Parts & Service **Bulletin**

To: **All Distributors**
Regional Sales Managers and National Sales Manager

From: **Technical Development Manager**

Model: **AU/EX/MX/AGR**

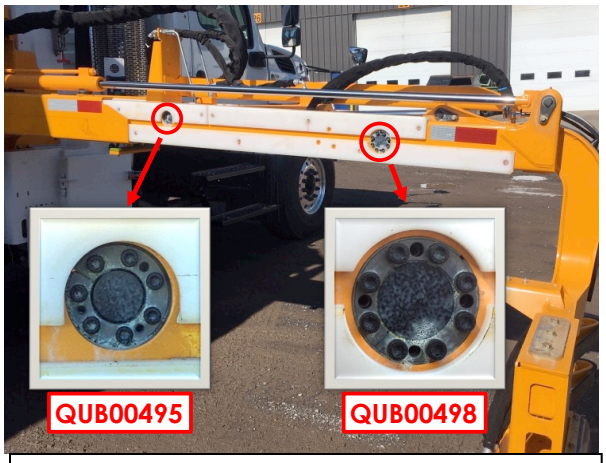
Subject: **Keyless Locking Devices**

The Helping Hand and Heavy-Duty Right-Hand arms utilize keyless locking devices to retain certain pins. Proper inspection and maintenance procedures are essential for trouble free operation of these arms. The procedures outlined below will cover the proper inspection, disassembly and assembly procedures.

Inspection:
During the daily arm inspection, which is detailed in the appropriate operator's manual, pay particular attention to the pins. The pins should not move and should be centered equally between both keyless locking devices. If any movement has been detected, the keyless locking device should be disassembled and inspected for wear or damage.

The illustrations below show the location of the keyless locking devices on their respective arms.

QUB00493: Used on Heavy-Duty Right-Hand arms.



QUB00495 & QUB00498: Used on Helping Hand arms.

Disassembly & Assembly:

The disassembly and assembly procedures differ some depending on the part number you are working with, refer to the correct procedure and specifications listed in the table below.

Labrie P/N	Page #	Bolt Torque (Qty x Size)	Bore Diameter	Pin Diameter
QUB00493	4	13 Lb-ft (12 x M6)	2.362" - 2.364"	1.250"
QUB00495	5	13 Lb-ft (8 x M6)	2.362" - 2.364"	1.250"
QUB00498	6	30 Lb-ft (8 x M8)	3.150" - 3.152"	2.000"

Some important notes to remember for all applications:

- Do not use any oil with Molybdenum Bisulphide, high pressure additives, or grease. These substances notably reduce the coefficient of friction.
- Do not use an impact wrench or power tools to loosen or tighten any of the tightening screws.
- Use a torque wrench to verify tightening torque value on each screw.

Be sure to follow all appropriate lockout tag out procedures and work instructions as contained in service and repair manuals as well as your standard shop/facility procedures before attempting this procedure.

QUB00493: Used on Heavy-Duty Right-Hand grabber shaft.

Disassembly:

1. Loosen locking screws in several stages by using approx. 1/4 turns, following a cross sequence shown in Figure 1 Page 6.
2. Do not remove the clamping screws completely.
3. QUB00493 Keyless Bushings feature self-releasing tapers, meaning collars should release during Step 1. However, if for some reason the thrust collars jam, a light tap on three (3) equally spaced heads of loosened locking screws will positively release the connection.

Inspection:

1. Inspect pin and bore surfaces for damage or galling.
2. Measure O.D. of pin and I.D. of bore and compare measurements to the table on Page 2. Replace any worn or damaged parts.
3. If keyless locking device is to be re-used, thoroughly clean all the surfaces and lubricate both screws and treads with a thin film of light-weight oil.

Assembly:

1. Carefully clean the bore and shaft contact surfaces and apply a thin film of light-weight oil.
2. Slide the clamping unit into the hub bore and insert the shaft.
3. Verify the shaft is centered equally between both keyless locking devices.
4. Hand tighten cadmium plated clamping screws, shown in Figure 3 Page 6, until the inner ring grips the shaft and the outer ring grips the hub bore.
5. Tighten all clamping screws ¼ turn at a time in a cross pattern, shown in Figure 1 Page 6, until 100% of the torque in the table above is achieved.
6. Apply 100% of the tightening torque in a continuous sequence, shown in Figure 2 Page 6, perform this step twice.

QUB00495: Used on Helping Hand lift cylinder pin.

Disassembly:

1. Loosen locking screws gradually in a cross sequence, shown in Figure 1 Page 6.
2. Remove all locking screws and ensure the there is no damage to push-off threads of the front collar.
3. Transfer required number of screws into all push-off threads in the front collar, shown in Figure 4 Page 6.
4. Release front collar by progressively tightening all push-off screws. Typically, the push-off screws appear to be completely tight after just one pass of tightening without any noticeable separation of clamp collars. Although it seems that the screws cannot be tightened further, several more rounds of torqueing in either a cross sequence will increase the push-off force in the system and ultimately release the front collar.
5. Remove the front collar and transfer screws into all push-off threads in center collar, shown in Figure 5 Page 6. Release rear collar by repeating step 4.

Inspection:

1. Inspect pin and bore surfaces for damage or galling.
2. Measure O.D. of pin and I.D. of bore and compare measurements to the table on Page 2. Replace any worn or damaged parts.
3. If keyless locking device is to be re-used, thoroughly clean all the surfaces and lubricate both screws and treads with a thin film of light-weight oil.

Assembly:

1. Carefully clean the bore and shaft contact surfaces and apply a thin film of light-weight oil.
2. Ensure the that all slits are aligned and that the front and rear collars are disengaged from the center collar before inserting into the bore and onto the shaft.
3. Verify the shaft is centered equally between both keyless locking devices.
4. Tighten all locking screws gradually in a cross pattern, shown in Figure 1 Page 6.
5. During the first round of tightening all locking screws, apply up to 50% of the tightening torque listed in the table above.
6. Repeat above steps 4 and 5, however, this time apply 100% of the tightening torque listed in the table on Page1.
7. Apply 100% of the tightening torque in a continuous sequence, shown in Figure 2 Page 6, perform this step twice.

QUB00498: Used on Helping Hand lift arm pivot pin.

Disassembly:

1. Loosen locking screws gradually in a cross sequence, shown in Figure 1 Page 6.
2. Remove all locking screws and ensure the there is no damage to push-off threads of the front collar.
3. Transfer required number of screws into all push-off threads in the front collar, shown in Figure 6 Page 6.
4. Release front collar by progressively tightening all push-off screws. Typically, the push-off screws appear to be completely tight after just one pass of tightening without any noticeable separation of clamp collars. Although it seems that the screws cannot be tightened further, several more rounds of torqueing in a cross sequence will increase the push-off force in the system and ultimately release the front collar.
5. To release the rear collar, continue tightening the screws in the front collar and repeat step 4 until the rear collar releases.

Inspection:

1. Inspect pin and bore surfaces for damage or galling.
2. Measure O.D. of pin and I.D. of bore and compare measurements to the table on Page 2. Replace any worn or damaged parts.
3. If keyless locking device is to be re-used, thoroughly clean all the surfaces and lubricate both screws and treads with a thin film of light-weight oil.

Assembly:

1. Carefully clean the bore and shaft contact surfaces and apply a thin film of light-weight oil.
2. Ensure that all slits are aligned and that the front and rear collars are disengaged from the center collar before inserting into the bore and onto the shaft.
3. Verify the shaft is centered equally between both keyless locking devices.
4. Tighten all locking screws gradually in a cross pattern, shown in Figure 1 Page 6.
5. During the first round of tightening all locking screws, apply up to 50% of the tightening torque listed in the table above.
6. Repeat above steps 4 and 5, however, this time apply 100% of the tightening torque listed in the table above.
7. Apply 100% of the tightening torque in a continuous sequence, shown in Figure 2 Page 6, perform this step twice.

Figure 1:

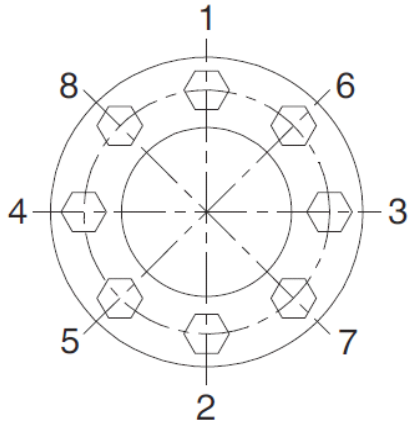


Figure 2:

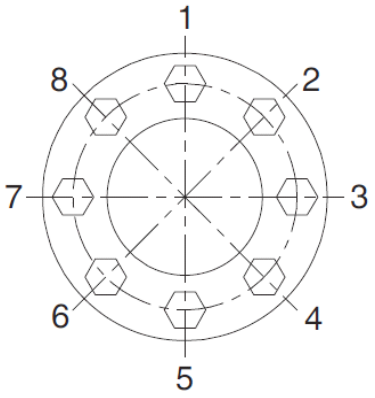


Figure 3:

Figure 4:

Figure 5:

Figure 6: