92152

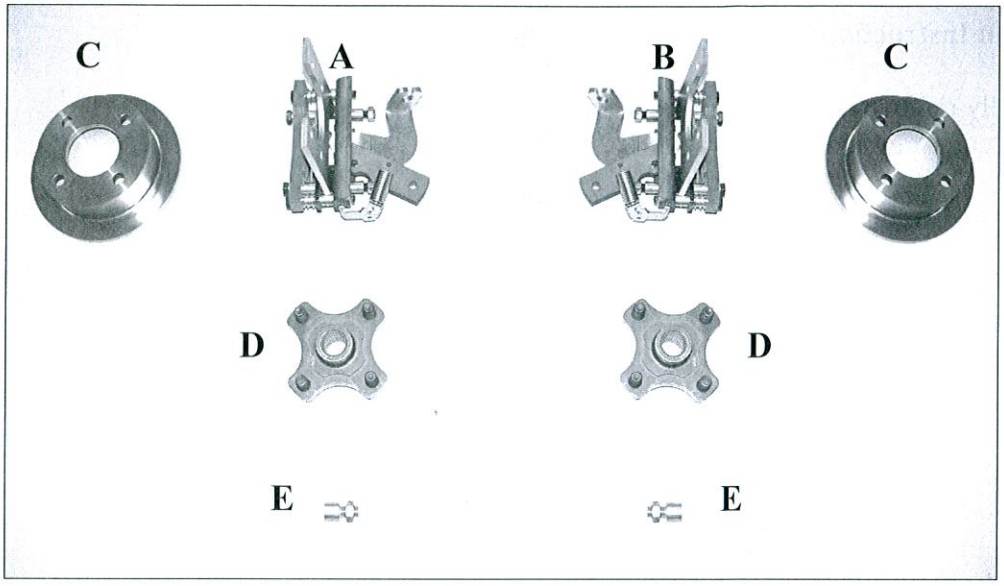
AUSCO AMERI-TORQUE™

MECHANICAL CALIPER RETROFIT INSTALLATION INSTRUCTIONS

For EZGO

Kit #'s: PK.1998, PK.2011, PK.2012, PK.2013, PK.2014, PK.2015, PK.2016, PK.2017

Kit contents:



Item	Qty	Description
A	1	Left Caliper with mount
B	1	Right Caliper with mount
C	2	Rotors

Item	Qty	Description
D	2	Hubs
E	2	Cable spacers with nuts (lifted vehicle kits only)

This kit requires wheels that are 10 inches or larger in diameter. Standard 8 inch wheels will not fit over these brakes.

The latest instruction manuals and service bulletins are available at **www.auscoproducts.com.**

Note: When removing the original brakes, save all fasteners (Pins, Clips, Cotter keys, Cable clips, Nuts, Bolts, and Washers.)

WARNING: The Ameri-Torque Brake is designed for off-highway vehicle applications only, which meet all of the following criteria:

- **DO NOT EXCEED 25 MILES PER HOUR**
- **DO NOT EXCEED 2,400 POUNDS GROSS VEHICLE WEIGHT**
- **TIRES DO NOT EXCEED 25 INCHES TOTAL OUTSIDE DIAMETER**
- **DO NOT REQUIRE REGISTRATION FOR ON-HIGHWAY USE**

CAUTION: Read the Installation Instructions completely before starting installation. Follow these Installation Instructions carefully. Proper braking is critical for safe operation of your vehicle. It is recommended that installation of the Ameri-Torque Brake Kit be performed by a trained mechanic. Test drive the vehicle carefully in an open area and adjust brake actuation cable as needed to achieve satisfactory braking function.

WARNING: Always conduct a visual inspection and evaluate pedal travel before operating vehicle to verify that some braking function is present. All driving tests must be done in a safe location with regard for all persons.

Installation Instructions

1. Carefully remove cotter key from the large nut in the center of the drum. Remove Axle nut and washer. Remove old brake drum. Save nut, washer and cotter pin. (see Fig. 1)

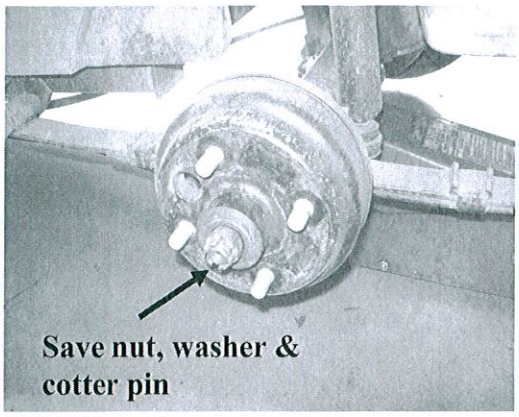


Fig. 1 Original drum brake

2. Remove brake assembly and cable bracket from vehicle by removing the four small bolts that attach the assembly to the axle. Save all fasteners. (See Fig 2)

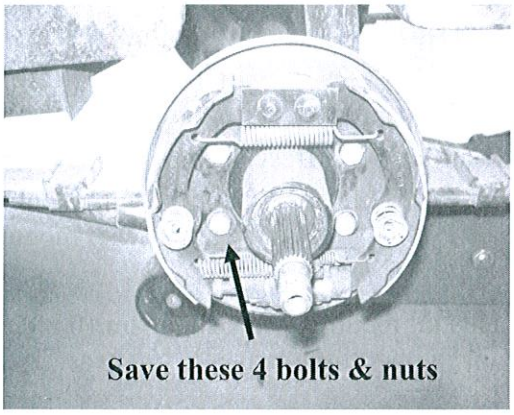


Fig 2 Original drum brake assembly

3. Disconnect the cable from the brake and the cable bracket and save the cable clips and pins.

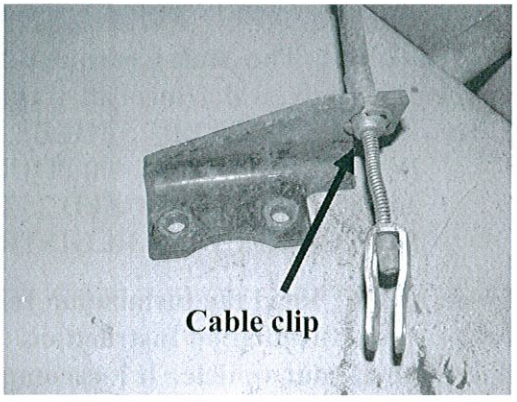


Fig 3 Original cable bracket

Attention: The factory cable return spring is unnecessary with Ameri-Torque brakes and limits brake wear and travel. The spring must be removed to insure full brake lever travel. (See Fig. 3a)

a. Grab the end of the spring coil with needle nose pliers.
b. Pull the spring end. The spring wire will unwind off of the cable.

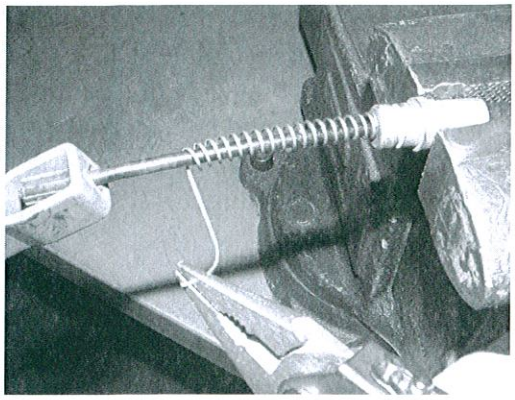


Fig 3a – Spring removal

4. Install supplied hub on axle shaft using vehicle manufacturer's recommended spline lube. Retighten axle nut to vehicle manufacturer's specification and install cotter pin (See Fig. 4)

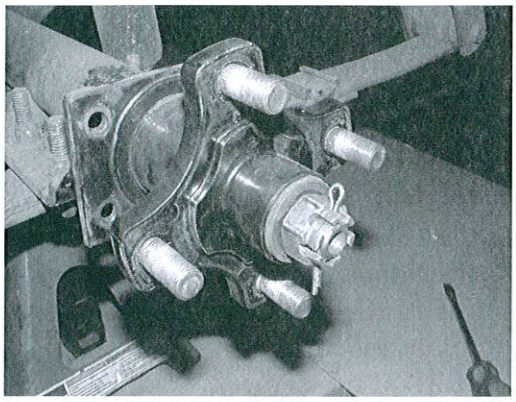


Fig. 4 Install splined hub

5. On each new caliper assembly, remove the mounting bracket by removing the bolts and spacer sleeves. (See Fig 5)

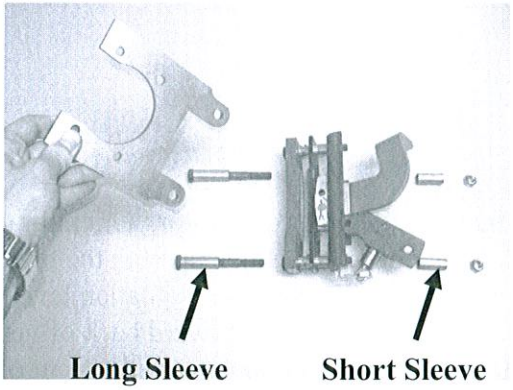


Fig 5 – remove mount bracket

6. Install new brake mounting bracket facing downward onto outside of axle tube bracket. Use the 4 bolts and nuts that were removed in step 2, head of bolt facing outward. Tighten to 18-20 ft-lbs (See Fig. 6)

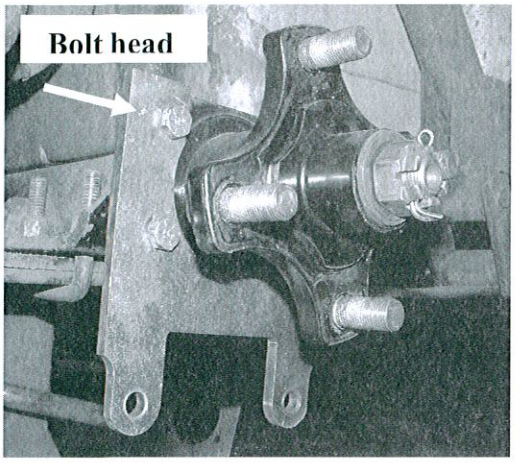


Fig. 6 Installed caliper mounting bracket.

7. Mount rotor over hub. For temporary holding while brake is being installed, finger tighten (2) wheel nuts over hub. (See Fig.7)

8. Determine which caliper is left and which is right. (See the Content's photo at beginning of instructions)

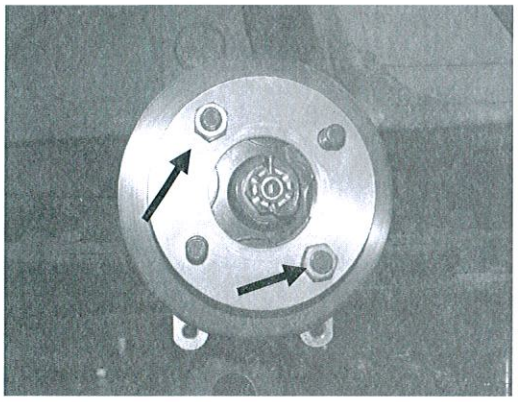


Fig. 7 - (2) lug nuts to temporarily hold rotor in place.

9. Install caliper onto rotor. Orient brake so that mounting holes line up with the brake mounting bracket. Brake lever actuation lever and spring are to be oriented toward back of vehicle. Cable bracket should be toward the front of vehicle and spring toward the rear. If not, you may have the left brake on the right side.

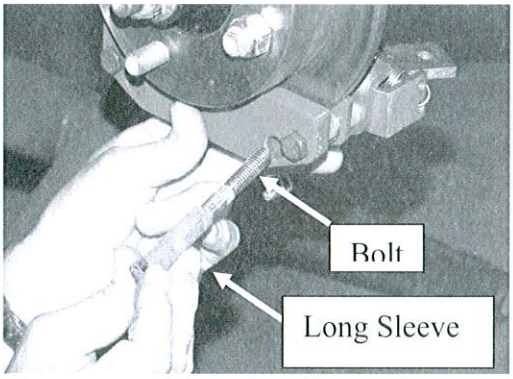


Fig. 8 - front view

10. Insert bolt in long sleeve then install bolt with sleeve through front of caliper. Push bolt and mounting sleeves thru holes in brake until they hit the mounting bracket. Install short sleeve and nut over bolt on the back of caliper. Tighten nut to 20-25 ft-lb. (See Fig.'s 8 & 9)

11. Verify that brake caliper is sliding freely on mounting sleeves by pushing the caliper back and forth.

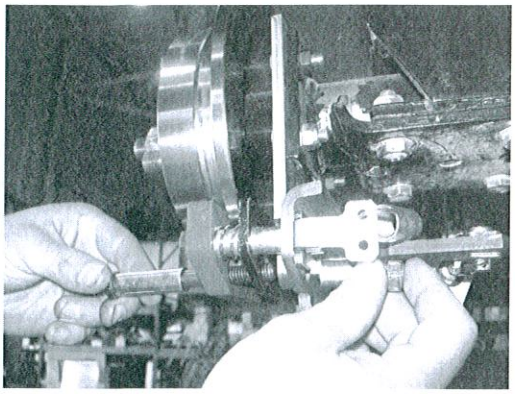


Fig. 9 - Back view of caliper.

12. Anchor brake cable conduit fitting to cable bracket provided on brake caliper. Use retaining ring from previous drum installation to keep it in place. (See Fig. 10)

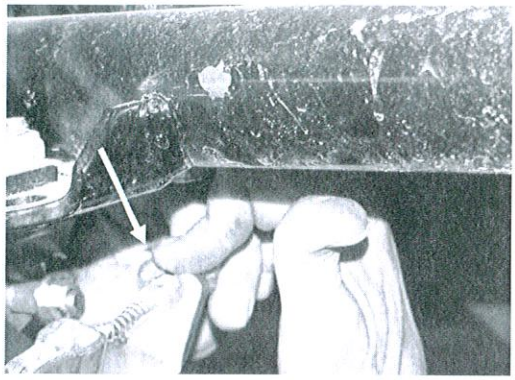


Fig. 10 - Installing retaining clip

13. Attach cable end to hole on the end of brake actuation lever with original clevis and hitch pin. (See Fig. 11) You may need to loosen the cable at the pedal linkage to have enough slack to install pin. (See Fig. 12)
    a. First loosen the locking nut on the linkage rod.
    b. Then loosen the large adjustment nut.

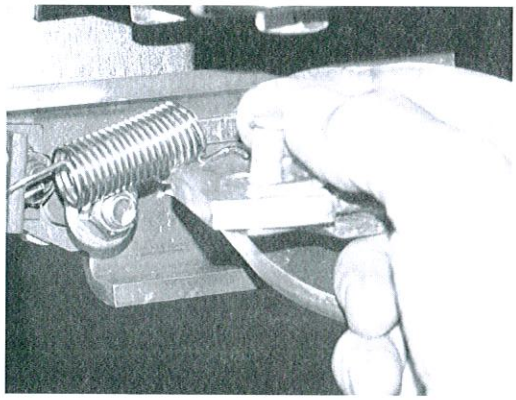


Fig. 11 - Attach brake cable to lever

14. Repeat steps 1-13 for other brake.

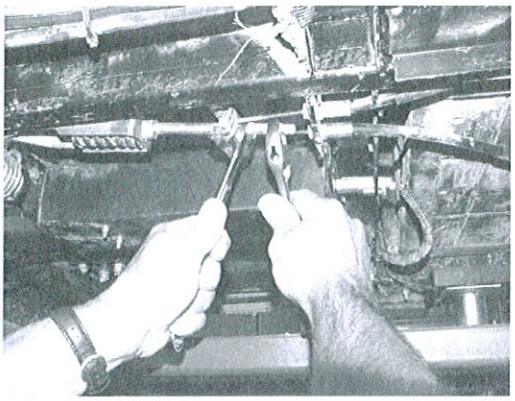


Fig. 12 - To loosen cable, first loosen locking nut at equalizer bar.

15. **If you have a lifted vehicle,** you may need to install cable extensions.
(If your vehicle is not lifted, skip to step 16)

Installing cable extensions

a. Remove adjustment nuts from linkage.

b. Remove rubber plugs in equalizer bar then remove bar from cables. (see Fig 13)

c. Disconnect cables and remove retainer clips at vehicle frame. Remove cable end from vehicle frame.

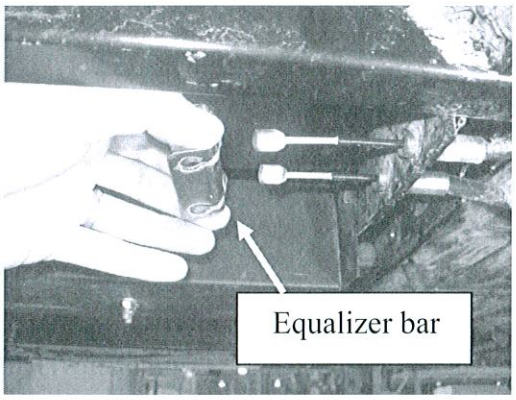


Fig 13 – Removing equalizer bar

d. Install cable extender to vehicle frame cable mount. (arrow in Fig 14) Hold extender with pliers while tightening lock nut to 8 to 10 ft-lbs.

e. Insert cable through cable extenders. Install cable ends through equalizer bar with slots facing down. Replace rubber plugs.

f. Reconnect linkage. Be sure that the rounded side of the adjustment nut is against the equalizer bar.

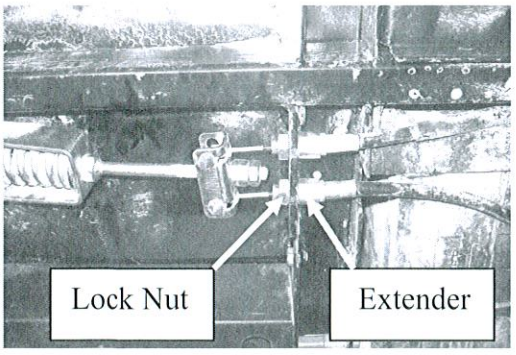


Fig 14 – Cable extenders installed

16. Adjust brake cable tension so that brake pads drag against rotor. (See Fig. 15) Then firmly actuate brake pedal a few times. Loosen brake cables just enough that the rotors spin freely. Firmly actuate pedals each time you make an adjustment. Cables should be tight enough for good pedal feel but not cause brake drag.

    Suggested running clearance to rotor is 0.003" to 0.005".

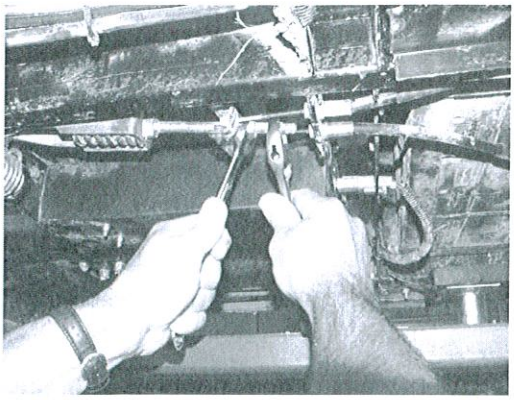


Fig. 15 Adjusting cable

Suggested method to check running clearance:

Check running clearance on both calipers at the same time (use 2 feeler gauges).

a. Insert feeler gauge between back of rotor and inside brake pad in the center of the pad. (See Fig. 16)

b. You should have some resistance but still be able to move the feeler gauges across the full width of the pad.

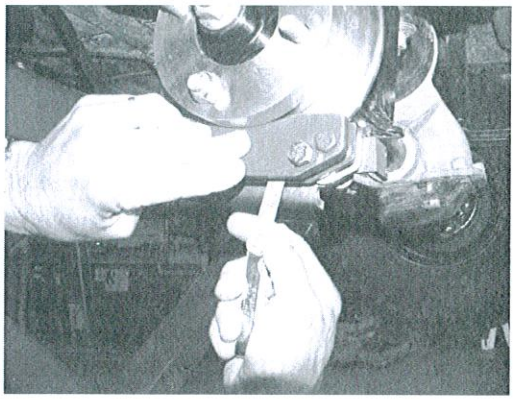


Fig. 16 Check pad clearance of both wheels at the same time.

17. Remove the feeler gauges and verify that brake caliper is sliding freely on mounting sleeves by pushing the caliper back and forth.

18. Check pedal feel. Re-adjust brake cable as necessary. Verify that brakes do not drag. Tighten the cable linkage lock nut against the adjustment nut.

19. Remove the two temporary holding nuts from hubs.
20. Install wheels and tighten wheel nuts per vehicle manufacturer's recommendation.
21. Verify wheel does not contact brake. (See Fig. 17)
22. Carefully drive the vehicle to check pedal feel. Re-adjust brake cable as necessary. Verify that brakes do not drag.

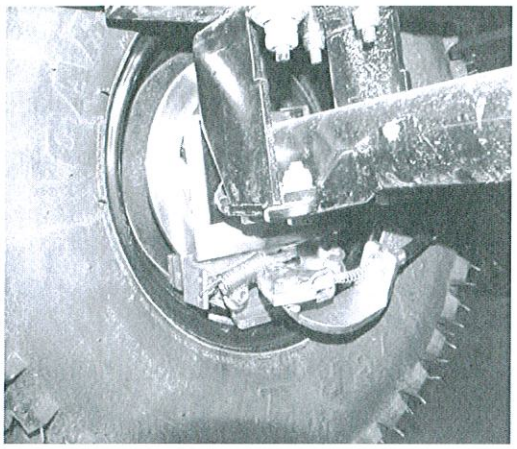


Fig 17 – Brake inside wheel

CAUTION: Test-drive the vehicle carefully in an open area and adjust the brake actuation cable as needed to achieve satisfactory braking function. Brakes will need time to break in. Brakes may need re-adjustment after the first few hours. If you experience noise while driving, loosen brake cables and re-check pad clearance. Satisfactory brake performance does not eliminate the need for routine brake testing and inspection. Continued proper brake operation depends on periodic maintenance.

WARNING: Always conduct a visual inspection and evaluate pedal travel before operating vehicle to verify that some braking function is present. All driving tests must be done in a safe location with regard for all persons.

For questions, concerns, problems, comments, please contact your local dealer.

Maintenance

WARNING: **The caliper must be inspected for wear periodically. To protect rotor from damage, there will be substantial material left on pads when replacement is required. Do not shim this brake. Do not use lining thickness as a measure of pad replacement. Use the following procedure to determine need for replacement.**

a. If the vehicle is not on its wheels, be sure it is properly supported with jack stands.
b. Have an assistant apply brake pedal fully and hold during inspection. (For reference, this should be about 125 lbs applied to the pedal.)
c. Check on both calipers that there is at least ¼" of cable showing between the yoke and housing. (See Fig M1) (If there is a rubber boot over the cable, pull it back.)
d. If there is less than ¼" you must replace your brake pads (see page 12).*

* It is normal to still have material on the pad even if the above inspection indicates replacement is required. This is by design to protect the brake rotor from damage. Always replace brake pads on both the left and right brake assembly.

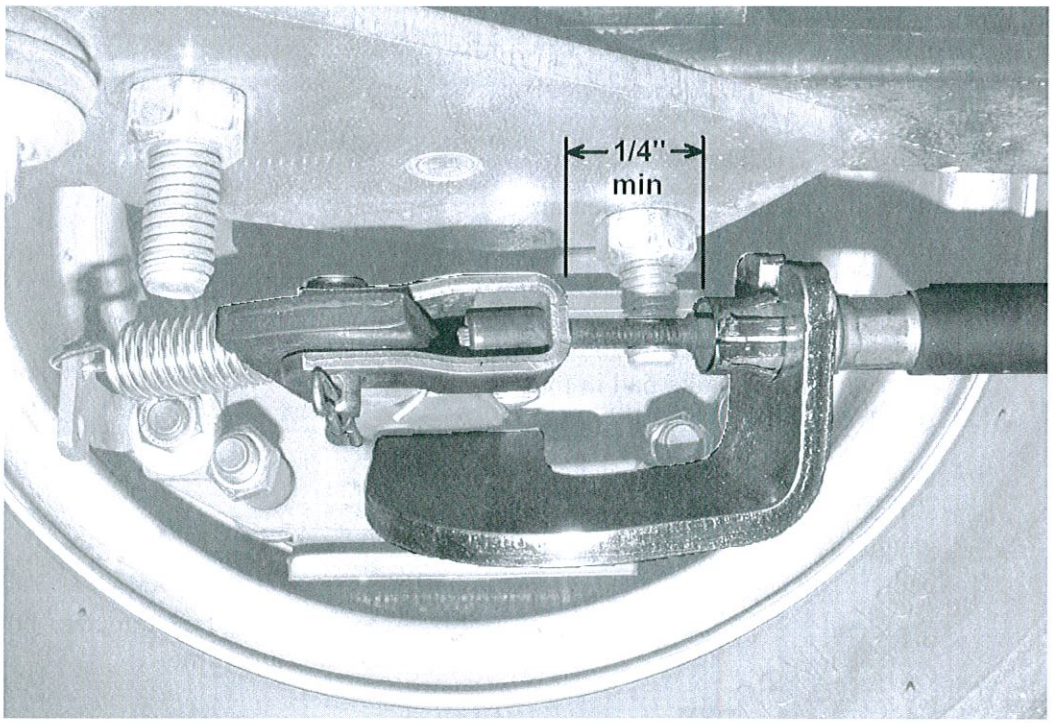


Fig M1 – Determining pad replacement

Your Ameri-Torque brakes will need periodic adjustment. If you feel that the pedal travel is too much or if the parking brake is less effective, you should adjust your brakes. If you cannot adjust your brake system any further you may need to replace the brake pads (see page 12).

Adjustment Instructions

1. Remove wheels. Install 2 lug nuts on each brake rotor to temporarily hold rotor.
2. Adjust brake cable tension so that brake pads drag against rotor. (See Fig. M2) Then firmly actuate brake pedal a few times. Loosen brake cables just enough that the rotors spin freely. Firmly actuate pedals each time you make an adjustment. Cables should be tight enough for good pedal feel but not cause brake drag.

   Suggested running clearance to rotor is 0.003" to 0.005".

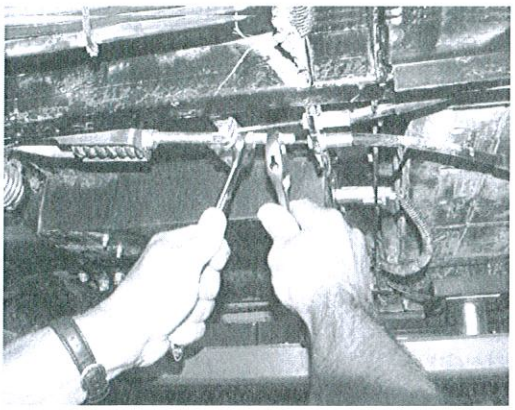


Fig. M2 Adjusting cable

Suggested method to check running clearance:

Check running clearance on both calipers at the same time (use 2 feeler gauges).

a. Insert feeler gauge between back of rotor and inside brake pad in the center of the pad. (See Fig. M3)

b. You should have some resistance but still be able to move the feeler gauges across the full width of the pad.

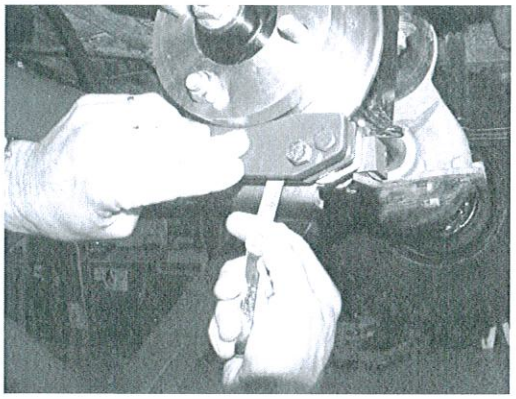


Fig. M3 - Check pad clearance of both wheels at the same time.

3. Remove the feeler gauges and verify that brake caliper is sliding freely on mounting sleeves by pushing the caliper back and forth.

4. Check pedal feel. Re-adjust brake cable as necessary. Verify that brakes do not drag.
5. Tighten the cable linkage lock nut against the adjustment nut.
6. Remove the two temporary holding nuts from hubs.
7. Install wheels and tighten wheel nuts per vehicle manufacturer's recommendation.
8. Carefully drive the vehicle to check pedal feel. Re-adjust brake cable as necessary. Verify that brakes do not drag.

CAUTION: Test-drive the vehicle carefully in an open area and adjust the brake actuation cable as needed to achieve satisfactory braking function. If you experience noise while driving, loosen brake cables and re-check pad clearance. Satisfactory brake performance does not eliminate the need for routine brake testing and inspection. Continued proper brake operation depends on periodic maintenance.

WARNING: Always conduct a visual inspection and evaluate pedal travel before operating vehicle to verify that some braking function is present. All driving tests must be done in a safe location with regard for all persons.

For questions, concerns, problems, comments, please contact your local dealer.

Pad Replacement

WARNING: Use only Ausco OEM replacement parts. Failure to do so may result in diminished brake performance.

Ordering replacement pads:

If your outer caliper pad is painted red, order kit	PK.2007
If your outer caliper pad is not red, order kit	PK.2022

Kits come with 4 pads (for 2 calipers) 4 springs and 4 shim washers.

Note: Caliper pad material is designed to work only with matching rotors. Do not use a different kit than is currently on your vehicle. Noise and abnormal rotor wear may result. Calipers that are painted red (PK.2007) work with a rotor marked with a "G" inside the rotor. Calipers that are not painted (PK.2022) work with a rotor marked with a "D" ***or*** no marking inside the rotor.

Replacement Instructions

1. Loosen cables at pedal linkage. (See Fig R1)

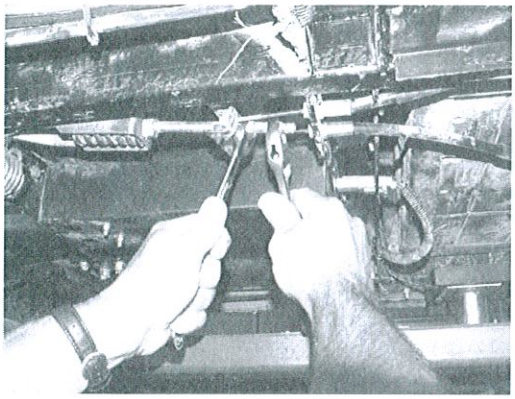


Fig. R1 - To loosen cable, first loosen locking nut at equalizer bar.

2. Remove the wheels. Re-install two lug nuts to hold rotor in place. (See Fig R2)

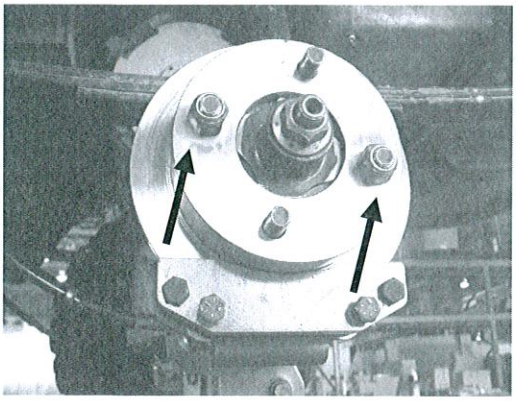


Fig R2 – Install 2 lug nuts.

3. Remove the two inner caliper bolts to remove the caliper. Keep track of the spacers. (See Fig R3)

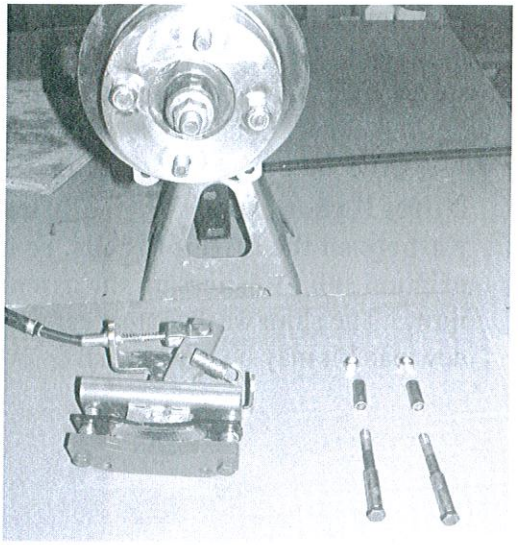


Fig R3 – Remove caliper.

4. Remove the two outer bolts to disassemble caliper. (See Fig R4) **Be careful to keep all nuts, washers and sleeves.**

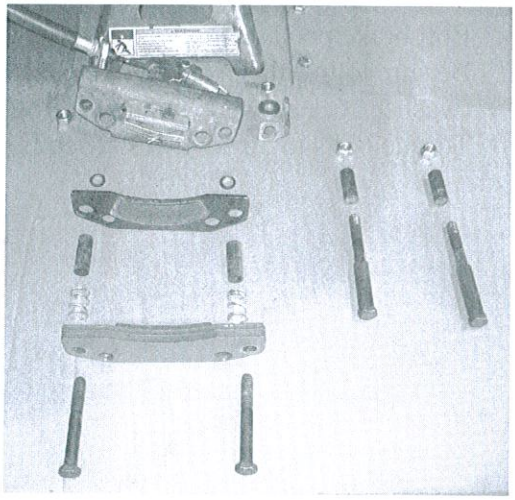


Fig R4 - disassembly

5. Insert outer bolts through the new thick outer brake pad. Place spacers over bolts and new springs over spacers. Place new thin inner brake pad over bolts and spacers. (See fig R5)

   Note: If your caliper originally had shim washers on the assembly bolts, re-install the original shim washers on the assembly bolts now. (The shim washers that came with your new pad kit may be used later).

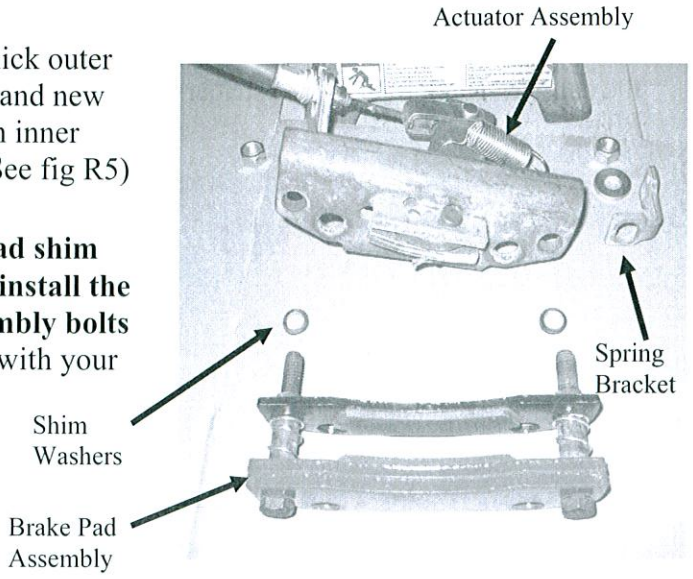


Fig R5 – New component assembly

6. Bolt brake pad assembly to actuator assembly. Be sure to install spring bracket and washer (washer goes between nut and spring bracket). Torque bolts to 30-35 ft-lbs. (See fig R6)

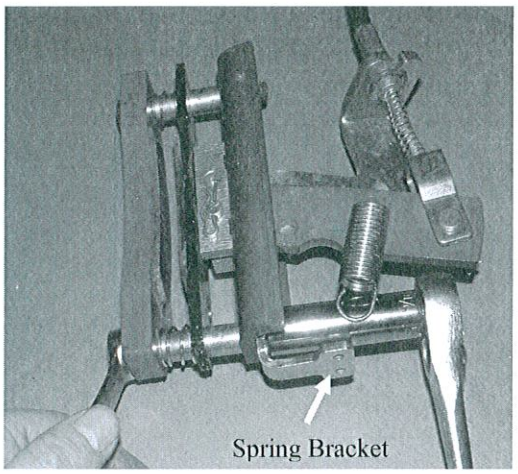


Fig R6 – Caliper re-assembly

7. **Disconnect the cable from the caliper lever**. Place the caliper over the rotor. Check running clearance with the cable disconnected. Insert a 0.030 inch feeler gauge* between back of rotor and inside brake pad in the center of the pad. (See Fig. R7) You should have some resistance but still be able to move the feeler gauges across the full width of the pad.
   - **If you *could not* move the 0.030 inch gauge, disassemble the brake and add 1 shim washer to each assembly bolt (see fig R5).** Repeat steps 6&7

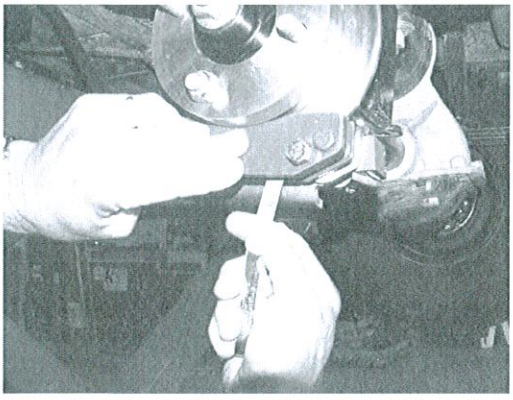


Fig. R7 - Check pad clearance

* A feeler gauge set can be purchased at your local auto-parts store.

8. Attempt to insert a 0.055 inch feeler gauge between back of rotor and inside brake pad in the center of the pad. (See Fig. R7) (You may need to stack gauges to equal 0.055) Try to move the feeler gauges across the full width of the pad.
   - **If you *could* move the 0.055 inch gauge across the full width, disassemble the brake and remove one shim washer from each assembly bolt (see fig R5).** Repeat steps 6, 7 & 8.

9. Install caliper onto rotor. Orient brake so that mounting holes line up with the brake-mounting bracket. Brake lever actuation lever and spring are to be oriented toward back of vehicle. Cable bracket should be toward the front of vehicle and spring toward the rear. If not, you may have the left brake on the right side. (See Fig R8)

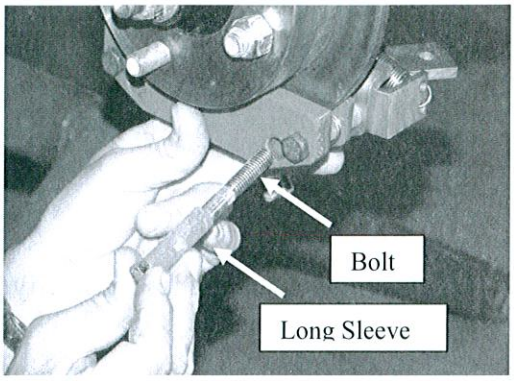


Fig. R8 - Front view

8. Insert bolt in long sleeve then install bolt with sleeve through front of caliper. Push mounting sleeves thru holes in brake until they hit the mounting bracket. Install short sleeve and nut over bolt on the back of caliper. Tighten nut to 20-25 ft-lb. (See Fig.'s R8 & R9)

9. Verify that brake caliper is sliding freely on mounting sleeves by pushing the caliper back and forth.

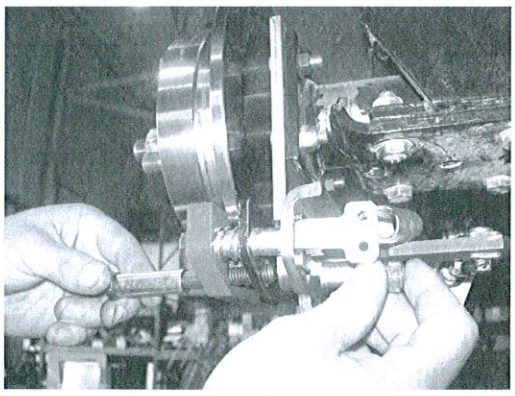


Fig. R9 - Back view of caliper.

10. Re-connect brake cable to lever.

11. Adjust brake cable tension so that brake pads drag against rotor. (See Fig. R10) Then firmly actuate brake pedal a few times. Loosen brake cables just enough that the rotors spin freely. Firmly actuate pedals each time you make an adjustment. Cables should be tight enough for good pedal feel but not cause brake drag.

    Suggested running clearance to rotor is 0.003" to 0.005".

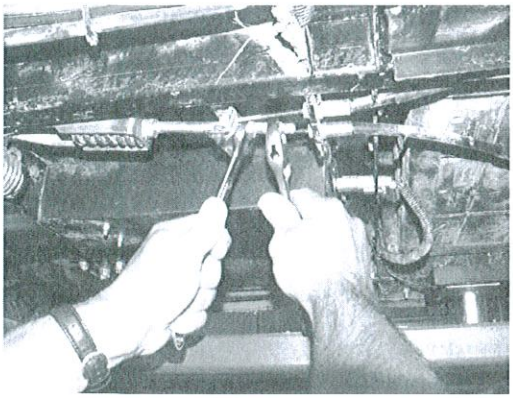


Fig. R10 Adjusting cable

Suggested method to check running clearance:

Check running clearance on both calipers at the same time (use 2 feeler gauges).

a. Insert feeler gauge between back of rotor and inside brake pad in the center of the pad. (See Fig. R11)

b. You should have some resistance but still be able to move the feeler gauges across the full width of the pad.

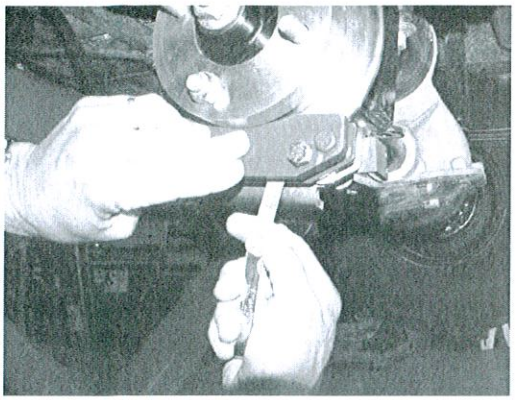


Fig. R11 - Check pad clearance of both wheels at the same time.

11. Remove the feeler gauges and verify that brake caliper is sliding freely on mounting sleeves by pushing the caliper back and forth.
12. Check pedal feel. Re-adjust brake cable as necessary. Verify that brakes do not drag.
13. Tighten the cable linkage lock nut against the adjustment nut.
14. Remove the two temporary holding nuts from hubs.
15. Install wheels and tighten wheel nuts per vehicle manufacturer's recommendation.
16. Carefully drive the vehicle to check pedal feel. Re-adjust brake cable as necessary. Verify that brakes do not drag.

CAUTION: Test-drive the vehicle carefully in an open area and adjust the brake actuation cable as needed to achieve satisfactory braking function. Brakes will need time to break in. Brakes may need re-adjustment after the first few hours. If you experience noise while driving, loosen brake cables and re-check pad clearance. Satisfactory brake performance does not eliminate the need for routine brake testing and inspection. Continued proper brake operation depends on periodic maintenance.

WARNING: Always conduct a visual inspection and evaluate pedal travel before operating vehicle to verify that some braking function is present. All driving tests must be done in a safe location with regard for all persons.

For questions, concerns, problems, comments, please contact your local dealer.

The latest instruction manuals and service bulletins are available at www.auscoproducts.com.

REVISION HISTORY:

Sym.	Description	ECO		Date
A	Initial Release	25728	JAH	01/13/10
B	Add shim washers	25788	ELC	02/05/10
C	Add spring removal and pad replacement	25852	ELC	03/16/10

Ausco Ameri-Torque Brakes - Technical Service Bulletin 92432

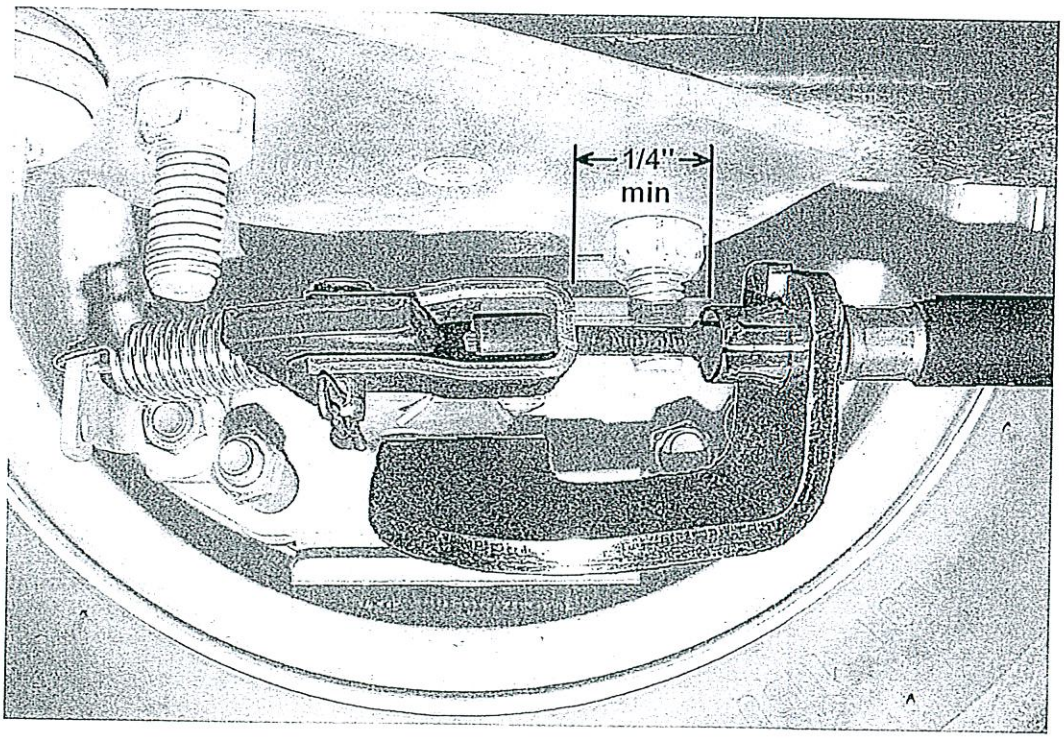
Attention: All Ausco Ameri-Torque Brake Applications

Subject: Clarification of pad replacement requirements.

The caliper must be inspected for wear periodically. To protect rotor from damage, there will be substantial material left on pads when replacement is required. Do not shim this brake. Do not use lining thickness as a measure of pad replacement. Use the following procedure to determine need for replacement.

1. If the vehicle is not on its wheels, be sure it is properly supported with jack stands.
2. Have an assistant apply brake pedal fully and hold during inspection. (For reference, this should be about 125 lbs applied to the pedal.)
3. On both brake calipers, check that there is at least ¼" of cable showing between the yoke and housing.
   (If there is a rubber boot over the cable, pull it back.)
4. If there is less than ¼" you must replace your brake pads.*

* It is normal to still have material on the pad even if the above inspection indicates replacement is required. This is by design to protect the brake rotor from damage.



REVISION HISTORY:

Sym.	Description	ECO		Date
A	Initial Release	25852	ELC	03/16/10

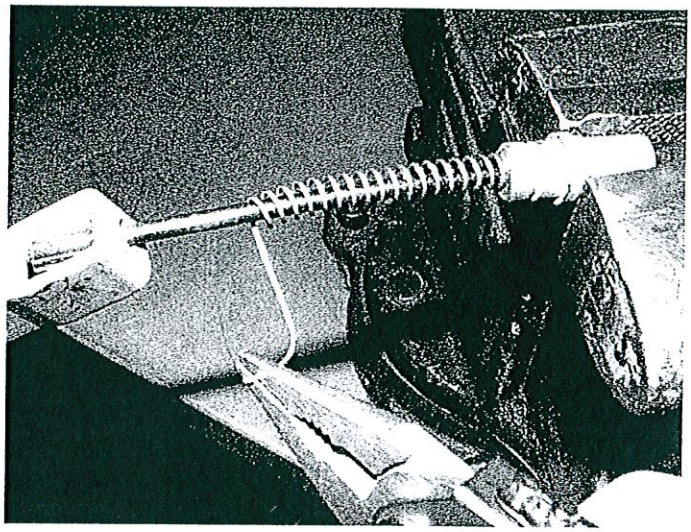
Ausco Ameri-Torque Brakes - Technical Service Bulletin 92434

Attention: EZ-GO Applications

Subject: Improved installation instruction procedure for EZ-Go applications.

The factory cable return spring is unnecessary with Ameri-Torque brakes and limits brake wear and travel. The spring must be removed to insure full brake lever travel.

1. Grab the end of the spring coil with needle nose pliers. .
2. Pull the spring end. The spring wire will unwind off of the cable.



REVISION HISTORY:

Sym.	Description	ECO		Date
A	Initial Release	25852	ELC	03/16/10