

SERVICE INSTRUCTIONS

PAPER MACHINERY CORPORATION

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NEXEN BRAKE

No. 119.1

NEW BRAKE SYSTEM REMOVAL & INSTALLATION PMC-1002 & PMC-1003

NEXEN BRAKE REMOVAL

The retrofit will be used in place of the existing Nexen brake. The Nexen brake must be removed from between the motor and the motor plate before installing the retrofit.

1. Observe all safety labels and warnings.
2. Lockout/Tagout all energy sources except the main air supply.
3. Remove the two pipe plugs from the Nexen brake.
4. Hand-wheel the machine to the center of dwell, and then continue to hand-wheel the machine so that the clamping screws for the brake shaft to the motor shaft connection line up with the two pipe plug holes in the brake.
5. Complete Lockout/Tagout of the machine according to company policy.
6. Remove the motor belt guard door interlock switch. Remove the motor belt guard (see Figure A).
7. Remove the Power cable, the Encoder cable and the cooling fan power cable from the motor. Protect the cable ends from damage. Remove the brake air line.
8. Loosen the three socket head cap screws, and remove the top drive plate from the drive pulley, loosen the three hex head cap screws on the top of the drive pulley (see Figure B).

Figure A

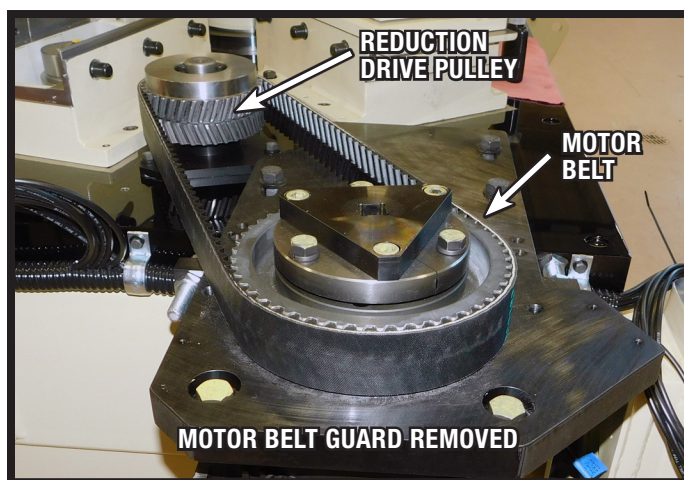
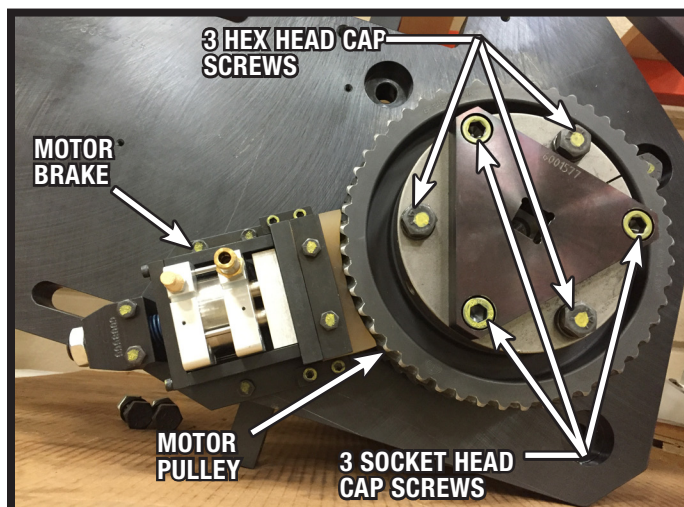


Figure B



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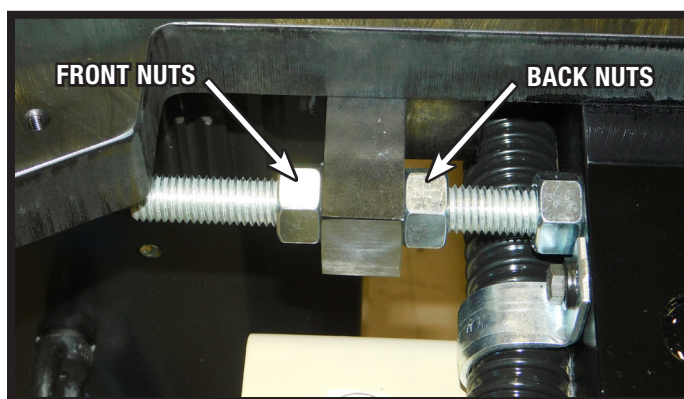
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9. Loosen the four hex head cap screws securing the motor plate to the upper base of the machine (see Figure C).
10. Loosen the two front full nuts on each side of the motor plate (see Figure D).
11. Loosen the two back full nuts on either side of the motor plate (see Figure D).
12. Using the two front full nuts move the motor plate to loosen the belt.
13. Remove the belt. This will be used again.
14. Finish loosening the three hex head cap screws from the top of the drive pulley. Remove two of the screws and use these to loosen the taper bushing from the brake shaft. Remove the drive pulley from the brake shaft (see Figure B).

Figure C



Figure D



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At this point a decision must be made on how to remove the motor/brake assembly from the machine so that the brake can be removed from the motor. Depending on the equipment that is on hand either the entire plate with the motor/brake assembly should be removed or the brake will need to be separated from the plate and the motor/brake assembly taken out separately. If the entire plate is to be removed the screen guard on the end of the machine will have to be removed first.

During the removal and re-assembly of the motor/brake extreme care must be taken to protect the three electrical connections on the motor and the cooling fan housing on the end of the motor. Also protect the ends of the cables that have been disconnected.

DISASSEMBLY

1. Loosen and remove the four hex head cap screws that hold the brake to the motor plate and separate the two items.
2. Loosen the two clamp screws through the two pipe holes in the brake that hold the motor shaft and the brake shaft together.
3. Remove the four socket head cap screws that hold the motor and the brake together. Separate the two items.

ASSEMBLY

1. Assemble the motor to the motor plate using the four existing hex head cap screws and the four new full nuts (see Figure E).
2. If the entire motor/brake and motor plate were removed from the machine to remove the brake, install the plate with the motor back into the machine.
3. Layout the three new 1/4-28 UNF holes that will have to be drilled and tapped into the motor plate. These holes are marked (C, D) on the drawing (see drawing 324-381) (see Figure F). Drill and tap these holes that will be used to mount the brake retrofit.
4. Fit the existing drive pulley with the taper bushing onto the motor shaft. Install the two hex head cap screws that had been used to remove the taper bushing back into the original holes. Mount the top drive plate onto the taper bushing and tighten the three socket head cap screws. Mount the drive pulley to the motor shaft leaving approximately a 1/8 inch gap between the end of the motor shaft and the bottom of the drive plate. Tighten the three hex head cap screws to 31 FT/LB.

Figure E

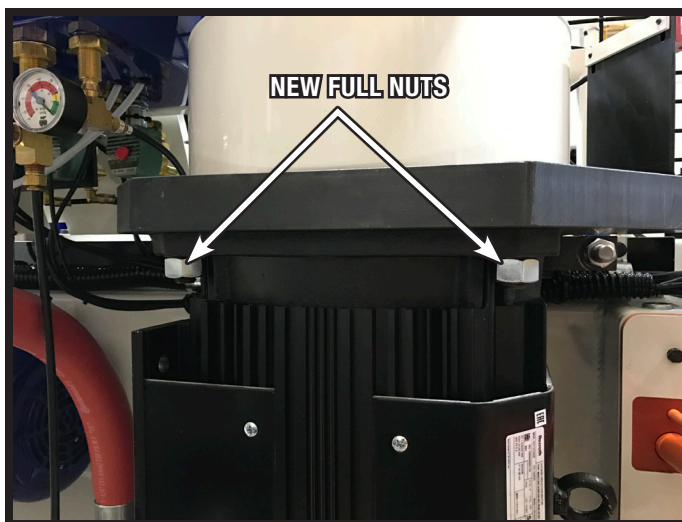
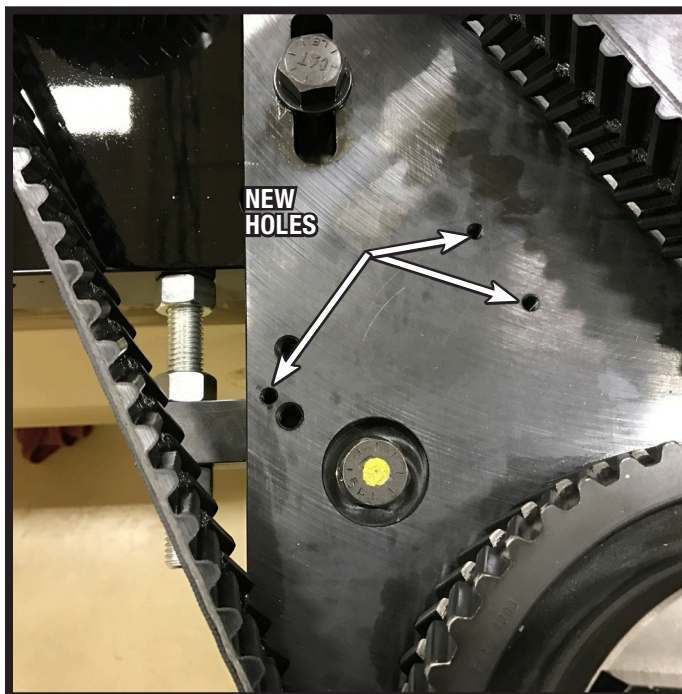


Figure F



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5. Install the existing drive belt. Tighten the two full back nuts to tension the belt.
6. Use a Goodyear “Tensionrite” Belt Frequency Meter (part #EL-30613) (see Figure G) to verify that the proper tension has been achieved. (User instructions are included in the carrying case.) For *PMC-1002 machines*: the belt tension frequency values are 49.2 Hz for a new belt and 41.6 Hz for a used belt. For *PMC-1003 machines*: the belt tension frequency values are 56.9 Hz for a new belt and 48.1 Hz for a used belt. When the tension has been set tighten the four hex head cap screws holding the motor plate to the base. Check the tension again with the meter. If the value is within 10% of the set value tighten the two front full nuts. If the value is not in the desired range, make the necessary adjustment and re-tighten all bolts.
7. If the screen guard had been removed to remove the motor plate and motor/brake assembly this should be re-installed now.

Figure G



ADDITIONAL BELT TENSION PROCEDURE

1. Install belt and tension to calculated new installation tension value (up to 10% higher).
2. Run machine for five (5) minutes or rotate by hand five (5) belt revolutions.
3. If necessary make adjustments to the new calculated new installation tension value (up to 10% higher).
4. Run machine for 8 hours (up to 24 hours if possible) tension should be stable after this time.
5. Make final tension adjustment to calculated used installation tension value if necessary (up to 10% higher).
6. Replace motor belt guard.

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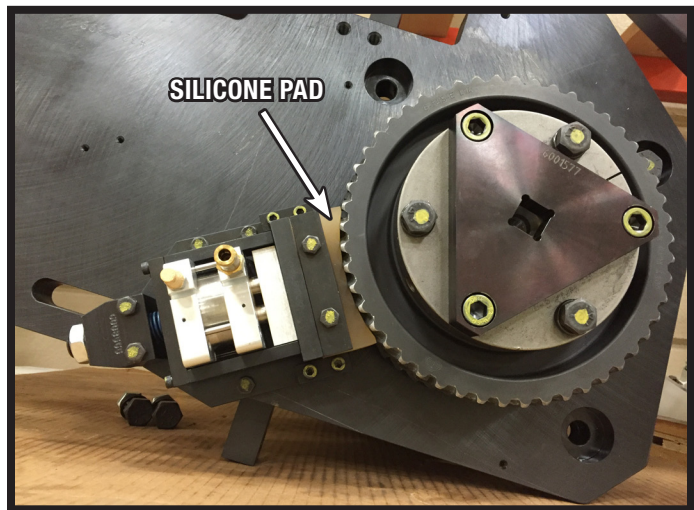
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NEW BRAKE DESCRIPTION & OPERATION

- The brake is mounted to the main drive motor plate.
- It consists of an air cylinder mounted to a bracket and fitted with a silicone pad that contacts the main drive motor pulley when activated (see Figure H).
- The pad is pushed against the pulley by a heavy duty spring mounted at the back of the air cylinder.
- Air to the cylinder is controlled through the machine PLC program to keep the silicone pad retracted from the pulley when the machine is in operation.
- The air is released only after the machine comes to a complete stop.
- This allows the spring to push the silicone pad against the motor pulley holding the machine in place to prevent further movement.

Figure H



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BRAKE INSTALLATION (REFERENCE DRAWING #6008585)

1. Mount the brake retrofit assembly to the motor plate using the three hex head cap screws.
2. Adjust the brake assembly slightly to align the curve of the silicone pad to the drive pulley. Tighten the three hex head cap screws.
3. Mark the existing drive belt guard where the new air line for the brake will pass through. This will be directly above the fitting in the brake. Put a $\frac{3}{4}$ inch hole thru the guard in this position.
4. Mount the main drive belt guard. Mount and align the guard door interlock switch.
5. Remove the old air-line (#64) that went from the Nexen brake to fitting HH2. Install a new air-line (#64) from fitting HH2 to the new brake retrofit fitting.
6. Remove Lockout/Tagout from ONLY the main air. Using the existing palm switch test the installation of the brake retrofit. When the palm switch is pressed the machine should hand-wheel freely. When the palm switch is not pressed there should be strong resistance to being able to hand-wheel the machine.
7. If necessary adjust the brake as described below. If the brake is functioning correctly remove the remainder of the Lockout/Tagout. The main drive motor will have to be referenced to assure the "zero" position. The machine can now be put back into production.

Adjustment

Spring pressure to the brake assembly is set to .500" between the spring block and the back of the spring adjuster.

Assuming the belt guard is already removed.

If adjustment is required proceed as follows:

1. Insert the appropriate allen wrench into the spring adjuster to hold it in place.
2. Loosen the hex lock nut securing the spring adjuster to the back of the spring block.
3. Turn the spring adjuster clockwise to increase spring pressure.
4. Tighten the hex lock nut when adjustment is complete and replace belt guard.

WARNING!

Do not turn the machine by hand without pushing the button. The silicone pad will be destroyed.