



Transportation Technology Center, Inc., a subsidiary of the Association of American Railroads

AAR Information: How to Get It

Rule 1 Gage Videos

**Transportation
Technology Center**

David Cackovic





Transportation Technology Center, Inc., a subsidiary of the Association of American Railroads

Wheels, Axles, Bearings & Lubrication Committee

TTCI

Subject Matter Expert

Daniel Carter

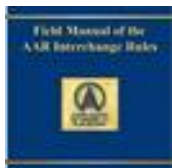
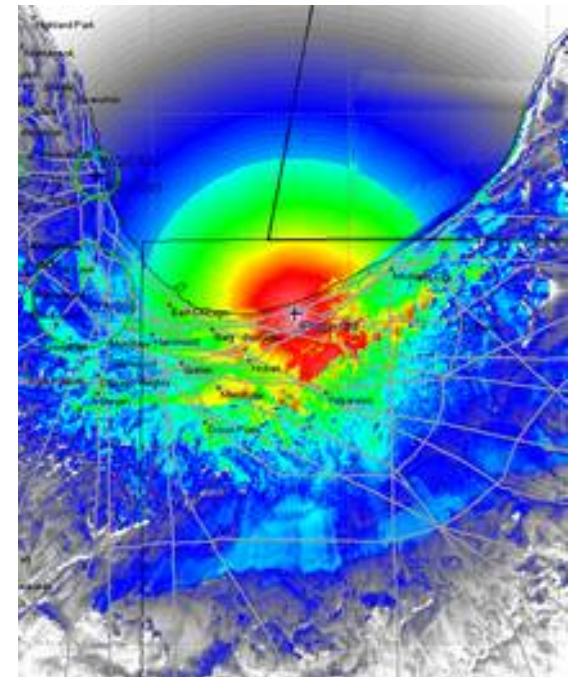
Daniel_carter@aar.com



AAR Services Provided by TTCI

TTCI support to the AAR Safety and Operations Department and the rail industry

- ◆ Technical Standards
- ◆ MID
- ◆ BOE
- ◆ Publications
- ◆ QA
- ◆ RF
- ◆ Damage Prevention
- ◆ Economics

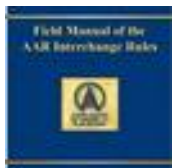




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What's new or in process:

- ◆ M-1004 Specification for Fuel Tenders (new)
- ◆ Development of waiver for reflectorization (in process)
- ◆ Passenger standards (in process)
- ◆ Rewrite of interchange rules 3, 5, 6, 7 for brakes
- ◆ A more robust cost benefit analysis process (new)
- ◆ Increased life of railcars and castings (in process)
- ◆ **Dissemination of Information (Web)**
 - ◆ **Electronic publications including on-line MSRPs and electronic ordering (new)**
 - ◆ **Enhanced Circular Letter System**
 - ◆ **Enhanced information with videos**





AAR

The Publications Process at TTCI supports AAR and the rail industry with:

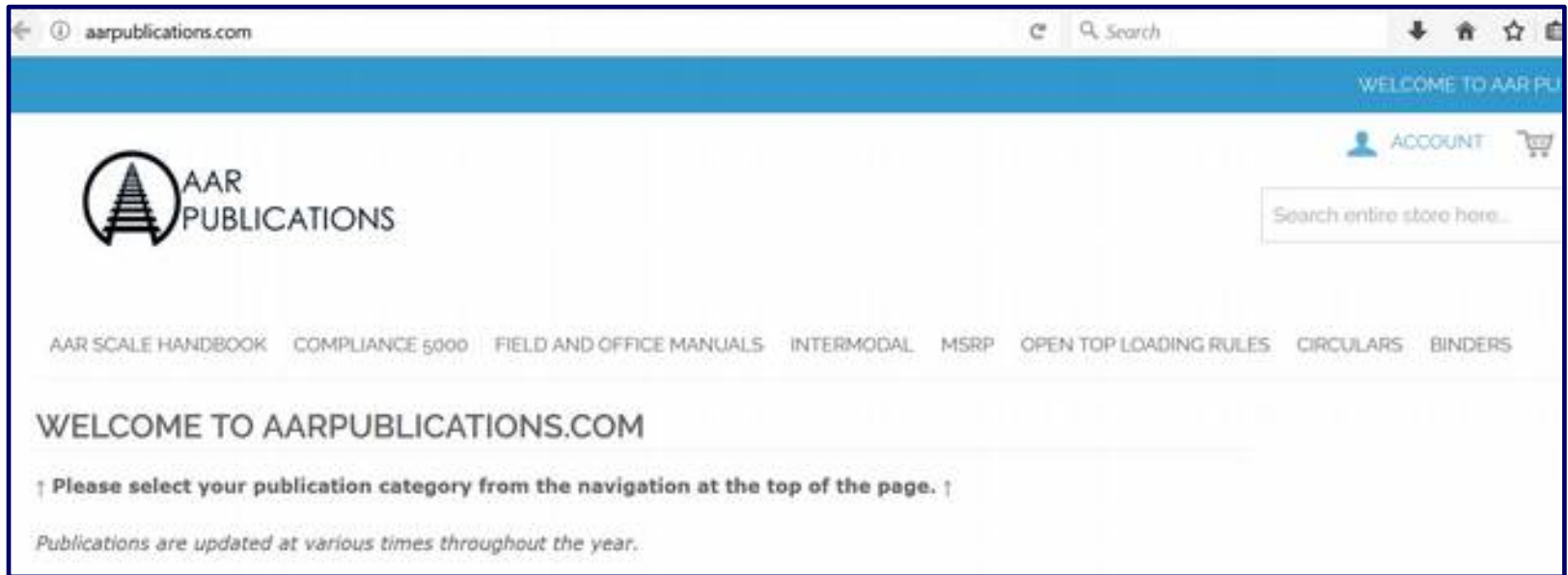
- ◆ Publications Management
 - ◆ Formats and edits documents to become camera ready
 - ◆ Prints manuals
 - ◆ Meets industry sales, fulfillment and distribution needs
 - ◆ Moving into sales automation and electronic media
 - ◆ Includes **on-line MSRP system**, which is updated with Committee revisions in real-time
- ◆ **Circular Letters**
- ◆ **Training Videos**





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Web Based Information **www.aarpublications.com**







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www.aarpublishings.com


FIELD AND OFFICE MANUALS

Sort By: Name

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6 Item(s) Show: 12




2018 FIELD MANUAL
LOOSE LEAF BINDER -
BINDER ONLY
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\$143.00

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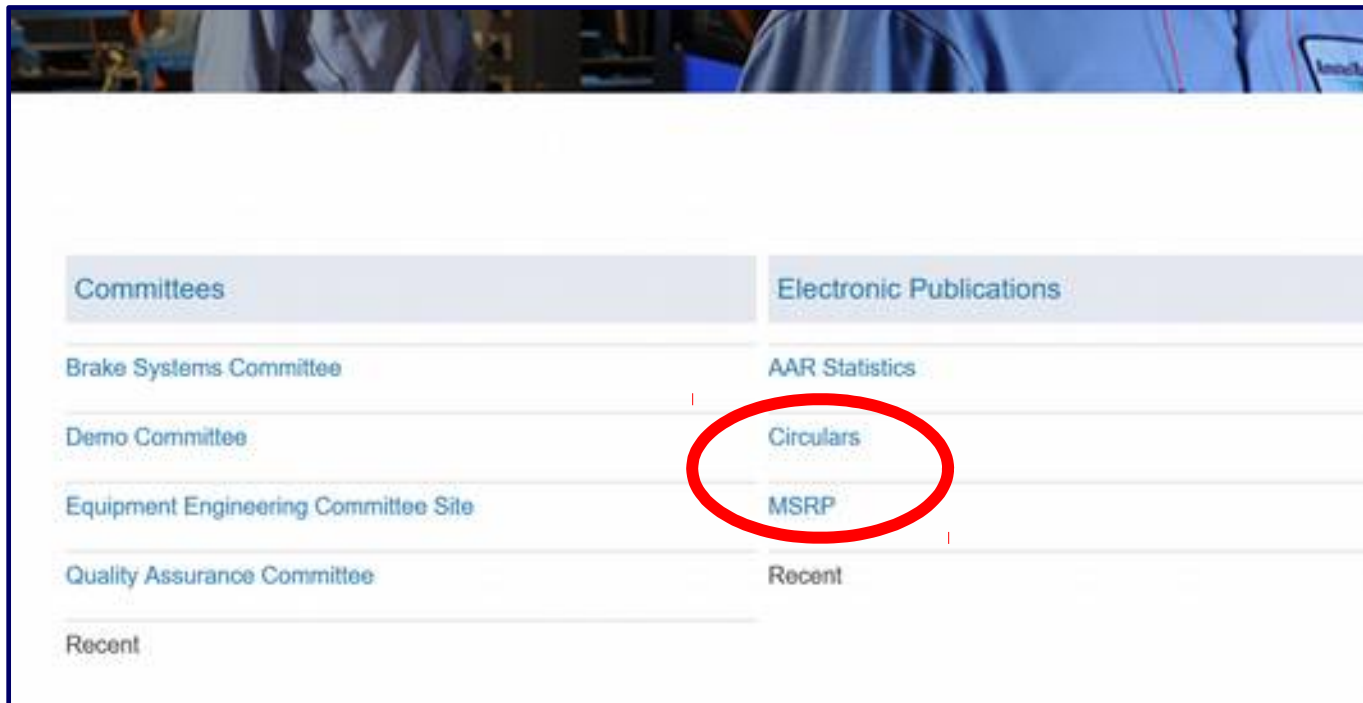
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AAR Circular Letters Library Search

FIND CIRCULARS WITH...

This in the Circular Number:

This in the Body/Content:

Cackovic

This in the Circular Title/Subject:

Comments

A Publication Date Between:

From

to

SEARCH

Clear Search Fields

SUBSCRIPTION DETAILS

Expiration Date: **June 30, 2021**

Renew Subscription

Circular Number	Circular Subject	Circular Publication Date
C-12946	Solicitation of Comments for Appendix J Inspections and Maintenance, to be added to M-1004 Specification for Fuel Tenders	8/28/2017
C-12940	Solicitation of Comments for Appendix G Wiring and Electrical Hardware, to be added to M-1004 Specification for Fuel Tenders	8/9/2017
C-12904	Solicitation of Comments for new Proposed New MSRP Section T, M-1004 Specification for Fuel Tenders	6/10/2017



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WELCOME TO THE AAR MSRP LIBRARY

To get started, select the MSRP volume that you wish to review to display the book's content. From there, you can download the entire PDF for the book, individual documents, and implemented circular letters. To download, right-click a link and select 'Save link as' to save to your harddrive.

This library is currently in beta and we would appreciate your feedback on the functionality and user experience of this library tool.

[MSRPAdmin](#)

Select MSRP

MSRP-G II: Wheel and Axle (Shop) Manual

MSRP-G II: Wheel and Axle (Shop) Manual
Wheel and Axle Shop Manual (04/27/2015)

DOC NO.	IMPLEMENTED FILE	CIRCULAR
RP-631	Recommended Wheel Shop Practices (05/24/2017)	C-12875
RP-631	Recommended Wheel Shop Practices pp 33-34 (05/16/2016)	C-12655
RP-631	Recommended Wheel Shop Practices (04/27/2015)	
RP-632	General Requirements and Information (04/27/2015)	
RP-633	Figures (05/24/2017)	C-12675
RP-633	Figures (09/08/2016)	C-12713
RP-633	Figures (04/27/2015)	
RP-633	Figures pp 68-72 (01/2016)	C-12963
RP-634	Gauges-Wheel and Axle Shop (01/16/2016)	C-12656
RP-634	Gauges-Wheel and Axle Shop (04/27/2015)	
RP-634	Gauges-Wheel and Axle Shop pp167-170 (01/2016)	C-12562
RP-750	Wheel-Rolling Component Approval Test Procedure (04/27/2015)	
S-658	Mandatory Rules Governing Wheel Shop Practices as Required by Interchange Rules (05/24/2017)	C-12875
S-658	Mandatory Rules Governing Wheel Shop Practices as Required by Interchange Rules (09/08/2016)	C-12713
S-658	Mandatory Rules Governing Wheel Shop Practices As Required By Interchange Rules (04/27/2015)	
S-727	Approved Rust Preventives Used as Sealing Compounds (04/27/2015)	
Sec G-4 Intro	Introduction (04/27/2015)	



AAR

Web Based Information

www.aar.com

The screenshot shows the homepage of the Transportation Technology Center, Inc. (TTCI) website. The header features the TTCI logo and the text "Transportation Technology Center, Inc." on the left, and social media icons for Facebook, Twitter, and YouTube on the right, along with a search bar. Below the header is a navigation menu with links: "About", "Services", "Hazmat Training", "AAR Technical Services", "Career Opportunities", "Contact Us", and "Visitor Info". A link "Click here for sitemap" is also present. The main content area is divided into two columns. The left column is titled "What's New" and features a "press release" section with a photo of a person in a hazmat suit and the headline "TTCI's Security & Emergency Response Training Center". The right column is titled "Multimedia" and features a "video" section with a photo of a person in a hazmat suit and the headline "SERTC". A "TTCI Store" link is visible at the bottom left of the page.

TTCI
Transportation
Technology Center, Inc.

f t y

Search

About Services Hazmat Training AAR Technical Services Career Opportunities Contact Us Visitor Info

Click here for sitemap

What's New

press release

▶ **TTCI's Security & Emergency Response Training Center**

Pueblo, Colorado – TTCI's Security & Emergency Response Training Center (SERTC)'s dynamic, hands-on program is featured in the Fall 2016 edition of The NDPC News. Check it out here

Multimedia multimedia page

video

▶ **SERTC**

SERTC's new Crude by Rail (CBR) training program.

TTCI Store



AAR

The Mechanical Inspection Department supports AAR, the ARB and technical committees, and the rail industry with:

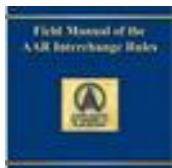
- ◆ Rules and Standards compliance inspections to the Interchange Rules and MSRPs
 - ◆ Allowable mechanical repairs
 - ◆ Allowable billing for repairs
 - ◆ Wheel and Air Brake Shop certifications
 - ◆ Freight car component manufacturing and reconditioning
- ◆ Quality assurance audits to ensure compliance with AAR Specification M-1003
- ◆ Training



AAR

AAR Arbitration and Rules Committee (ARB)

- ◆ Responsible for the content and compliance to the Code of AAR Interchange Rules – Field Manual and Office Manual
 - ◆ Content is both technical, with support of the AAR Technical Committees (e.g. Equipment Engineering), and business/administrative rules
 - ◆ ARB is keenly aware that each individual in the railway system must be attentive of their responsibility under the rules, and that the Interchange Rules do not explicitly demonstrate gage use procedures
 - ◆ ARB requested TTCI and MID to develop online training tools on the use of Field Manual Rule 1 Gages



AAR Field Manual Rule 1.5.a

- ◆ States they (Rule 1 Gages) are required for all repair tracks.
- ◆ States use of gages must be demonstrated upon request by the MID.
- ◆ Correct use a must to prevent improper removal of noncondemnable components.



* Reminder in 2016 there were 105 exceptions to gages and/or use of gages

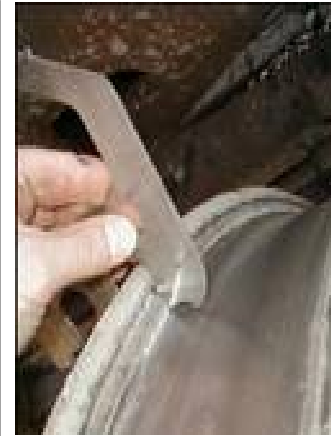


AAR Field Manual Rule 1.5.a

5. Gages and Publications Required for All Repair Tracks

- a. Gages (use of gages must be demonstrated upon request by the MID)
 - (1) Single Car Air Brake Test device.
 - (2) Steel wheel gage or other AAR approved alternate standard.
 - (3) Standard wheel defect gage No. 34401 or 34401A.
 - (4) Simplified steel wheel gage.
 - (5) Wheel back-to-back service limit gage. (Go/No-Go or alternate type capable of measuring a 1/4 inch difference).
 - (6) Adapter wear gage.
 - (7) E coupler contour condemning limit gage (5 5/16 inch) No. 25623-1, Side A.
 - (8) E coupler secondhand and parts replacement contour limit gage (5 1/8 inch) No. 25623-1, Side B.
 - (9) E coupler reconditioned contour limit gage (5 inch) No. 28393.
 - (10) E knuckle nose worn limit gage No. 44057.
 - (11) F knuckle nose worn limit gage No. 49822.
 - (12) F knuckle wear and stretch gage No. 44250-3.
 - (13) F coupler contour limit gage No. 47120-2.
 - (14) F coupler Guard Arm Distortion Gage No. 36527-2A or No. 36527-3.
 - (15) Pedestal Ceiling Wear Gage No. EC-1200.
 - (16) Tread worn hollow gage.
 - (17) 70, 100, and 125 ton (Grade C) Ride Control, Super Service Ride Control, SK-1546-1, and SK-1546-2 gages.

Rule 1 Gages



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WHAT WE ARE DOING TO HELP

Web Based Information

www.aar.com





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Web Based Information www.aar.com

The screenshot shows a web browser window with the address bar displaying www.aar.com/standards/MID-index.html. The page header features the AAR logo and the text "AAR Technical Services". Below the header is a navigation menu with the following items: About, Committees, Publications, Approvals, Reporting Forms, Mechanical Inspections, IOWC, and Frequency Coordination. The main content area is titled "The Mechanical Inspection Department" and contains the following text:

Welcome

MID Services

Field Manual Rule 1 Publications

Field Manual Gage Use Demonstration Videos

Technical Checklist

MID Contact

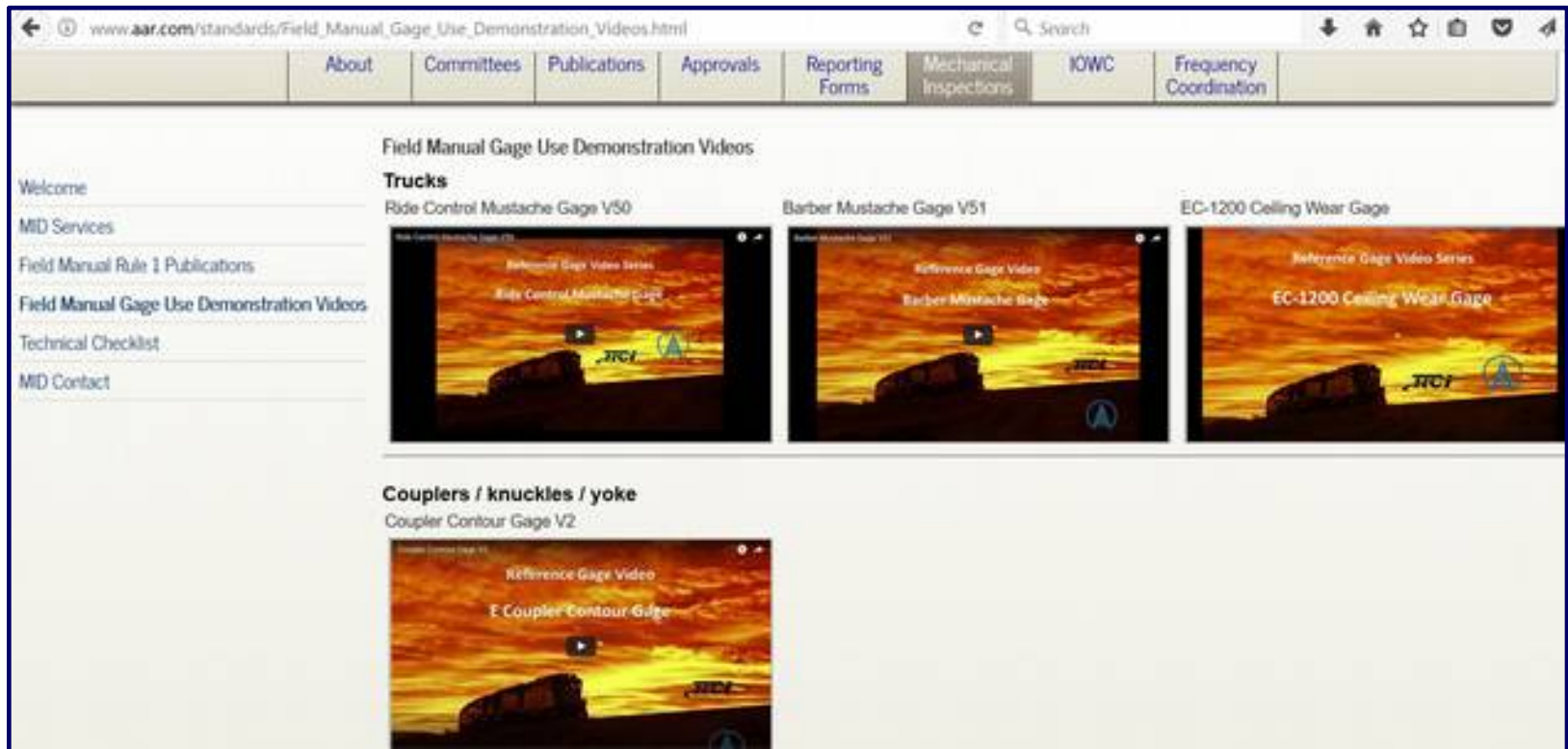
The Mechanical Inspection Department

Our mission is the assurance of the safest railroad transportation possible. As the Association of American Railroads Mechanical Inspection Department (MID) of the Transportation Technology Center Inc. assists in providing safe transportation House Technical Inspections and Training to ensure customers meet industry specifications, Codes of Federal Regulatory Requirements.

The MID is a highly trained group consisting of a Chief Inspector, 3 Senior Inspectors and 12 Field Inspectors. The MID w variety of services to external and internal customers. Direction for services are provided by AAR Safety and Operation effective inspection services for member railroads, private car owners, contract repair facilities, and short line railroads. Our information on inspections, repairs and compliance to rules to follow trend lines in relative performance to the railroad strategically located in the United States, Canada, and Mexico, this group is directed towards a proactive approach in interchange of all freight car rolling stock. The mechanical inspection discipline is a major contributor to the AAR M-1003

Web Based Information

http://www.aar.com/standards/Field_Manual_Gage_Use_Demonstration_Videos.html



The screenshot displays the AAR website's 'Field Manual Gage Use Demonstration Videos' page. The browser address bar shows the URL: www.aar.com/standards/Field_Manual_Gage_Use_Demonstration_Videos.html. The website features a navigation menu with links: About, Committees, Publications, Approvals, Reporting Forms, Mechanical Inspections, IOWC, and Frequency Coordination. A left sidebar contains links: Welcome, MID Services, Field Manual Rule 1 Publications, Field Manual Gage Use Demonstration Videos (highlighted), Technical Checklist, and MID Contact. The main content area is titled 'Field Manual Gage Use Demonstration Videos' and is divided into two sections. The 'Trucks' section includes three video thumbnails: 'Ride Control Mustache Gage V50', 'Barber Mustache Gage V51', and 'EC-1200 Ceiling Wear Gage'. The 'Couplers / knuckles / yoke' section includes one video thumbnail: 'Coupler Contour Gage V2'. Each video thumbnail shows a truck or coupler with a gage, overlaid with the text 'Reference Gage Video Series' and the specific gage name. The TCI logo is visible in the bottom right corner of each video frame.



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Barber Wedge Rise gage

This is a demonstration of use of the Barber Wedge Rise gage. Commonly called the Mustache gage

There are two Barber truck gages for two different types of Barber trucks, SK-1546-1 and SK-1546-2 refer to the AAR Field Manual to determine which gage to use.

The gage is placed on the edge of the Friction wedge as demonstrated, any space between the body of the gage and the top of the bolster indicates excessive wear of the truck body components and repairs must be made.

Determine your work activity

- Refer to interchange Rule 46, Figure B-1 for the proper gage and measurement criteria

- Select the proper gage

- Measure once

- Measure a second time to confirm your first reading

- Proceed with repair, if warranted, or obtain home shop disposition if repairs exceed your shop's capabilities



AAR

Spanish Barber Wedge Rise gage

Escantillón para traveseros Barber

Esta es una demostración del uso del medidor Escantillón para traveseros Barber. Comúnmente llamado el medidor de bigote

Hay dos medidores de traveseros Barber para dos tipos distintos de traveseros Barber, SK-1546-1 y SK-1546-2 consultar el Manual de Campo AAR para determinar qué instrumento usar.

El medidor se coloca en el borde de la cuña de Fricción, como se demostró, cualquier espacio entre el cuerpo del escantillón y la parte superior del travesero indica un desgaste excesivo de los componentes del cuerpo del travesero y se deben realizar reparaciones.

Determina tu actividad laboral

Consulte la regla de intercambio 46, figura B-1 para ver los criterios de medición y adecuados

Seleccione el escantillón adecuado

Mida una vez

Mida una segunda vez para confirmar su primera lectura

Proceda con la reparación, si está calificado, u obtenga la disposición del propietario si las reparaciones exceden la capacidad de su taller



Other Endeavors Railcar Repair Committee

Short Line Association Visits

RSI MARTS - Railcar Repair Committee

***To promote the open exchange of best practices
in the railcar repair industry***



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Web Based Information www.aar.com



The screenshot shows a web browser window with the address bar displaying www.aar.com/standards/index.html. The page features a navigation menu with the following links: About, Committees, Publications, Approvals, Reporting Forms, Mechanical Inspections, IOWC, and Frequency Coordination. The main content area is titled "Welcome" and contains the following text:

Welcome

The AAR's Technical Services group of committees are responsible for the development, maintenance, and enforcement of North American interchange rules, mechanical standards, and component specifications that promote an acceptable level of safety and efficiency. These publications include North American Class I, shortline, and regional railroads, Federal Railroad Administration, Transport Canada, and the Transportation Technology Center, Inc. Directorate, private railcar owners, shippers, and freight car, locomotive, and component suppliers.

Committees members include railroad and non-railroad experts in the areas shown in the accompanying organization chart. These committees provide direction on the development and maintenance of industry standards. Committee Managers are located either at the AAR in Washington, D.C., or at the Transportation Technology Center, Inc., a subsidiary of the AAR located in Pueblo, Colorado, 21 miles northeast of Denver.

On the left side of the page, there is a sidebar with the following links: Welcome, Org Chart, Approval Process, Contact Us, and Contact Us (MID).



AAR

Web Based Information www.aar.com

The screenshot shows a web browser window with the address bar displaying www.aar.com/standards/committees.html. The page title is "AAR Technical Services". The navigation menu includes links for About, Committees (selected), Publications, Approvals, Reporting Forms, Mechanical Inspections, IOWC, and Frequency Coordination. The main content area is titled "Technical Services Working Committee".

Technical Services Working Committee

Technical Services Working

- Arbitration & Rules
- Asset Health Strategy
- Brake Systems
- Car Repair Billing
- Coupling System & Truck Castings
- Damage Prevention & Freight Claim
- Equipment Engineering
- Equipment Health Monitoring
- Intermodal Car Performance
- Intermodal Operations
- Locomotive
- Locomotive Repair Billing & Interchange Rules
- Specialty Equipped Freight Car
- Train Trip Planning Rules

Ron Hynes
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AAR Member Railroads

- BNSF (Chair)
- Amtrak
- BNSF
- CN
- CP
- CSX
- FEC
- KCS
- NS
- UP

Associate Members

- Trinity
- TTX




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	About	Committees	Publications	Approvals	Reporting Forms	Mechanical Inspections	IOWC	Frequency Coordination	
				Welcome	Applying for M-1003 Certification	Chapter 7 Nonconformance Reporting	M-1003 Registry	Frequently Asked Questions (FAQ)	
Technical Services Working									
Arbitration & Rules									
Asset Health Strategy									
Brake Systems									
Car Repair Billing									
Coupling System & Truck Castings									
Damage Prevention & Freight Claim									
Equipment Engineering									
Equipment Health Monitoring									
Intermodal Car Performance									
Intermodal Operations									
Locomotive									
Locomotive Repair Billing & Interchange Rules									
Open Top Loading Rules									
Quality Assurance Committee									

Quality Assurance Committee (QAC)

The QAC's mission is to improve component reliability and durability with the goal of enhancing the safety and operational integrity of interchange freight cars and to reduce the overall cost of equipment maintenance by assuring that both new and reconditioned mechanical components conform to established AAR specifications. The QAC is responsible for developing and maintaining AAR Quality Assurance Specification M-1003 and governing the AAR Quality Assurance Program. The QAC Manager can answer questions concerning AAR's Quality Assurance Program including: auditor accreditation, M-1003 certification, Chapter 7 nonconformance reporting, and M-1003 training seminars.



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Phone 719-584-0715 | Cell 719 251-6625 | don_guillen@aar.com





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 **AAR Technical Services** 

About	Committees	Publications	Approvals	Reporting Forms	Mechanical Inspections	IOWC	Frequency Coordination
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Manual of Standards and Recommended Practices

MSRP	Free	Section AS Administrative Standards
Interchange Rules	Free Index	Section A Part I Table of Contents
OTLR	Free Index	Purchase Section B Couplers and Freight Car Draft Components
AAR Circulars	Free Index	Purchase Section C Car Construction Fundamentals and Details
Scale	Free Index	Purchase Section C Part II Design, Fabrication, and Construction of Freight Cars, M-1001
Intermodal	Free Index	Purchase Section C Part III Specifications for Tank Cars, M-1002
Code of Air Brakes	Free Index	Purchase Section D Trucks and Truck Details
Price List	Free Index	Purchase Section E Brakes and Brake Equipment
Damage Prevention	Purchase	Section E Standard S-486 Code of Air Brakes
AAR Loading Capabilities Guide	Free Index	Purchase Section E Part II Electronically Controlled Brake Systems
Comment Format Spreadsheet	Free Index	Purchase Section F Sensors
	Free Index	Purchase Section G Wheels and Axles
	Free Index	Purchase Section G Part II Wheel and Axle (Shop) Manual



AAR

Web Based Information www.aar.com

← ⓘ www.aar.com/standards/reporting_forms.html 🔍 Search

 AAR Technical Services 

	About	Committees	Publications	Approvals	Reporting Forms	Mechanical Inspections	IOWC	Frequency Coordination	
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Reporting Forms

- MD115 Failed Wheel (Electronic)
- MD115 Failed Wheel (Paper Form)
- AAR MD-11 Roller Bearing Inspection
- AAR Md-12 Failed Axle
- MD500 Truck Side Frame and Bolster Failure Report (Electronic)
- MD500 Truck Side Frame and Bolster Failure Report (Paper Form from S-392 Appendix A)



Thank you for your attention!





Transportation Technology Center, Inc., a subsidiary of the Association of American Railroads

Wheels, Axles, Bearings & Lubrication Committee

TTCI

Subject Matter Expert

Daniel Carter

Daniel_carter@aar.com



WABL Committee

- ◆ **Establish, maintain, and enhance wheel, axle, bearing and lubrication system interchange rules and technical standards, specifications & recommended practices**
- ◆ **Certify manufacturing facilities and components**
- ◆ **Monitor the interchange performance of WABL components and equipment**

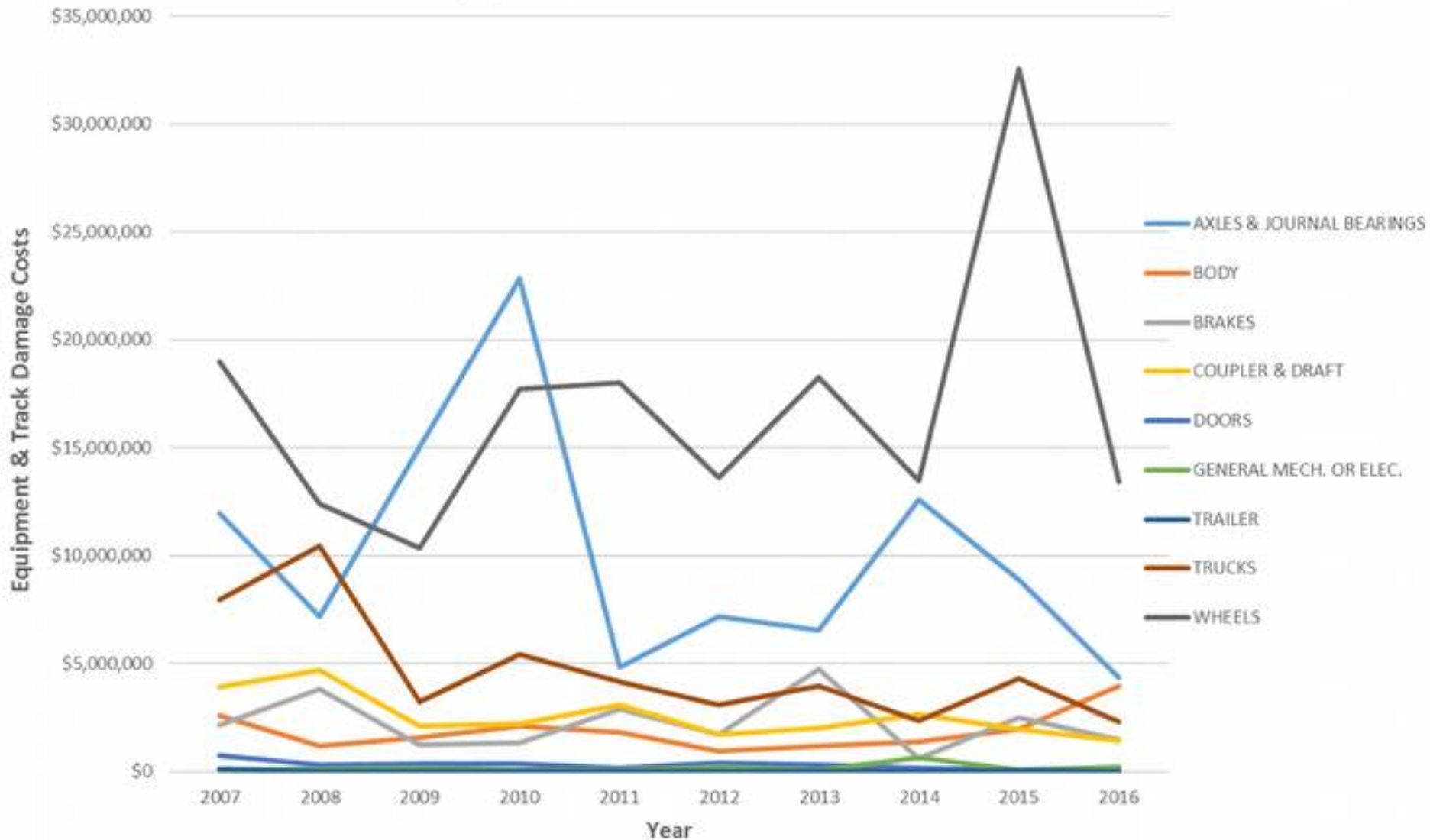
Members

GATX (Chair)	Greenbrier
Progress Rail (Vice Chair)	KCS
Amtrak	NS
BNSF	Standard Steel
CN	TTX
CP	UP
CSX	



FRA Safety Data

Equipment-Caused Derailments: Annual Costs

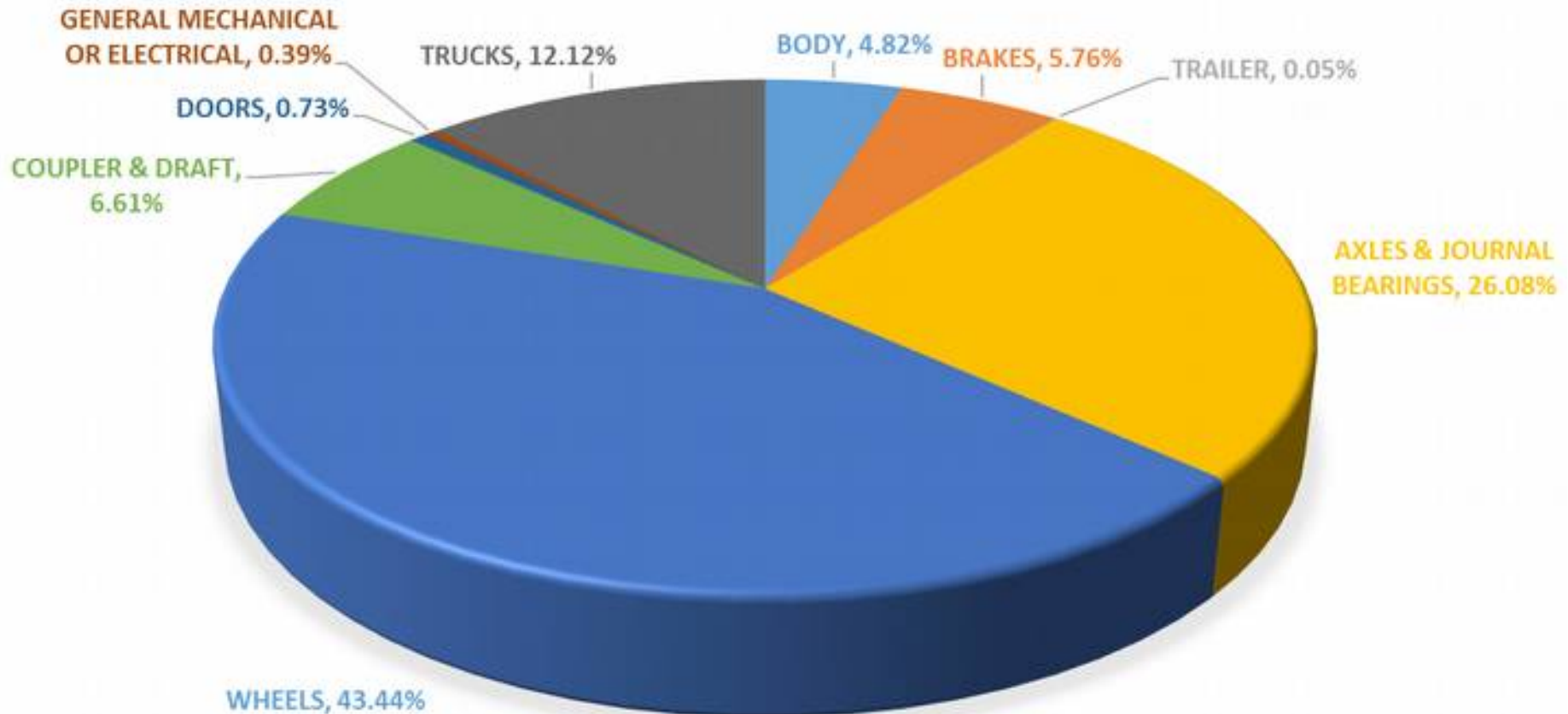


◆ FRA Derailment Database: 2007- 2016. Annual cost estimates include track and equipment damage only.



FRA Safety Data

EQUIPMENT CAUSED DERAILMENT PROPORTIONS:
COSTS BY EQUIPMENT TYPE 2007-2016



◆ FRA Derailment Database: 2007- 2016. Annual cost estimates include track and equipment damage only



Wheel Removals

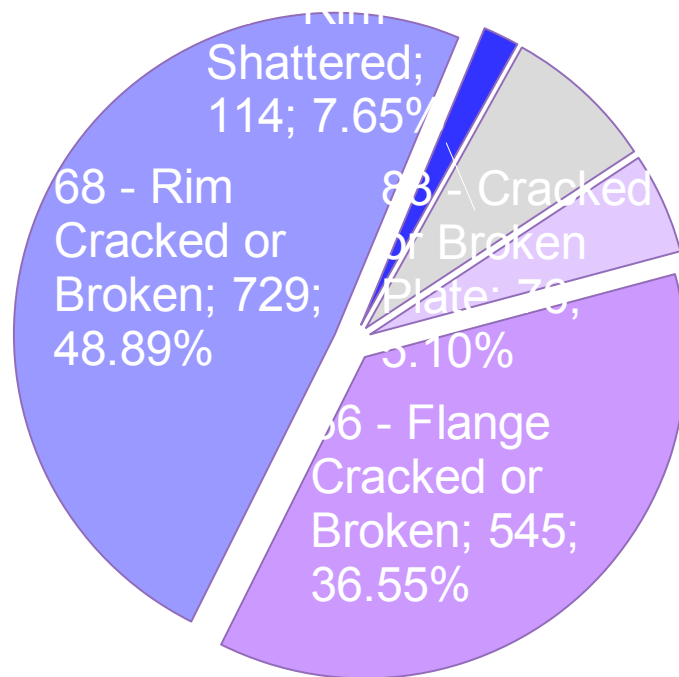
- ◆ MD-115 AAR Failed Wheel Report





Wheel Removals

- ◆ MD-115 and CRB removal data
- ◆ Analysis includes 3 years of data
 - (July 2014 – June 2017)
 - 1,491 records



Wheel – Storage

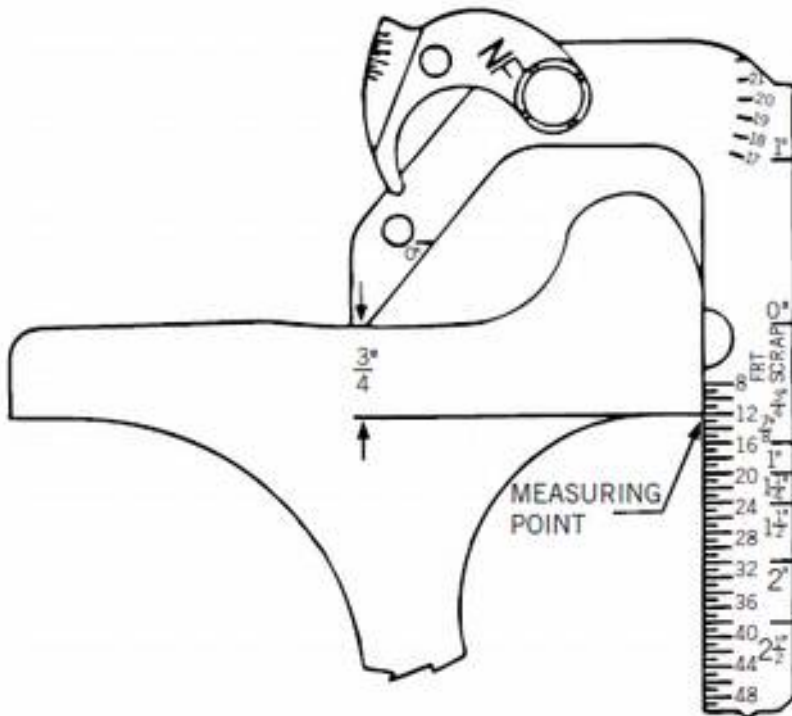
- ◆ Updated the wheel storage requirements
 - Procedure must be in place on how the wheel shop uses wheels – first in, first out
 - Inspect wheels and axles prior to use
 - If there is excessive corrosion on the plate
 - ▲ Contact manufacture for evaluation
 - ▲ Scrap



Wheel – Composite Rule

♦ New Rule:

- Rim thickness of 16/16 inch or less as verified by the standard wheel gauge, with a vertical dynamic (maximum peak impact reading minus the static load) greater than or equal to 50 kips. (MSRP Section F, Standard S-6030) (Why Made Code 48).



♦ Wheel Impact Load Detector output

- Average wheel load
- Dynamic impact
- Peak Impact
 - ▲ Average wheel load + Dynamic impact

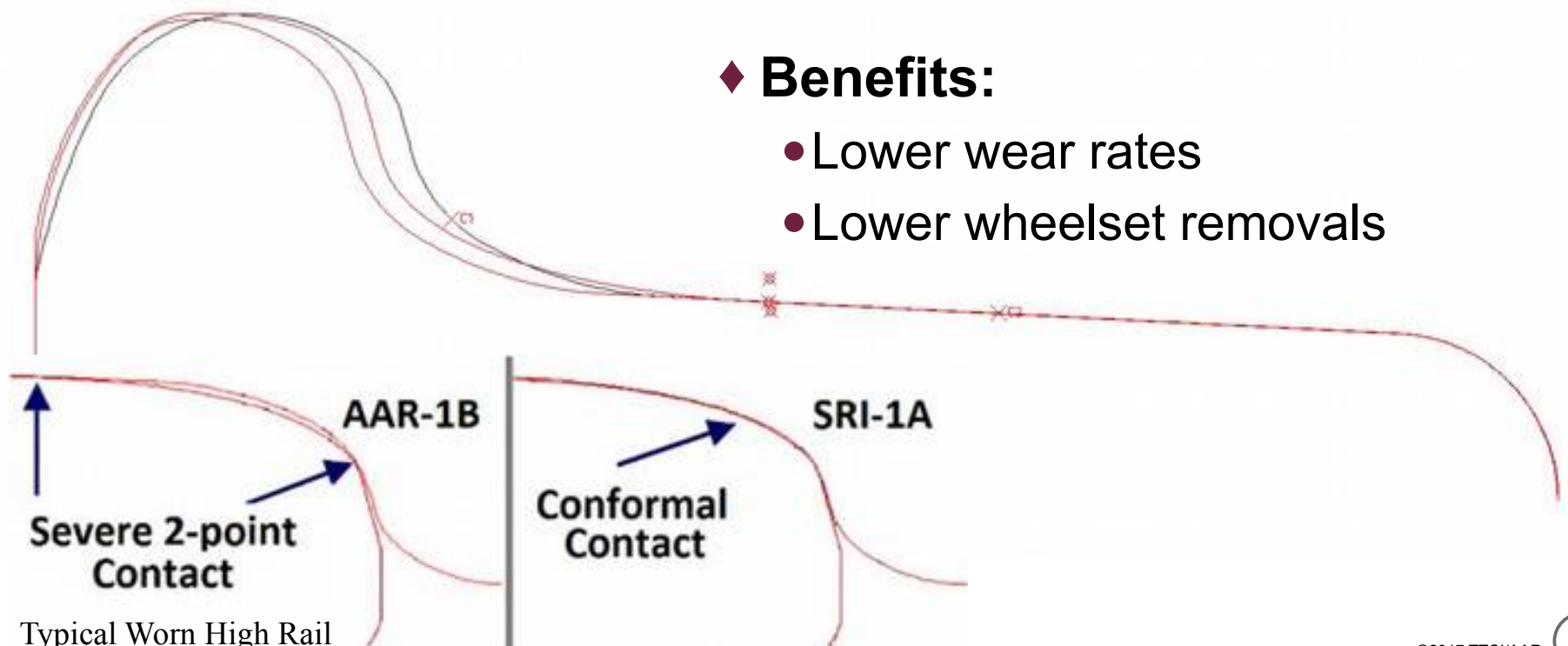
♦ Continue to monitor

Wheel – Profile

- ◆ New wheel profile AAR-2A
- ◆ Currently implemented as an alternate standard for wheel shops
- ◆ Require all manufacturers and wheel shops to use the AAR-2A profile by January 1, 2020

◆ Benefits:

- Lower wear rates
- Lower wheelset removals

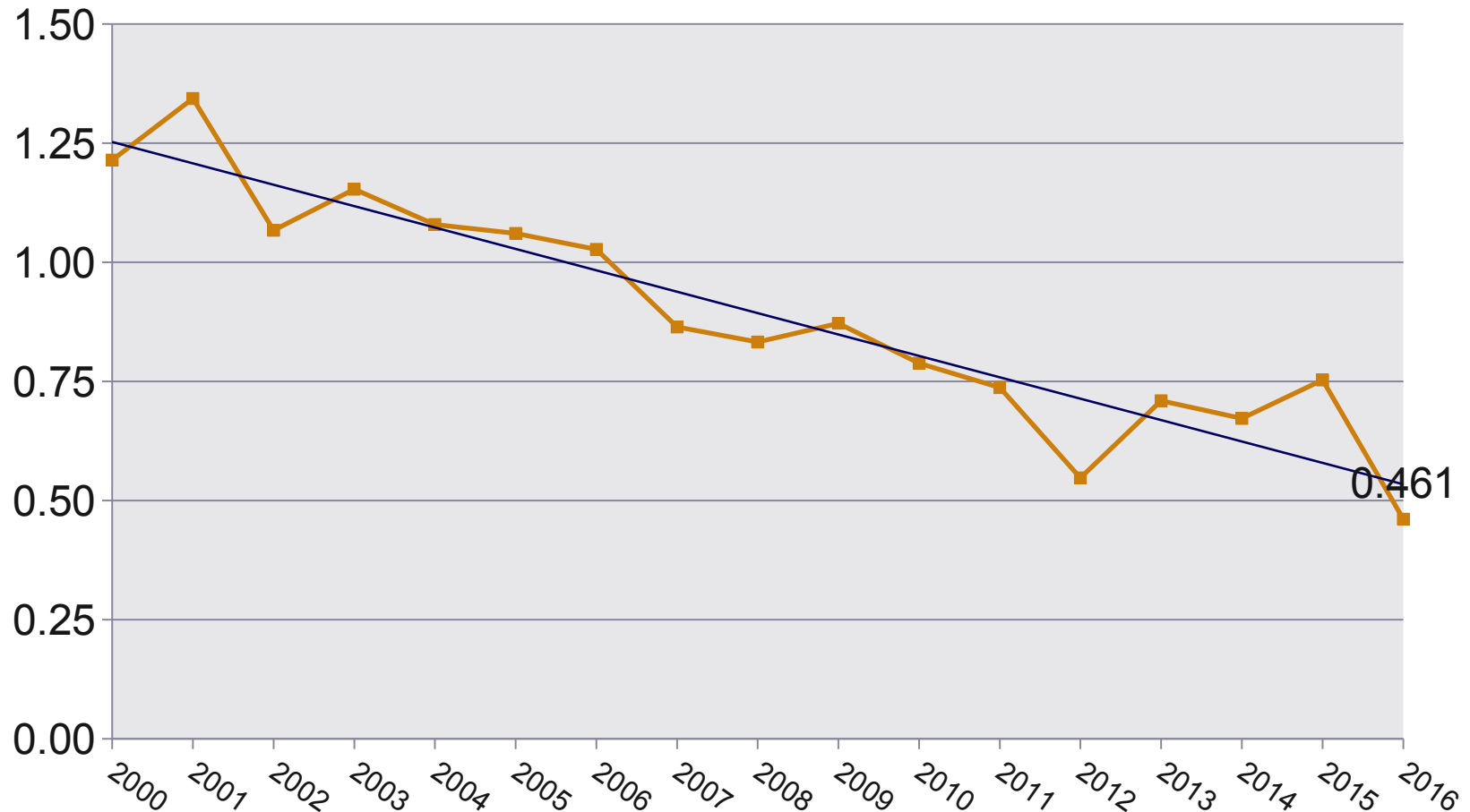




Wheel – FRA Reported Train Derailment Rates

U.S. Class I Railroads on Main Track

Derailments per Billion Car Miles



Source: TTCI Analysis of FRA Train Accident Database, May 2017.

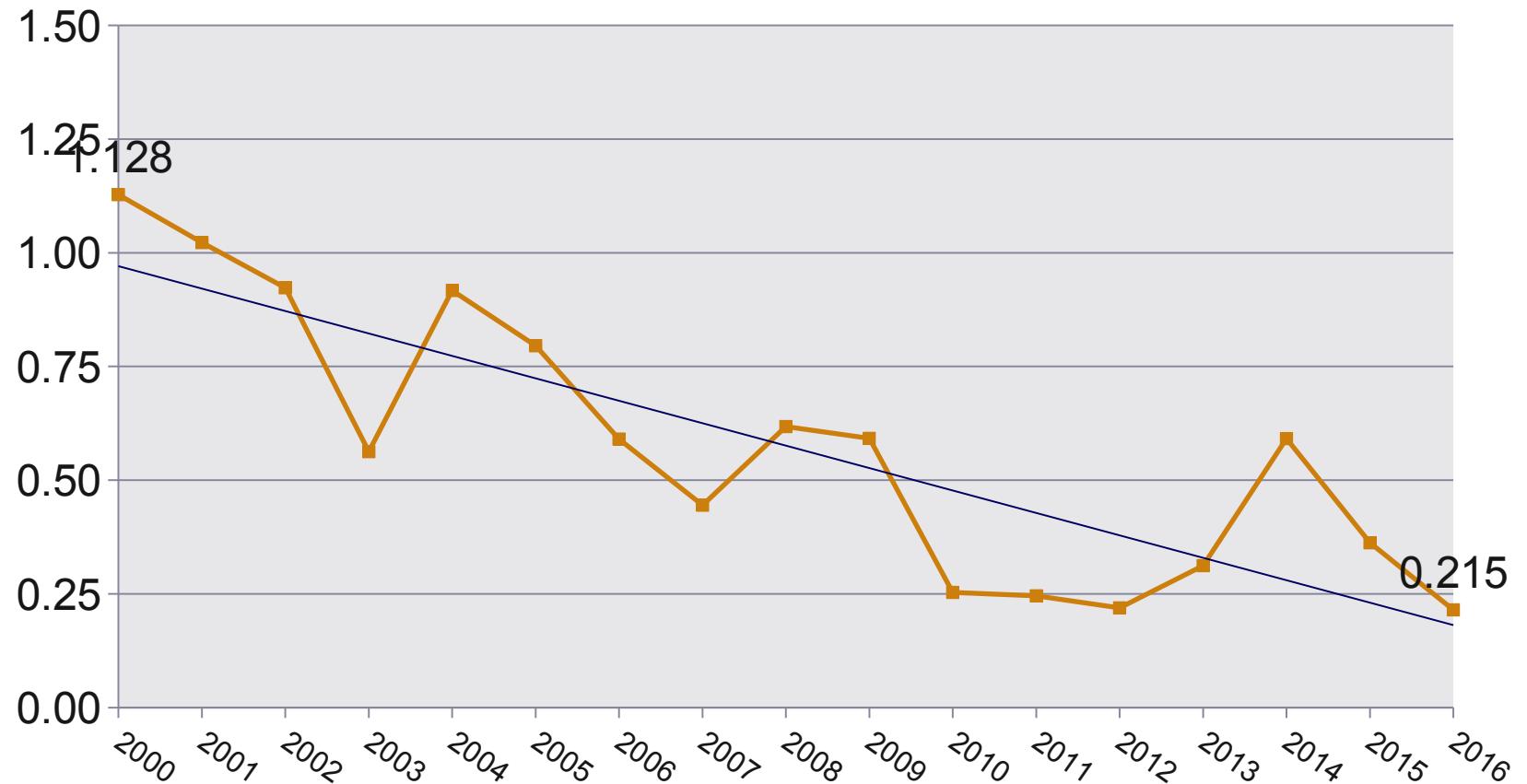
Note: Filtered by JOINTCD=1, ACCTRK=1 (Main Track), TYPE=1 (derailments)

Wheel: E60C-E69C, and E6AC



Bearing – FRA Reported Train Derailment Rates U.S. Class I Railroads on Main Track

Derailments per Billion Car Miles



Source: TTCI Analysis of FRA Train Accident Database May, 2017.

Note: Filtered by JOINTCD=1, ACCTRK=1 (Main Track), and TYPE=1 (derailments)

Bearing: E53C and E55C



Thank you for your attention

