A. STUCKI

CELEBRATING 100 YEARS

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1. Scope

This pocket guide provides recommended procedures for the inspection of products manufactured and reconditioned by A. Stucki Company, including truck side bearings, body side bearings, friction wedges, column guide wear plates, springs, hydraulic stabilizers, hand brakes, brake beams, center bowl and brake beam liners, couplers and yokes, and draft gears.

This guide is intended primarily for product identification, inspection, and maintenance guidance and does not cover initial product installation procedures. To obtain the latest news and information on all of Stucki’s products, including drawings and installation instructions, please visit our website at www.stucki.com.
2. Truck and Body Side Bearings
Fig. 2.1 - Shear Side Bearing (SSB®)

Note: Replacement cages are ordered by specifying preload, i.e. 6000XT Cage, where 6000 = preload, XT for extended travel.
Fig. 2.2 - Column Side Bearing (CSB®)

Note: Replacement cages are ordered by specifying preload, i.e. 6000XT Cage, where 6000 = preload, XT for extended travel.
Fig. 2.3 - Compact Column Side Bearing

Note: Replacement cages are ordered by specifying preload, i.e. CCB6000XT Cage, where 6000 = preload, XT for extended travel. Also available in 2200lb & 3000lb preload. The 2200lb & 3000lb models are not for interchange service.
Fig. 2.4 - RetroXT LP Bolt-On, 4500lb. Preload
Fig. 2.5 - RetroXT LP Drop-In, 4500lb. Preload

Note: For monocast or welded bolster pocket, approximately 4-1/4” x 9-1/4”, low profile design.
Fig. 2.6 - RetroXT LPC Drop-In, 4500lb. Preload

Note: For monocast or welded bolster pocket, approximately 3-1/2” x 8-1/4”, low profile design.
Fig. 2.7 - RetroXT SP Drop-In, 4500lb. Preload

Note: For monocast or welded bolster pocket, approximately 4-1/4" x 9-1/4", standard profile design.
Fig. 2.8 - RetroXT 5400B (previously CCU-5400XT), 5400lb. Preload

Note: This is an extended travel upgrade for the 688-BR, the ISB-9DR, the ISB-12 and the 688-B. This drop-in kit is for application to existing cages and does not include a new cage.
Fig. 2.9 - RetroXT 5400C, 5400lb. Preload

Note: This is an extended travel upgrade for the 656-CR, the 656-CRH and the 656-C. This drop-in kit is for application to existing cages and does not include a new cage.
Fig. 2.10 - RetroXT 4500, 4500lb. Preload

Note: This is an extended travel upgrade for the 690-RL. This drop-in kit is for application to existing cages and does not include a new cage.
Fig. 2.11 - 656-CR, 6000lb. Preload

Note: The 656-C cage can accept the RetroXT 5400C upgrade kit to convert to extended travel. Model 656-CRL uses RB-14s with a preload of 3500lb.
Fig. 2.12 - 688-BR, 6000lb. Preload

Note: This 688-B cage can accept the RetroXT 5400B upgrade kit to convert to extended travel.
Note: The 690 cage can accept the RetroXT 4500 upgrade kit to convert to extended travel.
Fig. 2.14 - 656-CRH, 5400lb. Preload

Note: This 656-C cage can accept the RetroXT 5400C upgrade kit to convert to extended travel.
Fig. 2.15 - 675-RL, 3000lb. Preload

Note: Model 675-RXL uses RB-35s with a preload of 2200lb.
Fig. 2.16 - 685-RM, 4500lb. Preload
Fig. 2.17 - ISB-9DR, 4500lb. Preload

Note: The RB 36 / 46 combination is no longer available and should be replaced with RB 46 / 52. In addition, the 688-B cage can accept the RetroXT 5400B upgrade kit to convert to extended travel.
Fig. 2.18 - ISB-9DRL, 4500lb. Preload

Note: The RB 36 / 46 combination is no longer available and should be replaced with RB 46 / 52.
Fig. 2.19 - ISB-10, 4500lb. Preload
Fig. 2.20 - ISB-12, 5400lb. Preload

Note: This 688-B cage can accept the RetroXT 5400B upgrade kit to convert to extended travel. Model ISB-12L uses RB24s with a preload of 3000lb.
Fig. 2.21 - 656-C

Note: The 656-C cage can accept the RetroXT 5400C upgrade kit to convert to extended travel.
Fig. 2.22 - 688-B

Note: This 688-B cage can accept the RetroXT 5400B upgrade kit to convert to extended travel.
Fig. 2.23 - Body Side Bearings (Plate & Wedge)

Note: Various length and hole center combinations are available for models 438P, 458P, 558P, 4W and 5W. Contact A. Stucki Company for specific applications.
Yard and Shop Inspection

Physically identify the side bearing model from the illustrations in Section 2 Truck and Body Side Bearings. Be sure all components for that model are present and in the correct orientation. Missing or damaged components should be replaced in kind.

If the car is shopped, chock the wheels, safely lift the car, and follow standard safe operating procedures.

Cage: Inspect cages for cracks, flaws, or unusual deformation. The cage must be securely fastened to the truck bolster. If shopped, tighten or replace loose fasteners according to A. Stucki Company’s installation instructions for respective side bearings. Broken or cracked cages must be replaced.
**Body Side Bearing:** Plates or wedges must be securely tightened (torque to minimum of 300 ft-lb) and tack welded. Fastener heads must be recessed below the bearing surface of the wear plate or wedge. All bearing surfaces should be flat or convex (1/16” maximum). If shaped, replace plates or wedges if surface variations between fastener holes are greater than 1/8” or greater than 1/16” over any 4” span. The wear surface of the plate or wedge must be parallel to the side bearing mounting surface of the truck bolster to within 1/16” across the width and 1/8” along the length. Heavy rust or surface projections may be removed by grinding. Please refer to AAR Specification S-235 and Rule 61 in the AAR Field Manual for additional requirements.
**Roller:** For shop inspection, rollers should be replaced if they have a diameter less than that shown in the table below:

<table>
<thead>
<tr>
<th>Roller Size (in)</th>
<th>Minimum Diameter (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 X 3</td>
<td>1-15/16</td>
</tr>
<tr>
<td>3 X 3</td>
<td>2-7/8</td>
</tr>
<tr>
<td>4 X 3</td>
<td>3-13/16</td>
</tr>
</tbody>
</table>

The roller should also be replaced if the edges are deformed to the point that the roller will not roll freely in the cage.

**End Closure:** End closures must be in place and not broken. ISB models have only one end closure.

**Resilient Element:** Resilient elements should be checked for any excessive deformation. If signs of severe cracking, bulging or deformation exist, replace the block in kind.
Refer to Rule 62 in the AAR Field Manual for additional requirements. Note that the 688-BR and 690-RL cars should not be shopped for repairs for a single block having a missing top portion. Replace the defective block when the car is next shopped for required maintenance or other repairs. Bad-order the car only if two or more block tops are missing.

Shop inspection additionally requires checking for cracks and gouges. Some elements (RB-46, RB-56, RB-57, RB-58, RB-59 & CSB® Column) are composed of a single material, while others consist of two materials. Most dual material designs will exhibit slight separation at the horizontal interface of those two materials. Blocks showing superficial horizontal separation do not need replaced. As a rule, if the interface can be manually opened to reveal 50% or more of the interface surface, the block should be replaced.
Vertical cracks are acceptable unless there are more than two cracks, greater than 1/2” in length, located in the bottom portion of the block. Cracked or missing top edges of wedge-shaped blocks do not affect its performance and is not cause for renewal.

**Rocker:** Rockers may not always be seated on the bottom of the cage, and clearance should not be used as a setup height criterion. While in service, vertical movement may occur. This has no effect on the performance of the side bearing. Rockers contact the body side bearing as the car rocks or leans. Light wear of the upper and lower surfaces of the rockers is normal and should be replaced if the diameter is less than 3-7/8”.
Free Height Measurement: The suitability of the resilient blocks for continued service can be determined by their free height measurement. Allow the blocks to relax at least one hour at room temperature after removal from the car. Then measure the height from the base to the highest point on the block (see Table 2.2).
<table>
<thead>
<tr>
<th>Block Type</th>
<th>Minimum Allowable Free Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>RB-9</td>
<td>4-3/16”</td>
</tr>
<tr>
<td>RB-11</td>
<td>4-5/16”</td>
</tr>
<tr>
<td>RB-14</td>
<td>4-1/4”</td>
</tr>
<tr>
<td>RB-17</td>
<td>4-3/16”</td>
</tr>
<tr>
<td>RB-24</td>
<td>3-5/8”</td>
</tr>
<tr>
<td>RB-27</td>
<td>3-13/16”</td>
</tr>
<tr>
<td>RB-34</td>
<td>3-3/4”</td>
</tr>
<tr>
<td>RB-35</td>
<td>3-17/32”</td>
</tr>
<tr>
<td>RB-36</td>
<td>4-7/16”</td>
</tr>
<tr>
<td>RB-42</td>
<td>3-7/16”</td>
</tr>
<tr>
<td>RB-46</td>
<td>4-3/16”</td>
</tr>
<tr>
<td>RB-52</td>
<td>4-7/16”</td>
</tr>
<tr>
<td>SSB® Cap Assembly</td>
<td>4-15/16”</td>
</tr>
<tr>
<td>CSB® Column</td>
<td>4-5/16”</td>
</tr>
<tr>
<td>RB-56</td>
<td>3-11/16”</td>
</tr>
<tr>
<td>RB-57</td>
<td>2-5/16”</td>
</tr>
<tr>
<td>RB-58</td>
<td>2-5/16”</td>
</tr>
<tr>
<td>RB-59</td>
<td>3-11/16”</td>
</tr>
</tbody>
</table>
Shelf Life Criteria and Date Codes

A. Stucki Company recommends a maximum shelf life of 5 years for all of our elastomer components, which includes RB Blocks, CSB® Columns, SSB® Elements, and RFE Pads. The shelf life is defined as the time from the manufacturing date of the parts until they are installed on the car. Please refer to Figures 2.24 and 2.25 for the proper methods of determining the manufacturing date.
Yearly Date: 04 = 2004

Weekly Date: Dot by 4 and Triangle by 7 is 47th Week

Figure 2.24

Yearly Date Code 07 = 2007

Weekly Date Code Dot by 2 and Triangle by 7 is 27th Week

Figure 2.25
Vertical Setup Height Inspection

Rule 62 of the AAR Field Manual contains detailed condemning limits for the inspection of side bearing setup heights in the shop, on a repair track, or at any time. Tables 2.3 and 2.4 provide the specific location in Rule 62 to find these criteria based on the particular side bearing application.
### Table 2.3 Vertical Setup Height (Any Time)

<table>
<thead>
<tr>
<th>Side Bearing Application</th>
<th>Rule 62 Setup Height Condemning Limit</th>
<th>Stucki Measurement Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-Axle Cars and End Trucks of Articulated Cars</td>
<td>Section A.1.h.(1)</td>
<td>Stucki Figure 2.26 (Page 42)</td>
</tr>
<tr>
<td>Articulated Positions of Articulated Cars</td>
<td>Section A.1.h.(2)</td>
<td>Stucki Figure 2.26 (Page 42)</td>
</tr>
<tr>
<td>Cars with Solid Block Style Side Bearing Pockets (RetroXT LP, LPC and SP)</td>
<td>Section A.1.h.(3)</td>
<td>Stucki Figure 2.27 (Page 43) and Stucki Figure 2.28 (Page 44)</td>
</tr>
</tbody>
</table>

*Note: If applying new, 12” graphite lube disks or non-metallic bowl liner when constant contact side bearing measurements are being made, add an additional 1/16” to the nominal height for any single side bearing measurement and 1/8” to any nominal sum-of-the-pair measurements.*
Fig. 2.26 - How to Measure Vertical Setup Height

*Note: Place measuring tool as close to SB center as possible.*
Fig. 2.27 - Vertical Setup Height for RetroXT LP Drop-In, Bolt-On and SP Drop-In
Fig. 2.28 - Vertical Setup Height for RetroXT LPC
### Table 2.4 Vertical Setup Height (Shop or Repair Track)

<table>
<thead>
<tr>
<th>Side Bearing Application</th>
<th>Rule 62 Setup Height Condemning Limit</th>
<th>Stucki Measurement Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-Axle Cars and End Trucks of Articulated Cars</td>
<td>Section A.2.a.(1)</td>
<td>Stucki Figure 2.26 (Page 42)</td>
</tr>
<tr>
<td>Articulated Positions of Articulated Cars</td>
<td>Section A.2.a.(2)</td>
<td>Stucki Figure 2.26 (Page 42)</td>
</tr>
<tr>
<td>Cars with Solid Block Style Side Bearing Pockets (RetroXT LP, LPC and SP)</td>
<td>Section A.2.a.(3)</td>
<td>Stucki Figure 2.27 (Page 43) and Stucki Figure 2.28 (Page 44)</td>
</tr>
</tbody>
</table>

Note: If applying new, 12" graphite lube disks or non-metallic bowl liner when constant contact side bearing measurements are being made, add an additional 1/16” to the nominal height for any single side bearing measurement and 1/8” to any nominal sum-of-the-pair measurements.
All side bearing setup height measurements should be taken . . .

- On straight and level track
- As close to the center of the side bearing as possible

Be alert to the possibility of encountering shims under side bearing cages. This practice should be avoided, but when present, measurement must reference to the top of these shims, rather than the mounting surface of the bolster.

If the appropriate Rule 62 setup height condemning limits are exceeded and the car is empty, it must be shopped and the car body side bearing shims adjusted to obtain the specified setup height. Refer to Vertical Setup Height Correct Repairs on Page 47.
Vertical Setup Height Correct Repairs

If inspection measurements reveal that the side bearing setup height violates the Rule 62 condemning limits, then body side bearing shim adjustments are required to correct the out-of-specification condition.

To increase the setup height, shims must be removed. Likewise, to reduce the setup height, shims must be added to the car body side bearing. Do not place shims under side bearing cages to adjust setup heights, unless shimming beneath cages is the only option.
When adjusting side bearing setup height in the shop, the vertical distance between the body side bearing wear plate or wedge and the truck bolster surface to which the side bearing is mounted must be 5-1/16” ± 1/16” unless otherwise stenciled on the car body (Figure 2.29).
For the RetroXT LP and SP side bearings, the vertical space between the top of the cage and the underside, or wearing surface of the body side bearing wear plate or wedge must be 11/16” ± 1/16”. For the RetroXT LPC side bearing, the vertical space between the top of the notch and the underside, or wearing surface of the body side bearing wear plate or wedge must be 11/16” ± 1/16” (Figure 2.30).
These measurements assume that the car is empty, positioned on reasonably level track, and has positive centerplate contact. Tops of metal rockers or rollers should not be used as reference points to measure setup height for constant contact side bearings.

If the car is equipped with any type of new 12” graphite lube discs or elastomeric center bowl liner, it must be in place when measuring for setup height adjustment. In addition, side bearing setup heights should be adjusted to 3/4” ± 1/16” for all RetroXT LP, LPC or SP side bearings and 5-1/8” ± 1/16” for all other side bearing products.

Never relubricate a side bearing in service, unless the metal caps or body side bearings are being replaced. In this case, apply a 1-1/2” diameter dab of lithium based grease to the center of the side bearing cap. This allows the body side bearing wear plate surface to polish, resulting in smooth consistent turning of the truck.
Vertical Setup Height and Wear Indicators

Figures 2.31, 2.32, 2.33, 2.34 and 2.35 highlight reference indicators which can be used for quick visual inspection of wear or proper setup height. Please note, the setup height indicators are for reference only and should not be used when installing new side bearings or making side bearing setup height adjustments on a repair track or in the shop.

Cap wear limit indicators for all CCB and metal capped/rolled steel cage designs are shown in Figures 2.31 and 2.32. Caps should be replaced when any wear indicator limit is worn off. Cap wear limits for all LP, SP, LPC, CSB® and SSB® designs are reached when applying a straight edge across the cap and reaching both outside edges of the cap at the same time as shown in Figures 2.33 and 2.35. Replace the cap when this condition is met.
Fig. 2.31 - Setup Height Indicator for Compact Column Side Bearing

Note: Setup is at 5-1/16” when bottom cap cutout is aligned with top of cage. Side bearing is shown at free height.

Fig. 2.32 - Setup Height Indicator for Metal Capped, Rolled-Steel Cage Designs

Note: If the top of cage is aligned at lateral center of top notch, setup height is at 5-1/16”.
Fig. 2.33 - Wear Limit Indicator for RetroXT LP, LPC, SP and SSB® Side Bearings

Note: Caps are condemnable when both vertical walls are contacted using a straight edge placed across the top of the cap.

Fig. 2.34 - Setup Height Indicator for RetroXT LPC Side Bearings

Note: Setup is at 11/16” when the bottom of cap is aligned with the base step of the LP and SP models or when cap step is aligned with top of base for the LPC model. All side bearings are shown at free height.

Fig. 2.35 - CSB® and SSB® Cap
3. Snubbing Systems

General Requirements

Snubbing Systems are composed of three main product groups, including friction elements, springs and column guide wear plates. These are responsible for stabilization of the truck. System wear of the snubbing column can be measured by checking friction wedge rise with a mustache gage per AAR Field Manual Rule 46 and AAR Office Manual Rule 88.
The following illustrations identify each friction element and its components. It is important that all components shown for a specific wedge are present and in good condition. Pads manufactured by A. Stucki Company are identified by their orange color. Table 3.1 cross references product.
### Table 3.1 Friction Wedge Cross Reference Table

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Truck Type</th>
<th>Resilient Pad</th>
<th>Conventional Wedge</th>
<th>Split Wedge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barber 609-D</td>
<td>70T &amp; 100T Barber S-2-A</td>
<td>RFE-16 *</td>
<td>ASC-609D</td>
<td></td>
</tr>
<tr>
<td>Barber 888R, 888N, 787C &amp; 925SW</td>
<td>70T &amp; 100T Barber S-2-B, C</td>
<td>RFE-16</td>
<td>ASC-787</td>
<td>ASC-925SW, 925L, 925R, 5824 (Thick) &amp; 5286 (Thin)</td>
</tr>
<tr>
<td>Barber 834-C &amp; 915SW</td>
<td>100T S-2-HD Heavy Duty</td>
<td>RFE-41</td>
<td>ASC-834CB</td>
<td>ASC-915SW, 915L, 915R &amp; 5821</td>
</tr>
<tr>
<td>ASF 17803 &amp; 17849</td>
<td>70T, 100T &amp; 125T Ride Control</td>
<td>RFE-18</td>
<td>ASC-17803</td>
<td></td>
</tr>
<tr>
<td>ASF 17815 &amp; 17852</td>
<td>100T Super Service Ride Control</td>
<td>RFE-26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASF 17882</td>
<td>100T Super Service Ridemaster</td>
<td>RFE-53</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Requires use of Stucki RFE-16 D-5 wedge springs (or Barber B432/B433 combination) with 3/8” Stucki shim plate.
Fig. 3.1 - RFE-16, for Barber® S-2-B, C Trucks

Fig. 3.2 - RFE-18, for Ride Control® Trucks
Snubbing Systems

Fig. 3.3 - RFE-26, for Super Service Ride Control® Trucks

Fig. 3.4 - RFE-41, for Barber® S-2-HD Trucks
Fig. 3.5 - RFE-53, for Super Service Ride Master® Trucks

Fig. 3.6 - ASC-609D Friction Casting, for Barber® S-2-A Trucks
Fig. 3.7 - ASC-787C Friction Casting, for Barber® S-2-B, C Trucks

Fig. 3.8 - ASC-834CB Friction Casting, for Barber® S-2-HD Trucks
Fig. 3.9 - ASC-17803, for Ride Control® Trucks

Fig. 3.10 - ASC-915 Split Wedge, for Barber® S-2-HD Trucks

Note: ASC-5821 Wedge Insert also available.
Fig. 3.11 - ASC-925 Split Wedge, for Barber® S-2-B, C Trucks

Note: ASC-5824 (Thick) & ASC-5286 (Thin) Wedge Inserts also available.

Fig. 3.12 - Column Guide Wear Plate - All Popular Sizes

Note: Contact A. Stucki Company for specific applications.
Yard Inspection

Inspect wear indicators on the vertical face of the wedge. Replace wedges when the wear indicators are no longer visible. New wedges will have approximately 3/8” of wear indicator visible. A mustache gage can be used to check wedge rise for all wedge designs. Wedge rise limits for RFEs and split wedges are the same as for the conventional friction shoes they replace (see AAR Field Manual, Rule 46). For the RFEs 18 and 26, wedge rise is excessive when the hole on the front of the casting is entirely above the top plate of the bolster. The RFE-16 wedge rise limit indicator is the bottom of the face wear indicator itself.

Check top edge of resilient urethane pads for flush seating against the wedge and bolster pocket. Any pad cracks above the area of contact with the bolster pocket are acceptable and are not cause for renewal.
Shop Inspection

In addition to the previous yard inspection procedures, inspection in the repair shop should include the following procedures:

**Column Guide Wear Plate:**
Check closely for cracks, loose or missing fasteners, or excessive wear, and replace as necessary. Refer to AAR Specification S-3003 and Field Manual Rule 48, Table 1. Column guide wear plates must be reasonably parallel, and spacing between plates must be in accordance with AAR requirements.

**RFE Casting:** Wedges having obvious cracks must be replaced.

**Wedge:** If wedge rise measurements indicate wedges are above condemnable heights, both complete wedges should be replaced. The exception is if resilient pad(s) are severely damaged, and casting
has at least 3/16” face wear indicator remaining, then it is acceptable to replace the pads only. Pry old pads from the casting with a screwdriver, and install new pads by aligning the post on the back of the pad with the hole in the sloped face of the casting. Strike the pad face with a mallet to seat it onto the casting.

**Elastomer Pads:** Patches of dark, flaky material on the faces of the pads are common, and produce no detrimental effects. This is not cause for renewal.

In the case of the RFE-18, RFE-26 and RFE-53, if cracks emanating from the upper or lower corners of the pads have extended downward toward the center of the pad more than 3/4”, then cracked pads should be replaced.
Fig. 3.13 - Wear Indicator Side View (Most Wedges)
**Control and Load Springs:** Springs can be identified by the markings on the tapered ends or by physical identification using Tables 3.2 and 3.3. Broken wedge springs must be replaced. Free heights of springs should be checked.
<table>
<thead>
<tr>
<th>Part Number</th>
<th>Bar Diameter</th>
<th>Outer Diameter</th>
<th>Solid Height</th>
<th>Free Height</th>
<th>Scrap Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>B353</td>
<td>13/16</td>
<td>6 3/8</td>
<td>11 3/16</td>
<td>10 5/8</td>
<td></td>
</tr>
<tr>
<td>B354</td>
<td>17/32</td>
<td>6 1/8</td>
<td>11 1/2</td>
<td>10 15/16</td>
<td>9 15/16</td>
</tr>
<tr>
<td>B421</td>
<td>43/64</td>
<td>3 1/8</td>
<td>6 9/16</td>
<td>9 3/4</td>
<td>9 1/2</td>
</tr>
<tr>
<td>B422</td>
<td>13/32</td>
<td>3 3/8</td>
<td>6 1/16</td>
<td>10 1/2</td>
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Yard Inspection

Any cracked, broken or missing springs should be replaced in kind. Any flattening of the spring coil top on all windings top to bottom, are signs of spring overload or bottoming. These should be checked for free height.

Shop Inspection

Using a straight edge held across the top of a free standing spring, compare the free height measurement of the spring to the minimum recommended scrap height in Tables 3.2 and 3.3. If the spring does not return to the scrap height, replace in kind.

Fig. 3.14 - Spring Measurement
4. Hydraulic Stabilizers

Stucki hydraulic stabilizers are the only hydraulic damping units guaranteed to meet AAR Specification M-965 and Field Manual Rule 50 to ensure safe operation of the freight car while controlling resonant rocking of high-center-of-gravity cars. The Stucki HS-7, HS-7-100 and HS-10 incorporate a low pressure seal on the piston rod, which may pass slight amounts of oil under normal operating conditions. This fluid loss is compensated for by the reserve oil. The Stucki HydraShox™ products utilize a high pressure seal which provides superior performance and life while preserving oil reserve levels.
Fig. 4.1 - HydraShox™ Platinum

Note: HS-7 available unpainted / reconditioned only.

Fig. 4.2 - HydraShox™ Gold
Fig. 4.3 - HS-7-100RB

Note: Available unpainted / reconditioned only.
Yard and Shop Inspection

Hydraulic stabilizers should be positioned vertically upright with the body spring properly seated between the stabilizer and the bolster. Units not properly positioned or seated on the side frame must be repositioned correctly. The unit must be replaced if stabilizer body has been damaged due to bolster or side frame lug interference to allow oil leakage at damaged area. Damaged stabilizer should be scrapped.

Stucki hydraulic stabilizers have a sight glass on one side of the reservoir to check for proper operating fluid level. On the HS-7 and HydraShox™ Platinum, the window is protected from dirt by a plastic cap, which must be removed to make the visual check. If the cap is missing, clean out any dirt on the surface of the glass. (A sliver of tie wood works well for this task.) Be sure the unit is sitting in its normal upright position when inspecting the sight glass.
A flashlight may be helpful in making the sight glass inspection. Figure 4.4 illustrates one of three conditions that may be encountered during inspection.

A. **Window Full**
   Unit OK

B. **Partially Full**
   Replace at the next maintenance interval

C. **Empty**
   Replace ASAP

*Fig. 4.4 - Hydraulic Stabilizer Sight Glass Window*
**Condition A.** The oil level in the reservoir is full. The entire glass area will appear dark, and the unit should be left in service, regardless of any external sludge accumulation.

**Condition B.** The oil level has dropped to the sight glass window, and only the upper portion of two shiny rings appears to be reflecting light. This indicates sufficient fluid remaining in the reservoir for adequate operation; however, it is the first warning the unit should be scheduled for replacement when the car is next shopped for routine maintenance. This is not an AAR or FRA defect as foreign cars are concerned. For system cars, however, it is advisable to replace when this condition is found.

**Condition C.** The oil level has dropped below the sight glass area, and the two shiny rings are completely visible. The unit should be replaced as soon as possible. This condition constitutes a viable AAR or FRA defect.
Stabilizers equipped with a sight glass must be inspected according to above fluid level guidelines. Only stabilizers not equipped with a sight glass can be removed on the basis of wet fluid or build up > 3” from the unit. See AAR Field Manual Rule 50. HS-7, HS-7-100 and HydraShox™ Platinum units removed due to low oil level should be returned to:

A. Stucki Company
c/o Rand Machine
2072 Allen Street Extension
Falconer, NY 14733

Please call 716-665-5217 in advance for a required delivery appointment.

HS-10s cannot be rebuilt. Once their reserve oil has been depleted, they should be discarded. Stabilizers should be replaced in kind or upgraded to HydraShox™ Gold.
5. Brake Systems

Fig. 5.1 - Brake Beam

Table 5.1

<table>
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<tr>
<th>Brake Beam</th>
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<tr>
<td>#18 Reversible</td>
<td>18-LRRC-CH(L or R)</td>
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<td>Specify (L) Left or (R) Right</td>
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Note: All Stucki Brake Heads are replaceable. Quick Change Beams and Cast Iron Beams also available.
Inspection

Replacement of brake beams can be considered for any of the inspection criteria below. Refer to AAR Field Manual of Interchange, Rule 6 for a detailed list of wear limits, gauging and causes for renewal.

1. Any brake beam parts which are cracked, broken or missing
2. Damage or wear on brake beam head (heads alone can be replaced in lieu of entire beams - RC beams)
3. Twisted beams (greater than 1 inch when comparing opposite heads against wheels)
4. Worn end extensions
5. Bent or twisted struts
6. Strut pin holes worn 3/16” or more
7. Slot lever worn 1/8” or more
8. Brake shoe wear is >1” from top to bottom
Reversible Brake Beam Procedure

Three steps for switching strut position RH or LH in the field (refer to Figure 5.2).

First
• Use screwdriver to pull retainer (e-clip) and pin (if tight, pin may be pushed from the opposite end, by the screwdriver).

Second
• Insert steel bar in strut lever slot.
• Tilt rotating strut 90 degrees, until the slots in end casting match slots in strut.

Third
• Re-insert pin with groove end last.
• Reapply retainer by hand at pin groove (push it securely in place with screwdriver).
Fig. 5.2 - Strut and Pin

Strut

Pin

E-Clip

Brake Systems
Replaceable Brake Head Procedure

1. Remove shoe.
2. Cut Huck™ with torch and remove damaged head from brake beam assembly.
3. Position replaceable head to align holes
4. Insert bolt through replaceable head and beam assembly combined. Apply washer assembly (large washer first, small washer next), and lock nut to threaded bolt. Tighten lock nut until orange silicon is visible (or 300 ft-lbs equivalent).
5. Install brake shoe and return to service.
Fig. 5.5 - RollGuard™ Hand Brake Group N - Long Lever

Note: Short Lever also available.
RollGuard™ Hand Brake

Group N Features

- Long or short release levers
- Sealed, wider bearings for extended life and value
- Roller bearing at wheel/clutch axle for superior performance and smooth operation
- Lubrication free
- E-coated in rust-proof black oxide
- Certified under Hand Brake AAR Specification S-475
- Tight tolerances for reliable and consistent braking
A. Stucki Company offers RollGuard™ hand brake accessories such as the hand wheel, chain joiner, clevis and pin, sheave wheel, bell crank, short and long release lever separately for new rail cars or as replacement parts.
Stucki Brake System Accessories

• Metallic Brake Beam Wear Guide
• Non-Metallic Brake Beam Wear Guide
• Brake Shoe Key
• Brake Rod Connector (1-1/8”, 3/4” & 7/8”)
• Truck Bottom Rods
• Brake Beam Centering Wear Liner

The Stucki Brake Beam Centering Wear Liner (Figures 5.13 and 5.14) is designed to work with any size or manufacture of brake beam. It should be installed on only one side of each axle, opposite the problem contact area of the brake beam and wheel flange. If the flange wear is typically found at the L1, R2, L3 and R4 locations, the BBCWL should be installed opposite on the R1, L2, R3 and L4 locations. Only one per axle set.
6. Draft Systems

Fig. 6.1 - PowRGuard™ Draft Gear Model XE, GXE & GX
Models Available

**PowRGuard™ XE**
- Fits 24-5/8” standard pocket
- Approval received under M-901E
- Official rating capacity: 47,054 ft-lb
- Approximate weight: 367 lb
- Group J, Rule 21
- 3-1/4” travel
- Fits all standard yoke and car construction

**PowRGuard™ GXE**
- All steel with elastomer insert
- Fits 24-5/8” standard pocket
- Approval received under M-901E
- Official rating capacity: 45,643 ft-lb
- Approximate weight: 367 lb
- 3-1/4” travel
- Fits all standard yoke and car construction
PowRGuard™ GX

- All steel with elastomer insert
- Fits 24-5/8” standard pocket
- Approval received under M-901G
- Rating impact velocity: 5.1 mph
- Approximate weight: 367 lb
- 3-1/4” travel
- Fits all standard yoke and car construction

- All models require AAR Y44 standard follower for E coupler application, or Y46 follower for F coupler application.

PowRGuard™ Inspection Criteria - all conditions in or out of car

Contact of the movable plate to the wear tab is cause for renewal. AAR Field Manual Rule 21 Section A also applies.
7. Repair and Reconditioning

American Industries

American Industries in Sharon, PA and Independence, MO, and the Midland Division in Jerseyville, IL provide railcar repair and reconditioning services to the railroad industry. This includes new, secondhand, gauged and reconditioned railroad parts. Facilities in Sharon, PA are certified under AAR M-212 and M-214, as well as QA certification M-1003. Facilities in Jerseyville, IL are certified under AAR M-212, as well as QA certification M-1003.

Reconditioning services include:
- Wheel Sets
- Air Brakes
- Bolsters
- Sideframes
- Couplers
- Yokes
- Draft Gears
- Complete Truck Assemblies
Secondhand parts include:

- Air Brake Parts
- Yokes
- C10 Pins
- Couplers
- Follower Trucks
- Knuckles

**Wheels**

American Industries is certified to re-profile freight car and locomotive wheel sets to any profile. American Industries is also AAR certified for mounting new or reconditioned wheels and roller bearings.

American Industries provides interchange usable or second hand repairable axles and roller bearings at competitive prices.
American Industries Midwest

Distribution and Reconditioning Services

American Industries Midwest business offers turnkey reconditioning services, and distributes many railcar components that A. Stucki Company manufactures. The business is a leading provider of railcar-reconditioned components including:

- Bolsters
- Sideframes
- Duff-Norton Air Jacks
- Couplers
- Yoke Assemblies
- Brake Beams

All reconditioning and repair services are certified under AAR M-1003 and M-214, so the highest quality and reliability is guaranteed.
 Draft Gear

Independent Draft Gear, a division of A. Stucki Company, reconditions, tests and pins the most commonly available draft gear per AAR M-901B Specifications. Refer to AAR Interchange Rule 21, Section B, Groups J & M for an overview of the draft gear models qualified. Locomotive gear/yoke assemblies are also reconditioned.

Other group type gears can be reconditioned and used for captive service.

Inspection

Reconditioning of a draft gear can be considered when any of the defects listed in Section A of the AAR Field Manual Rule 21 are present. Refer to the manual for a detailed list of wear limits, gauging and cause for renewal.
Also, refer to manufacturer’s specifications for In-Car and Out-of-Car inspection requirements for each individual model.

**Friction Component Classification:**

A gear must be reconditioned if any of its friction components are broken, damaged in any way, or missing.

Gears are classified as FC/C/D (Friction Component / Case / Damage) per the following criteria:

1. More than one broken or missing friction component
2. Center wedge is damaged
3. The gear is stuck in a compressed position
Case Classification: As in the case of friction component damage, a draft gear must be rebuilt if the case has been subject to excessive wear or is damaged. Gears with cases that meet the following are also considered FC/C/D:

1. Wall thickness - visibly worn case wall
2. Torch cut - 1 inch or more

Scrap Classification: Gears with bulges, split cases or cracks in excess of 2 inches cannot be repaired and are classified as scrap. Also, gears not listed on the IDG list of acceptable gears are either not reconditionable or are obsolete and therefore classified as scrap. Refer to AAR Rule 21.
Gears which meet the criteria for reconditioning should be shipped to:

Independent Draft Gear
1000 Martin Luther King Jr. Blvd.
Farrell, PA 16121
Phone: 724-981-2251
FAX: 724-981-2256
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www.stucki.com

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Draft Gear
Farrell, PA
724 - 981 - 2251

American Industries
Midwest
Independence, MO
816 - 836 - 1901

American Industries
Sharon, PA
724 - 981 - 4100

Alco Spring
Chicago
Heights, IL
708 - 755 - 0438

Hill Railroad
Car Company
New Castle, PA
724 - 654 - 8257

American Industries
Midland Division
Jerseyville, IL
618 - 498 - 4442

A. Stucki Co. Warehouse
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North Canton, OH
330 - 499 - 2150

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