

# POWER FEED INSTALLATION

## Model M-4280 Knee Feed

### Microcut, Wells-Index 837



#### REFERENCE DRAWINGS ENCLOSED

NA-5444	Bevel Gear Installation
NB-5582	Power Feed Installation
ND-6292	Type 140 Servo Drive
0800-80001	Servo Power Feed Operation

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#### PREPARATION

- Step 1:* Remove the drive clutch from the elevating jack shaft. (Clutch is push-fit on the shaft.)
- Step 2:* Remove the dial and nut.
- Step 3:* Remove the screws from the bearing retainer.
- Step 4:* Pull the jack shaft out of the knee (easy pull). **Hold inboard end up** while removing to avoid damage to the pinion gear.
- Step 5:* Hold the dial hub in soft jaws and unscrew.
- Step 6:* Remove the bearing retainer. Press the bearing housing and bearing off the shaft.
- Step 7:* Drill and ream the end of the jack shaft .4375 diameter by 13/16" deep. The .4375 diameter must be concentric to the shaft o.d. within .002 TIR. Chamfer 1/32 x 1/2 diameter. **For best results, machining should be done in a lathe.**
- Step 8:* Place the shaft extension into the jack shaft. Using the hole provided as a pilot, drill 1/8" diameter through the shaft and pin the extension with 1/8 diameter x 5/8" long roll pin. File smooth.
- Step 9:* Reassemble the jack shaft.
- Step 10:* Substitute the bearing race nut for the dial hub and tighten.
- Step 11:* Replace the jack shaft in the machine.

#### POWER FEED INSTALLATION

- Step 1:* Slide the bearing race over the bearing race nut.
- NOTE** To provide clearance for the cross feed, rotate the bearing retainer on the knee feed 30° clockwise from the vertical position as shown on drawing ND-5582.
- Step 2:* Slide the feed unit over the bearing race and against the bearing retainer of the mill. Rotate the feed 30° clockwise from the vertical position as shown on drawing ND-5582.

*Step 3:* Spot the mounting holes in the bearing retainer. Drill and tap 1/4-20 thread. Secure the feed using the two 1/4-20 x 1" long socket head cap screws provided.

### BEVEL GEAR INSTALLATION

*Step 1:* Follow drawing NA-5444 for installation of the bevel gear. Adjust for proper gear backlash.

### DIAL AND HANDCRANK INSTALLATION

*Step 1:* After getting the proper backlash, the dial should be adjusted to obtain .005" spacing from the face of the power feed. This is important in order to keep chips from entering the gear train. Two plastic (.030" thick) and five brass (.005" thick) washers are provided for this. Shim as required.

*Step 2:* In the following sequence, put on the dial locking nut, place the woodruff key in the shaft, and slide the handwheel in place. Add the washer and the 1/2-20 lock nut and tighten.

### LIMIT SWITCH INSTALLATION

*Step 1:* See the limit switch installation on drawing ND-5582.

**NOTE** *Limit switches are provided on Model 4290 only.*

### 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.

## SERVO PRODUCTS COMPANY

Web: [www.servoproductsco.com](http://www.servoproductsco.com)

### CALIFORNIA BRANCH

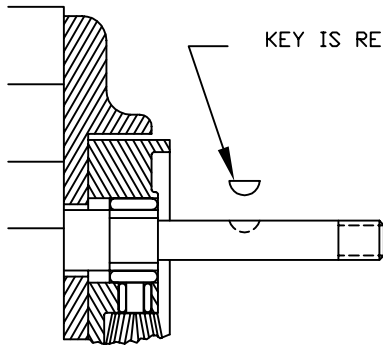
14254 Valley Blvd., Unit A  
City of Industry, CA 91746  
Ph. 626.961.7800 Fax 626.961.2444

### HEADQUARTERS

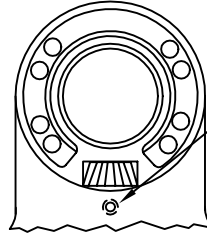
34940 Lakeland Blvd.  
Eastlake, OH 44095  
Ph. 440.942.9999 Fax 440.942-9100

### FLORIDA BRANCH

8950 131<sup>st</sup> Ave. N.  
Largo, FL 33773  
Ph. 727.585.8555 Fax 727.585.6555

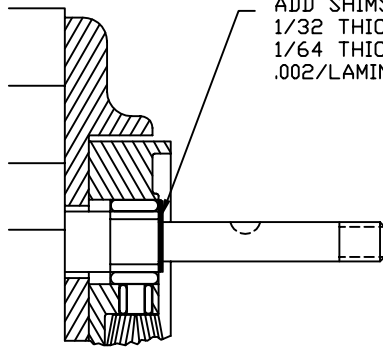


KEY IS REMOVED DURING SHIMMING

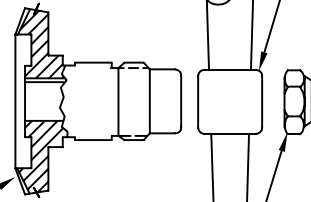


TIGHTEN SLIGHTLY (HOLDS BEVEL PINION STATIONARY DURING SHIMMING.)

STEP 1  
PREPARATION



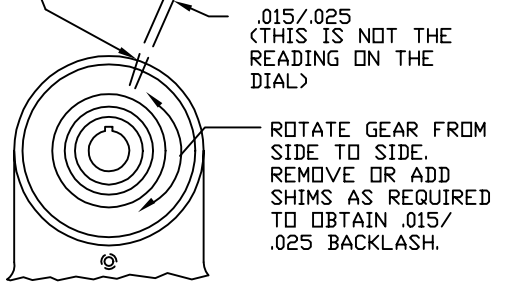
ADD SHIMS PROVIDED  
1/32 THICK ARE SOLID  
1/64 THICK ARE LAMINATED  
.002/LAMINATION



PUSH BEVEL GEAR  
AGAINST SHIMS.

INSTALL HANDCRANK.

MARK HOUSING AND BEVEL GEAR  
WITH PENCIL TO CHECK BACKLASH.



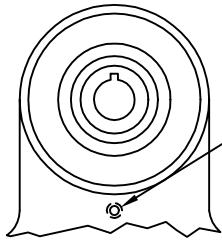
.015/.025  
(THIS IS NOT THE  
READING ON THE  
DIAL)

ROTATE GEAR FROM  
SIDE TO SIDE.  
REMOVE OR ADD  
SHIMS AS REQUIRED  
TO OBTAIN .015/  
.025 BACKLASH.

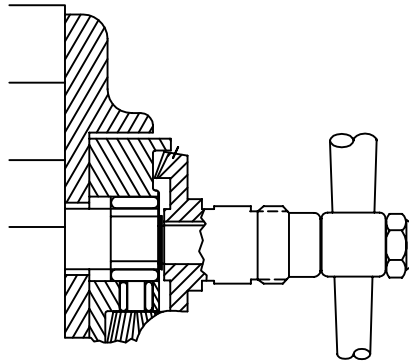
TIGHTEN NUT.

STEP 2  
SHIMMING BEVEL  
GEAR

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



LOOSEN SETSCREW

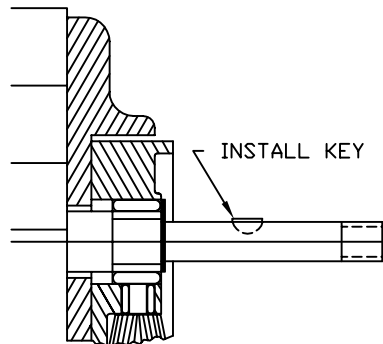


WITH POWER FEED IN  
NEUTRAL POSITION, TURN  
HANDCRANK. IF EXCESSIVE  
GEAR NOISE OR BINDING  
OCCURS, SHIMS NEED TO BE  
ADDED. WHEN ADDING SHIMS,  
REPEAT STEPS 1 AND 2.

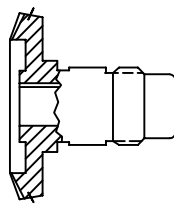


CONTROL HANDLE @  
NEUTRAL POSITION

STEP 3  
DOUBLE CHECK OF SHIMMING



INSTALL KEY



SEAL

REMOVE GEAR, PACK WITH GREASE.  
(DO NOT USE SILICONE TYPE GREASE)  
REPLACE GEAR.  
(DO NOT LOSE ANY SHIMS)

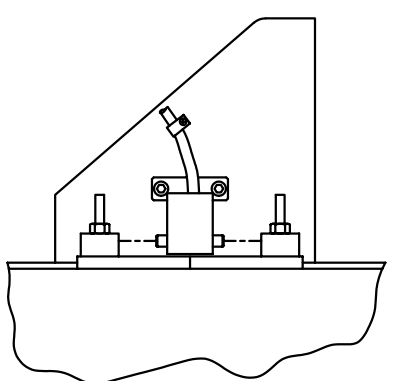
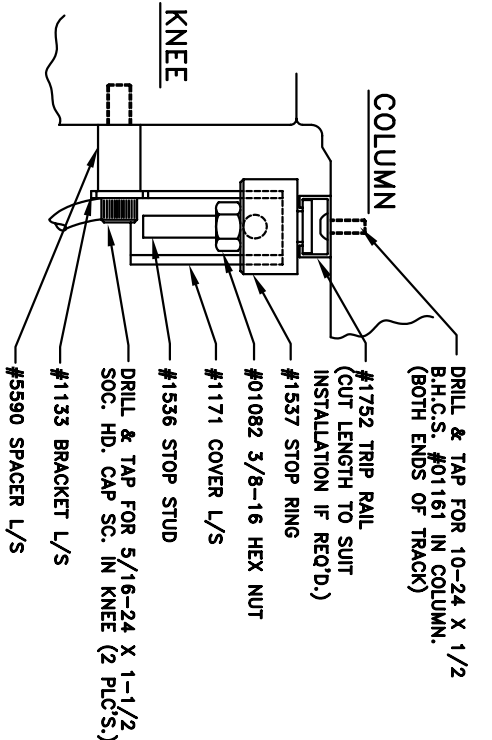
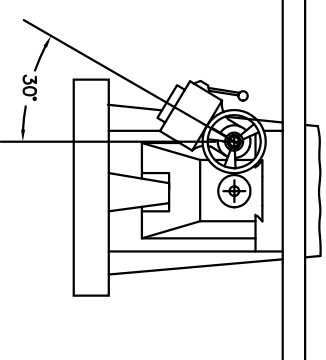
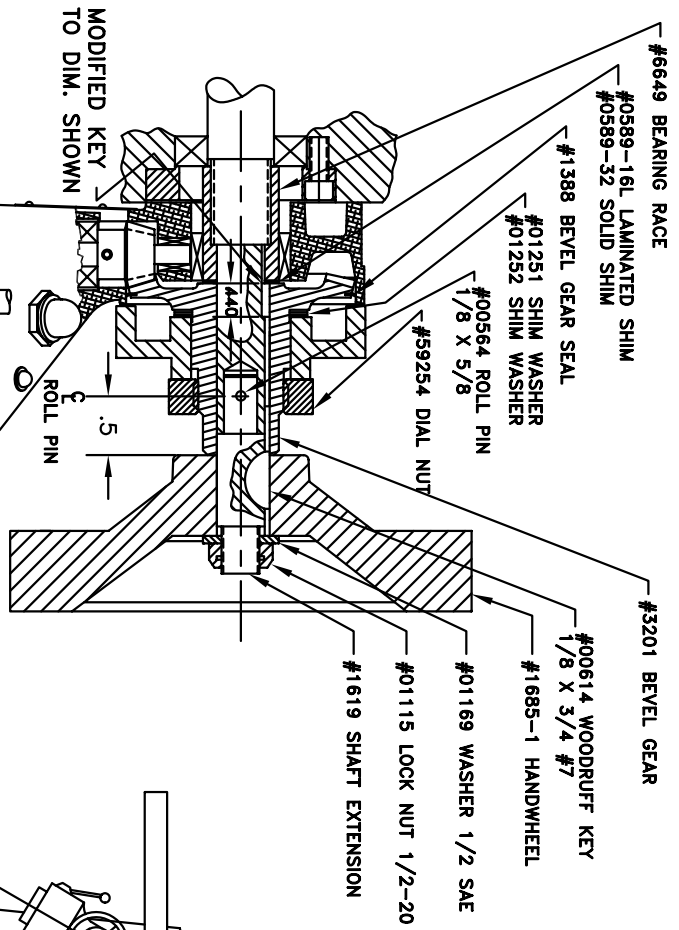
PICTURES IN THIS DRAWING ARE FOR  
REFERENCE ONLY. SEE INSTALLATION  
DRAWING OF CORRESPONDING MODEL  
FOR EXACT PARTS CONFIGURATION.

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BEVEL GEAR INSTALLATION

NA-5444 C

STEP 4  
LUBRICATION



**NOTE:**  
 1. REVIEW ALL INSTALLATION INSTRUCTIONS AND POWER FEED.  
 2. FEED OPERATION BEFORE TURNING ON SERVO POWER FEED.  
 3. BUTT AND LINE UP TWO RAILS SO THAT THEY ARE PARALLEL WITH KNEE SLIDE.

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UNLESS OTHERWISE SPECIFIED PERPENDICULARITY, PARALLELISM, STRAIGHTNESS, FLATNESS, ROUNDNESS, CONCENTRICITY, CYLINDRICITY TO BE WITHIN .01 TOTAL OR .040/IN. SURFACE ROUGHNESS WITHIN 125 REMOVE SHARP CORNERS AND EDGES .005 MIN. IMP. TIME STANDARD PER ANSI Y43M-1982

PERPENDICULARITY	PARALLELISM
STRAIGHTNESS	FLATNESS
ROUNDNESS	CONCENTRICITY
CYLINDRICITY	TO BE WITHIN .01 TOTAL OR .040/IN.
SURFACE ROUGHNESS	WITHIN 125
REMOVE SHARP CORNERS AND EDGES	.005 MIN.
IMP. TIME STANDARD	PER ANSI Y43M-1982

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & TOLERANCES ARE AS FOLLOWS: FRACTIONS: DECIMALS: ANGLES: ± 1/64 ± .005 ± .005 ± 1/2°	CHECKED	DATE
MATERIAL	APPROVALS	1/14/97
FINISH	BROWN J. TUCKER	
NOTED		
DID NOT SCALE DRAWING	COMPUTER NO.	

**SERVO PRODUCTS COMPANY**  
 34940 LAKELAND BLVD., EASTLAKE, OH 44095

**M-4280**  
**INSTALLATION DRAWING**  
**WELLS - INDEX M-837**

SIZE: B  
 CODE: 0800-80099  
 DRAWING NO.: NB-5582  
 SCALE: B  
 SHEET: C

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