> **Safety Warning:** Only trained and qualified personnel should be permitted to install, use and maintain Flo King equipment. All safety procedures must be followed to prevent injury to personnel and damage to the workplace and the environment.
>
> **Shaft Warning:** If badly out of balance, Shaft may swing wildly! Make sure operator keeps a safe distance from Motor/Shaft Assembly, especially during Evaluation and Rough-Balancing Procedure. Always secure Motor/Shaft Assembly before turning Motor on. Also be sure technician does not have long hair, loose clothing, jewelry or other items that could cause injury as Motor is turned on and Shaft spins!

BALANCING THE BX3000 AND BX5000 SHAFT

Note: The object of this procedure is to get a continuous (unbroken) pen mark all the way around the Shaft. A continuous pen mark (complete circle) shows that the Shaft is correctly balanced. A partial pen mark shows a "high" spot, indicating the Shaft is out of balance in the direction of the pen mark.

EVALUATION AND ROUGH-BALANCING PROCEDURE

1. Turn Pump upside down on table (Fig. 1). Secure Motor so that Motor/Shaft Assembly does not move.

2. Turn Motor on, observe Shaft, then turn Motor off. If Shaft swings wildly and vibrates, go to next step. (If Shaft is just slightly out of balance, go to Final Balancing Procedure below.)

3. Turn Pump on side, as shown in Fig. 2. Place Motor on piece of curved wood or some other fixture so that Motor/Shaft Assembly is stable. Secure Motor so that Assembly does not move.

4. Turn Motor on and observe Shaft. Determine location of "high" spot (area on Shaft that swings highest and is most out of balance).

5. Turn Motor off.

6. Rotate Shaft until "high" spot is on top.

7. As shown in Fig. 3, put one hand firmly on Motor to stabilize Motor/Shaft Assembly. With other hand, push down firmly on "high" spot on Shaft. Use body weight for leverage, if necessary.

8. Turn Pump upside down on table, as in Step 1 (Fig. 1). Secure Motor so that Motor/Shaft Assembly does not move.

9. Turn Motor on and observe Shaft. If Shaft continues to swing wildly and vibrate, repeat Steps 1-8 (above) until Shaft is better balanced.

FINAL BALANCING PROCEDURE

1. Turn Pump upside down on table (Fig. 1). Secure Motor so that Motor/Shaft Assembly does not move.

2. Turn Motor on.

3. As shown in Fig. 4, lightly hold a felt-tip pen about 1 inch (25 mm) from threaded end of Shaft.

4. Turn off Motor.

5. Inspect mark made by felt-tip pen. If Shaft is out of balance, pen mark will be broken (not a complete circle), as shown in Fig. 5. This mark indicates a "high" spot on Shaft (out of balance).

6. Turn Pump on side, as shown in Fig. 2. Place Motor on piece of curved wood or some other fixture so that Motor Shaft/Assembly is stable. Secure Motor so that Motor/Shaft Assembly does not move.

7. Rotate Shaft until "high" spot indicated by pen mark is on top.

8. As shown in Fig. 3, put one hand firmly on Motor to stabilize Motor/Shaft Assembly. With other hand, push down firmly on "high" spot on Shaft. Use body weight for leverage, if necessary.

9. Erase pen mark from Shaft using cloth.

10. If necessary, repeat entire procedure, starting with Step 1. Continue until pen mark is a complete circle around Shaft, with no broken line.

FLO KING
FILTER SYSTEMS

Balancing the BX3000 and BX5000 Shaft (continued)

Fig. 1. Position Motor/Shaft Assembly as shown. Secure Assembly, then turn on Motor to determine if Shaft is balanced or unbalanced.
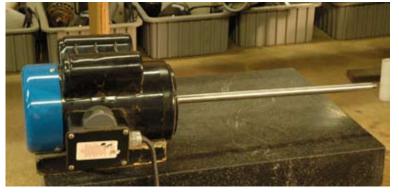

Fig. 2. If Motor is not balanced, place Assembly sideways with Motor on piece of curved wood or other fixture for stability.

Fig. 3. Put one hand firmly on Motor to stabilize Assembly. With other hand, push down firmly on "high" spot on Shaft.

Fig. 4. With Motor on, lightly hold felt-tip pen about 1 inch (25 mm) from threaded end of Shaft.

Fig. 5. If Shaft is out of balance, pen mark will be broken (not a complete circle), as shown.