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NELSON IRRIGATION CORPORATION

SR100 & SR150 BIG GUN® Drive Arm & Counterweight Maintenance Kit Instructions

Part Number 9822

IMPORTANT: Before proceeding, review the drawings below to become familiar with part names and locations. If you are unsure of the cause of your Big Gun® operating problems, go to the troubleshooting section on the back page.



Figure 1 Parts Supplied in Maintenance Kit.

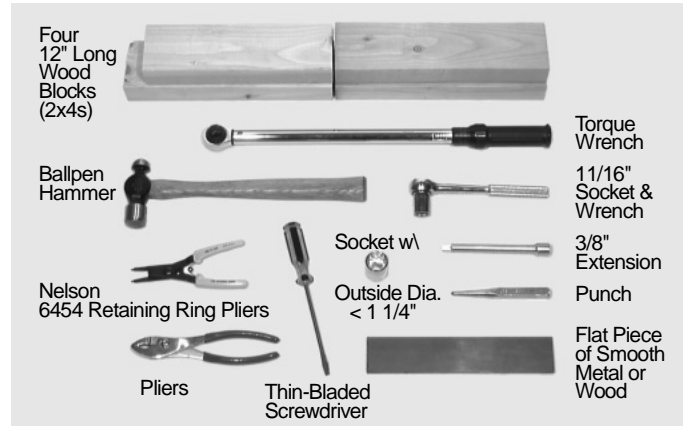


Figure 2 Tools Required to Install Maintenance Kit.

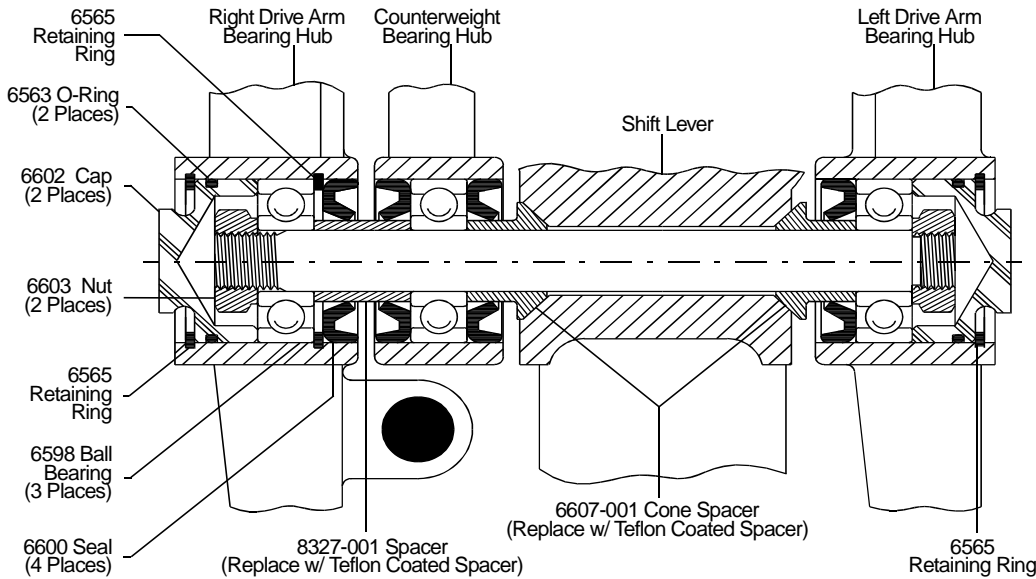


Figure 3 Section View of Drive Arm and Counter Weight Assembly.

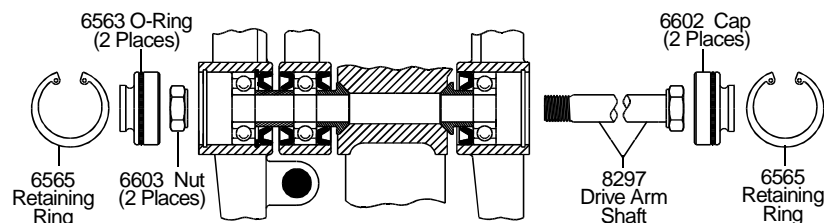


Figure 4 Same View as Figure 3 with Exploded View Added.

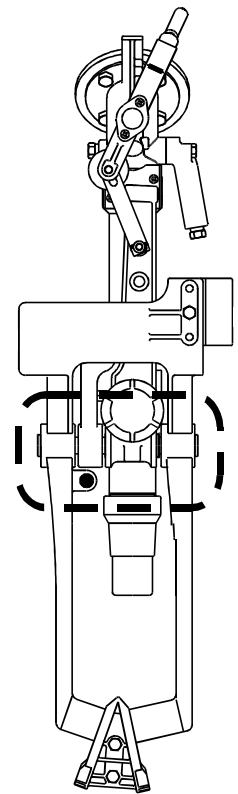


Figure 5 Area Shown in Section Views in Figure 3 and Figure 4.

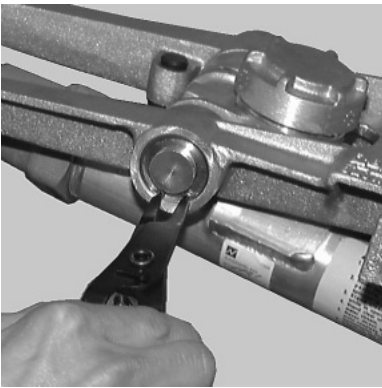


Figure 6

Procedure 1

Using 6454 retaining ring pliers, remove two 6565 retaining rings, one from left drive arm bearing hub and one from right drive arm bearing hub (see Figure 6). Using pliers, remove one 6602 end cap from each hub. Using two socket wrenches fitted with 11/16" sockets, one at each end of 8297 drive arm shaft, remove 6603 nut from one end of shaft. Push shaft in until opposite end can be grasped by nut and pull shaft completely out of assembly. Remove remaining nut from shaft and roll shaft on flat surface to check for straightness. If bent, replace shaft.

Insert blade of screwdriver between right drive arm bearing hub and counterweight bearing hub (see Figure 7). Work blade against 8327-001 spacer, and slide spacer and 6598 ball bearing in direction indicated by arrow in Figure 8. Rotate right drive arm bearing hub up and remove drive arm from Big Gun®.

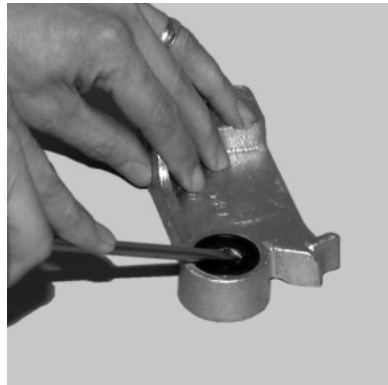


Figure 9

Procedure 2

Procedure 3

Remove 6607-001 cone spacer from counterweight. As shown in Figure 9, insert thin screwdriver blade under lip of 6600 seal and pry seal out. Turn counterweight over and remove opposite seal in same manner.

Locate a socket or similar tool with an outside diameter slightly less than outside diameter of 6598 ball bearing (less than 1 1/4" or 30mm). Support counterweight as shown in Figure 10. Center socket over bearing and remove bearing by tapping on socket.

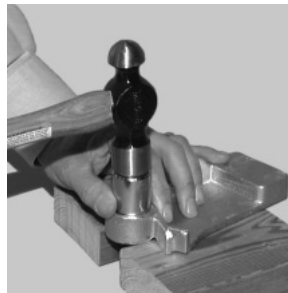


Figure 10

Procedure 4

Procedure 5

IMPORTANT: Bore of right drive arm bearing hub contains retaining ring 6565. As shown in Figure 3, this retaining ring is located between 6600 seal and 6598 ball bearing. If bearing is driven towards seal with retaining ring in place, damage to drive arm hub will result!

Remove 6607-001 cone spacer from left drive arm bearing hub. Working from seal side of drive arm hubs, use finger pressure to push one 6598 ball bearing from each hub. When originally installed, bearings are a slip fit. If finger pressure will not remove bearings, position drive arm as shown in Figure 11. Using a screwdriver and hammer, lightly tap bearings out.



Figure 11

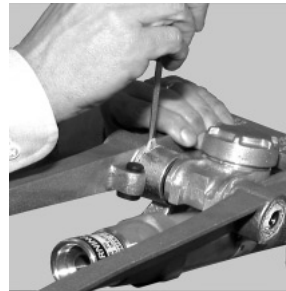


Figure 7

IMPORTANT: Before drive arm can be removed, spacer and bearing must be moved into position shown in Figure 8.

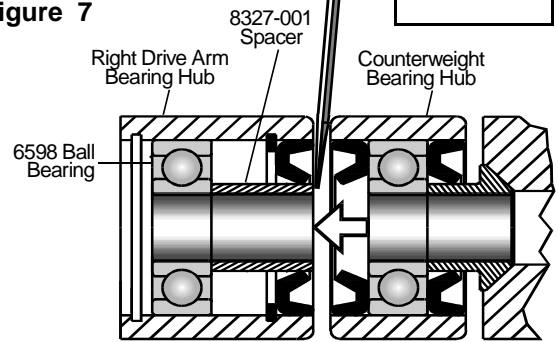


Figure 8

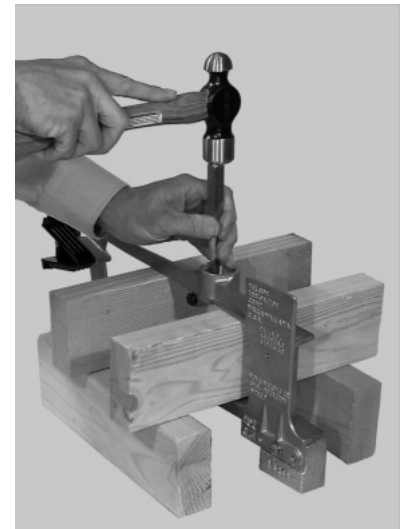


Figure 12

Procedure 6

Support drive arm as shown in Figure 12. Drive 6600 seal out of hub with screwdriver (or punch) and hammer. Turn drive arm over and remove 6600 seal from opposite hub. Clean all foreign material from hub bores.

Procedure 1

With counterweight on flat surface, place new 6598 ball bearing in bore of hub. Using same tools as in procedure 4 of Disassembly, center bearing in bore. Measure to confirm bearing is centered. Position new 6600 seal over bore of hub with lip of seal facing up. Place flat piece of smooth metal or wood on top of seal. Using a hammer, lightly tap seal into bore until lip is flush with face of hub. Turn counterweight over and, in same manner, install new 6600 seal in bore of hub.

Procedure 2

Support drive arm as shown in Figure 13. With lip of the seal facing up, position new 6600 seal over bore of lower hub. Place flat piece of smooth metal or wood on top of seal. Insert punch or similar tool through bore of upper hub and let it rest on piece of metal or wood. Tap lightly on punch with a hammer and drive seal squarely into bore of hub until lip of seal is flush with face of hub. Turn drive arm over and, in same manner, install new 6600 seal in other drive arm bearing hub.

IMPORTANT: Do not remove pink silicone lubricant from lip of 6600 seals. Lubricant minimizes friction between seals and spacers and is essential to proper operation.

Working from outer ends of Left and Right Drive Arm Hubs, insert one new factory-lubricated 6598 Ball Bearing in each hub. With finger pressure, push each bearing into bore of hub until bearing contacts back side of seal.

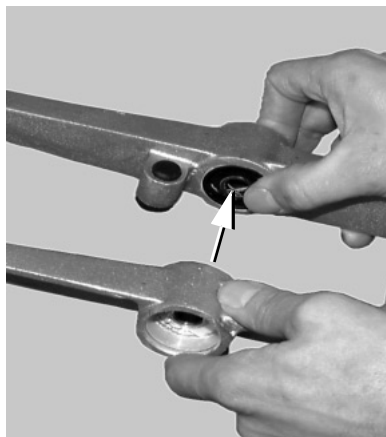


Figure 14

Procedure 4

Insert new 6607-001 cone spacer into 6600 seal located on inner side of counterweight. While facing nozzle, hold counterweight in position on left side of gun. Grasp drive arm and hold vertically with drive vanes down and right drive arm bearing hub (side with black bumper) to left. Move drive arm into position around nozzle and range tube. Engage bearing hub with counterweight and roll other bearing hub into position on right side of gun. With finger pressure, push 6598 ball bearing and 8327-001 spacer to right and into position shown in Figure 16. Push 8297 drive arm shaft through bore of assembled components (see Figure 18). Install 6603 nut onto shaft with washer face of nut towards shaft (see Figure 17). As shown in Figure 19, torque nut to 25 ft-lbs (34 N-m).

Procedure 3

Insert new 8327-001 spacer into 6600 seal of right drive arm bearing hub (see Figure 14). Push spacer in until flush with lip of seal (see Figure 15). Pushing spacer in will also push bearing over. Insert new 6607-001 cone spacer into 6600 seal of left drive arm bearing hub. Install 6603 nut on shoulder end of 8297 drive arm shaft with washer face of nut towards shaft (see Figure 17 below). Screw nut all the way down threads and seat against shoulder of shaft.

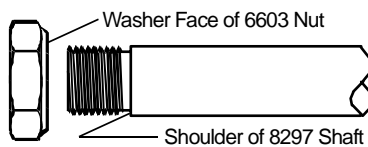


Figure 17

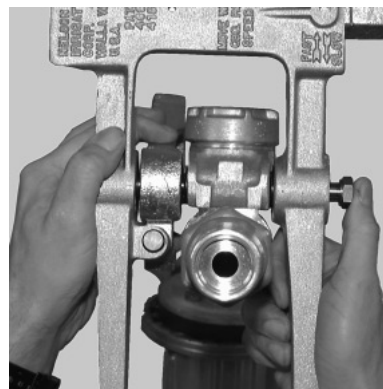


Figure 18



Figure 13

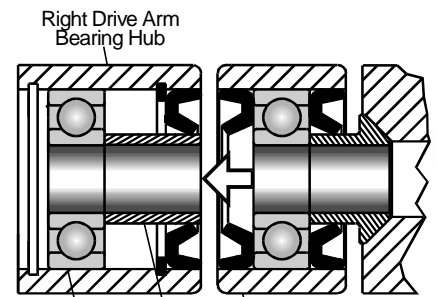


Figure 15

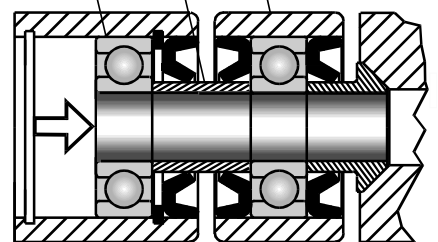


Figure 16



Figure 19

Procedure 5

Pack both drive arm hubs with Lubriplate® 130-AA lubricant (see Figure 20). Install new 6563 O-rings on 6602 caps and fill both caps with same lubricant. Using finger pressure, press caps into drive arm hubs. Excess lubricant will be forced out past seals and will purge hubs of air. Install one 6565 retaining ring in each hub.

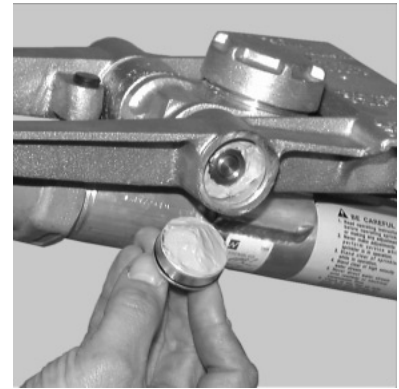


Figure 20

Troubleshooting

Inconsistent Drive Arm Stroke

Possible Cause: *Bent Drive Arm*

☑ Checking for Side to Side Bend in Drive Arm

Place steel ruler against drive vane in lowest slot of vane. Push drive arm fully over to one side and slide ruler until it touches nozzle (see Figure 21). Note location where tip of ruler touches nozzle. Repeat on other side. **The points where ruler touches each side of nozzle should mirror each other.**

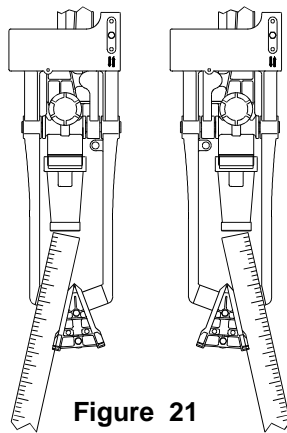


Figure 21

IMPORTANT: Side to side bend may cause faster drive in one direction.

☑ Checking for Vertical Bend in Drive Arm

Lift drive arm up to its resting position. Lay a straight edge perfectly flat on top of drive vane (see Figure 22). Slide straight edge against rectangular boss. **Lower corner of straight edge should contact boss half way up its vertical face.**

IMPORTANT: Vertical bend may cause weak drive action or cause drive vane to hang in stream.

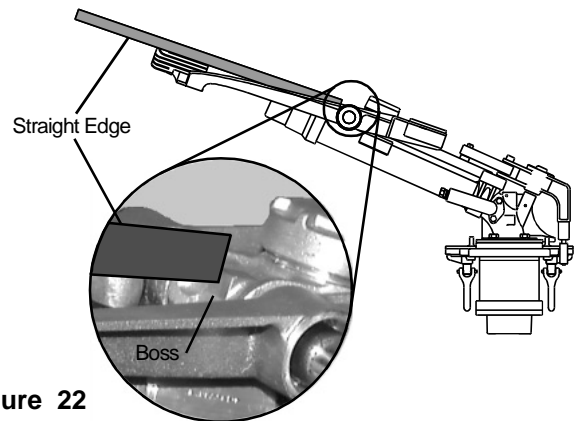


Figure 22

Possible Cause: *Sticky Arm Bearings & Seals*

☑ Checking for Sticky Arm Bearings & Seals

Using a weight as shown in Figure 23, balance drive arm in horizontal position. After drive arm is balanced, tap the drive vane downward with fingers. **The drive arm should fall smoothly without binding.**

IMPORTANT: Sticky arm bearings and seals may cause drive arm to hang in bottom of stream. Replacement of drive arm bearings and seals may be necessary to achieve adequate arm stroke.

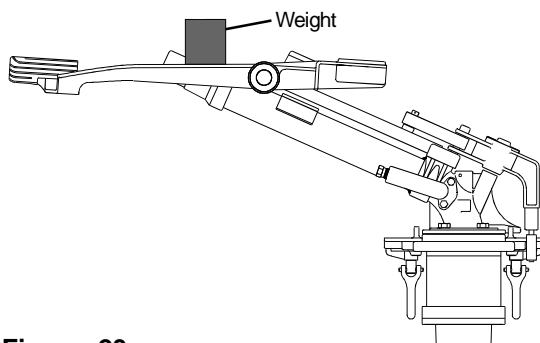


Figure 23

Warranty and Disclaimer: Nelson BIG GUN® sprinklers are warranted for one year from date of original sale to be free of defective materials and workmanship when used within the working specifications for which the product was designed and under normal use and service. The manufacturer assumes no responsibility for installation, removal or unauthorized repair. The manufacturer's liability under this warranty is limited solely to replacement or repair of defective parts, and the manufacturer will not be liable for any crop or other consequential damages resulting from any defects in design or breach of warranty.

This warranty is expressly in lieu of all other warranties, express or implied, including the warranties of merchantability and fitness for particular purposes and of all other obligations or liabilities of manufacturer.

No agent, employee, or representative of the manufacturer has authority to waive, alter or add to the provisions of this warranty, nor to make representations or warranty not contained herein.

Patents: Nelson BIG GUN® sprinklers are manufactured under U.S. patents 3,744,720 and 3,559,887.