PROPERTY DAMAGE, SEVERE INJURY AND/OR DEATH COULD RESULT FROM:

(1) FAILING TO FOLLOW THE INSTRUCTIONS CONTAINED IN THIS MAINTENANCE MANUAL;
OR
(2) REPAIRING, MODIFYING OR ALTERING ANY BARBER/SCT PRODUCT IN A MANNER THAT IS NOT INCLUDED IN THIS MAINTENANCE MANUAL.

IF YOUR SPECIFIC APPLICATION:

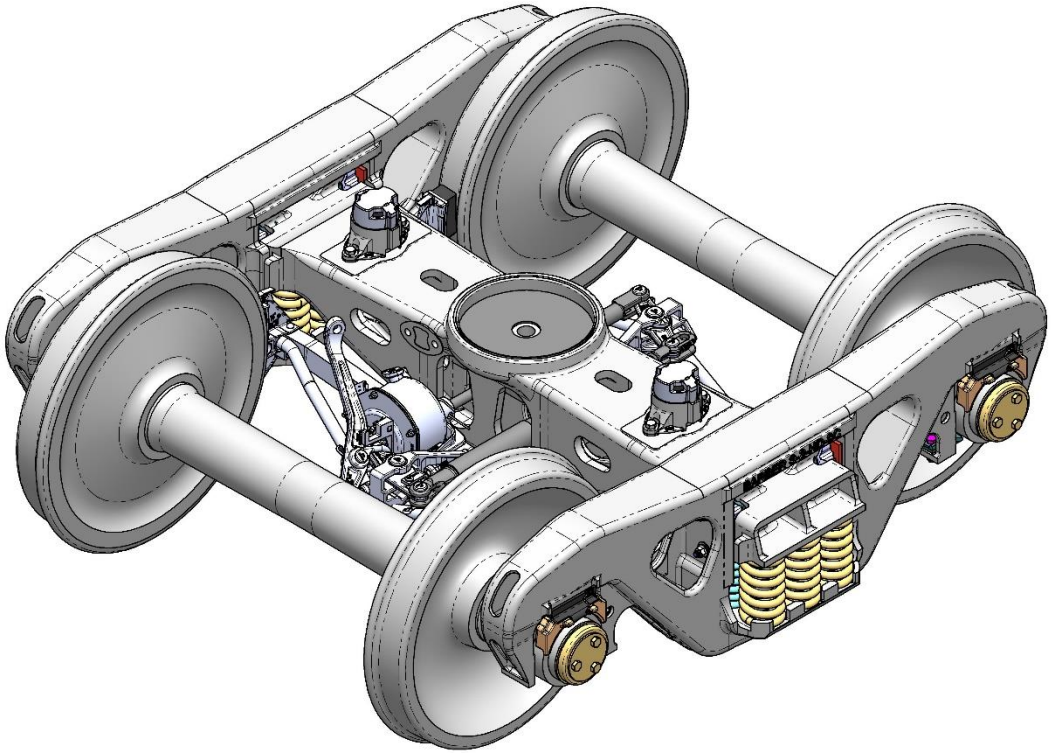
(1) REQUIRES A DEVIATION FROM THE INSTRUCTIONS CONTAINED IN THIS MAINTENANCE MANUAL;
(2) REQUIRES A REPAIR, MODIFICATION OR ALTERATION OF A BARBER/SCT PRODUCT THAT IS NOT INCLUDED IN THIS MAINTENANCE MANUAL;
OR
(3) RAISES ANY QUESTION ABOUT THE INSTRUCTIONS SPECIFIED IN THIS MAINTENANCE MANUAL,
PLEASE CONTACT YOUR BARBER/SCT REPRESENTATIVE FOR SPECIFIC INSTRUCTIONS REGARDING YOUR APPLICATION.

TO CONTACT YOUR BARBER/SCT REPRESENTATIVE:

PLEASE SEE THE “STANDARD CAR TRUCK COMPANY CONTACT INFORMATION” PAGE AT THE START OF THE FULL MANUAL.

Maintenance Manual

September 2023 Revision



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Standard Car Truck

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Wabtec Standard Car Truck Company Contact Information

TechCare Engineering Support

Phone (847) 692-6050

For engineering questions, part numbers, cross references,
AAR code numbers, and foundry pattern numbers, please contact:
Wabtec SCT Engineering
Email: SCTTechCustomerService@Wabtec.com

TechCare Sales and Support

For placing orders and pricing, please contact:

Wabtec SCT Customer Service

SCTFCGCustomerService@wabtec.com

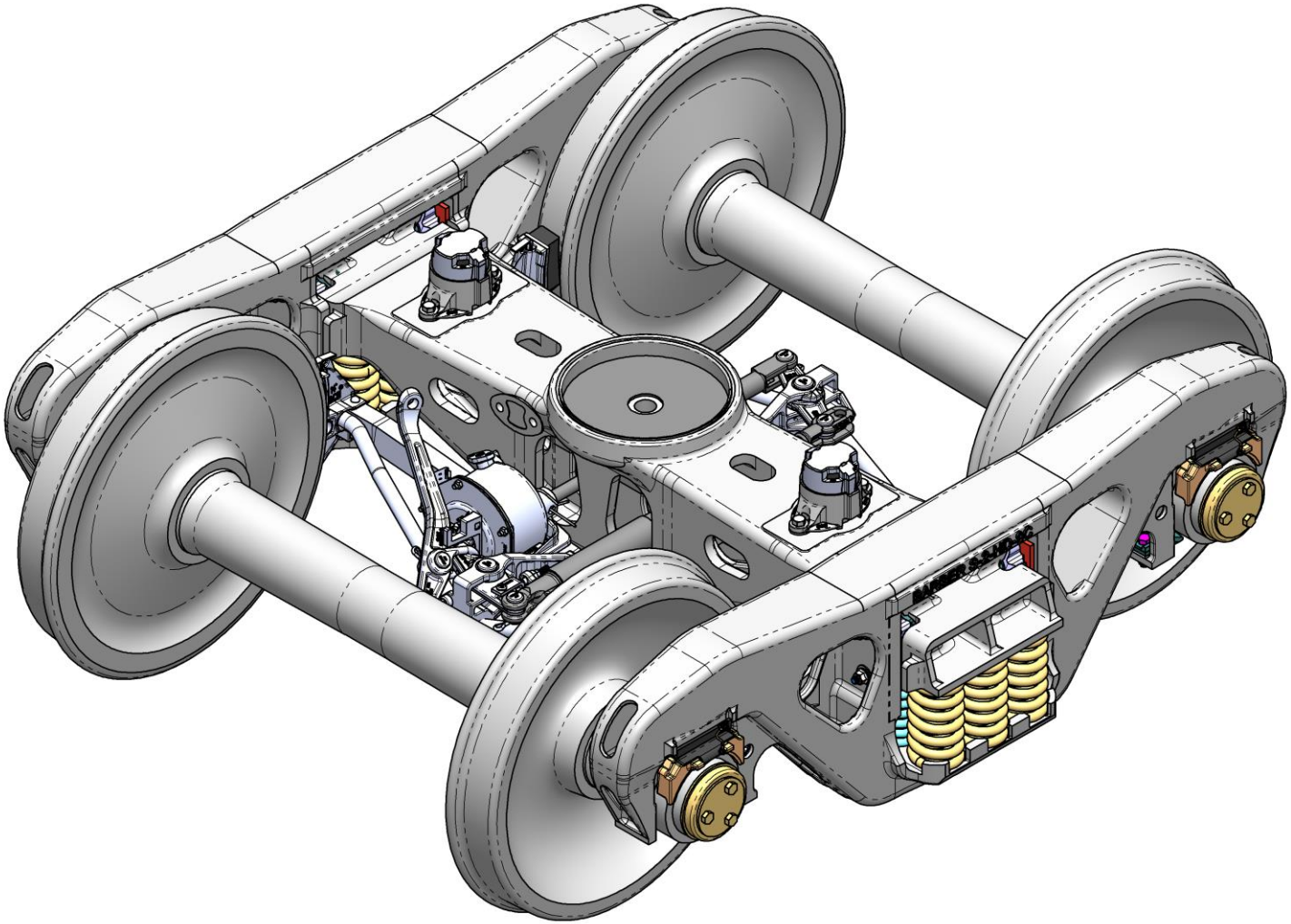
We can also be contacted at our website: www.wabteccorp.com

Section 1

General Information

- Truck Component Diagrams
- AAR Code Numbers
- Bolster and Side Frame Marking Diagrams
- Bolster and Side Frame Nomenclature
- Standard Car Truck Company Trademarks
- Foundry Identification Marks
- AAR Interchange Rules
- Reference Publications for Trucks

Barber Stabilized Truck



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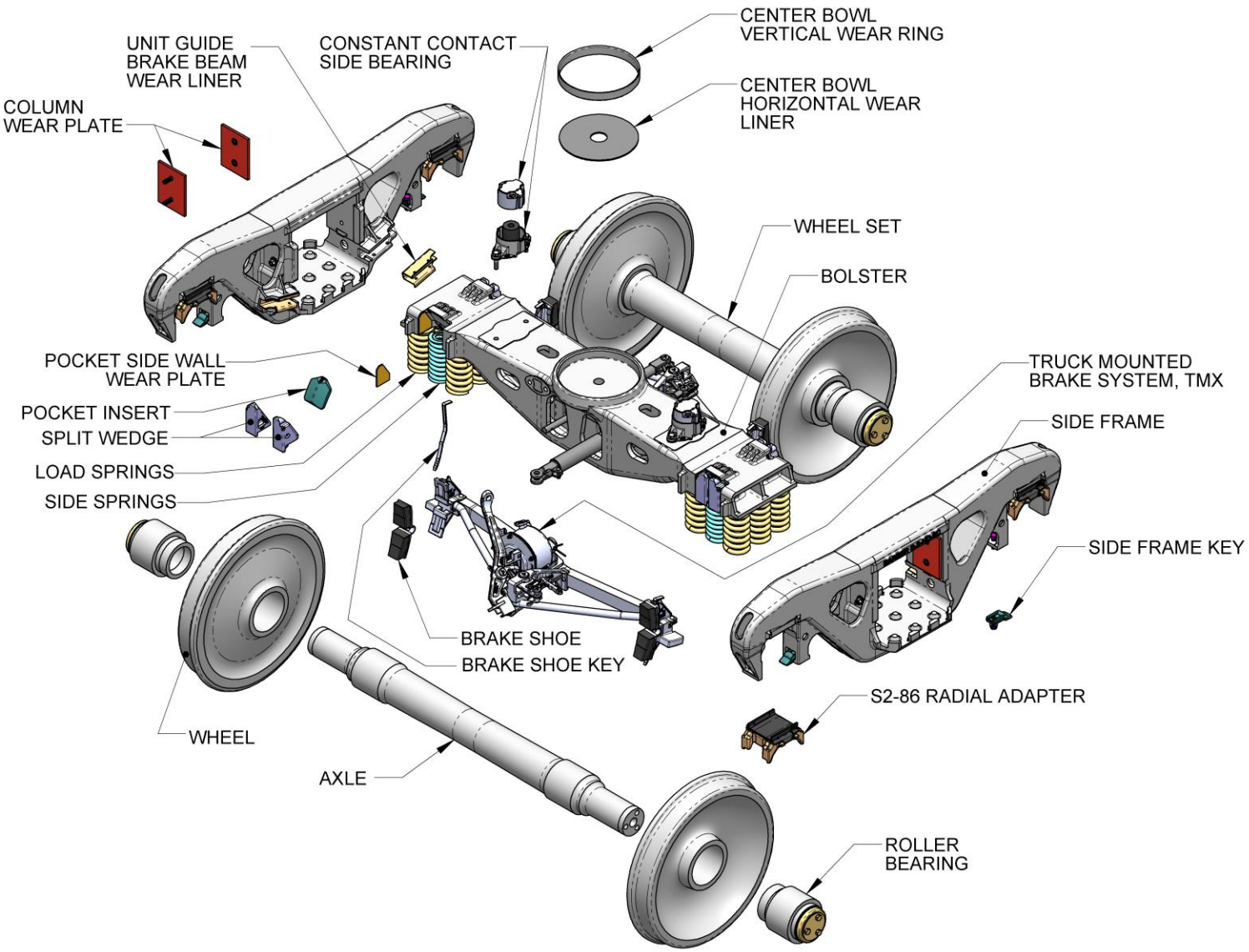
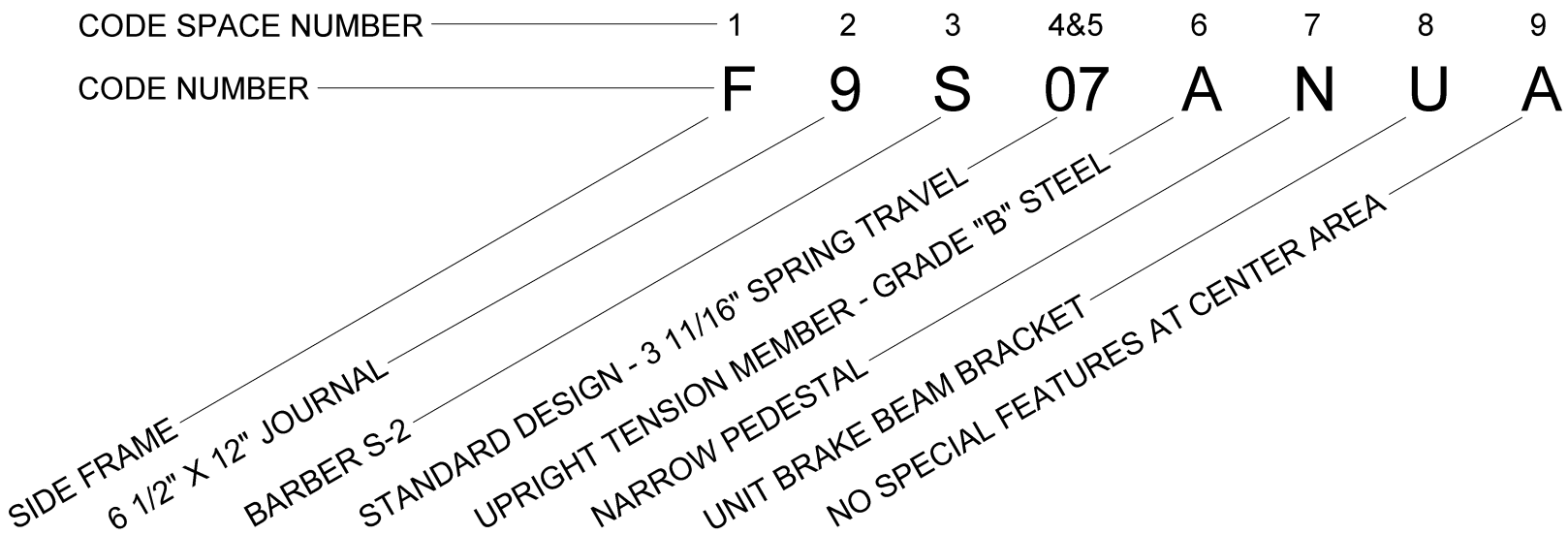
Barber Stabilized Truck Component Diagram



AAR Code Numbers – Side Frames

CODE NUMBER EXAMPLE

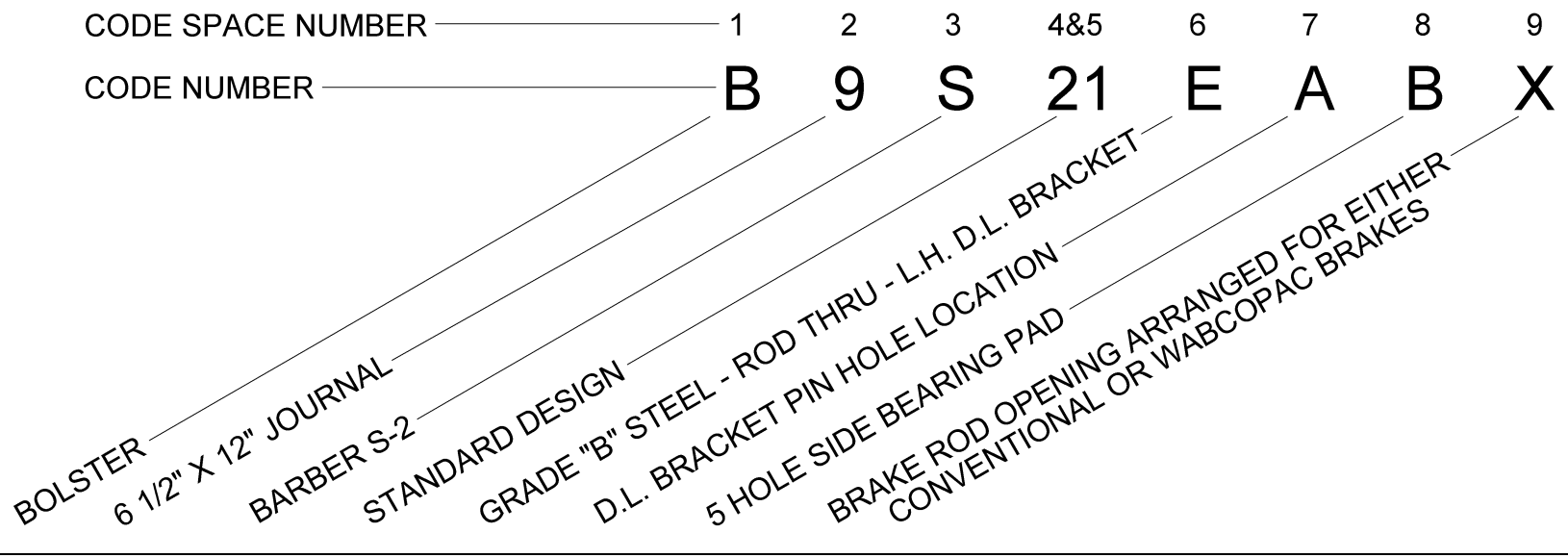


- ALL CODE NUMBERS MUST CONTAIN NINE SYMBOLS
- THE CODE NUMBER WILL BE HYPHENATED AS FOLLOWS: F9S-07AN-UA
- A SPACE MY BE USED IN PLACE OF A HYPHEN WHEN MARKING A CASTING

SEE DRAWINGS EC-3034 AND EC-3038 FOR AAR CODE DESIGNATING SIDE FRAME AND BOLSTER DESIGN FEATURES. (AAR MANUAL OF STANDARDS AND RECOMMENDED PRACTICES, SECTION D-PART II).

AAR Code Numbers – Bolsters

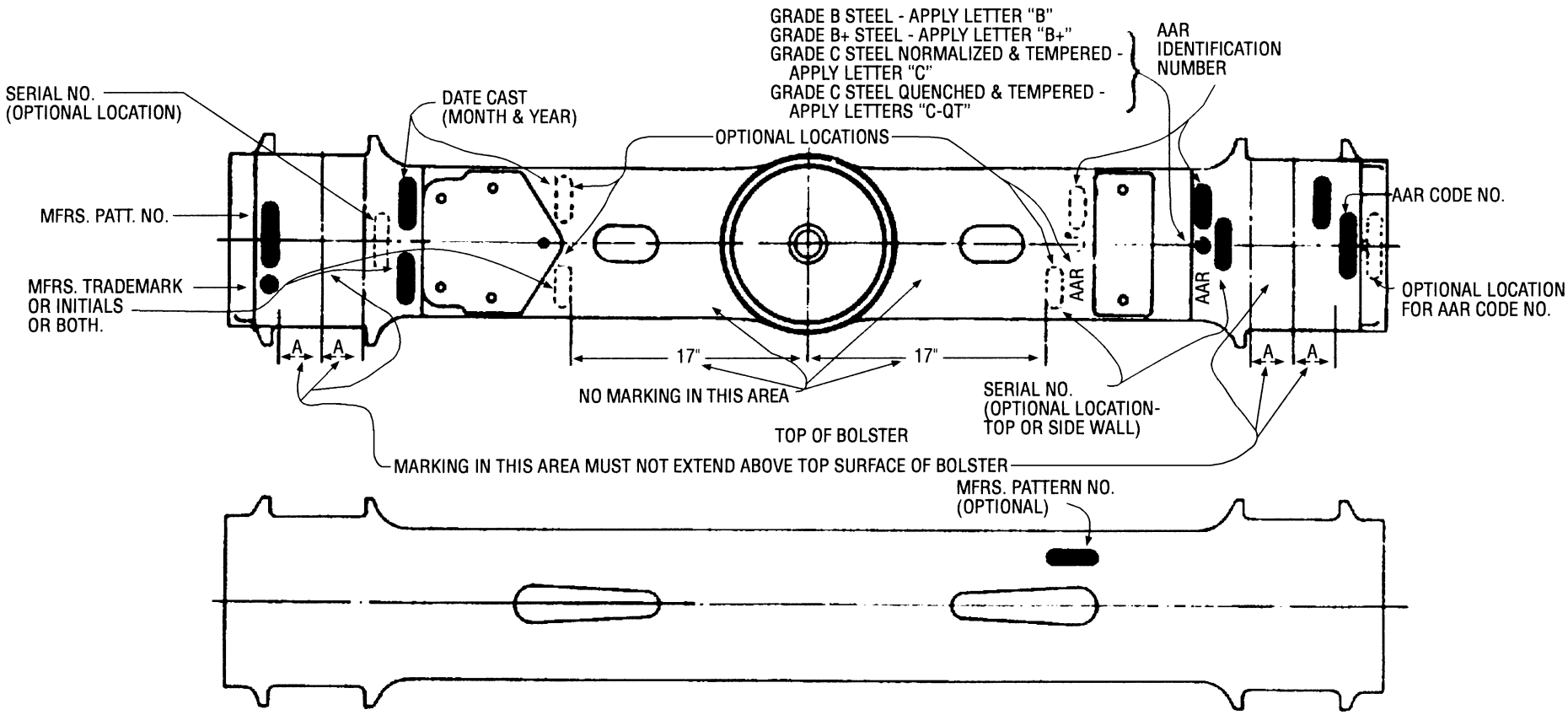
CODE NUMBER EXAMPLE



- ALL CODE NUMBERS MUST CONTAIN NINE SYMBOLS
- THE CODE NUMBER WILL BE HYPHENATED AS FOLLOWS: B9S-21EA-BX
- A SPACE MY BE USED IN PLACE OF A HYPHEN WHEN MARKING A CASTING

SEE DRAWINGS EC-3034 AND EC-3038 FOR AAR CODE DESIGNATING SIDE FRAME AND BOLSTER DESIGN FEATURES. (AAR MANUAL OF STANDARDS AND RECOMMENDED PRACTICES, SECTION D-PART II).

Bolster Marking Diagram

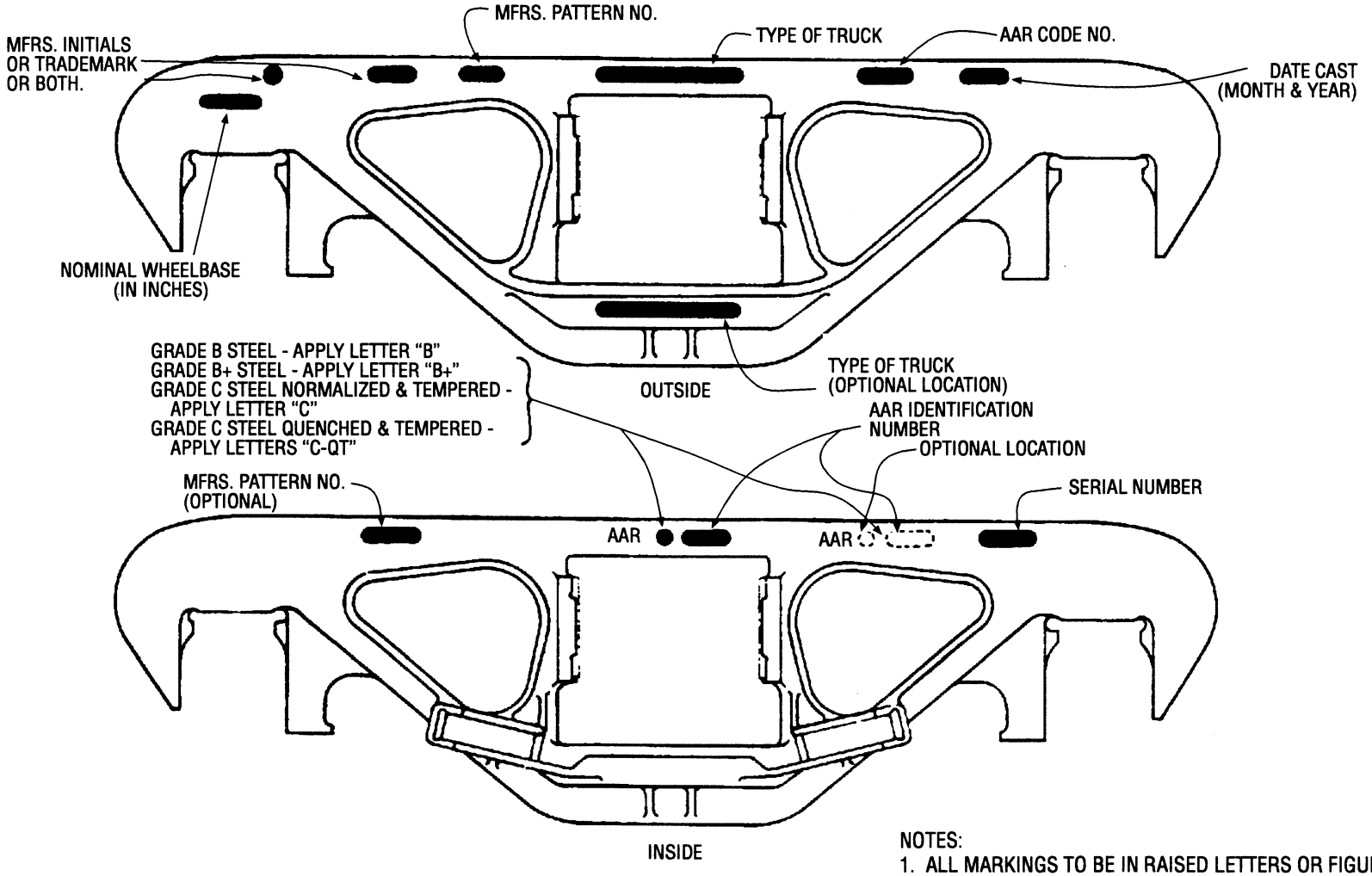


Journal Size	Dim. "A"
5 x 9	3 1/2
5 1/2 x 10	3 3/4
6 x 11	4 1/4
6 1/2 x 12 6 1/2 x 9	4 1/2
7 x 12	5

NOTES:
1. MARKING LOCATION SHOULD CONFORM GENERALLY TO THE AREAS INDICATED.
2. AAR IDENTIFICATION NUMBER MUST BE CAST INTEGRAL TO THE CASTING.

NOTE:
ALL MARKINGS TO BE IN RAISED LETTERS OR FIGURES NOT LESS THAN 3/4" HIGH, PREFERABLY 1" HIGH, UNLESS OTHERWISE SPECIFIED.

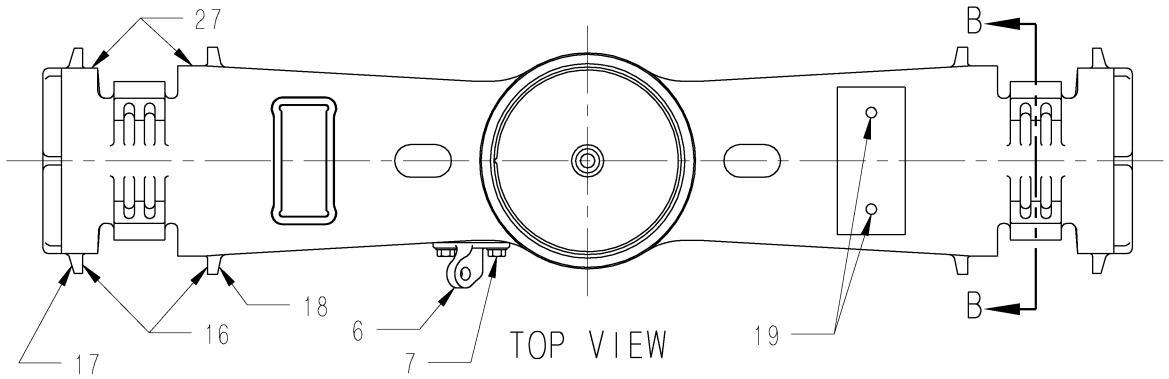
Side Frame Marking Diagram

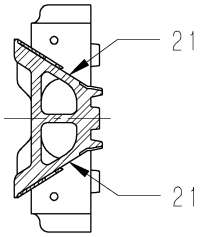


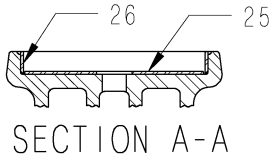
NOTES:

1. ALL MARKINGS TO BE IN RAISED LETTERS OR FIGURES NOT LESS THAN 3/4" HIGH, PREFERABLY 1" HIGH.
2. MARKING LOCATION SHOULD CONFORM GENERALLY TO THE AREAS INDICATED.
3. AAR IDENTIFICATION NUMBER MUST BE CAST INTEGRAL TO THE CASTING.
4. IF SIDE FRAME IS A COMBINATION, TYPE OF TRUCK MAY BE OMITTED IF PROPERLY CODED.

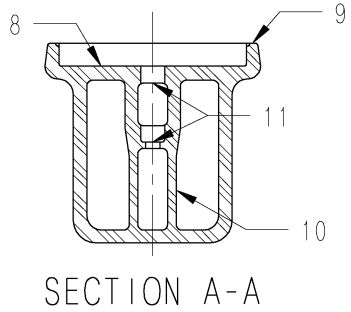
Bolster Nomenclature

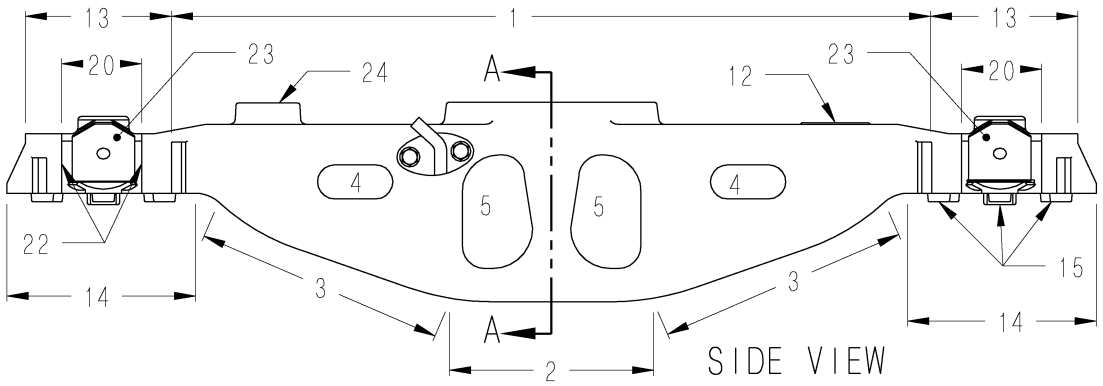






SHOWN WITH WEAR LINERS

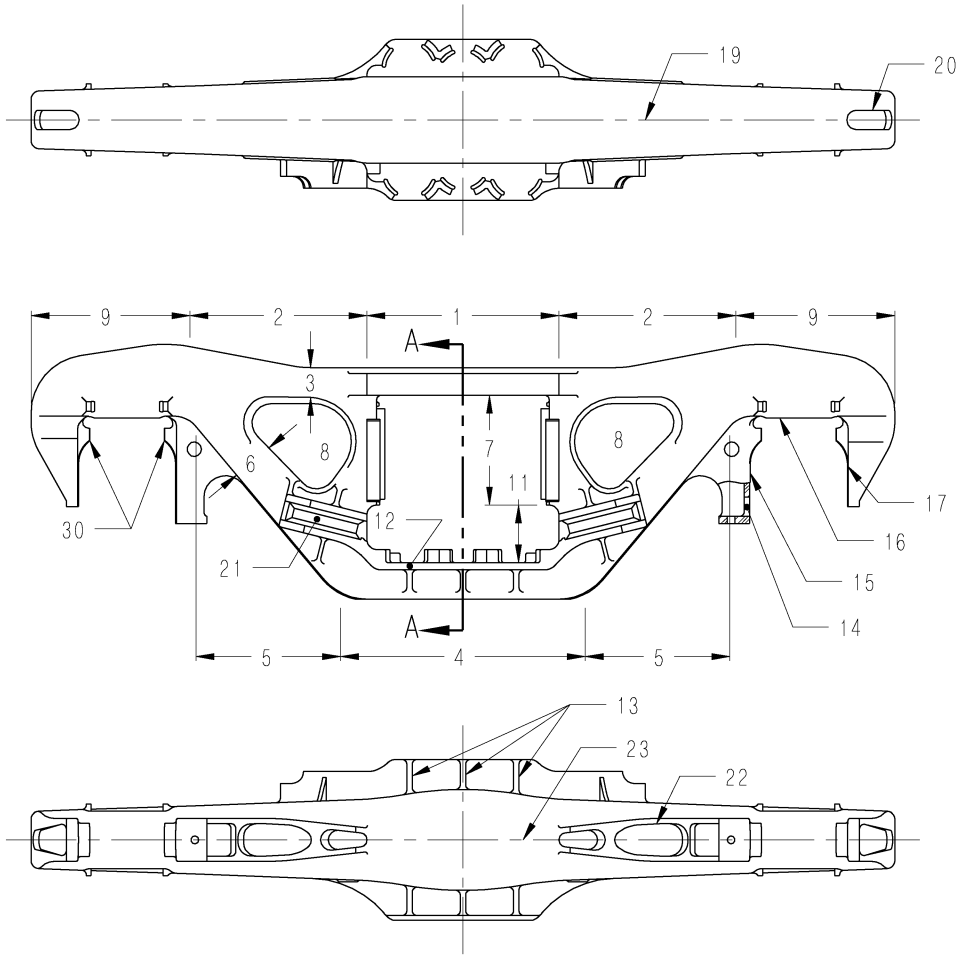


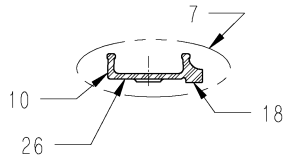


1. Top or Compression Member
2. Bottom Center Member
3. Diagonal Tension Member
4. Side Wall Lightner Holes
5. Brake Rod Holes
6. Dead Lever Lug (Left Hand Shown)
7. Dead Lever Lug Mounting Hardware
8. Center Plate Bearing Surface
9. Center Plate Rim
10. Center Post
11. King Pin Well
12. Side Bearing Pads
13. Ends
14. Spring Seats
15. Spring Seat Lugs
16. Columns
17. Outer Column Guides – Gibs
18. Inner Column Guides – Gibs
19. Side Bearing Retainer Holes
20. Bolster Pocket
21. Bolster Pocket Slope Surfaces
22. Bolster Pocket Side Walls
23. Bolster Pocket Wear Plate
24. Side Bearing Pocket
25. Center Plate Horizontal Wear Liner
26. Center Plate Vertical Ring Wear Liner
27. Lands

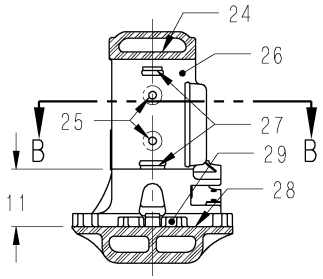
Side Frame Nomenclature

1. Top Member Center
2. Compression Members
3. Compression Member Flanges
4. Bottom Center
5. Diagonal Tension
6. Tension Member Flanges
7. Columns
8. Windows
9. Top Ends
10. Sides of Column
11. Lower Bolster Opening
12. Spring Seat Flanges
13. Spring Seat Ribs
14. Retainer Key Slot
15. Inner Pedestal Legs
16. Pedestal Roof
17. Outer Pedestal Legs
18. Bolster Anti-Rotation Lugs
19. Parting Line – Top Member
20. Top End Openings
21. Unit Guide (Brake Beam) Brackets
22. Bottom Center Drain Holes
23. Parting Line – Bottom Member
24. Top Member Bridge
25. Wear Plate Retainer Holes
26. Column Face
27. Column Wear Plate Retainer Beads
28. Spring Seat
29. Spring Seat Bosses or Lugs
30. Pedestal Thrust Lugs
31. Column Wear Plate

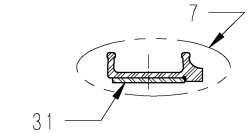




SECTION B-B
COLUMN WEAR PLATES
NOT SHOWN



SECTION A-A
COLUMN WEAR PLATES
NOT SHOWN



SECTION B-B

Standard Car Truck Company Trademarks

BARBER®

BARBER S-2®

C-PEP®

SCT CO®

S-2-HD®

BARBER®

S-2-D®

Barber Spring™

S-2-E®

FRAME BRACE®

TECHCARE®

TwinGuard®

BARBER-BETTENDORF®

Look for these symbols to know it is a quality **BARBER** component from Standard Car Truck Company.

® Registered Trademark in United States, Canada, and Mexico to Standard Car Truck Company.

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Foundry Identification Markings

Manufacturer	Initials	Monogram
ABC-NACO Technologies	NM&SC CO	NONE
Cicero		
Melrose Park		
Sharon		
Mexico		
ASF-Keystone		
Alliance	ASF	
Granite City	ASF	
East St. Louis	ASF	
Mexico	ASF	
Bradford Kendall		
Kilburn	NONE	
Runcorn (Bradken)	NONE	
British Steel Corp.	NONE	
Birdsboro Corp.	BIRDSBORO	
Buckeye Steel Castings	NONE	

Manufacturer	Initials	Monogram
Bucyrus Erie	BE	
Canadian Steel Foundries	ASF or ASF & CANCAR or CSF	NONE
CKD Kutna Hora, A.S.	CKD	
Cobrasma	NONE	
Columbus Steel Castings	CSC	
Cometna	NONE	COMETNA
Comsteel	NONE	
Construcciones y Auxiliar	CAF-SPAIN	NONE
Dofasco (Dominion)	DOFASCO	
Dresser Transportation (Symington Wayne/Gould)	GOULD	
Fabrica Nacional de Vagoes	FNV	NONE
Henricot	HENRICOTT	NONE
Hindusthan Engineering & Industries LTD. (Hindusthan Development Corporation LTD.)	HDC	

Manufacturer	Initials	Monogram
Nippon Sharyo	NISSHA	
Ohio Castings Co. Alliance	ACC	
Chicago Casting Co. Cicero	CCC	
Ohio Steel Foundry Co.	OSF	
Pittron (Pittsburg Steel)	PSF	NONE
Qiqihar	QC	NONE
Qishuyan	QS	NONE
SCAW	NONE	
Scullin	NONE	
Sidena	NONE	
Sahagun	NONE	
South African Railways	S A R	
Stanbras	SB	NONE
Sumitomo	SMI	
Vulcan	NONE	

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AAR Interchange Rules

The purpose of this maintenance manual is, where applicable, to supplement the Association of American Railroads (AAR) Interchange Rules Field Manual for:

Rule 47 – Truck Bolsters

Rule 48 – Truck Side Frames

Rule 50 – Truck Springs (Coil, Elliptic, Snubbers and Package)

Rule 88 – Mechanical Requirements for Acceptance

Rule 90 – Cars and/or Car Parts Prohibited In Interchange

In the event of conflict, the AAR “Field Manual” and “Office Manual” of Interchange Rules shall supersede this manual.

Reference Publications for Freight Car Trucks

AAR Publications

Rules of Interchange for Railroad Cars

Office Manual
Field Manual

Manual of Standards & Recommended Practices

Section A – Specifications, Standards and Practices

Section B – Couplers and Freight Car Draft Components
– Part II – Drawgear Inspection and Maintenance Manual

Section C – Car Construction, Fundamentals and Details
– Part II, Volume 1 – Specifications for Design, Fabrication and Construction of Freight Cars
– Part III – Specifications for Tank Cars

Section D – Trucks and Truck Details

Section E – Brakes & Brake Equipment
– Part II – Maintenance Requirements for Freight Car Air Brake Control Valves and Equipment

Section G – Wheels and Axles
– Part II – Wheel and Axle (Shop) Manual

Section H – Journal Bearings & Lubrication
– Part II – Roller Bearing (Shop) Manual
– Part III – Lubrication (Shop) Manual

Section L – Lettering & Marking of Cars

Section S – Casting Details
– M-214 – Classification and Repair Procedures for Used and Reconditioned AAR Approved Side Frames and Bolsters Applicable to Interchange Service
– Part II – Code for Designating Design Features for Side Frames and Truck Bolsters
– Part III – Coupler and Yoke Details

Supplement to the Manual of Standards & Recommended Practices

Circulars

Multi Level Manual

Interchange Rules – Arbitration Cases

Miscellaneous Publications

The Car & Locomotive Cyclopedia
FRA Saftey Standards

Where to Obtain Publications

AAR Publications

Central Operations Group
50 “F” Street N.W.
Washington, D.C. 20001-1564
Phone: 202/639-2211
Fax: 202/639-2156

TTCI

Technical Standards
55500 DOT Road
Pueblo, Co 81001
719-584-0750

Car & Locomotive Cyclopedia

Railway Educational Bureau
1809 Capitol Avenue
Omaha, Nebraska 68102
Phone: 402/346-4300

Railroad Freight Car Safety Standards

Railway Education Bureau
1809 Capitol Avenue
Omaha, Nebraska 68102
Phone: 402/346-4300

Barber Friction Wedges

2-A Inspection

- Replacing Barber Friction Wedges and Side Springs
- Barber Friction Wedge Replacement Guide
- Barber Split Wedge Replacement Guide
- Barber Stabilizer Wear Gage Application

2-B Parts

- Friction Wedge Interchangeability Matrix
- Barber Iron Wedges
- Barber LifeGuard Wedges
- Barber TwinGuard Wedges
- Barber Split Wedges

2-C Repair

- Replacing Barber Friction Wedges and Side Springs
- S-2-E Wedge Holding Fixture

If possible, please supply side frame or bolster AAR code number (9 digit) and casting pattern number, when ordering replacement components.

Barber Friction Wedges

Inspection

- Replacing Barber Friction Wedges and Side Springs
- Barber Friction Wedge Replacement Guide
- Barber Split Wedge Replacement Guide
- Barber Stabilizer Wear Gage Application

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Replacing Barber Friction Wedges and Side Springs

Barber S-2-E Trucks

To Remove

1. Lift the truck bolster off of the springs to the top of the side frame opening (see figure 1).
2. Remove all springs.
3. Lower the bolster and disengage from the side frame to gain access to the friction wedges. Note that the friction wedges are free to fall out of the pocket once the bolster is clear of the side frame.

To Install

1. Insert the friction wedge into the bolster pocket and place on the pocket shelf (see figure 2).
2. Insert a temporary pin to keep the friction wedge in place (if applicable).
3. Engage the bolster with the side frame.
4. Lift the bolster to the top of the side frame opening and remove the temporary pin (if used).
5. Replace all springs.
6. Lower the bolster on to the springs.

Other Barber Trucks

To Remove

1. Lift the truck bolster off of the springs to the top of the side frame opening (see figure 1).
2. Remove the outboard corner load spring(s) to gain access to the side spring(s) and friction wedge.
3. Carefully remove the side spring(s), as the friction wedge will drop out of the bolster pocket as shown (see figure 3). Split wedge can drop out as two separate halves.

To Install

1. Insert the friction wedge into the bolster pocket.
2. Insert a temporary pin to keep the friction wedge in place (if applicable).
3. Place side spring(s) under the friction wedge and remove the temporary pin (if used).
4. Replace the outboard corner load spring(s).
5. Lower the bolster on to the springs.

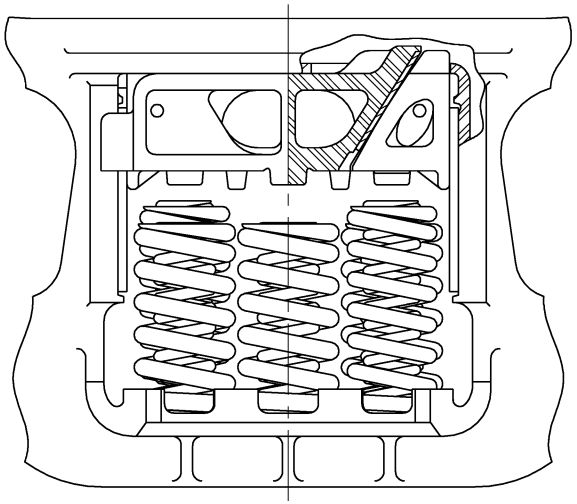

Figure 1

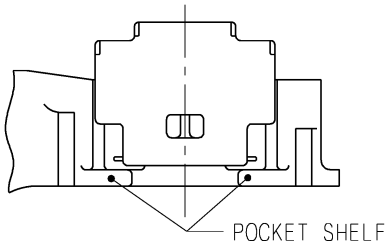

Figure 2

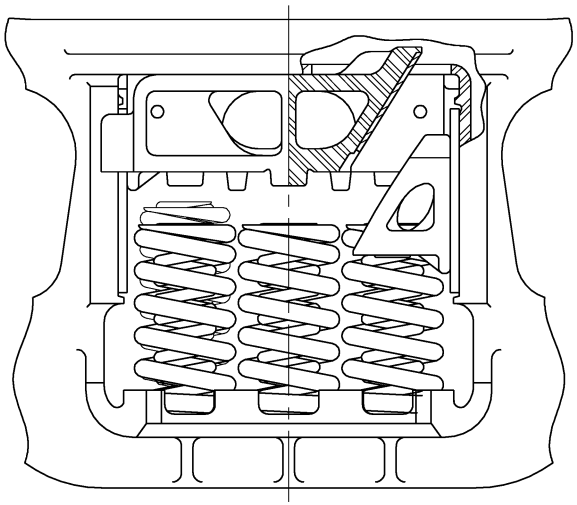

Figure 3

Never Lubricate Barber Friction Wedges

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Barber Friction Wedge Replacement Guide

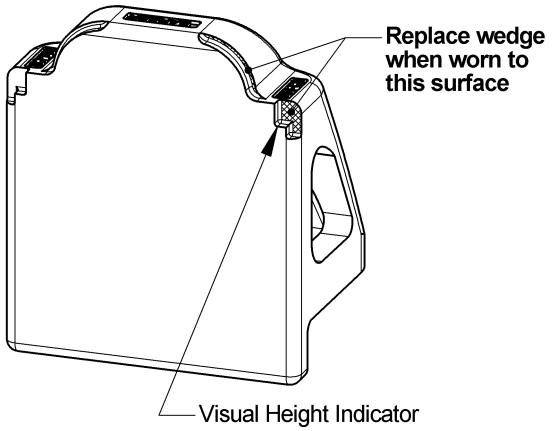

Figure 1

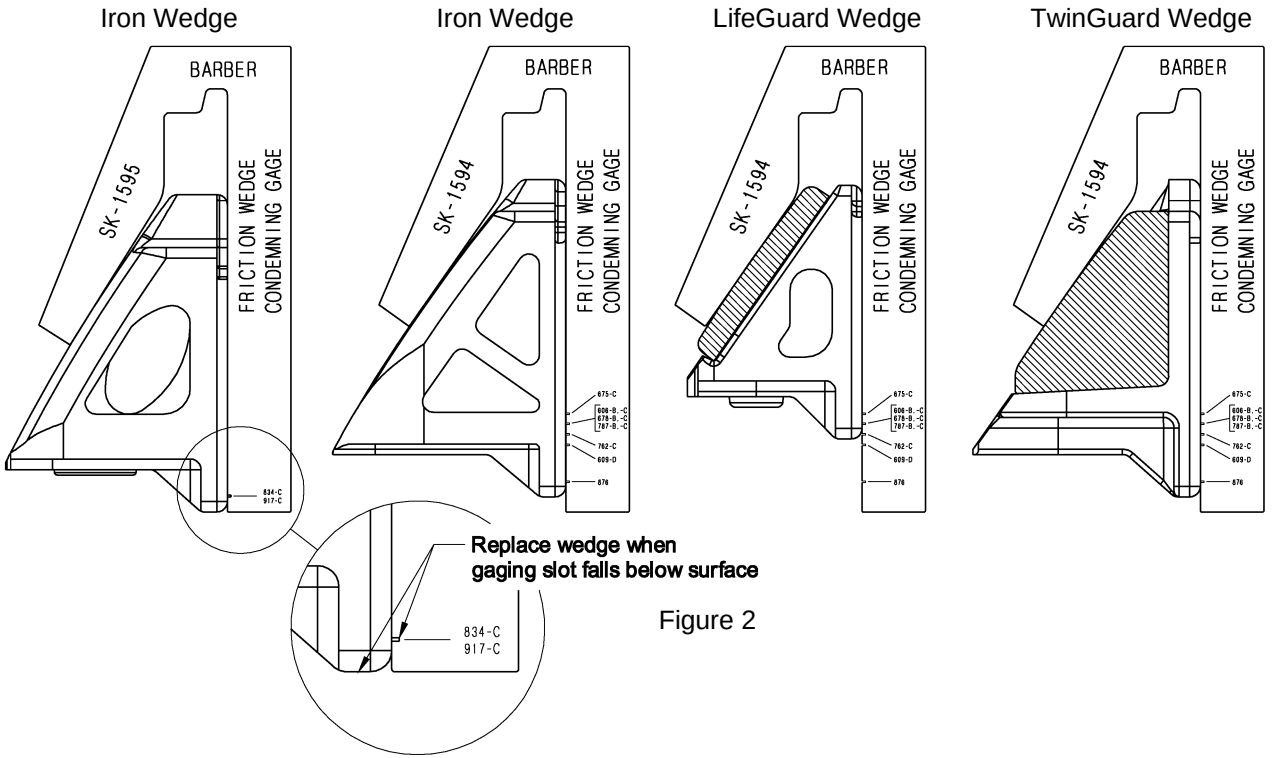

Figure 2

Check the condition of Barber friction wedges regularly. The friction wedge should be replaced when the friction face has worn down to the limit of wear indicator surface (see figure 1) or if the appropriate gage slot on the condemning gage (see table below for applicable gages) extends below the friction face (see figure 2). To establish proper stabilization and prevent extra down time, it is recommended that both friction wedges be replaced during any maintenance overhaul. At the same time, check side springs and wear plates, replacing where necessary. Refer to stabilizer wear gage on page 2-A-4 for replacement conditions.

Truck Type	Iron Wedge	LifeGuard Wedge	TwinGuard Wedge	Condemning Gage Part Number	Marking on Gage Slot To Check Wedge
S-2-A	606-C	-	-	SK-1594	606-B, -C
	609-D	913-LG	-	SK-1594	609-D
S-2-B, S-2-C	675-C	-	-	SK-1594	675-C
	678-C	-	-	SK-1594	678-B, -C
S-2-A, S-2-B, S-2-C	762-C	-	-	SK-1594	762-C
S-2-B, S-2-C	787-C	888-LG	911-PC	SK-1594	787-B, -C
S-2-HD, S-2-HD-9C	834-CB	950-LG	916-PC	SK-1595	834-C
S-2-D	876	877-LG	921-PC	SK-1594	876
S-2-E	917-C	-	-	SK-1595	917-C

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Barber Split Wedge Replacement Guide

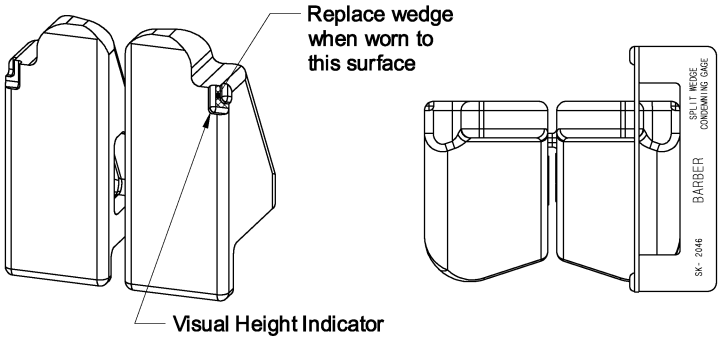


Figure 1

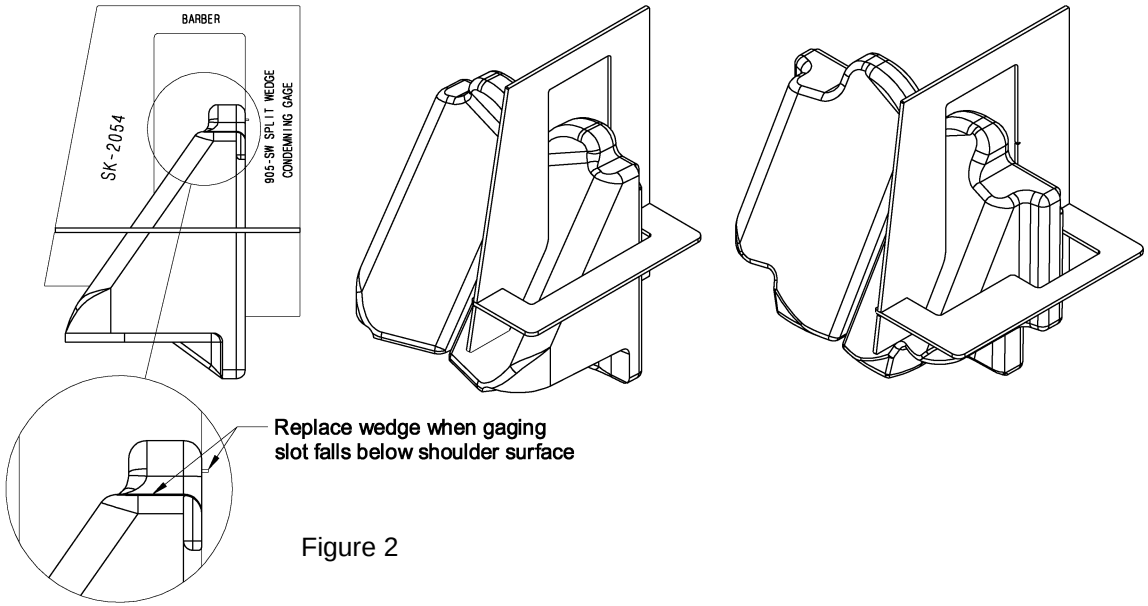
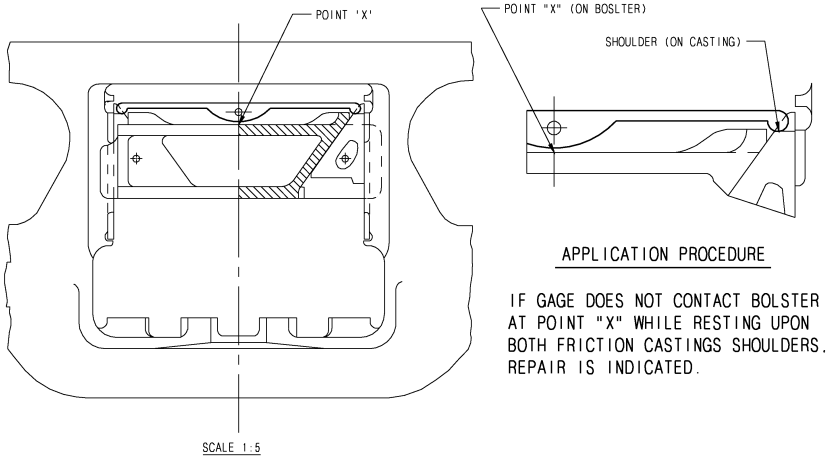


Figure 2

Check the condition of Barber friction wedges regularly. To gage both halves of the split wedge, disassemble the vertical and horizontal condemning gages and reassemble them with the horizontal gage flipped to the other side. The friction wedge should be replaced when the friction face has worn down to the limit of wear indicator surface (see figure 1) or if the gage slot on the vertical condemning gage (see table below for applicable gages) extends below the friction face shoulder (see figure 2). Replace both wedge halves when either half is condemnable. To establish proper stabilization and prevent extra down time, it is recommended that both friction wedges be replaced during any maintenance overhaul. At the same time, check side springs and wear plates, replacing where necessary. Refer to stabilizer wear gage on page 2-A-4 for replacement conditions.

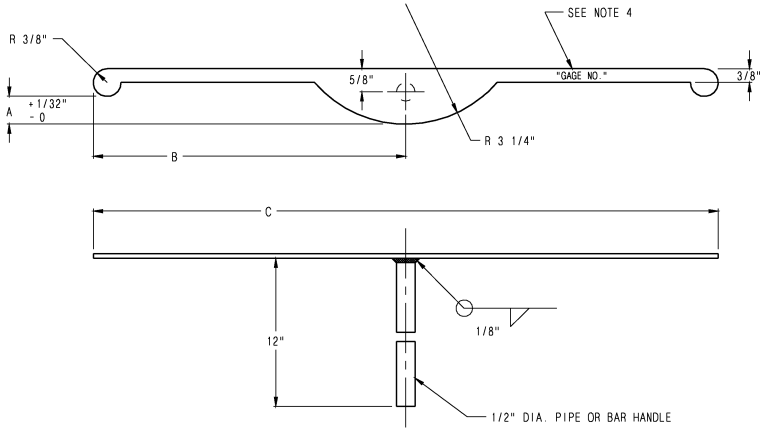
Truck Type	Split Wedge	Vertical Condemning Gage Part Number	Horizontal Condemning Gage Part Number
S-2-D	905-SW	SK-2054	SK-2046
S-2-HD, S-2-HD-9C	915-SW	SK-2050	SK-2046
S-2-B, S-2-C	925-SW	SK-2045	SK-2046
S-2-E	945-SW	SK-2062	SK-2063
S-2-A	955-SW	SK-2058	SK-2046

Barber Stabilizer Wear Gage Application



APPLICATION PROCEDURE

IF GAGE DOES NOT CONTACT BOLSTER AT POINT "X" WHILE RESTING UPON BOTH FRICTION CASTINGS SHOULDERS, REPAIR IS INDICATED.



Stabilizer Wear Gage Table								
Gage No.	Bearing [3] Size	AAR [1] Spring Travel	Iron Wedge	Split Wedge	Life Guard Wedge	Twin Guard Wedge	Dim A	Nom. Wedge Height
SK-1546-1	6 x 11	D-3	609-D	955-SW	913-LG [5]	-	3/4	0
	6 x 11	D-4 or D-5	678-C 678-B [2] 787-C 787-B [2]	925-SW	888-LG [5]	911-PC		
	6 1/2 x 12	D-3	609-D	955-SW	913-LG [5]	-		
	6 1/2 x 12	D-5 or D-7	876 834-CB 917-C	905-SW 915-SW 945-SW	877-LG 950-LG	921-PC 916-PC		
SK-1546-2	6 1/2 x 12	D-4 or D-5	678-C 678-B [2] 787-C 787-B [2]	925-SW	888-LG [5]	911-PC	1/2	-1/4
SK-1546-3	6 x 11 [4]	D-4	675-C	-	-	-	1 1/4	1/2
SK-1546-4	7 x 12	D-5	834-CB	915-SW	950-LG	916-PC	1/2	-1/4
SK-1546-5	7 x 12	D-3	762-C	-	-	-	1/4	-1/2
SK-1546-6	7 x 12	D-5	762-C	-	-	-	3/4	0
SK-1546-7	6 x 11 [4]	D-5	787-C	-	-	-	1 1/4	1/2

1 Standard A.A.R. spring groups for Barber S-2-A, S-2-B, S-2-C, S-2-D, S-2-HD, S-2-HD-9C, & S-2-E

2 Extended toe friction castings for Canada.

3 All 6 1/2 x 12 gages also apply to 6 1/2 x 9.

4 Low conveyance application only.

5 Rest gage on top center for LifeGuard wedges without shoulders.

Barber Friction Wedges

Parts

- Friction Wedge Interchangeability Matrix
- Barber Iron Wedges
- Barber LifeGuard Wedges
- Barber TwinGuard Wedges
- Barber Split Wedges

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Friction Wedge Interchangeability Matrix




Truck Type	Iron Wedge	Split Wedge*	LifeGuard Wedge	TwinGuard Wedge**
S-2-A	604-C	-	-	-
	606-C	-	-	-
	609-D	955-SW	913-LG-N	-
			913-LG-R	
	762-C	-	-	-
S-2-B S-2-C	675-C	-	-	-
	678-C	-	-	-
	787-C	925-SW	888-LG-N	911-PC
			888-LG-R	
	762-C	-	-	-
S-2-D	876	905-SW	877-LG	921-PC
S-2-HD S-2-HD-9C	834-CB	915-SW	950-LG	916-PC
S-2-E	917-C	945-SW	-	-

* Bolster pocket must have square sidewalls and an insert must be installed in the pocket to use split wedge.
** Bolster pocket must have square sidewalls to use TwinGuard wedge.

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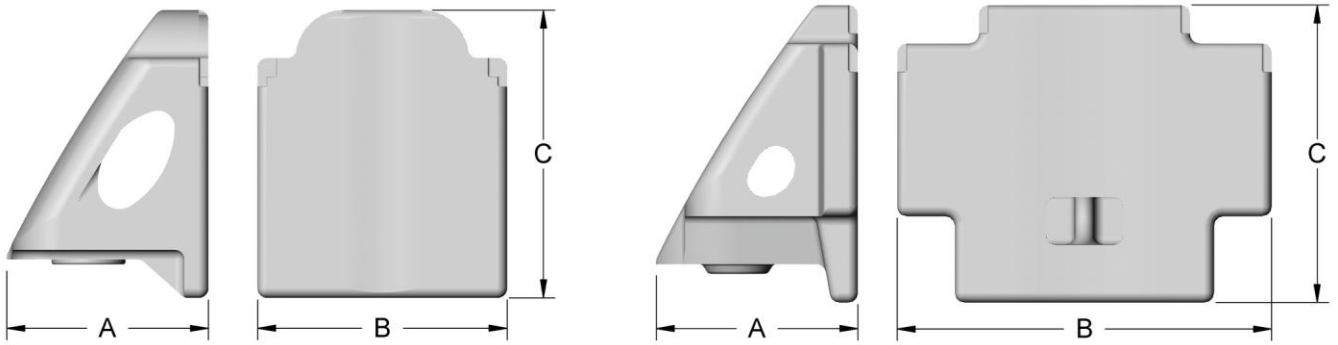
Always Use Original Barber Parts

Barber Iron Wedges



S-2-E

Truck Type	Iron Wedge	Bearing Size*	Spring Travel	No. of Side Springs	A	B	C	Drawing Number
S-2-A	606-C	5 1/2 x 10	D3	1	3 3/4	5	7 1/4	2296
	609-D	6 X 11 6 1/2 X 12	D3	2	4 1/4	5 1/2	7 1/2	2295
	762-C	7 x 12	D3	2	4 3/8	6 1/2	7	3828
S-2-B	675-C	5 x 9 5 1/2 x 10	D4	1	3 3/4	5	7	2846
	678-C	6 x 11	D4	1	4 1/8	5 1/2	6 3/4	3027
	787-C	6 x 11 6 1/2 x 12	D4	2	4 1/8	5 1/2	6 3/4	3973
	762-C	7 x 12	D4	2	4 3/8	6 1/2	7	3828
S-2-C	675-C	5 x 9 5 1/2 x 10	D5	1	3 3/4	5	7	2846
	678-C	6 x 11	D5	1	4 1/8	5 1/2	6 3/4	3027
	787-C	6 x 11 6 1/2 x 12	D5	2	4 1/8	5 1/2	6 3/4	3973
	762-C	7 x 12	D5	2	4 3/8	6 1/2	7	3828
S-2-D	876	6 1/2 x 12	D5 D7	2	5 1/2	7	7 1/2	5534
S-2-HD S-2-HD-9C	834-CB	6 1/2 x 12 7 x 12	D5	2	5 1/4	6 1/2	7 1/2	4734
S-2-E	917-C	6 x 11 6 1/2 x 12	D5	2	5 1/4	9 3/4	7 3/4	6107

* All wedges listed for 6 1/2 x 12 bearings are fully compatible with 6 1/2 x 9 bearings.

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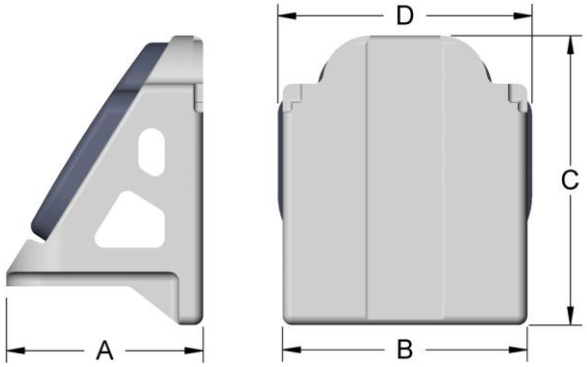
Always Use Original Barber Parts

Barber LifeGuard Wedges



Truck Type	LifeGuard Wedge	Bearing Size*	Spring Travel	No. of Side Springs	A	B	C	D	Drawing Number
S-2-A	913-LG-N 913-LG-R	6 x 11 6 1/2 x 12	D3	2	4 1/8	5 1/4	6 3/4	5 5/8	5777
S-2-B	888-LG-N 888-LG-R	6 x 11 6 1/2 x 12	D4	2	4 1/8	5 1/4	6	5 5/8	5456
S-2-C	888-LG-N 888-LG-R	6 x 11 6 1/2 x 12	D5	2	4 1/8	5 1/4	6	5 5/8	5456
S-2-D	877-LG	6 1/2 x 12	D5 D7	2	5 1/4	6 3/4	7 1/2	7 1/8	5656
S-2-HD S-2-HD-9C	950-LG	6 1/2 x 12	D5	2	5 1/8	6 3/8	7 1/2	6 5/8	5829

* All wedges listed for 6 1/2 x 12 bearings are fully compatible with 6 1/2 x 9 bearings.

Wedges are sold as shown above, or individual components can be purchased separately as shown below

LifeGuard Wedge Components		
Wedge	Casting	Pad
913-LG-N	913	5453-N
913-LG-R	913	5454-R*
888-LG-N	888	5453-N
888-LG-R	888	5454-R*
877-LG	877	877-N
950-LG	950	5914

* Pad is used for rebuild situations to reduce the amount of welding required to the bolster pocket

Casting

Pad

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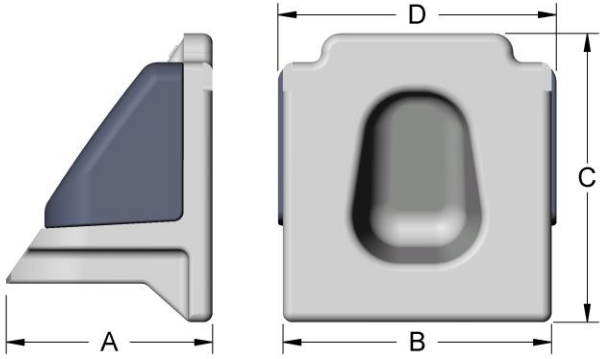
Always Use Original Barber Parts

Barber TwinGuard Wedges



Truck Type	TwinGuard Wedge*	Bearing Size**	Spring Travel	No. of Side Springs	A	B	C	D	Drawing Number
S-2-B	911-PC	6 x 11 6 1/2 x 12	D4	2	4 1/8	5 1/2	6 3/4	5 7/8	5462
S-2-C	911-PC	6 x 11 6 1/2 x 12	D5	2	4 1/8	5 1/2	6 3/4	5 7/8	5462
S-2-D	921-PC	6 1/2 x 12	D5 D7	2	5 3/8	7	7 1/2	7 1/4	5897
S-2-HD S-2-HD-9C	916-PC	6 1/2 x 12	D5	2	5 1/4	6 1/2	7 1/2	6 3/4	5685

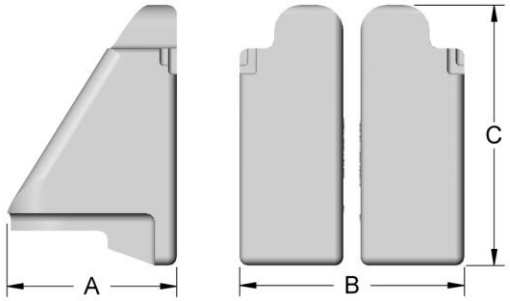
* Bolster pocket must have square sidewalls to use TwinGuard wedge.
** All wedges listed for 6 1/2 x 12 bearings are fully compatible with 6 1/2 x 9 bearings.
Wedges are sold as shown above, or individual components can be purchased separately as shown below.

TwinGuard Wedge Components			
Wedge	Casting	Left Pad	Right Pad
911-PC	911	5461-L	5461-R
921-PC	921	5895-L	5895-R
916-PC	916	5684-L	5684-R

Left Pad

Right Pad

Barber Split Wedges



Truck Type	Split Wedge*	Bearing Size	Spring Travel	No. of Side Springs	A	B	C	Drawing Number
S-2-A	955-SW	6 x 11 6 1/2 x 12	D3	2	4 3/32	5 1/2	7 1/2	5995
S-2-B	925-SW	6 x 11 6 1/2 x 12	D4	2	3 3/4	5 1/2	6 3/4	5281
S-2-C	925-SW	6 x 11 6 1/2 x 12	D5	2	3 3/4	5 1/2	6 3/4	5281
S-2-D	905-SW	6 1/2 x 12	D5 D7	2	4 15/16	7	7 1/2	5903
S-2-HD S-2-HD-9C	915-SW	6 1/2 x 12 7 x 12	D5	2	4 7/8	6 1/2	7 1/2	5822
S-2-E	945-SW	6 x 11 6 1/2 x 12	D5	2	4 1/4	9 3/4	7 3/4	6023

* Bolster pocket must have square sidewalls and an insert must be installed in the pocket to use split wedge.

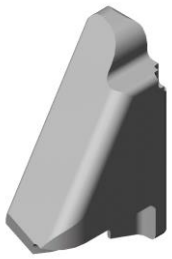
** All wedges listed for 6 1/2 x 12 bearings are fully compatible with 6 1/2 x 9 bearings.

Wedges are sold as shown above, or individual components can be purchased separately as shown below. It is recommended that the split wedge components be replaced in pairs.

Split Wedge Components			
Wedge	Right	Left	Insert
955-SW	955-SW-R	955-SW-L	5824 5286*
925-SW	925-SW-R	925-SW-L	5824 5286*
905-SW	905-SW-R	905-SW-L	5902
915-SW	915-SW-R	915-SW-L	5821
945-SW	945-SW-R	945-SW-L	6022

* Insert is used in “as cast” bolster pockets (pockets designed not to use pocket wear plates).

Right Half



Left Half

Insert

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Always Use Original Barber Parts

Barber Friction Wedges

Repair

- Replace only. No repair allowed.
- Replacement in pairs is recommended.
- Replacing Barber Friction Wedges and Side Springs
- S-2-E Wedge Holding Fixture

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Replacing Barber Friction Wedges and Side Springs

Barber S-2-E Trucks

To Remove

1. Lift the truck bolster off of the springs to the top of the side frame opening (see figure 1).
2. Remove all springs.
3. Lower the bolster and disengage from the side frame to gain access to the friction wedges. Note that the friction wedges are free to fall out of the pocket once the bolster is clear of the side frame.

To Install

1. Insert the friction wedge into the bolster pocket and place on the pocket shelf (see figure 2).
2. Insert a temporary pin to keep the friction wedge in place (if applicable).
3. Engage the bolster with the side frame.
4. Lift the bolster to the top of the side frame opening and remove the temporary pin (if used).
5. Replace all springs.
6. Lower the bolster on to the springs.

Other Barber Trucks

To Remove

1. Lift the truck bolster off of the springs to the top of the side frame opening (see figure 1).
2. Remove the outboard corner load spring(s) to gain access to the side spring(s) and friction wedge.
3. Carefully remove the side spring(s), as the friction wedge will drop out of the bolster pocket as shown (see figure 3). Split wedge can drop out as two separate halves.

To Install

1. Insert the friction wedge into the bolster pocket.
2. Insert a temporary pin to keep the friction wedge in place (if applicable).
3. Place side spring(s) under the friction wedge and remove the temporary pin (if used).
4. Replace the outboard corner load spring(s).
5. Lower the bolster on to the springs.

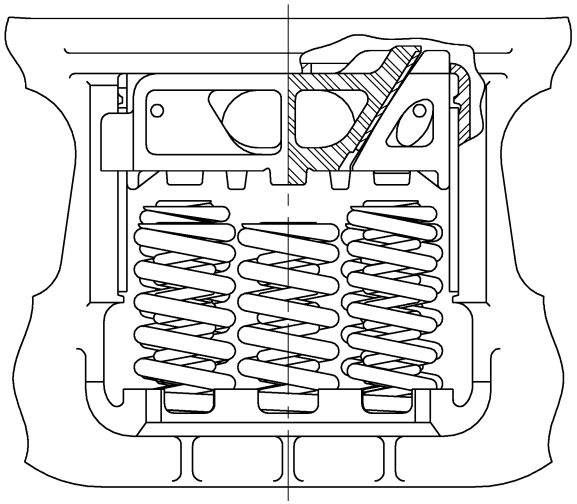

Figure 1

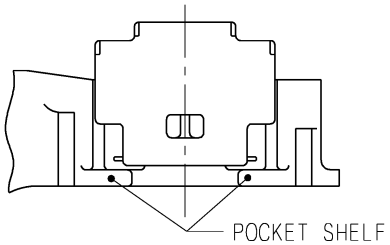

Figure 2

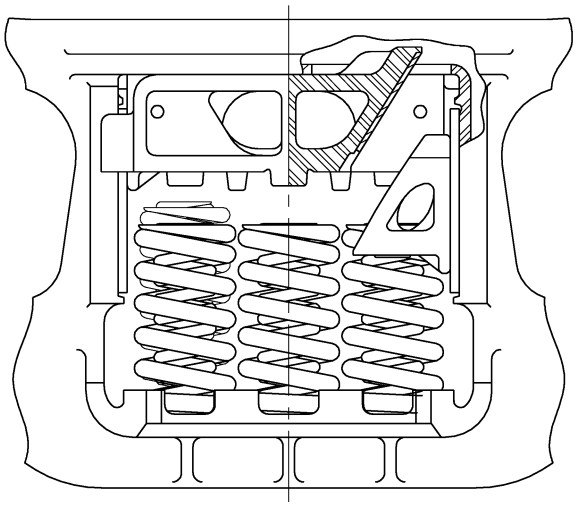

Figure 3

Never Lubricate Barber Friction Wedges

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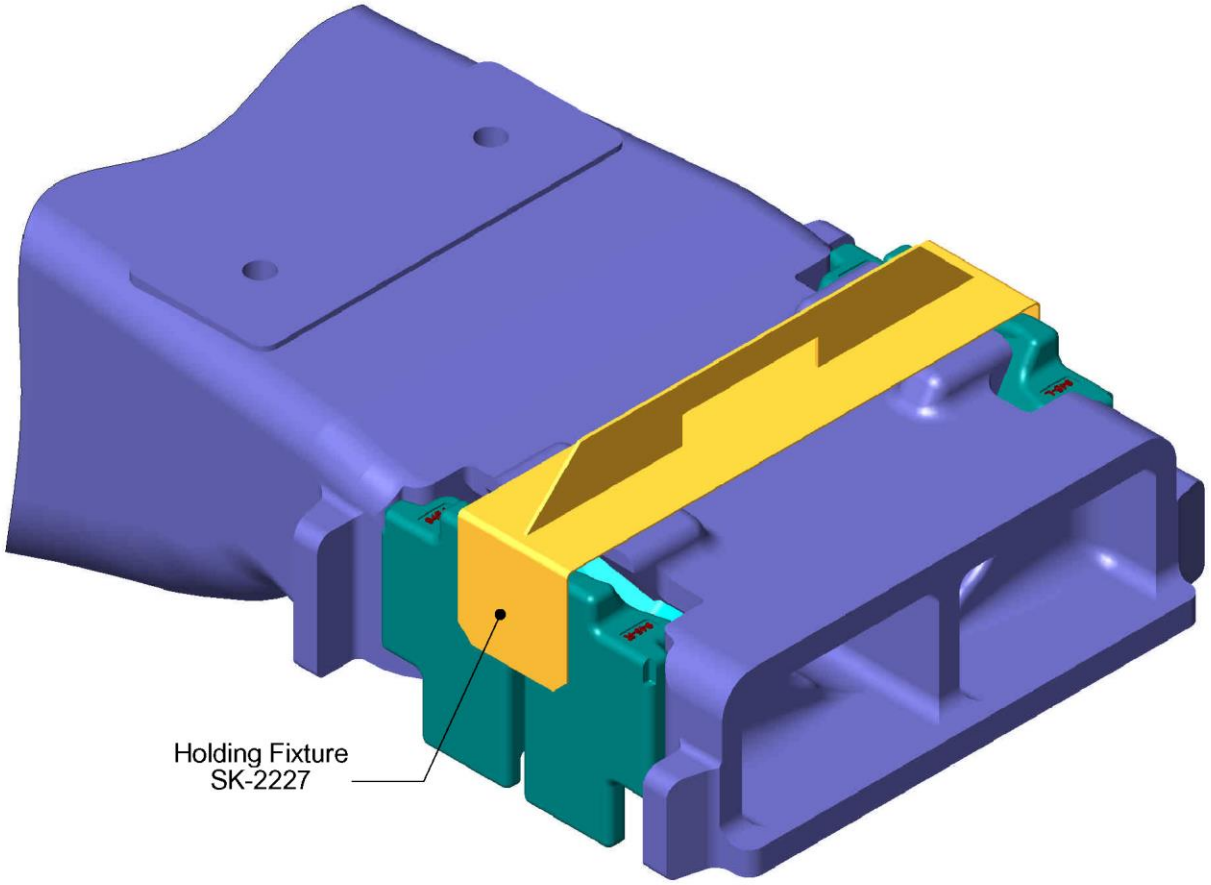
S-2-E Wedge Holding Fixture



For use with 6 1/2 x 9 or 6 1/2 x 12 S-2-E Trucks arranged for use with split wedge.

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Springs

3-A Inspection

- Inspecting Barber Springs

3-B Parts

- Barber Side Springs
- Barber Load Springs
- Barber M-976 AAR Spring Groups
- Common Barber AAR Spring Groups
- Common Barber Dual Rate Spring Groups

3-C Repair

- Repairing Barber Springs

If possible, please supply side frame or bolster AAR code number (9 digit) and casting pattern number, when ordering replacement components.

Springs

Inspection

- Visually inspect for broken springs, excess pitting, or detrimental rust
- Measure free height and replace if less than scrap/condemning height (see spring tables in section 3-B for details)

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Springs

Parts

- Barber Side Springs
- Barber Load Springs
- Barber AAR M-976 AAR Spring Groups
- Common Barber AAR Spring Groups
- Common Barber Dual Rate Spring Groups

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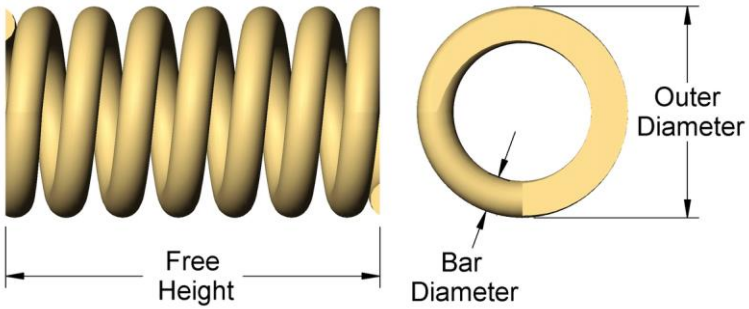
Barber Side Springs

Part No.	Bar Dia.	Outer Dia.	Solid Height	Free Height	Solid Capacity	Scrap Height
B-111	19/32	3 1/4	6 9/16	10 3/8	3,639	9 15/16
B-321	17/32	2 7/8	6 9/16	10 1/8	2,792	9 11/16
B-331	17/32	3 3/16	6 9/16	11 5/8	2,726	11
B-332	11/32	2	6 9/16	11 5/8	1,308	11
B-353	13/16	4 7/8	6 9/16	11 3/16	6,285	10 5/8
B-354	17/32	3 1/8	6 9/16	11 1/2	2,855	10 15/16
B-355	13/16	4 7/8	6 9/16	10 3/4	5,690	10 1/4
B-356	9/16	3 1/8	6 9/16	10 3/4	3,368	10 1/4
B-357	13/16	5	6 9/16	10 1/4	4,576	9 13/16
B-358	13/16	4 7/8	6 9/16	11	6,030	10 7/16
B-359	1/2	3 1/8	6 9/16	11 5/8	2,069	11
B-360	25/32	4 7/8	6 9/16	11 13/16	5,681	11 3/16
B-361	17/32	3 3/16	6 9/16	11 13/16	2,827	11 3/16
B-362	23/32	4 7/8	6 9/16	10 3/4	2,805	10 1/4
B-363	13/16	4 7/8	6 9/16	10 7/8	5,860	10 3/8
B-364	1/2	3 1/8	6 9/16	11 1/2	2,018	10 15/16
B-365	3/4	4 7/8	6 9/16	10 1/4	3,153	9 13/16
B-366	9/16	3 1/4	6 9/16	10 1/4	2,572	9 13/16
B-367	23/32	4 7/8	6 9/16	10 1/2	2,637	10
B-368	9/16	3 9/32	6 9/16	10 1/2	2,653	10
B-369	13/16	4 7/8	6 9/16	10 1/2	5,351	10
B-370	11/16	4 1/2	6 9/16	11 1/4	3,230	10 11/16
B-371	0.458	3	6 9/16	11 3/4	1,778	11 1/8
B-421	43/64	3 11/16	6 9/16	10 3/8	4,711	9 15/16
B-422	13/32	2 3/16	6 1/16	9 3/4	1,970	9 5/16
B-432	43/64	3 7/8	6 9/16	11 1/16	4,641	10 1/2
B-433	7/16	2 13/32	6 15/16	11 3/8	2,225	10 13/16
B-434	13/32	2 13/32	6 1/16	10 3/4	1,770	10 3/16
B-435	43/64	3 7/8	6 9/16	10 5/8	4,190	10 3/16
B-436	7/16	2 13/32	6 15/16	11	2,023	10 1/2
B-540	19/32	3 11/16	6 9/16	11 1/4	2,832	10 11/16
B-541	5/8	3 13/16	6 9/16	11 1/4	3,374	10 11/16
B-542	17/32	3 3/16	6 9/16	11 1/4	2,524	10 11/16
B-701	29/32	5 1/2	6 9/16	11 1/4	7,811	10 11/16
B-702	9/16	3 9/16	6 9/16	11 3/4	2,601	11 1/8
B-703	3/8	2 5/16	6 9/16	12	1,370	11 3/8

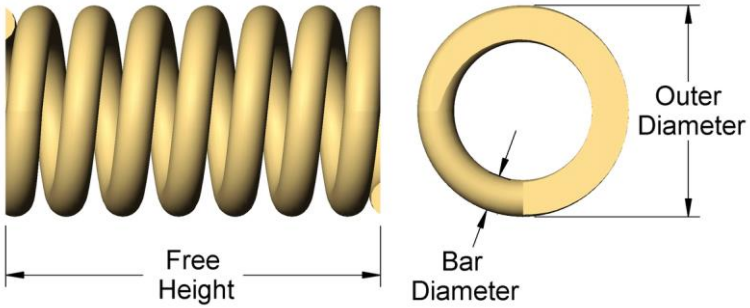


Material: Springs conform in all respects to alloy steel listing in AAR Specification M-114 (latest revision).

Springs with bar diameter under 1/2" can be cold wound per manufacturer's discretion.

The part number can be found within the first turn from the end (on either the outside or the inside of the spring).

Barber Load Springs



AAR Freight Car						
Part No.	Bar Dia.	Outer Dia.	Solid Height	Free Height	Solid Capacity	Scrap Height
D2-Outer	1 7/32	5 1/2	6 5/8	8 1/4	15,959	7 15/16
D2-Inner	11/16	2 15/16	6 5/8	8 1/4	5,386	7 15/16
D3-Outer	1 1/16	5 1/2	6 9/16	9 1/16	10,721	8 5/8
D3-Inner	21/32	3 1/4	6 9/16	9 1/16	4,299	8 5/8
D4-Outer	1	5 1/2	6 9/16	9 5/8	9,128	9 1/16
D4-Inner	5/8	3 3/8	6 9/16	9 5/8	3,433	9 1/16
D5-Outer	61/64	5 1/2	6 9/16	10 1/4	8,266	9 5/8
D5-Inner	5/8	3 3/8	6 9/16	10 5/16	4,204	9 5/8
D6-Inner	21/32	3 7/16	6 9/16	9 15/16	4,707	9 5/16
D6A-Inner	3/8	2	5 11/16	9	1,635	8 3/8
D7-Outer	15/16	5 1/2	6 9/16	10 13/16	8,642	10 1/16
D7-Inner	5/8	3 1/2	6 9/16	10 3/4	4,108	10

Material: Springs conform in all respects to alloy steel listing in AAR Specification M-114 (latest revision).

Springs with bar diameter under 1/2" can be cold wound per manufacturer's discretion.

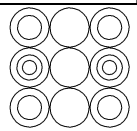
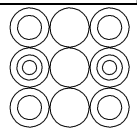
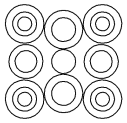
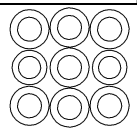
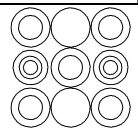
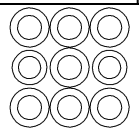
The part number can be found within the first turn from the end (on either the outside or the inside of the spring).

Dual Rate						
Part No.	Bar Dia.	Outer Dia.	Solid Height	Free Height	Solid Capacity	Scrap Height
B-270	7/8	5 1/2	6 9/16	10 13/16	5,771	10 5/16
B-271	11/16	3 19/32	6 9/16	9	3,767	8 11/16
B-280	13/16	5 7/16	6 9/16	10 7/8	3,991	10 3/8
B-281	19/32	3 9/32	6 9/16	10 7/8	3,974	10 3/8
B-282	9/16	3 9/32	6 9/16	10 3/4	2,821	10 1/4
B-283	25/32	3 3/4	6 9/16	9	6,916	8 11/16
B-285	3/4	3 5/8	6 9/16	9 1/8	6,408	8 13/16
B-286	17/32	3 1/4	6 9/16	10 1/2	1,977	10
B-287	27/32	5 1/2	6 9/16	9 7/8	3,643	9 1/2
B-288	23/32	3 1/2	6 9/16	9 1/4	6,008	8 15/16
B-289	11/32	1 13/16	6 1/16	9 1/4	1,291	9 3/8
B-290	19/32	3 9/32	6 9/16	10 1/2	3,629	10
B-291	1 1/16	5 1/2	6 1/16	8 11/16	12,516	8 3/8
B-292	17/32	2 3/4	5	6 1/2	1,901	6 5/16
B-293	5/8	2 3/4	5 1/8	6 3/8	4,079	6 3/16
B-294	21/32	2 3/4	5 1/8	6 3/8	5,505	6 3/16
B-295	1 1/32	5 1/2	6 1/16	8 11/16	10,447	8 3/8
B-296	1/2	2 5/8	3 7/8	5 5/16	2,066	5 1/8
B-297	15/32	2 5/8	4	5 3/8	1,529	5 3/16
B-S97	15/32	2 5/8	3 3/4	4 7/8	1,059	4 3/4
B-298	13/32	3 1/4	2 1/16	4 11/16	1,178	4 3/8
B-299	1 1/16	5 1/2	6 9/16	9 7/16	12,329	9 1/16

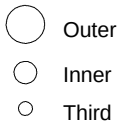
Wabtec, Standard Car Truck
6400 Shafer Court – Ste 450, Rosemont, Illinois 60018, U.S.A.
Phone (847) 692-6050 Email: SCTTechCustomerService@Wabtec.com

Always Use Original Barber Parts

Barber M-976 AAR Spring Groups

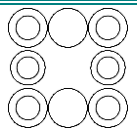
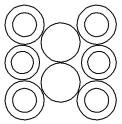
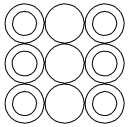
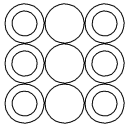
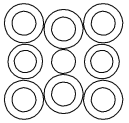
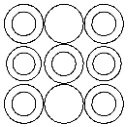
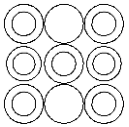
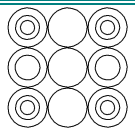
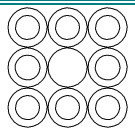
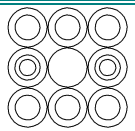
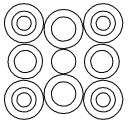
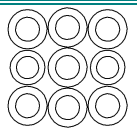
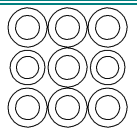
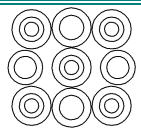
	S-2-D	S-2-D	S-2-HD	S-2-HD-9C	S-2-E	S-2-E*
Spring Travel	3 11/16	3 11/16	3 11/16	3 11/16	3 11/16	3 11/16
Solid Height	6 9/16	6 9/16	6 9/16	6 9/16	6 9/16	6 9/16
Wedge	907-SW	935-SW	915-SW	915-SW	917-C	945-SW
Bearing Adapter and Shear Pad	AAR Standard Adapter with 5578 Shear Pad	AAR Standard Adapter with 5578 Pad	AAR Standard Adapter with 5578 Pad	AAR Standard Adapter with 5578 Pad	AAR Standard Adapter with 5578 Pad	AAR Standard Adapter with 5578 Pad
	6366 Bearing Adapter with 6367 Shear Pad (S2-86 Radial Adapter)	6366 Bearing Adapter with 6367 Shear Pad (S2-86 Radial Adapter)	6366 Bearing Adapter with 6367 Shear Pad (S2-86 Radial Adapter)	6366 Bearing Adapter with 6367 Shear Pad (S2-86 Radial Adapter)	6366 Bearing Adapter with 6367 Shear Pad (S2-86 Radial Adapter)	6366 Bearing Adapter with 6367 Shear Pad (S2-86 Radial Adapter)
6 1/2 x 9 Bearing Size 286,000 LBS. Max Rail Load	 7 Outers D5 4 Inners D5 2 Outer Sides B-701 2 Inner Sides B-702 2 Third Sides D6A	 7 Outers D5 4 Inners D5 2 Outer Sides B-701 2 Inner Sides B-702 2 Third Sides D6A	 6 Outers D5 7 Inners D6 4 Third Loads D6A 2 Outer Sides B-353 2 Inner Sides B-354	 7 Outers D5 7 Inners D5 2 Outer Sides B-353 2 Inner Sides B-354	 7 Outers D5 5 Inners D5 2 Outer Sides B-360 2 Inner Sides B-361 2 Third Sides D6A	 7 Outers D5 7 Inners D5 2 Outer Sides B-353 2 Inner Sides B-354
Solid Capacity (LBS.)	97,891	97,891	105,605	105,570	98,538	105,570

- Approved S-286 truck system for Open Top Cars with C.G. less than 95 inches, and Covered Hopper Cars with 45'-9" truck centers and C.G. less than 95 1/2 inches.



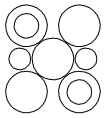
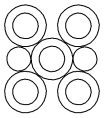
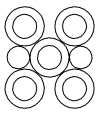
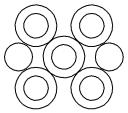
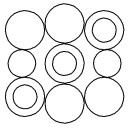
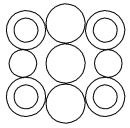
Wabtec, Standard Car Truck
6400 Shafer Court – Ste 450, Rosemont, Illinois 60018, U.S.A.
Phone (847) 692-6050 Email: SCTTechCustomerService@Wabtec.com

Common Barber AAR Spring Groups

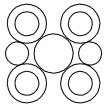
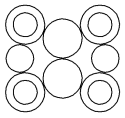
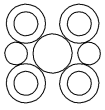
	S-2-D	S-2-D	S-2-D	S-2-HD	S-2-HD-9C	S-2-E
Spring Travel	3 11/16	3 11/16	4 1/4	3 11/16	3 11/16	3 11/16
Solid Height	6 9/16	6 9/16	6 9/16	6 9/16	6 9/16	6 9/16
6 x 11 Bearing Size 220,000 LBS. Max Rail Load				 6 Outers D-5 4 Inners D-5 2 Outer Sides B-358 2 Inner Sides B-359		 6 Outers D-5 4 Inners D-5 2 Outer Sides B-355 2 Inner Sides B-356
Solid Capacity (LBS.)				82,610		84,528
6 1/2 x 12 Bearing Size 263,000 LBS. Max Rail Load	 7 Outers D5 4 Inners D5 2 Outer Sides D7 2 Inner Sides D7		 7 Outers D7 4 Inners D7 2 Outer Sides B-701 2 Inner Sides B-702	 6 Outers D5 7 Inners D5 2 Outer Sides B-353 2 Inner Sides B-354	 7 Outers D5 5 Inners D5 2 Outer Sides B-353 2 Inner Sides B-354	 7 Outers D5 5 Inners D5 2 Outer Sides B-353 2 Inner Sides B-354
Solid Capacity (LBS.)	100,178		97,750	97,304	97,162	97,162
6 1/2 x 12 Bearing Size 286,000 LBS. Max Rail Load	 7 Outers D5 4 Inners D5 4 Third Loads D6A 2 Outer Sides D7 2 Inner Sides D7	 7 Outers D5 6 Inners D5 2 Outer Sides D7 2 Inner Sides D7	 7 Outers D7 6 Inners D7 2 Outer Sides B-701 2 Inner Sides B-702 2 Third Sides B-703	 6 Outers D5 7 Inners D6 4 Third Loads D6A 2 Outer Sides B-353 2 Inner Sides B-354	 7 Outers D5 7 Inners D5 2 Outer Sides B-353 2 Inner Sides B-354	 7 Outers D5 7 Inners D5 2 Outer Sides B-353 2 Inner Sides B-354
Solid Capacity (LBS.)	104,958	108,586	108,706	105,605	105,570	105,570
7 x 12 Bearing Size 315,000 LBS. Max Rail Load				 7 Outers D5 7 Inners D6 5 Third Loads D6A 2 Outer Sides B-353 2 Inner Sides B-354		
Solid Capacity (LBS.)				115,066		

Common Barber AAR Spring Groups

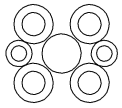
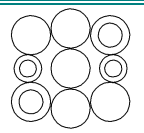
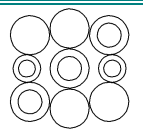
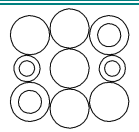
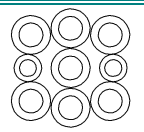
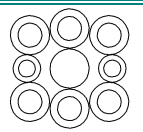
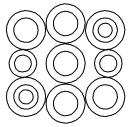
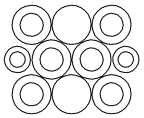
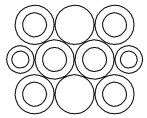
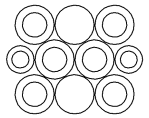
Single Side Spring Design

	S-2-A	S-2-B	S-2-C
Spring Travel	2 1/2	3 1/16	3 11/16
Solid Height	6 9/16	6 9/16	6 9/16
5 1/2 x 10 Bearing Size 177,000 LBS. Max Rail Load	 5 Outers D3 2 Inners D3 2 Sides B-321	 5 Outers D4 5 Inners D4 2 Sides B-331	 5 Outers D5 5 Inners D5 2 Sides B-331
Solid Capacity (LBS.)	67,787	68,257	67,802
6 x 11 Bearing Size 220,000 LBS. Max Rail Load	 5 Outers D3 5 Inners D3 2 Sides B-421	 7 Outers D4 3 Inners D4 2 Sides B-432	 7 Outers D5 4 Inners D5 2 Sides B-432
Solid Capacity (LBS.)	84,522	83,477	83,960

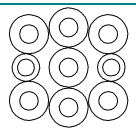
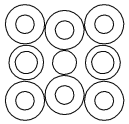
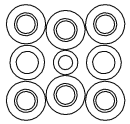
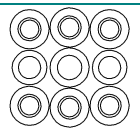
Single Side Spring Low Conveyance Design

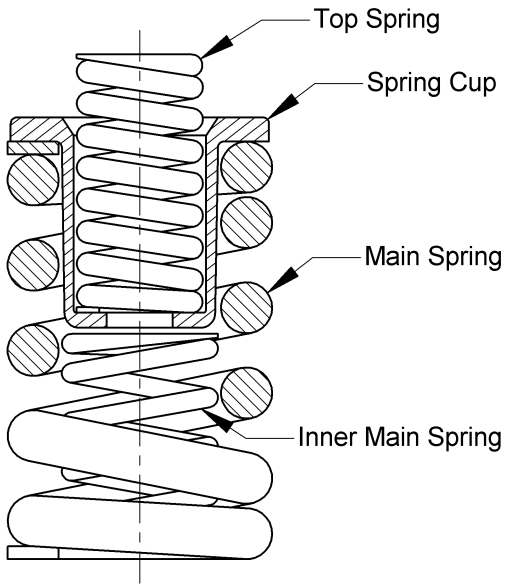
	S-2-B	S-2-C	S-2-C
Spring Travel	3 1/16	3 11/16	3 11/16
Solid Height	6 9/16	6 9/16	6 9/16
6 x 11 Bearing Size	 5 Outers D4 4 Inners D4 2 Sides B-111	 6 Outers D5 4 Inners D5 2 Sides B-432	 5 Outers D5 4 Inners D5 2 Sides B-542
Max Rail Load (LBS.)	177,000	205,000	177,000
Solid Capacity (LBS.)	66,650	75,694	63,194

Double Side Spring Design

	S-2-A	S-2-B	S-2-C
Spring Travel	2 1/2	3 1/16	3 11/16
Solid Height	6 9/16	6 9/16	6 9/16
6 x 11 Bearing Size 220,000 LBS. Max Rail Load	 5 Outers D3 4 Inners D3 2 Outer Sides B-421 2 Inner Sides B-422	 7 Outers D4 2 Inners D4 2 Outer Sides B-432 2 Inner Sides B-433	 7 Outers D5 3 Inners D5 2 Outer Sides B-432 2 Inner Sides B-433
Solid Capacity (LBS.)	84,163	84,494	84,206
6 1/2 x 12 Bearing Size 263,000 LBS. Max Rail Load	 7 Outers D3 2 Inners D3 2 Outer Sides B-421 2 Inner Sides B-422	 7 Outers D4 6 Inners D4 2 Outer Sides B-432 2 Inner Sides B-433	 7 Outers D5 6 Inners D5 2 Outer Sides B-432 2 Inner Sides B-433
Solid Capacity (LBS.)	97,007	98,226	96,818
6 1/2 x 12 Bearing Size 286,000 LBS. Max Rail Load			 7 Outers D5 7 Inners D6 2 Third Loads D6A 2 Outer Sides B-432 2 Inner Sides B-433
Solid Capacity (LBS.)			107,813
7 x 12 Bearing Size 315,000 LBS. Max Rail Load	 8 Outers D3 6 Inners D3 2 Outer Sides B-421 2 Inner Sides B-422	 8 Outers D4 8 Inners D4 2 Outer Sides B-432 2 Inner Sides B-434	 8 Outers D5 8 Inners D6 2 Outer Sides B-432 2 Inner Sides B-434
Solid Capacity (LBS.)	124,924	113,310	116,606

Common Barber Dual Rate Spring Groups

S-2-C		S-2-HD		S-2-HD		S-2-HD	
Estimated Light Car Weight	47,000	Estimated Light Car Weight	49,000	Estimated Light Car Weight	43,000	Estimated Light Car Weight	47,200
Solid Height	6 9/16	Solid Height	6 9/16	Solid Height	6 9/16	Solid Height	6 9/16
6 1/2 x 12 Bearing Size 263,000 LBS. Max Rail Load	 7 Top B-297 7 Cups 4836 7 Main B-291 2 Outer Sides B-432 2 Inner Sides B-433	6 1/2 x 12 Bearing Size 263,000 LBS. Max Rail Load	 6 Top B-296 6 Cups 4836 6 Main B-291 1 Inner D-5 2 Outer Sides B-355 2 Inner Sides B-356	6 1/2 x 12 Bearing Size 286,000 LBS. Max Rail Load	 6 Top B-297 6 Cups 4836 6 Main B-291 6 Inner Main B-298 1 Inner D-6 1 Inner Inner D-6-A 2 Outer Sides B-355 2 Inner Sides B-356	7 x 12 Bearing Size 315,000 LBS. Max Rail Load	 6 Top B-297 6 Cups 4836 6 Main B-291 6 Inner Main B-298 1 Outer D-5 1 Inner D-6 2 Outer Sides B-355 2 Inner Sides B-356
Solid Capacity (LBS.)	100,974	Solid Capacity (LBS.)	97,416	Solid Capacity (LBS.)	106,283	Solid Capacity (LBS.)	113,013



Cupless dual rate spring packages are also available.

Wabtec, Standard Car Truck
6400 Shafer Court – Ste 450, Rosemont, Illinois 60018, U.S.A.
Phone (847) 692-6050 Email: SCTTechCustomerService@Wabtec.com

Springs

Repair

- Replace only. No repair allowed.

Column Wear Plates

4-A Inspection & Restoration

- Barber Side Frame Column Inspection & Restoration Guide

4-B Parts

- Type-1 Column Wear Plates (Weld Only)
- Type-2 Column Wear Plates (Bolt Only OR Bolt and Weld)
- Type-3 Column Wear Plates (Bolt Only OR Bolt and Weld)
- Type-4 Column Wear Plates (Weld Only)

4-C Application Procedure

- Type-1 Column Wear Plates Weld Only Application
- Type-2 & Type-3 Column Wear Plates Bolt Only Application
- Type-2 & Type-3 Column Wear Plates Bolt and Weld Application
- Type-4 Column Wear Plates Weld Only Application

If possible, please supply side frame or bolster AAR code number (9 digit) and casting pattern number, when ordering replacement components.

Column Wear Plates

Inspection

- Wear plates missing, broken, or worn to less than ¼” thick should be replaced.

Restoration

- Shims behind wear plates, or thicker wear plates may be required if the distance between column wear plates is ¼” greater than the nominal dimension.

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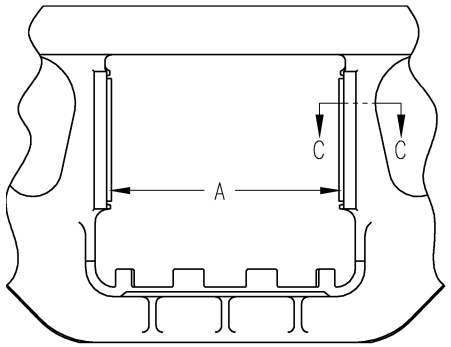
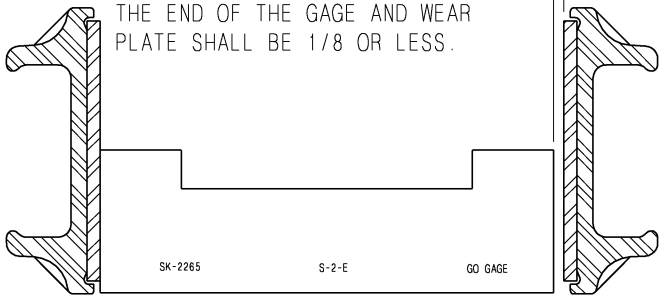
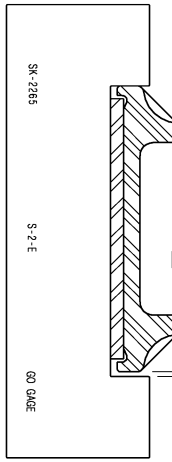
Barber Side Frame Column Inspection & Restoration Guide



INS. IF 3/8 SHIM FITS BETWEEN END OF THE GAGE AND WEAR PLATE, REPLACE WEAR PLATES AND REBUILD SIDE FRAME COLUMN IF NECESSARY.

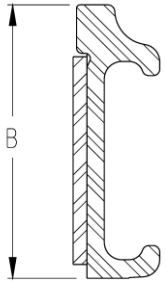
RES. THE FINISHED DISTANCE BETWEEN THE END OF THE GAGE AND WEAR PLATE SHALL BE 1/8 OR LESS.





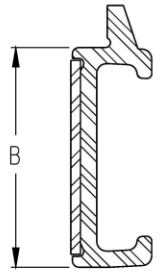
INS. REBUILD GUIDE WITH WELD PER RULE 48 OF THE FIELD MANUAL IF A 3/8 SHIM FITS BETWEEN GAGE AND SIDE FRAME GUIDE.

RES. AFTER REBUILDING GAGE SHALL FIT OVER GUIDE WITH A GAP OF 1/8 OR LESS.

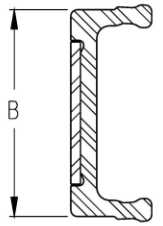


SECTION C-C
(STANDARD)

Truck Type	Capacity	A Min	B Max	Gage Number
S-2-A S-2-B S-2-C	50 Ton	12 15/16	6 1/8	SK-1503-1
	50 Ton Wide Land	12 15/16	7 5/8	
	70 Ton Low Conveyance	14 7/16	7 5/8	
	70 Ton 100 Ton	16 15/16	6 5/8	SK-1503-4
	70 Ton Wide Land 100 Ton Wide Land	16 15/16	8 1/8	
	100 Ton Combination	16 15/16	8 5/8	
	125 Ton	20 3/16	10 3/8	SK-1560-1
S-2-D S-2-HD-9C	100 Ton	17 7/16	10 1/16	SK-1503-7
S-2-HD	100 Ton	16 15/16	10 1/16	SK-1432
	125 Ton	19 3/16	11 1/8	SK-1560-2
S-2-E	70 Ton	16 15/16	10 11/16	SK-2265
	100 Ton	17 7/16	11 3/16	SK-2524



SECTION C-C
(COMBINATION)



SECTION C-C
(WIDE LAND)

Wabtec, Standard Car Truck
6400 Shafer Court – Ste 450, Rosemont, Illinois 60018, U.S.A.
Phone (847) 692-6050 Email: SCTTechCustomerService@Wabtec.com

Always Use Original Barber Parts

Column Wear Plates

Parts

- Type-1 Column Wear Plates (Weld Only)
- Type-2 Column Wear Plates (Bolt Only OR Bolt and Weld)
- Type-3 Column Wear Plates (Bolt Only OR Bolt and Weld)
- Type-4 Column Wear Plates (Weld Only)

Wabtec, Standard Car Truck
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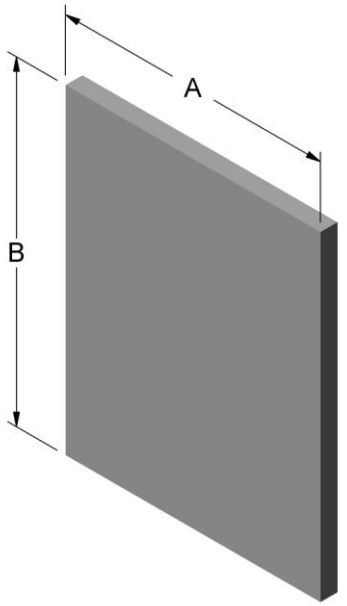
Phone (847) 692-6050 Email: SCTTechCustomerService@Wabtec.com

Type-1 Column Wear Plates (Weld Only)

Wear Plate Part Number By Thickness				Dimensions	
3/8	7/16	1/2	9/16	A	B
5706-101				4 1/2	8 1/2
5706-102		5708-113		5	8 1/2
5706-121		5708-101		5	8 3/4
5706-103		5708-107		5	9
5706-104		5708-102		5 1/2	8 1/2
5706-105	5707-101	5708-103	5709-101	5 1/2	8 3/4
5706-119		5708-109		5 1/2	9
5706-118				6	8
5706-110				6	8 15/16
5706-112				6	9
5706-108	5707-103	5708-105		6 1/2	9 1/4
5706-111				7	7
5706-113				7 1/2	7 1/2
5706-120	5707-104	5708-114		7 1/2	7 3/4
5706-115				7 1/2	8
5706-114		5708-106		7 1/2	8 1/16
5706-117	5707-105	5708-108	5709-103	7 1/2	8 5/16
5706-109		5708-111		7 1/2	8 1/2
5706-116		5708-112		7 1/2	8 9/16
5706-107		5708-110		7 1/2	8 15/16
5706-123				7 1/2	9 3/16
5706-106	5707-102	5708-104	5709-102	7 1/2	9 7/16
5706-122				10 1/2	8 1/4



Material: Hot wrought carbon steel bar, quenched and tempered to 365-415 BHN.

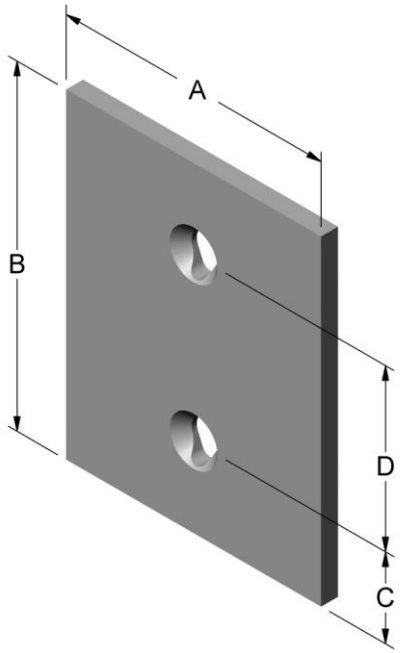
Finish: 85% scale free.

All wear plates flat within .025” TIR.

For application, see section 4-C.

Type-2 Column Wear Plates (Bolt Only or Bolt and Weld)

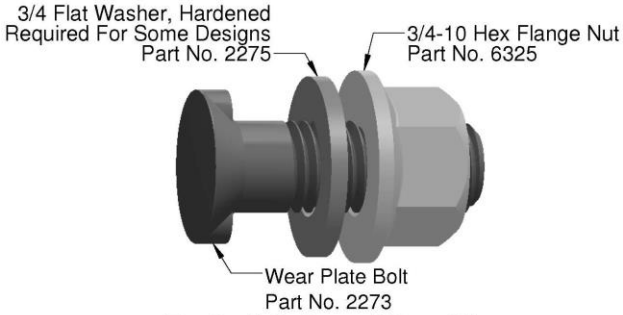
Wear Plate Part Number By Thickness				Dimensions			
3/8	7/16	1/2	9/16	A	B	C	D
5706-201				4 1/2	8 1/2	1 5/8	5 1/4
5706-202				5	8 1/2	1 5/8	5 1/4
5706-203		5708-202		5	8 3/4	1 3/4	5 1/4
5706-218				5	8 3/4	1 61/64	3 43/64
5706-204	5707-201	5708-203	5709-201	5 1/2	8 1/2	1 5/8	5 1/4
5706-205		5708-204		5 1/2	8 3/4	1 3/4	5 1/4
5706-213				6	7 3/4	1 1/4	5 1/4
5706-210		5708-209		6	8 11/16	1 23/32	5 1/4
5706-211				6	8 15/16	1 27/32	5 1/4
5706-208		5708-207		6 1/2	9 1/4	2	5 1/4
5706-212		5708-210		7 1/2	7 1/2	1 1/8	5 1/4
5706-215				7 1/2	7 3/4	1 1/4	5 1/4
5706-216				7 1/2	8 1/16	1 13/32	5 1/4
5706-209		5708-208		7 1/2	8 5/16	1 17/32	5 1/4
5706-217				7 1/2	8 9/16	1 21/32	5 1/4
5706-207		5708-206		7 1/2	8 15/16	1 27/32	5 1/4
5706-206		5708-205		7 1/2	9 7/16	2 3/32	5 1/4
5706-214		5708-201		7 1/2	9 7/16	2 11/32	4 3/4
		5708-212		7 1/2	9 15/16	2 11/32	5 1/4
		5708-213		10	10	2 5/8	4 3/4



Material: Hot wrought carbon steel bar, quenched and tempered to 365-415 BHN.

Finish: 85% scale free.

All wear plates flat within .025" TIR.



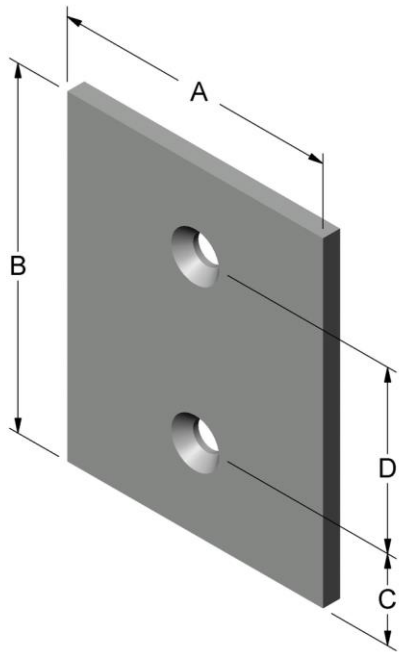
Typical Column Wear Plate Mounting Hardware

For application, see section 4-C

Type-3 Column Wear Plates (Bolt Only or Bolt and Weld)

Wear Plate Part Number By Thickness				Dimensions			
3/8	7/16	1/2	9/16	A	B	C	D
5706-301				4 1/2	8 1/2	1 5/8	5 1/4
5706-327				5	7 3/4	1 1/4	5 1/4
5706-302	5707-310	5708-302	5709-301	5	8 1/2	1 5/8	5 1/4
5706-328	5707-314	5708-303		5	8 3/4	1 3/4	5 1/4
5706-322				5	9	1 7/8	5 1/4
	5707-303			5 1/2	8	1 3/8	5 1/4
5706-303	5707-307	5708-304	5709-302	5 1/2	8 1/2	1 5/8	5 1/4
5706-304	5707-305	5708-305	5709-309	5 1/2	8 3/4	1 3/4	5 1/4
5706-315				5 1/2	9	1 7/8	5 1/4
			5709-311	5 1/2	10	2 1/4	5 1/2
5706-320				5 1/2	10 3/8	2 9/16	5 1/4
5706-324				6	7 3/4	1 1/4	5 1/4
5706-334				6	8	1 3/8	5 1/4
5706-318	5707-308	5708-309	5709-306	6	8 7/16	1 19/32	5 1/4
5706-310		5708-308		6	8 11/16	1 23/32	5 1/4
5706-311				6	8 15/16	1 27/32	5 1/4
5706-323	5707-312			6	9	1 7/8	5 1/4
5706-307	5707-316	5708-318	5709-310	6 1/2	9 1/4	2	5 1/4
5706-330				7 1/2	7 1/4	1	5 1/4
5706-314	5707-306	5708-311		7 1/2	7 1/2	1 1/8	5 1/4
5706-312		5708-313		7 1/2	7 3/4	1 1/4	5 1/4
	5707-301			7 1/2	8	1 3/8	5 1/4
5706-317	5707-309	5708-310	5709-303	7 1/2	8 1/16	1 13/32	5 1/4
5706-309	5707-302	5708-307	5709-308	7 1/2	8 5/16	1 17/32	5 1/4
5706-319	5707-315	5708-312		7 1/2	8 1/2	1 5/8	5 1/4
5706-313		5708-317		7 1/2	8 9/16	1 21/32	5 1/4
5706-306	5707-311	5708-314	5709-307	7 1/2	8 15/16	1 27/32	5 1/4
5706-329				7 1/2	9 3/16	1 31/32	5 1/4
5706-305	5707-304	5708-306	5709-304	7 1/2	9 7/16	2 3/32	5 1/4
5706-326	5707-313	5708-301	5709-305	7 1/2	9 7/16	2 11/32	4 3/4
		5708-316		7 1/2	9 15/16	2 11/32	5 1/4
5706-308				8	9 7/16	2 3/32	5 1/4
5706-325				8	9 15/16	2 11/32	5 1/4
5706-332		5708-319		8 1/2	9 7/16	2 3/32	5 1/4
		5708-325		8 1/2	10	2 5/8	4 3/4
		5708-324		8 1/2	10 7/16	2 27/32	4 3/4
5706-333				8 15/16	9 7/16	2 3/32	5 1/4
5706-331				9	9 1/8	1 15/16	5 1/4
5706-335	5707-318	5708-322	5709-313	10	7 7/8	1 11/16	4 1/2
5706-316	5707-317	5708-321	5709-312	10	8 1/2	1 5/8	5 1/4
5706-338				10	9	1 7/8	5 1/4
5706-336	5707-319	5708-323	5709-314	10	9 1/2	2 1/8	5 1/4
		5708-320		10	10	2 5/8	4 3/4

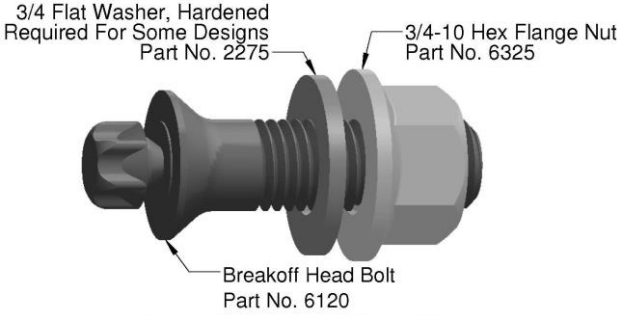
For application, see section 4-C



Material: Hot wrought carbon steel bar, quenched and tempered to 365-415 BHN.

Finish: 85% scale free.

All wear plates flat within .025" TIR.

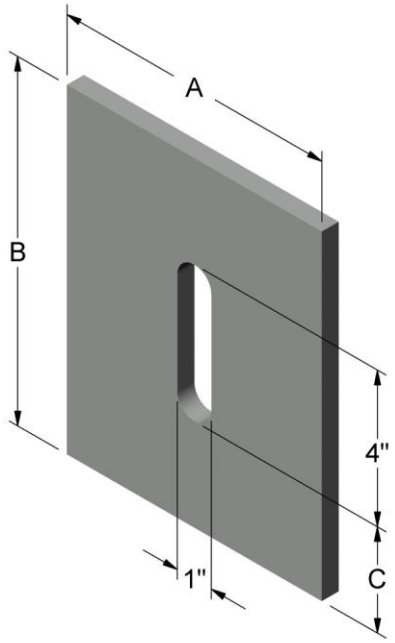


Typical Column Wear Plate Mounting Hardware

Wabtec, Standard Car Truck
6400 Shafer Court – Ste 450, Rosemont, Illinois 60018, U.S.A.
Phone (847) 692-6050 Email: SCTTechCustomerService@Wabtec.com

Type-4 Column Wear Plates (Weld Only - Slotted)

Wear Plate Part Number By Thickness		Dimensions		
3/8	1/2	A	B	C
5706-402	5708-402	5	8 1/2	2 1/4
5706-403	5708-403	5 1/2	8 1/2	2 1/4
5706-404	5708-404	5 1/2	8 3/4	2 3/8
5706-406	5708-414	7 1/2	8 15/16	2 15/32
5706-405	5708-406	7 1/2	9 7/16	2 23/32



Material: Hot wrought carbon steel bar, quenched and tempered to 365-415 BHN.

Finish: 85% scale free.

All wear plates flat within .025” TIR.

For application, see section 4-C.

Column Wear Plates

Application Procedures

- Type-1 Column Wear Plates Weld Only Application
- Type-2 & Type-3 Column Wear Plates Bolt Only Application
- Type-2 & Type-3 Column Wear Plates Bolt and Weld Application
- Type-4 Column Wear Plates Weld Only Application

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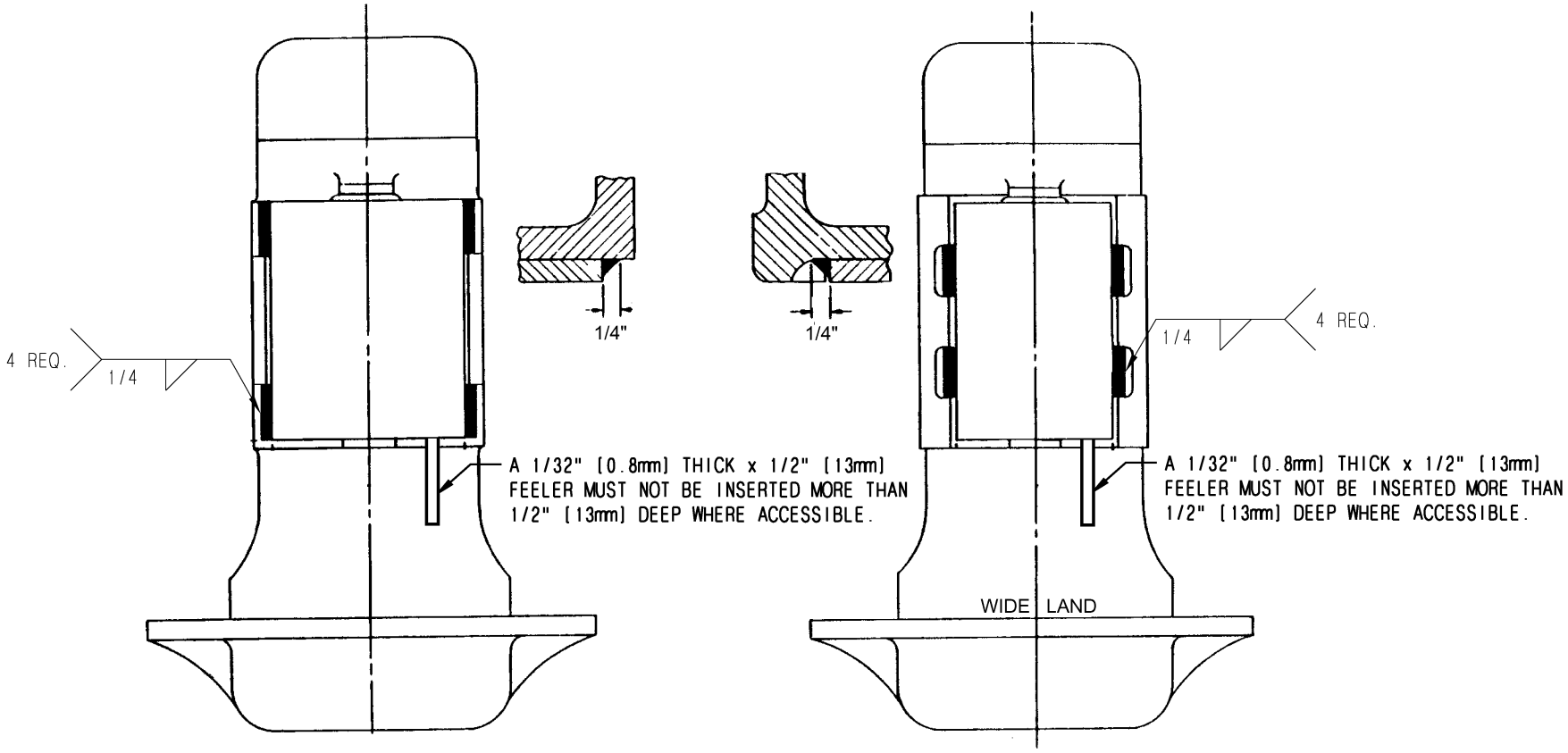
Phone (847) 692-6050 Email: SCTTechCustomerService@Wabtec.com

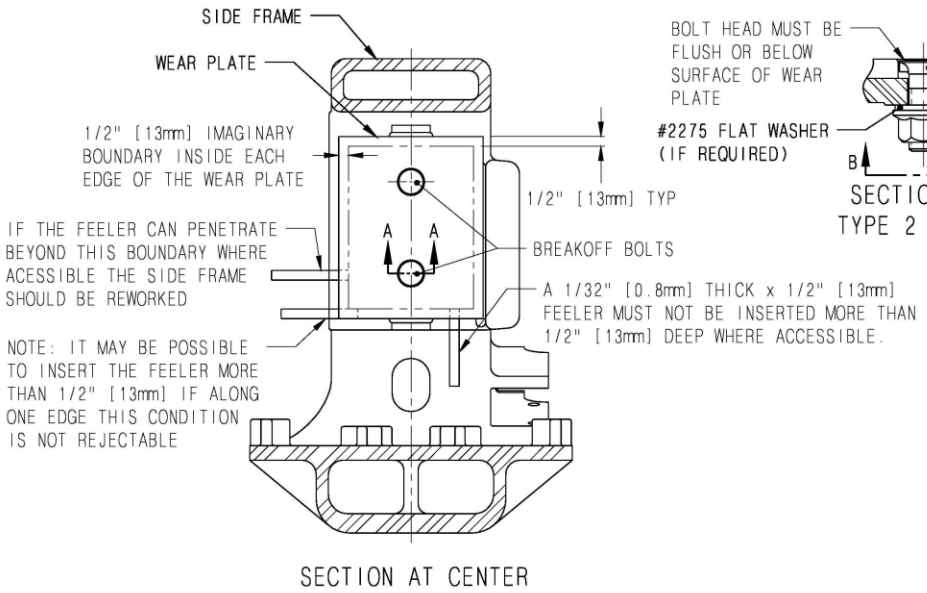
Type-1 Column Wear Plates Weld Only Application

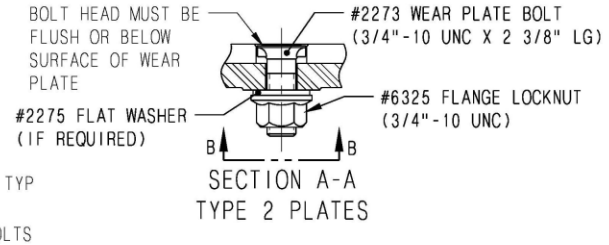


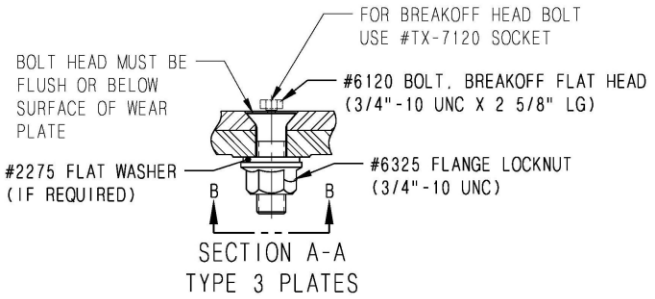
Notes:

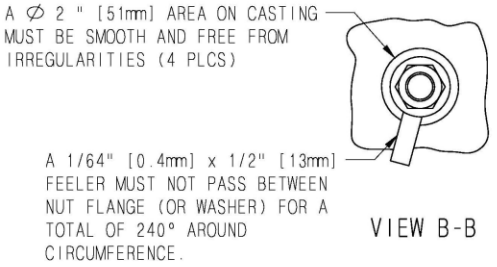
1. No preheat is necessary to either the side frame or wear plates. However, the surfaces to be welded must be dry and above 50°F.
2. Force wear plate tightly against column during the welding operation.
3. Position side frame for downhand welding.
4. Use AWS electrode E-7018 for “B” grade material, E-8018 for “B+” grade material, and E-9018 for “C” grade material or higher tensile rod of a size consistent with good practice.
5. Use as low a current as possible.
6. Welds shall be built from the middle of plate and worked toward the ends.
7. Weld must not project beyond wear plate face.
8. Welding to be done in a workmanlike manner, be homogenous, free of gas or foreign inclusions.
9. Apply a 1/32" [0.8mm] feeler between the column surface and the wear plate per instructions in view above.
10. All wear plates must be free of paint, mill scale, oil, and other contaminates before and after application.

Type-2 & Type-3 Column Wear Plates Bolt Only Application





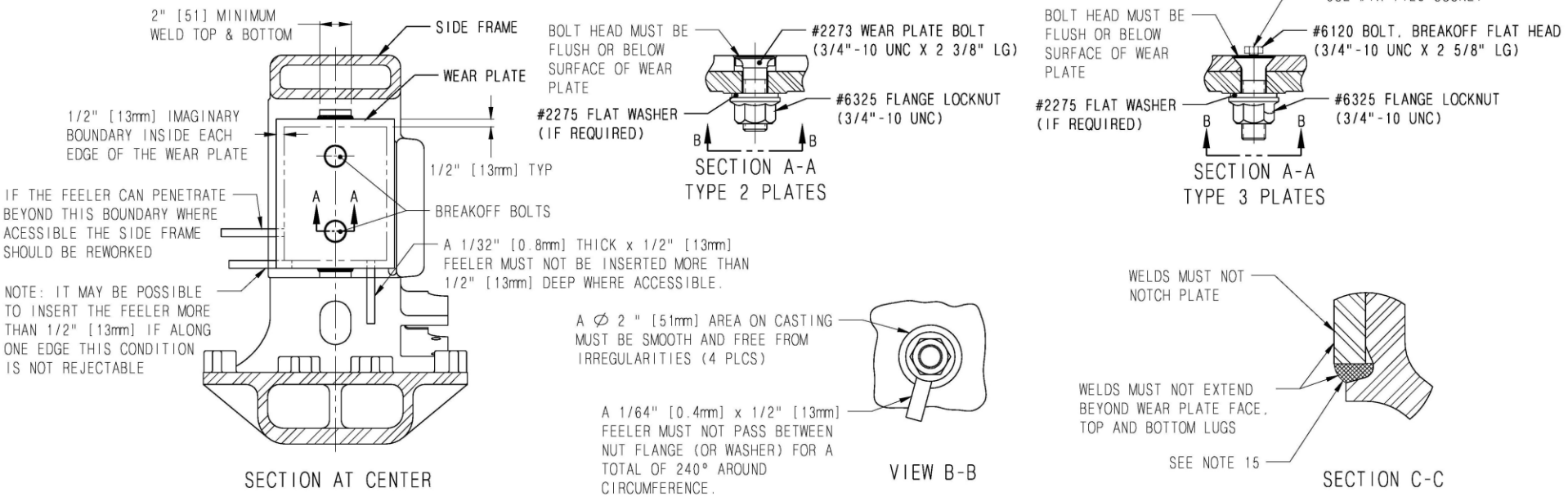




Notes:

1. Verify that the column bolt holes are open and that the application bolts will pass freely through the holes. If the bolt does not fit, the hole must be opened.
2. Visually examine each wear plate and column surface to ensure there are no obvious defects. Column surfaces must be true, smooth, free of foreign material, and flat to approximately 1/32" [0.8mm] concave. Wear plates must be free of paint before and after application.
3. Place the wear plate into position on the column and insert two bolts through the wear plate and column holes. Place a washer onto the bolt if applicable. Thread a nut onto each bolt and hand tighten.
4. Position the wear plate such that the bolts appear to be perpendicular to the column face.
5. Type 3 Plates: While holding one of the nuts with a socket wrench, apply a pneumatic impact wrench (capable of 250 ft-lb torque) to the corresponding bolt. Tighten first bolt and nut until snug (do not break off drive stud). Tighten second bolt and nut until break off drive head has sheared off. Go back to first bolt and nut and continue tightening until break off drive head has sheared off.
6. Type 2 Plates: Set a pneumatic impact wrench (capable of 250 ft-lb torque) to 180 ft-lb and apply to one of the nuts, tighten until snug. Tighten second nut to torque setting and repeat on first nut.
7. A torque/check with torque wrench should result in a 180 ft-lb or minimum value of 160 ft-lb. Fasteners less than 160 ft-lb shall be torqued to 180 ft-lb.
8. If a bolt assembly spins and will not tighten, the plate must be removed for inspection and re-application.
9. Bolt heads must be flush or below surface of wear plate, and a minimum of two full threads must extend beyond the nut.
10. Apply a 1/64" [0.4mm] feeler between the column back surface and the nut flange (or washer) per instructions in view B-B.
11. Apply a 1/32" [0.8mm] feeler between the column surface and the wear plate per instructions in Section at Center.
12. AAR recommends 28,000 lb. min. clamping load for breakoff head bolts per standard S-3003.
13. Do not use lubricant on the bolts.
14. All wear plates must be free of paint, mill scale, oil, and other contaminates before and after application.

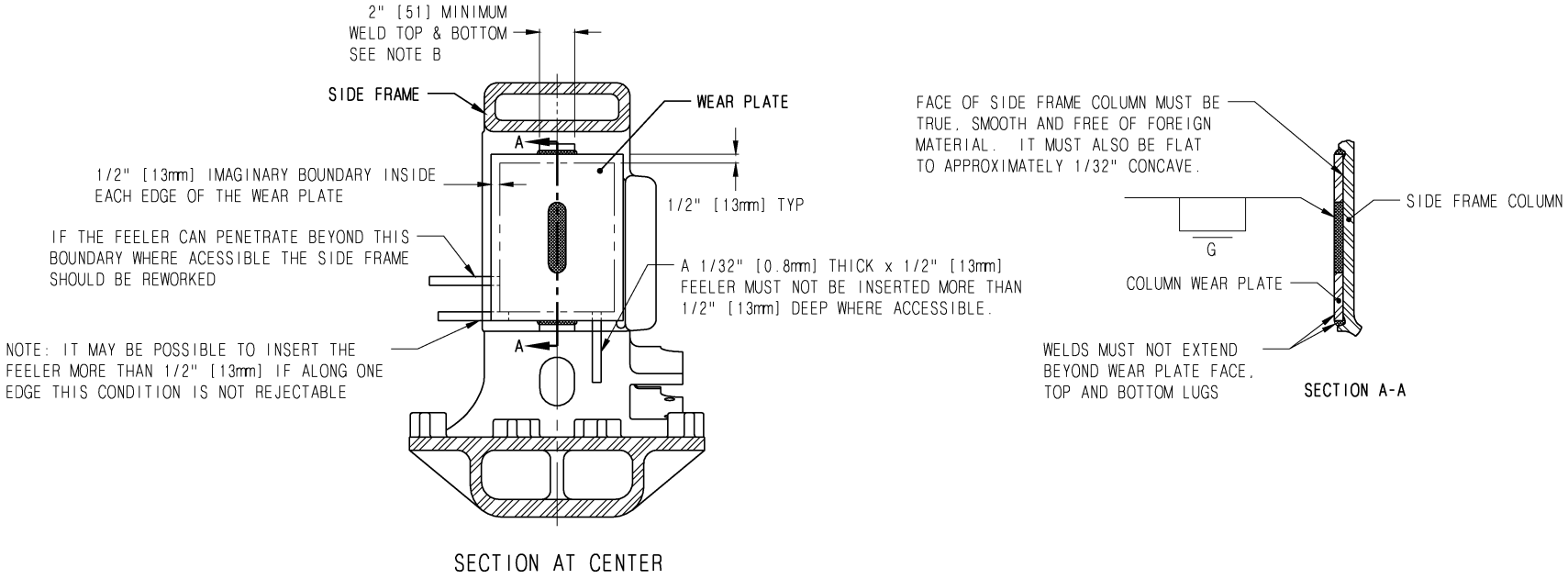
Type-2 & Type-3 Column Wear Plates Bolt and Weld Application



Notes:

1. Verify that the column bolt holes are open and that the application bolts will pass freely through the holes. If the bolt does not fit, the hole must be opened.
2. Visually examine each wear plate and column surface to ensure there are no obvious defects. Column surfaces must be true, smooth, free of foreign material, and flat to approximately 1/32" [0.8mm] concave. Wear plates must be free of paint before and after application.
3. Place the wear plate into position on the column and insert two bolts through the wear plate and column holes. Place a washer onto the bolt if applicable. Thread a nut onto each bolt and hand tighten.
4. Position the wear plate such that the bolts appear to be perpendicular to the column face.
5. Type 3 Plates: While holding one of the nuts with a socket wrench, apply a pneumatic impact wrench (capable of 250 ft-lb torque) to the corresponding bolt. Tighten first bolt and nut until snug (do not break off drive stud). Tighten second bolt and nut until break off drive head has sheared off. Go back to first bolt and nut and continue tightening until break off drive head has sheared off.
6. Type 2 Plates: Set a pneumatic impact wrench (capable of 250 ft-lb torque) to 180 ft-lb and apply to one of the nuts, tighten until snug. Tighten second nut to torque setting and repeat on first nut.
7. A torque/check with torque wrench should result in a 180 ft-lb or minimum value of 160 ft-lb. Fasteners less than 160 ft-lb shall be torqued to 180 ft-lb.
8. If a bolt assembly spins and will not tighten, the plate must be removed for inspection and re-application.
9. Bolt heads must be flush or below surface of wear plate, and a minimum of two full threads must extend beyond the nut.
10. Apply a 1/64" [0.4mm] feeler between the column back surface and the nut flange (or washer) per instructions in view B-B.
11. Apply a 1/32" [0.8mm] feeler between the column surface and the wear plate per instructions in Section at Center.
12. AAR recommends 28,000 lb. min. clamping load for breakoff head bolts per standard S-320.
13. Do not use lubricant on the bolts.
14. Position side frame for down hand welding.
15. Use AWS electrode E-7018 or higher tensile rod of a size consistent with good practice and a current as low as possible.
16. Apply weld between plate and lugs at top and bottom to fill in the clearances. Fusion to plate and lug required over 2" minimum weld length. Fusion to vertical surface of column is not necessary and is not desired. Welds must not extend beyond the wear plate surface.
17. Weld is not intended for securement, rather as a compression-filler weld between wear plate and lugs.
18. Weld undercut limit of 1/16" per AWS D15.1 Class 3.
19. All wear plates must be free of paint, mill scale, oil, and other contaminates before and after application.

Type-4 Column Wear Plates Weld Only Application



Notes:

1. No preheat is necessary to either the side frame or wear plates. However, the surfaces to be welded must be dry and above 50°F.
2. Force wear plate tightly against column during the welding operation.
3. Position side frame for down hand welding.
4. Use AWS electrode E-7018 for “B” grade material, E-8018 for “B+” grade material, and E-9018 for “C” grade material or higher tensile rod of a size consistent with good practice.
5. Use as low a current as possible.
6. Welds shall be built from the middle of plate and worked toward the ends.
7. Weld must not project beyond wear plate face.
8. Welding to be done in a workmanlike manner, be homogenous, free of gas or foreign inclusions.
9. Welds between plate and lugs at top and bottom are not intended for securement, rather as a compression-filler weld between the wear plate and lugs.
10. Apply a 1/32" [0.8mm] feeler between the column surface and the wear plate per instructions in view above.
11. All wear plates must be free of paint, mill scale, oil, and other contaminates before and after application.

Bolster Pockets

5-A Inspection

- Bolster Pocket Sidewall Restoration Guide
- Bolster Pocket Slopewall Restoration Guide
- Bolster Gib and Land Restoration Guide
- Split Wedge Insert Restoration Guide

5-B Parts

- Bolster Pocket Sidewall Wear Plates
- Bolster Pocket Wear Plates and Inserts

5-C Repair

- Bolster Restoration Procedures
- Bolster Pocket Sidewall Repair Procedure and Inspection
- Bolster Pocket Sidewall Wear Plate Installation Procedure
- Bolster Pocket Slopewall Repair Procedure and Inspection
- Bolster Pocket Slopewall Wear Plate Installation Procedure
- Bolster Pocket Insert Installation Procedure
- Bolster Gib and Land Repair Procedure and Inspection

If possible, please supply side frame or bolster AAR code number (9 digit) and casting pattern number, when ordering replacement components.

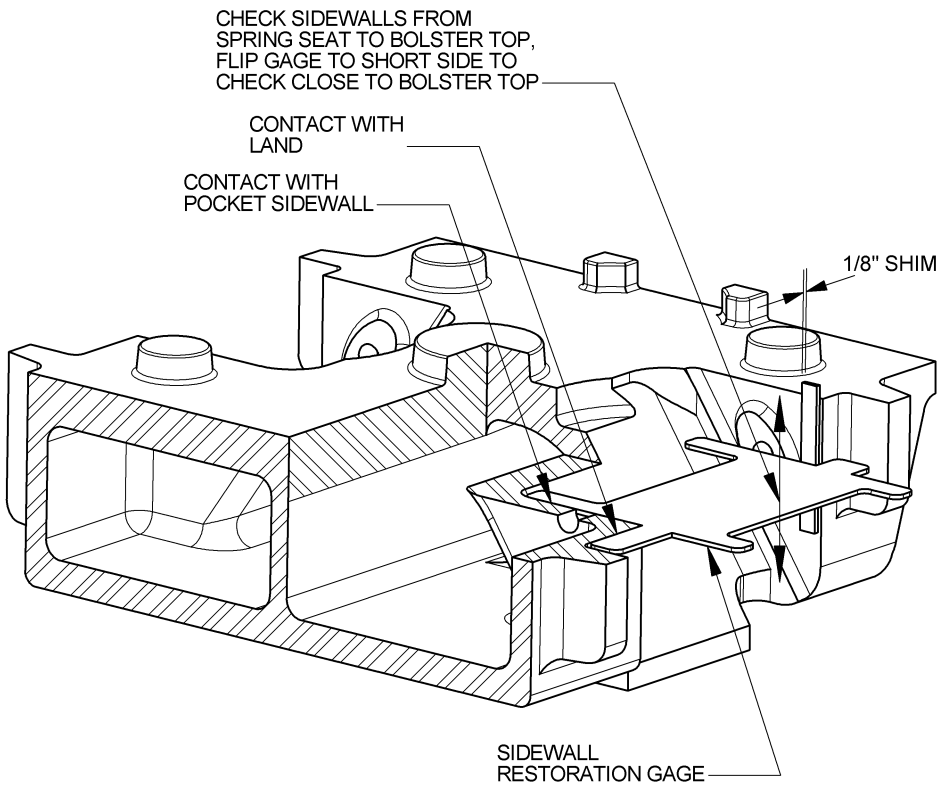
Bolster Pockets

Inspection

- Bolster Pocket Sidewall Restoration Guide
- Bolster Pocket Slopewall Restoration Guide
- Bolster Gib and Land Restoration Guide
- Split Wedge Insert Restoration Guide
- Parts must be clean, free of dirt, paint, rust, and scale so as not to interfere with gaging or inspection.

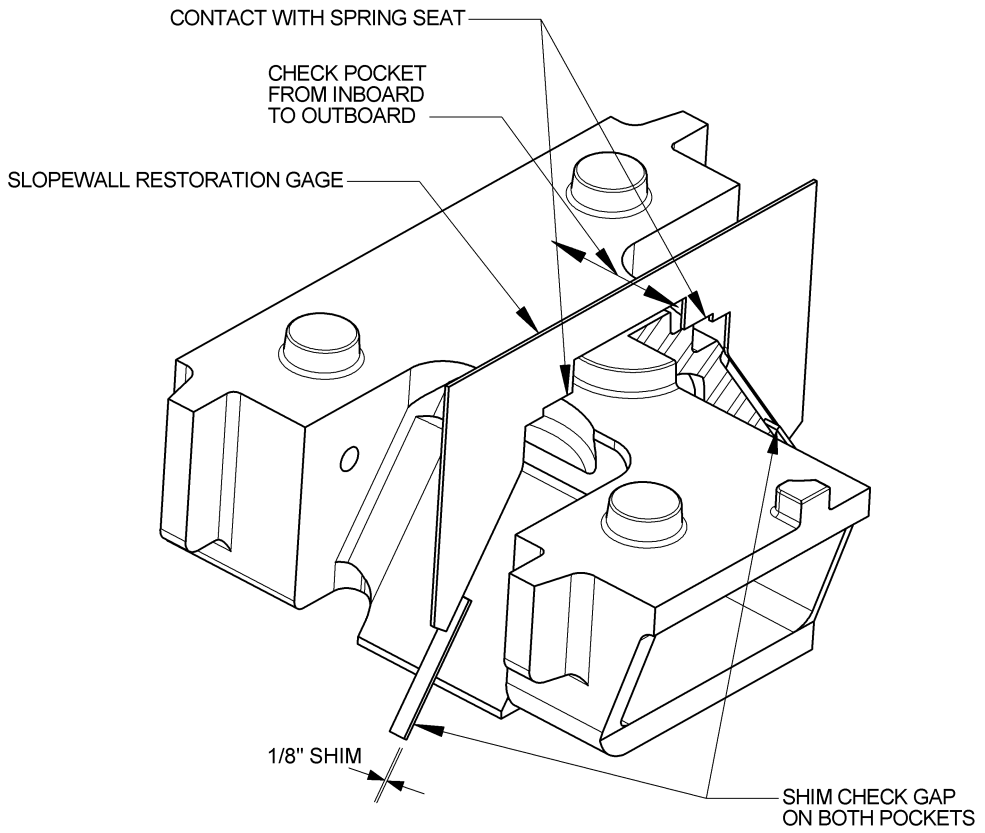
Bolster Pocket Sidewall Restoration Guide

1. Gage check bolster pocket sidewalls for wear and wear depth using the restoration gage for bolster pocket sidewalls (refer to section 6).
   A. Bolster pocket sidewall wear occurs on the outboard sidewalls of most bolsters but in some cases, it occurs on the inboard sidewalls. Check each pocket to determine whether wear is inboard, outboard or both. When checking the pockets, the gage should always be squared with the bolster by placing two edges of the gage in contact with two bolster pocket surfaces.
   B. For pockets with wear only on the outboard sidewall, gage each pocket as shown in figure with edge of gage contacting pocket along inboard sidewall and inboard land (contact outboard land instead if inboard land does not square the gage to the bolster). Measure wear gap at outboard sidewall with an 1/8" shim.
   C. For pockets with wear only on the inboard sidewall, apply gage as shown in figure with two edges of gage contacting pocket at outboard sidewall and outboard land (contact inboard land instead if outboard does not square the gage). Measure wear gap at inboard sidewall with an 1/8" shim.
   D. For pockets with wear on both the inboard and outboard sidewalls, apply gage as shown in figure with two edges of gage contacting pocket inboard sidewall and inboard land (or outboard land if necessary) using any unworn portion of the inboard sidewall as a gage surface. Measure wear gap at both inboard and outboard sidewalls with an 1/8" shim.
   E. If wear gap(s) exceed 1/8", worn area should be restored as follows:
      1. If the bolster was designed for use without pocket sidewall wear plates, the worn area should be restored to the gage dimensions by build-up with weld. Refer to bolster pocket sidewall repair procedure (section 5-C).
      2. If the bolster was designed for use with pocket sidewall wear plates, the worn wear plates should be replaced in kind with replacement wear plates. Refer to bolster pocket sidewall repair procedure (section 5-C).
   F. If neither gap exceeds 1/8", bolster pocket sidewalls meet the requirements for classification as secondhand according to M-214.
   G. For wear gap(s) exceeding 3/8", according to AAR M-214 the bolster may not be reconditioned and returned to interchange service nor classified as secondhand for resale.
2. For gage selection, see section 6.



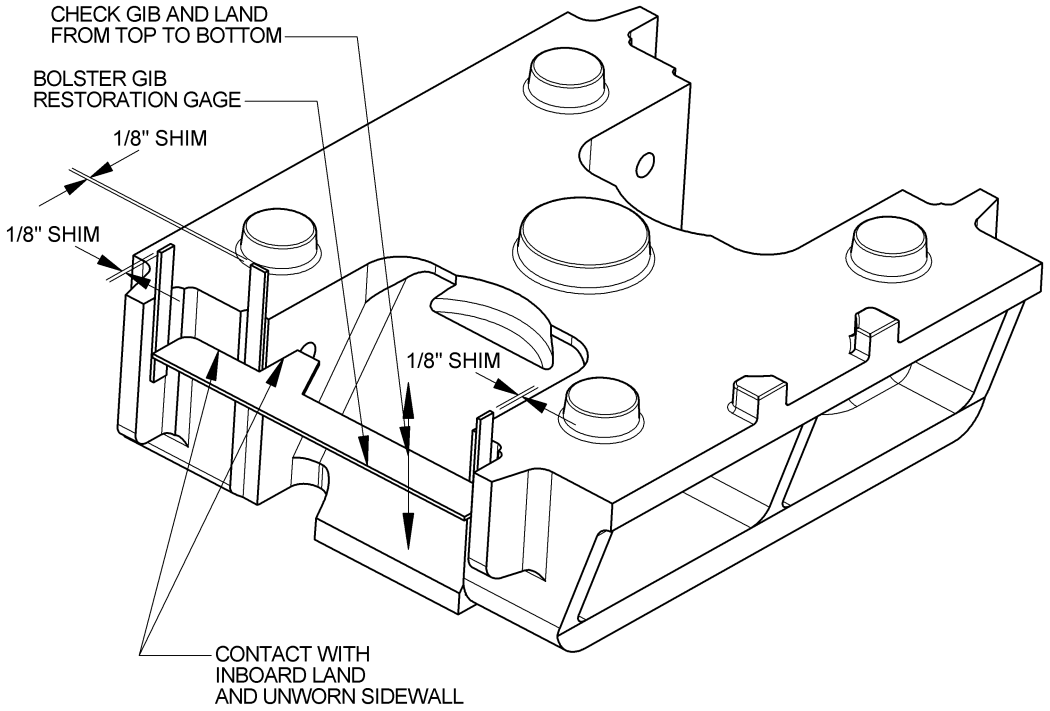
Bolster Pocket Slopewall Restoration Guide

1. Gage check bolster pocket slope surfaces for wear depth using slopewall restoration gage (refer to section 6). **Gage applies to all bolster pocket conditions: "As Cast" (without bolster pocket wear plates), with pocket wear plates, and with restoration pocket wear plates.**
   A. Gage each pocket, as shown, with gage centered on bolster end. Measure wear gap at both slope surfaces with 1/8" shim. For bolsters with side spring retainer lugs adjacent to pockets, apply gage to the inboard and outboard sides of lugs. Measure wear gap at slope surface with 1/8" shim on both sides of lugs.
   B. If either gap exceeds 1/8", the slope surface should be repaired as follows:
      1. If the bolster was designed for use in the "as cast" condition (without bolster pocket wear plates), the worn area should be restored to the gage dimensions by application of restoration wear plates or by build-up with weld. Refer to bolster pocket slopewall repair procedure (section 5-C).
      2. If the bolster was designed for use with pocket wear plates, the worn wear plates should be replaced in kind with replacement wear plates. Restoration wear plates are not recommended for use in pockets designed for use with pocket wear plates. Refer to bolster pocket slopewall repair procedure (section 5-C).
      3. If a wear plate is missing, use a 3/8" shim in place of the 1/8" shim.
   C. If neither gap exceeds 1/8", bolster pocket slopewalls meet the requirements for classification as secondhand according to M-214.
2. For gage selection, see section 6.



Bolster Gib and Land Restoration Guide

1. Gage check bolster gibs for wear and wear depth using the bolster gib restoration gage (refer to section 6).
   A. Gage each pocket, as shown, with short straight edge of gage wing contacting inboard pocket sidewall. Measure inboard and outboard gap with an 1/8" shim. M-214 requirements allow for 1/8" wear and new gibs are allowed ±1/8" tolerance.
   B. If either inboard or outboard gap exceeds 1/8", according to M-214, the worn gib(s) must be restored to the gage dimensions.
   C. If neither gap exceeds 1/8", bolster gibs meet the requirements for classification as secondhand according to M-214.
   D. If either inboard or outboard gap exceeds 1/4", according to AAR M-214, the worn gib may not be repaired by weld build-up. The remaining portion of the worn gib may be removed and replaced with a weld on gib. For assistance with this procedure, contact Wabtec engineering support.
2. Gage check bolster lands for wear and wear depth using the bolster gib restoration gage (refer to section 6 for gage selection and design).
   A. Gage each pocket, as shown, with edge of gage wing contacting inboard pocket sidewall (repair sidewall first if necessary) and with gage edge contacting unworn portion of inboard land. Measure depth of inboard land wear gap with a 1/8" shim. If wear pattern hinders gage contact with land, lightly grind down protruding area to allow normal application of the gage. Recheck wear gap. If inboard land is worn from gib to pocket, substitute bolster pocket sidewall restoration gage for gib restoration gage and substitute unworn outboard land surface.
   B. Pocket sidewall restoration gage must be used for any outboard land wear.
   C. If wear gaps exceed 1/8", according to AAR M-214, the worn land area must be restored to the gage dimensions.
   D. If gap does not exceed 1/8", bolster land meets the requirements for classification as secondhand according to M-214.
   E. If wear gaps exceed 3/8" deep x 1" wide, according to AAR M-214, the bolster may not be reconditioned and returned to interchange service nor classified as secondhand for resale.
3. For gage selection, see section 6.

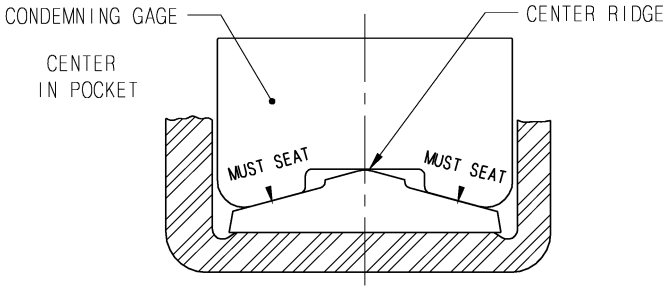


Split Wedge Insert Restoration Guide

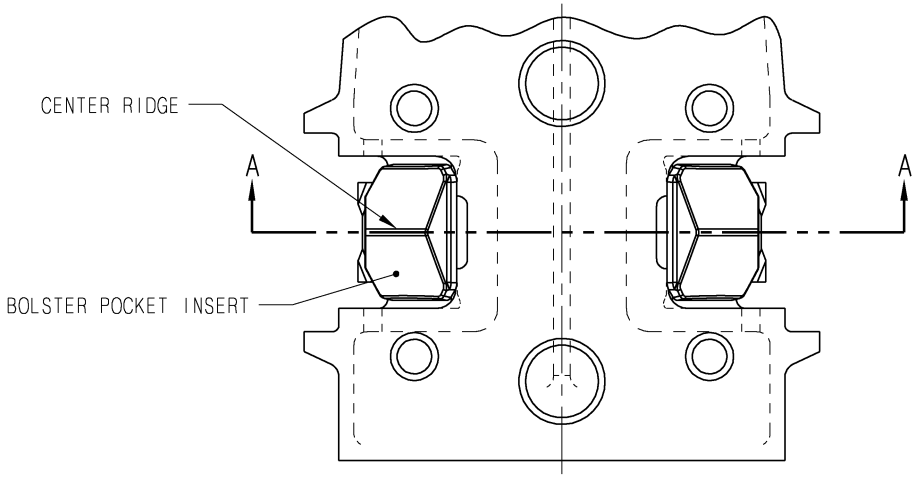
1. Position the gage on the pocket insert as shown in section B-B.
2. Slide the gage along the length of the insert as shown in section A-A.
3. If gage contacts center ridge at any point, then insert should be replaced.
4. For new insert installation refer to section 5-C.

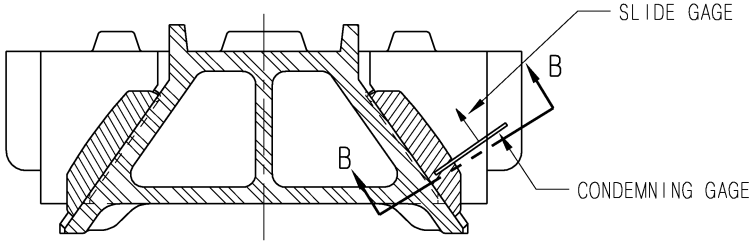
Truck Type	Wedge	Insert	Condemning Gage No.
S-2-A	955-SW	5824 5286*	SK-2048
S-2-B S-2-C	925-SW	5824 5286*	SK-2048
S-2-D	905-SW	5902	SK-2056
S-2-HD S-2-HD-9C	915-SW	5821	SK-2052
S-2-E	945-SW	6022	SK-2065

* Insert is used in “as cast” bolster pockets (pockets designed not to use pocket wear plates).



SECTION B-B
SCALE 1:2





SECTION A-A

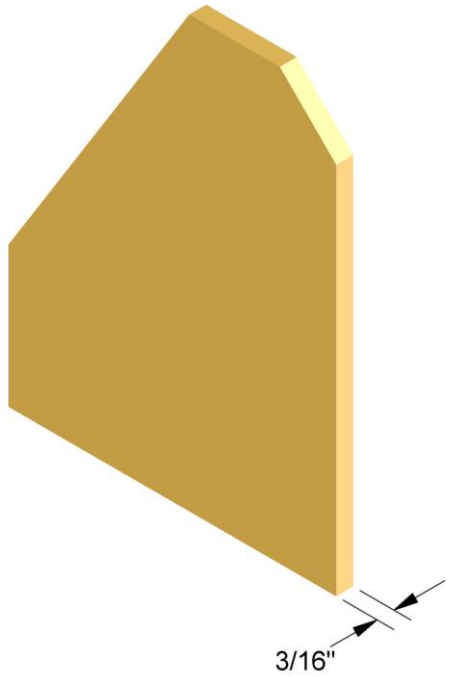
Bolster Pockets

Parts

- Bolster Pocket Sidewall Wear Plates
- Bolster Pocket Wear Plates and Inserts

Wabtec, Standard Car Truck
6400 Shafer Court – Ste 450, Rosemont, Illinois 60018, U.S.A.
Phone (847) 692-6050 Email: SCTTechCustomerService@Wabtec.com

Bolster Pocket Side Wall Wear Plates



Truck Type	Journal	Side Wall Wear Plate
S-2-C	6 x 11	6198
	6 1/2 x 12	6620
S-2-HD S-2-HD-9C	6 1/2 x 12	6129
S-2-HD	7 x 12	6130*
		6321

* Must be replaced in kind

MATERIAL: ASTM A514, hardness 321 BHN min, or SCT approved equivalent.

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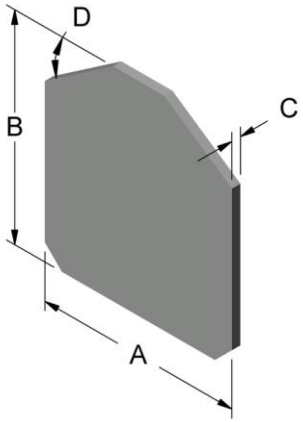
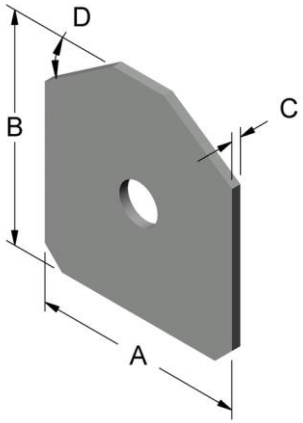
6400 Shafer Court – Ste 450, Rosemont, Illinois 60018, U.S.A.
Phone (847) 692-6050 Email: SCTTechCustomerService@Wabtec.com

Bolster Pocket Wear Plates and Inserts





Type 1 Bolster Pocket Wear Plates				
Part No.	A	B	C	D
281+	4 3/4	4	1/4	52°
272+	4 3/4	4 1/4	1/4	34 1/2°
282	5	5	1/4	52°
273+	5 1/4	4 1/4	1/4	34 1/2°
373	5 1/4	4 1/4	1/2	34 1/2°
275	5 1/2	5 5/8	1/4	34 1/2°
276	5 1/2	6	1/4	34 1/2°
277	5 1/2	6	5/16	34 1/2°
274+	6 1/4	4 1/4	1/4	34 1/2°

+ “As cast” pocket restoration wear plate.

Material: ASTM A 514 type B alloy steel heat treated to 321 min. BHN or abrasion resistant steel BHN 341 – 415.

All bolster pocket wear plates flat within .025”.

Type 3 Bolster Pocket Wear Plates				
Part No.	A	B	C	D
272-SX3+	4 3/4	4 1/4	1/4	34 1/2°
282-SX3	5	5	1/4	52°
278-SX3	5	5 1/16	1/4	34 1/2°
173-SX3+	5 1/4	4 1/4	1/8	34 1/2°
273-SX3+	5 1/4	4 1/4	1/4	34 1/2°
473-SX3	5 1/4	4 1/4	3/8	34 1/2°
175-SX3+	5 1/2	5 5/8	1/8	34 1/2°
275-SX3	5 1/2	5 5/8	1/4	34 1/2°
276-SX3	5 1/2	6	1/4	34 1/2°
376-SX3	5 1/2	6	5/16	34 1/2°
476-SX3	5 1/2	6	3/8	34 1/2°
274-SX3+	6 1/4	4 1/4	1/4	34 1/2°
279-SX3	7 1/2	5 5/8	1/4	35 1/2°
283-SX3	5 1/2	5	1/4	34 1/2°

+ “As cast” pocket restoration wear plate.

Material: ASTM A 666 type 304 austenitic stainless steel or approved equivalent.

All bolster pocket wear plates flat within .025”.

Bolster Pocket Inserts		
Truck Type	Split Wedge*	Insert**
S-2-A	955-SW	5824 5286***
S-2-B S-2-C	925-SW	5824 5286***
S-2-D	905-SW	5902
S-2-HD S-2-HD-9C	915-SW	5821
S-2-E	945-SW	6022

* Bolster pockets must have square sidewalls to use split wedge.

** Inserts are used exclusively with split wedges.

*** Thin insert is used in “as cast” bolster pockets (pockets designed not to use pocket wear plates). Thick insert replaces pocket wear plate.

Wabtec, Standard Car Truck
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Bolster Pockets

Repair

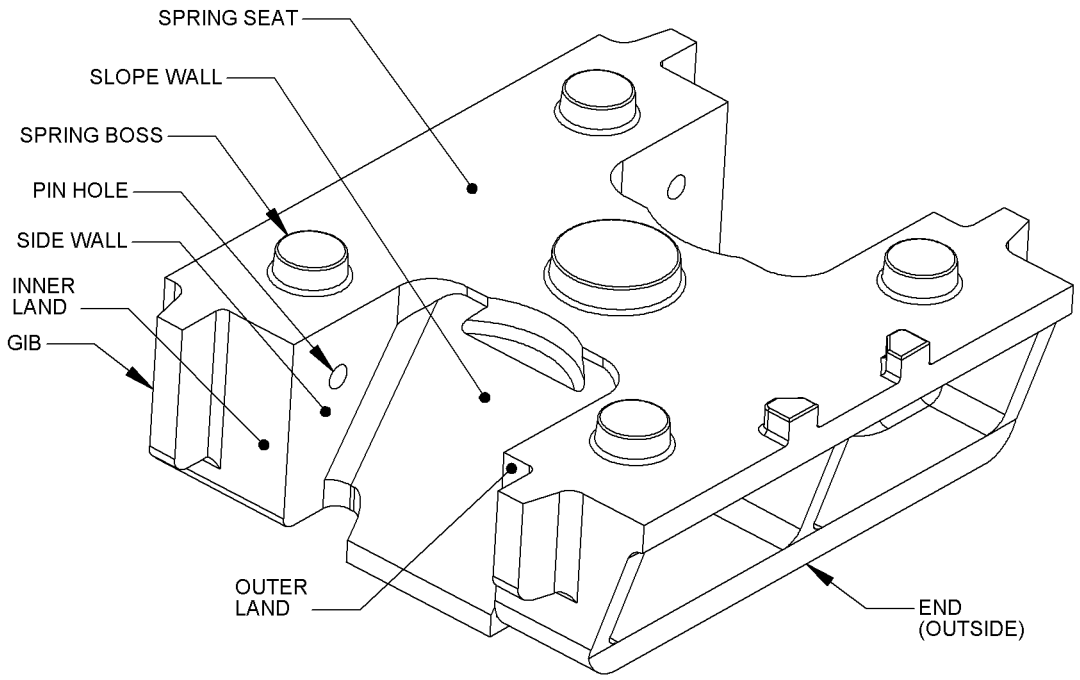
- Bolster Restoration Procedures
- Bolster Pocket Sidewall Repair Procedure
- Bolster Pocket Sidewall Repair Inspection
- Bolster Pocket Sidewall Wear Plate Installation Procedure
- Bolster Pocket Slopewall Repair Procedure
- Bolster Pocket Slopewall Repair Inspection
- Bolster Pocket Restoration Wear Plate Installation Procedure
- Bolster Pocket Replacement Wear Plate Installation Procedure
- Bolster Pocket Insert Installation Procedure (Without Side Wall Wear Plates)
- Bolster Pocket Insert Installation Procedure (With Side Wall Wear Plates)
- Bolster Gib and Land Repair Procedure
- Bolster Gib and Land Repair Inspection
- Bolster Pocket Wear Plate Installation Clamp
- Parts must be clean, free of dirt, paint, rust, and scale so as not to interfere with gaging or inspection.

Bolster Restoration Procedures

1. This specification is intended for use in conjunction with AAR rule 47 and AAR M-214 as a guide to the repair of all Barber stabilized truck bolster ends including wear plate application and weld buildup of worn surfaces. Bolsters meeting the reconditioning requirements of these procedures meet the bolster end requirements for classification as reconditioned according to M-214. For assistance with these or any other Barber maintenance manual procedures, contact Wabtec engineering support.
2. Bolster Repair Preparation Inspection
   A. Check bolster for cracks and gouges. If bolster is cracked or gouged, refer to rule 47 and M-214 for further instructions.
   B. Check bolster center bowl for wear and condition of any wear liner(s). Center bowls exceeding the wear limits in rule 47 and M-214 must be reconditioned before reuse.
3. Bolster End Repair Preparation Procedure
   A. For weld repair and application of steel wear plates, determine bolster material type. The grade of steel is indicated in the AAR identification number as AAR B ####, AAR B+ ####, or AAR C ####. Refer to section 1, General Information, for more information on bolster markings.
   B. Prepare bolster for gage checking and repair by placing bolster bowl side down for easy access to bolster pockets. Position bolster to allow ample space above and below bolster end(s) for grinding and weld application. Positioning bolster upside down on an elevated work surface with ends extended out away from work surface offers the best access to worn bolster end surfaces. Remove all debris from gaged surfaces.

ELECTRODE RECOMMENDATION			
	Grade B	Grade B+	Grade C
Shielded Metal Arc Welding	E7018, 5/32”[1] Electrode, Dry	E8018, 5/32”[1] Electrode, Dry	E9018, 5/32”[1] Electrode, Dry
Flux Core Arc Welding	E71T-1M[2], 1/16”[1] Wire, or E71T-7[3], 1/16”[1] WIRE, or E71T-8[3], 1/16”[1] WIRE	E81T1-B2[2], 1/16”[1] WIRE	E91T1-B3[2], 1/16”[1] WIRE, or E91T1-K2[2], 1/16”[1] WIRE
Gas Metal Arc Welding	ER70S-2MH[2], 1/16”[1] WIRE, or ER70C-2MH[2], 1/16”[1] WIRE, or ER70S-G[2], 1/16”[1] WIRE, or ER70C-G[2], 1/16”[1] WIRE	ER80S-D2[2], 1/16”[1] WIRE, or ER80C-D2[2], 1/16”[1] WIRE, or ER81S-G[2], 1/16”[1] WIRE, or ER81C-G[2], 1/16”[1] WIRE	ER90S-D2[2], 1/16”[1] WIRE, or ER90C-D2[2], 1/16”[1] WIRE, or ER91S-G[2], 1/16”[1] WIRE, or ER91C-G[2], 1/16”[1] WIRE

1 Max diameter
2 75% Ar 25% CO_2
3 No shield gas required



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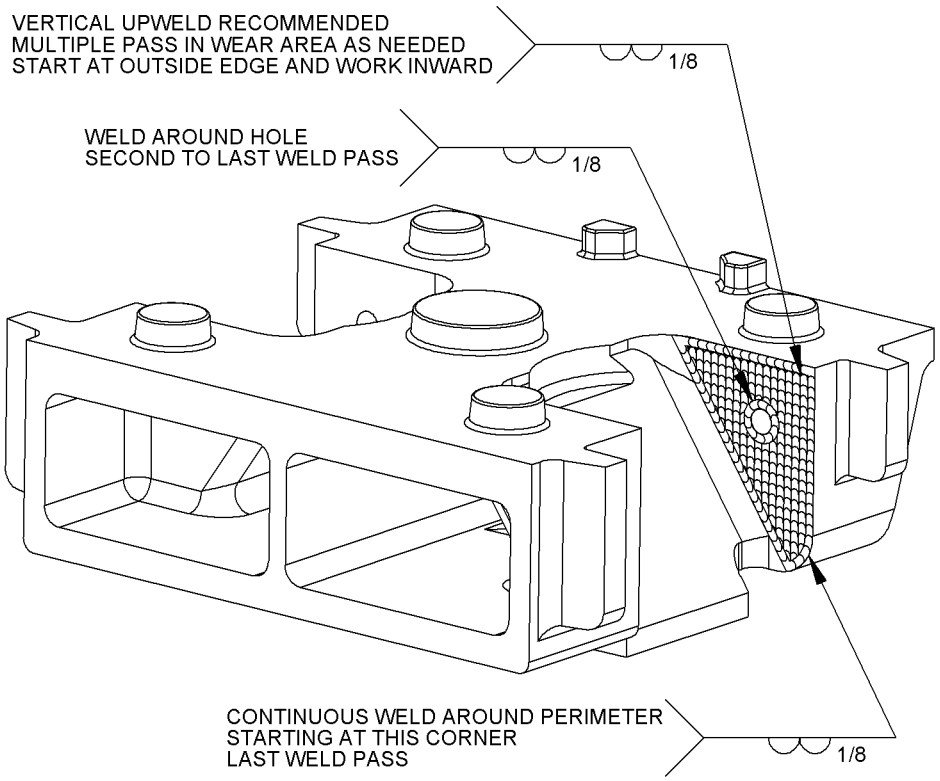
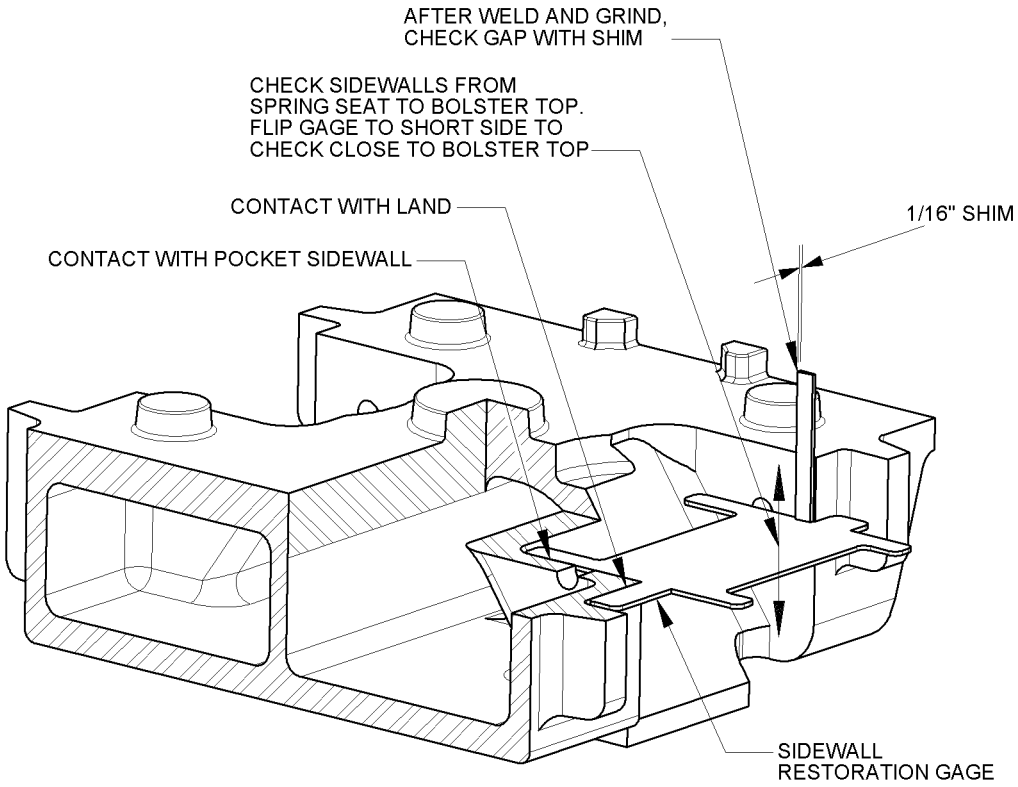
Bolster Pocket Sidewall Repair Procedure

1. Bolster End Worn Surface General Repair Procedure
   A. For installation of sidewall wear plates, refer to Bolster Pocket Sidewall Wear Plate Installation Procedure (see page 5-C-4).
   B. Select electrode from welding electrode specification table (see page 5-C-1). For SMA (stick) welding, use only electrodes dried to AWS standards. For FCAW or GMAW, use only 1/16" diameter or smaller wire.
   C. Prepare worn surface for welding by lightly grinding away all corrosion and contamination. Grinding down high spots and sharp edges will help ensure a more even result. Proceed with weld repair as soon as possible after grinding to minimize post preparation oxidation and contamination.
   D. Follow M-214 requirements for casting temperature and preheating casting prior to welding. For grade B material, light local preheating of the work area will help to ensure the best possible results regardless of casting temperature.
2. Bolster Pocket Sidewall Weld Repair Procedure
   A. With bolster spring seat facing up, apply vertical up welds in wear area for good bead size and penetration in sequence indicated on sidewall weld pattern diagram. Start with the outer edge of sidewall and work inward. Chip off slag coating after each bead is applied.
   B. Finish weld pattern sequence with one continuous weld around the outer edge and one around the inside hole of the vertical bead pattern to blend and anneal the strike and stop ends of each vertical weld.
   C. Grind down high spots to produce a flat even surface. For retrofit applications of Barber TwinGuard and LifeGuard friction wedges, finished sidewalls should be smooth to touch as well as flat and even over the entire sidewall.



Bolster Pocket Sidewall Repair Inspection

1. Bolster Pocket Sidewall Repair Inspection
   - A. Gage check new surfaces using the restoration gage for bolster pocket sidewalls (refer to section 6).
   - B. Gage should “go” into pocket without interference.
   - C. Remaining gap should be measured with a 1/16” shim.
   - D. If gap exceeds 1/16” at any point, then repeat steps 2A through 2C from the Bolster Pocket Sidewall Repair Procedure in section 5-C as necessary.
   - E. If gap does not exceed 1/16” at any point, sidewalls meet requirements for classification as reconditioned according to M-214.



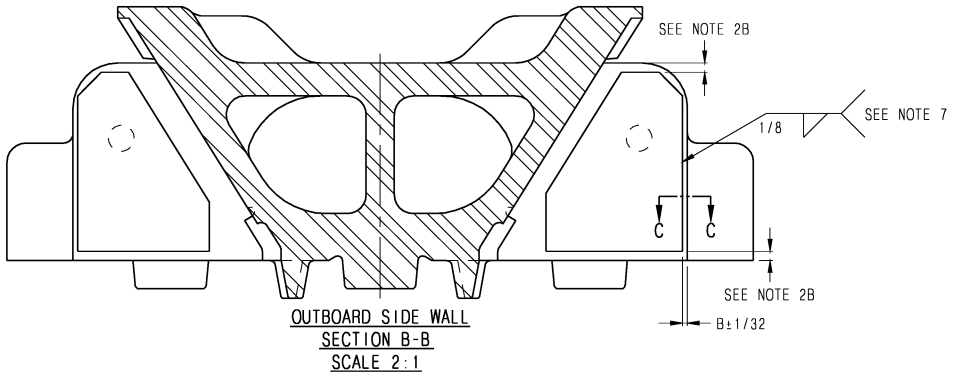
Bolster Pocket Sidewall Wear Plate Installation Procedure

Sidewall Wear Plate Installation Procedure

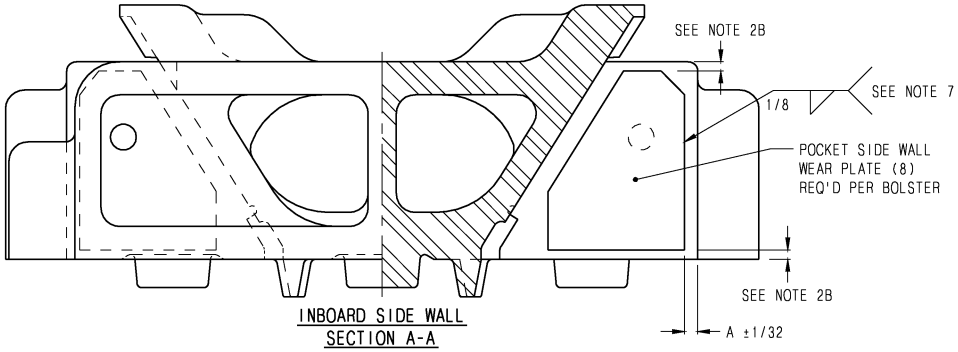
1. Pocket sidewall surface must be smooth, true, dry, and at a temperature over 50° F (preheat grade C).
2. Position wear plate on pocket sidewall surface as shown in sections A-A and B-B such that:
   - A. The horizontal distance from the wear plate to the pocket edge is held within ±1/32.
   - B. Vertical distances:
     1. For 7 x 12 S-2-HD applications, position bottom wear plate edge 1/4±1/32 from bolster spring seat.
     2. For all other applications, the vertical dimensions between the wear plate edges and the top and bottom casting edges shall be equal within ±1/16.
3. Tack weld pocket sidewall wear plate in place and check position.
4. Pocket sidewall wear plate should be adjusted, or removed and repositioned if:
   - A. Conditions as outlined above in note 2A and 2B are not satisfied.
   - B. A 1/32" x 3/8" shim will fit between the wear plate and pocket sidewall more than 3/4" deep. In this condition, it may be necessary to grind the sidewall surface to insure a proper seat.
5. Position bolster for downhand welding and avoid overheating during welding.
6. Welding shall be done in accordance with AAR specifications, in a workman like manner, be homogeneous, and free of gas and foreign inclusions.
7. Weld should be continuous along top of wear plate, along all outside edges, and along bottom of wear plate.
8. Inspect bolster pockets to be sure wear plates, insert, sidewalls, and spring seat are free of weld spatter, burrs, and sharp edges.
9. Welding consumable:
   - A. Grade B castings: AWS E-7018, 5/32” max diameter, dry.
   - B. Grade B+ castings: AWS E-8018, 5/32” max diameter, dry.
   - C. Grade C castings: AWS E-9018, 5/32” max diameter, dry. See AAR field manual rule 82 for requirements regarding grade C castings.

Truck Type	Bearing Size	Wear Plate	A	B	C	D
S-2-C	6 x 11	6198	1/8	1/8	5 3/4	6 1/8
	6 1/2 x 12	6620	1/8	1/8	5 3/4	6 1/8
S-2-HD	6 1/2 x 12	6129	11/32	1/8	6 3/4	7 1/8
	7 x 12	6321*	11/32	1/8	6 3/4	7 1/8
		6130				
S-2-HD-9C	6 1/2 x 12	6129	7/32	1/8	6 3/4	7 1/8

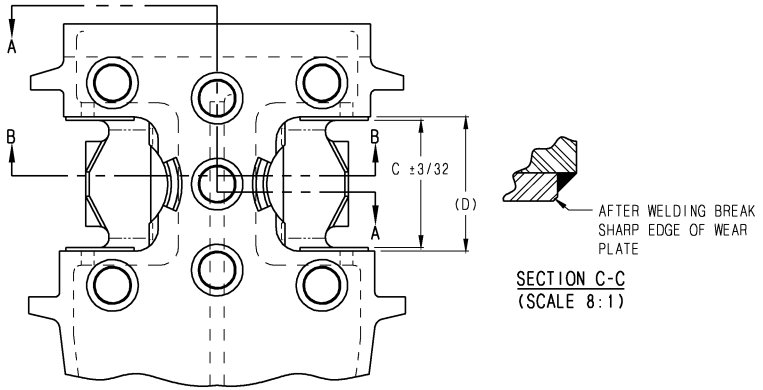
* Designed for use with bolster pattern B1369HJ



OUTBOARD SIDE WALL
SECTION B-B
SCALE 2:1



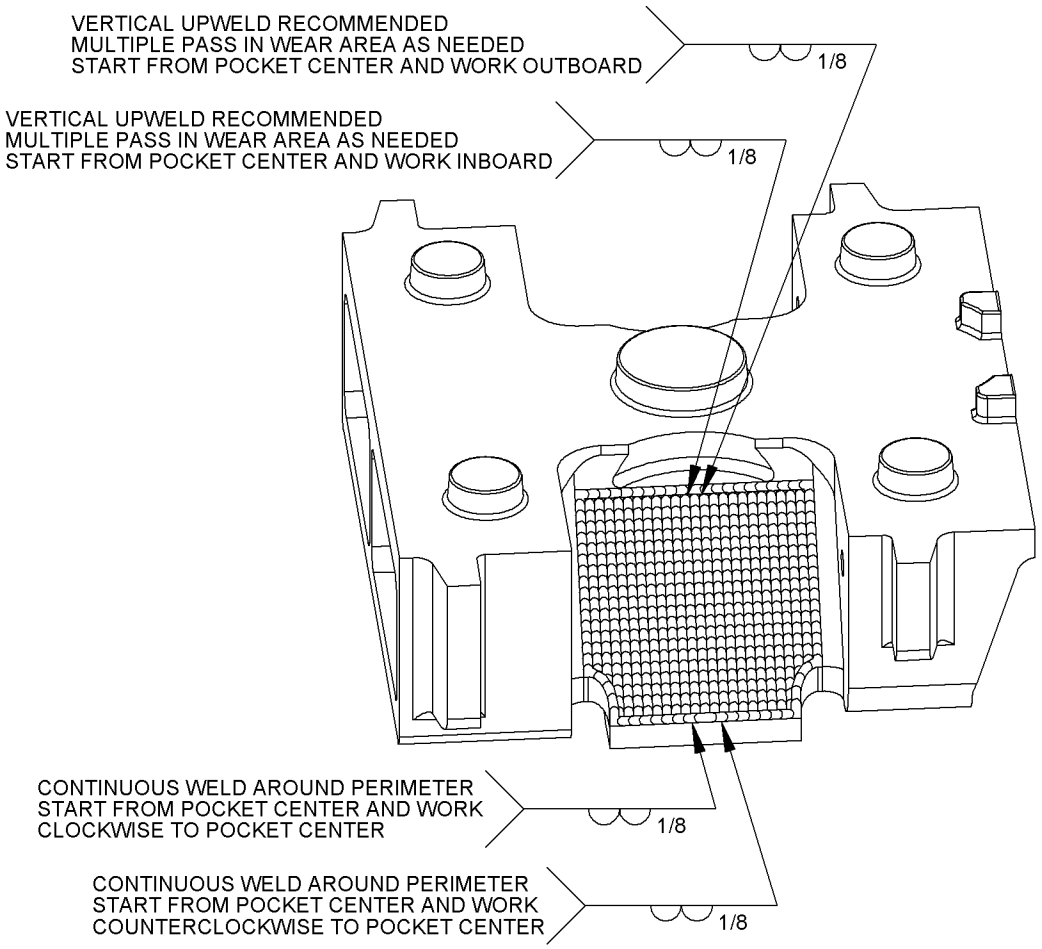
INBOARD SIDE WALL
SECTION A-A
SCALE 2:1



SECTION C-C
(SCALE 8:1)

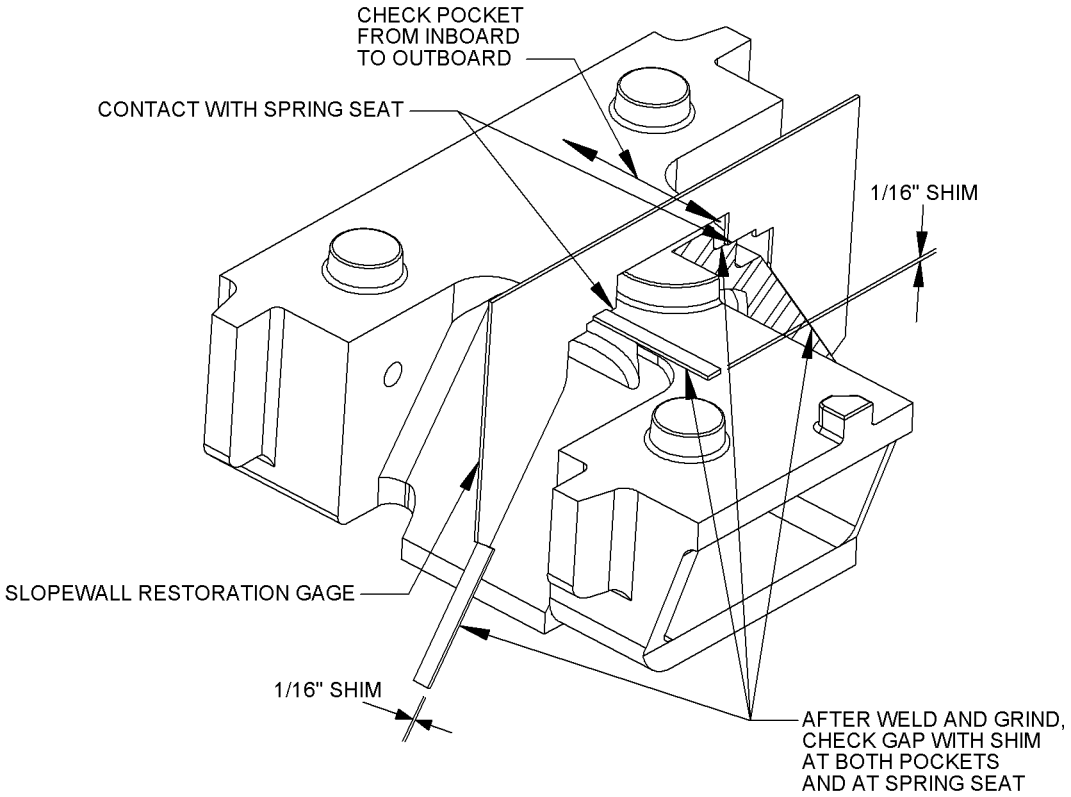
Bolster Pocket Slopewall Repair Procedure

1. Bolster End Worn Surface General Repair Procedure
   - A. For installation of replacement wear plates, refer to Bolster Pocket Replacement Wear Plate Installation Procedure in section 5-C.
   - B. Select electrode from welding electrode specification table (see page 5-C-1). For SMA (stick) welding, use only electrodes dried to AWS standards. For FCAW or GMAW, use only 1/16" diameter or smaller wire.
   - C. Prepare worn surface for welding by lightly grinding away all corrosion and contamination. Grinding down high spots and sharp edges will help ensure a more even result. Proceed with weld repair as soon as possible after grinding to minimize post preparation oxidation and contamination.
   - D. Follow M-214 requirements for casting temperature and preheating casting prior to welding. For grade B material, light local preheating of the work area will help to ensure the best possible results regardless of casting temperature.
2. Bolster Pocket Slopewall Repair Procedure For As Cast Pockets
   - A. Repair may be done by restoration pocket wear plates or weld buildup.
     1. Restoration wear plate part numbers: 272, 273, 274, 281, 173-SX3, 175-SX3, 272-SX3, 273-SX3, 274-SX3, 283-SX3.
     2. For wear plate selection and installation procedure, including electrode selection, refer to bolster pocket restoration wear plate installation procedure in section 5-C.
   - B. For retrofit applications of Barber LifeGuard or TwinGuard friction wedges, the restoration pocket wear plates listed above are <u>not</u> recommended for slopewall repair.
   - C. With bolster spring seat facing up, apply vertical up welds in wear area for good bead size and penetration in sequence indicated on slopewall weld pattern diagram. Start with the centerline of the bolster pocket and work outboard. Chip off slag coating after each bead is applied. Repeat procedure from the centerline and work inboard. Avoid welding in radii of bolster pocket.
   - D. Finish weld pattern sequence with one continuous weld around the outer edge of the vertical bead pattern to blend and anneal the strike and stop ends of each vertical weld.
   - E. Grind down high spots to produce flat even surface. For retrofit applications of Barber TwinGuard and LifeGuard friction wedges, finished slopewalls should be smooth to touch as well as flat and even over the entire slopewall.



Bolster Pocket Slopewall Repair Inspection

1. Bolster Pocket Slopewall Repair Inspection Procedure for As Cast Pockets
   - A. Gage new surface using slopewall restoration gage (refer to section 6). **Gage applies to all bolster pocket conditions: "As Cast" (without bolster pocket wear plates), with pocket wear plates, and with restoration pocket wear plates.**
   - B. Remaining gap at slopewalls should be measured with a 1/16" shim. If gage contacts both new slopewalls, then check gap at spring seat with 1/16" shim.
   - C. If both slopewall gaps exceed 1/16", then repeat steps 2C through 2E from the bolster pocket slopewall repair procedure in section 5-C as necessary, or
   - D. If spring seat gap exceeds 1/16", then repeat only step 2E from the bolster pocket slopewall repair procedure in section 5-C as necessary.
   - E. If gap(s) do not exceed 1/16" at any point, slopewalls meet requirements for classification as reconditioned according to M-214.

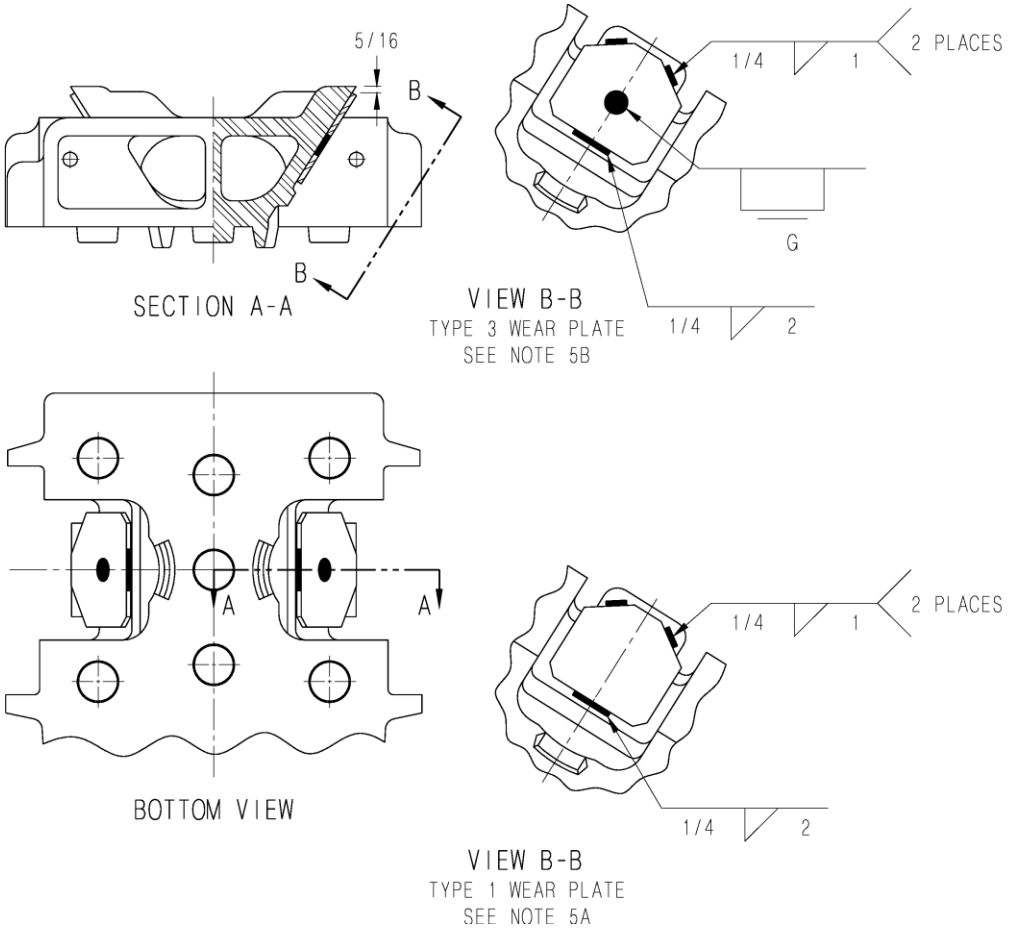


Bolster Pocket Restoration Wear Plate Installation Procedure

Restoration wear plate part numbers: 272, 273, 274, 281, 173-SX3, 175-SX3, 272-SX3, 273-SX3, 274-SX3.

Wear Plate Application Procedure:

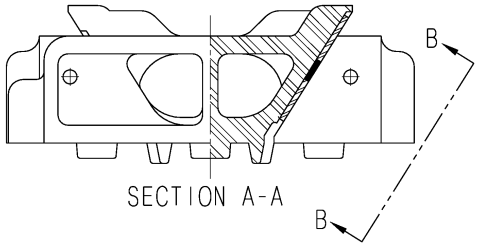
1. Slope surface of pocket must be smooth, true, dry and temperature over 50°F.
2. Seat wear plate firmly in pocket (no rocking allowed) with upper edge of plate 5/16” below top of bolster extension. Optional - secure with clamp SK-1570 (included at end of section 5-C) in pockets with side wall pin holes.
3. Position bolster for downhand welding.
4. Avoid overheating due to slow arc travel.
5. Wear plate welding:
   - A. Type 1 wear plates
     1. Weld plate as shown in view B-B, at 2 places with 1" long fillet welds on the top angled corners.
     2. Place a 2" long fillet weld on the bottom center edge.
   - B. Type 3 wear plates
     1. Weld fillet bead around entire circumference of hole first, remove all welding slag, then fill with weld until it extends above plate surface.
     2. Weld plate as shown in view B-B, at 2 places with 1" long fillet welds on the top angled corners.
     3. Place a 2" long fillet weld on the bottom center edge.
6. Grind the plug weld (if applicable) and any welds that extend above the plate surface flush to 1/16" below the wear plate surface.
7. Check fit with a 1/32" thick x 3/8" wide gage. Gage must not pass between the cast surface and plate more than 3/4" deep. If it does:
   - A. The wear plate must be removed.
   - B. The cast slope surface must be reground to insure a proper seat.
8. Welding to be done in a workmanlike manner, be homogeneous, and free of gas and foreign inclusions.
9. Welding consumable:
   - A. Stainless steel wear plates (see section 5-B for relevant part numbers):
     1. Use stainless steel AWS E309-16 welding rod, E309LT-1, E309LT-3, E309LT-6, or E309LT-8 welding wire.
   - B. All other wear plates:
     1. Grade B castings: AWS E-7018, 5/32” max diameter, dry.
     2. Grade B+ castings: AWS E-8018, 5/32” max diameter, dry.
     3. Grade C castings: AWS E-9018, 5/32” max diameter, dry. See AAR field manual rule 82 for requirements regarding grade C castings.

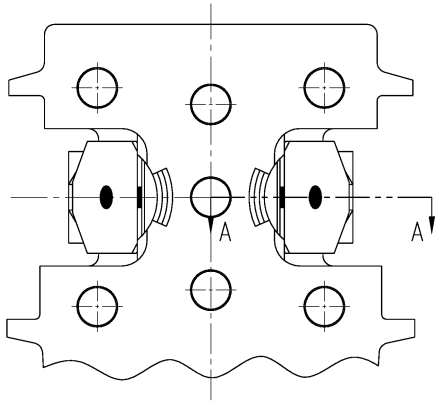


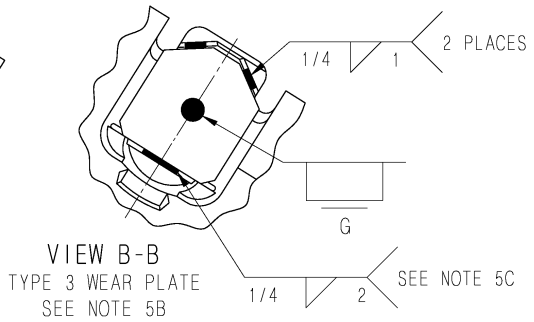
Bolster Pocket Wear Plate Installation Procedure

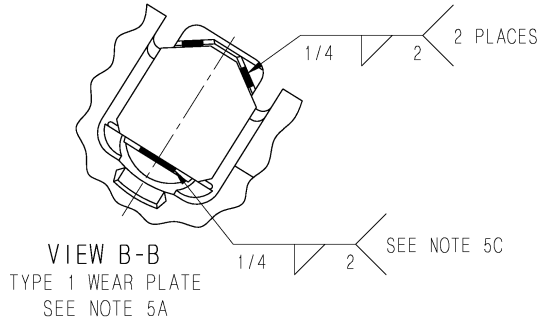
Wear Plate Application Procedure:

1. Slope surface of pocket must be smooth, true, dry and temperature over 50°F.
2. Seat wear plate firmly in pocket (no rocking allowed) with bottom edge of plate butted against lower stop lugs, or in pockets where no lower lugs are present, position the wear plates top angled corners against the upper weld lugs. Optional – secure with clamp SK-1570 (included at end of section 5-C) in pockets with side wall pin holes.
3. Position bolster for downhand welding.
4. Avoid overheating due to slow arc travel.
5. Wear plate welding:
   - A. Type 1 wear plates
     1. Weld plate as shown in view B-B, at 2 places with 1" long groove welds on the top angled corners, or substitute with a continuous groove weld.
     2. Place a 2" long fillet weld on the bottom center edge.
   - B. Type 3 wear plates
     1. Weld fillet bead around entire circumference of hole first, remove all welding slag, then fill with weld until it extends above plate surface.
     2. Weld plate as shown in view B-B at 2 places with 1" long groove welds on the top angled corners, or substitute with a continuous groove weld.
     3. Place a 2" long fillet weld on the bottom center edge.
   - C. S-2-HD bolster - <u>special</u> welding instructions
     1. Fillet weld on the bottom center edge shall be 1” long max. This weld is optional for stainless steel plates (SX3 suffix).









6. Grind the plug weld (if applicable) and any welds that extend above the plate surface flush to 1/16" below the wear plate surface.
7. Check fit with a 1/32" thick x 3/8" wide gage. Gage must not pass between the cast surface and plate more than 3/4" deep. If it does:
   - A. The wear plate must be removed.
   - B. The cast slope surface must be reground to insure a proper seat.
8. Welding to be done in a workmanlike manner, be homogeneous, and free of gas and foreign inclusions.
9. Welding consumable:
   - A. Stainless steel wear plates (see section 5-B for relevant part numbers):
     1. Use stainless steel AWS E309-16 welding rod, E309LT-1, E309LT-3, E309LT-6, or E309LT-8 welding wire.
   - B. All other wear plates:
     1. Grade B castings: AWS E-7018, 5/32” max diameter, dry.
     2. Grade B+ castings: AWS E-8018, 5/32” max diameter, dry.
     3. Grade C castings: AWS E-9018, 5/32” max diameter, dry. See AAR field manual rule 82 for requirements regarding grade C castings.

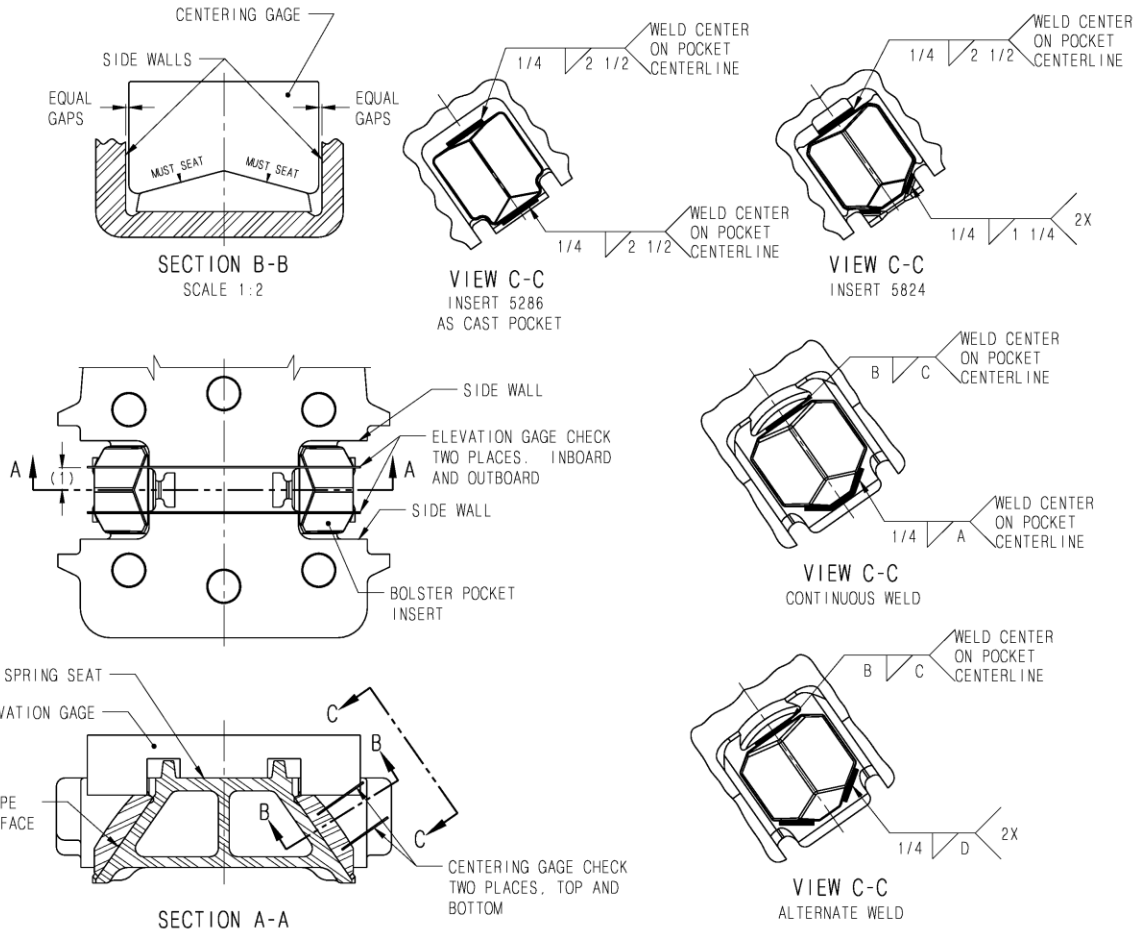
Bolster Pocket Insert Installation Procedure For Pockets Without Side Wall Wear Plates

Notes:

1. Inserts 5824, 5821, and 6022 require the removal of bolster pocket slope wear plates, if present.
2. Slope surface of pocket must be smooth, true, dry and temperature over 50°F.

Insert Application Procedure:

1. Seat insert firmly in pocket such that:
   A. It is centered with the centering gage (refer to section 6).
   B. It is level with the elevation gage (refer to section 6).
2. Position bolster for downhand welding.
3. Avoid overheating due to slow arc travel.
4. Clamp insert in position and tack weld in place.
5. Gage check position of insert. Insert should be adjusted, or removed and repositioned if:
   A. The centering gage touches either pocket side wall at any point, or
   B. The elevation gage is not within 1/16” of the insert or the spring seat at any point, or
   C. A 1/32” x 3/8” shim will fit between the insert and slope surface more than 3/4” deep. In this condition it may be necessary to grind the cast slope surface to insure a proper seat.
6. Welding to be done in a workmanlike manner, be homogeneous, and free of gas and foreign inclusions.
7. Inspect bolster pockets to be sure that inserts, side walls, and spring seats are free of weld splatter, burrs, and sharp edges.
8. Welding consumable:
   A. Grade B castings: AWS E-7018, 5/32” max diameter, dry.
   B. Grade B+ castings: AWS E-8018, 5/32” max diameter, dry.
   C. Grade C castings: AWS E-9018, 5/32” max diameter, dry. See AAR specification M-214 for requirements regarding grade C castings.



Insert	Weld Length A	B	C	D
5821	4 1/2	1/4	3 1/2	1 1/2
5902	6	1/4	2 1/2	2 1/2
6022	5	3/8	2 3/4	2

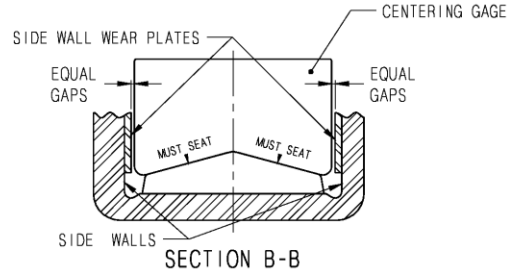
Bolster Pocket Insert Installation Procedure
For Pockets With Side Wall Wear Plates

Notes:

1. Side wall wear plates must be installed prior to insert application.
2. Inserts 5824 and 5821 require the removal of bolster pocket slope wear plates, if present.
3. Slope surface of pocket must be smooth, true, dry and temperature over 50°F.

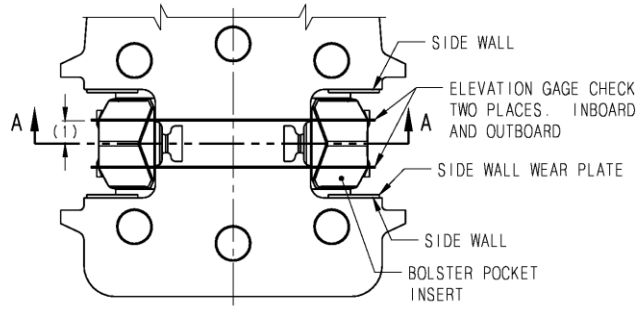
Insert Application Procedure:

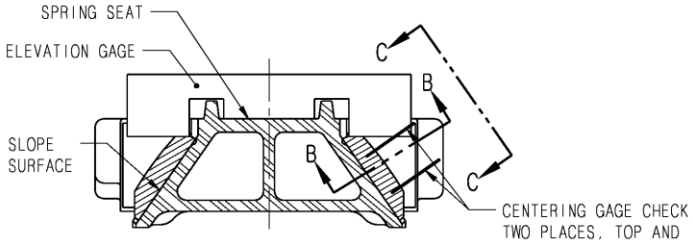
1. Seat insert firmly in pocket such that:
   A. It is centered with the centering gage (refer to section 6).
   B. It is level with the elevation gage (refer to section 6).
2. Position bolster for downhand welding.
3. Avoid overheating due to slow arc travel.
4. Clamp insert in position and tack weld in place.
5. Gage check position of insert. Insert should be adjusted, or removed and repositioned if:
   A. The centering gage touches either pocket side wall wear plate at any point, or
   B. The elevation gage is not within 1/16" of the insert or the spring seat at any point, or
   C. A 1/32" x 3/8" shim will fit between the insert and slope surface more than 3/4" deep. In this condition it may be necessary to grind the cast slope surface to insure a proper seat.
6. Welding to be done in a workmanlike manner, be homogeneous, and free of gas and foreign inclusions.
7. Inspect bolster pockets to be sure that inserts, side wall wear plates, side walls, and spring seats are free of weld splatter, burrs, and sharp edges.
8. Welding consumable:
   A. Grade B castings: AWS E-7018, 5/32" max diameter, dry.
   B. Grade B+ castings: AWS E-8018, 5/32" max diameter, dry.
   C. Grade C castings: AWS E-9018, 5/32" max diameter, dry. See AAR specification M-214 for requirements regarding grade C castings.



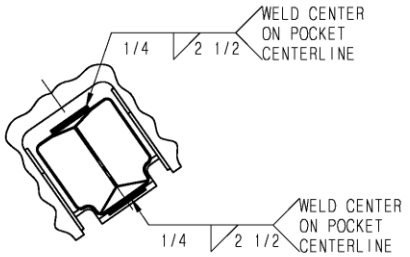
SECTION B-B
SCALE 1:2

NOTE: SIDE WALL WEAR PLATES MUST BE INSTALLED PRIOR TO INSERT APPLICATION.

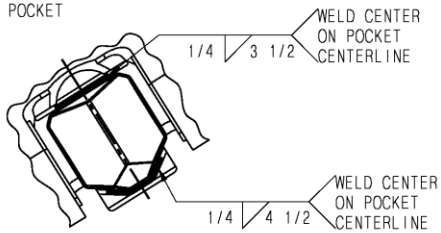




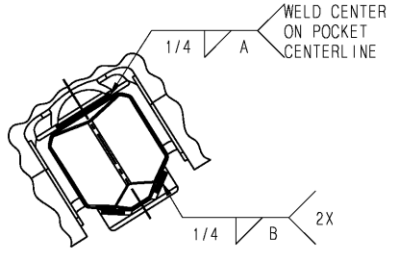
SECTION A-A



VIEW C-C
INSERT 5286
AS CAST POCKET



VIEW C-C
CONTINUOUS WELD
INSERT 5821

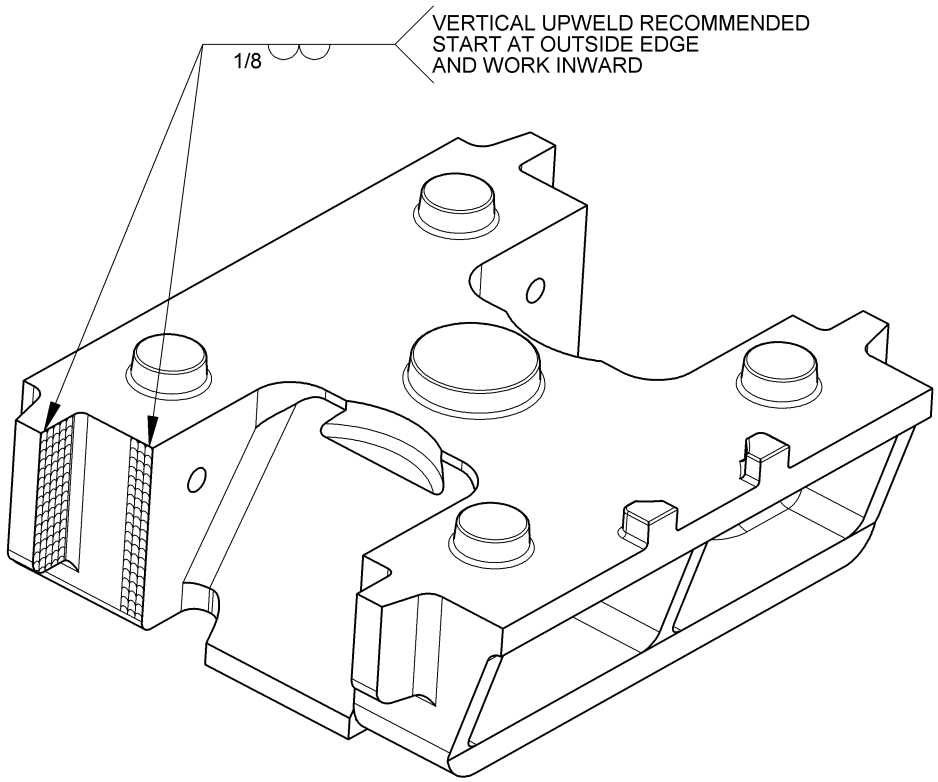


VIEW C-C
ALTERNATE WELD

Weld Length		
Insert	A	B
5824	2 1/2	1 1/4
5821	3 1/2	1 1/2

Bolster Gib and Land Repair Procedure

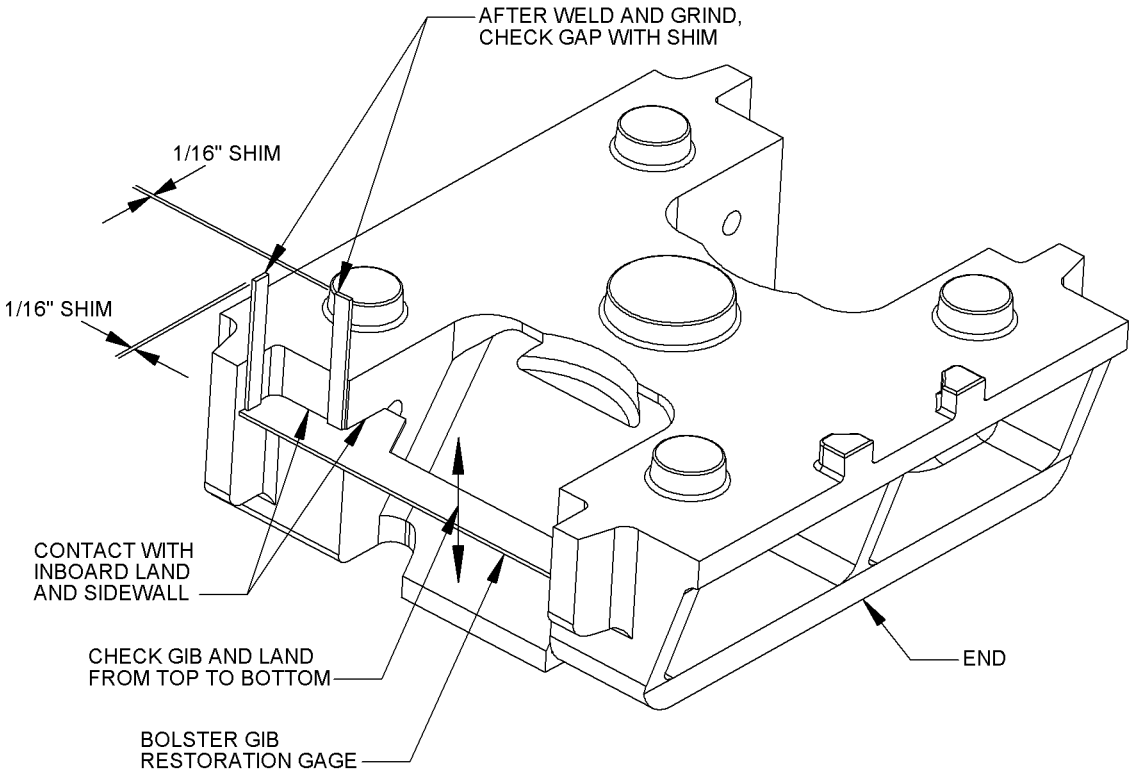
1. Bolster End Worn Surface General Repair Procedure
   A. Select electrode from welding electrode specification table (see page 5-C-1). For SMA (stick) welding, use only electrodes dried to AWS standards. For FCAW or GMAW, use only 1/16" diameter or smaller wire.
   B. Prepare worn surface for welding by lightly grinding away all corrosion and contamination. Grinding down high spots and sharp edges will help ensure a more even result. Proceed with weld repair as soon as possible after grinding to minimize post preparation oxidation and contamination.
   C. Follow M-214 requirements for casting temperature and preheating casting prior to welding. For grade B material, light local preheating of the work area will help to ensure the best possible results regardless of casting temperature.
2. Bolster Gib and Land Weld Repair Procedure
   A. With bolster spring seat facing up, apply vertical up welds in wear area for good bead size and penetration, in sequence indicated on gib and land weld pattern diagram. Chip off slag coating after each bead is applied.
   B. Grind down high spots to produce a flat even surface.



Wabtec, Standard Car Truck
6400 Shafer Court – Ste 450, Rosemont, Illinois 60018, U.S.A.
Phone (847) 692-6050 Email: SCTTechCustomerService@Wabtec.com

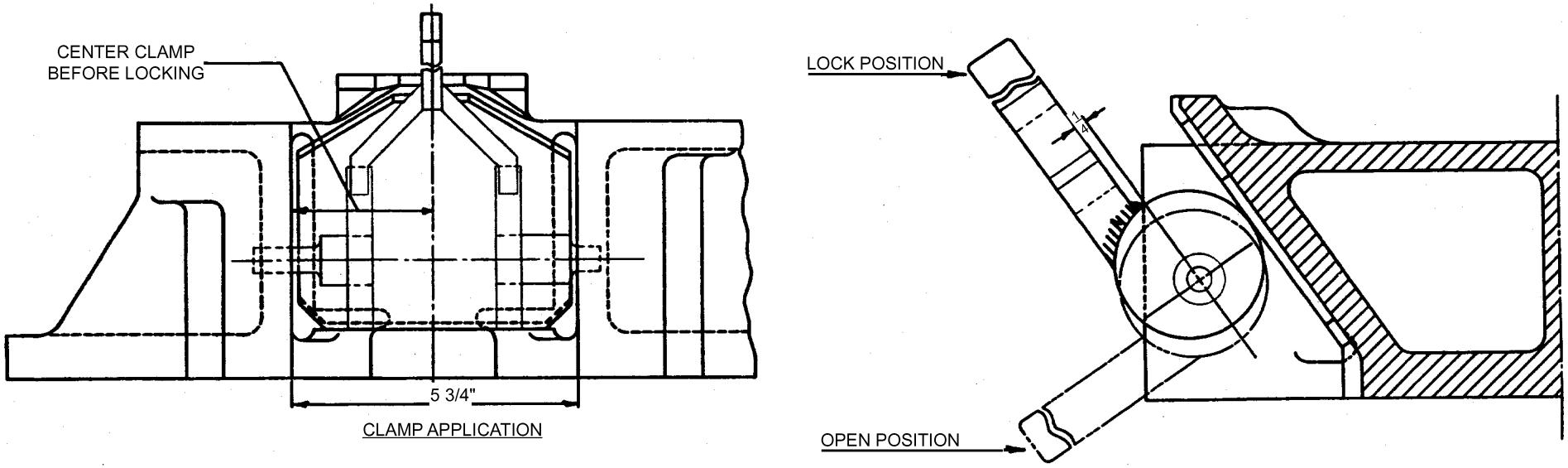
Bolster Gib and Land Repair Inspection

1. Bolster Gib and Land Repair Inspection
   - A. Gage check new surfaces using the bolster gib restoration gage (refer to section 6).
   - B. Gage should “go” between gibs without interference.
   - C. Remaining gaps should be measured with a 1/16” shim.
   - D. If gaps exceed 1/16” at any point, then repeat steps 2A through 2B from the Bolster Gib and Land Repair Procedure in section 5-C as necessary.
   - E. If gaps do not exceed 1/16” at any point, gibs and lands meet requirements for classification as reconditioned according to M-214.
   - F. Outboard land should be inspected using sidewall restoration gage.



Bolster Pocket Wear Plate Installation Clamp

SK-1570



Refer to section 6 for gage design.

Wabtec, Standard Car Truck
6400 Shafer Court – Ste 450, Rosemont, Illinois 60018, U.S.A.
Phone (847) 692-6050 Email: SCTTechCustomerService@Wabtec.com

Gages

- Friction Wedge Condemning Gages
- Split Wedge Condemning Gages
- Stabilizer Wear Gages
- Side Frame Column Gages
- Bolster Pocket Slopewall Gages
- Bolster Pocket Sidewall Gages
- Bolster Gib and Land Gages
- Bolster Pocket Split Wedge Insert Condemning Gages
- Bolster Pocket Split Wedge Insert Centering Gages
- Bolster Pocket Split Wedge Insert Elevation Gages
- Bolster Pocket Wear Plate Installation Clamp

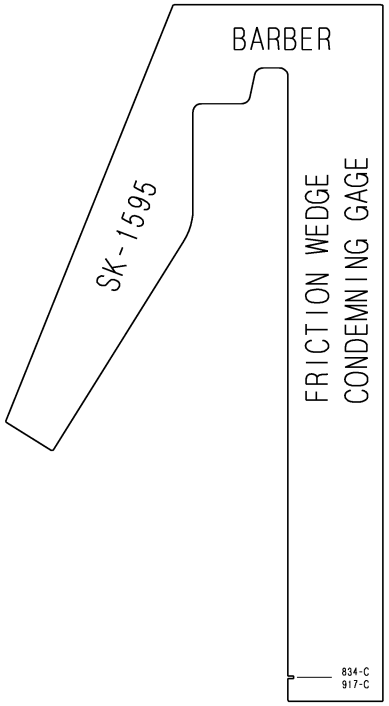
Standard Car Truck Company does not sell gages.
To purchase gages contact:

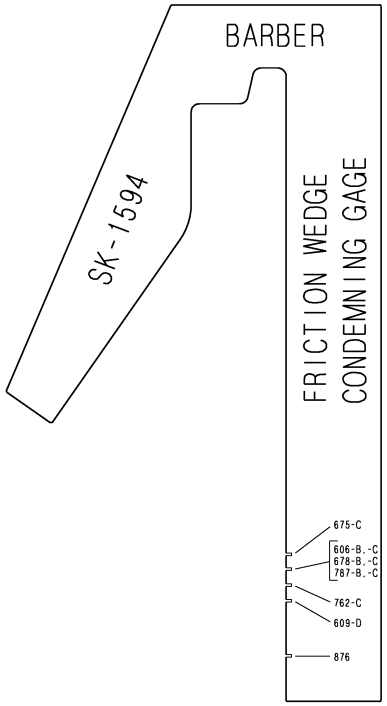
Winchester Industries, Inc.
(860) 379-5336

or

Victoria Mechanical Services, Inc.
(361) 578-7700

Friction Wedge Condemning Gages

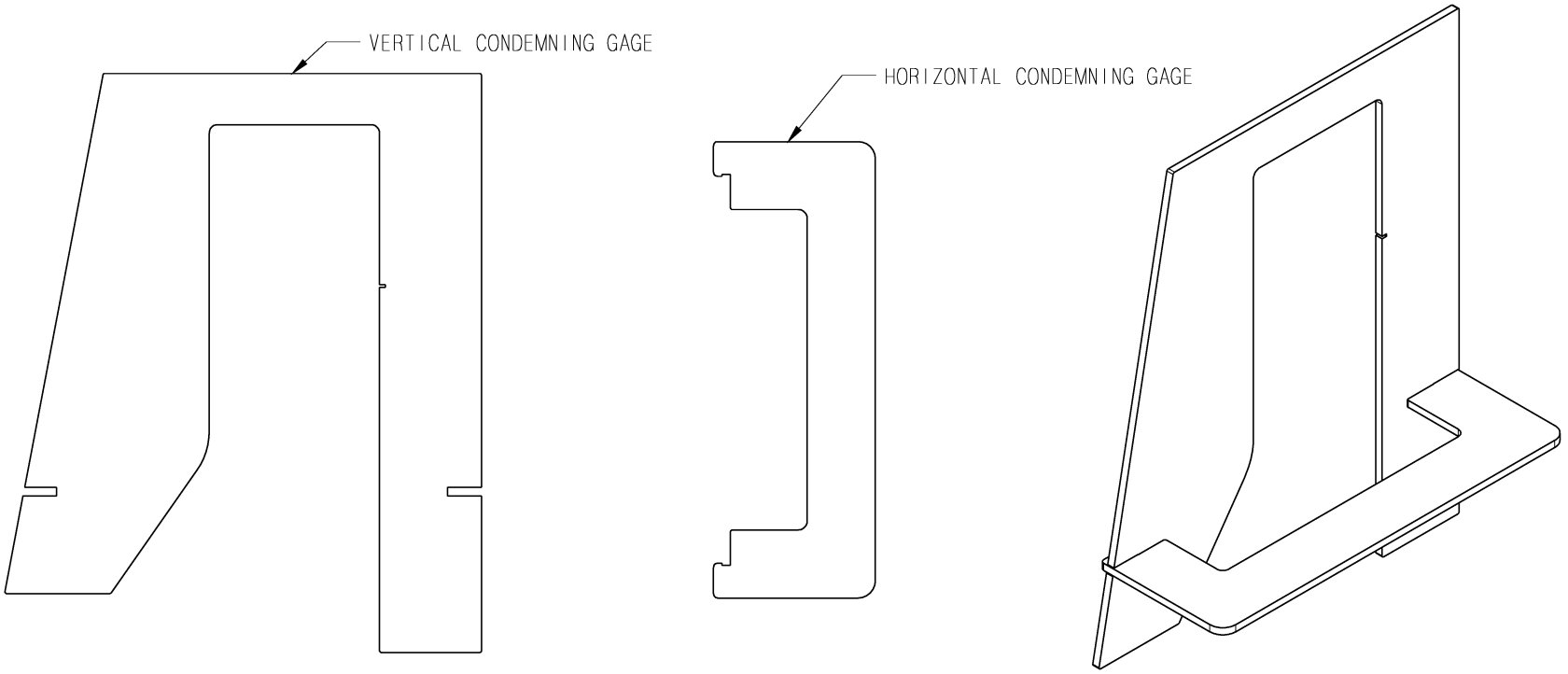




Truck Type	Iron Wedge	LifeGuard Wedge	TwinGuard Wedge	Condemning Gage Part Number	Marking on Gage Slot To Check Wedge
S-2-A	606-C	-	-	SK-1594	606-B, -C
	609-D	913-LG	-	SK-1594	609-D
S-2-B, S-2-C	675-C	-	922-PC	SK-1594	675-C
	678-C	-	-	SK-1594	678-B, -C
S-2-A, S-2-B, S-2-C	762-C	-	-	SK-1594	762-C
S-2-B, S-2-C	787-C	888-LG	911-PC	SK-1594	787-B, -C
S-2-HD, S-2-HD-9C	834-CB	950-LG	916-PC	SK-1595	834-C
S-2-D	876	877-LG	921-PC	SK-1594	876
S-2-E	917-C	-	-	SK-1595	917-C

Refer to section 2-A for application of gages.

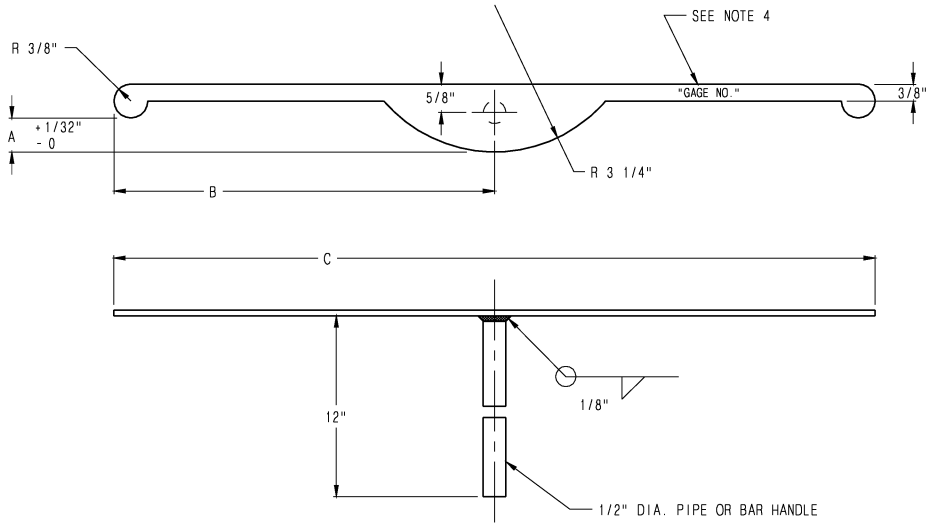
Split Wedge Condemning Gages



Truck Type	Split Wedge	Vertical Condemning Gage Part Number	Horizontal Condemning Gage Part Number
S-2-D	905-SW	SK-2054	SK-2046
S-2-HD, S-2-HD-9C	915-SW	SK-2050	SK-2046
S-2-B, S-2-C	925-SW	SK-2045	SK-2046
S-2-E	945-SW	SK-2062	SK-2063
S-2-A	955-SW	SK-2058	SK-2046

Refer to section 2-A for application of gages.

Stabilizer Wear Gages



Stabilizer Wear Gage Table						
Gage No.	Bearing [3] Size	AAR [1] Spring Travel	Barber Friction Casting Part No.	Dim A	Dim B	Dim C
SK-1546-1	6 x 11	D-3	609-D, 955-SW, 913-LG [5]	3/4	8 7/16	16 7/8
	6 x 11	D-4 or D-5	678-C, 678-B [2], 787-C, 787-B [2], 925-SW, 888-LG [5], 911-PC			
	6 1/2 x 12	D-3	609-D, 955-SW, 913-LG [5]			
	6 1/2 x 12	D-5 or D-7	876, 905-SW, 877-LG, 921-PC, 834-CB, 915-SW, 950-LG, 916-PC, 917-C, 945-SW			
SK-1546-2	6 1/2 x 12	D-4 or D-5	678-C, 678-B [2], 787-C, 787-B [2], 925-SW, 888-LG [5], 911-PC	1/2		
SK-1546-3	6 x 11 [4]	D-4	675-C	1 1/4	7 3/16	14 3/8
SK-1546-4	7 x 12	D-5	834-CB, 915-SW, 950-LG, 916-PC	1/2	9 9/16	19 1/8
SK-1546-5	7 x 12	D-3	762-C	1/4	10 3/32	20 3/16
SK-1546-6	7 x 12	D-5	762-C	3/4		
SK-1546-7	6 x 11 [4]	D-5	787-C	1 1/4	8 7/16	16 7/8

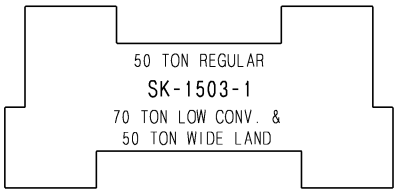
1. Standard A.A.R. spring groups for Barber S-2-A, S-2-B, S-2-C, S-2-D, S-2-HD, S-2-HD-9C, & S-2-E
2. Extended toe friction castings for Canada.
3. All 6 1/2 x 12 gages apply to 6 1/2 x 9.
4. Low conveyance application only.
5. Rest gage on top center for LifeGuard wedges without shoulders.

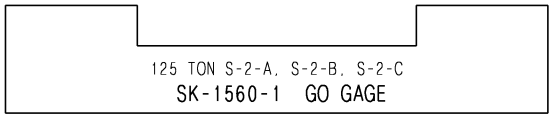
Refer to section 2-A for application of gages.

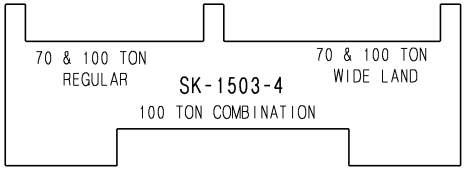
Side Frame Column Gages

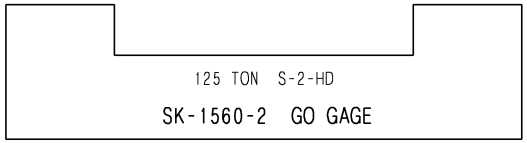
Truck Type	Capacity	Gage Number
S-2-A S-2-B S-2-C	50 Ton	SK-1503-1
	50 Ton Wide Land	
	70 Ton Low Conveyance	
	70 Ton 100 Ton	SK-1503-4
	70 Ton Wide Land 100 Ton Wide Land	
	100 Ton Combination	
	125 Ton	SK-1560-1
S-2-D S-2-HD-9C	100 Ton	SK-1503-7
S-2-HD	100 Ton	SK-1432
	125 Ton	SK-1560-2
S-2-E	70 Ton	SK-2265
	100 Ton	SK-2524

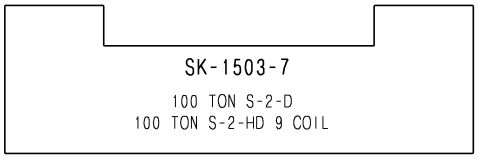
Refer to section 4-A for application of gages.

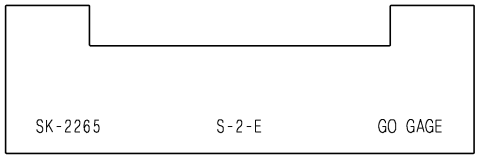


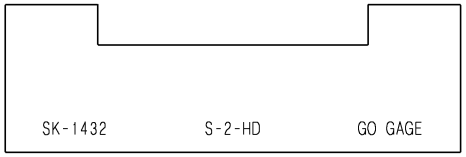


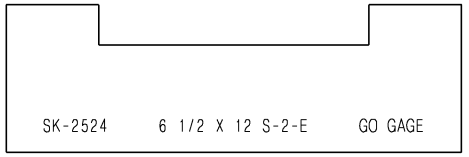




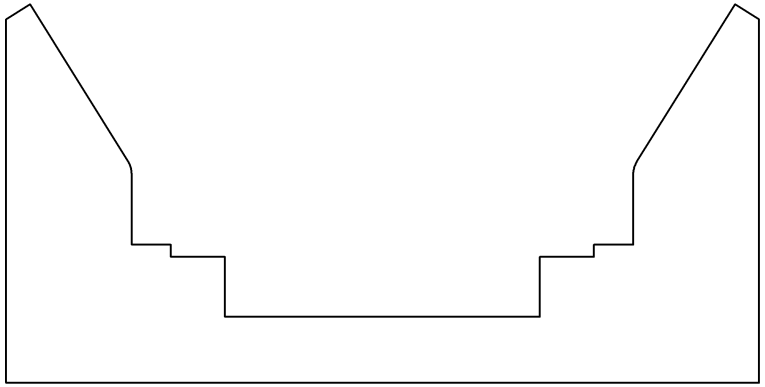




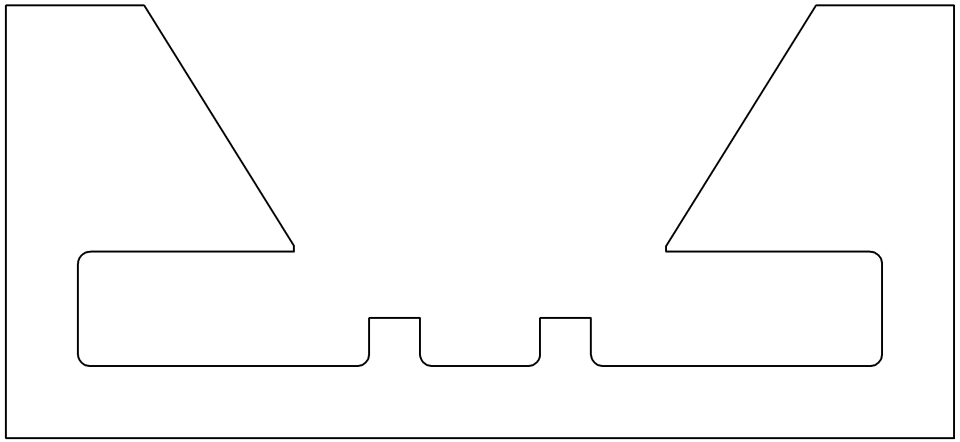




Bolster Pocket Slopewall Gages



SK-1689-X



SK-2527-X

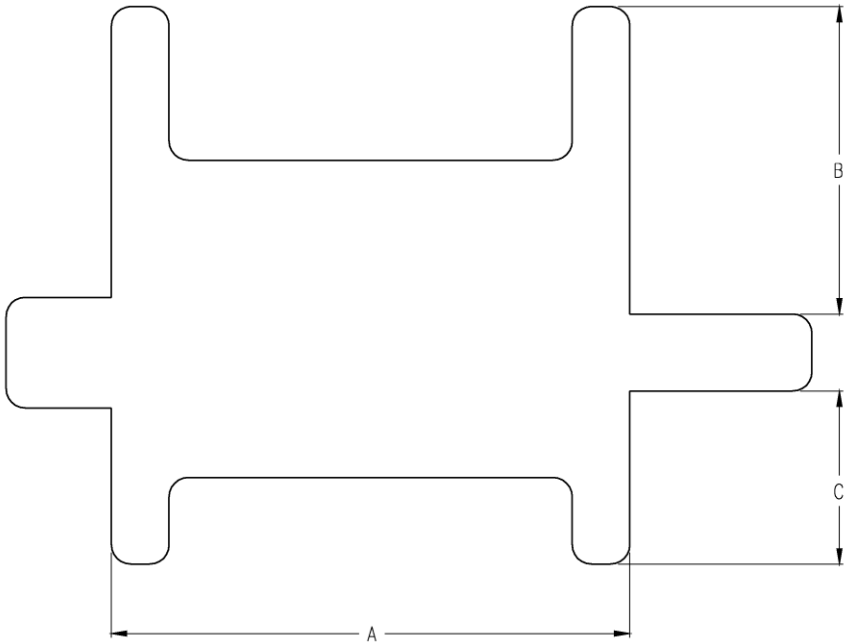
Gage No.	Truck Type	Bearing Size**	Wear Plate Part No.	Wear Plate Drawing
SK-1689-1	S-2-A	5 x 9	271	5299
SK-1689-2	S-2-A	5 1/2 x 10	272	5299
SK-1689-3	S-2-A	6 x 11 6 1/2 x 12	273	5299
SK-1689-4	S-2-A S-2-C	7 x 12	274	5299
SK-1689-5	S-2-C	5 x 9 5 1/2 x 10	272	5299
SK-1689-6	S-2-C	6 x 11 6 1/2 x 12	273	5299
SK-1689-7	S-2-HD	6 x 11 6 1/2 x 12	276	5299
SK-1689-8	S-2-D	6 1/2 x 12	-	-
SK-1689-9	S-2-HD	7 x 12	276	5299
SK-1689-10	S-2-B*	6 x 11	281	5299
SK-1689-11	S-2-HD-9C	6 1/2 x 12	276	5299
SK-2527-1	S-2-E	6 1/2 x 12	279	5299
SK-2527-2	S-2-E	6 x 11	279	5299

* Low conveyance truck with D-4 springs. For all other S-2-B bolsters use S-2-C gages.

** All 6 1/2 x 12 gages apply to 6 1/2 x 9.

Refer to section 5-A for application of gages checking for wear. Refer to section 5-C for application of gages checking a restored bolster pocket.

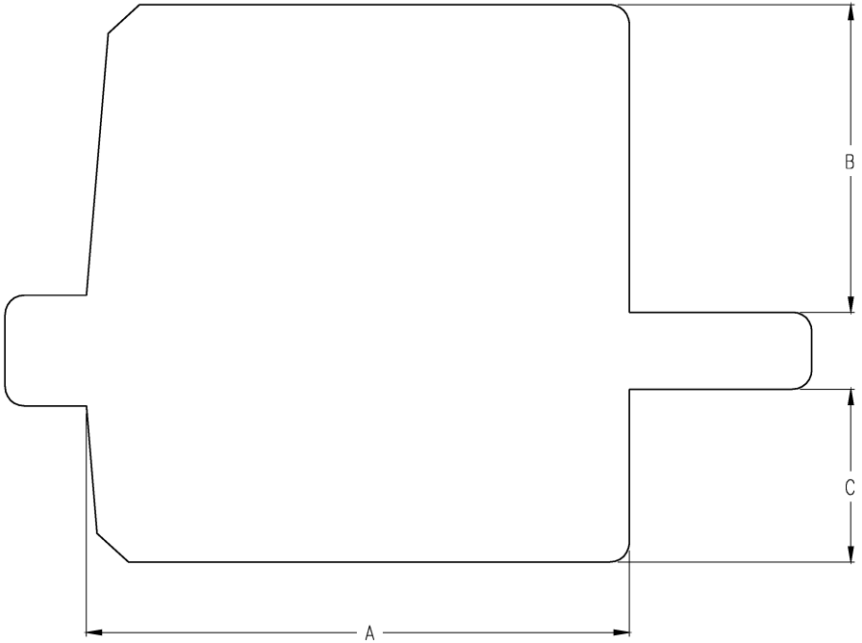
Bolster Pocket Sidewall Gages



Straight Wall Application*					
Gage No.	Capacity †	Truck Type	A	B	C
SK-2546-1	70 Ton 100 Ton	S-2-A S-2-B S-2-C	5.75	3.50	1.00
SK-2546-2	100 Ton	S-2-D	7.25	4.00	2.25
SK-2546-3	100 Ton	S-2-HD	6.75	4.00	2.25
SK-2546-4	100 Ton	S-2-HD-9C	6.75	4.00	2.25
SK-2546-5	125 Ton	S-2-HD	6.75	3.25	1.50
SK-2546-6	125 Ton	S-2-A S-2-C	6.75	2.50	1.00
SK-2546-7	50 Ton	S-2-A S-2-B S-2-C	5.25	3.25	1.50
SK-2548	70 Ton 100 Ton	S-2-E	8.75	3.75	2.11

* Suitable for squaring bolster pocket sidewalls or bolsters designed with square pocket sidewalls, for use with all wedges.

† 100 Ton gages also apply to 110 Ton.



Angled Wall Application*					
Gage No.	Capacity †	Truck Type	A	B	C
SK-2547-1	100 Ton	S-2-D	7.59	4.00	2.25
SK-2547-2	100 Ton	S-2-HD	7.06	4.00	2.25
SK-2547-3	100 Ton	S-2-HD-9C	7.06	4.00	2.25
SK-2547-4	125 Ton	S-2-HD	7.06	3.25	1.50

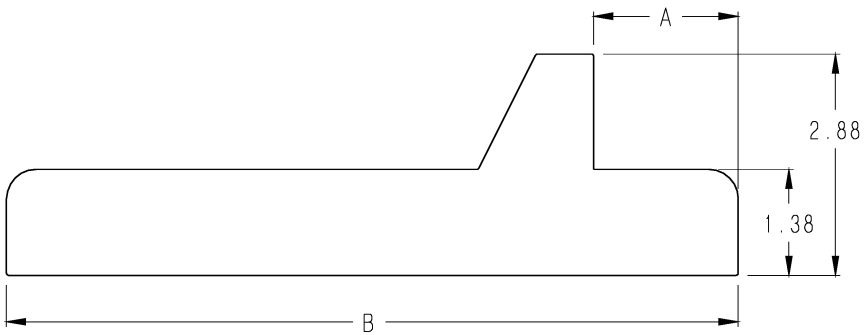
* Suitable for bolsters that are designed with an angled outboard pocket sidewall, for use with single piece iron wedges only

† 100 Ton gages also apply to 110 Ton.

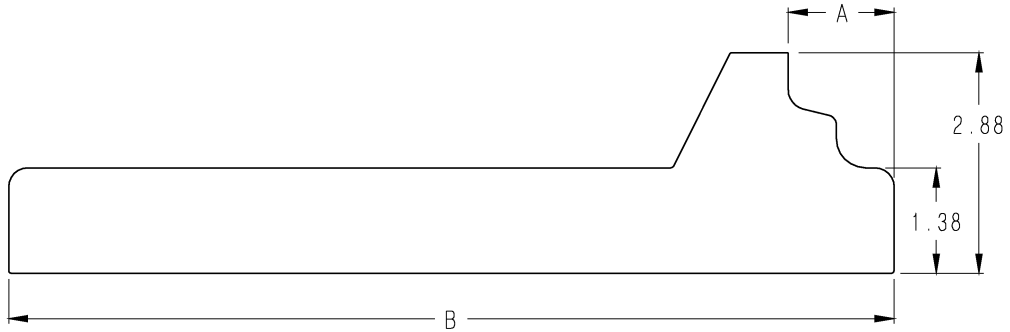
Refer to section 5-A for application of gages checking for wear. Refer to section 5-C for application of gages checking a restored bolster pocket.

Bolster Gib and Land Gages

Gage No.	Truck Type	Capacity†	A	B
SK-1504-1	Regular Barber	40 & 50 Ton	.625	6.500
SK-1504-8	Wide Land	40 Ton	1.375	7.500
SK-1504-9	Wide Land	50 Ton	1.375	8.000
SK-1504-11	S-2-HD	100 Ton	2.625	11.000
SK-1504-12	S-2-HD	125 Ton	2.500	12.125
SK-1504-13	S-2-D	100 Ton	2.500	10.875
SK-2264-1	S-2-E	70 Ton	1.375	11.500
SK-2264-2	S-2-E	100 Ton	1.625	12.000
Bolsters made in 1987 or later				
SK-1504-2A	Regular Barber	70 & 100 Ton	.875	7.500
SK-1504-3A	Regular Barber	125 Ton	2.250	11.125
SK-1504-4A	Low Conveyance With D-4 Springs	70 Ton	1.625	8.500
SK-1504-5A	Low Conveyance With D-5 Springs	70 Ton	1.625	9.000
SK-1504-6A	Combination	100 Ton	1.875	9.500
SK-1504-7A	Low Profile Combination	100 Ton	1.875	9.500
SK-1504-10A	Wide Land	70 & 100 Ton	1.625	9.000
Bolsters made before 1987				
SK-1504-2B	Regular Barber	70 & 100 Ton	.625	7.375
SK-1504-3B	Regular Barber	125 Ton	2.000	11.125
SK-1504-4B	Low Conveyance With D-4 Springs	70 Ton	1.375	8.375
SK-1504-5B	Low Conveyance With D-5 Springs	70 Ton	1.375	8.875
SK-1504-6B	Combination	100 Ton	1.625	9.375
SK-1504-7B	Low Profile Combination	100 Ton	1.625	9.375
SK-1504-10B	Wide Land	70 & 100 Ton	1.375	8.875



SK-1504-X

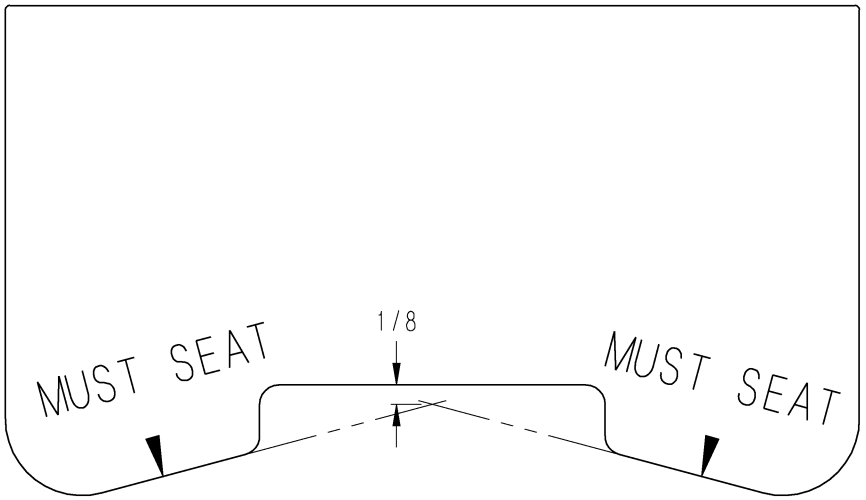


SK-2264-X

† 100 Ton gages also apply to 110 Ton.

Refer to section 5-A for application of gages checking for wear. Refer to section 5-C for application of gages checking a restored bolster pocket.

Bolster Pocket Split Wedge Insert Condemning Gages



Truck Type	Wedge	Insert	Condemning Gage No.
S-2-A	955-SW	5824 5286*	SK-2048
S-2-B S-2-C	925-SW	5824 5286*	SK-2048
S-2-D	905-SW	5902	SK-2056
S-2-HD S-2-HD-9C	915-SW	5821	SK-2052
S-2-E	945-SW	6022	SK-2065

* Insert is used in “as cast” bolster pockets (pockets designed not to use pocket wear plates).

Refer to section 5-A for application of gages.

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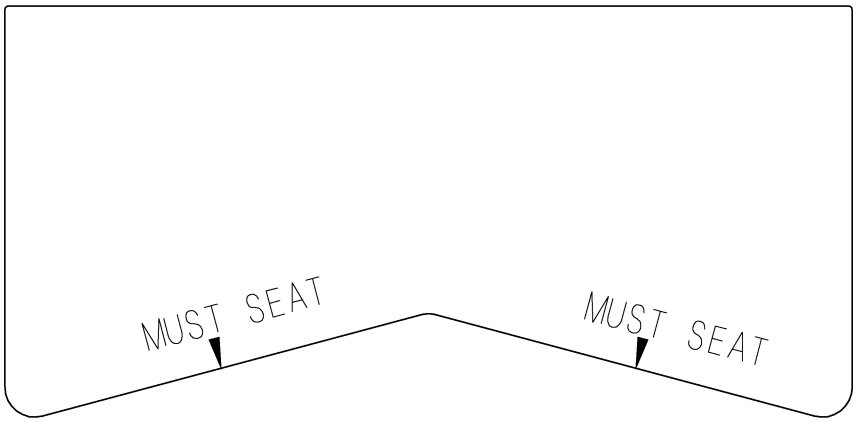
Bolster Pocket Split Wedge Insert Centering Gages



Truck Type	Wedge	Insert	Centering Gage No.
S-2-A	955-SW	5824 5286*	SK-2014
S-2-B S-2-C	925-SW	5824 5286*	SK-2014
S-2-D	905-SW	5902	SK-1777
S-2-HD S-2-HD-9C	915-SW	5821	SK-1755
S-2-E	945-SW	6022	SK-2041

* Insert is used in “as cast” bolster pockets (pockets not designed to use pocket wear plates).

Refer to section 5-C for application of gages.

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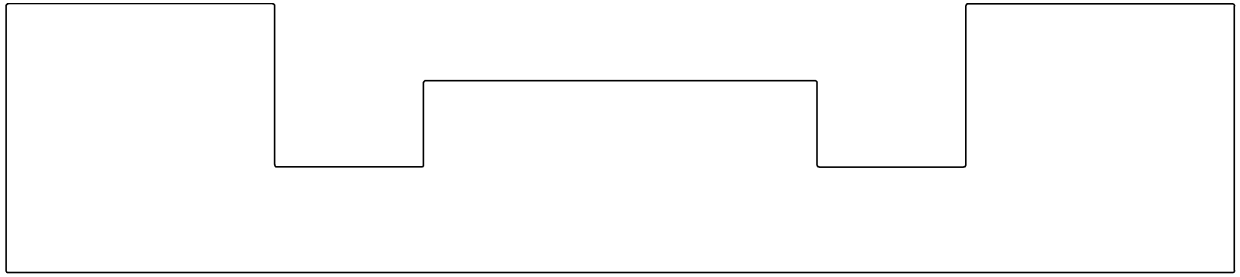
Bolster Pocket Split Wedge Insert Elevation Gages



Capacity†	Truck Type	Wedge	Insert	Elevation Gage No.
70 Ton 100 Ton	S-2-A	955-SW	5824 5286*	SK-2033
70 Ton 100 Ton	S-2-B S-2-C	925-SW	5824 5286*	SK-2013
100 Ton	S-2-D	905-SW	5902	SK-1776
100 Ton	S-2-HD S-2-HD-9C	915-SW	5821	SK-1754-1
125 Ton	S-2-HD	915-SW	5821	SK-1754-2
70 Ton 100 Ton	S-2-E	945-SW	6022	SK-2042

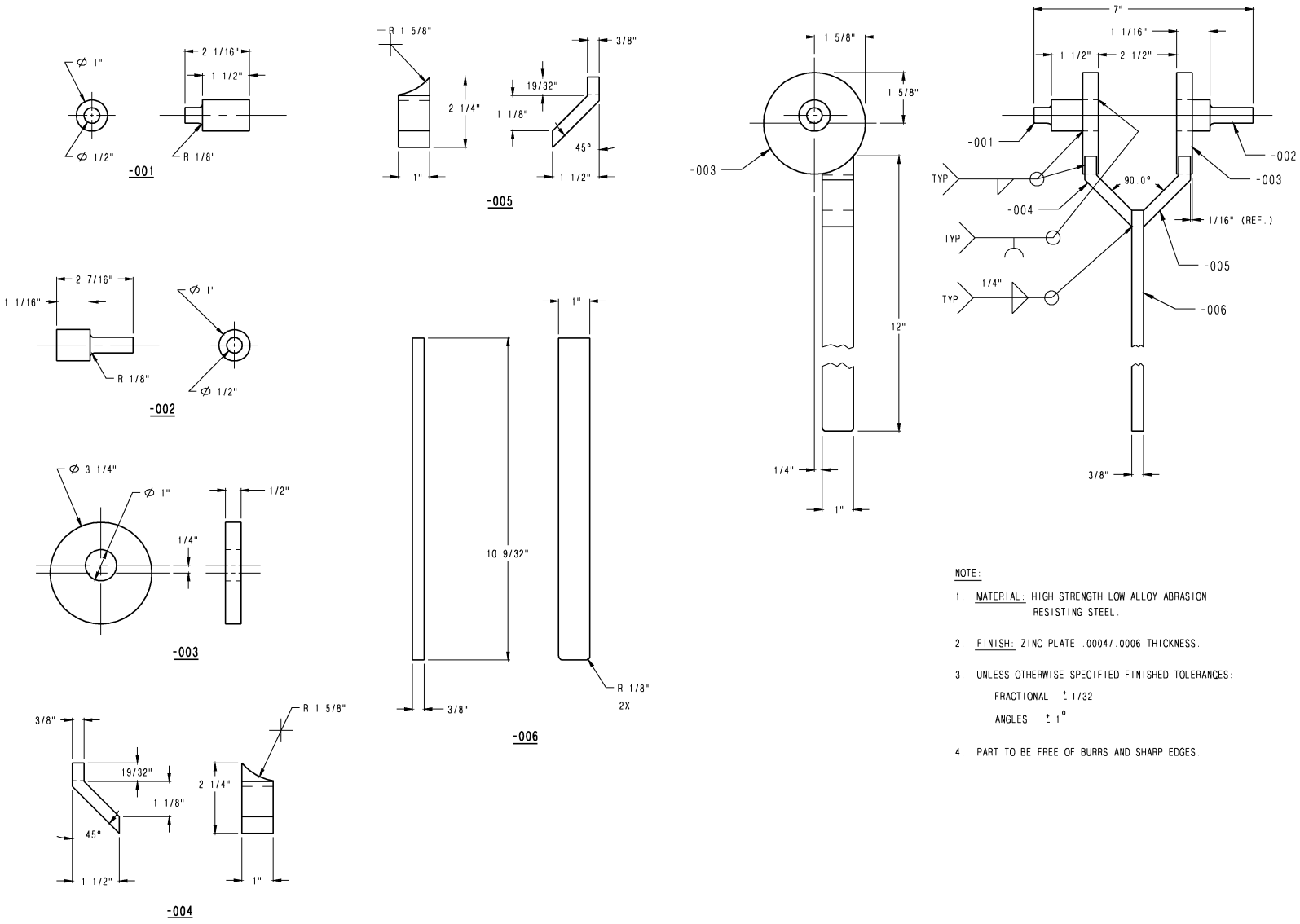
* Insert is used in “as cast” bolster pockets (pockets not designed to use pocket wear plates).

† 100 Ton gages also apply to 110 Ton.

Refer to section 5-C for application of gages.

Bolster Pocket Wear Plate Installation Clamp

SK-1570



Clamp does not fit all Barber bolster pocket designs, some pockets do not have a pin hole.

Section 7

Frame Brace

7-A Inspection

- Frame Brace Component Diagram
- 70 Ton Universal Frame Brace Component Diagram
- Frame Brace Inspection
- Shear Pad Inspection
- Center Bonded Mounting Inspection

7-B Parts

- Frame Brace Assembly Identification
- Frame Brace Configurations
- Frame Brace Repair Kit
- Application Specific Frame Brace Components

7-C Repair

- Frame Brace Assembly Repair
- Frame Brace Upper and Lower Assemblies (“Pipes”)
- Retrofit Side Frame Mounting Brackets
- Shear Pad
- Integral Cast Side Frame Brackets
- Bottom Rod Safety Support Cables
- Bolt
- Double Tab Washer

If possible, please supply side frame or bolster AAR code number (9 digit) and casting pattern number, when ordering replacement components.

Frame Brace

Inspection

- Frame Brace Component Diagram
- 70 Ton Universal Frame Brace Component Diagram
- Frame Brace Inspection
- Shear Pad Inspection
- Center Bonded Mounting Inspection

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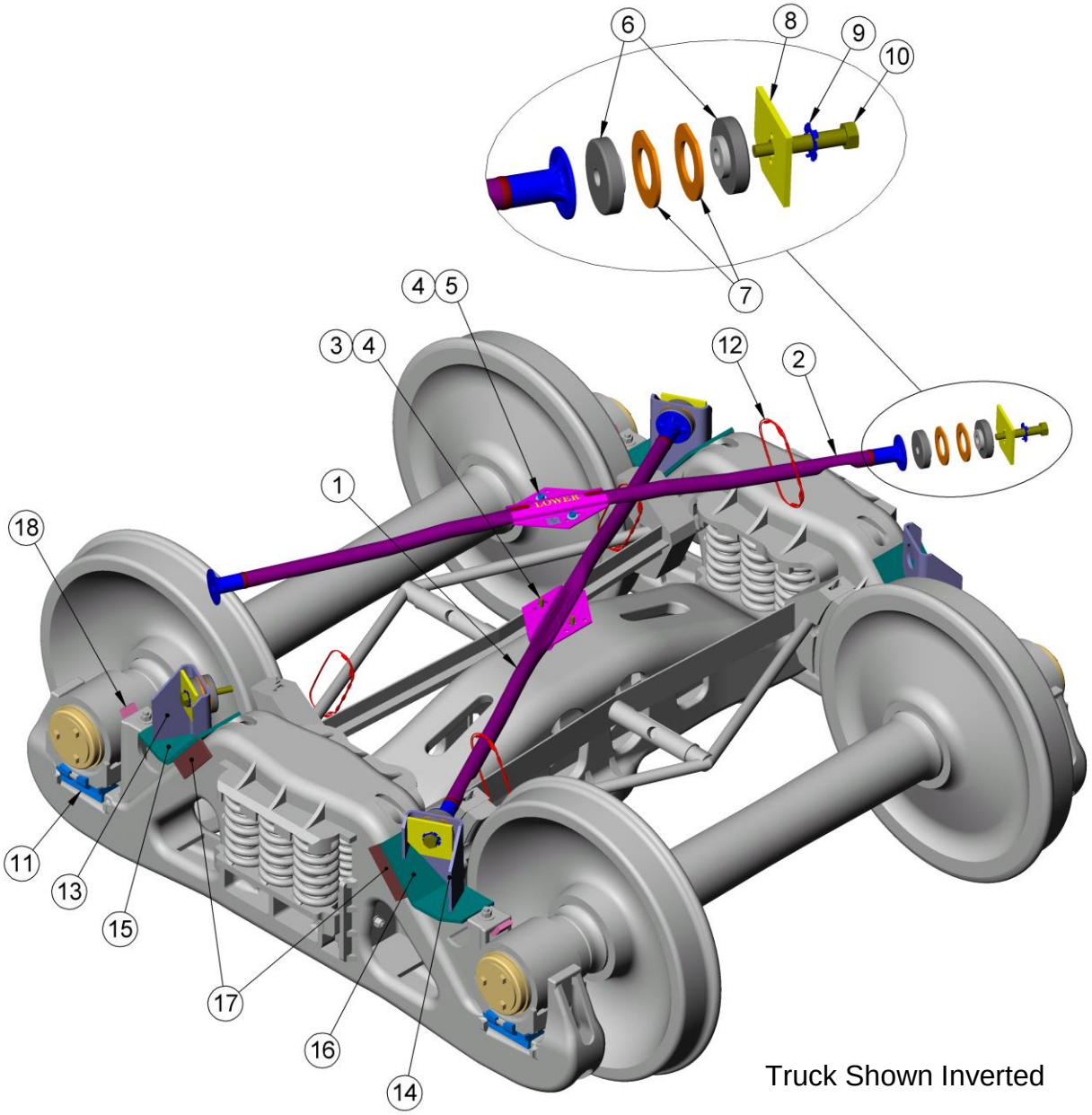
Frame Brace Component Diagram

Item	Description	Part No.	Qty. Per Truck
1	Upper Brace	10206	1
2	Lower Brace	10207	1
3	Bolt, Center Clamp	5634-2	2
4	Washer, Center Clamp	5559	4
5	Nut, Center Clamp	5644	2
6	Center Bonded Mounting	5584	8
7	Holding Ring	42-7100-001	8
8	Locking Plate	42-7100-003	4
9	Double Tab Washer	42-7100-187	4
10	Bolt, End Block	5628-3	4
11	Shear Pad	application specific	4
12	Bottom Rod Safety Support Cable	10183	4
13	Channel Mounting Bracket R/H	application specific	2
14	Channel Mounting Bracket L/H	application specific	2
15	Base Plate R/H	application specific	2
16	Base Plate L/H	application specific	2
17	Support Plate	application specific	4
18	Side Frame Key	10192	4

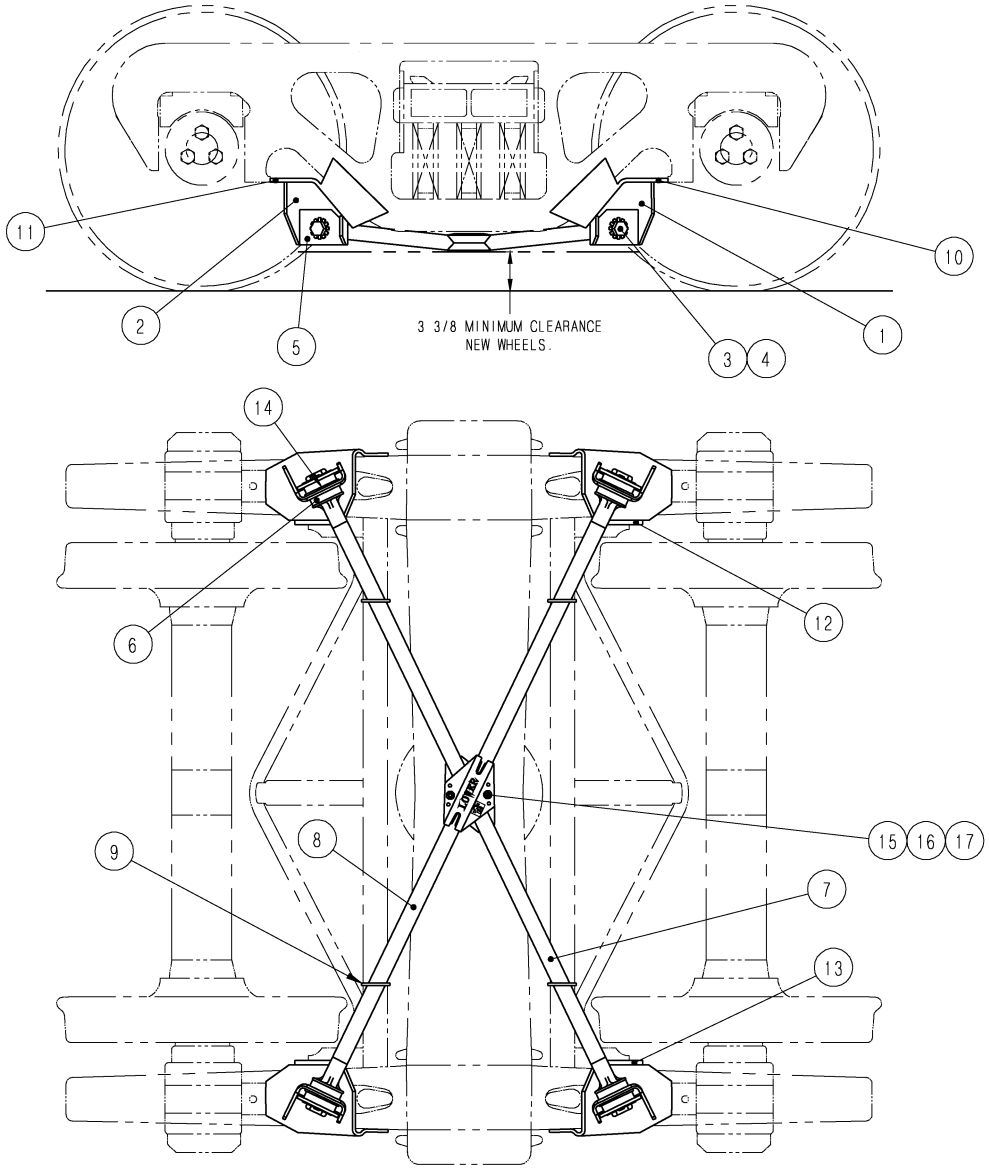
Item 11 can be replaced by a pedestal roof shim with a ¼ pedestal roof wear liner in applications where shear pads are not required.



Truck Shown Inverted

70 Ton Universal Frame Brace Component Diagram

Item	Description	Part No.	Qty. Per Truck
1	Channel Mounting Bracket R/H	10391-001	2
2	Channel Mounting Bracket L/H	10391-002	2
3	Bolt, End Block	5628-3	4
4	Double Tab Washer	42-7100-187	4
5	Locking Plate	42-7100-003	4
6	Center Bonded Mounting	10438	8
7	Upper Brace	10439	1
8	Lower Brace	10440	1
9	Bottom Rod Safety Support Cable	10183	4
10	Base Plate R/H	10392-001	2
11	Base Plate L/H	10392-002	2
12	Support Plate R/H	10393-001	2
13	Support Plate L/H	10393-002	2
14	Holding Ring	42-7100-001	8
15	Bolt, Center Clamp	5634-2	2
16	Nut, Center Clamp	5644	2
17	Washer, Center Clamp	5559	4



Frame Brace Inspection

During inspection of loaded or empty equipment, the car shall be "bad ordered" for the necessary corrective repair if any of the following conditions are found.

1. Missing end bolts that fasten the Frame Brace upper and lower assemblies ("pipes") to the brackets located on the side frame tension member.
2. Double tab washer disengaged in locking plate, broken or missing washer between the bolt head and locking plate, or less than 1 tab on bolt head.
3. Missing shear pad ground cables. Each truck must have a minimum of two ground cables intact.
4. Missing shear pad or steel shim between roller bearing adapter and side frame pedestal.
5. Examine the Frame Brace assemblies ("pipes") for any evidence of the following:
   - Broken center clamp connection or Frame Brace upper and lower assemblies ("pipes").
   - Bends or distortion from the original shape, at the mid-point between the center clamp and end flange. (See Figure 1)
   - Evidence of rubbing or interference between the brace assembly and the brake equipment.
   - Gouges in the brace pipe material in excess of 1/8" deep.
   - Distance between the top of rail and bottom of the brace center clamp is 2 ¾" or less.
   - Cracks in the end flange weld
6. Examine the side frame mounting brackets for any evidence of the following:
   - Missing, broken, bent, or damaged side frame-mounting brackets. Superficial scratches are permissible. A welding fixture may be required to determine if damage has occurred.
   - Deep gouges, cuts or obvious bending of the side frame-mounting brackets.
   - Cracks in the welds or bracket parent material. **Note: Cracked side frames should be repaired or replaced in accordance with AAR Specification M-214.**
7. Verify the stack height of the center bonded mountings. Stack height should be 2 ¾" or less when the end bolt is fully torqued. (See Figure 2)
8. Missing or broken Bottom Rod Safety Support cables looped around the upper and lower braces and the brake beams in four places. Brake beam must operate freely allowing for worn wheel and brake shoe conditions.
9. Verify the dimension between the thrust lug and bearing adapter. When shear pads are used this dimension should be 1/4" to 3/8" combined.

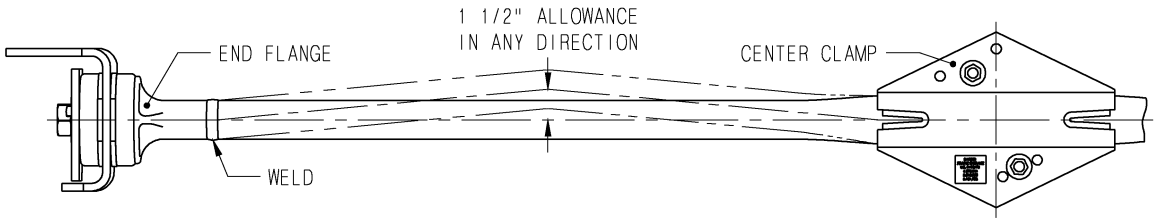


Figure 1

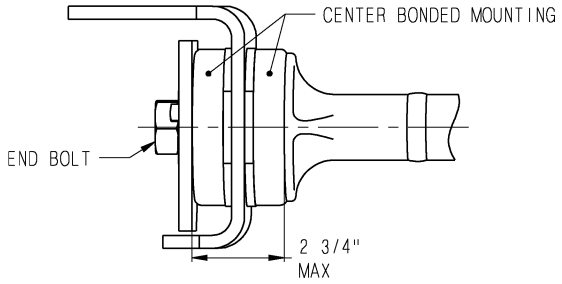


Figure 2

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Shear Pad Inspection

Shear pads should be inspected each time the car is “shopped” or at least every 18 months. Minor abrasion commonly occurs on the top or bottom pad surfaces and the retaining lugs due to contact with the adapter or side frame. This type of abrasion will not affect function or service life providing the breaks appear between the elastomer and the plates and do not exceed # 3 condition.

- Shear Pad may be positioned with the grounding strap facing outboard or 180° facing inboard.
- Two grounding cables minimum per truck are required.
- Grounding cable may be coated or covered with a plastic sleeve.

Replacement is required if any of the following conditions are found.

1. Evidence of excessive (greater than 1”) elastomer extrusion, bulging or swelling past the metal parts, or tackiness.
2. Deep cracks in the elastomer material. Each break, not the sum of all breaks, should not exceed 3/8” in depth and 3” in length or an area of 1 ¼ sq. in. (See Figure 1). Under no conditions should the crack greater than 1” deep be allowed.

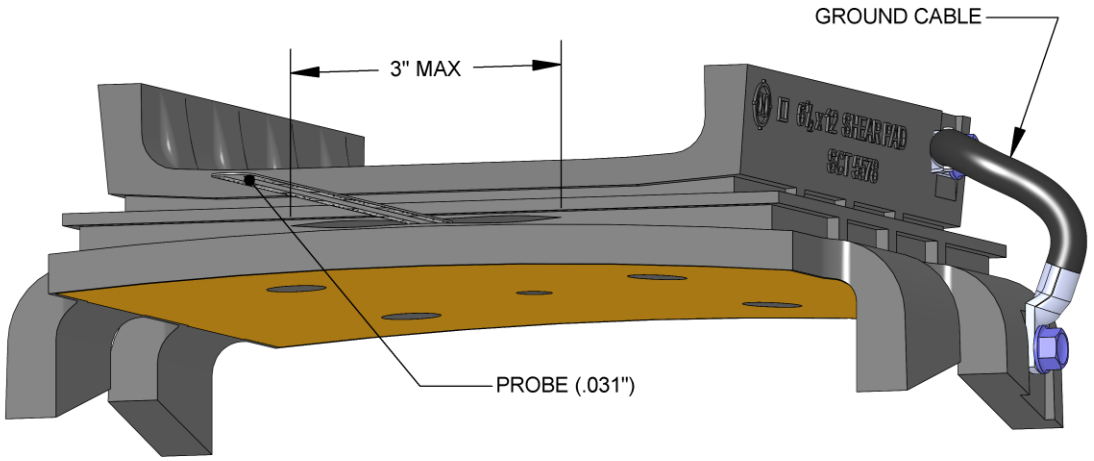

Figure 1

Continued next page

Shear Pad Inspection

3. Delamination of the bond between metal plates and the elastomer main body exceeding 1” in depth and 3” in length, or a total of 3 sq. in. (See Figure 2).
4. Missing metal plates.

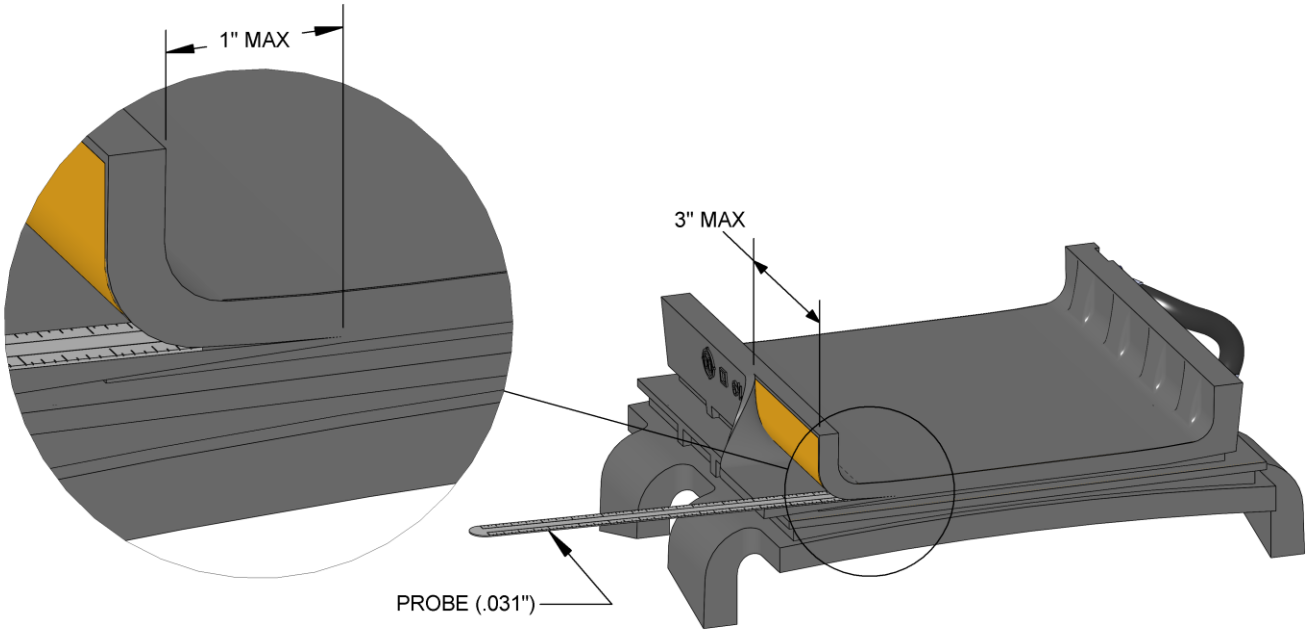

Figure 2

Wabtec, Standard Car Truck
6400 Shafer Court – Ste 450, Rosemont, Illinois 60018, U.S.A.
Phone (847) 692-6050 Email: SCTTechCustomerService@Wabtec.com

Center Bonded Mounting Inspection

Center bonded mountings should be inspected each time the frame brace assembly is removed from the truck assembly. Replacement is required if any of the following conditions are found.

1. Cracks, splits, or delamination of the bond between the metal plates and the elastomer body.
2. Measure the height of the Center Bonded Mounting just prior to re-installation. The height must be .84” or greater to be acceptable for re-use (see figure 1). Allow 24 hours for relaxation.

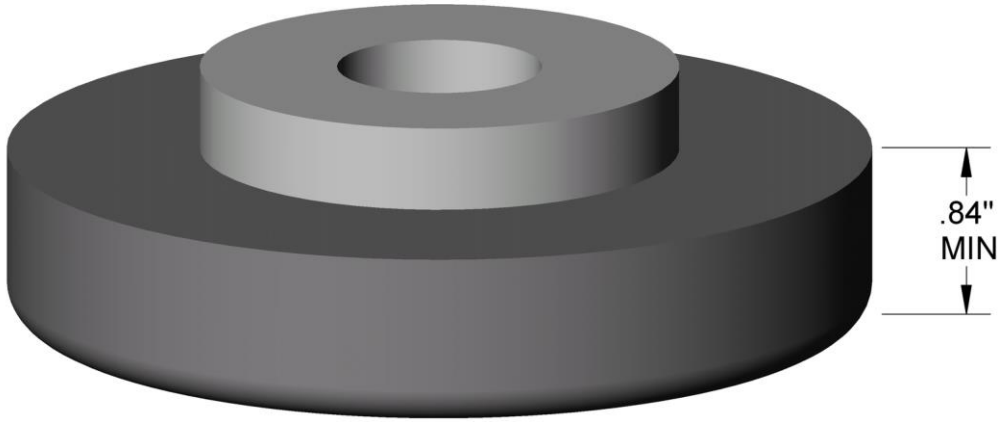

Figure 1

Frame Brace

Parts

- Frame Brace Assembly Identification
- Frame Brace Configurations
- Frame Brace Repair Kit
- Application Specific Frame Brace Components

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Frame Brace Parts

Frame Brace Assembly Identification

The Channel Mounting Bracket, Base Plate, Support Plate and in some cases the Upper and Lower Brace are application specific parts, designed to fit a particular side frame pattern. In order to identify the particular Frame Brace assembly it is cross-referenced according to the manufacturer's pattern number. The pattern number is normally located on the outboard side above the lightener opening on the left. The AAR side frame marking diagram can be found in section 1. Please have the pattern number available when contacting Standard Car Truck regarding Frame Brace.

Frame Brace Configurations

Frame Brace is available in the following configurations:

- Retrofit (as illustrated in component diagram) is a completely welded design in which the Channel Mounting Bracket, Base Plate and Support Plate are installed by welding onto AAR narrow pedestal side frames.
- Integral cast pad utilizes a special side frame in which a pad is incorporated into the tension member to accept a Channel Mounting Bracket that is welded directly to the side frame. This design does not use a Base Plate or Support Plate.
- Integral cast channel utilizes a special side frame in which all the frame brace bracket components with exception of the holding ring have been incorporated into the side frame tension member.

Frame Brace Repair Kit

The repair kit includes the parts necessary to replace the Frame Brace assemblies ("pipes") and standard hardware on a frame braced truck (See typical parts list below). Not supplied are the ½" bolts, washers and nuts to fasten together the upper and lower center clamps.

SK-1657 Repair Kit		
Description	Qty	Part No.
1"-8 x 5.5" lg. Hex Bolt, Grade 8, Class 2A Threads	4	5628-3
Double Tab Washer	4	42-7100-187
Locking Plate	4	42-7100-003
Center Bonded Mounting	8	5584
Frame Brace Upper, 30° Dimple	1	10206
Frame Brace Lower, 30° Dimple	1	10207
Bottom Rod Safety Support	4	10183
Frame Brace Repair Kit Instructions, 30° Dimple Braces	1	SK-1666

SK-1794 70 Ton Universal Repair Kit		
Description	Qty	Part No.
1"-8 x 5.5" lg. Hex Bolt, Grade 8, Class 2A Threads	4	5628-3
Double Tab Washer	4	42-7100-187
Locking Plate	4	42-7100-003
Center Bonded Mounting	8	10438
Frame Brace Upper, 30° Dimple	1	10439
Frame Brace Lower, 30° Dimple	1	10440
Bottom Rod Safety Support	4	10183
Frame Brace Repair Kit Instructions, 70 Ton Universal	1	SK-1785

Application Specific Frame Brace Components

Contact Standard Car Truck Company for ordering the following application specific Frame Brace components:

- Channel Mounting Bracket
- Base Plate
- Support Plate
- Holding Rings (Integral cast channel side frames)

Frame Brace

Repair

- Frame Brace Assembly Repair
- Frame Brace Upper and Lower Assemblies (“Pipes”)
- Retrofit Side Frame Mounting Brackets
- Shear Pad
- Integral Cast side Frame Brackets
- Bottom Rod Safety Support Cables
- Bolt
- Double Tab Washer

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Frame Brace Repair

Frame Brace Assembly Repair

- Missing or damaged components that affix the Upper and Lower Braces to the mounting brackets can be replaced in kind. Refer to the Frame Brace Installation or Repair Kit Instructions for the appropriate assembly methods.
- Tighten the bolts to a torque of 600 ft-lbs. while holding the end of the brace with a pipe wrench. When the specified torque is reached, bend at least two previously unbent tabs of the Double Tab Washer against the bolt head flats. Failure to use a pipe wrench may result in inadequate torque.

Frame Brace Upper and Lower Assemblies (“Pipes”)

- Damaged or broken brace assemblies can not be repaired. Replace only. Frame Brace upper and lower assemblies (“pipes”) must be replaced as a set.

Retrofit Side Frame Mounting Brackets

- Damaged or broken side frame mounting brackets can not be repaired. Replace only. Replacement of the mounting brackets requires use of an “installation (welding) fixture”. Refer to the Frame Brace Application Procedure (SK-#####) for the appropriate assembly and welding methods. **Contact Standard Car Truck Company for additional technical assistance.**

Shear Pad

- No repair allowed. Replace only. The replacement of broken or missing ground cables is permitted.

Integral Cast Side Frame Brackets

- In some cases the mounting bracket portion of the integral cast side frame can be repaired providing the remainder of the frame can be repaired in accordance with AAR Specification M-214. **Contact Standard Car Truck Company for additional technical assistance.**

Bottom Rod Safety Support Cables

- Replace broken or missing cables. 4 required per truck. Allow adequate slack for unimpeded movement of the brake beam.

Bolt

- Do not reuse.
- Lubricate during assembly.

Double Tab Washer

- Reuse possible with unbent tabs only.