

TECHNICAL PROCEDURE

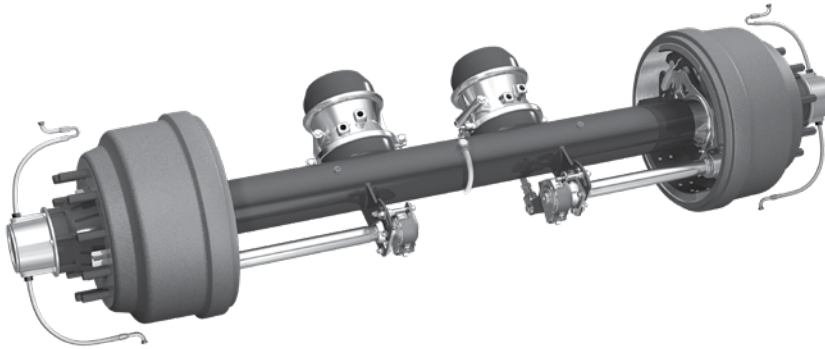
HENDRICKSON TRAILER AXLES

SUBJECT: S-cam and Brake Chamber Bracket
Replacement Procedure

LIT NO: L1009

DATE: February 2024

REVISION: C



Hendrickson
Trailer Axle

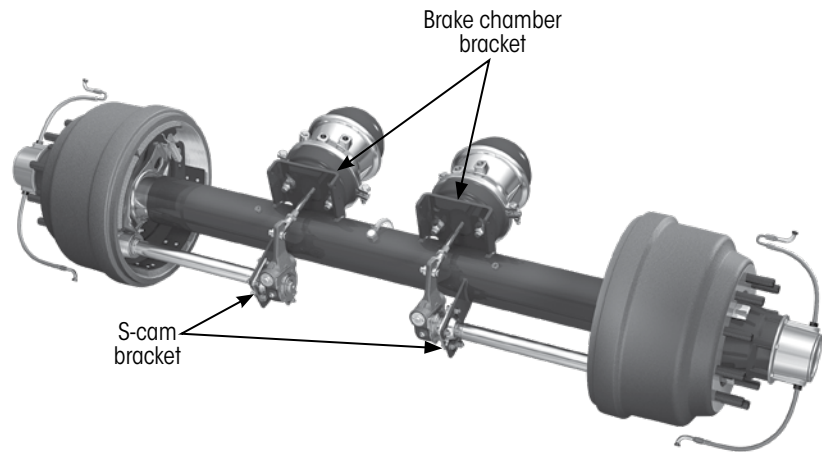


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IMPORTANT SAFETY NOTICES

Hendrickson literature number **T12007** *Technical Procedure General Safety Precautions and Information*, available at www.Hendrickson-intl.com/TrailerLit, includes important preparation, precautionary and safety information pertaining to the procedures included in this document. **Warnings, cautions and other relative statements included in T12007 should be read carefully** to help prevent personal injury and equipment damage.

NOTE: Only a properly trained and certified welder should perform the welding. Follow all applicable safety rules and regulations for welding, including but not limited to, wearing proper eye protection and other personal protective equipment, working in a well ventilated area and keeping all flammable and combustible materials out of the work area. Refer to L64 Welding Procedures for general weld guidelines and specifications.

Improper maintenance, service or repair can cause damage to the vehicle and other property, personal injury, unsafe operating conditions and potentially void the manufacturer's warranty.

RELATED LITERATURE

If you suspect your version of this or any other Hendrickson manual is not "Up-to-Date", the most current version is free online at:

www.Hendrickson-intl.com/TrailerLit

Available Hendrickson documentation can be viewed or downloaded from this site.

Other related literature may include:

NAME	DESCRIPTION
<u>L64</u>	<i>Welding Procedures</i>
<u>L583</u>	<i>Comprehensive Warranty Statement</i>
<u>L974</u>	<i>Drum Brake Maintenance Procedures</i>
<u>L1075</u>	<i>HCA® Hendrickson Chassis Axle® Installation</i>
<u>L1094</u>	<i>HCA® Hendrickson Chassis Axle® Weld-on ABS Bracket Field Installation Procedure</i>
<u>T12007</u>	<i>Technical Procedure General Safety Precautions and Information</i>

Table 1: Related literature

All Hendrickson online documentation is in PDF format that requires PDF reader software to open. A free application is downloadable from Adobe at <http://get.adobe.com/reader/>.

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for the latest version of this manual.

INTRODUCTION

This kit is intended for field installation of weld-on brake chamber brackets on TRLAXLE® Non-integrated Trailer Axle, HCA® Hendrickson Chassis Axle™ and HTA® Hendrickson Trailer Axle™.

TOOLS AND EQUIPMENT

The following tools may be required during the performance of applicable maintenance procedures:

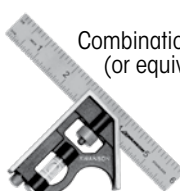
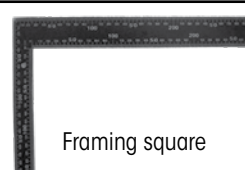

TOOL	WHERE USED
 <p>Combination square (or equivalent)</p>	S-CAM BRACKET REPAIR and BRAKE CHAMBER BRACKET REPAIR
 <p>Framing square</p>	BRAKE CHAMBER BRACKET REPAIR
 <p>Measuring tape</p>	S-CAM BRACKET REPAIR and BRAKE CHAMBER BRACKET REPAIR

Table 2: List of required tools

IMPORTANT: A calibrated torque wrench must be used to tighten fasteners to specified values. Refer to Hendrickson literature number B31 for torque specifications.



S-CAM BRACKET REPAIR

NOTE: Although the new S-cam bracket may be different than shown in this document, placement and welding are the same.

1. If possible, **remove** axle/beam assembly from trailer.



Figure 1: Previous bracket weld ground flush to axle tube surface

2. **Remove** damaged S-cam bracket:
 - A. **Grind** away any remaining weld or S-cam bracket material from the axle tube (Figure 1).
 - B. If bracket had been rewelded:
 - i. Use a cutting torch (oxy-fuel, plasma) to **remove** the majority of the bracket. Cut approximately $\frac{1}{4}$ inch above the weld.
 - ii. **Grind** remaining material from axle tube.

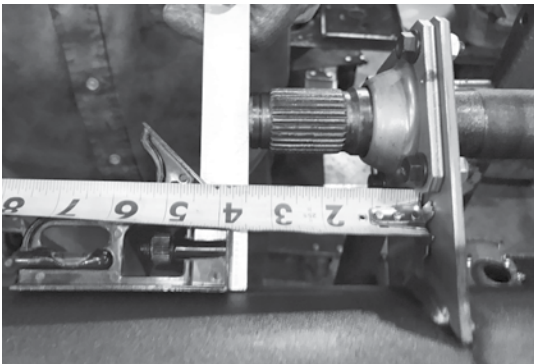


Figure 2: S-cam bracket assembly must be 3.5 inches (90 mm) from the end of the camshaft

3. **Position** replacement bracket on axle (Figure 2):
 - A. **Slide** a new S-cam bracket assembly onto the camshaft and **place** the bracket assembly on the axle tube.

- B. **Position** the S-cam bracket assembly on the axle tube so the camshaft is parallel to the axle tube and **aligned** with the other camshaft on the opposite end of the axle tube. Visual placement is acceptable, but the goal is to minimize misalignment.

Position the S-cam bracket assembly laterally on the axle tube (Figure 2) so the inside surface of the S-cam bracket assembly is $3\frac{1}{2}$ inches (90 mm) from the end of the camshaft.

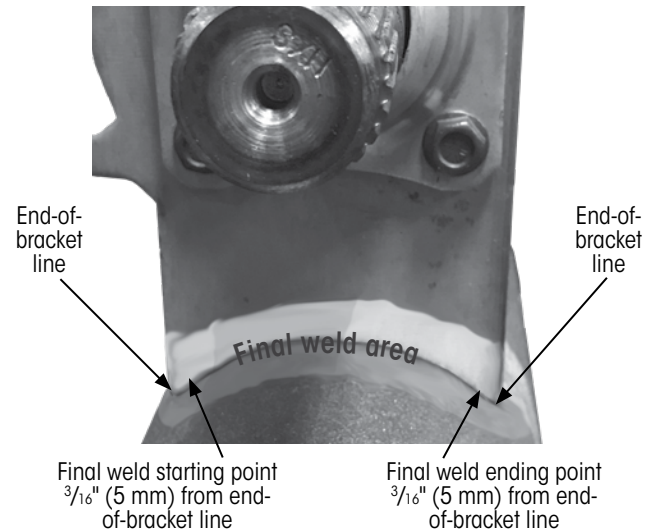


Figure 3: Weld placement layout

4. Using a felt-tip marker, **place** layout lines for the final weld on the axle tube (Figure 3).
5. **Ensure** both items to be welded are free from moisture, dirt, scale, paint and grease.

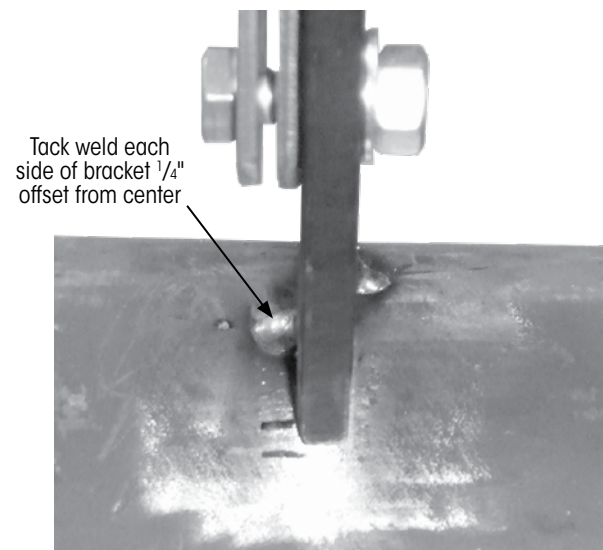


Figure 4: S-cam bracket tack weld placement

6. **Tack weld** each side of the S-cam bracket assembly (Figure 4) in place on the axle tube. The tack welds should be offset from each other about $\frac{1}{4}$ inch (6 mm) from the center of the S-cam bracket.
7. **Remove** the camshaft and S-cam support bushing assembly from the S-cam bracket assembly so that a good fillet weld, attaching the S-cam bracket to the axle tube, can be completed.

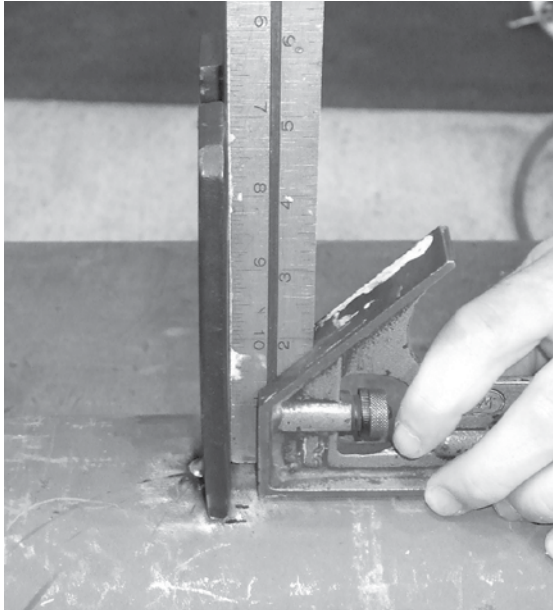


Figure 5: S-cam bracket must be perpendicular to axle tube

8. Using a square, **check** the perpendicularity of the S-cam bracket to the axle tube (Figure 5). Make any adjustments prior to final weld.
9. **Thoroughly clean** the slag from the tack welds before applying the final welds.

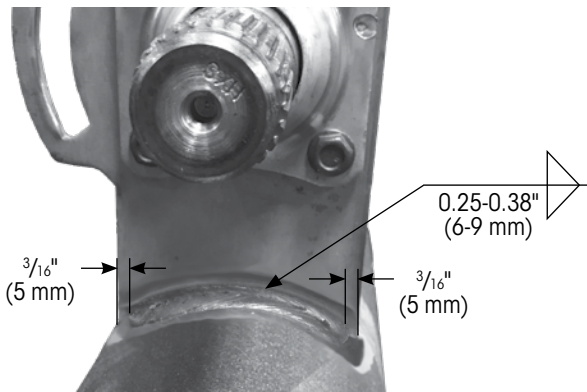


Figure 6: Final S-cam bracket weld

10. **Apply** final fillet weld using these specifications:
 - Weld size should be $\frac{1}{4}$ to $\frac{3}{8}$ inches (6 to 10 mm) and should stop $\frac{3}{16}$ inches (5 mm) from both ends (Figure 3 and Figure 6).
 - There should be two separate welds, one on each side of the S-cam bracket, that do not extend around the ends of the bracket. Wrapping the weld around the ends of the S-cam bracket can lead to undercutting.
11. **Thoroughly clean** the slag from welds and **apply** surface coat.
12. **Reinstall** the camshaft and S-cam support bushing assembly.
13. Fully **lubricate** both spider and cam bushings.

BRAKE CHAMBER BRACKET REPAIR

NOTE: Although the new brake chamber bracket may be different than shown in this document, placement and welding are the same.

1. If possible, remove axle from trailer.
2. Remove damaged brake chamber bracket:
 - A. Grind away any remaining weld or brake chamber bracket material from the axle tube.
 - B. If bracket had been re-welded,
 - i. Use a cutting torch (oxy-fuel, plasma) to remove the majority of the bracket. Cut approximately $\frac{1}{4}$ inch (6 mm) above the weld.
 - ii. Grind remaining material from axle tube.

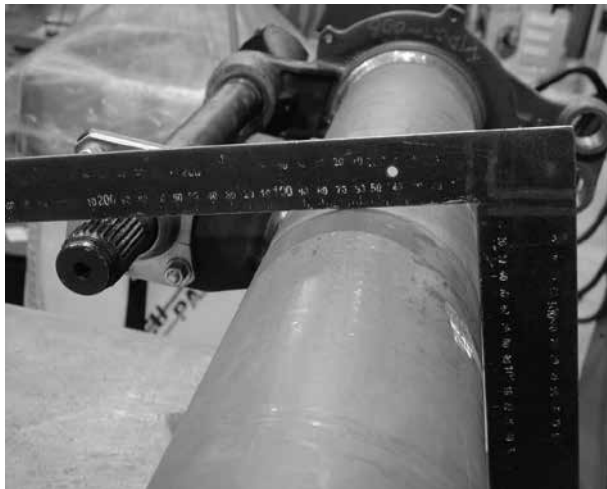


Figure 7: Framing square helps position brake chamber bracket

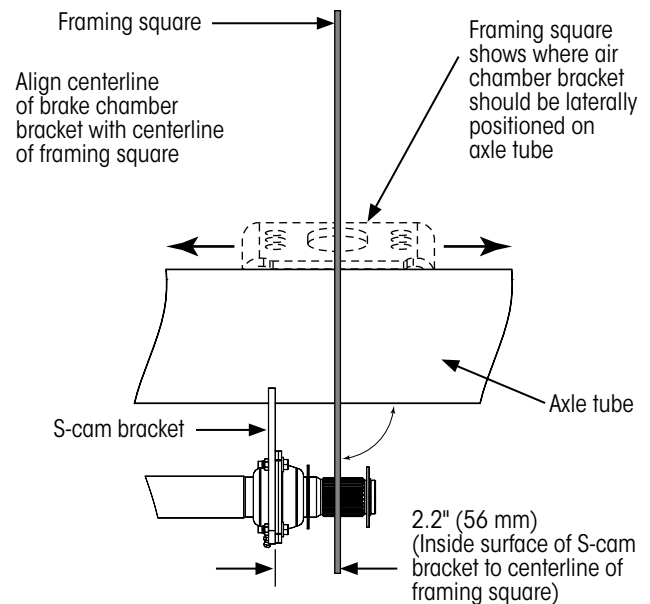
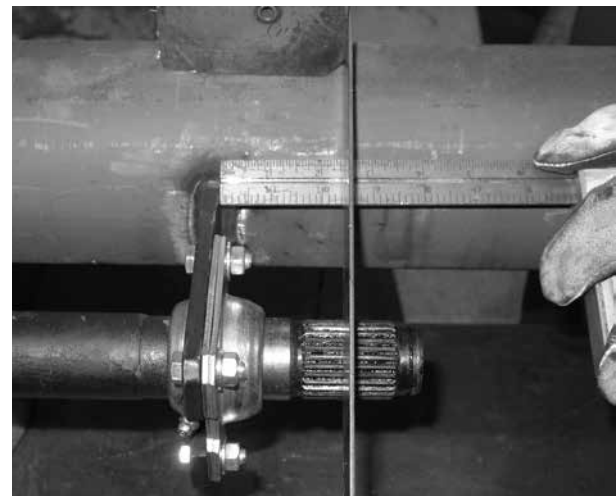


Figure 8: Using a framing square to determine brake chamber bracket placement

3. Place a framing square on the axle contacting the camshaft splines as shown in Figure 7 and Figure 8.

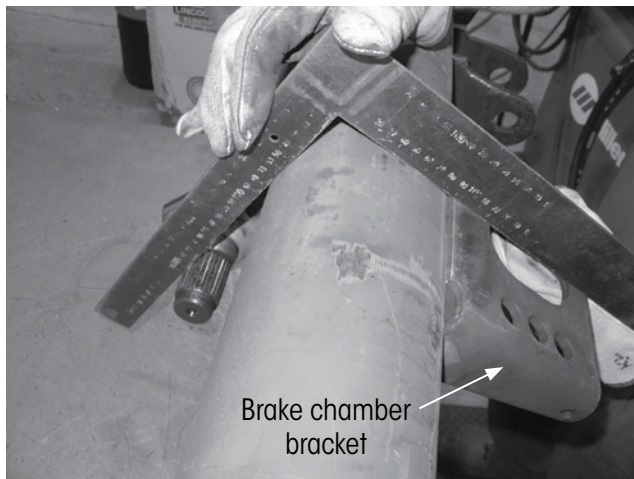


Figure 9: Tangentially positioning brake chamber bracket

4. **Place** a new brake chamber bracket on the axle tube and orient so that it contacts framing square as shown in Figure 9.
5. **Ensure** the items to be welded are free from moisture, dirt, scale, paint and grease.

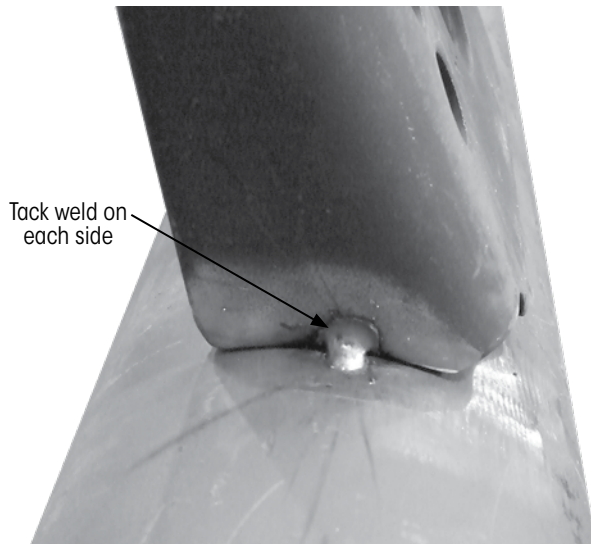


Figure 10: Tack weld brake chamber bracket to axle tube

6. **Tack weld** the brake chamber bracket in place using a $\frac{1}{4}$ inch (6 mm) tack weld on both sides of the brake chamber bracket (Figure 10). Tacks should be near the center of the bracket.

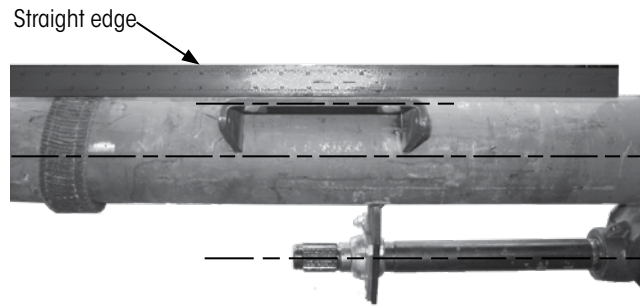


Figure 11: Brake chamber brackets must be parallel to axle tube

7. **Position** the brake chamber bracket so its mounting surface is parallel to the other brake chamber bracket on the opposite end of the axle tube (Figure 11). If possible, lay a straight edge across the brake chamber bracket to **check** parallelism to the other bracket or to the axle tube. **Make any adjustments prior to final weld.**
8. **Thoroughly clean** the slag from the tack welds before applying the final welds.

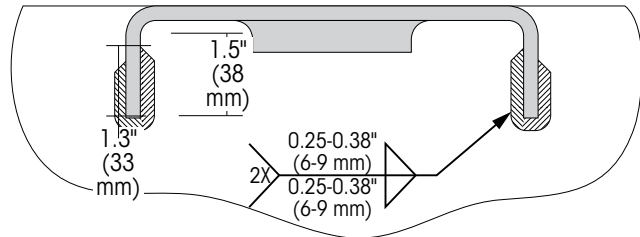


Figure 12: Brake chamber bracket weld specifications

9. **Apply** $\frac{1}{4}$ to $\frac{3}{8}$ inch (6 to 10 mm) fillet weld to each side of the bracket (Figure 12):

NOTE: The resulting weld should wrap around the end of the bracket. Use extra caution to avoid undercut when wrapping the weld around the end of the bracket.

- A. The **first weld** should be made on the inside of the bracket and end with just a slight wrap around the edge of the bracket.
 - B. The **second weld** should be made on the outside of the bracket and end so that it overlaps the end of the first weld.
10. **Thoroughly clean** the slag from welds and **apply** surface coat.

This procedure should create the **optimum 105 degree setup angle** as shown in Figure 13.

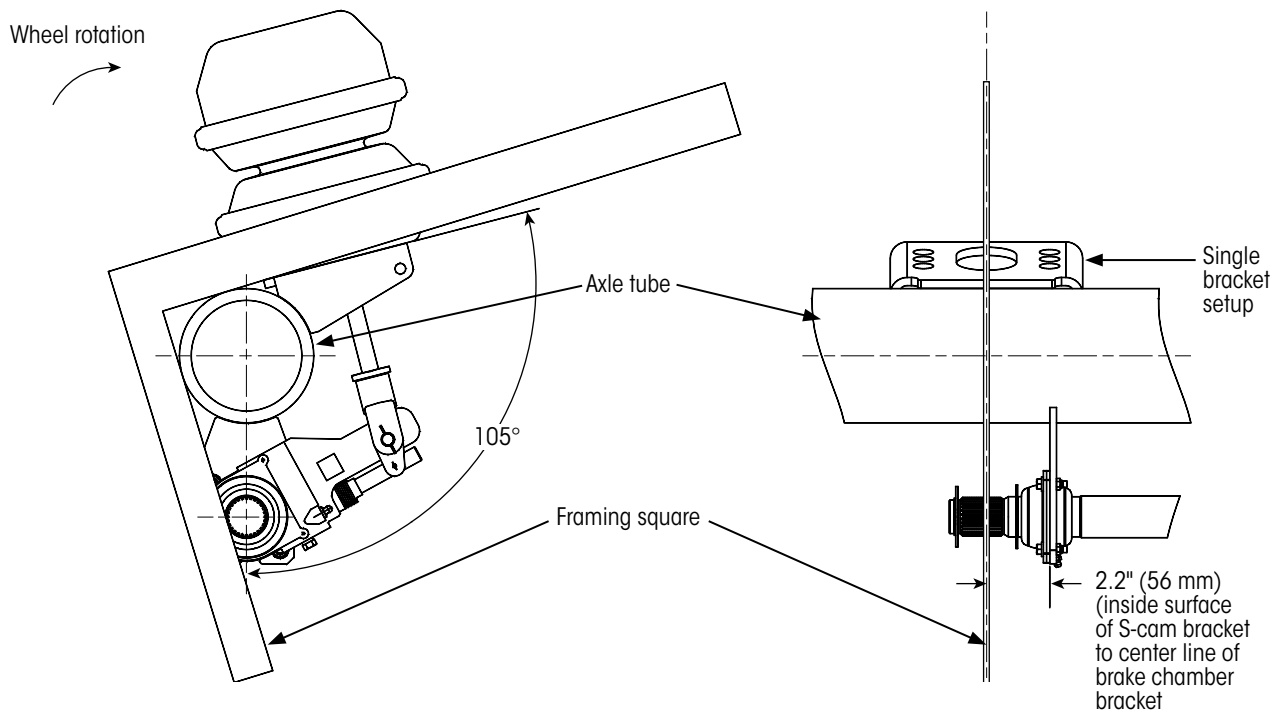


Figure 13: Brake chamber bracket positioning details

BRAKE CHAMBER BRACKET GUSSETS 12.25 BRAKE ONLY

NOTE: Although the gussets may be different than shown in this document, placement and welding are the same.

1. If possible, remove axle from trailer.
2. Remove paint, dirt and debris from components in areas to be welded.
3. Place the gussets on the axle tube and against the inside of the brake chamber bracket (BCB) leg, Figure 14.

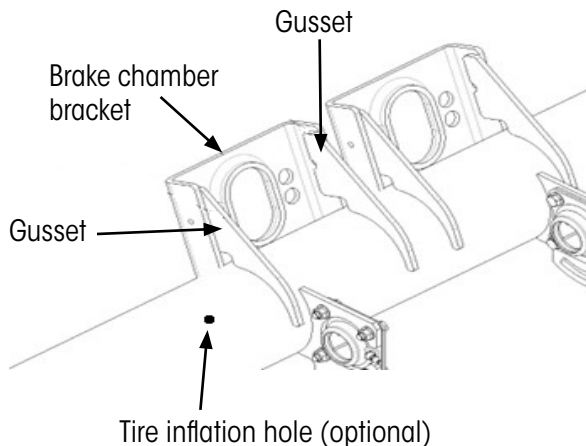


Figure 14: Gussets on axle

4. Before welding, check for clearance between the tire inflation holes/fittings in the axle and the new gussets, Figure 14.
5. Weld the gussets to the axle and BCB as shown in Figure 15.

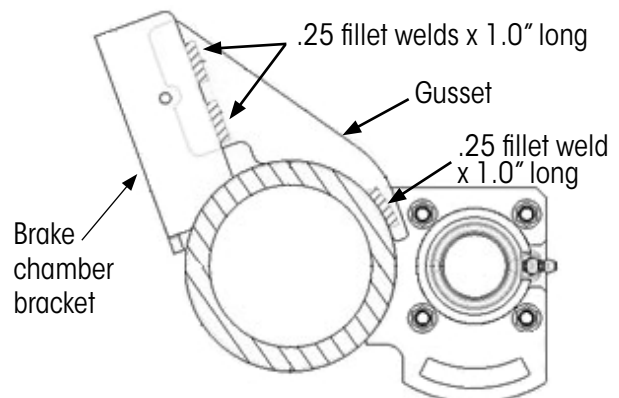


Figure 15: Gusset welding

Actual product performance may vary depending upon vehicle configuration, operation, service and other factors.

Call Hendrickson at 866.RIDEAIR (743.3247) for additional information.



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