

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.

Section 5

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.



Section 5-A

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.



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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:

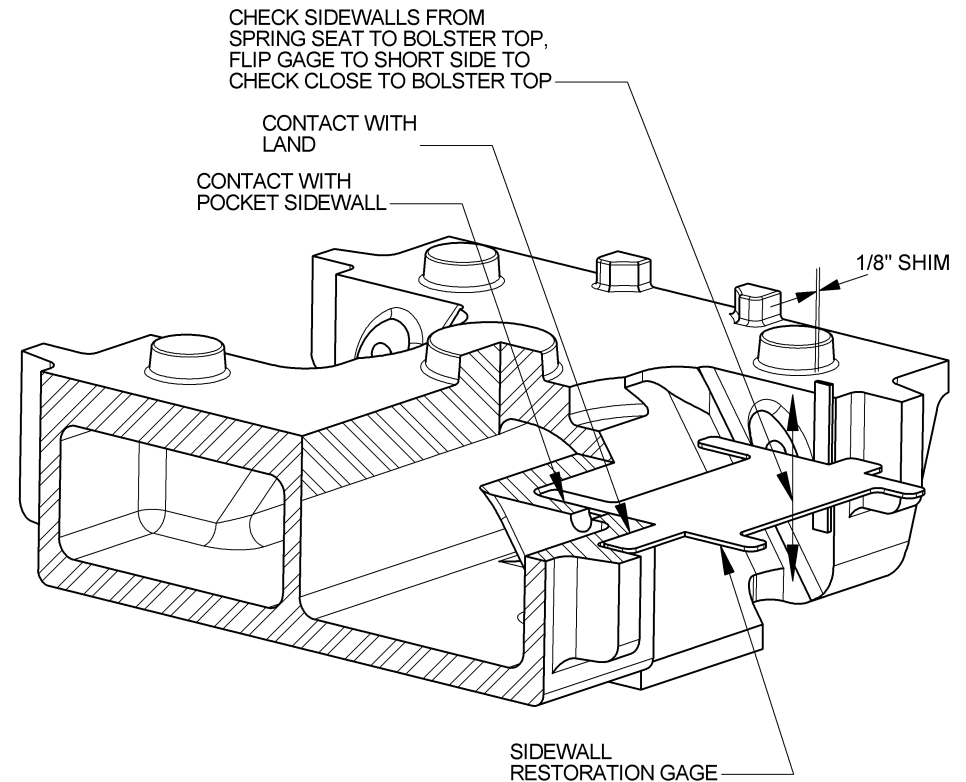
1. If the bolster was designed for use without pocket sidewall wear plates, the worn area should be restored to the gage dimensions by build-up with weld. Refer to bolster pocket sidewall repair procedure (section 5-C).

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.



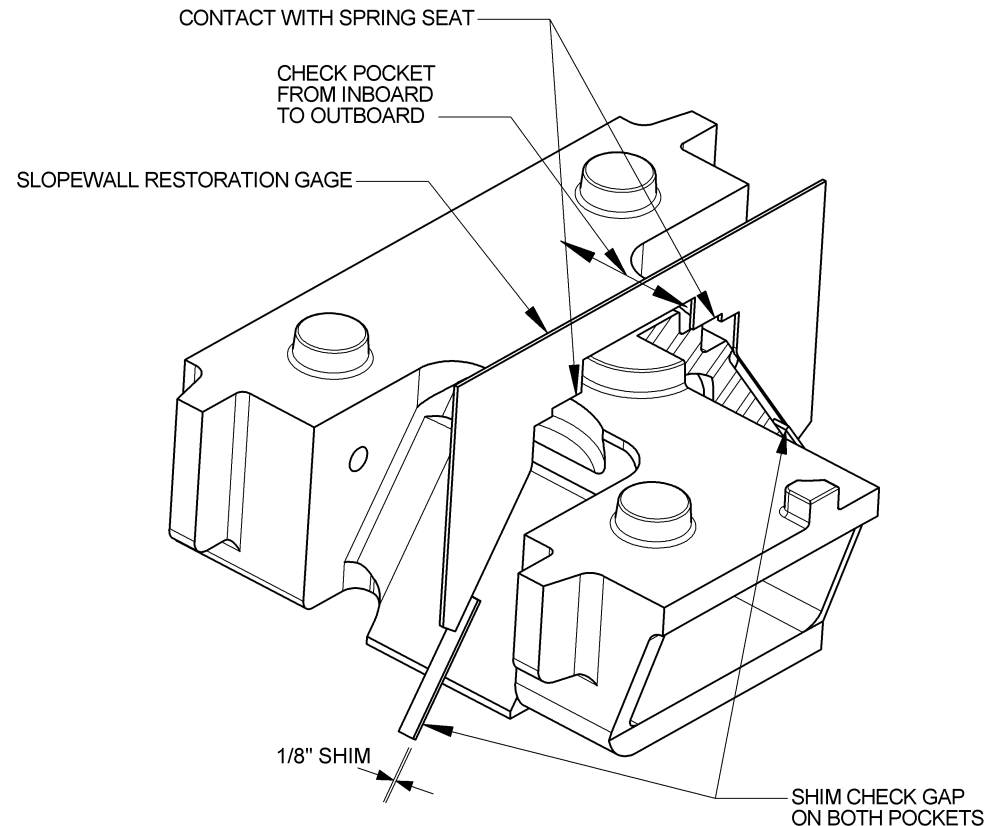
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Bolster Pocket Slopewall Restoration Guide

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.



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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 $\pm 1/8$ " 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.

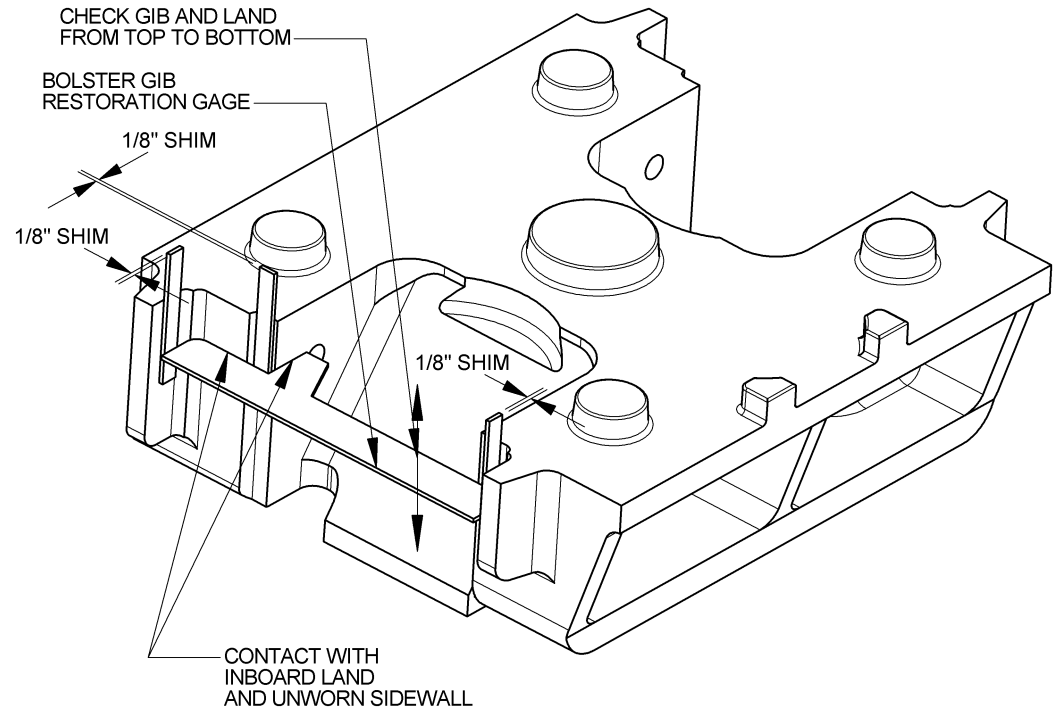
B. Pocket sidewall restoration gage must be used for any outboard land wear.

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.

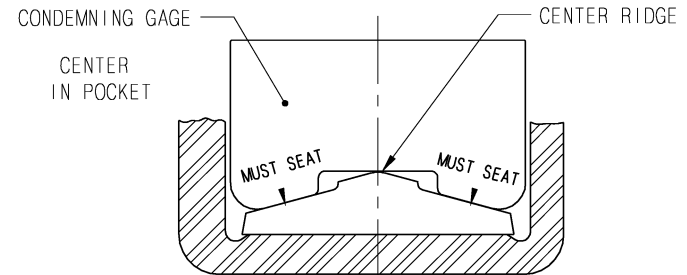


Split Wedge Insert Restoration Guide

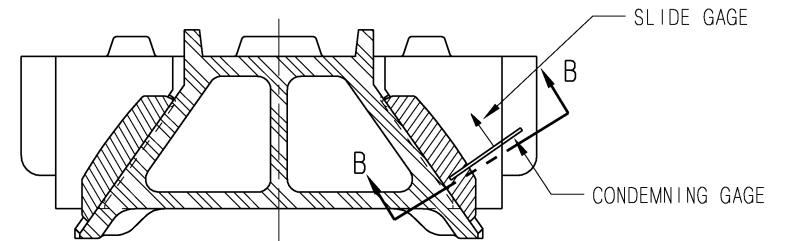
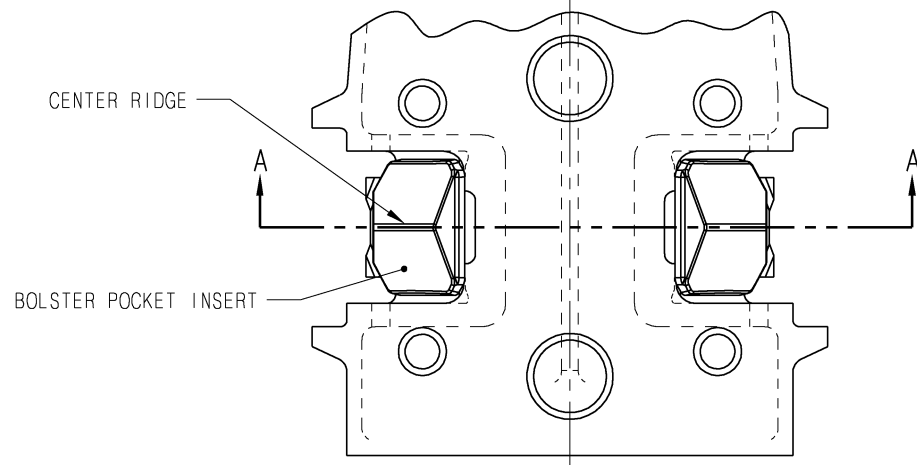
1. Position the gage on the pocket insert as shown in section B-B.
2. Slide the gage along the length of the insert as shown in section A-A.
3. If gage contacts center ridge at any point, then insert should be replaced.
4. For new insert installation refer to section 5-C.

Truck Type	Wedge	Insert	Condemning Gage No.
S-2-A	955-SW	5824 5286*	SK-2048
S-2-B	925-SW	5824 5286*	SK-2048
S-2-C	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



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Section 5-B

Bolster Pockets

Parts

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

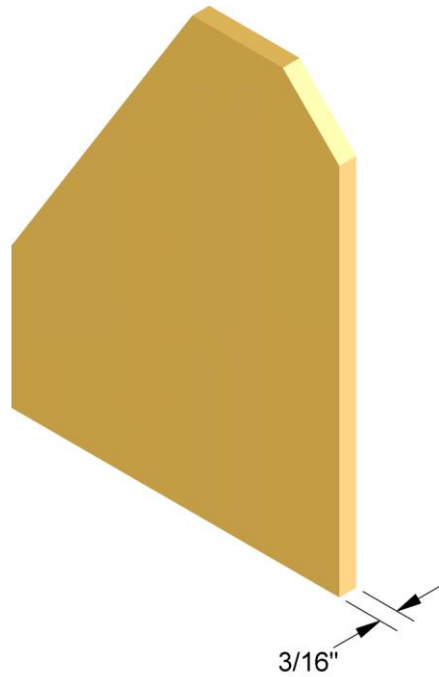


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Bolster Pocket Side Wall Wear Plates



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.

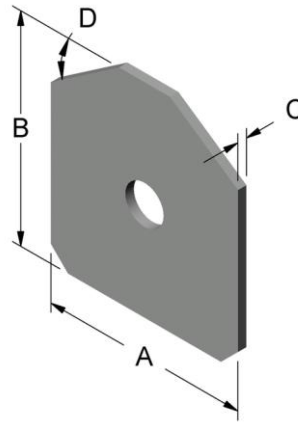
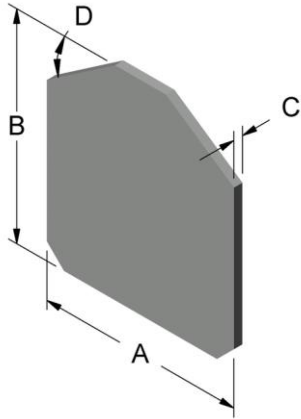


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Bolster Pocket Wear Plates and Inserts



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		5824
S-2-C	925-SW	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.



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Section 5-C

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.

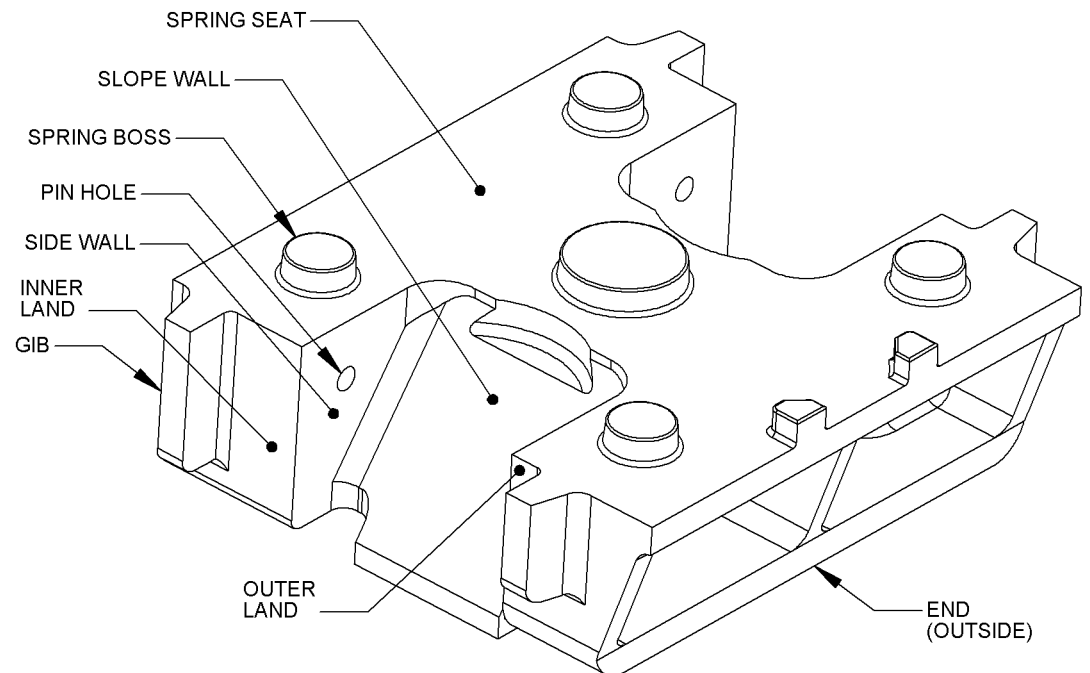
2. Bolster Repair Preparation Inspection

- 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 nd Electrode, Dry	E8018, 5/32 nd Electrode, Dry	E9018, 5/32 nd Electrode, Dry
Flux Core Arc Welding	E71T-1M ² , 1/16 th Wire, or E71T-7 ³ , 1/16 th WIRE, or E71T-8 ³ , 1/16 th WIRE	E81T1-B2 ² , 1/16 th WIRE	E91T1-B3 ² , 1/16 th WIRE, or E91T1-K2 ² , 1/16 th WIRE
Gas Metal Arc Welding	ER70S-2MH ² , 1/16 th WIRE, or ER70C-2MH ² , 1/16 th WIRE, or ER70S-G ² , 1/16 th WIRE, or ER70C-G ² , 1/16 th WIRE	ER80S-D2 ² , 1/16 th WIRE, or ER80C-D2 ² , 1/16 th WIRE, or ER81S-G ² , 1/16 th WIRE, or ER81C-G ² , 1/16 th WIRE	ER90S-D2 ² , 1/16 th WIRE, or ER90C-D2 ² , 1/16 th WIRE, or ER91S-G ² , 1/16 th WIRE, or ER91C-G ² , 1/16 th WIRE
1 Max diameter 2 75% Ar 25% CO ₂ 3 No shield gas required			



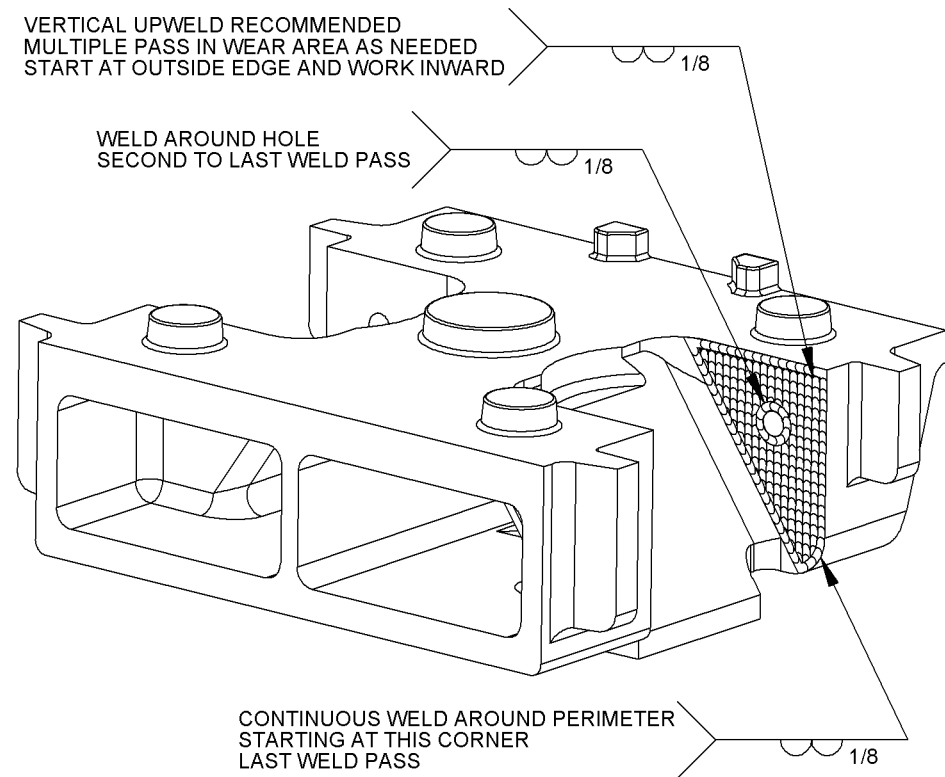
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Bolster Pocket Sidewall Repair Procedure

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.



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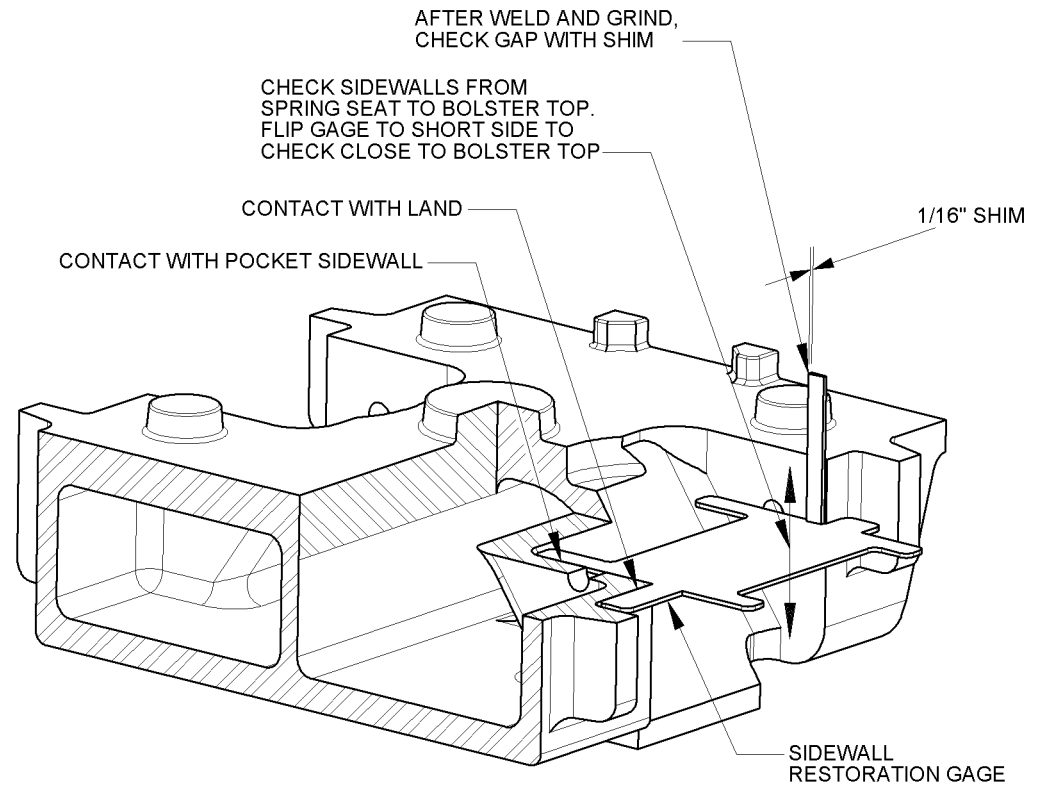
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Bolster Pocket Sidewall Repair Inspection

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.



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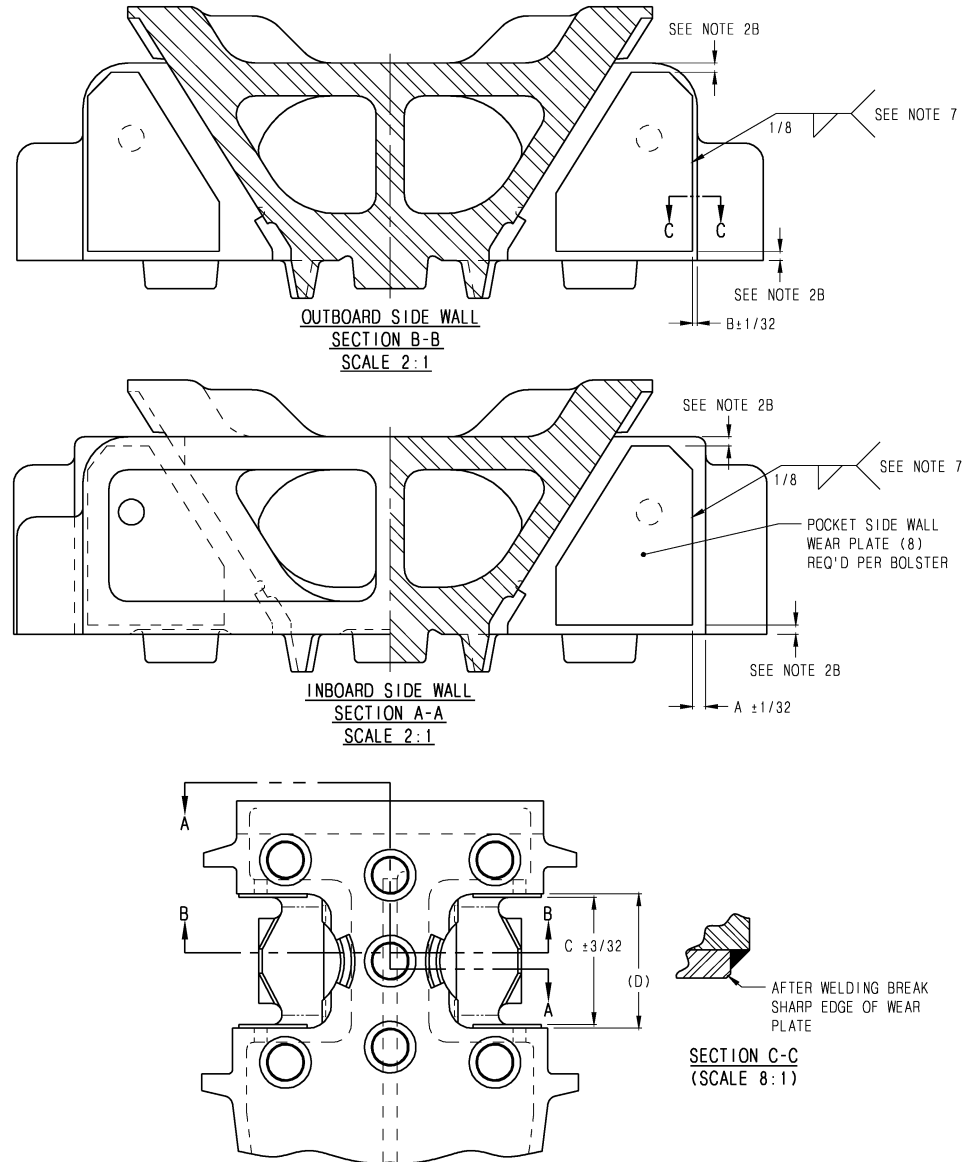
Bolster Pocket Sidewall Wear Plate Installation Procedure

Sidewall Wear Plate Installation Procedure

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



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Bolster Pocket Slopewall Repair Procedure

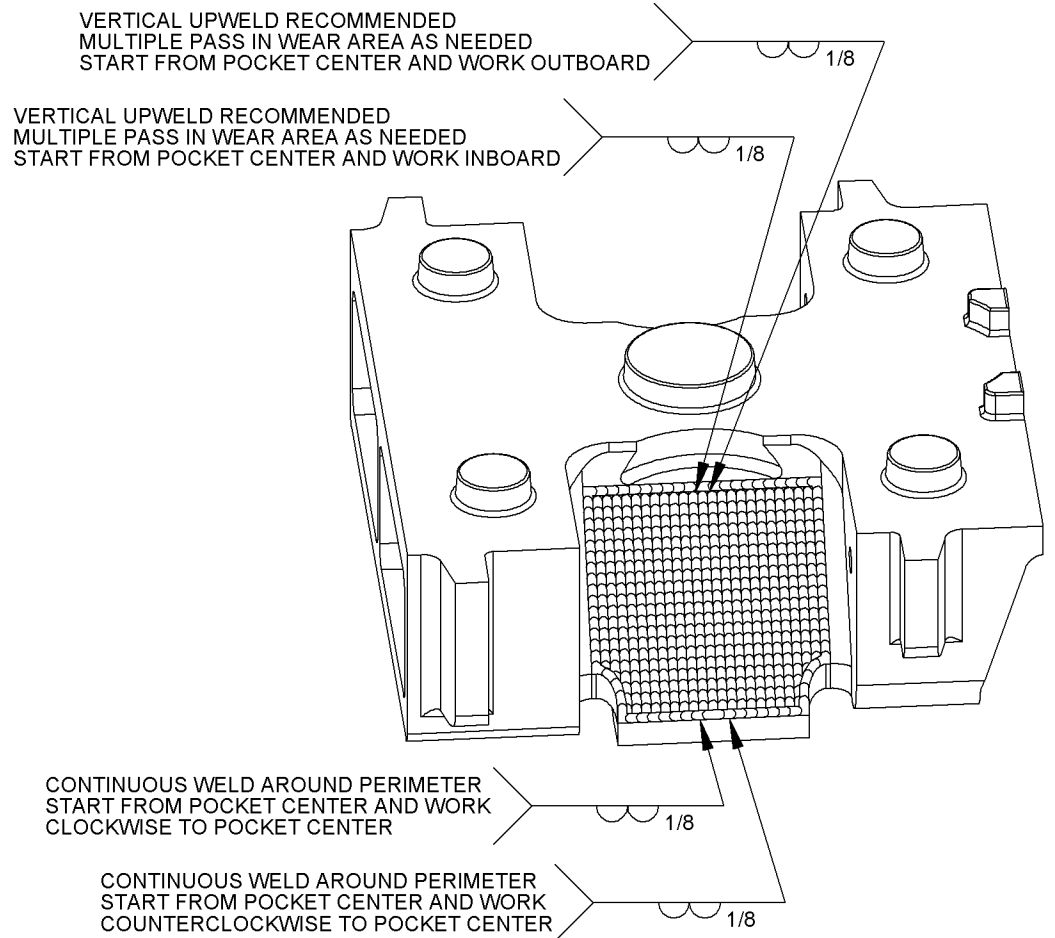
1. Bolster End Worn Surface General Repair Procedure

- 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 not 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.



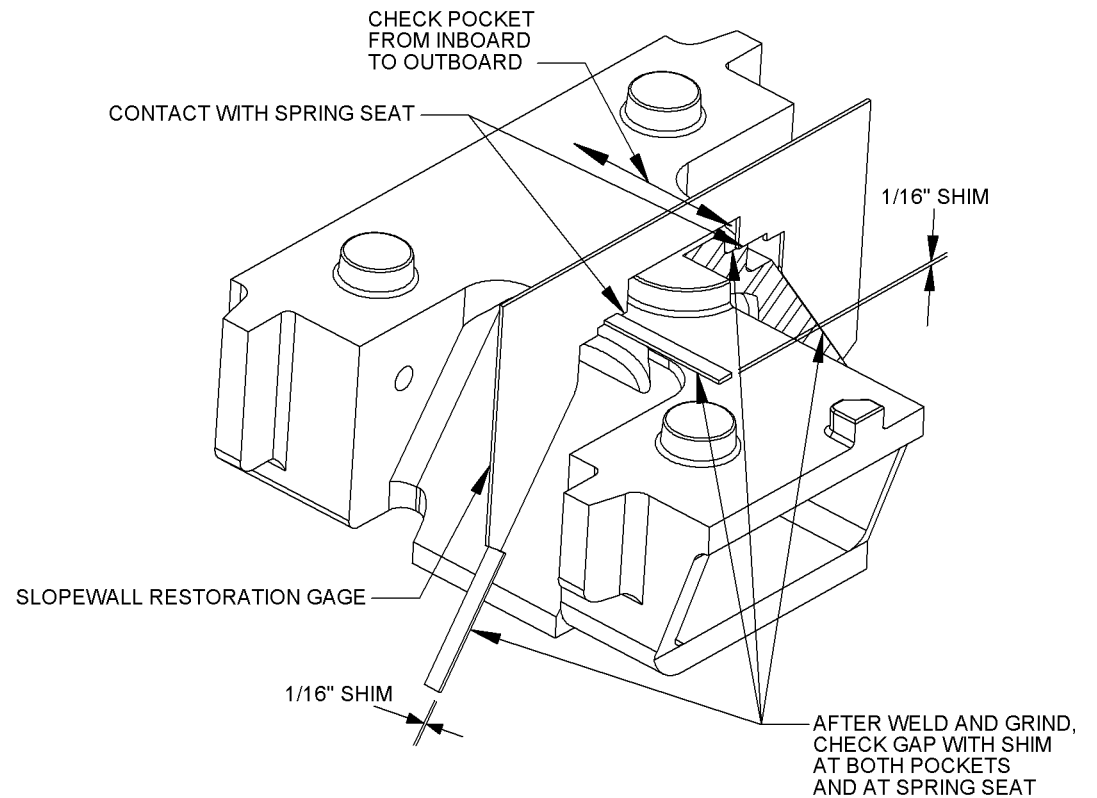
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Bolster Pocket Slopewall Repair Inspection

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.

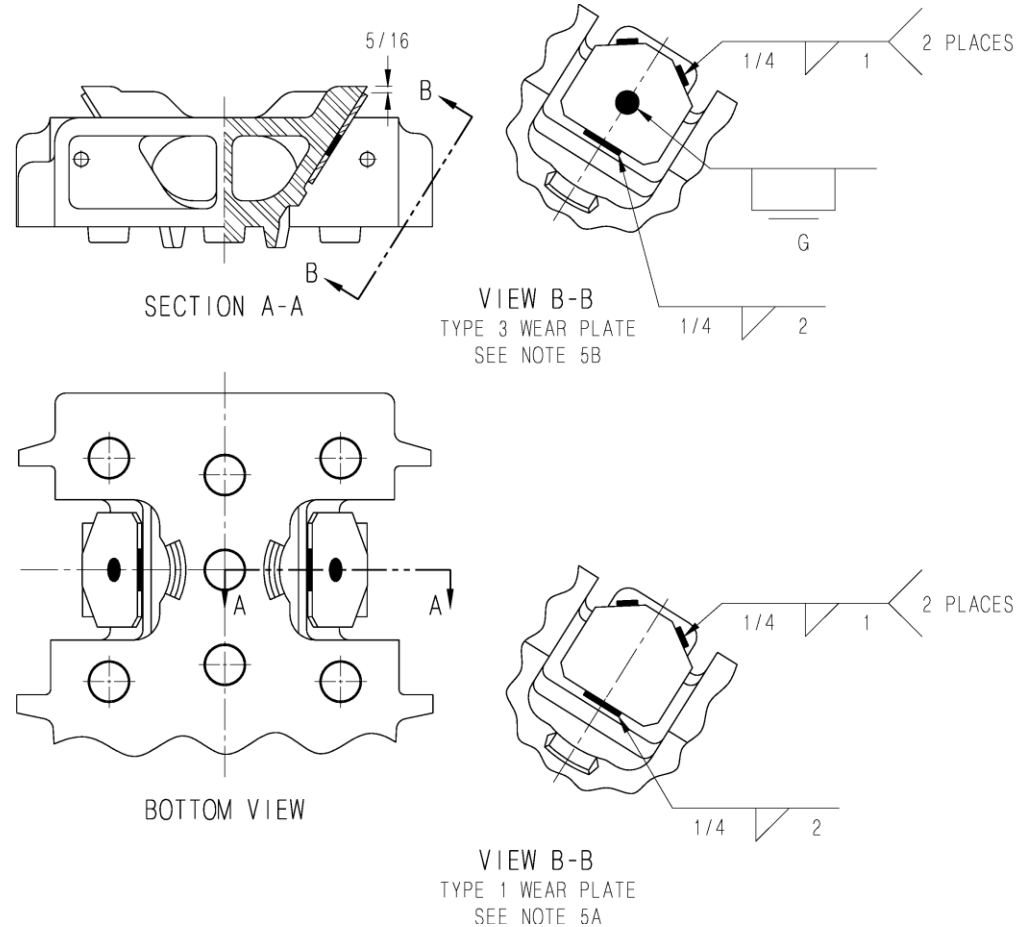


Bolster Pocket Restoration Wear Plate Installation Procedure

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.



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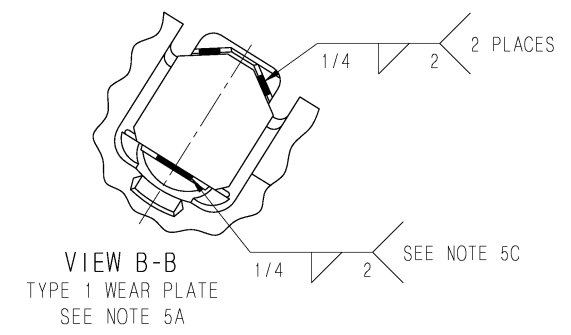
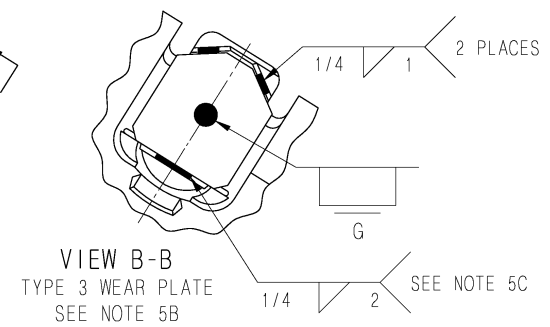
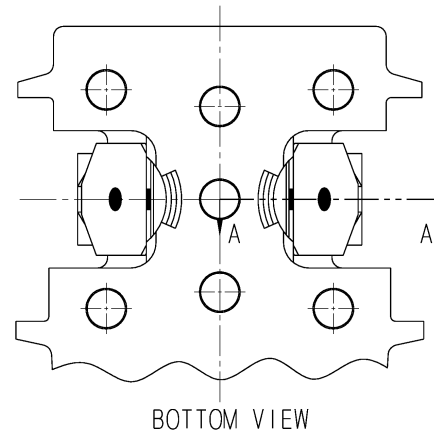
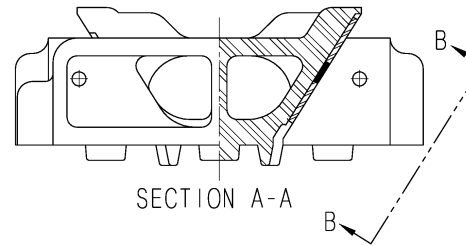
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Bolster Pocket Wear Plate Installation Procedure

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 - special 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.



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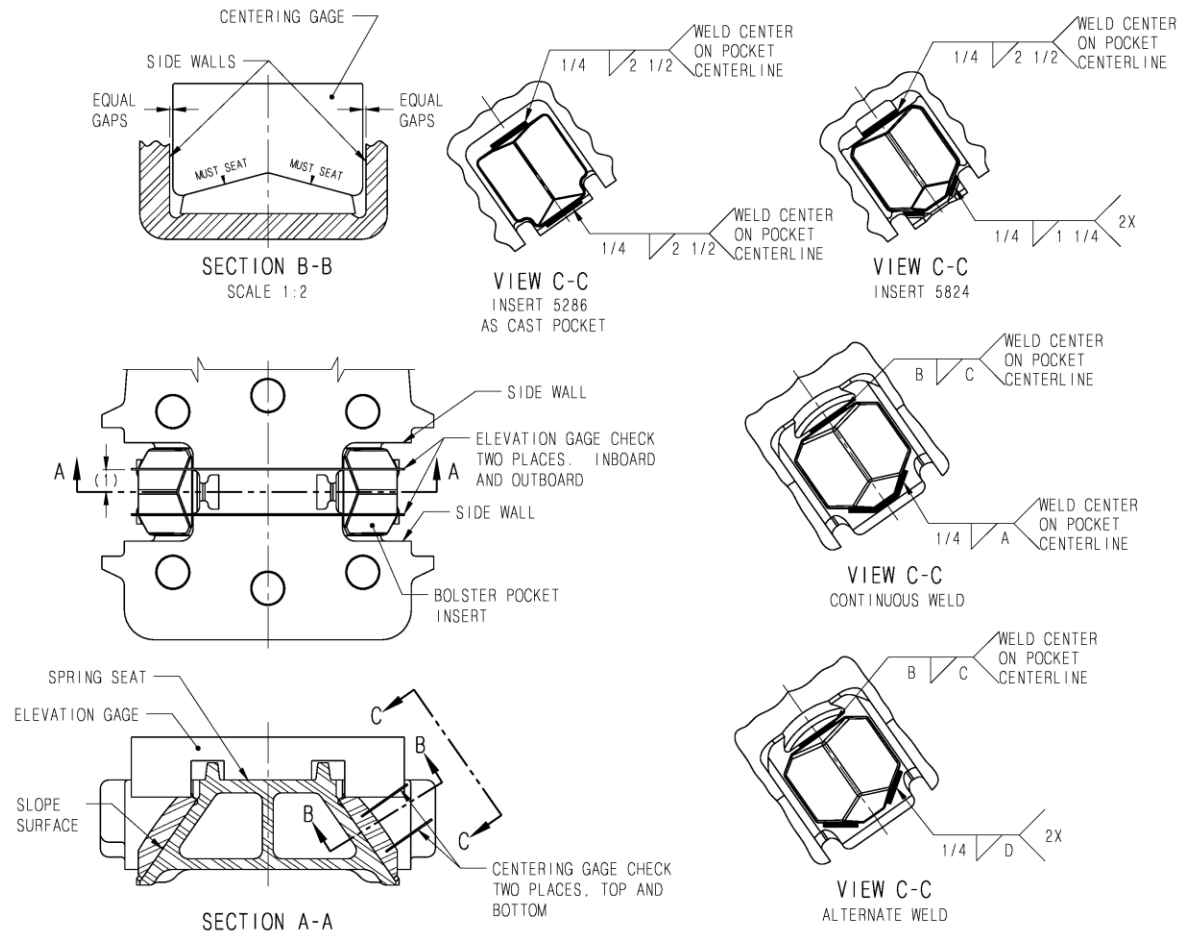
Bolster Pocket Insert Installation Procedure For Pockets Without Side Wall Wear Plates

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



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

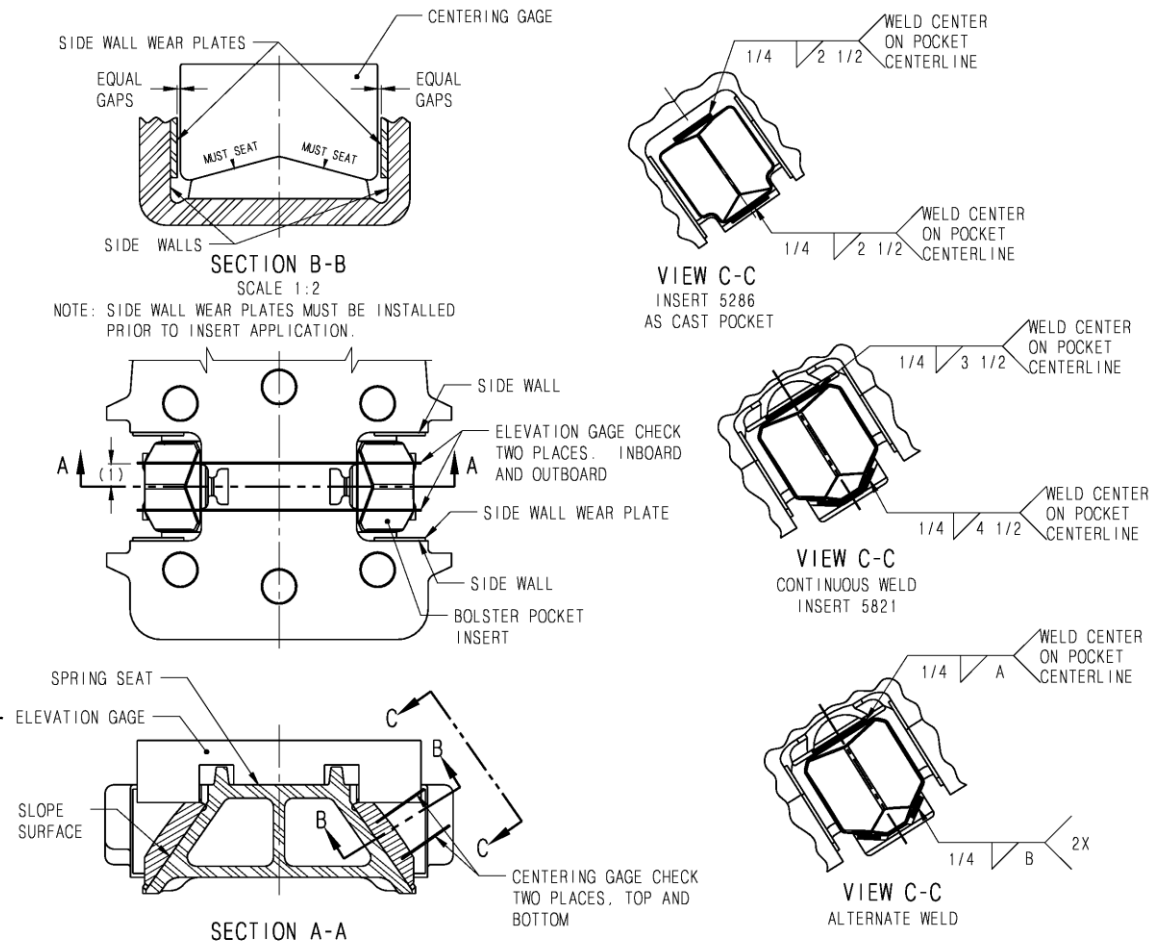
Notes:

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.



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



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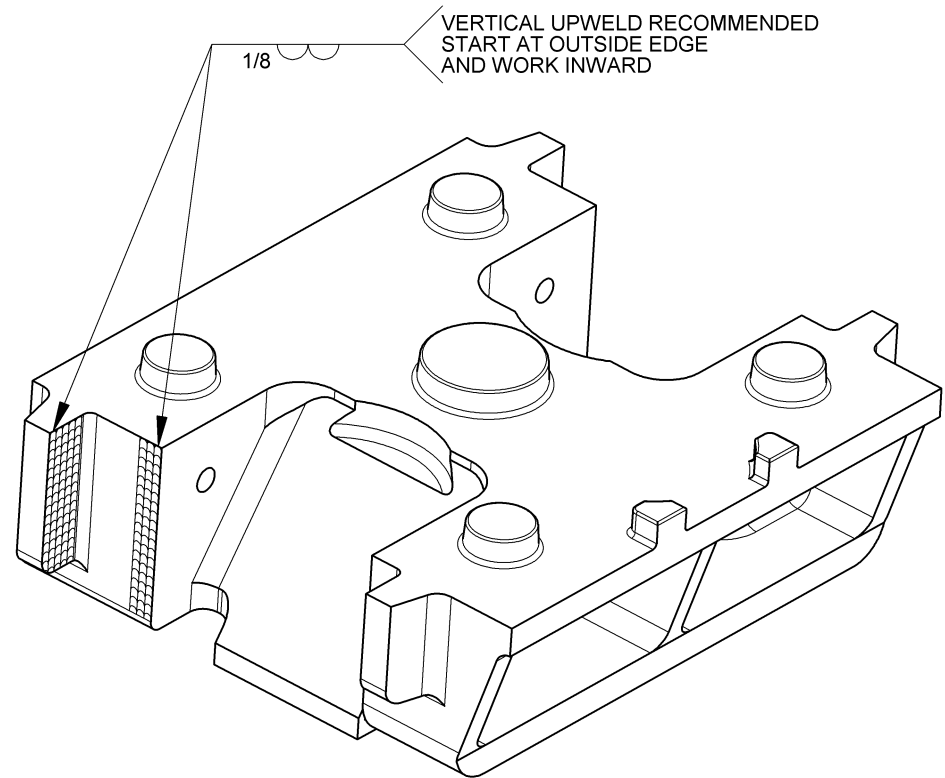
Bolster Gib and Land Repair Procedure

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.



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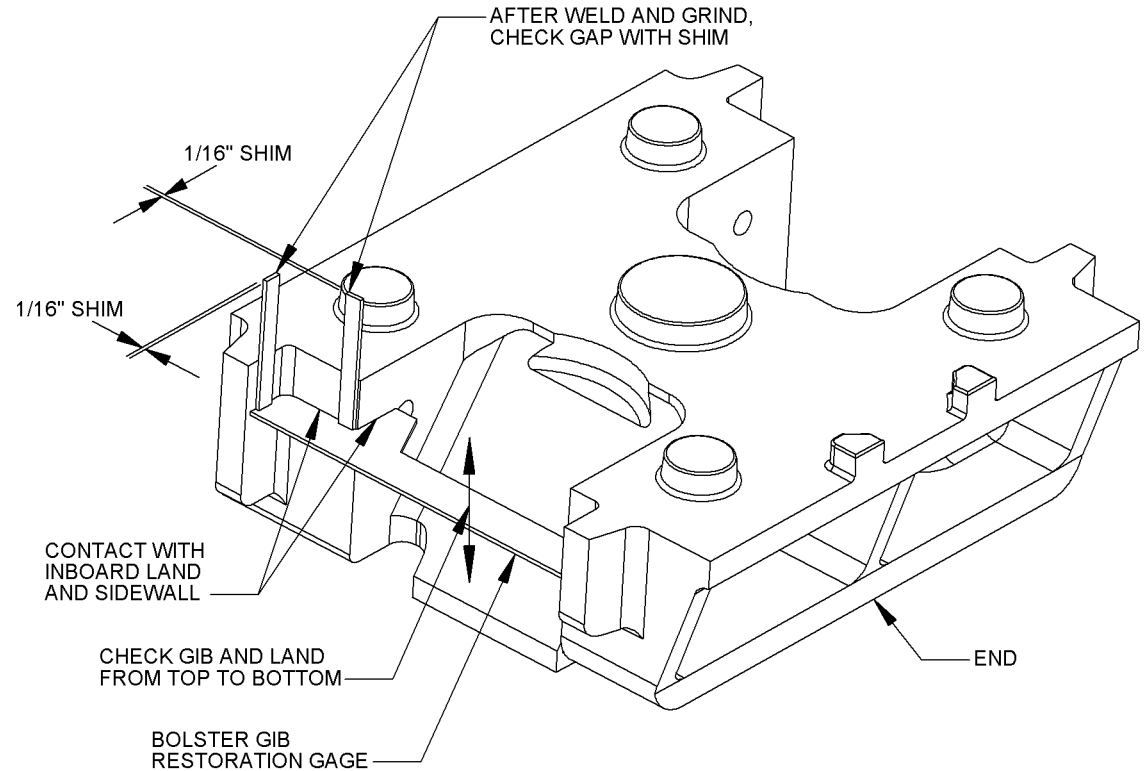
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Bolster Gib and Land Repair Inspection

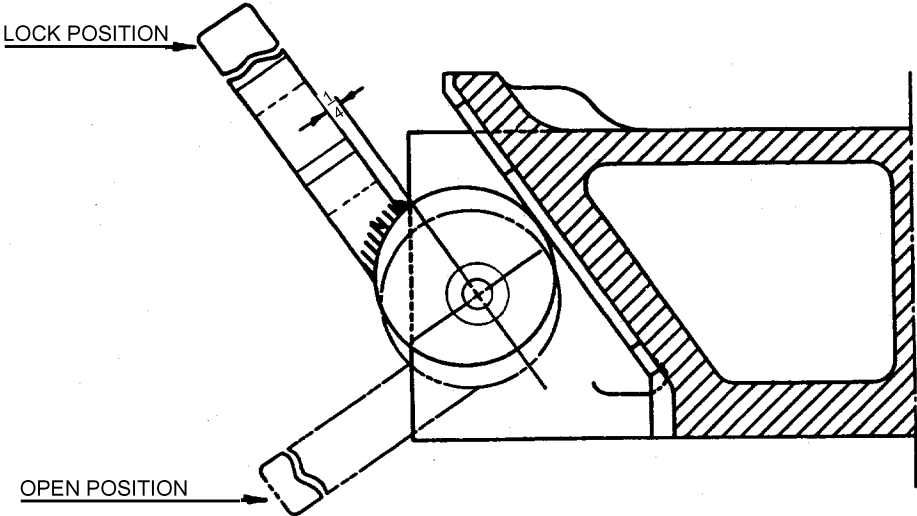
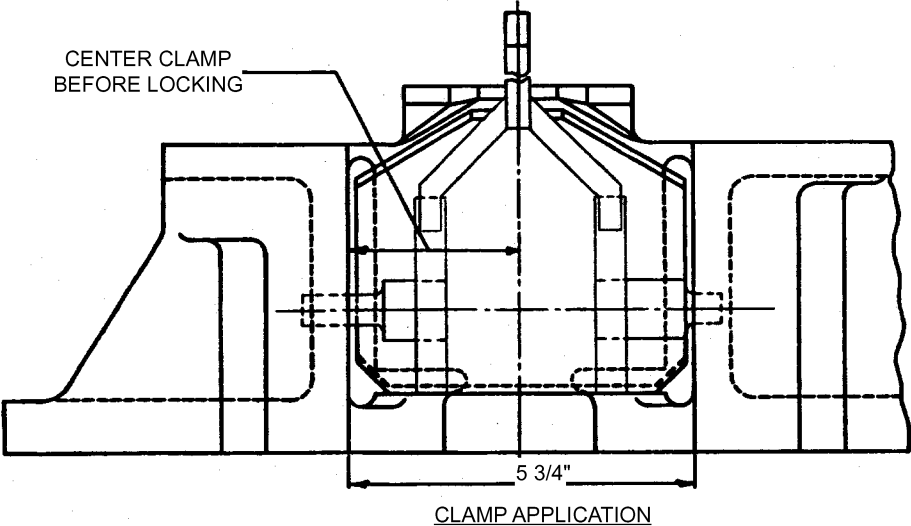
1. Bolster Gib and Land Repair Inspection

- 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.

