



2. Fleet Reliability

This section specifies the common fleet reliability and performance measures used by the fleet community. It clearly defines the principle measures which are reported to ReFocus, describing what should be and should not be included in the data.

2. Common Reliability Data

The two key measures agreed by Engineering Council and National Task Force and reported by ReFocus are:

1. Miles Per Technical TRUST Incident [Number] (MTIN), and
2. Primary Delay Per Incident (Primary DPI)

The first is a measure of the reliability of fleet, the second is a measure of the effect of fleet failures on train delays. The underlying data for these two measures are provided to ReFocus at individual fleet level and reported back each industry period.

In addition to these two key measures, data is also collated from fleet engineers to record:

- I. Number of AWS/TPWS Technical TRUST incidents
- II. Number of GSM-R Technical TRUST incidents
- III. Total Number of Non-Technical TRUST Incidents

Each of these three measures is reported to ReFocus at TOC level only.

2.1 Miles per Technical TRUST Incident

2.1.1 DEFINITION

A measure of the engineering reliability of trains expressed as the average mileage between incidents and reported for individual fleets. A 3 Minute Delay (TIN) is counted when a fault on a train causes a total primary delay of 3 or more minutes at any point on one journey for a single root cause, where the root cause is a technical or maintenance defect on the train. This relies on a precise common definition of miles and 3 Minute Delays (TINs). The measure is produced by RDG from data provided by TOCs with operational control as shown in [Table 3. The operating TOC is accountable for fleet reporting to RDG but that for subleased fleets the lessor and lessee should agree between them who is responsible](#)

2.1.2 SOURCE OF UNDERLYING DATA

The mileage is derived from actual fleet unit/trainset mileage as recorded in GEMINI or equivalent. Note that an HST trainset counts as 1 unit, not 2 power cars and x trailer cars separately, so the unit miles equate to the train miles. Two 2-car 150/2 sets working in one train count as two units and therefore its unit miles are twice the train miles.

Information relating to 3 Minute Delays is derived from TRUST, COMPASS, Control Logs and/or BUGLE. All sources need to be scrutinised for the relevant fleet codes as appropriate for each TOC.

2.1.3 DETERMINING THE NUMBER OF TECHNICAL INCIDENTS

In all cases, a 3 Minute Delay is defined as a train incident which results in a delay of 3 or more primary minutes to that train where the root cause is a technical or maintenance-related defect on the train. Any such incident which results in a cancellation or part cancellation is also included.

2.1.3.1 TRUST incident reasons

Table 1 lists all the TRUST incident reason codes for a technical incident.

Table 1 – Technical Incident reasons “701D”

Incident Reason	Incident Reason Description
M0 (zero)	Confirmed train cab-based safety system fault.
M1	Confirmed pantograph ADD, shoe beam or associated system faults including positive PANCHEX activations.
M7	Door and door system faults.
M8	Other technical failures above the solebar.
M9	Reported fleet equipment defect – no fault found.
MB	Electric loco failure, defect, attention.
MC	Diesel loco failure, defect, attention.
MD	Other technical failures below the solebar.
ME	Steam loco failure/defect/attention.
MF	International/Channel Tunnel loco failure/defect/attention.
ML	Wagons, coaches and parcel vehicle faults.
MN	Brake and brake systems faults; including wheel flats where no other cause has been identified.
MR	Sanders and scrubber faults.
MT	Confirmed train-borne safety systems fault.
MV	Engineer’s on-track equipment failure outside possession.
MW	Weather – effect on T&RS equipment.
MY	Coupler and coupler system faults.
NA	On-train TASS failure.

The following is a summary of the differences between the previous data and that which is now being distributed by the Delay Attribution Board. **NB: this** includes both technical and non-technical.

Table 1a: TRUST Delay Code Changes

Deleted codes & Mapping

Deleted code	Abbreviation	Mapped to code	Abbreviation
MA	ELEC BRAKE	MN	BRAKES
MG	COACH BRAKE	MN	BRAKES
MH	COACH DOOR	M7	DOORS
MI	COACH OTHR	ML	WAGONS
MJ	PARCEL VEH	ML	WAGONS
MK	DVT PCV	MD	BELOW SB
MM	EMU TRAC	MD	BELOW SB
MO	STOCK LATE	MU	DEPOT
MQ	ELEC OTHER	MB	ELEC LOCO
MX	DIESL BRKE	MN	BRAKES
MZ	TRS OTHER	MD	BELOW SB
M3	DIESL OTH	MC	DIESL LOCO
M4	EMU BRAKE	MN	BRAKES
M5	EMU DOOR	M7	DOORS
M6	EMU OTHER	MD	BELOW SB
NB	TASS NFF	NA	TASS/TILT
NC	DEP FIRE	MU	DEPOT
ND	ETCS	MO{zero}	CAB SYS

Note: Where you would normally attribute to MZ, please now attribute to the most relevant delay cause. E.g. – security alert in depot – MU.

The [Delay Attribution Guide](#) is authoritative for this information as updates are provided at different intervals to this document. The above reflects the relevant guidance at the time of publication.

2.1.3.2 Clarification on what should be included as a 3-minute incident

- Incidents caused by the technical failure of a train component or system. This is regardless of whether that component or system is under any warranty.
- Incidents on empty stock moves caused by the technical failure of a train component or system, regardless of whether or not a passenger service has been affected.
- Incidents caused by the failure of a component or system caused by poor maintenance instructions or regime or by a maintainer incorrectly following the correct procedures.
- Incidents where delay has been exacerbated by operational error or inaction but where the root cause was technical or maintenance-related.
- Incidents caused by technical failure even in the event of adverse weather or other conditions.
- Failure to stop incidents resulting in part or full cancellation or delay should be included if the root cause is the technical failure of a train component or system.

2.1.3.3 Clarification on what should be excluded as a 3-minute incident:

- Train incidents caused by human vandalism.
- Train incidents caused by proven infrastructure defects.

- Train incidents caused by any external cause as per the Delay Attribution Guide, i.e. unrelated to a technical or maintenance-related train fault (for example, brake defect due to equipment damaged by suicide), or extreme contamination.
- Operational problems associated with stock availability, (i.e. provision of the wrong stock type or short-formed services), unless the operational problem has been caused by rolling stock that has become defective after having been declared fit for service to Operations (i.e. train has been prepped and a diagram allocated) or due to restricted train formations (i.e. multi-only operations).

2.1.3.4 Clarification on merging incidents:

- Where multiple incidents have been created in TRUST, they should be counted as a single incident provided that there has been no unsuccessful attempt to rectify the defect and that the merged incidents occurred due to the same root cause to the same stock over the next 24 hours. Otherwise each incident must be treated separately.
- Merged incidents must have their delay minutes aggregated.

2.1.3.5 No Fault Found

Where a reported defect is No Fault Found, the 3 Minute Delay (TIN) will remain, even if the problem has not been definitively understood or resolved. However, 3 Minute Delays (TINs) should not be counted where it has been possible to prove beyond reasonable doubt that the defect did not occur. Evidence from OTMR, TMS or similar analysis carried out using traditional fault-finding is acceptable.

2.1.3.6 Disputing incidents

This applies when Fleet department believe an incident should be disputed and there is no initial evidence on first examination of the fault log to indicate the incident was due to a technical casualty. It is worth bearing in mind two factors here:

- The purpose of delay attribution is primarily to collect data on asset failures - would your dataset be better or worse without the incident?
- Is any other party better placed to deal with the incident than Fleet?

A flow chart was developed by a subgroup of Fleet Reliability Focus Forum members in the review of Issue 10 of the 20PP and is provided in [Appendix A](#) to aid decision-making.

2.1.3.7 Non-Technical TRUST Incidents

This is a measure of depot reliability reported at TOC level. A delay is counted as a non-technical trust incident when an incident associated with fleet/depot causes a total delay of 3 or more minutes at any point for a single root cause where the root cause is a non-technical issue associated with the fleet.

Non-technical should not be used for incidents attributed to staff incompetence. [See Section 2.1.3.2.](#)

Any such incident which results in a cancellation or part cancellation is also included.

The number of incidents is aggregated over all fleets and depots that were impacted, along with the delay minutes.

The incident reasons attributed as non-technical are shown in [Table 2.](#)

Table 2 – Non-technical incident reasons “701A”

Incident Reason	Incident Reason Description
MS	Unplanned stock change or replacement by slower vehicles (all vehicle types)
MU	Depot operating problem

3-minute delays should exclude:

- Train incidents caused by vandalism.
- Train incidents caused by proven infrastructure defects.
- Train incidents caused by any external factor, i.e. not a technical or maintenance-related train fault (for example, brake defect due to equipment damaged by suicide).

This measure will only be reported at TOC level.

2.2 Delay Per Incident

Delay Per Incident is a measure of the average delay impact on the network per incident. Delay is the TOC-on-Self total (primary and reactionary) delay minutes of technical and non-technical fleet incidents.

More information on primary and reactionary delay can be found in the Delay Attribution Guide available from Network Rail.

This measure will be produced by each TOC as shown in [Table 3](#).

2.2.1 Primary DPI

This section is identical to [Section 2.2](#) above but for primary delay only.

More information on primary delay can be found in the Delay Attribution Guide available from [Network Rail](#).

This measure will be produced by each TOC as shown in [Table 3](#).

2.3 Data submission

RDG contacts fleet operators at the beginning of week 2 to request the data required to complete [Table 3](#) by the end of week 2 (Friday). Each TOC submits data for every vehicle they operate.

2.4 Data resubmission

No formal process is in place to refresh data post-TOC submission. However, amendments can be made at RDG’s discretion. All amendments must be submitted to the RDG data analyst for approval. Resubmissions must be of significance to avoid continuous changing of TOC reports.

2.5 ReFocus data review protocol

2.5.1 On behalf of ReFocus, RDG will recruit an independent contractor for Common Reliability Data Audits. The contractor will perform audits on a sample of three TOCs per year. The criteria for selection are shown below:

- Appointment of new senior management
- Re-franchising
- Significant change in the performance data returned from an operator
- Significant difference in the data provided by one TOC from others within the Class(es) grouping(s)

Based on the above, RDG will recommend three audits and Engineering Council will agree its audit priorities and instruct the auditor to proceed accordingly.

2.5.2 RDG will monitor data provided by TOCs for audit purposes and pass the information on to the contractor.

2.5.3 The contractor will contact the TOC and request a data audit and list the information required, i.e. to populate [Table 3 in Section 2](#). If the data provider is agreeable, they will be asked to provide three random periods of information selected by the contractor from the last 13 periods. The contractor will require the rationale for the decision to attribute incidents from the sample as technical or not. The TOC will also be asked to provide data from TRUST for this period so that this can be compared to the common reliability dataset.

2.5.4 Once the contractor has reviewed the data, they will request a meeting. The contractor will ask the TOC to provide representatives for the meeting who have experience of the end-to-end process to generate the common reliability data. The meeting will be used to discuss the information provided to RDG and compare decision-making with what is recommended under [Section 2](#).

2.5.5 Where there is significant deviation from the 20PP, the contractor will raise this in the meeting and agree with the TOC further corrective action, either for the TOC or RDG.

2.5.6 The contractor will manage the close out of CARs.

2.5.7 Common reliability data review - lessons learned. The contractor will report the findings of the data review process and any specific good practice or anonymised lessons learned to ReFocus and Engineering Council annually. In principle, the reports from the three audits will also be shared amongst council members but the contractor will seek to agree this with the TOC prior to and after auditing.

Extensive voluntary tools have been developed to help better understand the drivers of fleet performance and assist in identifying areas for improvement. [See Appendix K](#)