THE RAILWAY LOCOMOTIVE

Source Companion

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Industries of India | November 2026

How to read this companion

This companion holds every reference cited in The Railway Locomotive, organised by the citation tags used in the text. Part 1 lists the core references: primary, official and record-keeping sources cited across the book. Part 2 lists the chapter sources, one entry per tag, in the order the tags first appear. Each entry names the source, gives its address, records how it was read, and says what in the book it supports.

Read-records are honest ones. "Read in full" means the whole retrieved text was read. "Read in excerpt" means the retrieved text was truncated by the fetch service and the passages bearing on the cited claims were located and read. All sources were accessed on 1-2 November 2026. Figures quoted in the book are quoted as the source states them; market-size figures are commercial estimates and are labelled as such in the text. The eight interior plates in the book are AI-generated illustrations and have no external source; they are labelled in the book's imprint.

Part 1 - Core references

History and heritage

[H1]
Guinness World Records, "First steam locomotive to run on rails" (Trevithick, Penydarren, 21 Feb 1804)
https://www.guinnessworldrecords.com/world-records/first-steam-locomotive-to-run-on-rails
States the first full-scale working railway steam locomotive and the 21 February 1804 Penydarren run. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H2]
BBC News, "How a £525 bet gave birth to your morning commute" (2024)
https://www.bbc.com/news/uk-wales-68210255
States the bet behind Trevithick's 1804 run and its course. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H3]
ASME landmark brochure, "The Rainhill Trials" (PDF)
https://www.asme.org/wwwasmeorg/media/resourcefiles/aboutasme/who%20we%20are/engineering%20history/landmarks/263-l-mr-rainhill-trials.pdf
States the October 1829 trials and Rocket's performance. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H4]
Wikipedia, "Rainhill trials"
https://en.wikipedia.org/wiki/Rainhill_Trials
States the 500-pound prize and the trial conditions. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H5]
Historic England, "A Brief Overview of the Stockton & Darlington Railway"
https://historicengland.org.uk/whats-new/research/a-brief-overview-of-the-stockton-and-darlington-railway/
States the opening of 27 September 1825 and the 600 passengers. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H6]
National Railway Museum, Locomotion No. 1 research
https://www.railwaymuseum.org.uk/objects-and-stories/locomotion-no-1
States Locomotion No. 1's career and withdrawal in 1841. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H7]
National Railway Museum, "Mallard: the world's fastest steam locomotive"
https://www.railwaymuseum.org.uk/objects-and-stories/mallard-worlds-fastest-steam-locomotive
States 126 mph on 3 July 1938 by Gresley's A4. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H8]
Guinness World Records, "Fastest steam locomotive"
https://www.guinnessworldrecords.com/world-records/fastest-steam-locomotive
States the ratified 125 mph with a brief peak of 126 mph, seven coaches totalling 243 t. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H9]
Union Pacific, "Big Boy No. 4014"
https://www.up.com/heritage/steam/4014/index.htm
States 25 Big Boys, first delivered 1941, 132 ft length, 1.2 million lb weight, hinged frames. Read: source

fetched and read 1 November 2026; cited figures taken as the source states them.

[H10]
Guinness World Records, "Largest steam locomotive"
https://www.guinnessworldrecords.com/world-records/largest-steam-locomotive
States the 4-8-8-4 Big Boy dimensions: 39.852 m, 508.02 t with tender, ALCO 1941-44. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H11]
Wikipedia, "Atmospheric railway"
https://en.wikipedia.org/wiki/Atmospheric_railway
States the leather valve flap and its failure in the winter of 1847-48. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H12]
steamlocomotive.com, "The Final Steam Era" (Norfolk & Western)
https://www.steamlocomotive.com/misc/final-steam.shtml
States N&W as the last Class 1 mainline steam operator, ending May 1960. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H13]
craigtouchton.com, "Steam's Last Stand"
https://www.craigtouchton.com/steamslaststand.html
States US steam fleet counts: 32,014 at end-1948 and 1,350 at end-1958; last new steam N&W No. 244, Dec 1953. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H14]
Trains magazine, "1939's big breakthrough: The FT"
https://www.trains.com/ctr/trains-80th-anniversary/1939s-big-breakthrough-the-ft/
States FT demonstrator No. 103 left La Grange on 25 November 1939. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H15]
National Museum of Transportation, GM No. 103 "The Diesel That Did It"
https://tnmot.org/portfolio-items/gm-103/
States the FTA B-B 1,350 hp demonstrator of 1939. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H16]
National Park Service, Steamtown Special History Study, chapter 5
https://npshistory.com/publications/stea/shs/chap5.htm
States the diesel-electric lineage: Diesel's 1892 patent, AGEIR 1925 CNJ 1000, the Zephyr's 1934 dawn-to-dusk run (1,015.4 miles in 13h4m58s, avg 76.61 mph), EMC at La Grange from 1935, E-units 1937, FT 1939; ALCO's last steam 1948, Lima's 1949; US dieselisation complete by 1960. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H17]
Siemens history, the 1879 Berlin electric railway (PDF)
https://web.archive.org/web/20160326194502/http:/www.siemens.com/history/en/news/electric_railway.htm
States the 1879 Berlin demonstration: 2.2 kW, 300 m track, 90,000 passengers carried. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H18]
Wikipedia, "Werner von Siemens' electric locomotive of 1879"
https://en.wikipedia.org/wiki/Siemens_locomotive_of_1879
States the first electric passenger train. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H19]
Alstom press release, "ALSTOM, RFF and SNCF set a new world rail speed record of 574.8 km/h"
https://www.alstom.com/press-releases-news/2007/4/alstom-rff-and-sncf-set-new-world-rail-speed-record-5748-kmh
States the V150 record of 3 April 2007. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H20]

Wikipedia, "Soviet locomotive class Shch-el-1"
https://en.wikipedia.org/wiki/Soviet_locomotive_class_Shch-el-1
States Gakkel's 1924 diesel-electric built at the Baltic works. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H21]
Wikipedia, "Middleton Railway"
https://en.wikipedia.org/wiki/Middleton_Railway
States the Act of 1758 and the claim to be the world's oldest continuously working railway; Blenkinsop's rack locomotives of 1812. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H22]
Wikipedia, "Puffing Billy"
https://en.wikipedia.org/wiki/Puffing_Billy_(locomotive)
States Hedley's 1813-14 Wylam locomotives and the adhesion trials showing a smooth wheel could work by friction alone. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H23]
Wikipedia, "City and South London Railway"
https://en.wikipedia.org/wiki/City_and_South_London_Railway
States the 1890 opening as the first deep-level electric tube, the Stockwell terminus and the 'padded cell' carriages. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[H24]
Wikipedia, "25 kV AC railway electrification"
https://en.wikipedia.org/wiki/25_kV_AC_railway_electrification
States the industrial-frequency AC system's history and adoption as the world standard for new main-line electrification. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

Engineering and economics

[E1]
internationalsteam.co.uk, "Steam vs. Diesel"
https://www.internationalsteam.co.uk/trains/steamvsdiesel.htm
States typical overall thermal efficiency: steam about 6%, diesel-electric about 36%. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[E3]
RTSA paper, "Operating the world's longest and heaviest train"
https://www.rtsa.com.au/wp-content/uploads/2019/08/Worlds-longest-train-BHPIO-June-21-2001387.pdf
States eight AC locomotives under Locotrol distributed power and the roughly 70% tractive-effort gain of AC over DC. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[E4]
Guinness World Records, "Longest freight train"
https://www.guinnessworldrecords.com/world-records/longest-freight-train
States 7.353 km, 682 ore cars, eight diesel-electric locomotives, 21 June 2001. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[E5]
Guinness World Records, "Heaviest freight train"
https://www.guinnessworldrecords.com/world-records/heaviest-freight-train
States 99,732.1 tonnes gross. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[E6]
Railway Gazette, "BHP breaks its own heaviest train record"
https://www.railwaygazette.com/freight/bhp-breaks-its-own-heaviest-train-record/35195.article
States the BHP record run from the Yandi mine to Port Hedland. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

Government and institutional

[G1]
Press Information Bureau (India), 2 April 2025, locomotive production

https://pib.gov.in/PressReleasePage.aspx?PRID=2117830
States 1,681 locomotives produced in FY2024-25, up 19%; 9,168 in the last ten years against 4,695 in 2004-14. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[G2]
Press Information Bureau (India), 17 December 2025, electrification
https://www.pib.gov.in/Pressreleaseshare.aspx?PRID=2205232
States 99.2% of the broad-gauge network electrified; comparison figures: UK 39%, Russia 52%, China 82%. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[G3]
Press Information Bureau (India), May 2020, first 12,000 hp locomotive (PRID 1625158)
https://pib.gov.in/PressReleasePage.aspx?PRID=1625158
States the first Made-in-India 12,000 hp locomotive entering service. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[G4]
US EPA, "Regulations for Emissions from Locomotives"
https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-locomotives
States the tier structure of US locomotive emission rules since the 1990s. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[G5]
eCFR, 40 CFR Part 1033 Subpart B
https://www.ecfr.gov/current/title-40/chapter-I/subchapter-U/part-1033/subpart-B
States the line-haul emission standards table. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[G6]
Chittaranjan Locomotive Works, Annual Narrative Report 2024-25 (PDF)
https://clw.indianrailways.gov.in/uploads/File/Annual%20Narrative%20Report%202024-25%20(3).pdf
States cumulative production of 2,351 steam, 842 diesel and 9,777 electric locomotives to 31 March 2025, with a record FY2024-25. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[G7]
Government of Western Australia, media statement on AutoHaul
https://www.wa.gov.au/government/media-statements/McGowan%20Labor%20Government/McGowan-Government-congratulates-Rio-Tinto-on-AutoHaul-20190614
States 2.4 km trains serving 16 mines over a 1,700 km network, more than 3 million km run autonomously. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[G8]
European Environment Agency, greenhouse gas emission intensity of electricity generation in Europe
https://www.eea.europa.eu/en/analysis/indicators/greenhouse-gas-emission-intensity-of-1
States that Norway's electricity comes overwhelmingly from renewables with accordingly low GHG intensity, while coal-based grids are far higher - the basis for the claim that an electric locomotive's climate value depends on its grid. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

Company and industry

[C1]
Wabtec Form 10-K, FY2024 (SEC filing)
https://www.sec.gov/Archives/edgar/data/943452/000162828025005100/R5.htm
States net sales of $10,387M in 2024 against $9,677M in 2023. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[C2]
Alstom FY2024/25 results press release (PDF)
https://www.alstom.com/sites/alstom.com/files/2025/05/14/20250514_PR_Alstom_FY_%202024_25_Annual_Results_EN_1.pdf
States sales of EUR 18.5bn and orders of EUR 19.8bn, book-to-bill 1.1. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[C3]
CRRC 2024 annual results announcement (HKEX)

https://www1.hkexnews.hk/listedco/listconews/sehk/2025/0416/2025041600391.pdf
States revenue of RMB 246.46bn, up 5.21%. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[C4]
Stadler 2024 annual results ad hoc announcement
https://www.stadlerrail.com/api/docs/x/446e986c58/2025_0319_adhocannoucement_full_year_results_2024.pdf
States about 500 vehicles delivered despite flood disruption. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[C5]
Alstom press release, May 2020, first Prima T8 WAG-12
https://www.alstom.com/press-releases-news/2020/5/indias-first-12000-hp-made-india-electric-locomotive-enters-commercial-service
States the first 12,000 hp (9 MW) WAG-12 entering Indian Railways service. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[C6]
Alstom press release, March 2025, 500th Madhepura locomotive
https://www.alstom.com/press-releases-news
States 500 Prima T8 12,000 hp locomotives delivered from Madhepura against the 800-unit contract. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[C7]
Wabtec press release, September 2021, Roy Hill FLXdrive order
https://www.wabteccorp.com/newsroom/press-releases/roy-hill-sets-new-course-with-purchase-of-flxdrive-battery-locomotive
States the first purchase of the FLXdrive battery locomotive. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[C8]
Wabtec press release, October 2023, FLXdrive unveiling
https://www.wabteccorp.com/newsroom/press-releases/wabtec-and-roy-hill-unveil-the-first-flxdrive-battery-locomotive
States the first FLXdrive battery locomotive unveiled at Erie, PA. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[C9]
Rio Tinto press release, December 2018, AutoHaul
https://www.riotinto.com/en/news/releases/2018/world-first-autonomous-trains-deployed
States the world-first deployment of autonomous heavy-haul trains. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[C10]
Stadler press release, March 2024, FLIRT H2 record
https://www.stadlerrail.com/api/docs/fdd6502d4b/2024_0325_media_release_stadler_achieves_world_record_title_en.pdf
States the FLIRT H2 hydrogen multiple unit's Guinness distance record of 1,741.7 miles (2,803 km). Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[C11]
Guinness World Records, longest distance by a hydrogen fuel cell train
https://www.guinnessworldrecords.com/world-records/
States 2,803.518 km at Denver, Colorado, achieved 20 March 2024. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[C12]
railmarket.com, Siemens Mobility Q4 FY2024
https://railmarket.com/news/business/26361-siemens-mobility-strong-q4-2024-and-expectations-for-2025
States Q4 FY2024 orders of EUR 4.6bn and revenue of EUR 3.3bn. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

Market and classification

[M1]
Fortune Business Insights, locomotive market study
https://www.fortunebusinessinsights.com/locomotive-market-106954
States a market of $13.80bn in 2024, $14.42bn in 2025, forecast $24.85bn by 2032 at 8.1% CAGR (estimate). Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[M2]
Grand View Research, locomotive market study
https://www.grandviewresearch.com/industry-analysis/locomotive-market
States $23.9bn in 2024 rising to $40.7bn by 2030 (estimate). Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[M3]
IMARC, locomotive market study
https://www.imarcgroup.com/locomotive-market
States $26.2bn in 2025 rising to $51.2bn by 2034 (estimate). Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[M4]
Mordor Intelligence, locomotive market study
https://www.mordorintelligence.com/industry-reports/locomotive-market
States $6.63bn in 2026 rising to $8.07bn by 2031 (estimate). Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[M5]
IEA, "The Future of Rail"
https://www.iea.org/reports/the-future-of-rail
States rail carries 8% of world passengers and 7% of freight on 2% of transport energy demand; the most electrified mode. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[M6]
Association of American Railroads, "Freight Rail Facts & Figures"
https://www.aar.org/facts-figures/
States rail carries about 40% of US long-distance ton-miles on about 0.5% of US greenhouse-gas emissions. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

[M7]
siccodes.co.uk / MSCI GICS methodology (classification reference)
https://siccodes.co.uk/gics/20106010
States GICS 20106010, Construction Machinery & Heavy Transportation Equipment, used for provisional filing. Read: source fetched and read 1 November 2026; cited figures taken as the source states them.

Part 2 - Chapter sources

[S1]
Garratt locomotive
Cited in: Chapter 22 - The Garratt: Two Engines, One Boiler
Garratt locomotive - https://en.wikipedia.org/wiki/Garratt_locomotive
Supports the chapter's account of garratt locomotive. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S2]
Tank engine and branch line
Cited in: Chapter 23 - The Tank Engine and the Branch Line
Tank engine and branch line - https://en.wikipedia.org/wiki/Tank_locomotive
Supports the chapter's account of tank engine and branch line. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S3]
Thyristor revolution and three-phase motor
Cited in: Chapter 45 - The Thyristor Revolution and the Three-Phase Motor
Thyristor revolution and three-phase motor - https://en.wikipedia.org/wiki/Variable-frequency_drive
Supports the chapter's account of thyristor revolution and three-phase motor. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S4]
Gas turbine interlude
Cited in: Chapter 63 - The Gas Turbine Interlude; Chapter 146 - The LNG Gamble
Gas turbine interlude - https://en.wikipedia.org/wiki/Gas_turbine%E2%80%93electric_locomotive
Supports the chapter's account of gas turbine interlude. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S5]
Diesel-hydraulic
Cited in: Chapter 64 - The Hydraulic Heresy
Diesel-hydraulic - https://en.wikipedia.org/wiki/Diesel%E2%80%93hydraulic_locomotive
Supports the chapter's account of diesel-hydraulic. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S6]
Platform locomotive
Cited in: Chapter 85 - The Platform Locomotive: One Machine, Every Railway
Platform locomotive - https://en.wikipedia.org/wiki/Siemens_Vectron
Supports the chapter's account of platform locomotive. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S7]
WAG-9
Cited in: Chapter 86 - The WAG-9: India's Homegrown Thoroughbred
WAG-9 - https://en.wikipedia.org/wiki/Indian_locomotive_class_WAG-9
Supports the chapter's account of wag-9. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S8]
Genset and hybrid
Cited in: Chapter 102 - The Green Diesels: Gensets, Hybrids and the Art of Not Idling
Genset and hybrid - https://en.wikipedia.org/wiki/Genset_locomotive
Supports the chapter's account of genset and hybrid. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S9]
Rebuilders and remanufacturers
Cited in: Chapter 76 - The great works; Chapter 103 - Second Lives: The Rebuilders and the Remanufacturers
Rebuilders and remanufacturers - https://en.wikipedia.org/wiki/Progress_Rail
Supports the chapter's account of rebuilders and remanufacturers. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S10]
Crashworthiness
Cited in: Chapter 129 - When Things Go Wrong: Crashworthiness and the Lessons of Disaster
Crashworthiness - https://en.wikipedia.org/wiki/Crashworthiness
Supports the chapter's account of crashworthiness. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S11]
Locomotive in numbers
Cited in: Chapter 155 - The Locomotive in Numbers
Locomotive in numbers - https://en.wikipedia.org/wiki/Locomotive
Supports the chapter's account of locomotive in numbers. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S12]
Whistle and lamp
Cited in: Chapter 156 - The Whistle and the Lamp
Whistle and lamp - https://en.wikipedia.org/wiki/Train_whistle
Supports the chapter's account of whistle and lamp. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S13]
Railway Mania and gauge war
Cited in: Chapter 5 - The Mania and the Gauge War
Railway Mania and gauge war - https://en.wikipedia.org/wiki/Railway_Mania
Great Western Railway (broad gauge ended 1892) - https://en.wikipedia.org/wiki/Great_Western_Railway
Supports the chapter's account of railway mania and gauge war. Final broad-gauge conversion of 1892 confirmed against the Great Western Railway article. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked; supplementary source (b) read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S14]
Compound locomotives
Cited in: Chapter 24 - The Compound Question
Compound locomotives - https://en.wikipedia.org/wiki/Compound_locomotive
Supports the chapter's account of compound locomotives. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S15]
Railcar and doodlebug
Cited in: Chapter 65 - The Railcar and the Doodlebug
Railcar and doodlebug - https://en.wikipedia.org/wiki/Railcar
Supports the chapter's account of railcar and doodlebug. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S16]
Price of power
Cited in: Chapter 104 - The Price of Power
Price of power - https://en.wikipedia.org/wiki/Diesel_locomotive
Supports the chapter's account of price of power. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S17]
Leasing revolution
Cited in: Chapter 105 - The Leasing Revolution
Leasing revolution - https://en.wikipedia.org/wiki/Angel_Trains
Supports the chapter's account of leasing revolution. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S18]

Snowplough and rotary
Cited in: Chapter 112 - The Snowplough and the Rotary
Snowplough and rotary - https://en.wikipedia.org/wiki/Rotary_snowplow
Supports the chapter's account of snowplough and rotary. The January 1952 City of San Francisco stranding at Donner Pass is recorded in the rotary snowplow article. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S19]
Breakdown gang
Cited in: Chapter 113 - The Breakdown Gang
Breakdown gang - https://en.wikipedia.org/wiki/Breakdown_crane
Supports the chapter's account of breakdown gang. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S20]
Women of the footplate
Cited in: Chapter 157 - The Women of the Footplate
Women of the footplate - https://en.wikipedia.org/wiki/Karen_Harrison
Women in the First World War (railway employment) - https://en.wikipedia.org/wiki/Women_in_the_First_World_War
Supports the chapter's account of women of the footplate. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked; supplementary source (b) read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S21]
Miniature and model
Cited in: Chapter 158 - The Miniature and the Model
Miniature and model - https://en.wikipedia.org/wiki/Ridable_miniature_railway
Supports the chapter's account of miniature and model. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S22]
The iron road underneath
Cited in: Chapter 6 - The Iron Road Underneath
The iron road underneath - https://en.wikipedia.org/wiki/Rail_track
Supports the chapter's account of the iron road underneath. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S23]
Horse, rope and stationary engine
Cited in: Chapter 7 - The Horse, the Rope and the Stationary Engine
Horse, rope and stationary engine - https://en.wikipedia.org/wiki/Wagonway
Supports the chapter's account of horse, rope and stationary engine. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S24]
American 4-4-0
Cited in: Chapter 25 - The American Wildness: The 4-4-0 and the Conquest of Distance
American 4-4-0 - https://en.wikipedia.org/wiki/4-4-0
Supports the chapter's account of american 4-4-0. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S25]
Articulated locomotives
Cited in: Chapter 26 - Articulation: The Mallet, the Meyer and the Fairlie
Articulated locomotives - https://en.wikipedia.org/wiki/Articulated_locomotive
Mallet locomotive (patent 1884) - https://en.wikipedia.org/wiki/Mallet_locomotive
Supports the chapter's account of articulated locomotives. Mallet patent of 1884 confirmed against the Mallet locomotive article. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked; supplementary source (b) read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S26]
Last steam designs
Cited in: Chapter 27 - The Last Steam Designs
Last steam designs - https://en.wikipedia.org/wiki/BR_Standard_Class_9F
Supports the chapter's account of last steam designs. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S27]

Geared engines

Cited in: Chapter 29 - The Geared Engines: Shay, Heisler and Climax

Geared engines - https://en.wikipedia.org/wiki/Geared_steam_locomotive

Supports the chapter's account of geared engines. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S28]

Great electrifications

Cited in: Chapter 46 - The Great Electrifications; Chapter 53 - The Electrifications That Were Not; Chapter 162 - The Longest Run

Great electrifications - https://en.wikipedia.org/wiki/Railway_electrification

Trans-Siberian Railway (electrification completed 2002) - https://en.wikipedia.org/wiki/Trans-Siberian_Railway

Supports the chapter's account of great electrifications. Trans-Siberian electrification completed 2002 confirmed against the Trans-Siberian Railway article. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S29]

Heavy electrics

Cited in: Chapter 47 - The Heavy Electrics: Ore, Mountains and Megawatts

Heavy electrics - https://en.wikipedia.org/wiki/Iron_Ore_Line

IORE (twin-section 2 x 5,400 kW = 10.8 MW) - https://en.wikipedia.org/wiki/IORE

Supports the chapter's account of heavy electrics. IORE power of 10.8 MW is the paired unit: two sections of 5,400 kW each, per the IORE article; line electrified in stages 1915-1922 per the Iron Ore Line article (chapter text matches). Read: read in full from the retrieved text, with the passages bearing on the cited claims checked; supplementary source (b) read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S30]

Mining electrics

Cited in: Chapter 48 - The Mining Electrics

Mining electrics - https://en.wikipedia.org/wiki/Electric_locomotive

Supports the chapter's account of mining electrics. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S31]

Switcher

Cited in: Chapter 66 - The Switcher: The Diesel's Bread and Butter

Switcher - https://en.wikipedia.org/wiki/Switcher

Supports the chapter's account of switcher. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S32]

ALCO and Baldwin

Cited in: Chapter 67 - The Fallen: ALCO, Baldwin and the Price of Being Second

ALCO and Baldwin - https://en.wikipedia.org/wiki/American_Locomotive_Company

Baldwin Locomotive Works (1831-1956) - https://en.wikipedia.org/wiki/Baldwin_Locomotive_Works

Supports the chapter's account of alco and baldwin. Baldwin production history 1831-1956 confirmed against the Baldwin Locomotive Works article. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked; supplementary source (b) read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S33]

EMD exports

Cited in: Chapter 68 - The Diesel Abroad: How EMD's Exports Colonised the World

EMD exports - https://en.wikipedia.org/wiki/Electro-Motive_Diesel

Supports the chapter's account of emd exports. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S34]

Cab unit and hood unit

Cited in: Chapter 69 - The Cab Unit and the Hood Unit

Cab unit and hood unit - https://en.wikipedia.org/wiki/Cab_unit

EMD GP7 (1949) - https://en.wikipedia.org/wiki/EMD_GP7

Supports the chapter's account of cab unit and hood unit. GP7 introduction in 1949 confirmed against the EMD GP7 article. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked; supplementary source (b) read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S35]
General Electric
Cited in: Chapter 87 - General Electric: The Second American
General Electric - https://en.wikipedia.org/wiki/GE_Transportation
GE U25B (2,500 hp, 1959) - https://en.wikipedia.org/wiki/GE_U25B
Supports the chapter's account of general electric. U25B rated 2,500 hp confirmed against the GE U25B article. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked; supplementary source (b) read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S36]
Soviet giants
Cited in: Chapter 88 - The Soviet Giants: Lugansk and Kolomna
Soviet giants - https://en.wikipedia.org/wiki/Luhanskteplovoz
VL80 (Novocherkassk twin-section freight electrics) - https://en.wikipedia.org/wiki/VL80
Supports the chapter's account of soviet giants. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked; supplementary source (b) read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S37]
Japanese and Korean makers
Cited in: Chapter 89 - The Japanese and Korean Makers
Japanese and Korean makers - https://en.wikipedia.org/wiki/Hyundai_Rotem
Kawasaki Heavy Industries (Japanese builder) - https://en.wikipedia.org/wiki/Kawasaki_Heavy_Industries
Supports the chapter's account of japanese and korean makers. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked; supplementary source (b) read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S38]
Specialists
Cited in: Chapter 90 - The Specialists: Small Builders, Strange Machines
Specialists - https://en.wikipedia.org/wiki/Brookville_Equipment_Corporation
Clayton Equipment (est. 1931) - https://en.wikipedia.org/wiki/Clayton_Equipment_Company
Supports the chapter's account of specialists. Clayton Equipment established 1931 confirmed against its article. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked; supplementary source (b) read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S39]
Fuel by the trainload
Cited in: Chapter 106 - Fuel by the Trainload
Fuel by the trainload - https://en.wikipedia.org/wiki/Unit_train
Supports the chapter's account of fuel by the trainload. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S40]
Coaling tower and water column
Cited in: Chapter 114 - The Coaling Tower and the Water Column
Coaling tower and water column - https://en.wikipedia.org/wiki/Coaling_tower
Supports the chapter's account of coaling tower and water column. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S41]
Depot at night
Cited in: Chapter 115 - The Depot at Night
Depot at night - https://en.wikipedia.org/wiki/Motive_power_depot
Supports the chapter's account of depot at night. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S42]
Power desk
Cited in: Chapter 116 - The Power Desk: Rostered Horses of Steel
Power desk - https://en.wikipedia.org/wiki/Train_dispatching
Supports the chapter's account of power desk. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S43]
Royal train and special

Cited in: Chapter 117 - The Royal Train and the Special
Royal train and special - https://en.wikipedia.org/wiki/Royal_train
Funeral train (incl. UP 4141, George H.W. Bush 2018) - https://en.wikipedia.org/wiki/Funeral_train
Supports the chapter's account of royal train and special. UP 4141 and the 2018 George H. W. Bush funeral train confirmed against the funeral train article. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked; supplementary source (b) read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S44]
Loading gauge
Cited in: Chapter 130 - The Loading Gauge Cage
Loading gauge - https://en.wikipedia.org/wiki/Loading_gauge
Supports the chapter's account of loading gauge. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S45]
Curve and cant
Cited in: Chapter 131 - The Curve and the Cant
Curve and cant - https://en.wikipedia.org/wiki/Cant_(road_and_rail)
Supports the chapter's account of curve and cant. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S46]
Fire risk
Cited in: Chapter 132 - The Fire Risk
Fire risk - https://en.wikipedia.org/wiki/Spark_arrester
Supports the chapter's account of fire risk. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S47]
Noise limit
Cited in: Chapter 133 - The Noise Limit
Noise limit - https://en.wikipedia.org/wiki/Noise_regulation
Supports the chapter's account of noise limit. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S48]
Standards that bind
Cited in: Chapter 144 - The Standards That Bind
Standards that bind - https://en.wikipedia.org/wiki/International_Union_of_Railways
Supports the chapter's account of standards that bind. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S49]
Materials of the future
Cited in: Chapter 145 - The Materials of the Future Locomotive
Materials of the future - https://en.wikipedia.org/wiki/Composite_material
Supports the chapter's account of materials of the future. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S50]
Climate ledger
Cited in: Chapter 159 - The Climate Ledger
Climate ledger - https://www.iea.org/reports/the-future-of-rail
Supports the chapter's account of climate ledger. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S51]
Simulators
Cited in: Chapter 160 - Teaching the Machine: Simulators and the New Apprenticeship
Simulators - https://en.wikipedia.org/wiki/Train_simulator
Supports the chapter's account of simulators. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S52]
Locomotive on paper and silver
Cited in: Chapter 161 - The Locomotive on Paper and Silver

Locomotive on paper and silver - https://en.wikipedia.org/wiki/Railroadiana
Supports the chapter's account of locomotive on paper and silver. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S53]
Longest run
Cited in: Chapter 162 - The Longest Run
Longest run - https://en.wikipedia.org/wiki/Longest_trains
Trans-Siberian Railway (9,289 km; electrified 1929-2002) - https://en.wikipedia.org/wiki/Trans-Siberian_Railway
AP via HighBeam archive (25 Dec 2002 completion ceremony) - https://web.archive.org/web/20150904061530/www.highbeam.com/doc/1P1-70603200.html
Supports the chapter's account of longest run. 9,289 km Moscow-Vladivostok confirmed against the Trans-Siberian Railway article; electrification begun 1929 and completed in 2002 confirmed against the same article and the AP report of 25 December 2002. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked; supplementary source (b) read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read; supplementary source (c) read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S54]
World before speed
Cited in: Chapter 8 - The World Before Speed
World before speed - https://en.wikipedia.org/wiki/Stagecoach
Supports the chapter's account of world before speed. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S55]
Measurement of motion
Cited in: Chapter 9 - The Measurement of Motion
Measurement of motion - https://en.wikipedia.org/wiki/Dynamometer_car
Supports the chapter's account of measurement of motion. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S56]
Boiler makers' craft
Cited in: Chapter 30 - The Boiler Makers' Craft
Boiler makers' craft - https://en.wikipedia.org/wiki/Locomotive_boiler
Supports the chapter's account of boiler makers' craft. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S57]
Express and local
Cited in: Chapter 31 - The Express and the Local
Express and local - https://en.wikipedia.org/wiki/Express_train
Supports the chapter's account of express and local. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S58]
Oil burners
Cited in: Chapter 32 - The Oil Burners
Oil burners - https://en.wikipedia.org/wiki/Oil_burner
Supports the chapter's account of oil burners. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S59]
Catenary
Cited in: Chapter 49 - The Catenary Above
Catenary - https://en.wikipedia.org/wiki/Overhead_line
Supports the chapter's account of catenary. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S60]
1500-volt world
Cited in: Chapter 50 - The 1500-Volt World
1500-volt world - https://en.wikipedia.org/wiki/1500_V_DC
Supports the chapter's account of 1500-volt world. The 2,700 A figure is the chapter's own arithmetic from the sourced voltage: 4,000 kW at 1,500 V. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S61]
Deltic
Cited in: Chapter 70 - The Deltic and the Passenger Diesel's Heyday
Deltic - https://en.wikipedia.org/wiki/British_Rail_Class_55
Supports the chapter's account of deltic. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S62]
HST
Cited in: Chapter 71 - The HST: The Diesel That Saved the Express
HST - https://en.wikipedia.org/wiki/InterCity_125
Supports the chapter's account of hst. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S63]
English Electric
Cited in: Chapter 91 - English Electric and the British Diesel's Second Life
English Electric - https://en.wikipedia.org/wiki/English_Electric
Supports the chapter's account of english electric. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S64]
Condensing engines
Cited in: Chapter 33 - The Condensing Engines of the Desert
Condensing engines - https://en.wikipedia.org/wiki/Condensing_steam_locomotive
ACE 3000 proposal - https://en.wikipedia.org/wiki/ACE_3000
Supports the chapter's account of condensing engines. The ACE 3000 proposal and its condensing package confirmed against the ACE 3000 article. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked; supplementary source (b) read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S65]
Rack and pinion
Cited in: Chapter 51 - The Rack and Pinion: Railways That Climb by Tooth
Rack and pinion - https://en.wikipedia.org/wiki/Rack_railway
Supports the chapter's account of rack and pinion. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S66]
Battery's first life
Cited in: Chapter 52 - The Battery's First Life
Battery's first life - https://en.wikipedia.org/wiki/Battery_locomotive
Supports the chapter's account of battery's first life. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S67]
B-units
Cited in: Chapter 72 - The Cabless Ones: B-Units and the Economics of the Second Engine
B-units - https://en.wikipedia.org/wiki/B_unit
Supports the chapter's account of b-units. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S68]
BHEL
Cited in: Chapter 92 - The Indian Electricals: BHEL and the Invisible Majority
BHEL - https://en.wikipedia.org/wiki/Bharat_Heavy_Electricals_Limited
Supports the chapter's account of bhel. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S69]
Skoda and Central Europe
Cited in: Chapter 93 - Skoda and the Central European Works
Skoda and Central Europe - https://en.wikipedia.org/wiki/%C5%A0koda_Transportation
Supports the chapter's account of skoda and central europe. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S70]

Second-hand world
Cited in: Chapter 107 - The Second-Hand World
Second-hand world - https://en.wikipedia.org/wiki/List_of_GM-EMD_locomotives
Supports the chapter's account of second-hand world. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S71]
Travelling post office
Cited in: Chapter 118 - The Travelling Post Office
Travelling post office - https://en.wikipedia.org/wiki/Travelling_post_office
Supports the chapter's account of travelling post office. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S72]
Train ferry
Cited in: Chapter 119 - The Train Ferry
Train ferry - https://en.wikipedia.org/wiki/Train_ferry
Supports the chapter's account of train ferry. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S73]
Axleload and bridge formula
Cited in: Chapter 134 - The Weight of the World: Axleload and the Bridge Formula
Axleload and bridge formula - https://en.wikipedia.org/wiki/Axle_load
Supports the chapter's account of axleload and bridge formula. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S74]
Cold and heat
Cited in: Chapter 135 - The Cold and the Heat
Cold and heat - https://en.wikipedia.org/wiki/Baikal%E2%80%93Amur_Mainline
TE10 (Soviet steppe diesel) - https://en.wikipedia.org/wiki/TE10
Supports the chapter's account of cold and heat. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read; supplementary source (b) read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S75]
Copper thieves
Cited in: Chapter 136 - The Copper Thieves
Copper thieves - https://en.wikipedia.org/wiki/Metal_theft
Supports the chapter's account of copper thieves. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S76]
LNG gamble
Cited in: Chapter 146 - The LNG Gamble
LNG gamble - https://en.wikipedia.org/wiki/Liquefied_natural_gas
Supports the chapter's account of lng gamble. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S77]
Flywheel and capacitor
Cited in: Chapter 147 - The Flywheel and the Capacitor
Flywheel and capacitor - https://en.wikipedia.org/wiki/Flywheel_energy_storage
Supports the chapter's account of flywheel and capacitor. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S78]
Rivals revisited
Cited in: Chapter 163 - The Rivals Revisited
Rivals revisited - https://en.wikipedia.org/wiki/Rail_transport
Supports the chapter's account of rivals revisited. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S79]
Century ahead
Cited in: Chapter 164 - The Century Ahead

Century ahead - https://en.wikipedia.org/wiki/Automatic_train_operation
Supports the chapter's account of century ahead. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S80]
Wood burners
Cited in: Chapter 35 - The Wood Burners
Wood burners - https://en.wikipedia.org/wiki/Wood_fuel
Supports the chapter's account of wood burners. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S81]
Italian three-phase
Cited in: Chapter 54 - The Italian Three-Phase: The Road Not Taken
Italian three-phase - https://en.wikipedia.org/wiki/Three-phase_AC_railway_electrification
Supports the chapter's account of italian three-phase. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S82]
Electrifications that were not
Cited in: Chapter 53 - The Electrifications That Were Not
Electrifications that were not - https://en.wikipedia.org/wiki/Milwaukee_Road
Supports the chapter's account of electrifications that were not. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S83]
Critters
Cited in: Chapter 73 - The Critters: Industrial Diesels and the Smallest Engines
Critters - https://en.wikipedia.org/wiki/Hunslet_Engine_Company
Supports the chapter's account of critters. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S84]
Tunnel motors
Cited in: Chapter 137 - The Tunnel Motors
Tunnel motors - https://en.wikipedia.org/wiki/EMD_SD40T-2
Supports the chapter's account of tunnel motors. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S85]
Irish gauge
Cited in: Chapter 10 - The Irish Gauge
Irish gauge - https://en.wikipedia.org/wiki/5_ft_3_in_gauge_railways
Supports the chapter's account of irish gauge. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S86]
FAUR and the Danube works
Cited in: Chapter 94 - FAUR and the Danube Works: The Second World's Second Tier
FAUR and the Danube works - https://en.wikipedia.org/wiki/FAUR
JZ series 441 (Romanian-built electrics) - https://en.wikipedia.org/wiki/J%C5%BD_series_441
Supports the chapter's account of faur and the danube works. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked; supplementary source (b) read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S87]
Firelighter's dawn
Cited in: Chapter 120 - The Firelighter's Dawn
Firelighter's dawn - https://en.wikipedia.org/wiki/Fireman_(steam_engine)
Supports the chapter's account of firelighter's dawn. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S88]
Washout and earthquake
Cited in: Chapter 138 - The Washout and the Earthquake
Washout and earthquake - https://en.wikipedia.org/wiki/Queen_of_the_Sea_rail_disaster
Supports the chapter's account of washout and earthquake. Read: read in full from the retrieved text, with the

passages bearing on the cited claims checked, 1-2 November 2026.

[S89]
Nuclear fantasy
Cited in: Chapter 148 - The Nuclear Fantasy
Nuclear fantasy - https://en.wikipedia.org/wiki/Nuclear_power
Supports the chapter's account of nuclear fantasy. Read: read in excerpt - retrieved text reaches the fetch service ceiling; every passage bearing on the cited claims was located and read, 1-2 November 2026.

[S90]
Centennial and big diesels
Cited in: Chapter 74 - The Centennial and the Big Diesels
Centennial and big diesels - https://en.wikipedia.org/wiki/EMD_DDA40X
Supports the chapter's account of centennial and big diesels. DDA40X figures (6,600 hp, build dates) confirmed against the EMD DDA40X article. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S91]
Iberian works
Cited in: Chapter 95 - The Iberian Works: Macosa, Sorefame and the Southern Fringe
Iberian works - https://en.wikipedia.org/wiki/Macosa
Supports the chapter's account of iberian works. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S92]
Running round
Cited in: Chapter 121 - Running Round: The Terminal's Choreography
Running round - https://en.wikipedia.org/wiki/Passing_loop
Supports the chapter's account of running round. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S93]
Grade crossing
Cited in: Chapter 139 - The Grade Crossing
Grade crossing - https://en.wikipedia.org/wiki/Level_crossing
Supports the chapter's account of grade crossing. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S94]
Dual-mode
Cited in: Chapter 149 - The Dual-Mode: Two Machines in One
Dual-mode - https://en.wikipedia.org/wiki/Electro-diesel_locomotive
Supports the chapter's account of dual-mode. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S95]
Number on the frame
Cited in: Chapter 2 - A machine of many names; Chapter 165 - The Number on the Frame; Chapter 167 - A locomotive glossary
Number on the frame - https://en.wikipedia.org/wiki/UIC_wagon_numbers
Supports the chapter's account of number on the frame. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S96]
Camelback
Cited in: Chapter 37 - The Camelback
Camelback - https://en.wikipedia.org/wiki/Camelback_locomotive
Supports the chapter's account of camelback. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S97]
Fairbanks-Morse
Cited in: Chapter 75 - Fairbanks-Morse and the Opposed-Piston Dream
Fairbanks-Morse - https://en.wikipedia.org/wiki/Fairbanks_Morse
Supports the chapter's account of fairbanks-morse. Read: read in full from the retrieved text, with the passages bearing on the cited claims checked, 1-2 November 2026.

[S98]
Hump and retarder
Cited in: Chapter 122 - The Hump and the Retarder
Hump and retarder - https://en.wikipedia.org/wiki/Classification_yard
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