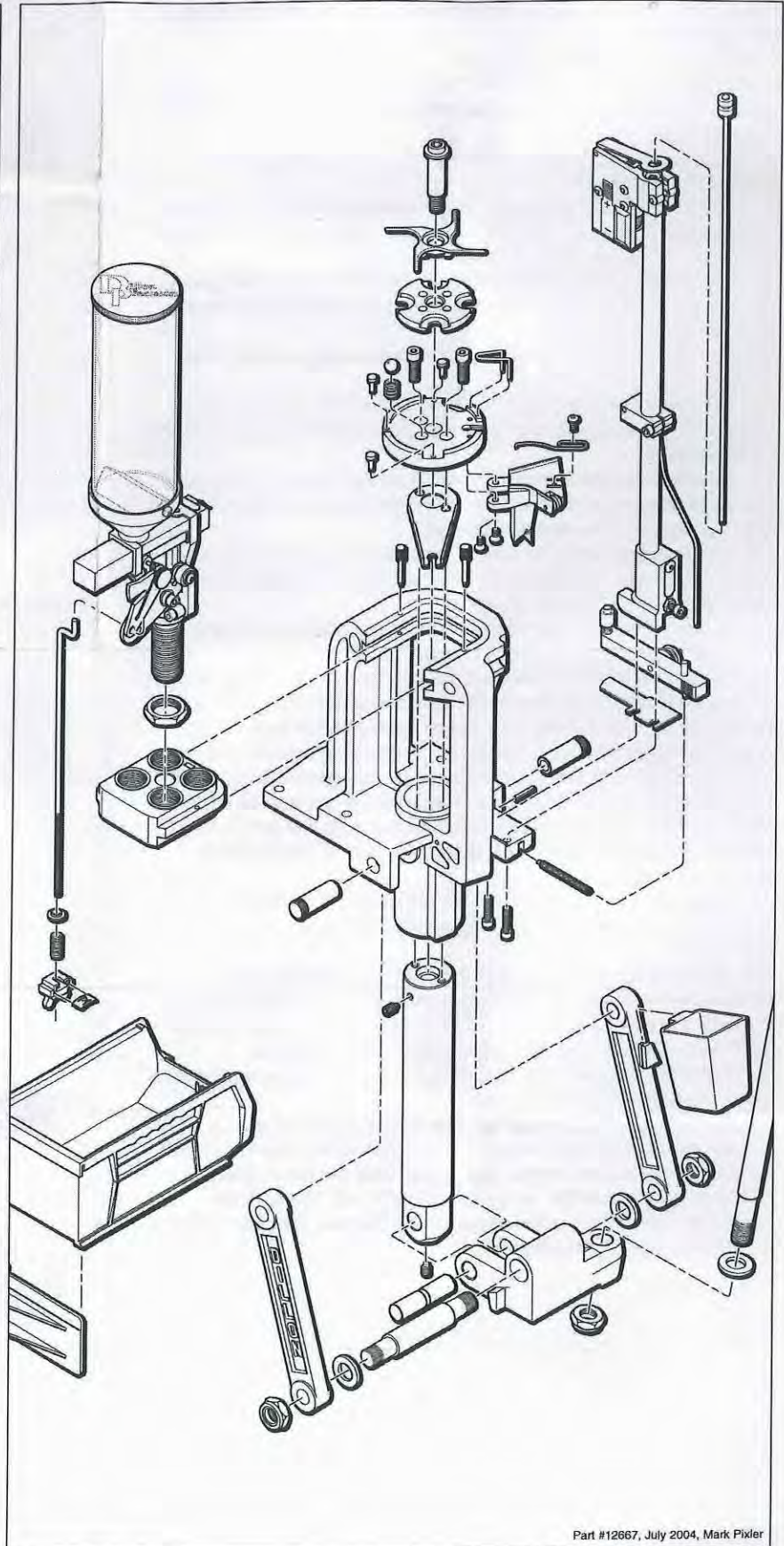
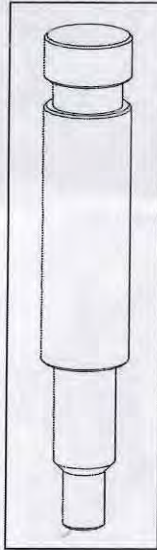


## Alignment Tool Instructions for RL 550B & XL 650 Loading Machines

The 550/650 alignment tool has two locating diameters. The first diameter (approx. .265 dia.) is used to align the RL 550B platform with the toolhead. The second diameter (approx. .385 dia.) is used to align the XL 650 platform with the toolhead. We'll begin with the RL 550B procedure.

### Alignment Procedure for the RL 550B Machine:

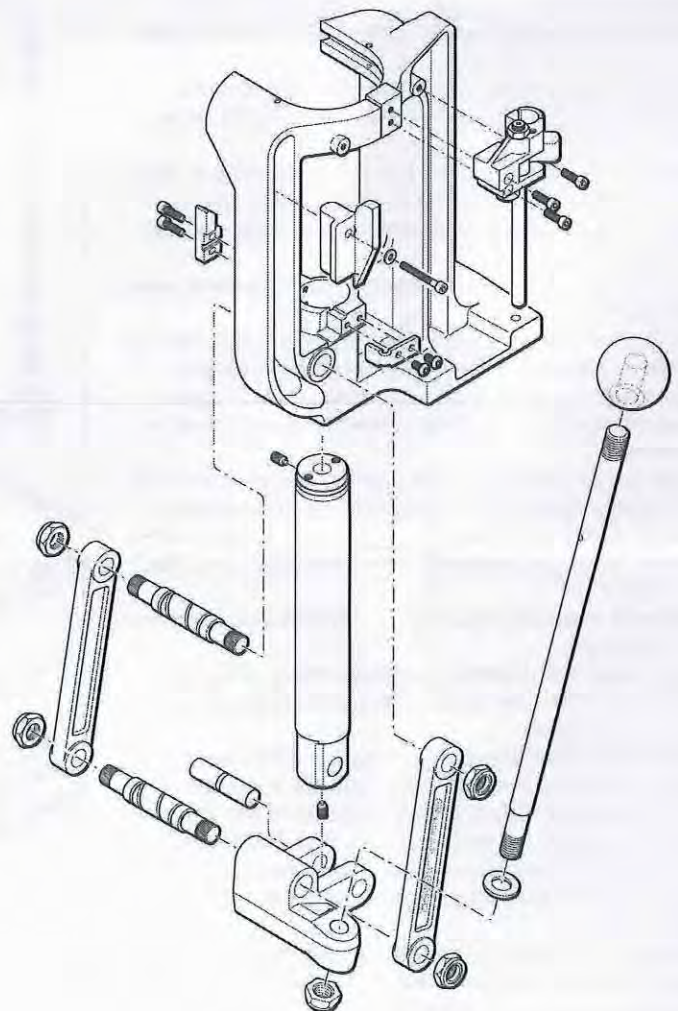
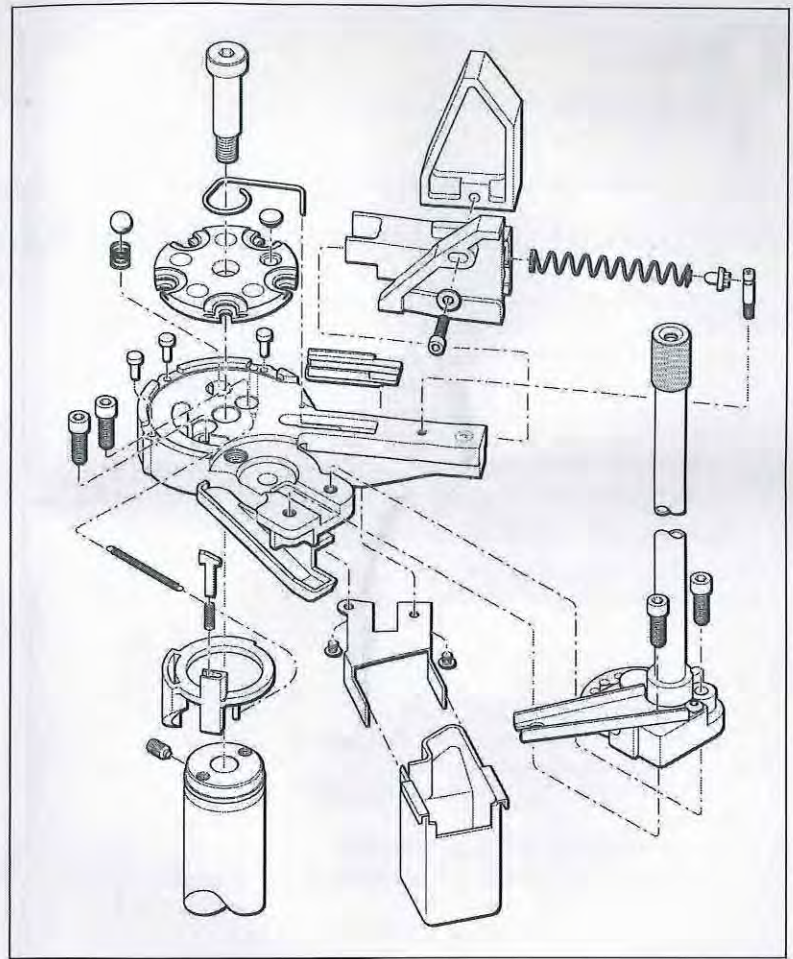
1. Remove the primer system completely.
2. Remove the toolhead from the machine.
3. Remove the shellplate.
4. Use a 3/16" Hex wrench to remove the screws in the platform.
5. Clean your machine at this time.
6. You will need to have an empty toolhead with only a powder die in station #1.
7. Insert the 550/650 alignment tool into the powder die.
8. If you are installing a replacement platform, make sure that the top of the mainshaft and all parts are clean.
9. Move the operating handle to the down position.
10. Replace the platform and *loosely* install the two 1/4-28 x 3/4" SHCS screws.
11. Move the operating handle up to the half-stroke position.
12. As mentioned in step 7, the 550/650 alignment tool should be in the die. The first diameter is a slip-fit to the hole in the platform.
13. Slowly move the operating handle up and down. Snug the two 1/4-28 x 3/4" SHCS screws hand-tight. Use your left hand to rotate the 550 platform left and right until no drag is seen or felt.
14. Now tighten the two 1/4-28 x 3/4" SHCS screws using a 3/16" Hex wrench.
15. Test your assembly by moving the operating handle up and down. If you notice the alignment tool hopping or shifting to one side, you need to do steps 13 & 14 again.
16. Next, reinstall the complete primer feed system on to your machine.
17. Align the primer cup on the primer slide with the hole in the platform. Install the screws that attach the primer body to the frame and tighten.
18. Reconnect the return spring and operating rod to the primer slide.
19. Test your assembly again by moving the operating handle up and down.
20. Now install the detent spring, detent ball, shellplate and bolt. *Remember – the numbers should be visible when installing the shellplate.*
21. Tighten the shellplate bolt and back it off no more than 1/4 of a turn and secure it in place with the set screw using a 1/8" Hex wrench. Check for free rotation of the shellplate.
22. Finally, reinstall the toolhead with dies. **IMPORTANT NOTE:** Loosen the size die and back it out two full turns. Then *reset* the size die using a fired case to test and to lock the die in place.
23. Test your assembly by processing one case through the machine. Check the loaded round, if it measures OK, the machine is ready to begin reloading.





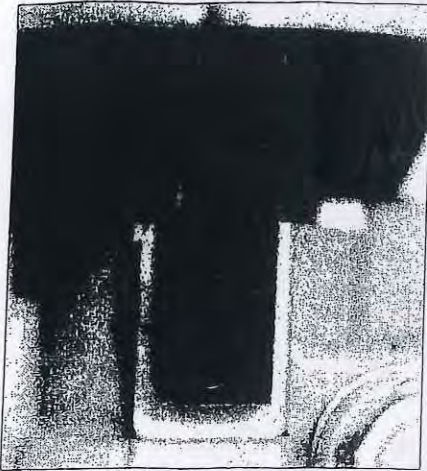
## Alignment Procedure for the XL650 Machine:

1. Remove the primer system completely.
2. Remove the toolhead from the machine.
3. Remove the shellplate.
4. Remove the black case insert slide cam from the platform using a 5/32" Allen wrench.
5. Remove the platform using a 3/16" Hex wrench to remove the two 1/4-28 x 3/4" SHCS screws. Pay attention not to lose the return spring for the indexer when removing the platform from the machine.
6. Clean your machine at this time.
7. The primer seater in the platform must be removed. If you are using a replacement platform, the primer seater is used from the old platform.
8. You will need an empty toolhead with only a powder die installed at station #2.
9. Insert the 550/650 alignment tool into the powder die. The second locating diameter (.385 dia.) is used to align the primer seater hole in the platform with the toolhead.
10. Remember to first lube the indexer on both sides with grease.
11. Put the platform and ring indexer together and place them both on to the mainshaft.
12. Loosely install the two platform screws using a 3/16" Hex wrench.
13. Move the operating handle down to the half-stroke position and insert the toolhead into the frame and secure in place with the toolhead pins.
14. Slowly move the operating handle up and down. Using your left hand, move the platform left and right until no drag is seen or felt. Tighten the two platform screws.
15. Test your assembly by moving the operating handle up and down. If you see the alignment tool hopping or shifting to one side, you need to do step 14 again.
16. Next, before anything else, you need to attach the indexer return spring.
17. Here is the trick to installing the indexer return spring. Take a 6" length of string and loop it through one of the eye loops of the return spring. Using bird-nose pliers, hook the eye loop of the return spring to the small black post on the ring indexer making sure the return spring falls into the clearance groove on the mainshaft. Now wrap the string, counterclockwise, around the mainshaft. Pull the string and attach the other end of the return spring into the groove on the post on the under side of the platform. Remove the string.
18. Reinstall the primer seater and the complete primer feed system. Test your assembly again by moving the operating handle up and down.
19. Reinstall the shellplate and the index and detent parts. Remember to tighten the shellplate bolt and then back it out no more than 1/4 of a turn and secure it with the set screw using a 1/8" Hex wrench. Check the shellplate for free rotation.
20. Lube the side rails and install the case insert slide, spring and post. Then install the black cam.
21. Finally, reinstall the toolhead with dies. **IMPORTANT NOTE:** Loosen the size die and back it out two full turns. Then *reset* the size die using a fired case to test and to lock the die in place.
22. Test your assembly by processing one case through the machine. Check the loaded round, if it measures OK, the machine is ready to begin reloading.

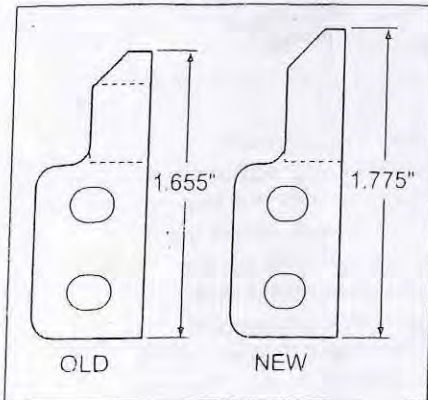




**New Index Cam, Fig. 1:**



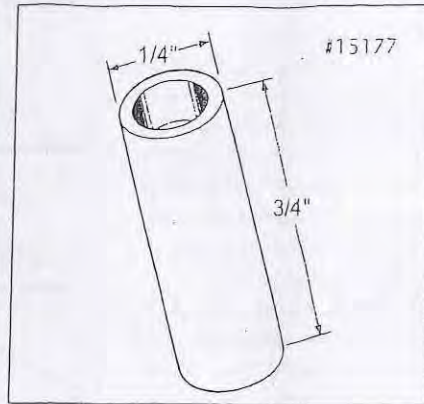
**Fig. 1**



**Fig. 2**

The new index cam is .120" taller than the old one, Fig. 2. The purpose of the new index cam is to increase the time between when the shellplate has completed its index and when the primer punch starts up through the shellplate. What has been a problem in the past is that, if the index cam wasn't adjusted perfectly, the timing of the primer punch and the indexing shellplate would be off slightly. The result would be primers getting flipped upside down or the primer punch coming in contact with the bottom of the shellplate. If you have ever found this to be a problem, installation of the new indexing cam and use of the index alignment tool should solve the problem.

**Index alignment tool, Fig. 3:**

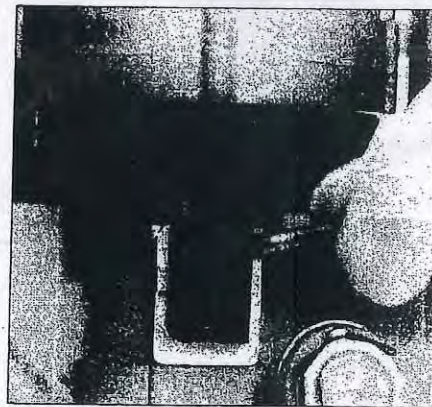


**Fig. 3**

This tool allows you to properly adjust the index timing of your machine. This tool needs to be used any time you want to readjust the index cam, Fig. 1. The purpose of this tool is to ensure that the shellplate is perfectly aligned with the primer punch when the primer punch and primer come up through the primer hole in the shellplate.

**Installation of the new Index Cam, Fig. 1:**

**NOTE:** An index alignment tool is needed to readjust the new cam after it is installed—if you don't have an index alignment tool, don't change the cam until you get one.

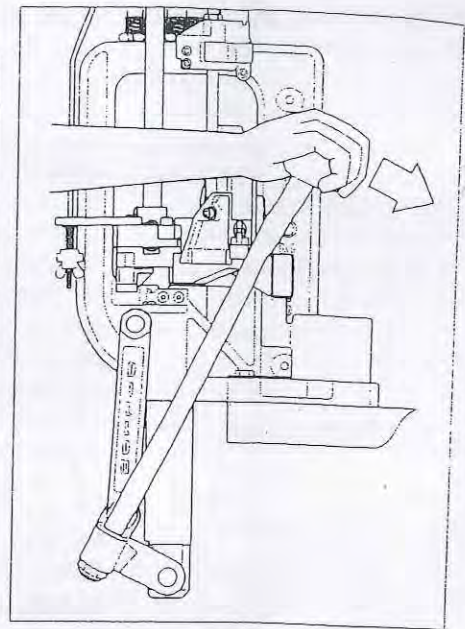


**Fig. 4**

1. Fig. 4. Using a 5/32" Allen wrench, remove the old index cam and install the new index cam.
2. Use the index alignment tool to properly adjust the new index cam.

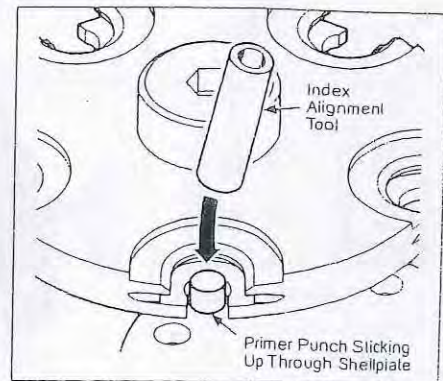
**How to use the Index Alignment Tool:**

1. Fig. 4. Loosen the two index block screws.

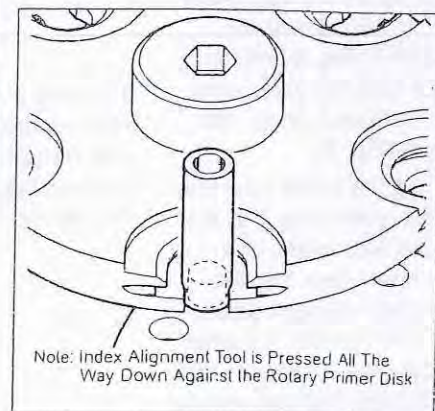


**Fig. 5**

2. Fig. 5. Push the handle against the full aft stop. (NOTE: while performing these next steps, it's easier if you have someone hold the handle against its full aft stop for you.)



**Fig. 6**



Note: Index Alignment Tool is Pressed All The Way Down Against the Rotary Primer Disk

**Fig. 7**

3. Figs 6 & 7. Place the open end of the alignment tool over the primer punch. Ensure that the handle



remains against its full aft stop and that the index alignment tool is pushed all the way down through the shellplate and against the platform.

**NOTE:** The index alignment tool has two ends. The inside diameter (hole) on one end is larger than the inside diameter (hole) on the other end. The large end is for a large primer punch and the small end is for a small primer punch. It is important that you use the correct end.

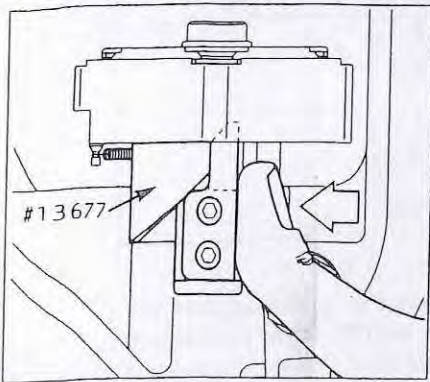


Fig. 8

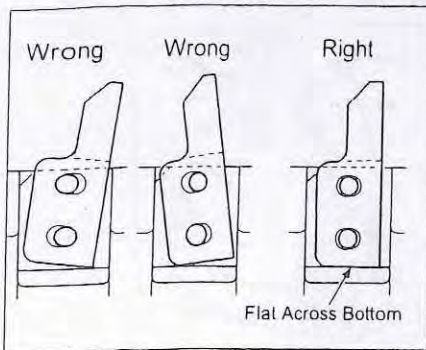


Fig. 9

4. **NOTE:** Ensure that the handle is pushed against its full aft stop. Push the index cam firmly against the index ring (#13677) Fig. 8. While doing so, make sure the index cam remains straight up and down, not tilted in any way, Fig. 9.

5. While pushing the index cam rearward against the index ring, Fig. 8, firmly tighten the two index cam screws. Again, make sure that the index cam is straight up and down, Fig. 9, and that the handle is pushed against its full aft stop. Once the two screws are tightened, you can release the pressure on the handle.

6. Test the adjustment of the index cam. To do so, cycle the machine. As you bring the handle back up, apply

moderate resistance to the rotating shellplate with your left hand. While holding pressure against the shellplate, continue to bring the handle all the way up until it is pushed against its full aft stop. At this point the primer punch will be extended up through the shellplate. With pressure held against the shellplate and the handle against its full aft stop, take a close look at the primer punch. If the primer punch is contacting the hole in the shellplate, then you were not pushing the cam hard enough against the index ring while tightening the two screws, Fig. 8. If the primer punch is centered in the shellplate primer hole then your adjustment is good.

### Installation of the new Station 2 Locator:

Changing out the Station 2 locator is most easily accomplished with the primer system removed from the machine. To remove the primer system, see page 4.

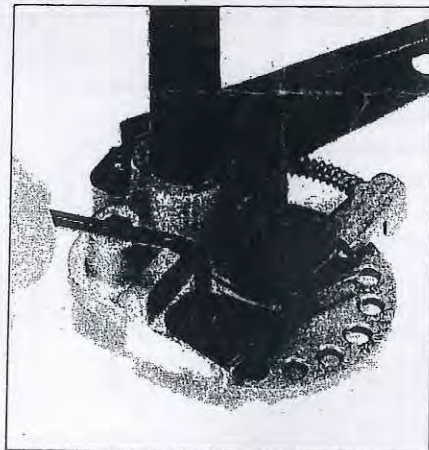


Fig. 10

1. Using a 1/8" Allen wrench, remove the screw that holds the old Station 2 locator to the primer system, Fig. 10. Be sure not to lose the spring.

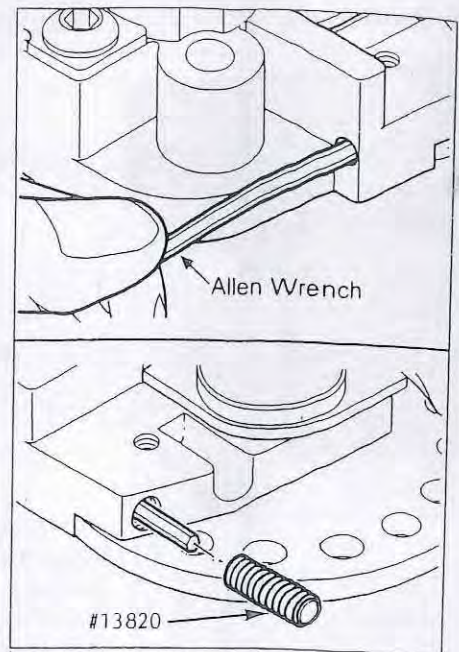


Fig. 11

2. Using a 5/64" Allen wrench, remove the old Station 2 adjustment screw and replace it with the new one (#13820). To do this, insert the Allen wrench into the hole on the back side of the primer feed body, Fig. 11. Engage the set screw and turn it clockwise until it comes out of the other side, Fig. 11. Install the new set screw by reversing these steps.

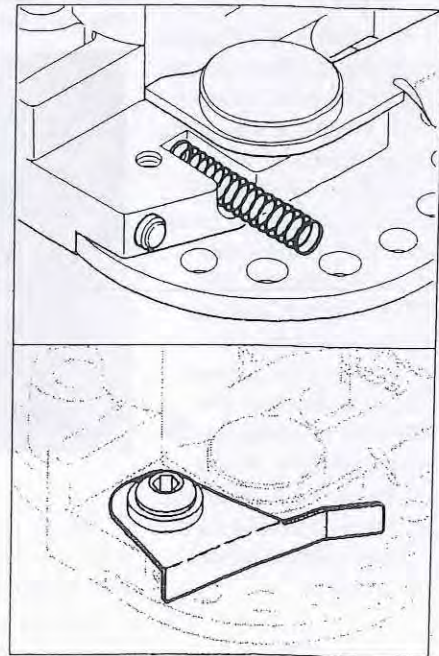


Fig. 12

3. Place the spring in the channel, top Fig. 12. To install the new Station 2 locator, first trap the spring