

BRITISH RAILWAYS : EASTERN REGION

Regional Operating Officer NEWCASTLE

Ref : R03/GEN.22/26

Date : 29th October 1985

REPORT OF A JOINT INQUIRY HELD AT NEWCASTLE ON FRIDAY, 4 OCTOBER
1985 INTO A COLLISION BETWEEN TRAIN 9T04 AND LIGHT LOCOMOTIVE 37072
AT SIGNAL TY 183 IN TYNE YARD WHICH OCCURRED ON SUNDAY, 29 SEPTEMBER
1985

PANEL

REDACTED

IN ATTENDANCE

REDACTED

WITNESSES

REDACTED

DESCRIPTION

Date: 29 September 1985
Time: 1320 to 1335 hours
Location: Consett Branch/Type Yard TY 183 Signal
Weather: Clear and Dry

Before closure to traffic on 19 March 1984, the Consett Branch operated as a single line, starting at No639 points at Ouston Junction. The junction with the Up and Down Slow lines being protected for conflicting movements by No644 points leading to a sand drag. Signal TY268 in the Up Slow line gave entry to the branch, Signal TY269, near 644 points controlling movements off the branch.

When the branch was closed, the signalling at Ouston Junction was retained to facilitate the working of Engineer's Trains 'on' and 'off' the branch to recover track.

The branch was converted to single line working in 1982 and the catch points removed from the steep gradient falling towards Ouston Junction. At this time the then Divisional Manager, Newcastle issued an Instruction to the Area Civil Engineer to the effect that Engineer's trains with unfitted wagons must always have a locomotive front and rear.

As the Down line track was not recovered on closure in 1984, there was still double track from a set of points at South Pelaw Junction. By September 1985 both lines had been recovered up to a point approximately 1½ miles from Ouston Junction. On Sunday, 29 September 1985 an Engineer's Train 9T04 was arranged to recover track on the Consett Branch.

Two sets of train crew and locomotives were booked for the work. 9T04 left Tyne Yard at approximately 07:00hours, marshalled - Locomotive 45015, brake van, mess van, twin jib tracklayer (TJTL) 5 empty High Capacity (HC) wagons, brake van and locomotive (31102). REDACTED and REDACTED were booked to work with Locomotive 31102.

Relaying Supervisor REDACTED was appointed as person in charge of the work on the Consett Branch. As the branch is permanently in the charge of the Engineer, he was responsible for working trains to and from the branch. He used a telephone at Ouston Junction to speak to the Signalman at Tyne.

As track circuit 930 (approach track to Signal 269) was out of order, the train had to be authorised to pass Signal TY268 at Danger. After manual operation of point Nos. 240, 239 and 644 authority was given by the Tyne Signalman for 9T04 to pass Signal 268 at Danger. Confirmation was given to the Signalman when the train was in Clear of 644 Points.

On the NX Panel at Tyne a route is controlled by operation of the entrance and exit buttons of the route concerned. The route then remains until an alternative route is set.

Each set of points has an individual switch, with three positions, normal, neutral and reverse, which can be operated manually. After manual operation of a point switch the Signalman returns it to the neutral position to allow automatic route setting. Hence with the track circuit failure No. 649 points would stand reversed, i.e. set for Ouston Junction, until a conflicting movement was set up.

When 9T04 arrived on the Consett Branch it was shunted so that Locomotive 45015 propelled TJTL, mess van and brake van onto the Up Line. Locomotive 31102 propelled brake van and 5 HC wagons onto the Down Line. When the HC wagons had been loaded, they were returned to South Pelaw Junction and Locomotive 45015 put on the rear. The TJTL, mess van and brake van left secured on the Up Line.

The train returned to Tyne Yard and a further 5 empty HC wagons collected after disposing of the loaded wagons.

REDACTED communicated with the Signalman at Tyne for permission to re-enter the branch. He reported to the Signalman when the train was in clear of Signal 269. Points 644 were not restored to normal and no conflicting movement was required before part of the train subsequently ran away.

At approximately 12:50 hours, locomotive 45015 had returned to the vehicles stood on the Up Line. Locomotive 31102 had propelled the 5 empty HC wagons and brake van onto the Down Line. About 13:00 hours REDACTED, with REDACTED were expecting their relief and walked to the site of Pelton Fell Station. This was some quarter mile beyond where they left the train held by the Locomotive brakes. The vehicle they met did not convey their relief, so they waited.

Six members of the Engineer's staff were instructed to prepare the empty HC wagons ready for loading. REDACTED was one of the six men and after completing this task he sat in the brake van. He felt a jolt and realised that the vehicle was moving. He jumped off the van and raised the alarm.

Locomotive 31102, brake van and 5 empty HC wagons ran down the 1 in 57 gradient, and onto the Down Slow line. Signalman REDACTED in Tyne Signal box observed track circuits light up and realised a train was running away. He set the route from the Down Slow line to No.4 Down Staging and warned the Yard Supervisor of the situation. He estimated the speed of the train at 50/60 mph.

A light locomotive, en route to Gateshead MPD, travelled over the unsignalled route from the MPD, via the Engine Line to Signal TY183. REDACTED were in charge of light locomotive 37072. Drivers REDACTED and REDACTED were travelling passenger. All four men travelled in the leading cab.

REDACTED alighted at Signal TY 183 to contact the Tyne Signalman, being unsuccessful he tried from Signal TY 184. REDACTED then alighted and tried the telephone at TY 183. REDACTED raised the alarm when he saw a Type 31 and some vehicles travelling at high speed towards the light locomotive. REDACTED jumped clear and received minor injuries to his knee. REDACTED was unable to get clear before the collision and received facial injuries.

After the collision, Locomotive 37072 was pushed approximately 150 yards. Both locomotives 37072 and 31102 remained on the track but were severely damaged. The brake van and all the 5 HC wagons were derailed in the Shunting Neck of the Engine line.

SUMMARY OF EVIDENCE

REDACTED was in charge of the work and responsible for train movements 'on' and 'off' the branch. He arranged train and shunting movements so that the TJTL was stood on the Up line and 5 empty HC wagons on the Down line. He arranged for further empty wagons to be placed on the Down line after completing the loading of the first train. He told how all movements on the branch were made with a locomotive on the bottom side of the vehicles.

REDACTED described how he prepared HC wagons ready for loading recovered track sections. He was waiting in the brake van when he realised it was moving. He jumped clear and raised the alarm.

REDACTED Told the Inquiry how he saw track circuits light up on the Down Slow line and realised a train was running away. He set the route for No.4 Down Staging Siding and informed the Yard Supervisor.

REDACTED described working with Locomotive 31102, the rear locomotive on 9T04 leaving Tyne Yard. He confirmed the evidence given by REDACTED concerning train and shunting movements. He stated that the second set of empty HC wagons were placed on the Down line at about 1250 hours. He left the site with the footplate crew to meet his relief at approximately 1300 hours. He agreed that he did not secure his train.

REDACTED Confirmed the Guards evidence about train and shunting movements. Allowed REDACTED to drive locomotive throughout the shift. He stated that they left the locomotive with both the EQ and the straight air brakes applied and the master key removed. He was satisfied with the condition and performance of locomotive 31102. He considered it was safe to leave the train held by locomotive air brakes.

REDACTED confirmed the Driver and Guards evidence. He was also satisfied with the performance of the locomotive.

REDACTED described how he examined the locomotives and derailed vehicles following the collision. He gave details of the position of the controls and the state of various gauges. Stated that the EQ brake handle was in the emergency position and the straight air brake in the off position in the rear (No.2) cab of locomotive 31102.

OBSERVATIONS

The witnesses were all co-operative and there was no significant differences in the evidence given.

The Guard was in breach of Rule Book H. 4.16. in leaving his train. The Driver failed to comply with Rule Book H. 3.22 in leaving the locomotive. However, all three members of the train crew incorrectly believed the train was effectively secured by the locomotive brakes.

The technical evidence available to the panel at the time was insufficient to allow a conclusion to be reached as to why the train moved in such a short period of time, namely 20 to 30 minutes, and due to the resultant damage will be difficult to determine.

Consideration was given to the possibility that someone made an unauthorised movement with the train or that it was otherwise disturbed. These possibilities were discounted.

The Driver and Driver's Assistants evidence was that both the EQ and straight air brakes were applied when the locomotive moved. REDACTED in his evidence stated that the straight air brake handle was in the off position in No.2 cab. The brake handle moved very freely and could have moved to the off position as a result of the impact of the collision.

Whether the straight air brake was applied or not, the Panel were satisfied the locomotive brakes were fully applied when the crew left the train. The reason for the locomotive brakes leaking off in such a short time will have to be the subject of a more detailed technical examination.

When the Consett Branch was closed no special Instructions were issued for Engineer's trains moving 'on' and 'off' the branch. No.644 points had been dealt with as for the standard procedures in Tyne Signalbox. Hence when the train ran away, it is unfortunate that 644 points were still reversed and allowed the train out onto the running lines.

REDACTED acted with considerable initiative in responding to the runaway train and his actions can only be commended. The movement of light locomotive 37072 from the MPD road onto the Engine Line to stand at Signal Tfl83 is normal yard working.

Once 9T04 ran away from the Consett Branch, the collision could not have been avoided owing to the circumstances facing the Signalman.

CONCLUSION

Train 9T04 ran away on the I in 57 gradient, having been left without any handbrakes applied on the locomotive or vehicles, when the locomotive brakes leaked off.

REDACTED

DETAILS OF EVDENCE GIVEN AT THE JOINT INQUIRY

NAME OF WITNESS	REDACTED
GRADE	REDACTED
DEPOT	NEWCASTLE
DATE OF BIRTH	REDACTED
DATE ENTERED SERVICE	REDACTED
DATE ENTERED PRESENT GRADE	REDACTED

On Friday 27th September I discussed with my colleagues work to be undertaken on the Consett Branch on Sunday 29th September, when I was to be the person in charge of the work recovering track.

On reporting for duty at Tyne Yard on Sunday 29th September at approximately 06 50 I checked the wagons and train in Tyne Yard. I had arranged with my colleague in charge of the tamping on the Up Line when the train is to be passed to gain access to the Consett Branch. I spoke to the Tyne Yard Signalman from Signal 268 at approximately 07 00 hours and arranged that when the train arrived at the signal for permission to go onto the Branch. The Signalman asked me to report back to him when my train was clear of Signal 269 as the track circuit was not operating on the Branch. When the train was in clear I arranged for the Guard to report to the Signalman. The train was marshalled 45 Class Locomotive, Brake Van, Mess Van, Twin Jib Track Layer, 5 High Capacity wagons, Brake Van, Type 31 Locomotive. The train was split so that the. Class 45 propelled Brake Van, Mess Van and Twin Jib Track Layer to the Up Line. The Guard with Class 31 Locomotive was instructed to propel the 5 High Capacity Wagons and Brake Van slowly on to the Down Line.

After recovering track and loading the 5 High Capacity Wagons the Brake Van, Mess Van and Twin Jib Track Layer were secured on the Up Line. The High Capacity wagons on the Down Line were formed with the Class 45 Locomotive in the rear ready to depart to Tyne Yard. I spoke to the Signalman from the telephone at Ouston Junction and then authorised the Guard to pass 269 to proceed to Tyne Yard. The further set of High Capacity Wagons were collected from Tyne Yard for movement on to the Branch repeating the first set of movements arranged with the Signalman. I personally informed the Signalman the train was clear.

The Class 45 locomotive proceeded on to the Up Line to the Twin Jib Track Layer, Mess Van and Brake Van. The Class 31 locomotive propelling 5 High Capacity Wagons and Brake Van on to the Down Line. I arranged for my staff to clean the wagons in preparation for loading recovered track. In the meantime proceeded to the Twin Jib Track Layer to get the operators. At this time a member of my staff came running along the track to say that there had been a jolt on the High Capacity Wagon Train and it was moving. There was a group of staff nearby who I recognised as the Train Crew and informed then

that the train was running away. On returning to the site, where the HC wagons had been standing, the train had moved.

Questioned by REDACTED

The arrangements for working on the Consett Branch stipulates that 2 locomotives shall be provided, one in the front and one in the rear of the train. What is your understanding of the method of working?

You need 2 locomotives to form a train in the way that was necessary to recover the track.

You therefore do not consider the 2 locomotives to be provided as a matter of Safety?

I understand that to make a train movement there must always be a locomotive on the bottom side of the train.

NAME OF WITNESS: REDACTED

Questioned by REDACTED

Were you aware at any time when preparing to load the second time that the crew and Guard were not on the train?

No.

Until you saw them?

Until the Trackman came up and told me that the train had moved.

Questioned by REDACTED

What time was the train back in position. What time did the Trackman report the train was moving.

13 00 hours.

Did the Guard report to you at all that he was leaving the Train?

No.

Do you know what gradient he was working on?

I did not know the specific gradient but it was a steep incline.

Did the Train Crew at any time complain about the brakes?

No

Questioned by REDACTED

There was 2 sets of Train Crew with the train as you arrived at the branch what was the method of working between the 2 crews.

The Guard with the 31 I had instructed to report to the Signalman at Tyne when we were clear and I work with the Guard for the 45 locomotive forming the train as described in my statement.

How many men had you left working with the High Capacity Wagons at arriving on the branch the second time?

I left 6 men with the instructions to clean the wagons of ballast to prepare the wagons. Three were to stay with the wagons and three were then to work with the Twin Jib Track Layer when they had completed the preparation of the High Capacity Wagons.

NAME OF WITNESS REDACTED
GRADE REDACTED
DEPOT CHESTER LE STREET
DATE OF BIRTH REDACTED
DATE ENTERED SERVICE REDACTED
DATE ENTERED PRESENT GRADE REDACTED

On Sunday 29th September I was working with a gang recovering track on the Consett Branch . Along with a colleague REDACTED we removed the warricks from the high capacity wagons when they arrived back from Tyne Yard. I then walked up the track again and collected two shovels and returned to the train ready for loading track sections. Whilst waiting for work to begin I sat on my own in the brake van. After about 10 minutes in the brake van I felt a jolt realised that the van was moving and jumped off into the 6 foot, and shouted is there anybody on that train.

Questioned REDACTED

Can you describe in greater detail your reference to a jolt?

Whilst sitting in the van I became aware that the vehicle was moving.

Do you know if the brake was on?

No.

Questioned by REDACTED

In the brake van did you touch anything?

No.

When you jumped off the train who did you shout to?

Anybody.

Did you see anybody about?

There was a couple of our gang at the top end.

By the top end of the train do you mean the opposite end to the locomotive?

Yes.

NAME OF WITNESS REDACTED
GRADE REDACTED
DEPOT TYNE
DATE OF BIRTH REDACTED
DATE ENTERED SERVICE REDACTED
DATE ENTERED PRESENT GRADE REDACTED

On Sunday 29th September I was rostered 1400 - 2200 Signaller. I reported and signed on duty at 1320 hours. I was informed of the situation by the colleague I was relieving. There was a possession on the Up Slow of some track failures and a train on the Consett Branch. The person in charge of the possession on the Up Slow made contact with the box to surrender the possession and I was making the entry in the Train Register Book and observed Track Circuit 923 show occupied. My initial reaction to this was another track circuit failure. When I saw the track in advance light up I realised something was moving. When the third track circuit lit up I realised something was running away. I observed that the 4 Down Staging Lights were all clear and elected to run the train through No.4 Down Staging to give the Yard Supervisor the greatest number of options to deal with the train.

I rang the Yard Supervisor to tell him of the runaway train. On looking through the Signal Box window I observed the locomotive and about 5 wagons running at high speed 50-60m.p.h. towards No.4 Down Staging Sidings.

About this time the Driver had reported from the locomotive at Signal 183 and he was told to stand clear as there was a collision imminent.

The runaway train collided with the light engine and came to a stand in the dumb end beyond Signal 183. As a precaution I stopped the main lines and 1S16 had been sent to Signal 253 on the Down Main Line.

On receiving confirmation from the Locomotive Foreman that the main lines were clear I allowed 1S16 to proceed.

NAME OF WITNESS REDACTED
GRADE REDACTED
DEPOT TYNE
DATE OF BIRTH REDACTED
DATE ENTERED SERVICE REDACTED
DATE ENTERED PRESENT GRADE REDACTED

On Sunday, 29 September 1985 I was rostered 0630 to work with 9T04 on the Consett Branch. After signing on I walked to the train in the Up departure and along with the second Guard, made the train ready for departure. We proceeded onto the Up Slow and stopped at Signal 268 where the Person in Charge made arrangements for the train to work onto the branch. He asked me to report to the Signaller by the telephone at Ouston Junction when the train was in clear of Signal 269, and this I did. I then walked to South Pelaw and assisted the second guard in preparing the trains so that the Class 45 locomotive, twin jib tracklayer, mess van and brake van could go onto the Up line and the Class 31 locomotive propelled brake van and 5 HC wagons onto the Down line. After the loading of track sections onto the HC wagons, the train was reformed at South Pelaw Junction with the Class 45 locomotive in the rear, and we departed to Tyne Yard leaving the twin jib tracklayer, mess van and brake van secured on the line. On arrival at Tyne Yard the train was disposed of and a further 5 high capacity wagons formed into a train. We then returned to the Consett Branch having been stopped at Signal 268. On this occasion the PIC reported the train in clear. The Class 45 loco and brake van returned to the vehicles left on the-Up line and I again propelled 5 high capacity wagons and brake van onto the Down line. We arrived on site at 1250 hours. At approximately 1300 hours whilst talking to the second guard, a railway vehicle was observed in the vicinity of Pelton Fell Station which we assumed conveyed our relief. On arrival at Pelton Fell Station we became aware that our relief was still not available. While standing there, after about 20 minutes someone approached the Driver of my locomotive and said that our train was moving down the branch. We returned to the site where the train had been left and it had disappeared completely from view. We proceeded by road to Ouston Junction and then Tyne Yard, where we found the train had collided with a light locomotive in the vicinity of Signal 183.

Questioned by REDACTED

When leaving the train, did you leave it with any brakes secured?

No, I thought that with a Class 31 locomotive on the front and the limited weight of the wagons behind it, the train was secure.

Questioned by REDACTED

On your second trip to the site where did you travel on the train?

In the brake van immediately in front of the locomotive.

On arrival on site what did you do?

I got down from the brake van to converse with the other Guard.

When you thought your relief had arrived and you left the train and picked your bag up from the van, was anyone in the van at that time?

No.

When you left the train was the locomotive engine running?

Questioned by REDACTED

What are the instructions regarding securing a train when leaving it?

When leaving a train you put sufficient brakes down to make sure it will not move.

Are you aware what the gradient was where you were standing? I do not know the specific gradient but it was steep.

During the previous loading operation how long was the train stood?

We were 2 hours on the site, we were moving as required.

What was the longest period you stood during the operation?

I do not know.

During this first operation did you have any trouble holding the train?

None at all.

Did the Driver complain of the brake at all?

No.

NAME OF WITNESS REDACTED
GRADE REDACTED
DEPOT TYNE
DATE OF BIRTH REDACTED
DATE ENTERED SERVICE REDACTED
DATE ENTERED PRESENT GRADE REDACTED

On Sunday 29th September I was Driver rostered to work 9T04 P.Way turn on the Consett Branch. After signing on duty I was allocated Locomotive 31102 working on the branch involved 2 locomotives 45015 pulled the train out of the Up Departures and out locomotive was attached to the rear. We worked train on the Consett Branch with the permission of the person in charge who travelled on the front locomotive. The train was shunted at Pelaw South Junction. Class 45 locomotive worked on to the Up Line and part of train and my locomotive was used to propel 5 High Capacity Wagons and Brake Van on to the Down Line. After the loading of the high capacity wagons we returned to Tyne Yard to collect a further set of empty high capacity wagons before returning to the Branch. The Class 45 locomotive was taken off the front of the train and went onto the Up Line and I again followed. 5 empty high capacity wagons and a brake van onto the Down Line arriving on site at approximately 12 50 hours.

We were travelling in No.2 cab in the direction of travel and my Second Man REDACTED was at the controls. After a short time standing on the Down Line we thought our relief had arrived by road in the vicinity of Pelton Fell Station. My mate applied both brakes and we moved the master key. At arrival at Pelton Fell Station we realised our relief had not yet arrived. As they were expected soon decided to wait. After some 20 minutes I was informed by the person in charge that my train had run away.

Questioned by REDACTED

In leaving train in the way you have described to the panel you feel confident that it was safe to leave?

Yes.

You are aware that this is not in accordance with your driving instructions?

Yes.

During the time you were in charge of the Class 31 did you become aware that the compressor was running for an excessive amount of time?

No.

Had you any difficulty with the performance of the locomotive or any reservations concerning its performance?

No.

Questioned by REDACTED

Had you been trained to operate locomotives with these EQ brakes.

Yes.

Do you frequently drive locomotives so fitted?

Not a lot.

Did you examine the Drivers Repair Book?

No.

NAME OF WITNESS REDACTED
GRADE REDACTED
DEPOT TYNE
DATE OF BIRTH REDACTED
DATE ENTERED SERVICE REDACTED
DATE ENTERED PRESENT GRADE REDACTED

Sunday 29th September I was rostered as Driver's Assistant on 9T04 to work on the Consett Branch with REDACTED. After booking on duty we were allocated 31102. The 2nd locomotive 45015 pulled the train out of the Up Departure and I drove the locomotive on to the rear of the train and departed Tyne Yard for the Consett Branch. On arrival at Pelaw South the Class 45 locomotive preceded on to the Down Line we propelled the train forward on to the Up Line and detached the brake van and twin jib tracklayer we departed the Down Branch to allow the Class 45 to proceed onto the vehicles on the Up Line. 5 empty high capacity wagons and brake van were then propelled onto the Down Line. When loading was complete we returned to Tyne Yard to detach the load and to attach a further 5 empty high capacity wagons. On returning to the Branch the Class 45 locomotive and brake van returned to the Up Line where the twin jib tracklayer, mess van and brake van had been left secured. 5 empty high capacity wagons and brake van were then propelled on to the Down Line. After standing for approximately an hour we thought our relief had arrived at Pelton Fell Station I applied both the EQ brake and straight air brake and removed the master key before leaving the locomotive. On arrival at Pelton Fell Station we became aware that our relief had not arrived after approximately a further 20 minutes wait we were told by the Person In Charge that our train had run away.

Questioned by REDACTED

Was there any difficulty in the handling of the Class 31 during the shift?

We had difficulty in propelling the first train on to the Up Line at South Pelaw and the sanders had not been working.

Were you aware if there was any exceptionally long period during which the compressors were running?

No.

Were you aware of any air leaks on the locomotive?

No.

Questioned by REDACTED

Did you prepare the locomotive?

Yes.

Did you examine the Repair Book?

Just the two most recent pages.

Was there any repair appertaining to brakes?

No.

Have you been trained on EQ brakes?

Yes.

How long ago?

Do you drive EQ fitted locomotives often?

Not very often.

Had you had any trouble maintaining air pressure?

I did not notice.

NAME OF WITNESS REDACTED
GRADE REDACTED
DEPOT TYNE YARD
DATE OF BIRTH REDACTED
DATE ENTERED SERVICE REDACTED
DATE ENTERED PRESENT GRADE REDACTED

On Sunday, 29 October 1 85 I was informed by Control that a train working on the Consett ranch had run away and been in collision with a locomotive 37072 standing at TY 183 Signal at Tyne Yard and would I attend.

On arrival at Tyne Yard at approximately 1420 hours I found that 9T04 had collided with loco 37 072 at TY 183 Signal and pushed the loco approximately 150 yards. Both loco 37072 and loco 31102 off 9T014 were still on the tracks but a brake van and 5 wagons had become derailed due to the collision.

I then proceeded to check if any of the handbrakes had been applied on the brake van or any of the wagons, and found the brakes to be in the off position. Then I asked Control to call out the A M & E E Officer, REDACTED While waiting for REDACTED to arrive I decided to check the instruments on loco 31102, which was off 9T04 and found the following:

No. 1 End (Facing North)

Train brake halfway between running and full service.

Loco brake in the off position.

Power controller in the off position.

Forward, Engine Only, Reverse in the off position.

Handbrake in the off position.

Vac. Chamber showing 4 inches.

ECI reservoir nil.

AMPS 75

MPH 24

No.2 End

Train brake in the emergency position.

Loco brake in the off position.

Power controller in the off position.

Handbrake in the off position.

Nothing showing on any of the gauges.

Also noted that there was no driver's key in the loco. The A.W.S. was in the on position. The brake indicator was in the Goods position and the B.I.S. had been isolated by the Train Crew Supervisor.

APPENDIX 'B'

PARTICULARS OF PERSONS INJURED

Drivers Assistant	REDACTED	Cut to Forehead
Mishap - Tyne Yard		29.9.85
Injured-	REDACTED	
Grade -	REDACTED	
Injuries Sustained		Bruising - left shin and knee Right knee Left elbow and back

APPENDIX 'C'

TIMES OF SENDING FOR AND ARRIVAL OF BREAKDOWN APPLIANCES, CRANES ETC

Gateshead Tool vans ordered	1435
Wagons rerailed	1615
Gateshead Tool vans Departed	1620

APPENDIX 'D'

BRIEF DETAILS OF DAMAGED STOCK

DB855208 CAP	2 Oleo buffers broken
	4 footsteps broken
	16 footstep brackets bent
	2 axle guards bent
DB994394 YBP	1 drawbar bent
	3 axlebox lids bent
	2 end brackets bent
	1 bogie helical spring broken
	1 oil tray and pad missing
DB994801 YBO	1 axlebar tray displaced
	1 drawbar bent
	1 axlebox lid bent
	2 axlebox trays displaced
	1 headstock dished and weld broken

1 brake block broken

DB994400 YBO 1 brake rod truss bent
1 bogie coil spring broken
1 axlebox tray displaced

DB996601 YMP 1 headstock dished
1 buffer casting fractured

Loco 31102 No.1 cab end severely damaged
No.1 bogie damaged

Loco 37072 No.1 End nose and bogie damaged

APPENDIX 'E'

BRIEF DETAILS OF DAMAGE TO PERMANENT WAY AND SIGNALLING

Points 553, 555, 554B severely damaged, together with point air lines.

Lineside equipment including location boxes damaged by trailing chains.

APPENDIX 'F'

Technical Reports Submitted by REDACTED Assistant Engineer Traction Equipment York

CLASS 31 LOCOMOTIVE FITTED WITH EQ PROPORTIONAL BRAKE SYSTEM

LOCOMOTIVE NUMBER 31290

REMIT: TO CARRY OUT A SERIES OF TETS ON THE LOCOMOTIVE BRAKE SYSTEM AS DIRECTED IN COMNNECTION WITH THE MISHAP TO LOCOMOTIVE 31102 WORKING 9T04 ON SUNDAY 29 SEPTEMBER 1985.

THE ABOVE LOCOMOTIVE WAS TAKEN AS A TYPICAL EXAMPLE OF AN EQ BRAKED LOCOMOTIVE IN SERICE.

ALL TESTS WERE CARRIED OUT FROM NO.2 END CAB

TEST 1

Time to CHARGE MAIN AIR SYSTEM Zero to 95PSI: 4 Mins. 30 Secs.

TEST 2

With Main Air System at 85PSI

Proportional Brake 'ON'

Straight Air Brake 'OFF'

Master Handle placed in 'OFF'

(Compressor Stopped, Exhauster Stopped, DSD Le-energised)

Air Time to reduce from 85PSI to 15PSI = 10 Mins. 15 Secs.

Main Air Time to reduce from 85PSI to 10PSI = 14 Mins. 0 Secs.

Main Air Time to reduce from 85PSI to 5PSI = 19 Mins. 35 Secs.

Main Air Time to reduce from 85PSI to Zero = 25 Mins. 0 Secs.

At this time Bogie 1 showed 33PSI (should be 60)

Bogie 2 showed 43PSI (Should be 60)

30 mins. Position MRP Zero, Bogie 1 - 33, Bogie 2 - 43.

TEST 3

With Main Air System at 85PSI

Proportional Brake 'OFF'

Straight Air Brake 'ON'

Master Handle Placed in 'OFF'

(compressor, Exhauster Stopped, DSD De-energised)

Main Air Time to reduce from 85PSI to Zero in 10 PSI increments.

		<u>Bogie 1</u>	<u>Bogie 2</u>
85 to 60	1 Min 4 secs	60	60
85 to 50	2 Min 0 secs	50	60
85 to 40	3 min 0 secs	40	60
85 to 30	4 mins 30 secs	33	55
85 to 20	7 mins 40 secs	22	53
85 to 10	13 mins 20 secs	11	51

85 to 5	19 mins 0 secs	5	46
85 to zero	22 mins 30 secs	zero*	44

30 mins. Position M2P Zero, Bo7ie 1 - Zero, Bogie 2 - 38P51.

* Suspect Bogie No. 1 proportional supply reservoir check valve stuck in open position.

The proportional valve ex loco. 31102 was fitted and tested - this was proven to be in good order - the valve was then removed and stripped - only to find a considerable quantity of Powderised rust present within.

CLASS 31 LOCOMOTIVE

DESCRIPTION OF THE AIR AND VACUUM SYSTEM

BRAKE EQUIPMENT EQ SYSTEM

General

The locomotive air brake system comprises of two independent brake systems :-

1. The straight or independent system.
2. The EQ controlled proportional system.

Straight Air

This system provides a brake application on the locomotive only and consists of a supply of air at 85/100 psi from the main res. supply to each driver's brake valve located in cab No.1 end and cab No.2.

Air from the driver's straight air brake valve is supplied (0 to 60 psi) to the two relay valves (1 to each bogie).

These relay valves relay the pressure required to the brake cylinders (0 to 60 psi) at a greater volume.

The air supplying the relay valves comes from the brake supply res., they in turn receive air from the main air system, protected by a non-return valve.

Vacuum Proportional System

This system provides an air brake on the locomotive and in addition applies and releases the train brake proportionally. This is achieved by a vacuum proportional valve, whose function is to see changes in vacuum train pipe 21" down to 0", and relay an output to the locomotive brake cylinders of (0 to 60 psi).

Factors relating to system malfunction

Straight Air

With the straight air brake applied and no compressor running, i.e. Master handle in "Off" position) air supplied to the straight air brake valves from the main res. supply would reduce due to the action of the auto drain valves fitted in the main air system, this would cause the output signal from the straight air brake valves to reduce, thus instructing the relay valve to remove air from the brake cylinders.

Proportional Brake

Again the security of this system relies on the vacuum trapped in the control side of the proportional valve. The accepted leakage rate being 1.5" Hg is 15 mins.

Other Factors

Should the brake piston seals pass air, the air would be supplemented from the supply res. to compensate, thus reducing the efficiency of the system to retain a brake application.

Bogie double check valves located between the proportional and straight air, brake systems can, if defective, cause venting of air from one system to the other, if one system is applied and one system at release, air would be heard escaping from the appropriate relay valve.

NOTE:- Only loss of vacuum from the control side would constitute loss of brake from both bogie one and bogie two.

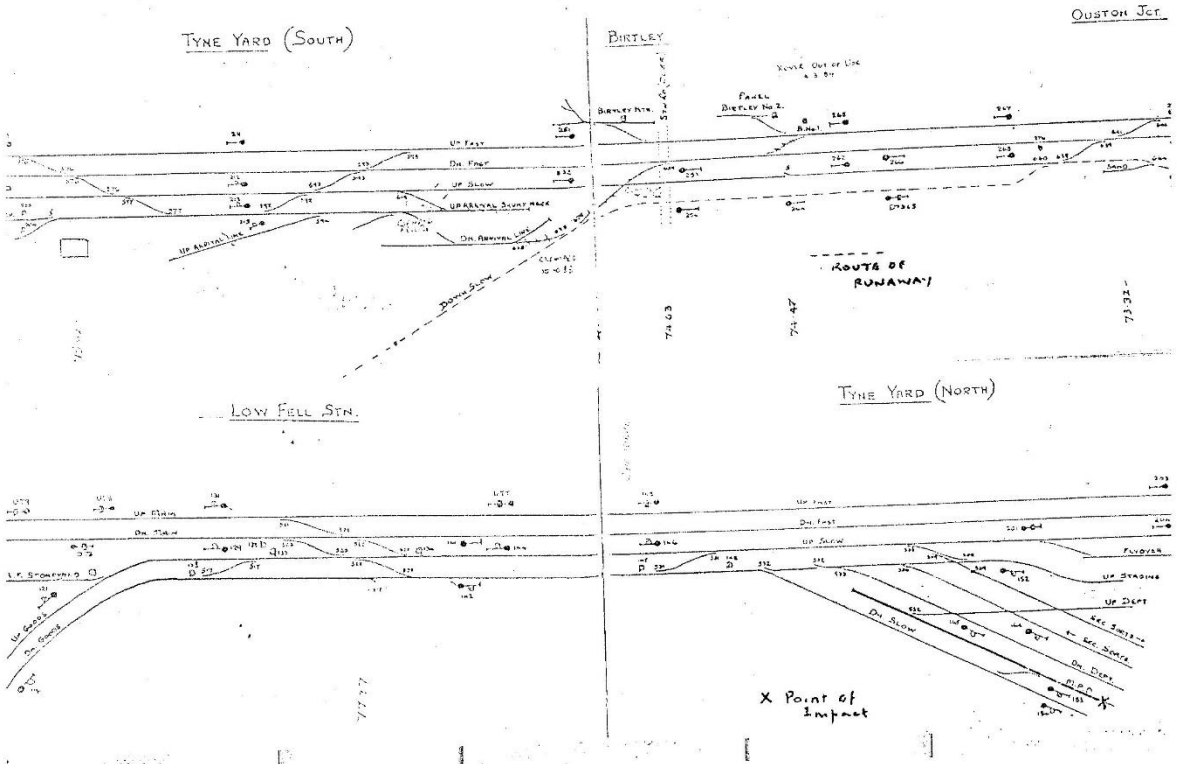
Further to the two technical reports submitted in regard to the incident involving locomotive 31102 working 9T04 on Sunday 29th September, 1985, I would like to make the following concluding statement.

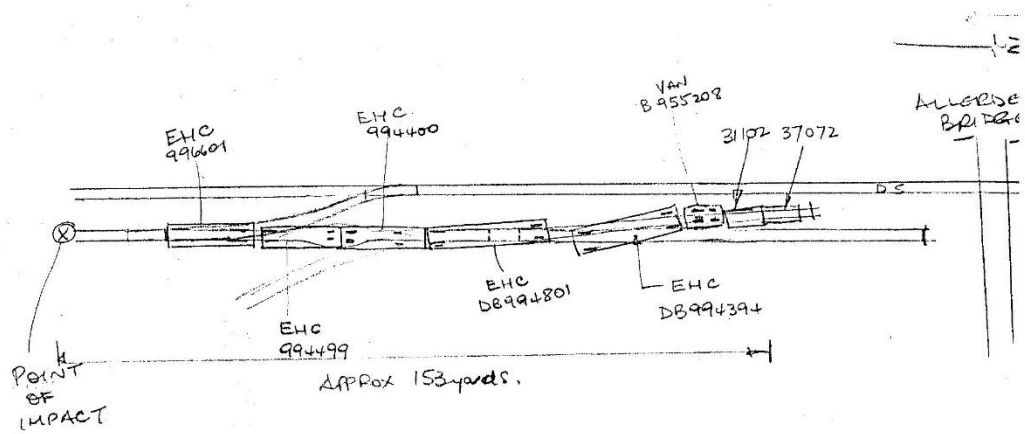
The brake system on 31102 was damaged beyond any possible means to allow, a brake test to be carried out. This being so, another EQ locomotive, No. 31290, was chosen at random.

My subsequent tests and report submitted can only raise doubts, for if this locomotive is typical of EQ proportional braked locomotives in service, then it would be quite possible on conditions prevailing that the brakes would have leaked off to such an extent causing the train to run away after 20 to 30 mins.

DIAGRAM attached

APPENDIX G.





POSITION OF LOCOMOTIVES & VEHICLES FOLLOWING COLLISION.