

# PNEUMATIC STOP ARM HINGE REPAIR INSTRUCTIONS

## APPROVED FOR USE WITH THE FOLLOWING MODELS:

100949, 100950, 101261, 101262, 101638, 101905, 101906, 101907, 101908, 101909

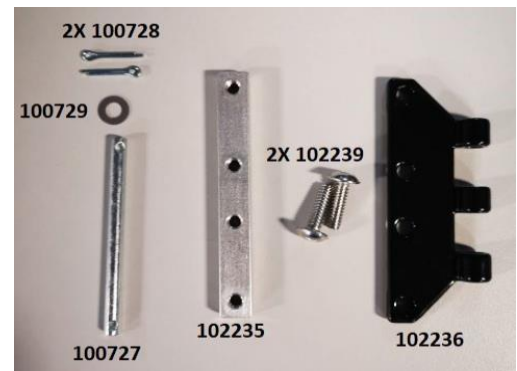
## KIT CONTENTS

- 1 X 102235 - HINGE RETAINING BAR
- 1 X 102236 - ARM HINGE
- 2 X 102239 - PAN HEAD SCREW 10-24 (1/8" SOCKET HEX)
- 1X 100727 - HINGE PIN
- 2 X 100728 - COTTER PIN - 1/16 X .5
- 1X 100729 - FLAT WASHER .375"

## TOOLS REQUIRED

- 5/16" NUT DRIVER
- DIE GRINDER/DREMEL ROTARY TOOL EQUIPPED WITH CUT OFF WHEEL (2" OR SMALLER)
- NEEDLE NOSE PLIERS
- SIDE CUTTERS
- PHILLIPS SCREWDRIVER (#2)
- DRILL

## 102593 KIT – HINGE REPAIR, PD, S\_A



- 3/16" DRILL BIT
- 1/8" HEX KEY
- 3/8" SOCKET AND 1/4 DRIVE RATCHET WITH EXTENSION
- LOCTITE THREAD LOCKER
- WHITE LITHIUM GREASE (OR SIMILAR)



## QUICK GUIDE

- Step 1:** Remove cover on left hand side of stop arm
- Step 2:** Cut the current hinge with die grinder (refer to Figure 2)
- Step 3:** Remove current hinge pin
- Step 4 (only for some models of hinge):** Remove hinge screws and proceed to step 8
- Step 5:** Using the replacement hinge for alignment, drill first hole for new replacement hinge
- Step 6:** Install new hinge retaining bar in offset position with 1 screw through first drilled hole
- Step 7:** Align new hinge and drill 2<sup>nd</sup> hole
- Step 8:** Install new replacement hinge with supplied screws and retaining bar
- Step 9:** Apply grease and install replacement hinge pin with cotter pins and washer
- Step 10:** Clean up debris and re-install cover
- Step 11:** Test the stop arm to confirm installation was successful

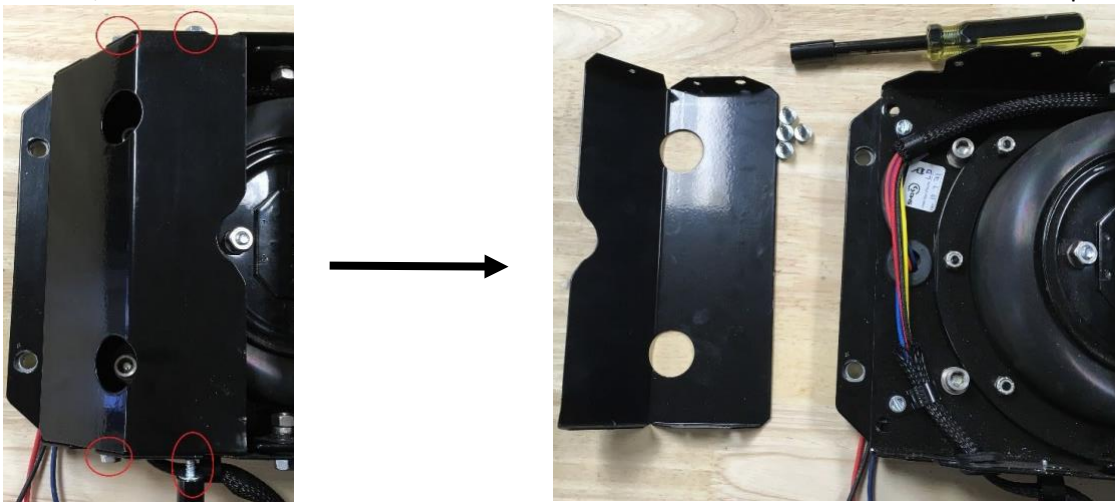
***\*\*Please refer to detailed instructions with images in following pages\****

## DETAILED PROCEDURE

The following procedure may be completed without removing the stop arm from the bus. Note that Step 4 only applies if your stop arm hinge model was mounted with machine screws and nuts. In this case, Steps 5 to 7 are not required.

### STEP 1

Using a 5/16" nut driver, remove the 4 screws and sheet metal cover on the front left-hand side of the stop arm.



**FIGURE 1:** Remove screws to reveal hinge



## STEP 2

Use the die grinder equipped with a cut off wheel to cut the hinge along the line shown in Figure 2. **Be careful not to cut the rubber diaphragm.** A cut-off wheel under 2" is recommended. If necessary, you may place the handle of your screwdriver or other object without sharp edges between the arm bracket and the diaphragm to create extra separation between the rubber diaphragm and the cutting wheel.



FIGURE 2: Hinge cut-line



FIGURE 3: Cutting the hinge

## STEP 3

Use the side cutters and needle nose pliers to remove the upper cotter pin from the hinge pin. Remove the washer and slide the hinge pin out to release the damaged portion of the hinge.

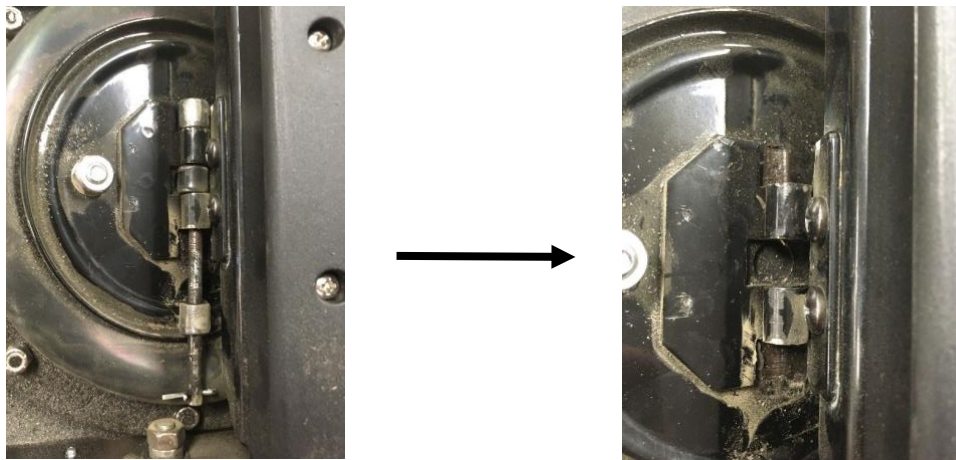


FIGURE 4: Remove hinge pin



## STEP 4

If your stop arm model is equipped with Phillips head machine screws as shown in Figure 2, you will need to remove the screws. If your stop arm does not have these screws, proceed to Step 5. Place the ratchet with extension and 3/8" socket on one of the nuts and while protecting the stop sign with a clean shop cloth, close the arm so that you can access the screw on the front to remove it. Remove both screws. Locate the new replacement hinge part (102236) and place it in the original location so that the two inner holes align with the holes in the arm bracket. Proceed to Step 8.



*FIGURE 5: Removing hinge screws and aligning new hinge*

## STEP 5

Place the new replacement hinge (102236) over the remaining portion of the original hinge. Align the top edge with the top edge of the original hinge. While holding the replacement hinge in position, use a center punch to mark the lowest of 4 holes. Move the replacement hinge out of the way and drill through the arm bracket using a 3/16" drill bit. Ensure the drill chuck is not contacting the diaphragm while drilling.



*FIGURE 6: Drilling first hole to mount new hinge*



## STEP 6

Place the replacement hinge in position with one of the supplied screws in the hole that you just drilled. Manually open the arm enough so that you can place the hinge retaining bar (102235) in an offset position and thread in the screw so that it can be used to hold the replacement hinge in place while drilling the second hole in the next step.



FIGURE 7: Offset retaining bar

## STEP 7

With the arm closed, align the replacement hinge so that it is parallel to the arm and tighten the screw. Use a center punch at the top-hole location and drill through with the 3/16" drill bit. Remove the lower screw and hinge retaining bar.

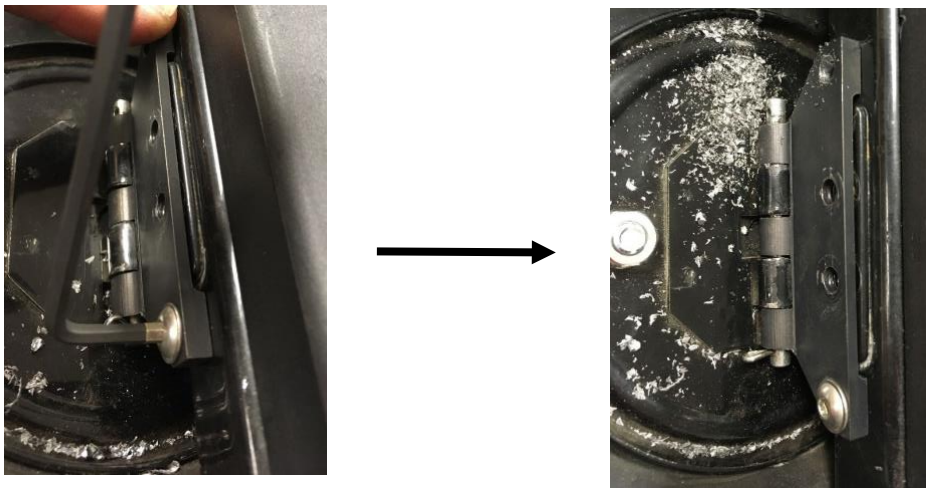


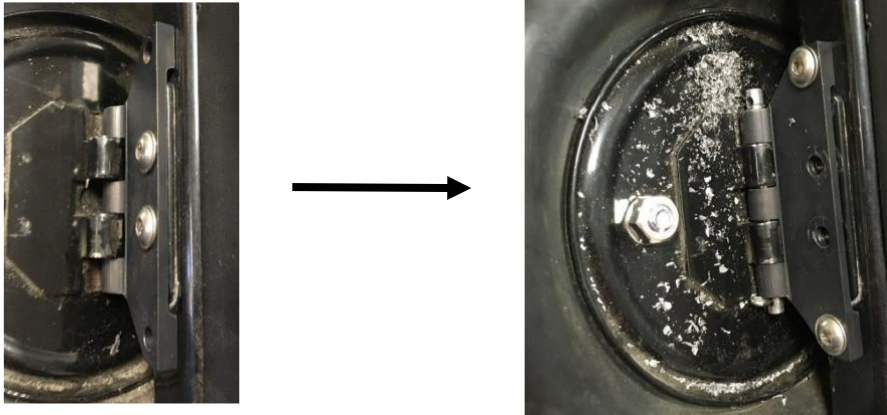
FIGURE 8: Drilling second hole





## STEP 8

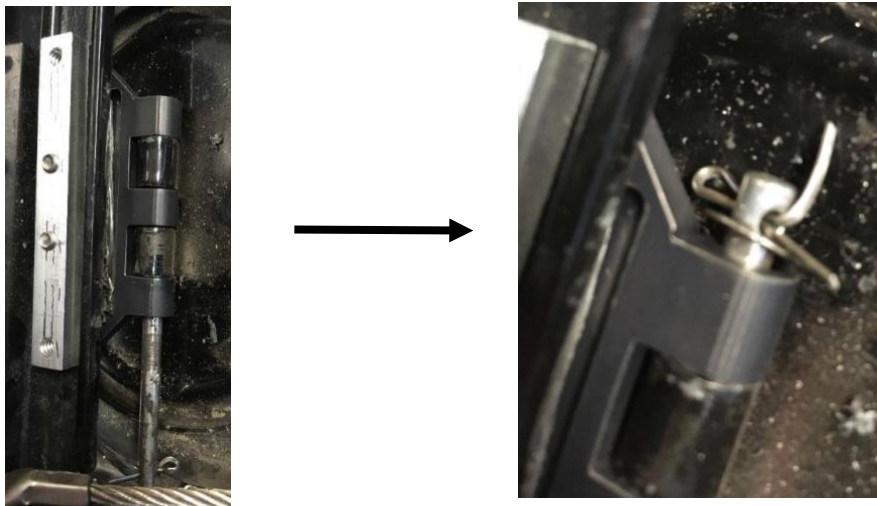
Install the two supplied screws through the new hinge and arm bracket. Tighten the screws into the aluminum hinge retaining bar using 1/8" hex drive and apply Loctite. The recommended installation torque is 14 in-lbs. Depending on which steps you followed above, the screws may be installed in the outer or inner hole locations.



*FIGURE 9: Mounting the replacement hinge*

## STEP 9

Apply your grease of choice (all-weather white lithium grease is recommended) to the replacement hinge pin (100727) and install using the 2 new cotter pins (100728) and flat washer (100729) included with this kit. The washer must be installed on the top of the hinge pin before inserting the cotter pin. Using your needle nose pliers, twist the end of the cotter pins so they are secured in place.



*FIGURE 10: Install replacement hinge pin*



## STEP 10

Clean out all filings and debris from inside the stop arm. Re-install the sheet metal cover and 4 screws using the 5/16" nut driver. The recommended installation torque is 10.5 in-lbs.



*FIGURE 11: Reinstalled cover on stop arm with new hinge*

## STEP 11

As a final step, activate the stop arm to test it. Ensure the pressure regulator is set so that the arm takes approximately 2 seconds or more to deploy and so that there is no sudden stop or noticeable impact when the arm reaches the fully deployed position.

***If you require further assistance, please contact us at 866.216.2605 or [flspwarranty@firstlightsafety.com](mailto:flspwarranty@firstlightsafety.com).***