POWER FEED INSTALLATION
Model M-2500
General Purpose Kit

REFERENCE DRAWINGS ENCLOSED
NA-5444   Bevel Gear Installation
NB-3438   Power Feed Installation
ND-6292   Type 140 Servo Drive
ND-6293   Type 150 Servo Drive
0800-80001 Servo Power Feed Operation

PREPARATION

□ NOTE Carefully study all three sheets of the installation drawing NB-3438 to determine the best configuration for your machine. Features of different configurations can be combined if required.

Step 1: Remove nut, handle, dial assembly and key (or similar parts on the feed screw shaft) from the lead screw such that a machined flat and square mounting face and screw support bearing are exposed. Save all parts as they may be needed for modification and/or installation later.

Step 2: Take all necessary measurements. Shaft diameters and keyway widths must be measured accurately so that bearing race, gear and keys can be fit snugly.

Step 3: Make all necessary modification of existing parts and/or new parts following tolerance requirements noted on the installation drawing.

★ TIP A simple layout can be very helpful.

Step 4: Select two of the eight holes on the feed housing for mounting of the unit.

Step 5: Referencing drawing NB-3438 for hole locations, drill and tap mounting face of the machine 1/4-20 x .75” deep. The two holes must be perpendicular to the mounting face and located within ±.010” from true position.

IF: If there is a bearing retaining plate, drill two clearance holes through at the same locations or even bolt feed down to the bearing retainer itself. For the latter case a good evaluation of the bearing retainer strength is strongly recommended.

DRIVE UNIT INSTALLATION

Step 1: Thoroughly clean the screw shaft and mounting area. Apply a thin coat of high pressure grease to the shaft and bare metal surfaces.

Step 2: Move the table of the milling machine to the extreme left-hand position.

Step 3: Slide shaft spacer (if any) then bearing race #0857 onto the screw shaft.
Step 4: Install spacer ring (if any) and power feed onto the lead screw. Tighten the two 1/4-20 mounting screws. Make sure that the bearing race is not binding with the needle bearing.

BEVEL GEAR INSTALLATION

IF: If needed, modify bevel gear. See drawing NB-3438 for dimensions and Notes 1 and 3.

Step 1: See drawing A-5444.

Step 2: Apply high pressure grease to the screw shaft. Install key and slide bevel gear onto shaft.

Step 3: Shim bevel gear to obtain backlash of .015/.025”

DIAL AND HANDCRANK INSTALLATION

IF: If needed modify dial. See drawing NB-3438 for dimensions and Note 12.

Step 1: The dial should be adjusted to .005 inch spacing from the face of the mill feed.

NOTE This is important in order to keep chips from entering the gear train. For this there are provided two solid washers #01252 and five laminated washers #01251. Shim as required.

Step 2: Secure dial using dial nut #59254.

Step 3: Slide handcrank onto end of shaft and tighten with 1/2-20 lock nut #01115.

LIMIT SWITCH INSTRUCTIONS

NOTE Referencing dimensions on drawing NB-3438 design your travel stop. It is important to prevent stop from hitting limit switch box when pushing plunger. When determining the positions of the mounting holes, make sure that limit switch plungers and stops will be on the same center line.

INSTALLATION ON TABLE

Step 1: Remove standard table stop pieces (if any) and install the table stop you designed. Put standard stop back in position to prevent feed stops from being set beyond extreme table travel.

Step 2: Remove the two cap screws holding the T-shaped table stop bracket (if any).

Step 3: Place spacers into the counterbored holes in the T-stop and place the limit switch assembly on the spacers. Secure to the table using appropriate screws.

NOTE The T-stop should be retained to act as a positive stop where required for manual operation. The T-stops are often not symmetrical and may need to be ground to obtain proper operation.

NOTE For proper operation, the electrical limit switch should be engaged .4 inch before the mechanical stop to allow for coasting of the table.
INSTALLATION ON CROSS

Step 1: Referring to drawing NB-3438 design your limit switch bar and mount it to the table. Mount limit switch to the bar.

Step 2: Determine the right length of the trip rail according to the machine travel on that particular axis.

Step 3: Drill clearance holes in the trip rail #1752 and matching #10-24 x .75 in. deep threaded holes in the knee.

Step 4: Install trip rail and adjust stops.

INSTALLATION ON KNEE

Step 1: Referring to drawing NB-3438, determine the length of the trip rail according to the machine travel and the standoffs for mounting the limit switch bracket.

Step 2: Drill clearance holes in the trip rail and matching #10-24 x .75 in. deep holes in the machine column.

Step 3: Mount limit switch to the knee and trip rail to the column and adjust stops.

OPERATION

See separate Servo Power Feed Operation sheet. Plug the unit into a source of 120 volt, 50 or 60 cycle power.

WARNINGS

Check hand crank clearances before operation.

Clearances between the surfaces of the hand crank and the non-moving parts of the equipment on which the hand crank is installed must be at least one-fourth inch (1/4") to prevent injury. Modification of existing hand crank or replacement may be required.

Do not operate without proper clearance!

Prevent contact during fast traverses.
**STEP 1**
PREPARATION

**STEP 2**
SHIMMING BEVEL GEAR

- **ADD SHIMS PROVIDED**
  - 1/32 THICK ARE SOLID
  - 1/64 THICK ARE LAMINATED
  - .002/LAMINATION

- **INSTALL HANDCRANK.**

- **MARK HOUSING AND BEVEL GEAR WITH PENCIL TO CHECK BACKLASH.**
  - 0.015/0.025
  - (THIS IS NOT THE READING ON THE DIAL)

- **ROTATE GEAR FROM SIDE TO SIDE. REMOVE OR ADD SHIMS AS NEEDED TO OBTAIN 0.015/0.025 BACKLASH.**

- **PUSH BEVEL GEAR AGAINST SHIMS.**

- **LOosen SETSCREW**

**CAUTION:** IF BACKLASH IS NOT PROPERLY SET BEFORE TURNING UNIT ON, BEVEL GEAR MAY BE DESTROYED.

**STEP 3**
DOUBLE CHECK OF SHIMMING

- **WITH POWER FEED IN NEUTRAL POSITION, TURN HANDCRANK. IF EXCESSIVE GEAR NOISE OR BINDING OCCURS, SHIMS NEED TO BE ADDED. WHEN ADDING SHIMS, REPEAT STEPS 1 AND 2.**

- **CONTROL HANDLE @ NEUTRAL POSITION**

**STEP 4**
LUBRICATION

- **INSTALL KEY**

- **SEAL**

**REMOVE GEAR, PACK WITH GREASE. (DO NOT USE SILICONE TYPE GREASE)**

**REPLACE GEAR. (DO NOT LOSE ANY SHIMS)**

Pictures in this drawing are for reference only. See installation drawing of corresponding model for exact parts configuration.

**SERVO PRODUCTS COMPANY**

**BEVEL GEAR INSTALLATION**

**NA-5444 C**
M-2500 TABLE FEED PARTS IDENTIFICATION LIST