



## ENGINEERING ACCEPTANCE - TECHNICAL NOTE

**Subject:** Brake Release and Application Timings

**Advice to:** CCBs and VABs

**Reference:** Standard: [GM/RT2045](#) Issue: 2 Appendix C, clause C.1.5

**Applies when:** Reviewing brake release timings and application timings during scrutiny for Design, Construction or Maintenance Conformance or Engineering Acceptance.

**Note's Purpose:** To draw attention to recent analysis on the appropriateness of brake application and release timings quoted as guidance in Appendix C of [GM/RT2045](#) Issue 2.

**Background:** [GM/RT2045](#) Issue 2, Appendix C, clause C1.15 quotes, as guidance, brake application and release timings. These have proved difficult to achieve with certain types of modern freight vehicles where there is a significant difference between their tare and gross laden weight. In addition, the values quoted for the range of release times differ from that proposed in the draft Technical Specification for Interoperability for Conventional Freight Vehicles.

Tests conducted on the Westinghouse test rig have indicated that the range of brake application and release timings, for both Goods and Passenger timings that are suitable for use in assessing vehicles for operation in the UK could be revised to the following values.

<b>Brake application timings – Goods and Passenger</b>		
	Single Pipe - Goods	Two Pipe - Goods
Existing timings	18 – 30 seconds	9 – 15 seconds
Revised timings	18 – 30 seconds	11 – 20 seconds
	Single Pipe – Passenger	Two Pipe – Passenger
Existing timings	3 – 5 seconds	2 – 3 seconds
Revised timings	3 – 5 seconds	2 – 4 seconds



Similarly, revisions to the brake release timings that are suitable for use in assessing vehicles for operation in the UK could be broadened to the following values.

<b>Brake release timings – Goods and Passenger</b>		
	Single Pipe - Goods	Two Pipe - Goods
Existing timings	30 - 45 seconds	30 – 45 seconds
Revised timings	30 – 60 seconds	30 – 60 seconds
	Single Pipe – Passenger	Two Pipe – Passenger
Existing timings	15 – 20 seconds	15 – 20 seconds
Revised timings	8 – 20 seconds	8 – 20 seconds

The revised tolerances reflect more recent experience in the acceptance of freight vehicles and could be considered as more relevant guidance than that currently set out, as guidance, in appendix C of [GM/RT2045](#) Issue 2. They are also compatible with the requirements set out in the draft TSI.

**Requirements:** The responsibility of the VAB signatory is to note that:

- 1) The revised values of brake application and release times (Goods and Passenger) that are suitable for use when considering designs of freight vehicle braking systems.
- 2) The revised values of brake application and release times (Goods and Passenger) reflect those proposed in the draft Technical Specification for Interoperability for Conventional Freight Vehicles.

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**TN-031 APPENDIX: - REVISED TABLE FOR [GM/RT2045](#) ISSUE 2**

**GUIDANCE ON BRAKE APPLICATION AND RELEASE TIMINGS**

The table set out below provides revised guidance on suitable brake application and release times for that given in Appendix C, clause C.1.5

<b><i>Brake Timing Type</i></b>	<b><i>Application Time for Brake Cylinder Pressure to Reach 95% of Maximum (Seconds)</i></b>		<b><i>Release Time for Brake Cylinder Pressure to Fall from Maximum to 0.4 bar (Seconds)</i></b>	
	<b><i>Single Pipe System</i></b>	<b><i>Two Pipe System</i></b>	<b><i>Single Pipe System</i></b>	<b><i>Two Pipe System</i></b>
<b><i>PASSENGER</i></b>	<b><i>3 - 5</i></b>	<b><i>2 - 4</i></b>	<b><i>8 - 20 **</i></b>	<b><i>8 - 20 **</i></b>
<b><i>GOODS</i></b>	<b><i>18 - 30 *</i></b>	<b><i>11 - 20 *</i></b>	<b><i>30 - 60</i></b>	<b><i>30 - 60</i></b>

**Note that for traction units:**

**\* these times are 20 - 28 seconds, \*\* these times are 9 - 12 seconds.**