



Installation Instructions

BENDIX® ASA-5® AUTOMATIC SLACK ADJUSTER INSTALLATION



Figure 1 ASA-5® AUTOMATIC SLACK ADJUSTER

GENERAL SAFETY GUIDELINES

WARNING! PLEASE READ AND FOLLOW THESE INSTRUCTIONS TO AVOID PERSONAL INJURY OR DEATH:

When working on or around a vehicle, the following general precautions should be observed at all times.

1. Park the vehicle on a level surface, apply the parking brakes, and always block the wheels. Always wear safety glasses.
2. Stop the engine and remove ignition key when working under or around the vehicle. When working in the engine compartment, the engine should be shut off and the ignition key should be removed. Where circumstances require that the engine be in operation, **EXTREME CAUTION** should be used to prevent personal injury resulting from contact with moving, rotating, leaking, heated or electrically charged components.
3. Do not attempt to install, remove, disassemble or assemble a component until you have read and thoroughly understand the recommended procedures. Use only the proper tools and observe all precautions pertaining to use of those tools.
4. If the work is being performed on the vehicle's air brake system, or any auxiliary pressurized air systems, make certain to drain the air pressure from all reservoirs before beginning **ANY** work on the vehicle. If the vehicle is equipped with an AD-IS® air dryer system or a dryer reservoir module, be sure to drain the purge reservoir.
5. Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in a manner that safely removes all electrical power from the vehicle.
6. Never exceed manufacturer's recommended pressures.
7. Never connect or disconnect a hose or line containing pressure; it may whip. Never remove a component or plug unless you are certain all system pressure has been depleted.
8. Use only genuine Bendix® replacement parts, components and kits. Replacement hardware, tubing, hose, fittings, etc. must be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems.
9. Components with stripped threads or damaged parts should be replaced rather than repaired. Do not attempt repairs requiring machining or welding unless specifically stated and approved by the vehicle and component manufacturer.

10. Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.
11. For vehicles with Antilock Traction Control (ATC), the ATC function must be disabled (ATC indicator lamp should be ON) prior to performing any vehicle maintenance where one or more wheels on a drive axle are lifted off the ground and moving.

RETROFITTING THE ASA-5® AUTOMATIC SLACK ADJUSTER

Preparation: The Bendix ASA-5® automatic slack adjuster can replace a manual slack adjuster or competitive automatic slack adjuster provided some simple considerations are kept in mind:

1. Excessive duty cycles, high application pressures, improper slack and chamber push rod alignment, and brake application compounding can result in reduced slack adjuster durability.
2. Determine that the AL factor of the vehicle to be retrofit is 180 or less. To determine the AL factor, multiply the slack adjuster arm length (from center of the cam spline to the center of the yoke pin hole in use) times (x) the brake chamber size.

Example: For a type 30 brake chamber connected to a 6 inch arm slack adjuster, **A** = 30 square inches, **L** = 6 inches; therefore, 30 X 6 = 180 = **AL factor**.

3. Make sure the foundation brake components are in good condition. Excessive drum out-of-roundness will result in excessive lining wear. See the "In Service Inspection" contained in Service Data Sheet SD-05-1269.
4. In order to select the proper slack adjuster, choose an ASA-5® automatic slack adjuster with the same offset, arm length, spline size, and push rod thread size as the slack adjuster it is replacing.
5. When retrofitting the Bendix ASA-5® slack adjuster, make certain to read the instructions along with any other literature packaged with service replacement ASA-5® slack adjusters.

Note: The manual adjuster hex is intended for use during installation. **CAUTION:** Automatic slack adjusters should not be adjusted manually to correct excessive push rod stroke.

INSTALLATION PREPARATION

In order to install the new ASA-5® automatic slack adjuster:

1. Remove the manual or automatic slack adjuster currently installed, including the brake chamber yoke assembly.
2. It is recommended that the brake actuator push rod length be checked to determine if shortening or replacement is required. To accomplish this refer to the table in Figure 2.

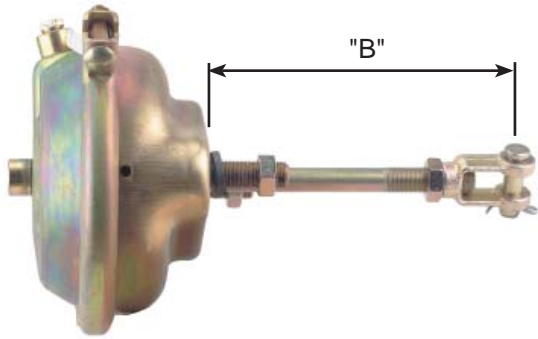
Application	"B"
All drive and steer axle brakes except Mack and Trailer Axles with Standard Stroke Chambers	2-5/8" ± 1/16"
All drive and steer axle brakes except Mack and Trailer Axles with Long Stroke Chambers	2-1/4" ± 1/16"
Mack drive axle Brake Applications with Camelback Suspension and Standard Stroke Chambers	4-3/8" ± 1/16"
Mack drive axle Brake Applications with Camelback Suspension and Long Stroke Chambers	4" ± 1/16"
Conventional Trailer Axle Brakes	6-1/2" ± 1/8"
Hendrickson Brakes with Air Ride Suspensions	10-7/8" ± 1/8"
Hendrickson Brakes with Air Ride Suspension for an Air Drop Auxiliary Axle	7" ± 1/8"
Hendrickson Brakes with Steerable Air Drop Auxiliary Axle	7-3/4" ± 1/8"
	

Figure 2 - APPLICATION TABLE

3. Inspect the foundation brake, brake actuator and related components. Make certain the camshaft bushings and seals are not excessively worn. Maximum camshaft radial play is 0.035 inches. Camshaft slack adjuster combined axial play should be checked. The range of the axial play is from 0.005 inches to a maximum of 0.025 inches. Servicing camshafts will reduce brake friction wear and increase the life of the entire system.
4. Lubricate the camshaft bushings. Check the brake actuator bracket for cracks and excessive corrosion. The brake actuator push rod should not be loose (wobble) or bent and the return spring should be firm. Replace parts or components that are suspect.
5. Wire brush the foundation brake camshaft and the chamber push rod to loosen contamination and wipe clean. Apply an anti-seize compound to both the camshaft and worm gear spline. Apply an anti-seize compound to the push rod threads, and the adapter bushing groove if quick connect yoke is used.

ASA-5® INSTALLATION

1. Select the proper ASA-5®. See "Preparation" section of this instruction sheet. Note: Make certain the vehicle has been prepared according to the "**GENERAL SAFETY GUIDELINES**".
2. Install the ASA-5® slack adjuster on the brake camshaft with enough washer spacers to align the slack adjuster to the center of the push rod. Add washers to the outside of the slack adjuster until the snap ring groove is just visible. Install the snap ring or E clip. The total end play allowed for the slack assembly, as well as the cam, is maximum 0.025, and minimum 0.005 inches.
3. ASA-5® slack adjusters may be equipped with either of two yoke designs. Both are designed to permit installation or removal of the slack adjuster along with its yoke body and its attached adjusting linkage. See Figure 3 for yoke configurations.
4. If the ASA-5® slack adjuster is equipped with the easy-on yoke, position the actuator jam nut approximately 1-5/16 inches from the end. Thread the easy-on yoke adapter on the push rod until it is about 3/8 inch from the end of the push rod. Turn the adjustment hex clockwise until the adapter extends into the threaded bore of the ASA-5® slack adjuster yoke, approximately 1/8 inch. Thread the adapter into the yoke, tighten to 10 foot pounds.
5. If the ASA-5® automatic slack adjuster is equipped with the quick connect yoke, position the actuator jam nut approximately 1 inch from the end. Thread the quick connect adapter bushing on the brake actuator push rod until it is flush with the end of the brake actuator push rod. Install the retaining ring on the adapter bushing making certain it is in the adapter bushing groove. Turn the ASA-5® slack adjuster manual adjustment hex clockwise until the adapter bushing begins to enter the yoke. Fully compress the "legs" of the retaining ring and continue turning the manual adjustment hex until the adapter is completely in the yoke. Allow the retaining ring to expand into the corresponding groove in the yoke. Make certain the retaining ring is seated in both the yoke and adapter bushing groove by manually pulling on the slack adjuster arm, attempting to separate the adapter bushing and yoke.
6. Run the actuator push rod jam nut down against the adapter. Hold the adapter or adapter bushing hex with a wrench and tighten the jam nut to 25 – 35 ft. lbs. for the 1/2 inch-20 thread rod and 35 - 50 ft. lbs. for the 5/8 inch-18 thread rods.

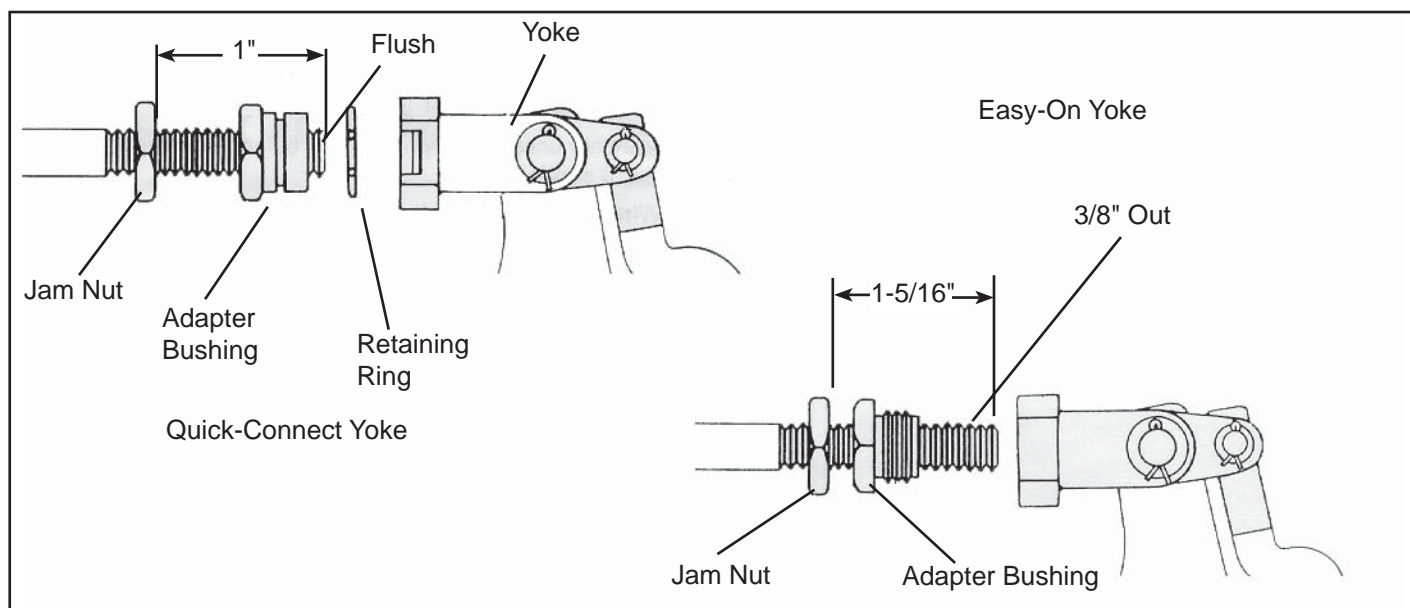


Figure 3 - QUICK CONNECT YOKE/EASY-ON YOKE

BRAKE ADJUSTMENT

1. Rotate the manual adjustment hex clockwise until the linings are snug against the drum.
2. Turn the adjustment hex counterclockwise 1/2 turn.
3. Pull the brake actuator push rod to confirm that approximately 1/2 inch of free stroke exists.
4. Build up the system air pressure until the gauge reads from 80 to 90 PSI. Make a full brake application and check that the brake actuator push rod stroke is below the readjustment limit set by the Department of Transportation (DOT). See Figure 4.
5. If the stroke exceeds the re-adjustment limit, check the condition of the foundation brake. Refer to "Brake Maintenance Inspection" section of Service Data Sheet SD-05-1269.
6. Manually uncage the spring brakes before returning the vehicle to service.
7. With the ASA-5[®] slack adjuster installed on the vehicle, ensure clearance requirements are met with the brake chamber fully released and at full stroke. Also, consider the clearance with the vehicle suspension springs depressed to bumpers, as well as in the rebound state.

80 to 90 PSI system pressure	
Brake Chamber Size	Max. Readjustable Stroke
Type 6	1.25"
Type 9, 12	1.375"
Type 12 Long Stroke	1.75"
Type 16, 20, 24	1.75"
Type 16, 20, 24 Long Stroke	2.00"
Type 24 (with 3" Extended Long Stroke)	2.50"
Type 30	2.00"
Type 30 Long Stroke	2.50"

Figure 4 - READJUSTABLE STROKE

8. The ASA-5[®] automatic slack adjuster should be lubricated every 25,000 miles, 3 months, or at the time of routine vehicle chassis lubrication, whichever occurs first. The ASA-5[®] automatic slack adjuster should be lubricated through the lube fitting with a quality multipurpose chassis lubricant (N.L.G.I. Grade 2). Lubricant should be added to the slack adjuster until clean lubricant flows from the grease relief opening in the boot. After lubrication, free stroke and power stroke must be checked to ensure the proper operation of all the components of the brake system.
9. When relining a brake, a resistance torque should be felt during the back off of the slack adjuster; this is normal. When backing off the adjustment, only back off enough to allow the removal of the drum. Manual repositioning of the slack by counterclockwise adjustments of the slack adjuster will wear the clutch excessively resulting in premature failure of the slack. Frequent adjustment of an automatic slack adjuster is a dangerous practice as stated by the CVSA and DOT.

