

SERVICE INSTRUCTIONS

PAPER MACHINERY CORPORATION

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BOTTOM FINISH SLIDE ASSEMBLY

No. 105.1

ASSEMBLING & LOADING INTERNAL BEARING CAGES
REFERENCE DRAWING #507-092
PMC-1002

507-092 ASSY, SLIDE, BOTTOM FINISH, RAMP			
No	Qty	Item	Description
1	1	418-111	SLIDE, CAM FOLLOWER
2	1	404-859	SLIDE, FOLLOWER, CAM, RAMP
4	1	BR-15055	FOLLOWER, CAM, 2 DIA, $\frac{7}{8} \times 3\frac{3}{8}$ STUD
6	1	404-429	COVER, WIPER
7	2	203-688	BEARING, LINEAR, N-SECTION
8	1	101-639	NUT, CAM
20	1	HW-16743	KEY, FIXTURE, $0.50 \times 0.50 \times 0.75$
21	4	BR-17203	BEARING, RAIL, MALE
22	4	BR-15995	BEARING, CAGE W/ROLLERS, ALUM
23	8	106-321	BEARING, ACCESSORY, END PIECE, $\frac{7}{16}$ CTR
24	6	SC-21691	SHCS, M8-1.26 \times 35
25	1	BR-15200	FOLLOWER, CAM, 2 DIA, $\frac{7}{8}$ STUD
26	6	SC-21682	SHCS, M10-1.5 \times 25
27	6	SC-21686	SHCS, M10-1.5 \times 35
28	1	NT-10940	NUT, LOCK, JAM, $\frac{7}{8}$ -14
29	4	SC-15640	FSHCS, 10-24 \times $\frac{1}{2}$
30	1	SC-18200	SHCS, $\frac{1}{4}$ -20 \times $\frac{3}{4}$
31	16	SC-21688	SHCS, M6-1.0 \times 12
33	1	PN-10640	PIN, DOWEL, $\frac{3}{8} \times 1$

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RAMP CAM FOLLOWER SLIDE

FIGURE 1

- 1) Apply Anti-Seize to Cam Follower [#25] threads.
- 2) Install the Cam Follower [#25] into the Ramp Cam Follower Slide [#2] as shown in [Figure 1](#). Torque to 94 ft-lb Lock-Nut [#28].

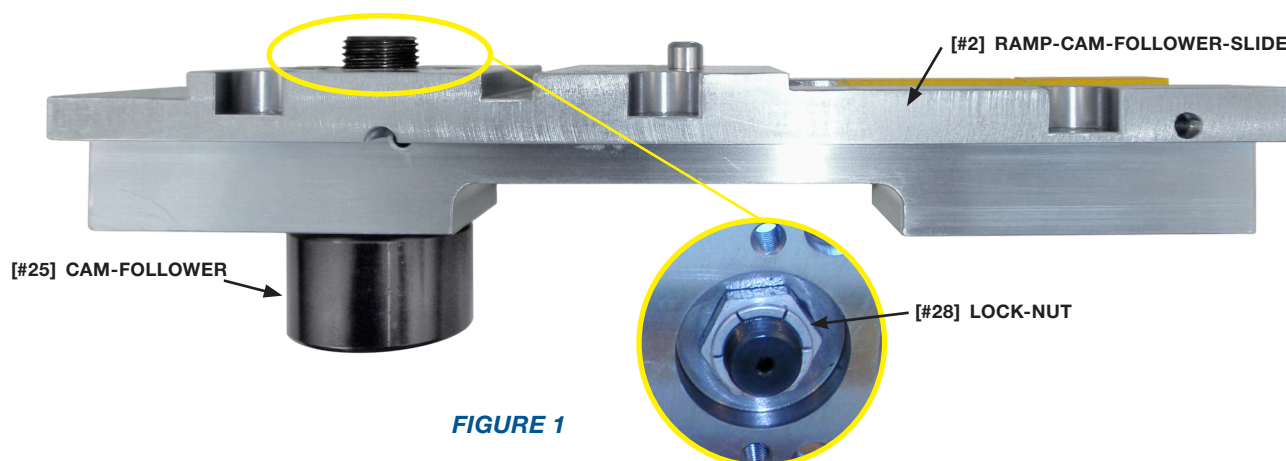


FIGURE 1

FIGURE 2

- 3) Mount two (×2) Male-Rail-Bearings [#21] on the Ramp-Cam-Follower-Slide [#2]. Using a 0.0005" feeler gage, check for "0" gap between each Male-Rail-Bearing [#21] and the Ramp-Cam-Follower-Slide [#2].

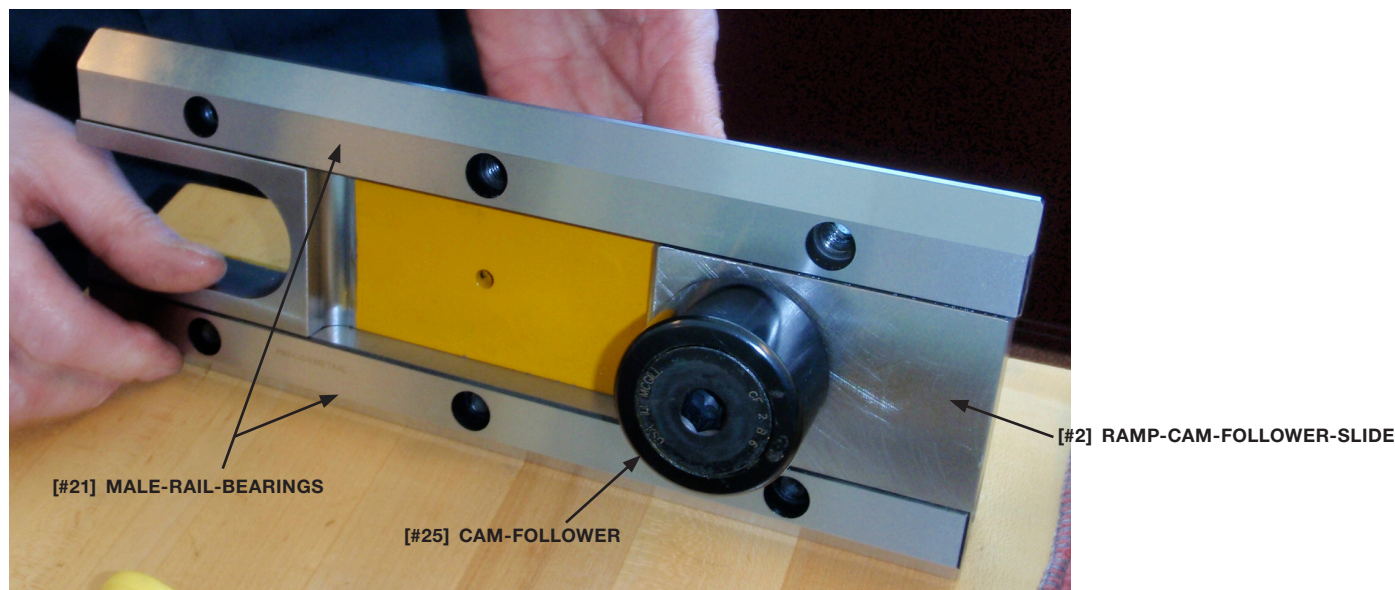


FIGURE 2

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CAM FOLLOWER SLIDE

FIGURE 3

- 1) Apply removable locking-compound to the threads, Cam-Follower [#4].
- 2) Install the Cam-Follower [#4] into the Cam-Follower-Slide [#1] as shown in [Figure 3](#). Torque 94 ft-lb to Cam-Nut [#8].

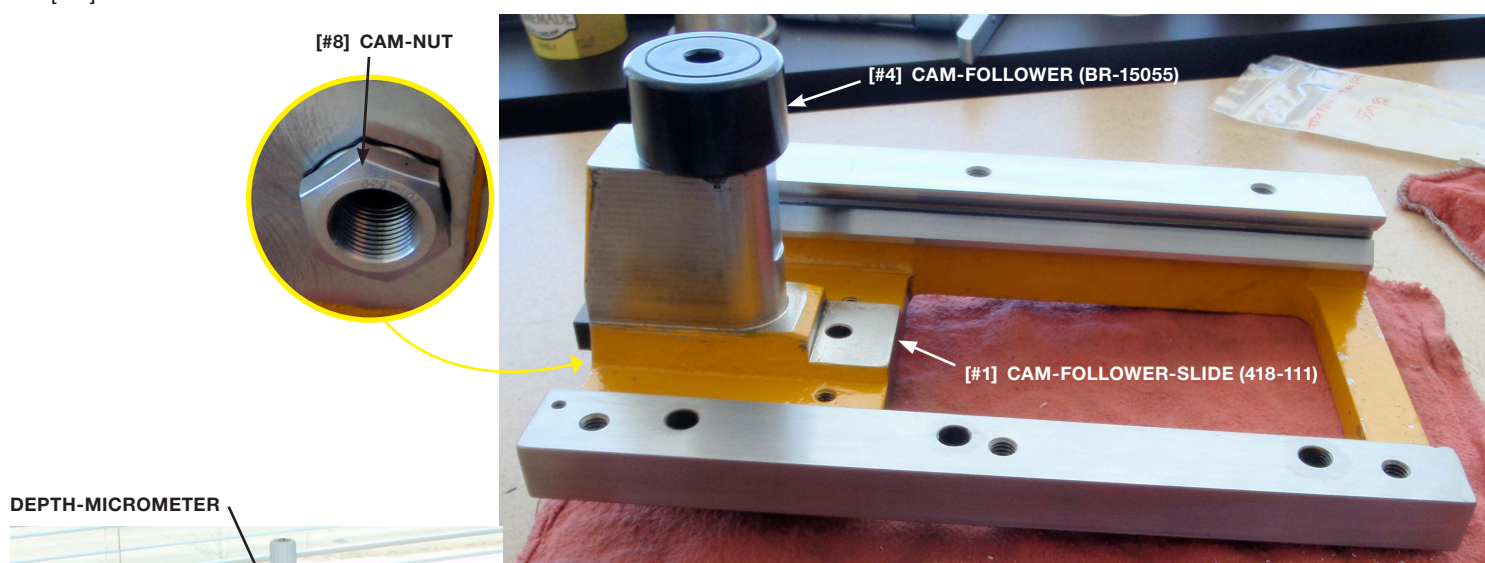


FIGURE 3

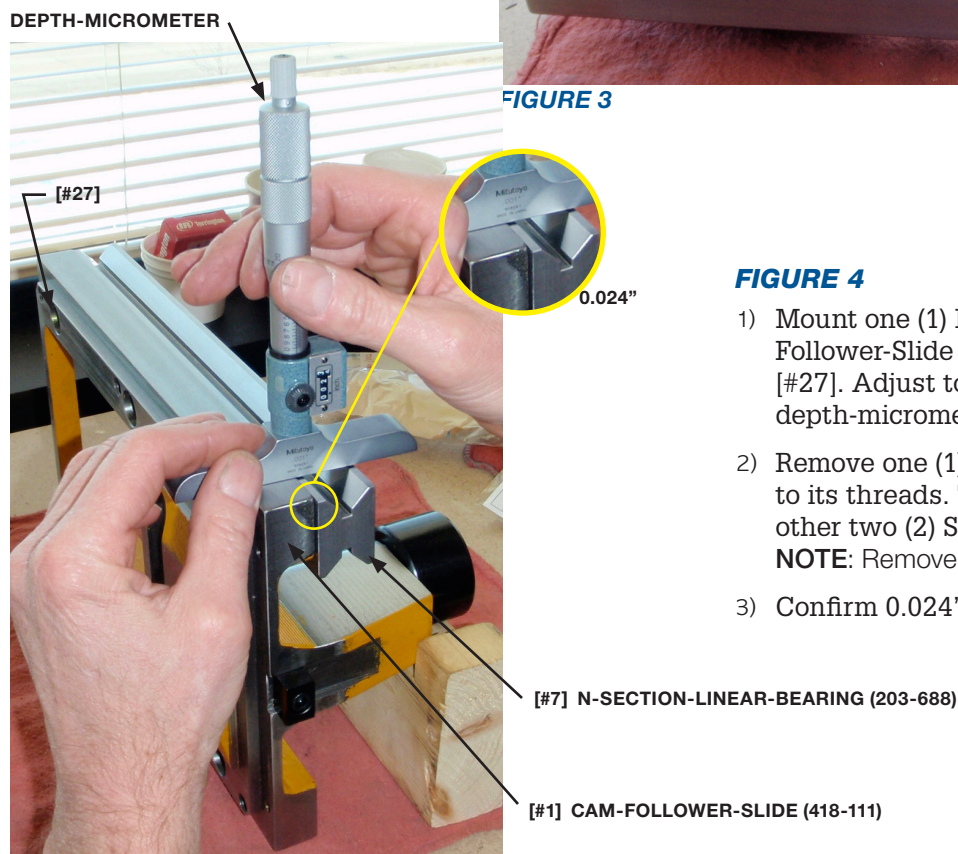


FIGURE 4

- 1) Mount one (1) N-Section-Linear-Bearing [#7] to the Cam-Follower-Slide [#1] by hand-tightening three (3) Screws [#27]. Adjust to achieve a parallel 0.024" off-set. A depth-micrometer will be needed for accuracy.
- 2) Remove one (1) Screw [#27] and apply locking-compound to its threads. Then torque to 37 ft-lb. Repeat with the other two (2) Screws [#27].
NOTE: Remove ONE Screw at a time.
- 3) Confirm 0.024" setting.

FIGURE 4: Checking for a consistent 0.024" using a depth-micrometer. Also known as "parallelism".

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FIGURE 5 & FIGURE 6

- 1) Install (1) Bearing-Cage-with-Rollers [#22] into the (parallel) N-Section-Linear-Bearing [#7].
- 2) Mount the remaining one (1) N-Section-Linear-Bearing [#7] and one (1) Bearing-Cage-with-Rollers [#22] to the Cam-Follower-Slide [#1] by slightly tightening the remaining three (3) Screws [#27].

The Cam Follower Slide Assembly is now ready for installation in the Station Housing.



FIGURE 5: Installing cage bearings with rollers for the internal slide

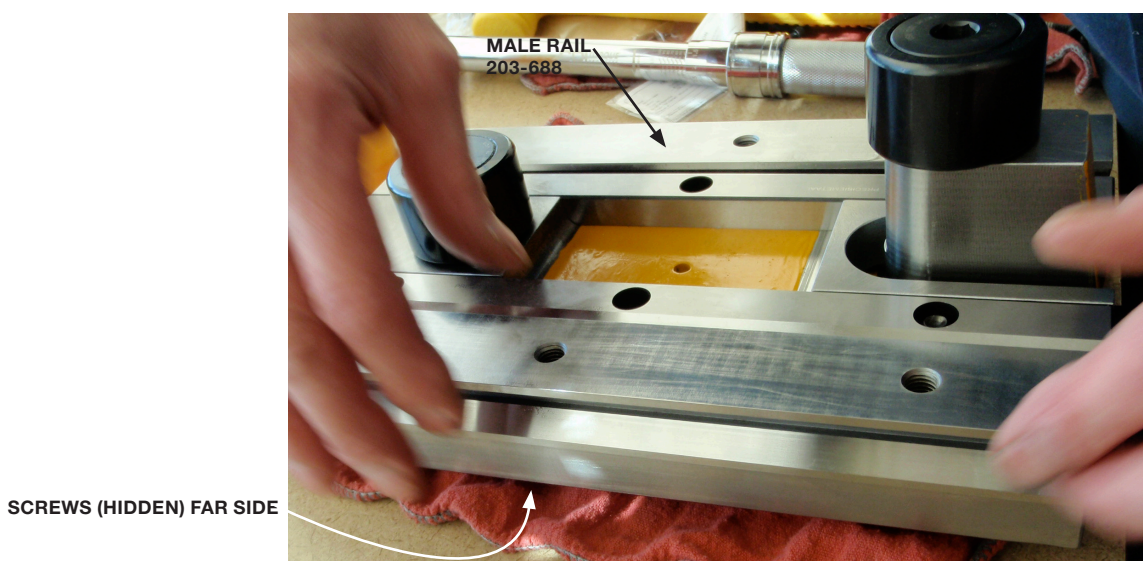


FIGURE 6: Bearing Cage with rollers are installed between male rail and 203-688 to complete the bottom finish assembly

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FIGURE 7

NOTE: The station housing on machine will be used to load the internal bearings. To do this,

- 1) Install one (1) Male-Rail-Bearing [#21] without the bearing cages into the station housing, and make it parallel end-to-end with the housing using 0.077" – 0.078" spacing. Tighten the Screws [#24].

NOTE: This forms the "positive side".



FIGURE 7: Bearing Rail tight against parallel blocks for loading internal gage bearings

FIGURE 8

- 1) Install Slide Assembly against Male Rail Bearing (positive side).
- 2) Install opposite Male Rail Bearing (loading side).
- 3) Snug mounting screws (loading side).

SCREWS ARE
SNUGGED
BUT NOT
TIGHT.

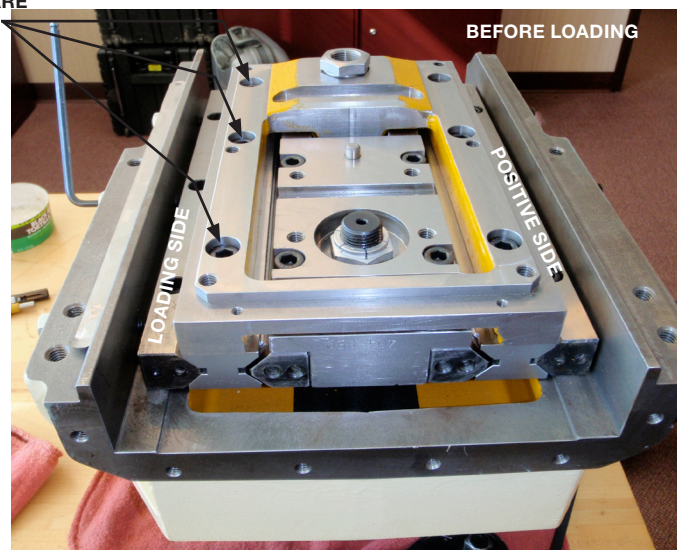


FIGURE 8

FIGURE 9 & FIGURE 10

- 1) Use the center set screw to load the slide assembly tight.
- 2) Back off set screw, reload slide bearing assembly to moderate pressure.
- 3) Tighten the three (3) Screws [#27] to 37 ft-lb.

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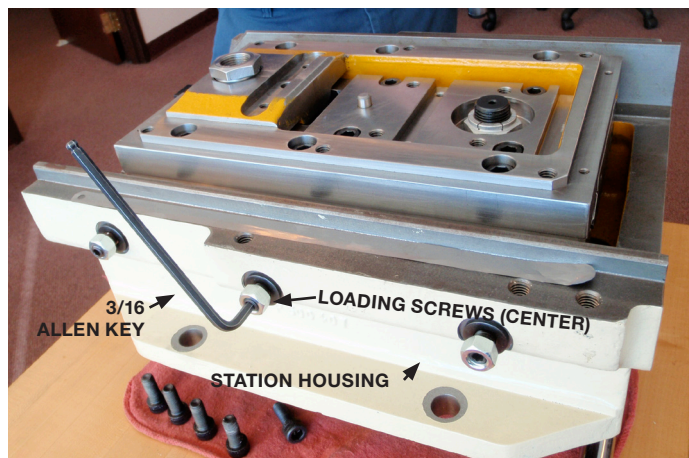


FIGURE 9

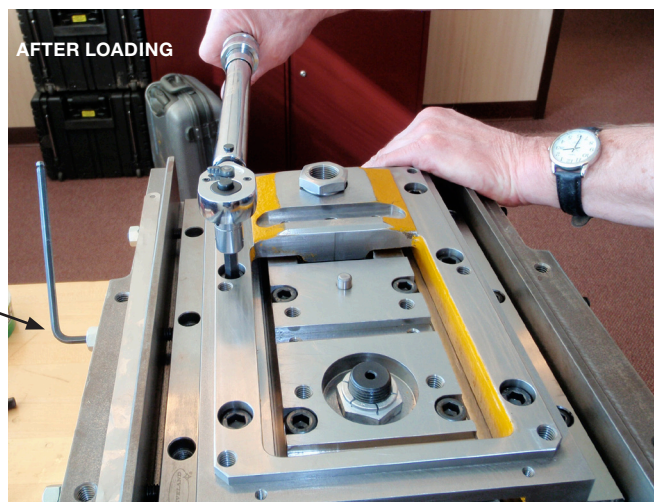


FIGURE 10



CHECKING THE BEARING LOAD

FIGURE 11

- 1) Remove the Slide Assembly from the Station Housing by removing only the Male Rail loading side.
- 2) On a work bench, use the blunt end of a putty knife or similar tool (Figure 12) and push on the end of the linear bearing cage.
The cage should move with a hard push and/or tap.
If the bearing cage moves easily, repeat steps 1 – 3 under "Figure 9 & Figure 10".
- 3) When assembly is loaded, check loading side rail (Figure 8 & Figure 9) to confirm it is parallel to the slide. If not, repeat procedure.



FIGURE 11: Checking for proper loading on the bearing cage using a dull putty knife

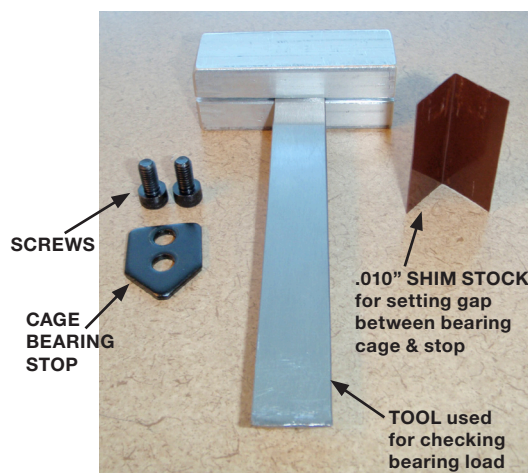


FIGURE 12

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FINAL INSTALL/LOAD/CENTER

FIGURE 8, FIGURE 9, FIGURE 12 & FIGURE 13

- 1) Install the Slide Assembly against the (positive) Male Slide. (Figure 8)
- 2) Install the remaining loading Male Slide & snug bolts. (Figure 9)

NOTE: The following instructions are to obtain equal distances between the bearing rails and the station housing with adequate load on the external bearings.

- 3) Use the Center Screw to load the Bearings. (Figure 8 & Figure 9)
- 4) Tighten the Bolts on the Male Slide (loading side). (Figure 8 & Figure 9)
- 5) Using feeler gage, compare the gap on the loading side to the positive side. Determine amount and direction to move.
NOTE: Typical spacing ranges from 0.077" to 0.082" per side.
- 6) Using center screw and shims, adjust the slide assembly to achieve parallel end-to-end and equal spacing side rail to housing. (Figure 10)
- 7) Check the load of the outer linear bearings using a blunt putty knife as described in Figure 11, step 2.
- 8) When the bearings are loaded and the rails are parallel to the housing and all 6 screws are tight, remove them one at a time and apply thread locking compound to the screws and torque them to 37 ft-lb.
- 9) Install the bearing stop on the ends of rails and set a 0.010" gap between them and the female bearing rails. Be sure to apply thread locking compound to the screws. (Figure 13)

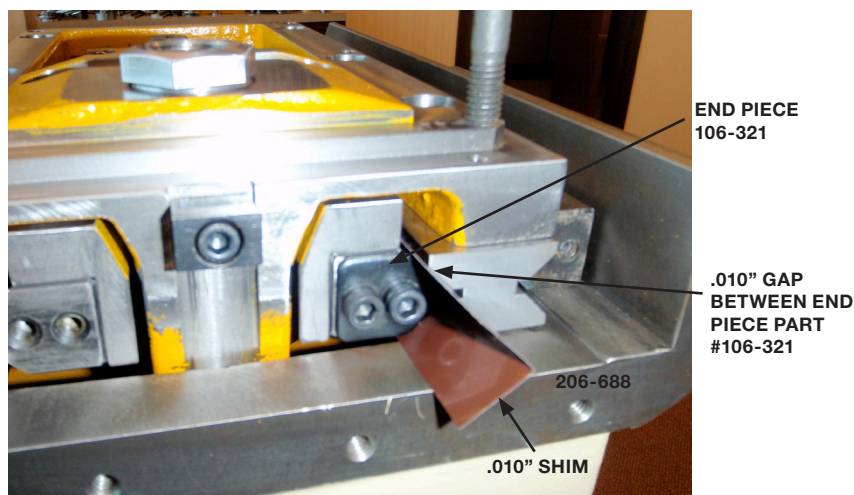


FIGURE 13