Rail Industry Guidance Note
GMGN2571
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Storage and Recommissioning of Rail Vehicles

Synopsis

This document sets out guidance on the storage and recommissioning of rail vehicles that are not to be operated on the GB mainline railway for an extended period.

Published by RSSB

Issue record

Issue	Date	Comments
One	June 2002	Original document.
Two	June 2022 [proposed]	Replaces issue one. Revised throughout to reflect changes in legislation and industry practice.

Revisions have not been marked by a vertical black line in this issue because the document has been revised throughout.

Superseded documents

The following Railway Group documents are superseded, either in whole or in part as indicated:

Superseded documents	Sections superseded	Date when sections are superseded
GMGN2571 Issue One	All	June 2022 [proposed]

Supply

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Part 1 Purpose and introduction

G1.1 Purpose

G1.1.1 This document gives guidance on the storage and recommissioning of rail vehicles that are not to be operated on the GB mainline railway for an extended period. It sets out good practice for:

a) Placing vehicles into storage in a safe manner; and
b) Recommissioning of stored vehicles to ensure safe re-entry into service.

G1.1.2 This document does not set out requirements.

G1.1.3 National Technical Specification Notices are published by the Secretary of State pursuant to regulation 3B of the Railways (Interoperability) Regulations 2011. These NTSNs replace and substantially reproduce the provisions of Technical Specifications for Interoperability (TSIs) except where there are GB specific alternatives which are identified as Specific Cases in the relevant NTSNs.

G1.2 Background

G1.2.1 A unit or vehicle can be placed into storage for a number of reasons; for example:

a) New trains or vehicles awaiting commissioning;
b) Vehicles temporarily out of service due to reduced traffic demand;
c) Damaged or unrepaired vehicles awaiting a decision on their future;
d) Vehicles not required due to end of lease;
e) Vehicles awaiting sale or movement for disposal;

This list is not exhaustive.

G1.2.2 The actions to be taken, and the responsibilities for these actions, will vary depending on the reason for storage of the vehicles:

a) When a vehicle is intended for short-term storage, with an anticipated return to operational service, the preparations will be aimed at preventing deterioration;
b) When a vehicle is intended for long-term storage, and its return to service is uncertain, there will be less preparation against deterioration, and a greater level of recommissioning work will be required in the event that the vehicle is returned to service.

G1.3 Health and safety responsibilities

G1.3.1 Users of documents published by RSSB are reminded of the need to consider their own responsibilities to ensure health and safety at work and their own duties under health and safety legislation. RSSB does not warrant that compliance with all or any documents published by RSSB is sufficient in itself to ensure safe systems of work or operation or to satisfy such responsibilities or duties.

G1.4 Structure of this document

G1.4.1 Guidance is provided as a series of sequentially numbered clauses.

G1.5 Approval and authorisation of this document

G1.5.1 The content of this document [will be] approved by Rolling Stock Standards Committee on 10 March 2022 [proposed].

G1.5.2 This document [will be] authorised by RSSB on 28 April 2022 [proposed].

Part 2 Storage

G2.1 Location

G2.1.1 Rail vehicles can be stored in different types of location; for example:

a) In a Railway Undertaking's (RU's) own sidings;
b) At maintainers' depots or works;
c) On other infrastructure, such as Network Rail, Heritage Railways, London Underground or HS1;
d) In contractors' premises;
e) In other secure premises, for example a military facility.

G2.1.2 The reason for storing a vehicle will largely determine the type of site selected.

G2.1.3 In the case of minimal preparation for storage where the further use of the vehicle is uncertain, it is good practice to consider the facilities required to recommission a vehicle, whether:

a) for operational service; or
b) into a condition to permit its safe movement to a location where further work can be undertaken.

G2.1.4 It is good practice to consider the possible need to move the vehicle by road, and the resulting requirement for access for appropriate transportation vehicles.

G2.2 Preparation

G2.2.1 It is good practice to ensure that there are instructions in place to describe the appropriate preparation for vehicles being stored.

G2.2.2 The Locomotives and Passenger (LOC & PAS) and Freight Wagons (WAG) Rolling Stock NTSNs set out requirements for maintenance documentation. The instructions for storage preparation might therefore be:

a) Included as part of the maintenance documentation required by the NTSNs; or
b) Provided in accordance with RIS-2004-RST; or
c) Provided as a separate document.

G2.2.3 It is good practice to ensure that the documentation includes consideration of:

a) The purpose for which the vehicle is being stored;
b) The properties of the location; for example:
    i) Whether it is under cover or in the open;
    ii) Local environmental conditions, such as a coastal site increasing the likelihood of corrosion.
c) The length of time; and therefore
d) Whether any specific actions, facilities or tools are required prior to or during storage.

G2.2.4 *Appendix A* gives some examples of actions that might need to be considered prior to and during storage.

G2.2.5 *Appendix B* gives some examples of detailed actions considered as good practice.

G2.3 Responsibilities

G2.3.1 The responsibility for the vehicle generally lies with the owner, the keeper, or the Entity in Charge of Maintenance (ECM), but could be delegated to, for example, an RU or another party with suitable contractual arrangements.

G2.3.2 It is good practice to provide procedures or documentation that identifies the parties responsible for placing rail vehicles into storage and for ensuring the safety of the vehicles whilst in storage. This could require a contractual agreement between the owners of the vehicle and of the infrastructure used for storage, covering responsibilities for:

a) Security;
b) Protection;
c) Inspection;
d) Reporting of any status change, to maintain integrity of the vehicle's registration.

G2.3.3 It is good practice to ensure that the procedures and agreements include the factors set out in *G1.2.2* and *G2.2*.

Part 3 Recommissioning

G3.1 Responsibilities

G3.1.1 Responsibility for recommissioning a vehicle will normally rest with the body that was responsible for placing the vehicle in storage. However:

a) If the vehicle is being transferred to a new RU, the responsibility for recommissioning is also transferred;
b) If the lease of a vehicle expires while the vehicle is in storage, the vehicle owner or ECM can take on the responsibility for recommissioning.

G3.2 Recommissioning Process

G3.2.1 When a vehicle is recommissioned following temporary storage, provided that no change has otherwise been made to the vehicle, it is good practice to ensure that the vehicle can be placed in the appropriate position in the maintenance cycle by undertaking all necessary maintenance examinations.

G3.2.2 Under normal circumstances, any movement of a vehicle to another location for recommissioning will be on a 'one journey only' basis.

G3.2.3 GMGN2607 sets out guidance for hauling unbraked fixed formations in freight trains; this might be appropriate for a 'one journey only' move.

G3.2.4 Further relevant guidance is set out in RIS-2453-RST and RIS-2706-RST.

G3.2.5 If the vehicles have been modified whilst in storage, or as part of the recommissioning process, the change might need to be assessed in accordance with RIS-2700-RST.

G3.2.6 It is good practice to ensure that documented instructions are available to cover the following:

a) Initial recommissioning at the storage site and independent assessment that the vehicle is safe to move. The instructions will need to cover the placing of any restrictions on the movement, such as speed and braking.
b) Complete recommissioning of the vehicle to ensure its safe re-entry into normal traffic.

G3.2.7 It is good practice to ensure that the recommissioning instructions address:

a) The removal of all protective substances and fittings applied during preparation for storage, and the making good of the protected components and surfaces;
b) Examination for, and replacement of, missing items;
c) Any safety critical modification to the vehicle necessary to meet new or changed standards or legislation, if appropriate, or changed requirements for safe interworking;
d) Any safety critical inspections, maintenance, overhauls and testing that have become due during the period of storage, to ensure the vehicle can return to service and be maintained in accordance with the relevant maintenance plan for the vehicle;

e) The testing, examination and repair of safety critical items, such as axle bearings, brake systems and components, which might have deteriorated during storage;
f) The testing, examination and repair of safety critical electric circuits, components and systems, including the condition of transformer oil where applicable;
g) Examination for, and repair of, damage incurred during storage that might affect the safety of people or goods;
h) Testing of the vehicle to verify its fitness for service; and
i) Examination for, and repair of, damage incurred as result of use of any road vehicle transport, such as might arise during loading and off-loading.

G3.3 Registration

G3.3.1 The required processes for registering vehicles, and re-registering previously de-registered vehicles, are set out in the following Rail Industry Standards:

a) RIS-2453-RST;
b) RIS-2706-RST; and
c) RIS-8270-RST.

RIS-2700-RST might also be relevant.

Appendices

Appendix A Actions prior to and during storage

A.1 It is good practice to consider the following factors when assessing the need for actions prior to and during vehicle storage:

a) The presence of hazardous substances

There might be a need to remove these from the vehicle and either store them separately or, if appropriate, dispose of them in accordance with relevant legislation.

For example, it might be appropriate to ensure Controlled Emission Toilet (CET) retention tanks are emptied and flushed at the appropriate facility, before vehicles are put into storage.

b) The risk of trespass and vandalism

The importance of addressing these risks cannot be overemphasised. Inadequate site security has in the past led to injuries resulting in a substantial fine for the railway organisation concerned.

c) Effects of the weather

GEGN8628 gives guidance on preparation of rail vehicles for winter.

d) Effects of the environment

Preventative measures or regular monitoring might need to be considered, such as:

i) Removal of components or consumables, such as sand, that are susceptible to moisture deterioration;
ii) Monitoring of humidity;
iii) Inspections;
iv) Opening of doors and/or windows to allow air circulation;
v) Operation of vehicle heating, ventilation or air conditioning, or the use of portable dehumidifiers to reduce moisture accumulation;
vi) Internal corrosion protection for engines, gearboxes and other components that are normally lubricated when in use.

Specialist advice might need to be sought from manufacturers of electrical and electronic equipment; for example, as to whether:

i) Disconnection is advisable;
ii) Removal from the vehicle for separate storage might be necessary;
iii) Desiccants in the equipment cases might suffice - and whether these need monitoring or regular renewal.

Similar considerations might apply to batteries.

e) Ageing of components

For example:

i) Creep of springs;
ii) Deterioration of rubber springs and seals;
iii) Obsolescence of electronic and communication equipment.

f) Preventing unauthorised removal of components

It might be appropriate to implement a controlled procedure for component removal where these are needed for maintenance or repair of vehicles in service.

g) Protection of components when connections or other components are missing

For example:

i) Sealing of pipes and conduits;
ii) Insulated termination of electrical wiring;
iii) Covering of apertures.

h) Protection from vehicle movements

This includes preventing the stored vehicles from unwanted movement, for example by using wheel chocks, and protection from the movements of other vehicles on site.

i) The need to protect bearings (for example, in axles, engines, motors, gearboxes and other transmission elements) from damage

Specialist advice might need to be sought from manufacturers, for example regarding the need or otherwise to move vehicles or run engines to prevent brinelling of bearings.

j) Any future change of use of the vehicle

k) The need to document the vehicle condition

For example, a regular record of inspection could be supplemented with photographs.

Appendix B Examples of good practice

B.1 General preparation for storage could include:

a) Take oil samples from diesel engines (where fitted).
b) Drain and flush out CET tanks (where fitted).
c) Close and lock doors, windows and hatches. These could additionally be secured with zip-ties, to provide an indication of any unauthorised access.
d) Remove consumables such as sand and windscreen washer fluid.
e) Empty water tanks.

B.2 It is good practice for maintenance documentation to set out specific, time-constrained actions associated with different types of storage.

B.3 One example of good practice would be to provide documentation relating to storage, including a 'star chart' indicating actions to be carried out at defined intervals. For example:

Frequency / Activity	4 weeks	8 weeks	12 weeks	24 weeks
External visual inspection	*	*	*	*
Internal visual inspection		*		*
Start up / test vehicle power			*	*
Move vehicle				*
Underframe equipment inspection			*	*
Power up / test passenger doors				*

Table 1: Example star chart

B.4 This list is purely illustrative; activities will depend on the vehicle type.

B.5 It is good practice to ensure that the storage documentation includes details of the competencies, tools, equipment and safety precautions necessary for each activity.

B.6 Another example of good practice for a set of actions is set out in Table *2*:

a) After a short period, for example four weeks, out of service, the vehicle is given a Group classification; this determines the required preparation and interim maintenance actions;
b) A label or other clear indication is applied to the vehicle to indicate its status;
c) The vehicle status is reviewed every six to 12 months.

Group	Status	Vehicle condition	Likely Outcome	Preparation	Interim actions
1A	Short Term Storage Warm Storage Tactical Reserve	Serviceable: To allow a quick return into active service; either will be or has been stored for a period not exceeding 6 months.	Return to service within six months or transfer to 1B	a) Run the engine to charge the air system and check for leaks. b) Check the battery charge status. c) Open air drain cocks. d) Stop the engine. e) Switch off all electrical systems and isolate the battery. f) Document vehicle status (defects, faults, missing items and exam status)	a) Close air drain cocks. b) De-isolate the battery. c) Start and run the engine. d) Move the vehicle so that the wheels turn approximately 1¼ turns. e) Stop the engine, open drain cocks and isolate the battery. f) Take an oil sample from the engine. g) Visual inspection for signs of leaks, defects or damage, unauthorised entry. h) Note any issues and apply appropriate measures to rectify or prevent further deterioration.
1B	Medium Term Storage Strategic Reserve	Serviceable: To allow an easy return into active service; either will be or has been stored for a period not exceeding 12 months.	Return to service between six and 12 months.		
2	Long Term Storage Stored unserviceable	Unserviceable: for example, following major component / system failure; minimal care and maintenance required; could be returned to serviceable status.	Recommissioning after extensive repairs; or transfer to Group 3 or 4.	a) Document vehicle status (defects, faults, missing items and exam status). b) Disconnect and remove electrical equipment, such as GSM-R, RETB, GPS and batteries). c) Protect vulnerable surfaces with corrosion inhibitor.	a) Move the vehicle so that the wheels turn approximately 1¼ turns. b) Visual inspection for signs of leaks, defects or damage, unauthorised entry. c) Note any issues and apply appropriate measures to rectify or prevent further deterioration.

Group	Status	Vehicle condition	Likely Outcome	Preparation	Interim actions
3	Component Recovery	Unserviceable: Used as a source of components for maintenance and repair of other vehicles. Removal of components to be documented and controlled	Transfer to Group 4	As Group 2, plus: a) Remove to secure storage items such as nameplates, crests, builder's plates, keys, detonators, portable fire extinguishers.	As Group 2.
4	Surplus to Requirements	Available for sale and / or disposal; maintenance to avoid reducing the asset value or jeopardising sale	Sale or disposal	As Group 3	As Group 3

Table 2: Group classification, preparation and interim actions

Definitions

brinelling	permanent deformation of a surface due to high contact stresses
entity in charge of maintenance of a vehicle (ECM)	An ECM is registered as an ECM for a vehicle in the national vehicle register, and can include people or organisations such as railway undertakings, infrastructure managers, keepers or maintenance organisations. Source: *ROGS*
good practice	A process or method that has been shown to work well; succeeds in achieving its objective(s); is widely accepted; and therefore can be recommended as an approach.
keeper	The person or entity that (being the owner of a rail vehicle or having the right to use it) exploits the rail vehicle as a means of transport and is registered in the NVR.
NVR	National Vehicle Register.

References

The Standards catalogue gives the current issue number and status of documents published by RSSB: http://www.rssb.co.uk/railway-group-standards.

RGSC 01	Railway Group Standards Code
RGSC 02	Standards Manual

Documents referenced in the text

RSSB documents

GEGN8628	Preparation for and Operation during Winter
GMGN2607	Hauling Unbraked Fixed Formations in Freight Trains
RIS-2004-RST	Rail Vehicle Maintenance
RIS-2453-RST	Vehicle Registration, Marking and Numbering
RIS-2700-RST	Rail Industry Standard for Verification of Conformity of Engineering Change to Rail Vehicles
RIS-2706-RST	Recording of Rolling Stock Data
RIS-8270-RST	Route Level Assessment of Technical Compatibility between Vehicles and Infrastructure

Other references

Locomotives and Passenger Rolling Stock (LOC & PAS) NTSN	Locomotive and Passenger National Technical Specification Notice, published by the Secretary of State on 1 January 2021 pursuant to regulation 3B of the Railways (Interoperability) Regulations 2011. This NTSN replaces and substantially reproduces the provisions of Commission Regulation (EU) 1302/2014 (the LOC & PAS TSI), and includes relevant amendments made by Commission Implementing Regulation (EU) 2019/776 which came into force in June 2019
Freight Wagons (WAG) NTSN	Rolling Stock - Freight Wagons National Technical Specification Notice, published by the Secretary of State on 1 January 2021 pursuant to regulation 3B of the Railways (Interoperability) Regulations 2011. This NTSN replaces and substantially reproduces the provisions of Commission Regulation (EU) No 321/2013 (the WAG TSI), and includes relevant amendments made by Commission Implementing Regulation (EU) 2019/776 which came into force in June 2019.
Railways (Interoperability) Regulations 2011 (RIR)	The Railways (Interoperability) Regulations 2011, Statutory Instrument 2011 No. 3066 (as amended)