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OFFICE OF RAIL AND ROAD

1 August 2019

Mr Andrew Hall
Deputy Chief Inspector of Rail Accidents
Cullen House
Berkshire Copse Rd
Aldershot
Hampshire GU11 2HP

Dear Andrew,

RAIB Report: Derailment at Ely West Junction on 14 August 2017

I write to report[1] on the consideration given and action taken in respect of the recommendation addressed to ORR in the above report, published on 2 August 2018.

The annex to this letter provides details of actions taken by end implementers in response to the recommendation and the status decided by ORR.

ORR will advise RAIB when further information is available regarding actions being taken to address these recommendations.

We will publish this response on the ORR website on 2 August 2019.

Yours sincerely,

Oliver Stewart

[1] In accordance with Regulation 12(2)(b) of the Railways (Accident Investigation and Reporting) Regulations 2005

Initial consideration by ORR

1. The recommendation in the report was addressed to ORR when the report was published on 2 August 2018.

2. After considering the recommendation ORR passed it to all Entities in Charge of Maintenance (ECMs) currently operating in the UK asking them to consider and where appropriate act upon it and advise ORR of their conclusions. The consideration given to each recommendation is included below.

3. ORR also brought the recommendation and learning point to the attention of the Private Wagon Federation (PWF) and Freight Technical Committee (FTC) as it was concluded that that there are equally important lessons for them and in order to identify any ECMs we might have missed. ORR did not ask either FTC or PWF to formally respond.

4. This annex identifies the correspondence with end implementers on which ORR's decision has been based.

Recommendation 1

The intent of this recommendation is to ensure that the Y-series bogies fitted to freight wagons are adequately damped at all times.

GBRf should review and modify its current maintenance documentation to ensure that it prescribes maintenance limits on the damping components of its Y-series bogies that both account for future wear before the next maintenance intervention and are compatible with both the bogie manufacturing dimensions and design intent of the damping system. The revised maintenance documentation should also include effective inspection measures to provide assurance that the damping components are not worn beyond the maintenance limits.

Note: this recommendation may also apply to other Entities in Charge of Maintenance.

ORR decision

Channel Commercials

5. Channel Commercials are not a registered ECM for any wagons with Y-series bogies. Channel Commercials do carry out maintenance on wagons fitted with Y-series bogies on behalf of another ECM, working to a procedure that is capable of identifying and replace worn suspension components before they are likely to fail in service.

6. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Channel Commercials has:

- taken the recommendation into consideration; and
- has taken action to implement it

Status: Implemented.

Information in support of ORR decision

7. On 6 February 2019, Channel Commercials provided the following initial response:

Channel Commercials PLC are a certificated ECM and we currently have 2 x fleets of rail wagons listed against our ECM on the NVR.

Brett Aggregates JHA bottom discharge Hopper wagon x 14.
These wagons were fitted with the Gloucester 3 piece bogie & are currently in the process of being scrapped.
All wagons are Reg carded on Topps & once scrapped the Owner/Keeper will inform NVR to remove Channel Commercials as the registered ECM.

Liberty Aluminium PCA wagons x 47.
These wagons are currently made up of the following suspension design.
38 x PCA with parabolic sprung suspension and 9 x PCA with Gloucester pedestal suspension.
The 9 x wagons with Gloucester pedestal suspension are currently Red carded on Topps and have not been on the infrastructure for over 6 years. The remaining 38 are in service.

Due to the fact that the wagons registered against our ECM are not fitted with "Y" series bogies we do not need to amend our current maintenance manuals or alter our working practices to accommodate the additional measurement recommendations outlined in the report.

Channel Commercials PLC also maintain a fleet of 5 x specialised Railvac wagons for Railcare. These wagons do run with the "Y25" series bogie's fitted.

As Channel Commercials plc are not the registered ECM for this fleet of wagons my Technicians are competence assessed to Railcare's approved Maintenance manual Railcare-M-Spec-001.
Railcare-M-Spec-001 specifies that all inspections Bogie damper checks are to be carried using two synchronised lifting jacks opposite each other under the bogie side frame.
The side frame is then raised 20mm. During the lifting operation, both of the wheelsets on the bogie being lifted should remain in position on the rails and NOT

lift with the bogie. Failure to do so indicates a bogie damping issue that must be investigated further.

Additional bogie checks are also carried out at VIBT & bogie overhauls are carried out by Railcare's approved wheelset & bogie overhauler. Bogie component wear tolerances are currently less than the recommended maximum levels.

Channel Commercials were also part of the recent "Y25" bogie working group hence improvements have already been introduced & are being worked to.

Colas Rail

8. Colas Rail are not a registered ECM for any wagons with Y-series bogies. For wagons with Y-series bogies owned or operated by Colas Rail where another entity carries out the ECM function, maintenance instructions will no longer use repair limits as maintenance limits.

9. Technical files for rail vehicles where Colas Rail Services is the ECM include justification documentation that provides the provenance for all maintenance limits.

10. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Colas Rail has:

- taken the recommendation into consideration; and
- has taken action to implement it

Status: Implemented.

Information in support of ORR decision

11. On 2 January 2019, Colas Rail provided the following initial response:

Colas Rail Services does not hold ECM responsibility for rail vehicles with Y25 suspension units (Colas Rail sold the last such units some 3 years ago). However, the company does have access to the maintenance plans and maintenance justification files for other company owned ECM fleets of rail vehicles with Y25 suspension units that Colas Rail Services operate and will monitor their responses to this RAIB report.

In terms of actions undertaken internally within Colas Rail Services, a meeting was convened to discuss the RAIB report recommendation and learning points attended by senior members of the freight engineering team including the Head of Engineering and Compliance and the Professional Head of Engineering. The result of the meeting was that these engineers when preparing and revising maintenance instructions for Colas Rail Services owned rail vehicles; declared repair limits should not be used as maintenance limits for wearing components as

this may provide no useful future life indication and does not guarantee safe operation up until the next maintenance intervention.

The technical files for those rail vehicles where Colas Rail Services holds ECM responsibility contain justification documentation that provides the provenance for all maintenance limits.

Davis Wagon Services

12. Davis Wagon Services do not operate any wagons with Y25 type bogies. They do maintain bogies of this type for other ECMs and have arrangements in place to notify the ECM if they identify a concern with the maintenance plan provided.

13. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Davis Wagon Services has:

- taken the recommendation into consideration;
- has taken action to implement it

Status: Implemented.

Information in support of ORR decision

14. On 5 November 2018, Davis Wagon Services provided the following initial response:

Davis Wagon Services as a certified ECM, do not operate any Y25 type bogies. We do maintain Y25 type bogies for other ECM's and will of course apply the mandated maintenance instructions from them.

15. On 11 June 2019, Davis Wagon Services provided the following:

- *DWS do not maintain any Y25 bogie types as an ECM.*
- *DWS are aware of and have reviewed the recommendations of the RAIB report.*
- *DWS do maintain other ECM's Y25 type bogies in accordance with the relevant ECM issued maintenance plan.*
- *Where DWS see that there may be a concern in an ECM issued maintenance plan with regard to the RAIB recommendations, and the requirements for Y25 type bogies, DWS will advise the ECM concerned and ask for a response.*
- *But DWS will ONLY carry out the requirements of the ECM issued maintenance plan.*

DB Cargo

16. We are content that DB Cargo have effective maintenance arrangements in place to ensure the Y-Series bogies for which it is ECM should provide adequate damping.

17. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, DB Cargo has:

- taken the recommendation into consideration; and
- has taken action to implement it.

Status: Implemented.

Information in support of ORR decision

18. On 4 January 2019 DB Cargo provided the following initial response:

DBC operates a number of vehicles fitted with Y-series and derivate bogies (similar friction damping designs). Examples of the largest fleets (100-off plus vehicles) are listed below:

FAA Bogie Container Well (introduced in 1999) FIA Twin Container Flat (introduced in 1994) FKA Twin Container Flat (introduced in 1999) MXA Infrastructure Box (BDA introduced 1975, re-bodied 2015) BAA Bogie Flat (introduced in 1973) BBA Bogie Flat (introduced in 1974)

The majority of the maintenance documentation for vehicles fitted with Y-series and derivative bogies specify a mileage based criteria for major maintenance intervals e.g. 250,000 to 350,000 between Mechanical Brake Overhaul. At these maintenance events the friction damping components of the suspension are mandatory replacements with new components.

All vehicles fitted with Y-series or derivative bogies are subject to routine maintenance events e.g. VIBT. At these events the friction damping components are inspected to ensure correct engagement and position of the components. Any suspension which does not comply with the requirements is disassembled, inspected and all non-compliant components are renewed.

None of the in-service maintenance limits are based on the VPI system. All have been derived from MT documents e.g. MT-277 and MT-213 and significant number years of in-service experience and monitoring.

The remainder of the maintenance regimes specify a time based criteria for major maintenance intervals e.g. 7 to 15 years for Mechanical Brake Overhaul. At these maintenance events the friction damping components of the suspension are measured and replaced if not compliant with the 'Limit of Wear'. The 'Limits of Wear' specified are not based on the VPI system but on MT-277 and MT-213 and significant numbers of years of in-service experience and monitoring.

Comparison of the 'Repair Limits' specified in the referenced RAIB report and the 'Limits of Wear' specified in DBC maintenance documents show the later limits are less, therefore allowing for future wear if any components are not replaced.

Following the release of the RAIB report DBC participated in the 'Y-series Working Group' organised and attended by members of the PWF and the

wider freight industry. From these meetings, the following best practices required are detailed below:

1. Work to the new VPI maintenance limit for the damping plunger of 65mm (DBC have been working to this limit for many years with no issues reported).

2. Increase awareness of damping component wear issues at all levels (DBC have issued the RAIB report to all ECM functions and are briefing the report and requirements of friction damping during routine site visits and ECM internal audits).

3. In- service checks of the damping components to be conducted at wheelset change (DBC have already implemented this for many years).

4. In-service checks on low mileage wagons at a time periodicity of 2/3 years (DBC have adopted maintenance regimes based on the age, mileage and utilisation of vehicles for many years).

5. That the RAIB report findings should shape future SPM processes and be reflected in updated maintenance plans. (DBC monitor all RAIB report in accordance with the ECM directive and implement recommendations and learning points as appropriate).

6. Awareness that bogies fitted with an inspection window allow a visual inspection to be made to check that the spring cap wear plat is central to the plunger. A screwdriver check is also useful. (From a sample fleet check of vehicles specified above and others fitted with Y-series or derivative bogie, these inspection windows are present and can and are used to check the condition of the friction damping).

7. Industry learning documents to be made available possibly through SPARK or even a RIS. (DBC attend the PWF general and engineering committee meetings and the Freight Technical Committee and are helping as appropriate).

DBC takes this issue very seriously and as detailed above will continue to incorporate the recommendations of incidents and high risk defects into 'Engineering Change' process and will continue to monitor the maintenance of the vehicles fitted with Y-series or derivative bogies.

DBC will continue to review and investigate safety related incidents and review and monitor hazard identification and hazard logs as part of the 'Engineering Change' process and in-line with our monitoring processes as detailed within our SMS and the ECM directive.

DRS Ltd

19. We are content that DRS have effective maintenance arrangements in place to ensure the Y-Series bogies on wagons for which it is ECM should provide adequate damping.

20. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, DRS Ltd has:

- taken the recommendation into consideration; and
- has taken action to implement it.

Status: Implemented.

Information in support of ORR decision

21. On 6 February 2019, DRS provided the following initial response:

From reviewing the Recommendation and Learning Points as part of RAIB Report 09/2018, Freight train derailment at Ely West Junction 14 August 2017 I believe that no further action is required from DRS Engineering for the recommendation as an ECM. This issue has the potential to affect FBT-6 bogie wagons due to them being of a similar design to the Y-25 series described in this incident.

NIR3426 raised as part of this RAIB report has been closed by DRS with the following response 'Affects FNA-C and KUA wagons operated and maintained by DRS. The limits of wear for the friction damper components in the Maintenance Plans for FNA-C and KUA wagons were reviewed with no concerns noted therefore DRS considers NIR3462 closed.' This demonstrates that DRS have reviewed the content of the recommendation and dealt with it appropriately.

In regards to Learning point 1; an email sent to the Technical Team to remind them, as preparers of maintenance instructions, of the importance of the difference in 'repair limits' and for them not to be used as 'maintenance limits' for wearing components due to not guaranteeing safe operation until the next maintenance intervention.

The two further learning points are noted and understood.

Ermewa SA

22. Ermewa SA have made a number of changes to their maintenance procedures to reduce the time between inspections of damping systems on Y-Series bogies in line with the requirements of the recommendation.

23. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Ermewa SA has:

- taken the recommendation into consideration; and

- has taken action to implement it.

Status: Implemented.

Information in support of ORR decision

24. On 31 January 2019, Emewa SA provided the following initial response:

Reference your letter dated the 1st November 2018 I can confirm the following measures have been introduced after the review of the recommendation contained in the report.

(a) Measures taken to implement the recommendation

1. Ermewa use the VPI standard when carrying out six yearly revisions at workshops. The bogie component inspection limits have been updated in line with the recommendation ensuring that the damping system will remain within limits until the next maintenance intervention.

2. In addition to the revision limit update Ermewa have issued maintenance bulletins which require the in-service inspection of the components at wheel exchange. This controls the damping components in line with the new limits. Generally, wheel exchanges on Y series bogies are carried out at approximately three yearly intervals dependant on mileage.

These actions will effectively control the damping system by reducing the time between inspections and the reduction in allowable wear of the components. I have included an example of the maintenance bulletin implemented for additional control of damping and other friction components on the Y series bogies.

All learning points shall be taken into consideration and Ermewa will continue to review maintenance limits/inspection methods. Ermewa is actively involved in the PWF Engineering Committee/ESPA/FTC and the Y25 working group and will adopt all industry best practice.

Freightliner

25. We are content that Freightliner have effective maintenance arrangements in place to ensure the Y-Series bogies on wagons for which it is ECM should provide adequate damping.

26. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Freightliner has:

- taken the recommendation into consideration; and
- has taken action to implement it.

Status: Implemented.

Information in support of ORR decision

27. On 24 December 2018, Freighliner provided the following initial response:

Freightliner as an Entity in Charge of Maintenance (ECM) has robust processes in place to discharge its responsibilities to undertake return of service experience safety and performance monitoring of the wagon and locomotive fleets for which we are responsible. This process includes;

1) review of inspection reports at both planned maintenance and in service defect repair events identifying trends that may require amendments to maintenance policy
2) review of National Incident Reports and RAIB investigation Reports etc
3) close co-operation with other ECM's in various industry forums

This ensures that Freightliner has detailed knowledge of its fleet identifying any arising issues requiring revisions to maintenance plans to be made where appropriate. Any changes to maintenance policy are reviewed and authorised in accordance with Freightliner's engineering change process before implementation by the Professional Head of T&RS Engineering.

Freightliner has undertaken a number of reviews over the last few years of its friction damping inspection policy particularly following incidents at Heworth (affecting a related Gloucester Pedestal Suspension equipped wagon), Angerstein Junction etc. These reviews have resulted in changes being made to the inspection criteria applied at planned maintenance events. Maintenance inspection criteria have been refined to ensure that that wear of both individual components and the friction damping system as a whole are identified.

It should also be noted that Freightliner policy is to renew all wearing components at General Repair (overhaul) ensuring the friction damping system is returned to original configuration.

Freightliner is therefore confident that the inspection criteria applied to its wagon fleet ensures that friction damping remains fully functional during the service life of the wagon.

Freightliner has also shared our experience and knowledge in this area with other ECMs via various industry meetings including the Private Wagon Federation Y-series bogie working group.

GB Railfreight

28. We are content that GB Railfreight have effective maintenance arrangements in place to ensure the Y-Series bogies on wagons for which it is ECM should provide adequate damping.

29. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, GB Rail freight has:

- taken the recommendation into consideration; and
- has taken action to implement it.

Status: Implemented.

Information in support of ORR decision

30. On 19 March 2019, GB Railfreight provided the following initial response:

a/ GBRf did an immediate special check of all Y series suspension after the incident to ensure no other risk was present.

b/ GBRf had previously updated its VMI as previously described to the ORR to ensure that the measurement of these components was carried out at every wheel set removal, another update has since bene issued to ensure compliance.

c/ These suspension components will be changed out as mandatory at wheel set change

d/ GBRf has worked with its maintainers to ensure they are well aware of their responsibilities to follow the GBRf/VMI/FEA and ensure staff are briefed accordingly, and additional audits are being undertaken specifically to ensure this is undertaken.

Nacco

31. We wrote to Nacco on 1 November 2018 asking them to take the recommendation into consideration, but received a response stating that from 4 October 2018 VTG AG has acquired Nacco S.A.S, Nacco Rail Ireland Limited and Nacco (U.K.)

Status: Non-implementation

Network Rail

32. We are content that Network Rail have identified the wagons they operate with Y-Series bogies and have effective maintenance arrangements in place to ensure they operate with adequate damping.

33. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration;

- has taken action to implement it.

Status: Implemented.

Information in support of ORR decision

34. On 28 February 2019, Network Rail provided the following initial response:

Stage 1 - Network Rail will confirm if they own and service or maintain any Y Series Bogies.

To do this Network Rail will contact responsible fleet managers to confirm the above. If none are owned update will be provided to the ORR.

If Network Rail own and ECM any Y Series Bogies a request for an action plan by the Director of Fleet Engineering (Route Services) to address Rec 1 will be undertaken and updated through NRRP and sent to the ORR. If this is required, an action plan will be provided by July 2019.

***Note:** Since the above action plan was approved by National Recommendations Review Panel, Network Rail would like to provide the following update:*

Network Rail own varying Y-Series Bogies across their fleet (including hybrid design), a sub group of the relevant fleet team community has been formed and a further formal response will be sent in due course.

35. On 10 June 2019 Network Rail provided the following update:

Action Plan

1. *Review which Network Rail wagons are within scope.*
2. *Brief Network Rail Fleet Engineers/Managers on potential issue.*
3. *Review current maintenance documentation to identify existing wear limits.*
4. *Attend meeting of cross freight industry associates (Y25 Working Group) to discuss best practice.*
5. *Identify changes required to existing maintenance documentation.*
6. *Produce maintenance bulletin(s) to correct wear limits and check/repair wagons.*
7. *Review actual component dimensions from wagons undergoing overhaul to ensure that revised wear limits are acceptable.*

Progress

1. *J. Bowler – completed see appendix A.*
2. *J. Bowler – briefed at SCOFEM 21/05/2018.*
3. *J. Bowler – ongoing, complete for most fleets. Planned completion 30/06/2019 see appendix B.*
4. *J. Ambrose – attended 25/10/2018, see appendix C.*
5. *J. Bowler – ongoing. Planned completion 31/07/2019.*
6. *J. Bowler – ongoing. Planned completion 31/08/2019.*

7. *J. Bowler – will not be started until wagons subject to revised limits start going through overhaul. Not possible to have a completion date as overhaul is ongoing across all fleets and information will be reviewed when available.*

APPENDIX A – Wagons identified

Fleet	***Vehicle Type***
Rail and S&C	*Switch and Crossing Panel Carrying Vehicle*
Rail and S&C	*Switch and Crossing Beam Carrier*
Rail and S&C	*LWRT*
Rail and S&C	*RDT*
Rail and S&C	*SRC*
ASMR	*JJA Autoballaster*
ASMR	*KRA Sleeper Carrier*
Seasonal	*RHTT FEA*
Seasonal	*RHTT KFA*
Seasonal	*SITT FEA*
Seasonal	*Winter Development Vehicle*
Stoneblowers	*Stoneblowers*
Grinders	*Harsco S&C Grinders*
Grinders	*C21*
Grinders	*SPML15 &17*
OCR	*OCR KFA*
High Output	*Barrier Wagon with Storage Container (DB979118 - 9)*
High Output	*Workshop Wagon with Rail Handling (DB979121)*
High Output	*MFS-D/SB Single Line Spoil Handling Vehicles (DR92241-62)*

High Output	*NFS-D New Ballast Conveyor Wagon (DR92223-40)*

Appendix B - Maintenance documentation still under evaluation

Fleet	***Vehicle Type***
Seasonal	*Winter Development Vehicle*
Grinders	*Harsco S&C Grinders*
Grinders	*C21*
Grinders	*SPML15 &17*
High Output	*Barrier Wagon with Storage Container (DB979118 - 9)*
High Output	*Workshop Wagon with Rail Handling (DB979121)*
High Output	*MFS-D/SB Single Line Spoil Handling Vehicles (DR92241-62)*
High Output	*NFS-D New Ballast Conveyor Wagon (DR92223-40)*

APPENDIX C – Y25 Working Group copy of minutes

Y Series Bogie Working Group
Held at RTC, Derby on 25th October 2018

Present

L Bryant (chair) Davis Wagon Services
A Hanford TOUAX
S Rouse Freightliner
A Aitken Wabtec
I Beattie DRS
P Towler DB Cargo Maintenance
Z Grant Yellow Group
U Khan VTG Rail UK
R Campbell VTG Rail UK
J Ambrose Network Rail
R. Allen ERMEWA
S. Taylor (secretary) PWF

Apologies

N Day VTG
N Green Railcare
J Carpenter Tarmac
S Cressey DB Cargo Maintenance
G Houghton Colas Rail
T Gabb Freightliner

Introduction

The Chair (LB) welcomed those present and explained the purpose of the meeting. He said that the working group had been reconvened following the publication of the RAIB report into the Ely Derailment.

LB also stated that due to potential liability issues for PWF:-

- *A record note will be made of notes and opinions expressed at the meeting;*
- *No recommendations would be issued;*
- *Previous documents would be checked and if necessary withdrawn.*

Maintenance Wear limits

LB summarised the RAIB Recommendation to GBRF and other ECMs. Maintenance limits on the damping components should account for future wear before the next maintenance intervention and be compatible with the bogie manufacturing dimensions and design intent of the damping system. It was observed that this principle should apply to all maintenance components and systems.

After discussion it was noted that some change the plunger at bogie overhaul whilst VTG changes all the damping components. Bogies fitted with an inspection window allow some intermediate checking, those without have little opportunity except when the wheelsets are dropped out for changeover.

Freightliner checks for wear at every wheelset change and, in addition, its maintainers use a magnetic, digital inclinometer to regularly check the angle of the Lenoir link. These are easy to use 'in the field' and give a good check on the state of the damping components. Wabtec also use these inclinometers.

It was noted that VPI had changed the plunger wear limits from 63mm to 65mm since the RAIB report had been published.

Sticking Plunger

Freightliner had observed sticking plungers due to corrosion but also due to the bush which the plunger sits in being slightly narrower although within tolerance. [D8 v A11] Revised plunger bushes had been fitted to ensure the plunger can move freely.

High mileage wagons were seeing more corrosion issues. Ermewa had used composite material bushes in France to prevent corrosion but then seen the product break up. It was observed that a solution is to apply grease to the bush whilst avoiding any grease getting onto the friction surfaces.

RA observed that the manufacturer's manual stated that the bogie was supplied with the damper shaft greased. There was no mention of the Lenoir Link being greased. It was observed that the bush could be greased at wheel exchange and it would be only a 2 minute job.

Bogie frame twist and misalignment checks

It was agreed that it is difficult to measure bogie frame twist, misalignment and wear plate limits.

RA had requested that a device or jig be built onto which a bogie could be dropped to take accurate measurements. This would be mobile. JA said that passenger vehicles were checking wheelsets and bogies using an optical scanner.

It was observed further that:-

- *bogie twist maybe present from manufacture;*
- *5mm twist is allowed in service; and*
- *that a fixture for correcting twist is possible.*

JA reminded the meeting that Gotcha could play a role as it 'learnt' from analysis of Gotcha records from wagons with defects. The Angerstein wagon had been 'visible' in Gotcha traces when looking back over its previous runs.

RA said that he attended a VPI training course where it had been stated that for long freight train lengths running in passenger timings the first seven wagons had been left in goods timings due to the delay in application and release with the rear of the train, this is meant to equalise the braking application and the buffing forces between the wagons. As the UK operate wagons in passenger brake timings this might lead to wheel flats and high buffing forces. It would be good to get a view from the RU's.

Lenoir Link

It was observed that the railways on the Continent grease the Lenoir Link, but it was not known why. The UK does not grease it due to the risk of picking up dirt and contamination from the track.

Consensus of Opinion

The consensus of opinions of those present was that best practice required:

- *working to the new VPI maintenance limit for the damping plunger of 65mm;*
- *increased awareness of damping component wear issues at all levels;*
- *in service checks of the damping components to be conducted at wheelset change;*
- *in service checks on low mileage wagons at a time periodicity of 2/3 years;*
- *that the RAIB report findings should shape future SPM processes and be reflected in updated maintenance plans;*
- *awareness that bogies fitted with an inspection window allow a visual inspection to be made to check that the spring cap wear plat is central to the plunger. A screwdriver check is also useful;*
- *industry learning documents to be made available possibly through SPARK or even a RIS.*

It was agreed that ST will contact FTC to ensure that the issue of how to share the shared learning from this meeting was on the agenda.

Any Other Business

It was stated that fitting bogie centre pivot liners was difficult and often the liner was destroyed during fitting. A tool to help would be useful. ST will follow up with Tenmat/Railko and invite a representative to the next Engineering Meeting.

The recent RAIB report into the wheelset locking issue in South Wales was discussed and in particular the recommendation regarding the risk assessment of maintenance facilities for dangerous goods wagons. PWF will be responding to RAIB.

RailCare Sweden Ltd

36. We are content that RailCare Sweden Ltd have effective maintenance arrangements in place to ensure the Y-Series bogies on wagons for which it is ECM should provide adequate damping. We note that the response also refers to actions taken in response to a previous RAIB recommendation (Angerstein freight derailment) and an NIR.

37. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, RailCare Sweden Ltd has:

- taken the recommendation into consideration; and
- has taken action to implement it.

Status: Implemented.

Information in support of ORR decision

38. On 26 January 2019, RailCare Sweden Ltd provided the following initial response:

Railcare Sweden operate 5 x On Track Machines in the UK which are mounted on wagons with Y25 bogies. The distance travelled is currently less than 5000 miles per wagon per annum.

Railcare are aware of previous incidents with the Y series bogie as reported in RAIB Report 10/2016 and NIR 3389. As a result of these two events, Railcare included (i) bogie lift tests and (ii) appropriate recommendations from NIR 3389 into their planned maintenance regime.

Following receipt of RAIB Report 09/2018, and in particular the Recommendation, Railcare reviewed their bogie overhaul component dimensional limits and confirmed that appropriate allowances were in place to accommodate future operation without minimum limits being reached. As such, Railcare are confident that as a result of (i) bogie lift tests at which time the damping mechanism is under close scrutiny and (ii) low annual mileage, the damping of their bogies remains effective between planned bogie overhaul which takes place at 6-yearly intervals.

South Western Railway

39. The wagon fleet for which South West Trains was the ECM passed to Network Rail when South Western Railway became the new franchisee.

Status: Non-Implementation.

Information in support of ORR decision

40. On 4 January 2019, South Western Railway provided the following initial response:

South Western Trains (SWT) owned 11 KHA wagons in total, of which four were operational following refurbishment. SWT held an ECM Certificate for the maintenance of these wagons (Ref UK/30/0011/0001). With the change of franchise in August 2017, ownership of these wagons was transferred to Network Rail and therefore SWR no longer own or operate these wagons. Therefore, this recommendation is not considered relevant to SWR.

STVA

41. STVA have confirmed they are not an ECM for any wagons with Y-Series bogies. STVA do operate a fleet of wagons where they are not the ECM, but are satisfied with the arrangements they have in place in response to the RAIB recommendation.

Status: Non-Implementation.

Information in support of ORR decision

42. In its response on 30 January 2019, STVA stated:

STVA does not have any Y33 or Y type bogies in the fleet of wagons operated in the UK. They do lease a small fleet of wagons fitted with Y33 bogies, we understand that the owner of the wagons have responded or will be responding to your letter advising you of the steps they have taken to address the issues referred in the above report.

43. In relation to the fleet of wagons refered to, we asked STVA to confirm who the owner is of the wagons is, the ECM and if they were content with any issues being taken to address the recommendation.

44. On 15 May 2019 STVA replied as follows:

The owners of the fleet of wagons fitted with Y33 bogies is Ermewa who are the ECM.

Ermewa along with STVA attended the PWF Y series bogies working group, this is a cross-industry working group. Following this working group, they have put in place a set of actions and issued a Maintenance bulletin MB/11/18 on the 23/11/2018.

They have consulted STVA throughout the process.

I can confirm that we are content that Ermewa have dealt with the issues in an appropriate manner to address the recommendations.

Touax

45. We are content that Touax have effective maintenance arrangements in place to ensure the Y-Series bogies on wagons for which it is ECM should provide adequate damping.

46. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Touax has:

- taken the recommendation into consideration; and
- has taken action to implement it.

Status: Implemented.

Information in support of ORR decision

47. On 1 April 2019, Touax provided the following initial response:

Touax Rail Limited, as Keeper and ECM, took into account the recommendation issued in the RAIB report of the Ely Junction derailment (R092018). To ensure that the Y-series bogies fitted to freight wagons are adequately damped at all times, Touax Rail Limited has modified the maintenance specification of the concerned wagons. The modification done on the maintenance specification are the following:

- The repair limit of the damping plunger limit has been changed from 64mm to 65mm. This repair limit is as per PWF consensus of opinion.

- The damping plunger was previously only measured at general revision. It will from now be measured at general revision and at each wheelset change.

- The repair limit of the Inner length for the Lenoir link has been changed from 106mm to 105mm.

- During the next 6 months, Touax Rail Limited will monitor the damping plunger measurement and will review the frequency of control if necessary.

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Volker Railway

48. We are content that Volker Railway have effective maintenance arrangements in place to ensure the Y-Series bogies on wagons for which it is ECM should provide adequate damping.

49. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Volker Railway has:

- taken the recommendation into consideration; and
- has taken action to implement it.

Status: Implemented.

Information in support of ORR decision

50. On 10 February 2019, VolkerRail provided the following initial response:

Firstly I would like to apologise for the delayed response to the RAIB report into the 'Freight Train Derailment at Ely West Junction 14th August 2017, and have considered if we VolkerRail should take any additional measures over and above what we currently undertake as the ECM of a small fleet of wagons (5 wagons), and can state that VolkerRail;

- *We have reviewed our maintenance activities relating to the area of concern, and are satisfied that the VolkerRail procedures monitor this area sufficiently.*
- *The VolkerRail procedure details the periodicy of inspection which is in advance of the OEM recommended frequency.*

- *The VolkerRail limits are strictly measured with tolerances defined, above the OEM recommendations.*

VTG Rail

51. We are content that VTG Rail have effective maintenance arrangements in place to ensure the Y-Series bogies on wagons for which it is ECM should provide adequate damping.

52. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, VTG Rail has:

- taken the recommendation into consideration; and
- has taken action to implement it.

Status: Implemented.

Information in support of ORR decision

53. On 14 January 2019, VTG provided the following initial response:

VTG are of the opinion that there were two main elements to the derailment, which were:

- *In-service damping limits*
- *Component limits at overhaul*

<u>In-service Limits and Checks</u>

VTG UK's damping limits were not taken from the VPI. Our plunger length limit in all relevant documentation is, and always has been, 65mm and not 63mm as found in the GBRf GR documentation (and VPI). The longer plunger length limit used by VTG prevents a build-up of tolerances that have the potential to create a "no damping scenario". This was confirmed by RAIB during conversations about the VPI, where RAIB had looked at the VTG limits found in the VTG UK documentation they had from the derailment at Angerstein on Y series bogies. However, VTG have considerably bolstered up their in-service Y series bogie maintenance regimes.

In-service visual checks of Y series damping are now carried out at PPM, which is set at 3, 4 or 6 months, dependant on mileage. During this event we carry out the following:

- *Visual checks for signs of locked damping (following Angerstein)*

- *Visual and physical checks to ensure damping components are in contact with each other. Our documentation includes clear photographs to show what and how to check*
- *Check the spring cap gap is greater than 3mm*

If any of the above are a potential fail, a full SU31 (suspension strip down) is required.

The additional PPM checks above have been implemented following this derailment.

Visual checks of Y series damping are now carried out at an annual VIBT. During this event we carry out the following.

- *Visual checks for signs of locked damping (following Angerstein)*
- *Visual and physical checks to ensure damping components are in contact with each other. Our documentation includes clear photographs to show what and how to check*
- *Check the spring cap gap is greater than 3mm. Please note that this was already in the original VIBT specification*

<u>SU 31 Additions</u>

VTG has also made additions to the SU 31 (suspension strip and measure) task, which is carried out if there is any doubt during the above in-service maintenance exams. The SU 31 now includes a check for steps in wear plates, which was originally in a separate VTG Instruction. We have also clarified the 3 types of damper plungers to ensure that the correct ones are fitted along with the correct combination of plunger and plunger bushes.

<u>Limits to major overhaul</u>

In order to achieve a greater factor of safety in the suspension tolerances, all VTG's maintenance interventions listed above use 65mm as the plunger length limit, which is greater than the UK historical norm of 63mm.

VTG's bogie overhaul periodicities are generally currently set at 8 years, and during this overhaul all parts are replaced therefore putting the bogie into an 'as new' condition.

<u>Conclusion</u>

VTG is concerned with the high level of Y series derailments over previous years, which has proven to be a common denominator in a number of derailments, especially when combined with track faults. Therefore, we have taken a "belt and braces" approach to the maintenance of these bogie types, ensuring factors of safety are increased and clarity of instructions are improved. Clarity and control of maintenance instruction is further bolstered through the 2019 introduction of PAM (proactive maintenance), which is an IPad based instruction removing the need for maintainer document control.

UKRL

54. We are content that UKRL Rail have effective maintenance arrangements in place to ensure the Y-Series bogies on wagons for which it is ECM should provide adequate damping.

55. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, UKRL has:

- taken the recommendation into consideration; and
- has taken action to implement it.

Status: Implemented.

Information in support of ORR decision

56. On 29 December 2018, UKRL provided the following initial response:

UKRL is not currently an ECM for any vehicles with Y33 (or any similar Y-series) type bogies.

When UKRL takes on any vehicle as ECM, we conduct a full review of the maintenance and overhaul specifications and records for the vehicle. In response to this recommendation we have with immediate effect revised our review matrix for taking on new vehicles with Y-series bogies to include specific consideration of the issues raised in the recommendations and the report, including:

- *Maintenance of damping elements, including PPM/VIBT maintenance checks and limits and any evidence of such checks being carried out and the findings acted upon. Expectation of inspection of damping elements to be carried out whenever a wheelset is dropped out of the vehicle- this check should be part of the wheelset change instructions.*
- *Appropriateness of criteria for damping elements in any General Revision (or other bogie overhaul specifications in the Vehicle Maintenance File) including allowing sufficient wear for the damping to remain effective until the next General Revision- with reference to the NIR and information in the RAIB report.*

In addition, when reviewing any vehicle being taken on, UKRL has re-iterated to review staff the importance of reviewing and challenging the existing maintenance/wear limits for all key maintenance/overhaul elements such as suspension/damping, braking and axle bearing policy.