Inspection and Repair Procedures
CB400/4000 Air Spring

SAF-HOLLAND Group

Equalizing Beam/Air Spring

Introduction

The following inspection and repair procedures apply to the CB400/4000 trailer suspensions.

NOTE: If you have experienced an air spring failure, contact SAF-HOLLAND Customer Service at 888-396-6501 to determine if your suspension is under warranty. If an air spring must be replaced, you must replace it using air spring part number 50857000 when following these repair procedures.

Air spring spacers located between the air spring piston and the equalizing beam are used on all ride height models except 18".

These procedures provide steps for spacer replacement, air spring and equalizing beam inspection and instructions on how to repair a damaged equalizing beam.

Notes, Cautions, and Warnings

You must read and understand all of the safety procedures in this manual before starting any work on the suspension.

NOTE: In the United States, workshop safety requirements are defined by federal and/or state Occupational Safety and Health Act. Equivalent laws may exist in other countries. This manual is written based on the assumption that OSHA or other applicable employee safety regulations are followed by the location where work is performed.

IMPORTANT: Read this manual before using this product. Keep this manual in a safe location for future reference.

⚠WARNING Failure to follow the instructions and safety precautions in this manual can result in death or serious injury.

Proper tools must be used to perform the installation procedures described in this manual. Many of these procedures require special tools.

Throughout this manual, you will notice the terms "NOTE," "IMPORTANT," "CAUTION," and "WARNING," followed by important product information. So that you may better understand the manual, those terms are as follows:

NOTE: Includes additional information to enable accurate and easy performance of procedures.

IMPORTANT: Includes additional information that if not followed could lead to hindered product performance.

CAUTION Used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, could result in property damage.

⚠CAUTION Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

⚠WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

1. General Safety Instructions

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, and assist in maintaining the operational and road safety of the suspension system.

⚠WARNING Failure to properly support the vehicle and axles prior to commencing work could create a crush hazard which, if not avoided, could result in serious injury or death.

We highly recommend the use of only SAF-HOLLAND Original Parts.

A list of SAF-HOLLAND technical support locations to supply SAF-HOLLAND Original Parts can be found at www.safholland.us or contact SAF-HOLLAND Customer Service at 888-396-6501.

Updates to this manual will be published as necessary online at www.safholland.us.

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2. Welding Standards

2.1 Scope

This specification applies to all components supplied by SAF-HOLLAND, and its products. The customer assumes full responsibility for weld integrity if weld material and procedures differ from those listed below.

2.2 Workmanship

All welding on SAF-HOLLAND products MUST be performed by a welder qualified according to the appropriate AWS standard for the weld being made or an equivalent standard. It is the responsibility of the customer to provide good workmanship when welding on SAF-HOLLAND products.

2.3 Material

Items to be welded that are made from low carbon or high-strength alloy steel are to be welded with AWS filler metal specification AWS A5.18, filler metal classification ER-70S-3, ER-70S-6 or equivalent unless specified on the installation drawing.

NOTE: Any substitution for filler material from the above standard must comply, as a minimum, with the following mechanical properties:

Tensile Strength - 72k psi (496 MPa)
Yield Strength - 60k psi (414 MPa)
Charpy V Notch - 20 ft.-lbs. (27 N•m) at 0° F (-17.7° C)
% Elongation - 22%

The recommended welding gas for gas metal arc welding (GMAW) is 90% Argon / 10% CO_2. If a different gas is used, welds must comply with penetration requirements shown ***(Figure 4)***. Where the installation drawing specifies different than above, the drawing shall prevail.

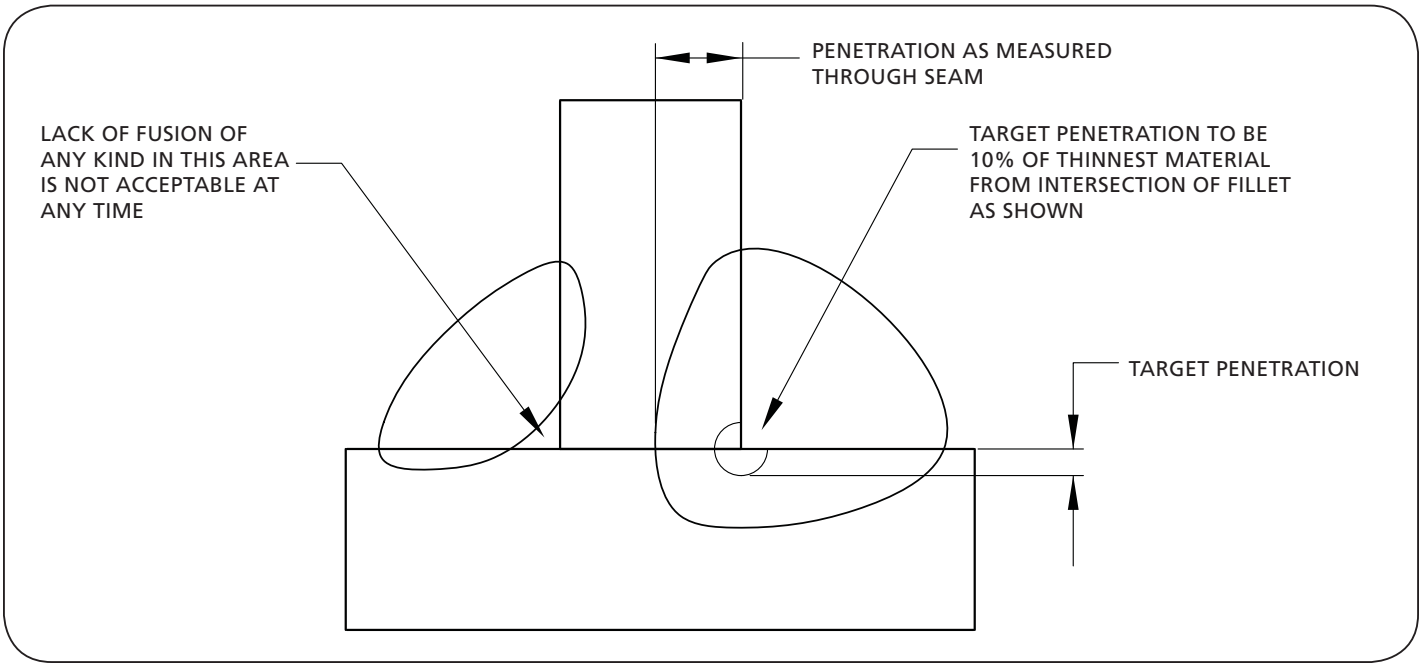
2.4 Procedures

Tack welds used for positioning components are to be located in the center of the final weld, where practical. Tack weld should be completely fused to the finish weld. DO NOT break arc at the end of the weld. Back up all finish welds at least 1/2" (12.7 mm) or a sufficient amount to prevent craters at the end of the weld. Where weld is shown to go around corners, it is assumed the corner represents a stress concentration area. DO NOT start or stop weld within 1" (25.4 mm) of the corner. Particular care should be taken to prevent undercutting in this area.

2.5 Weld Size

If weld size is not specified, the effective throat of the weld must be no smaller than the thinnest material being welded ***(Figure 1)***.

Figure 1



3. Equalizing Beam/Air Spring Inspection and Repair

NOTE: Before you begin any suspension service procedures, park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Support the vehicle and axle(s) with safety stands placed at OEM designated locations. DO NOT work under a vehicle supported only by jacks. Jacks can slip or fall over. Serious personal injury and damage to components can result.

⚠WARNING Failure to properly support the vehicle and axles prior to commencing work could create a crush hazard which, if not avoided, could result in death or serious injury.

NOTE: The CB-400/4000 15.5", 16", 16.5" and 17" ride height suspensions include air spring spacers. The air spring spacers are located between the air spring piston and the equalizing beam ***(Figure 2)***. Follow Steps 1 - 8 for inspection and repair procedures.

1. Exhaust the air from the suspension system by one of the following methods:
   - Automatic Control – Use the height control valve to exhaust the air by disconnecting the link at the lower connection, then rotate the control arm to exhaust (approximately 45° down) position, or
   - Disconnect the air supply line from the air spring.
2. Remove the lower air spring nut and lock washer and discard ***(Figure 3)***.
3. After removing the lower nut and lock washer, push the lower air spring piston up and out of the way ***(Figure 4)***.

Figure 2

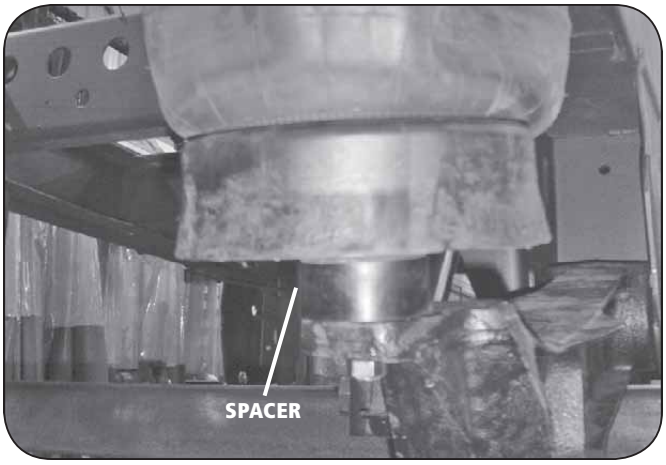


Figure 3

Figure 4

4. With piston and spacer removed, position a metal straight edge on top of the air spring seat and check the flatness of the equalizing beam ***(Figure 5)***.

NOTE: If equalizing beam is not flat where the air spring piston is seated, the equalizing beam MUST be straightened. The beam can be straightened through a heating and hammering process. Only a qualified service technician should attempt this procedure.

CAUTION DO NOT overheat the beam as component damage could result.

IMPORTANT: If upon inspection the equalizing beam is determined to be cracked or broken the beam MUST be replaced. Contact SAF-HOLLAND Customer Service at 888-396-6501.

5. After the beam is heated and straightened, a gusset MUST be welded to the underside of the beam ***(Figure 6)***. Refer to the Welding Standards in Section 2.

CAUTION Failure to add the gusset after re-work could result in component damage.

Figure 5

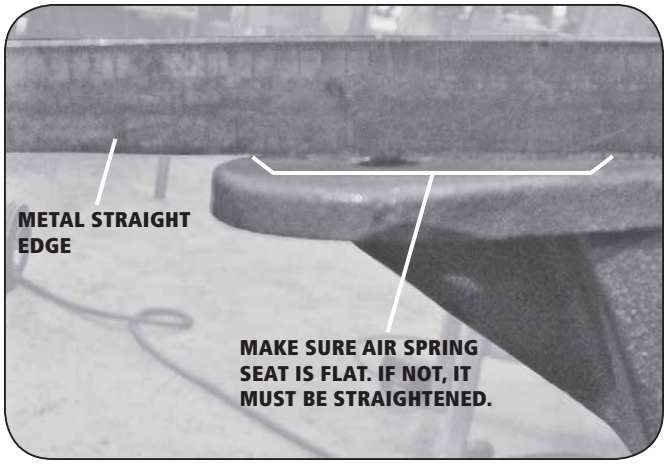
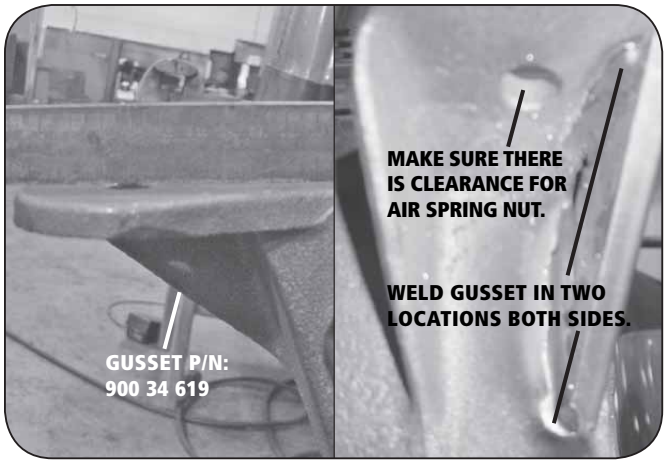


Figure 6



6. Inspect the air spring to ensure the internal bumper is properly seated ***(Figure 7)***.
   - Push into the lower section of the rubber flex member and make sure the bumper is present and not loose. For proper internal bumper position, refer to the air spring cutaway ***(Figure 8)***.

NOTE: If the bumper is loose, remove and replace the air spring.

CAUTION Failure to replace the air spring could result in component damage.

NOTE: In the air spring cutaway view, the internal bumper is located on the bottom of the air spring ***(Figure 8)***. The internal bumper should be firmly seated and NOT loose.

Figure 7

Figure 8

7. Install the proper steel spacer on air spring stud and attach to the equalizing beam ***(Figure 9)***. Refer to Ride Height/Spacer Height/Spacer Diameter table below for proper spacer.

RIDE HEIGHT/SPACER HEIGHT/SPACER DIAMETER

RIDE HEIGHT	SPACER HEIGHT	SPACER DIAMETER	PART NUMBER
15.5"	0.188"	3.5" - 3.75"	936 00 560
16.0"	0.188"	3.5" - 3.75"	936 00 560
16.5"	0.62"	3.5" - 3.75"	900 36 274
17"	1.22"	3.5" - 3.75"	900 36 275

8. Assemble the lower air spring flange nut 934 00 623 on the lower air spring stud and torque the lower nut to 30-40 ft.-lbs. (41-54 N•m) ***(Figure 10)***.
9. Re-attach all air lines and linkages, if removed. Air up suspension and check for air leaks. Check all fittings for air leaks by applying a soapy water solution and checking for bubbles at all air connections and fittings.

IMPORTANT: It is the responsibility of the installer to secure all supply lines and check for air leaks.

CAUTION Failure to correct any air system problems may lead to malfunctioning air system components and compromised suspension performance, which if not avoided, could result in property damage.

10. Remove chocks and jack stands.

Figure 9

Figure 10

From fifth wheel rebuild kits to suspension bushing repair kits, SAF-HOLLAND Original Parts are the same quality components used in the original component assembly.

SAF-HOLLAND Original Parts are tested and designed to provide maximum performance and durability. Will-fits, look-alikes or, worse yet, counterfeit parts will only limit the performance potential and could possibly void SAF-HOLLAND's warranty. Always be sure to spec SAF-HOLLAND Original Parts when servicing your SAF-HOLLAND product.

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