

## Combination Spring Brake Installation Instructions

### IMPORTANT NOTES

Spring brake must be caged prior to performing installation procedures. If brake is not caged, go to [haldex.com](http://haldex.com) and search Literature Number L31171, for caging instructions.

In an effort to maximize the life of Haldex spring brakes, Haldex recommends the following brake mounting guidelines when installing spring brakes on your vehicle(s).

When mounting a spring brake to a horizontal bracket, as shown in Fig. 4, the bracket must meet the minimum contact area. (Fig. 4A)

When the spring mounting bracket requires the studs to be in the vertical position (rotated 90° from horizontal), the contact area can be slightly less than the minimum contact area for horizontal mount.

Always mount brake chamber directly to bracket. DO NOT insert spacers, washers or shims between mounting bracket and brake housing. (Fig. 4) Consult the bracket manufacturer for your application to determine if a reinforcement plate is necessary.

DO NOT mount spring brake in vertical position. The spring brake must be mounted within 45° of horizontal. (Fig. 5)

In some cases it may be necessary to rotate air ports and/or clamp bands for proper clearance and installation on vehicle.

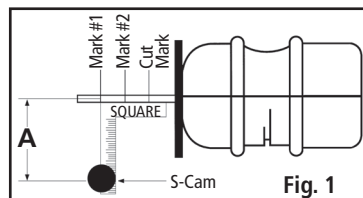


Fig. 1

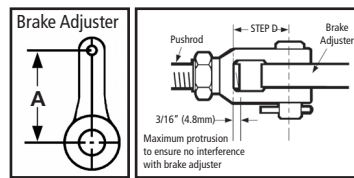


Fig. 2

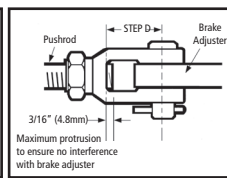


Fig. 3

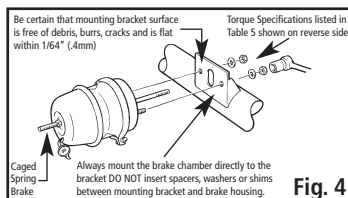


Fig. 4

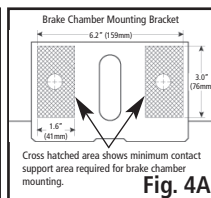


Fig. 4A

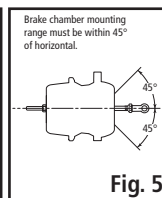


Fig. 5

### Attach to Mounting Bracket

**Step 1.** When preparing to install a spring brake chamber, ensure that the unit is fully released (power spring caged) and the service brake push-rod is fully retracted to zero stroke position. Thread the clevis jam nut onto the push-rod.

**Step 2.** Mounting brackets must be inspected to assure that bracket surface is free from debris, burrs, cracks, weld spatter and is flat within 1/64" (.4mm). (Fig. 4)

**Step 3.** Attach spring brake directly to mounting bracket on axle. Fasten with mounting hardware (Fig. 4). Torque to specifications listed in Table B on reverse side.

**Step 4.** Measure the distance from the centerline of the S-Cam to the centerline of the push-rod (See Fig. 1 - Dim. A). This measurement should be equal to the length of the brake adjuster being used (See Fig. 2 - Dim. A).

NOTE: If Fig. 1 - Dim. A and Fig. 2 - Dim. A are not identical, the chamber mounting bracket is either bent and must be straightened or replaced, the chamber has been mounted improperly in the bracket or the length of the adjuster installed is incorrect. Make any necessary corrections before going to Step 5.

**Step 5.** Measure and record the length of clevis to be used. This measurement should be taken from the center of the clevis pin hole, to the bottom of the yoke assembly. (See Fig. 3)

**Step 6.** Using a square, mark the push-rod at the 90° setting (See Fig. 1 - Mark #1). From this mark, subtract the measurement recorded in Step D and make a second mark on the push-rod (moving toward the brake chamber mounting surface). (See Fig. 1 - Mark #2).

**Step 7.** From Mark #2, measure toward the brake chamber mounting surface the distance listed in Table A, Column "D" (on reverse side) for the brake chamber type being installed. Mark and cut the push-rod.

**Step 8.** Install the clevis onto the push-rod and secure the jam nut. Torque to specifications listed in Table B on reverse side. Connect the clevis to the brake adjuster using the clevis pin and cotter pins. (Fig. 3)

**IMPORTANT: If push rod is not long enough to reach brake adjuster mounting hole, DO NOT physically pull push rod out to reach mounting hole.**

### Attach Clevis and Air Lines

1. Thread jam nut back onto the push rod a sufficient length to allow assembly of the clevis.
2. Thread clevis onto the push rod. Clevis from removed unit may be reused provided clevis pin hole is not worn. Adjust clevis to the same "K" dimension as measured from the removed unit (Fig. 3).
3. Hold clevis to prevent it from turning and tighten jam nut against clevis to torque specifications. (See Table B on reverse side for Installation Torque Values). The clevis must be

### Attach Clevis and Air Lines (cont'd)

3. (cont'd) adjusted so that it has full thread engagement on the push rod (from flush to 3/16" [4.8mm] protrusion). (Fig. 3).
4. Connect the service and emergency air line to the proper air ports. Torque to specifications listed in Table B on reverse side.
5. Connect clevis to the slack adjuster using clevis and cotter pins, and uncage the spring brake. Go to [haldex.com](http://haldex.com) and search Literature Number L31171, for uncaging instructions.

### Verify Proper Installation

1. Tighten the brake adjuster until the shoe contacts the drum then back off 1/2 turn.
2. With the actuator FULLY released, measure and record the pushrod length from the face of the actuator housing to the center of the clevis pin (Fig. 6 on reverse side).
3. Verify that there is no interference condition present and that the pushrod is fully retracted into the actuator.
4. Set the angle of the pushrod-to-ABA-center line at 90° by EITHER slowly un-caging the parking brake spring OR by slowly applying service air pressure (60 psi min/90 psi max with the parking brake caged). NOTE: If you cannot achieve the 90° angle readjust the clevis yoke position by threading the pushrod in or out (flush to 3/16" maximum pushrod protrusion into the clevis yoke).

**Continued on reverse side.**

## Verify Proper Installation (cont'd)

5. Once 90° is obtained, verify that no interference condition exists between ABA and or any subcomponent of the vehicle.

6. Check the angle between the face of actuator housing and pushrod. This should also be 90° ± 5°.

7. Measure the pushrod length again. Subtract the pushrod stroke length measurement from Step #2 from the pushrod stroke measurement obtained in this step. (Fig. 7).

8. The difference MUST be within ± 1/4" of the value provided in Column D of Table A (shown to the right).

9. The angle between the pushrod and the centerline of the brake adjuster need not be exactly 90° with the brake applied. The angle can be anywhere between 85° - 110° for proper brake performance.

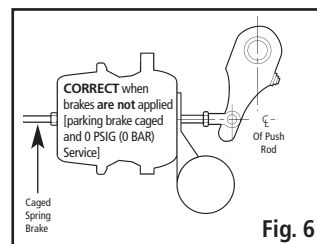


Fig. 6

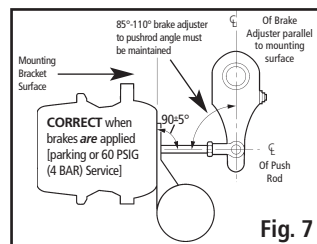


Fig. 7

Table A - Stroke Values

Column A Chamber Type	Column B Avail. Stroke	Column C "Maximum" Readjustable Stroke	Column D Set-Up Stroke
09	1 3/4"	1 3/8"	1 3/8"
12	1 3/4"	1 3/8"	1 3/8"
16	2 1/4"	1 3/4"	1 3/8"
20	2 1/4"	1 3/4"	1 3/8"
20 Long Stroke	2 1/2"	2"	1 1/2"
24	2 1/4"	1 3/4"	1 3/8"
24 Long Stroke	2 1/2"	2"	1 1/2"
24 Extra-Long Stroke	3"	2 1/2"	1 3/4"
30	2 1/2"	2"	1 1/2"
30 Long Stroke	3"	2 1/2"	1 3/4"
36	3"	2 1/4"	1 3/4"

**Danger:** A spring brake or combination service/spring brake must be disarmed before disposal or forceful release of the compression spring may occur in the future without warning.

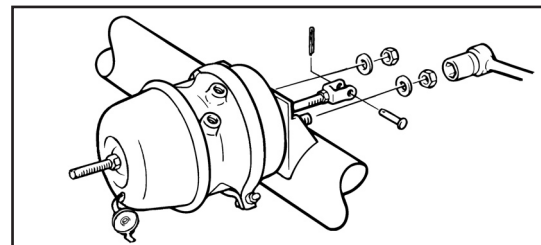
Table B - Installation Torque Values

Mounting Hardware	130-150 lb. ft. (177-203 Nm)
Jam Nut	15-25 lb. ft. (20-34 Nm)
Port Plug or Reducer	15-20 lb. ft. (20-27 Nm)
Air Fittings	25-30 lb. ft. (30-40 Nm)
LifeSeal+ Release Tool Nut	55 lb. ft. (74 Nm)
Carriage Bolt Nuts (for clamps)	20-30 lb. ft. (27-40 Nm)



## L31294 LifeSeal+™ Spring Brake Installation Instructions

L31294 US 4/17 ALP MEX  
Printed In The USA



**Danger:** A spring brake contains a very powerful compression spring. Failure to comply with all of these instructions may result in forceful release of the piggyback or spring chamber and its contents which could CAUSE DEATH, SEVERE PERSONAL INJURY AND/OR PROPERTY DAMAGE.