

TABLE POWER FEED INSTALLATION ON KNEE MILLS

The following notes apply to all knee mills sold by Precision Matthews (Quality Machine Tools). They may also apply to knee mills from other suppliers, provided the table leadscrew, handle, and other features are similar to those shown here. The Precision Matthews power feed attachment itself is described in a separate manual.



Figure 1 Right-side end of the table, as shipped
Remove the hex nut, then slide the crank handle off the leadscrew shaft. The shaft key will be re-used. Unscrew the knurled collar (black). Remove the graduated dial and hub.

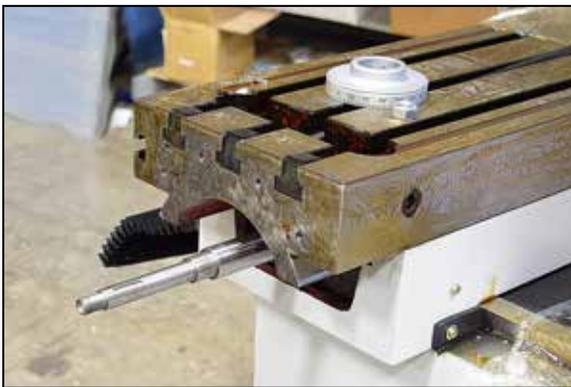


Figure 2 Crank handle & support casting removed



Figure 3 Support casting installed
The protruding roll pins locate in blind holes in the back of the motor unit. Make sure the needle bearing, arrowed, is installed. Replace the shaft key (not shown) in the arrowed keyway.



Figure 4 Feed motor installed
Secure the motor unit with socket head cap screws. Trial fit the brass bevel gear (Figure 5) onto the shaft, checking its engagement with the motor shaft bevel gear. Small shim washers, arrowed, are usually required to separate the two gears for smooth operation. Rotate the brass gear by hand to check. Start with several washers, then remove one by one to get the right degree of engagement.



Figure 5 Bevel gear installed
With the shaft key in place, trial fit the graduated collar (Figure 6) on the brass bevel gear. When pushed home the dial should stand off from the brass gear by a few thousandths of an inch. If the dial bottoms on the out-facing surface of the gear, remove it and install as many of the larger shim washers (arrowed) as needed for the right separation.



Figure 6 Dial & knurled collar installed
With the dial properly shimmed, run the black knurled collar onto the threaded portion of the brass gear. When tightened the knurled collar clamps the dial to the gear, which in turn is keyed to the leadscrew.



Figure 7 Crank handle re-installed
 Secure the crank handle to the leadscrew using the supplied special shouldered nut (arrowed). Run the black knurled collar onto the threaded portion of the brass gear. Release the table lock levers, then crank the handle to check that the dial rotates freely without scraping (add more large shim washers if necessary). Expect to hear gear noise from the motor — this is normal.

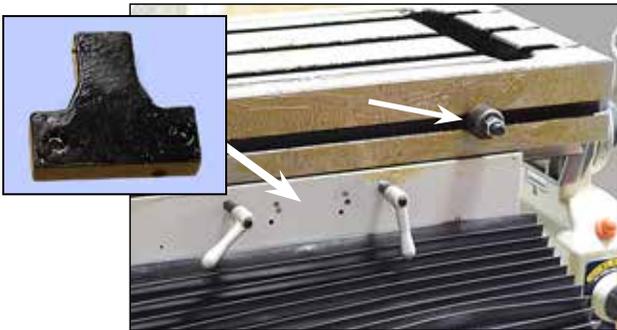


Figure 8 Remove the stop components
 Remove and set aside the table stop block (inset) and the two movable stops with T-nuts or T-screws. The right-hand stop is arrowed here.

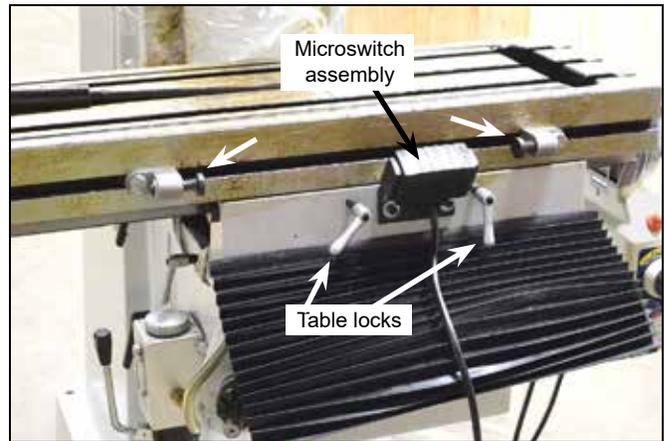


Figure 9 Install new stop components
 Install the left and right-hand bumpers, arrowed. Install the microswitch assembly (center bracket). The microswitches are actuated by lightly spring-loaded pushers at left and right. These are intended to provide a soft landing for the switches (slowly increasing pressure) when the pushers contact the bumpers. If the bumpers are not properly aligned with the switch pushers, remove the switches from the bracket, then bend the bracket up or down as necessary. When replacing the switch assembly on the bracket, make sure that the pushers and the lightweight internal springs are arranged exactly as they were before removal. When properly installed the cover should be freely movable from side to side with a small amount of spring resistance.

Testing the power feed unit



Before connecting 110V ac power, make sure that:

- The table locks are released
- The power unit switch is set to OFF
- The speed control is fully counter-clockwise
- The direction lever is centered (neutral).

The following is intended to show only that the power unit is functioning as expected. If the installation is on a just-shipped mill, the power unit should not be run routinely for more than a few moments until the mill has been cleaned and lubricated ready for service.

1. Turn the unit ON. The power light should glow.
2. Use the manual crank handle(s) to roughly center the table.
3. Set the stop bumpers a few inches either side of the microswitch assembly.
4. Set the direction lever LEFT, then **slowly** turn the speed control clockwise to run the table from right to left. Be ready to flip the direction lever OFF if the unit fails to stop when limited by the left-hand bumper.
5. Repeat the limit test in the other direction.

Refer to the power unit manual if corrective action is needed.