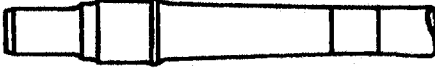

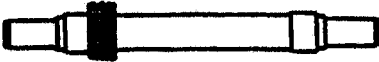


**AAR Manual of Standards and Recommended Practices
Wheels and Axles**

RP-633

MD-12 AAR FAILED AXLE REPORT

FREIGHT CAR, PASSENGER CAR, AND LOCOMOTIVE
(DO NOT REPORT BURNED-OFF JOURNAL CAUSED BY BEARING/LUBRICATION FAILURE)

<p>CAR INITIAL</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div> <p>CAR NUMBER</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div>	<p>KIND OF EQUIPMENT</p> <table style="width:100%; border: none;"> <tr> <td style="width: 50%;">B—Box C—Cab F—Flat G—Gondola H—Hopper L—Cov. Hop. P—Pass. R—Refrig.</td> <td style="width: 50%;">S—Stock T—Tank O—Other 1—Loco. Switch. 2—Loco. Pass. 3—Loco. Road</td> </tr> </table>	B—Box C—Cab F—Flat G—Gondola H—Hopper L—Cov. Hop. P—Pass. R—Refrig.	S—Stock T—Tank O—Other 1—Loco. Switch. 2—Loco. Pass. 3—Loco. Road	<p>DATE OF FAILURE</p> <p align="center">Month Day Year</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div>	<p>TYPE OF AXLE (SEE SKETCH BELOW)</p> <p align="center">2, 4, 5</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div>				
B—Box C—Cab F—Flat G—Gondola H—Hopper L—Cov. Hop. P—Pass. R—Refrig.	S—Stock T—Tank O—Other 1—Loco. Switch. 2—Loco. Pass. 3—Loco. Road								
<p>LOCATION OF FRACTURE</p> <table style="width:100%; border: none;"> <tr> <td style="width: 50%;">JR—Journal BA—Body of Axle</td> <td style="width: 50%;">WS—Wheel Seat SB—Support Bearing</td> </tr> </table> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div>	JR—Journal BA—Body of Axle	WS—Wheel Seat SB—Support Bearing	<p>AXLE DIAMETER (INCH FRACTION)</p> <p align="center">5 1/2 × 10—550 6 × 1—600 6 1/2 × 12—650 7 × 12—700</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div>	<p>WHEEL MOUNTING DATE</p> <p align="center">Month Year</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div>					
JR—Journal BA—Body of Axle	WS—Wheel Seat SB—Support Bearing								
<p align="center">MANUFACTURING INFORMATION (see reverse side)</p> <p>Manufacturer</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div> <p>Serial Number</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div>			<p align="center">FAILURE ORIGIN</p> <table style="width:100%; border: none;"> <tr> <td style="width: 50%; text-align: center;"> <p>Date of Manufacture</p> <p align="center">Month Year</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div> </td> <td style="width: 50%; text-align: center;"> <p>Axle Grade</p> <p align="center">U/G/F/H</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div> </td> </tr> <tr> <td style="text-align: center;"> <p>Surface Damage</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div> </td> <td style="text-align: center;"> <p>Internal Damage</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div> </td> </tr> </table>			<p>Date of Manufacture</p> <p align="center">Month Year</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div>	<p>Axle Grade</p> <p align="center">U/G/F/H</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div>	<p>Surface Damage</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div>	<p>Internal Damage</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div>
<p>Date of Manufacture</p> <p align="center">Month Year</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div>	<p>Axle Grade</p> <p align="center">U/G/F/H</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div>								
<p>Surface Damage</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div>	<p>Internal Damage</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div>								
<p>DID FAILURE CAUSE DERAILMENT</p> <p>Y—Yes <input type="checkbox"/></p> <p>N—No <input type="checkbox"/></p>	<p>RAILROAD REPORTING MARKS</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div>	<p align="center">JOURNAL REPAIR (V) INFORMATION (if present)</p> <p>V <input type="checkbox"/></p> <p>V <input type="checkbox"/></p>		<p>FOR JOURNAL FRACTURE: Was V Information On?</p> <p>Failed End <input type="checkbox"/></p> <p>Opposite End <input type="checkbox"/></p>					
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>No. 2—Black Collar—Roller Bearing</p> </div> <div style="text-align: center;">  <p>No. 4—Roller Bearing—Raised Wheel Seat</p> </div> </div> <div style="text-align: center; margin-top: 20px;">  <p>No. 5—Locomotive Axle with Axle Gear</p> </div>									
<p>Nearest City of Failure: _____</p>			<p>Date: _____</p>						
<p>Name of Person Completing Report: _____</p> <p>Title: _____</p> <p>Address: _____</p>			<p>Mail to: WABL Committee Manager Association of American Railroads 55000 DOT Road Pueblo CO 81001 Phone: 719-584-0670 Fax: 719-585-1895</p>						

IMPLEMENTED 10/2013

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Paragraph 3.1.1

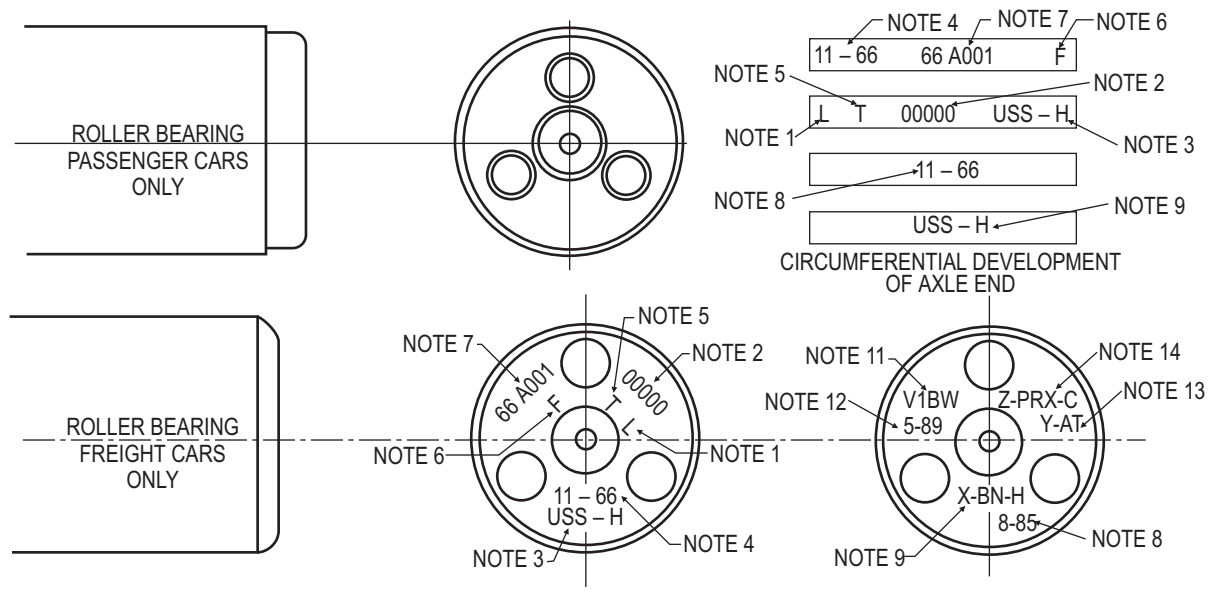
Fig. 4.72

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AAR standard axle marking

- Note 1.** Laboratory acceptance stamp—for use by purchaser to marked prior to shipment by producer
- Note 2.** Serial number when specified (required after 1980)
- Note 3.** Mfg. Name or Brand:

AXIS	Axis LLC (Paragould AR)
BF	Bumar-Fablock S.A. (Poland)
BS ^{a/}	Bethlehem Steel Corporation
CAF	Construcciones y Auxiliar de Ferrocarriles (CAF) (Spain)
CB ^{a/}	Cobrasma (Brazil)
CCC	CCC CNR Changchun Railway Vehicle Facilities Co.,Ltd. (China)
CF	Valdunes (formerly Creusot-Loire) (France)
CSGR	Shanxi Guorui Rail Vehicle Equipment Company Limited
CHB	Baotou (Mongolia, PRC)
CHT	Jinxi Axle Company LTD. (Formerly Norinco Jinxi) (PRC)
DDAP	DDAP/RAX (Ukraine)
DEL	CNR Datong Electric Locomotive CO., LTD (PRC)
DSS	JSC Dneprospetsstal, Zaporozhye (DSS) (Ukraine)
HM	Huta Gliwice-Osie Sp. zo.o (Poland)
JAW	Standard Forged Products
KW ^{a/}	Klockner (West Germany)
L	Lucchini Sidermeccanica SpA (Formerly Temi) (Italy)
LCKZ	LugCentroKuZ (Ukraine)
LP	Huta L. W. (Formerly Lucchini Poland) (Poland)
MK ^{a/}	Makrotek (Mexico)
MRF	Standard Forged Products (McKees Rocks, PA)
MW	MWL Rodas & Eixos LTDA (Formerly Mafersa) (Brazil)

OSW	Nippon Steel & Sumitomo Metal Corporation (Japan)
QRRS	Qiqihar Railway Rolling Stock Ltd (Qiqihar, PRC)
RW	S. C. SMR S.A. (Bals, Romania)
SCOT ^{a/}	Scot Forge
SFC or SF ^{a/}	Standard Forgings
SMI	Sumitomo Metal Industries LTD. (Japan)
SPT ^{a/}	British Steel (England)
SSD	Standard Steel LLC.
SW	SWASAP Works (South Africa)
T ^{a/}	British Steel (England)
THM or TZ	Taiyuan Heavy Industry Railway Transit Equipment Co., Ltd.
TW plus ^{a/}	Hawker Siddeley (Canada)
UF	Ural Forge (Russia)
USS-F ^{a/}	United States Steel Corp.
USS-G ^{a/}	United States Steel Corp.
USS-H ^{a/}	United States Steel Corp.
V	Valdunes (formerly Creusot-Loire) (France)
WAP	Rail Wheel Factory Indian Railways (Formerly Wheel and Axle Plant) (India)
ZB	Bonatrans a.s. (Formerly ZAD) (Czech Republic)

^{a/} No longer in production

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Fig. 4.72 (Continued)

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-
- Note 4.** Month and year made
- Note 5.** Letter “T” stamped adjacent to the heat number or the serial number. Axle has been ultrasonically inspected by the manufacturer (stamping not required after 1980).
- Note 6.** Grade of axle:
- | | |
|---|------------------------------------|
| U | Untreated |
| G | Quenched and tempered |
| F | Double normalized and tempered |
| H | Normalized, quenched, and tempered |
- Note 7.** Heat number
- Note 8.** Conversion date
- Note 9.** X (wheel shop symbol)
- Note 10.** Converted axles *must be* stamped with the conversion date (Note 8. location) and the letter “X” followed by the wheel shop symbol (Note 9. location). Manufacturer’s pertinent information must be reapplied to the end of axle, if available (Note 1 through Note 7).
- Note 11.** Axles repaired by Specification M-967 processes must be stamped with the letter “V” followed by one or two sequential numbers identifying the journals repaired and by the AAR-assigned identifying marks (Note 11. location). Sequential odd numbers will be used to identify journal repairs and the end of axle on which markings are applied; sequential even numbers will be used for the other end. For example, “V1BW, V23BRX” means journal at marking end of axle repaired and followed later by both journals being repaired with journal at marking end being repaired a second time.
- Note 12.** Month and year repaired
- Note 13.** Shops that finish-machine new axles, excluding wheel seats, will show the letter “Y” followed by wheel shop symbol (Note 13. location). Axle manufacturers that finish-machine axles will use brand shown in Note 3 above.
- Note 14.** Shops that end face axles per Rule 1.2.7 will show the letter Z followed by the shop symbol (Note 14 location).

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Fig. 4.72 (Concluded)