($2\frac{1}{4}$ miles distant) is the next box towards Stockport. At the time of the accident the next box towards Manchester was Longsight No. 1 ($\frac{3}{4}$ mile distant), but this has since been closed.

The station next in rear towards Stockport is Levenshulme, about $\frac{1}{2}$ mile from Slade Lane Signal Box. The Down platform is on the Slow line only. From Levenshulme to the junction the lines are straight and the gradient is negligible.

The main line also is being electrified. The overhead equipment has been erected but the contact wire has not yet been energised.

Figure No. 2 shows the layout of Slade Lane Junction and the relevant signals on the Down Slow and Down Fast lines, which are adjacent to each other on the Levenshulme side of the junction. At the junction the lines become transposed and from there to Manchester the order from West to East is Down Slow, Up Slow, Down Fast, Up Fast. The figure also shows the position of the signal box which at the time of the accident controlled the junction points and signals; the box has since been closed and the control of the junction is exercised from Manchester (London Road). It will be noted that there are facing crossovers between the Down Fast and Down Slow lines on the Levenshulme side of the junction. The speed limit through these crossovers is 40 m.p.h.

Figure No. 3 shows signals No. 25 and 26 which are respectively the Down Slow and Down Fast home signals, and which protect the converging junctions between these lines and the junctions between the main and branch lines. In clear weather these signals can be seen with ease from the Manchester end of the Levenshulme platform at a distance of about 350 yards. The signals are provided with direction indicators, the indicator on No. 25 being to the right and that on No. 26 being to the left.

All the signals are designed as four-aspect colour lights but at the time of the accident the fourth (double yellow) aspect of signals No. 25 and 26 had not been brought into use, because the signals next ahead, at Longsight No. 1 box, were semaphore home signals, and signals No. 25 and 26 were acting as distants to them. The direction indicators on these signals, which were at the time controlled from Slade Lane box, each consist of a diagonal horn with five white lights which become illuminated when the signal is cleared for a crossover movement. (Note—when illuminated a direction indicator is sometimes referred to by drivers as a “feather”). Signals No. 15, 17 and 21 on the Down Slow and No. 22 on the Down Fast are also controlled signals, while Nos. 16 and 18 on the latter line work automatically. At the time of the accident all train movement through Slade Lane Junction was controlled by a route relay control system of the “One Control Switch” type in the signal box; this system was installed in November 1958.

With this route relay equipment each signal is operated by one or more switches according to the number of routes it controls. If there is more than one route, the one to the left is, in the case of all Down line signals, called Route 1 and the next one to the right Route 2. Signal No. 25 has therefore two switches, No. 25/1 for movements along the Down Slow and No. 25/2 for movements from the Down Slow to the Down Fast. Similarly, switch No. 26/1 controls movements from the Down Fast to the Down Slow and No. 26/2 along the Down Fast. The switches are located on a console below an illuminated diagram on which the track circuits are shown. Each signal has a repeater light which shows red when the signal is at danger and green when it is cleared (i.e. at yellow, double yellow or green).

When a route is set up by a signal switch being turned, all the relevant points are correctly set, locked and detected, and a row of white lights becomes illuminated on the diagram along the route; the signal concerned is then free to become clear. Once a route is set up the signal is “approach locked” when the train occupies certain track circuits on the approach side of the signal, and the route remains locked until the train occupies the track circuit next beyond the signal or until a time element relay has operated. In the case of movements controlled by switch No. 25/1 the approach locking track circuits are Nos. 6 and 7, but with signal No. 21 at double yellow and No. 17 at green, all the track circuits back to and including No. 1 exercise this control. The time relay releases the locking after the track circuits have been occupied for 3 minutes. In the case of signals No. 25/2 and No. 26/1, the approach locking track circuits are No. 7 and No. 14 respectively, and the time relay operates after 2 minutes. Track circuits No. 7 and No. 14, which begin 770 yards on the approach side of signals No. 25 and No. 26 respectively and are the berth track circuits, “approach control” the signals for crossover movements, i.e. although the switch of one of the signals may have been turned, its aspect will not clear until its berth track circuit has been occupied by the train.

“Running away” bells are provided which operate when the track circuit ahead of a signal becomes occupied with the signal at danger. An indicating light shows which signal has been passed at danger.

There are no block instruments for working trains between Slade Lane Junction and Heaton Norris, and trains are “belled” only. At the time of the accident ordinary block working with 3-position instruments was in force between the junction box and Longsight No. 1 box. The junction signals No. 25 and 26 were released by “Line Clear” from Longsight No. 1 box, a separate release being required for each train.

The trains

The Pines express comprised 7 hogie coaches drawn by a Class 6P tender engine with wheel arrangement 4-6-0, driven from the left hand side. The brake power available was 76.3% of its total weight which was 369 tons. The length of the train was 528 ft.

The diesel train was made up of two 3-car sets each comprising a motor open composite (leading), a trailer open composite and a motor second brake. It weighed 172 tons and was 364 ft. long. The driving position was on the left hand side of the driving cab.

REPORT

The Pines express was running about 4 minutes late when it was belled to Slade Lane Junction from Heaton Norris at 4.47 p.m., the diesel train having been belled 4 minutes earlier at 4.43 p.m. The “booked working” was for the express to cross from the Down Fast to the Down Slow line at the junction and to precede the diesel train over that line to Manchester, and the signaller in charge of Slade Lane box, A. Taylor, decided to maintain the programme, realising that it would result in the diesel train being stopped at signal No. 25. He instructed a trainee signaller (N. Berry) accordingly, who obtained “Line Clear” for the express on the Down Slow from Longsight No. 1 box at 4.49 p.m. and set up the Down Fast to Down Slow route by turning switch No. 26/1. At the time Taylor saw that the express was on track circuit 13 and the diesel on track circuit 7. He also saw the repeater of signal No. 26 become clear when the express struck track circuit 14 a few seconds later and saw at the same time that the repeater of signal No. 25 was red. Soon after that Taylor heard the “running away” bell sound, and he looked

at the diagram and saw that the diesel train had passed signal No. 25. He then looked out of the window and saw the Pines express but he could not see the diesel train which was behind it. The latter, however, must have been travelling faster than the "Pines" because Taylor thought that it was a coach length ahead when the collision occurred. The "Pines" was definitely slowing down and he estimated its speed at 10 m.p.h. at the time of the impact.

Berry was quite certain that he had not turned the switch of signal No. 25/1 or 25/2 by mistake and then put it to normal and turned No. 26/1, and Taylor confirmed this. He explained that if Berry had turned switch No. 25/1 or No. 25/2, signal No. 26/1 could not then have been cleared because of the approach locking on signal No. 25. He was completely satisfied that the equipment was working satisfactorily and said that there had been no danger side failures since last January when he went to Slade Lane box.

Driver W. A. Kerfoot of the Pines express said that after leaving Stockport the signals were green until he saw No. 18 at double yellow and then No. 22 at yellow. No. 26 was red but it changed to green with the left hand "feather" as the train was passing through Levenshulme station. He had closed the regulator when he had seen signal No. 18 and did not open it again. When he was passing Levenshulme he saw the tail light of the diesel train ahead on the Slow line at a distance which he estimated at not less than six coach lengths (about 120 yards), and he thought that it was stationary. He considered that the speed of his train was 25/30 m.p.h. when it passed signal No. 26 and it was then that he realised for the first time that the diesel train, which he had overtaken to the extent of 3-4 coaches, was moving and must have passed the Slow line signal at danger. Kerfoot at once made a full brake application. He felt the brakes "take hold" and reduce the speed but they could not stop the train before the collision. After the impact he got the impression that the diesel was "carrying the express along". He said that he could not see the Slow line signal. The fireman generally corroborated Kerfoot's statement except that he thought that the junction signal cleared to green after the train had passed through Levenshulme; also, being on the right hand side of the engine, he had not seen the diesel train and did not know why Kerfoot had applied the brakes. The Guard, F. Woodiwiss, could give no useful information. He had not looked out for the Slade Lane signals and, after leaving Stockport, had not seen the diesel train.

C. S. P. Newton of Buxton Motive Power Depot, the driver of the diesel train, is 60 years of age. He had been a driver for 22 years and qualified for driving diesel units in 1956. He had worked on the Stockport-Manchester main line for 5-6 years. He came on duty at 12.25 p.m. on Monday, 23rd November, having been on rest since the previous Saturday afternoon. After driving some other trains he took over the 3.59 p.m. diesel from Buxton to Manchester.

Newton said that after Heaton Norris the signals were green until he saw signal No. 17 at double yellow and signal No. 21 at yellow. He stopped the train at Levenshulme, as booked, and from there he saw both signals No. 25 and 26 were red. After about $\frac{1}{2}$ minute he received the "right-away" and started the train. He accelerated and changed from first to second gear and reached about 24 m.p.h., but signal No. 25 was still at red so he shut off the power. He said that when he was quite close to the signal he saw it change from red to yellow with a right hand "feather", so he again applied the power and proceeded to pass it. The next thing he knew was that there was a "bump". He had not seen the Pines express after leaving Stockport.

Newton was not certain how far the train was from the signal when he thought he saw its aspect change. At first he said that the distance was 15-20 yards, and then that he did not think that the train had passed a notice board, 48 yards from the signal. He thought that the speed of the train had at the time dropped to about 20 m.p.h. He was sure that when the signal changed from red to yellow, there was a "feather" to the right which indicated that the train was to be crossed to the Down Fast. He said he was not surprised, since the train was sometimes switched to the Fast line at the junction. He did not, however, realise that the train had not taken the crossover road to the right which starts 120 yards beyond the signal. He had driven the same train on many occasions; he could not remember having been previously stopped at signal No. 25 to allow the "Pines" to go ahead, but he agreed that he had frequently been checked there on that account.

Newton was questioned closely about signal No. 25 but was emphatic that he thought he saw its aspect change from red to yellow with a "feather". He said he did not at that time notice the Fast line signal. He was alone in the driving cab and the blinds behind him were pulled. There were no extraneous lights which could distract him and he declared he had no worries nor anything on his mind. He drove only diesel trains which he preferred to steam because, he said, "they are good to work and you get a better view". He had the window alongside him half open and one of the two heaters on. He agreed that the new colour light signals were "pretty good", but he stated that 2-3 weeks before the accident, when he was driving a train on the Down Fast line, he had received a green aspect at signal No. 26 leading up to a red aspect at Longsight No. 1 box home signal. He could not, however, remember on which day this incident had occurred and he had not reported it to anyone.

Guard H. J. Stableford of the diesel train saw signal No. 25 at red from Levenshulme station. He said that after the train had re-started it went slowly for some time and then started to accelerate and he assumed that the signal had cleared; he did not, however, observe the signal although he agreed that he should have done so. He said that at one time the "Pines" was overtaking the diesel train but then the latter started to overtake the "Pines".

Mr. T. H. S. Cloney, District Signalmen's Inspector, arrived at Slade Lane box 25 minutes after the accident had occurred. He examined the console and found switch No. 26/1 reversed and switches Nos. 26/2, 25/1 and 25/2 normal. The repeaters of signals No. 25 and 26 were

both red. I asked whether he had spoken to the diesel train driver and he stated " I did actually speak to the driver of the diesel train but it was quite a while afterwards. I told him I was the District Signalmen's Inspector and asked him what his idea was of the affair, and he said that he had a single yellow approaching Levenshulme ; when he was in Levenshulme station there were two reds in front of him ; when he was about half way between Levenshulme and signal No. 25 he thought he got a single yellow aspect with a right hand ' feather ' ".

Mr. E. Culshaw, Testing Assistant, in the Divisional Signal Engineer's office, went to Slade Lane on the day following the accident and he said that he carried out exhaustive tests. The insulation of the signal circuits gave a minimum reading of 39 megohms to earth and of from 30-50 megohms between conductors. He tested the electrical interlocking, the approach locking, the approach controls and the block releases on signals No. 25 and 26 and found everything correct. He said that any complaints about the signalling would have been referred to him, but he had heard of none.

CONCLUSIONS AND REMARKS

I am satisfied that the signalling equipment at Slade Lane Junction was in proper working order and that this accident was the result of Driver Newton of the 3.59 p.m. diesel train passing the Slow line signal No. 25 at red. He must therefore bear the full responsibility for it. Driver Kerfoot applied the brakes of the Pines express as soon as he realised that the diesel train had passed the Slow line signal but the express was, I think, then travelling at about 35 m.p.h. which was within the authorised speed, and he could not have avoided the collision.

Signal No. 25 could not have been clear with the route set for the express to cross from the Down Fast to the Down Slow line. If the signalman had by mistake first turned switch No. 25/1 or No. 25/2 and if the aspect of the signal had cleared when the diesel train was between Levenshulme and the signal (i.e. on track circuit No. 7) as alleged by the driver, the approach locking would have prevented the signalman from setting up the route for the express.

I have no alternative but to discount the unusual signal aspects which Newton alleged that he saw 2-3 weeks before the accident. If such aspects had been shown it was his duty to have reported the fact, and investigations would then have been made at once.

It seems quite evident that Driver Newton saw the Down Fast line signal No. 26 become clear for the Pines express, and that he took it to apply to his train on the Down Slow line. I have endeavoured to assess the position of the diesel train at that time by calculation, but I have found that there is insufficient data. For one thing the position of the express at that time is by no means certain. Taking all the evidence on this point into account I think that the diesel train had travelled probably only about 100 yards beyond Levenshulme when signal No. 26 was cleared, after which both signals No. 25 and 26 would have remained in Newton's view, and more or less directly ahead, for some 25 seconds. It is therefore extremely difficult to understand how he could have failed to see the bright red light of the Slow line signal No. 25, and why he thought that he saw that signal at yellow with a right hand direction indicator when in fact it was red and signal No. 26 was green with a left hand indicator. A medical examination showed that he is quite fit and that his eyesight and colour vision are normal. As Brigadier C. A. Langley mentioned in his Annual Report for the year 1958, the British Transport Commission are undertaking a special investigation into human failures of this nature, with the co-operation of the Trade Unions and with the assistance of the Medical Research Council, and the facts of this case have been made known to the latter.

Neither the guard of the express nor the guard of the diesel train complied with Rule 148 of the British Railways Rule Book which requires them to keep a good look-out when approaching important junctions. If Stableford, the guard of the diesel train, had done so, he would undoubtedly have seen that the Slow line signal was at danger and could have stopped the train.

I have the honour to be,

Sir,

Your obedient Servant,

D. McMULLEN,
Colonel.

The Secretary,

Ministry of Transport.

COLLISION AT SLADE LANE JUNCTION ON 23 rd. NOVEMBER, 1959

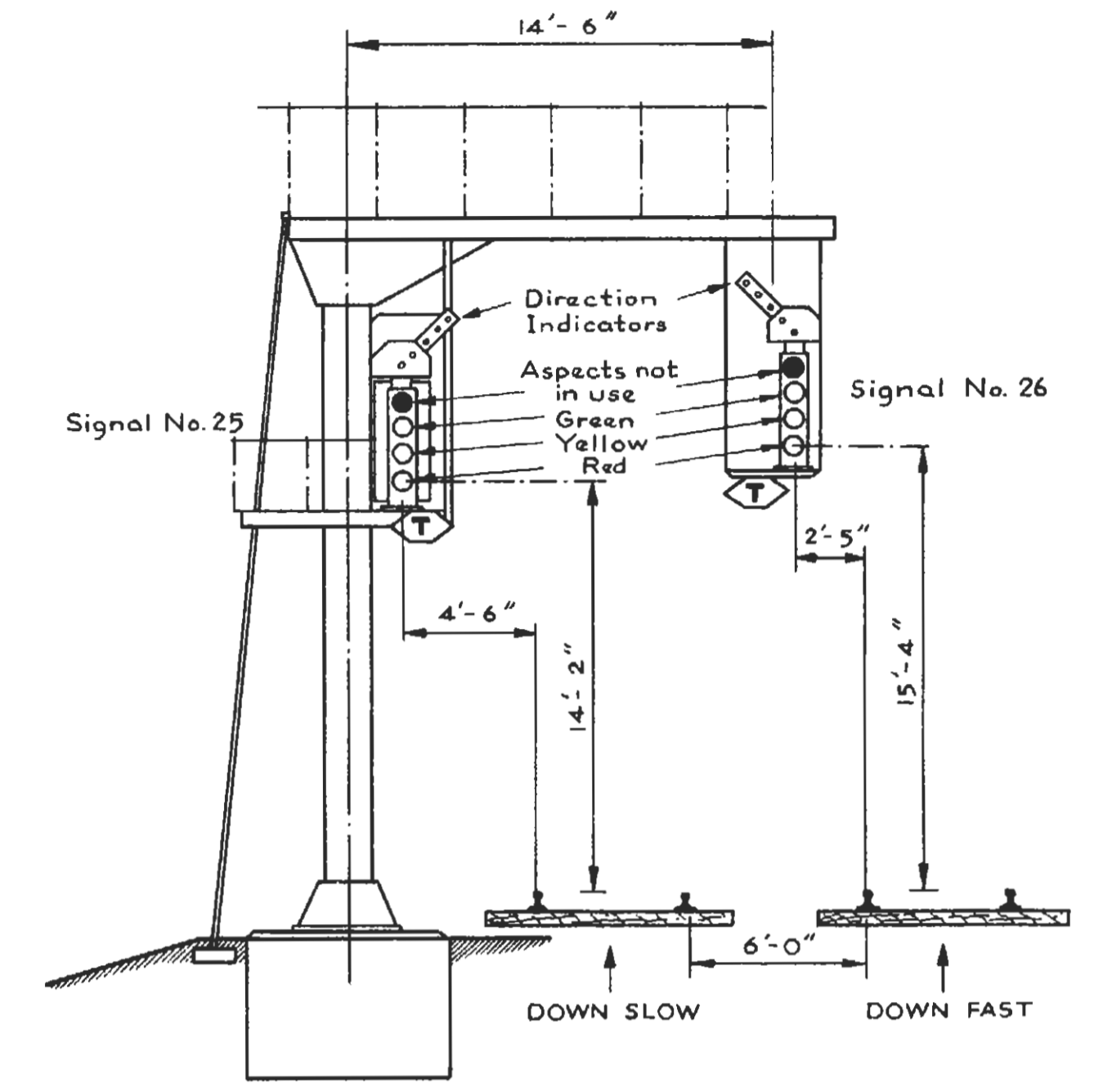


FIG. 3
SLADE LANE JUNCTION
SIGNALS No. 25 & 26
SCALE: 8 FEET TO 1 INCH

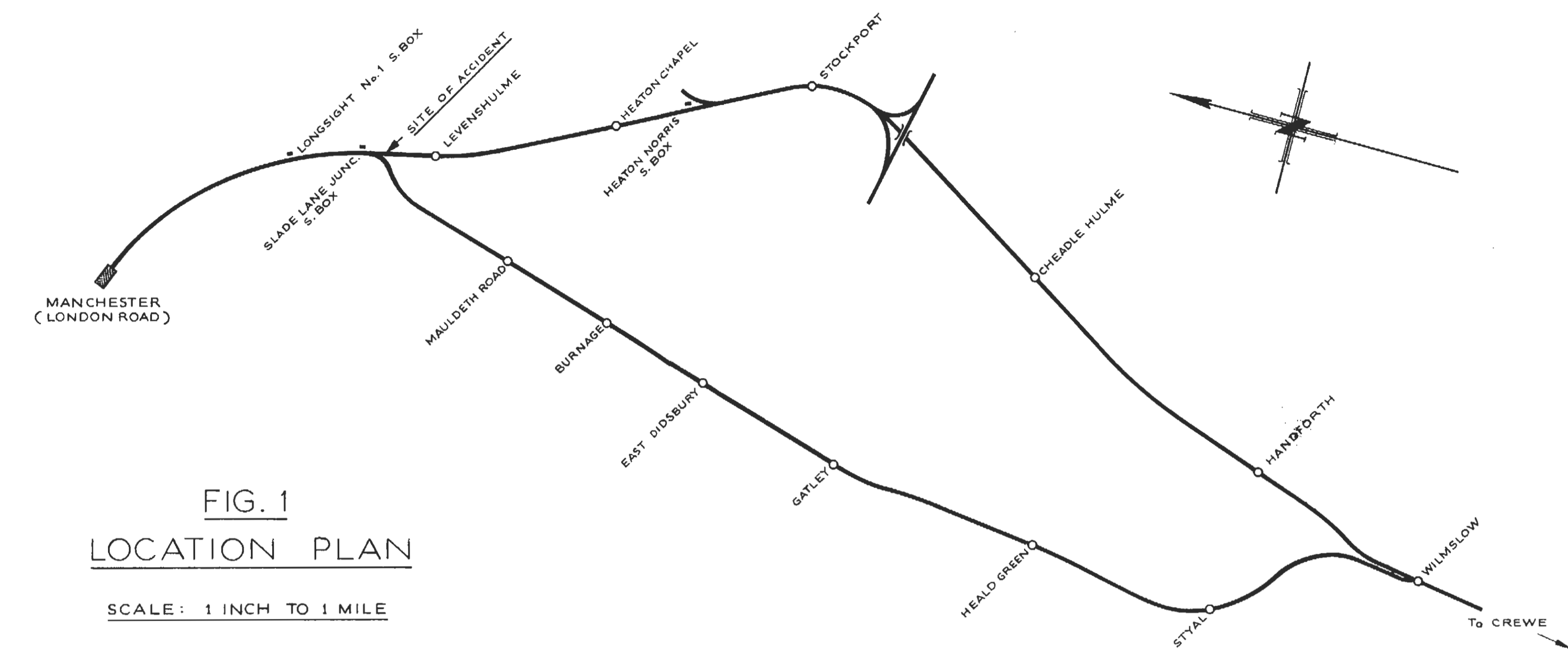
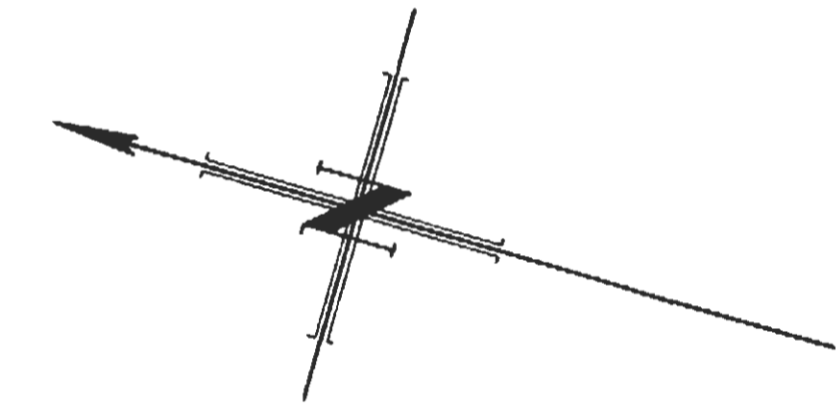


FIG. 1
LOCATION PLAN
SCALE: 1 INCH TO 1 MILE



LEVENSHULME STATION

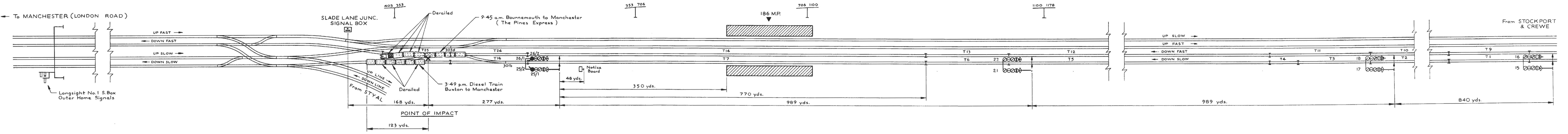


FIG. 2 GENERAL PLAN
LONGITUDINAL SCALE: 4 CHAINS TO 1 INCH
FEET 100 50 0 100 200 300 400 500 600 700 800 900 1000 FEET