

# POWER FEED INSTALLATION

## Model M-4380 Knee Feed

### Sharp, Alliant & Others



#### REFERENCE DRAWINGS ENCLOSED

NA-5444	Bevel Gear Installation
NB-57658	Limit Switch Installation
NB-58838	Power Feed Installation
ND-6292	Type 140 Servo Power Feed
0800-80001	Servo Power Feed Operation

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#### PREPARATION

- Step 1:* Gather together the following items that you will need to complete this installation.
- a) lathe
  - b) 3/8" electric hand drill
  - c) #7 drill, 1/8" drill, 3/16" drill, #Q drill
  - d) 1/4-20 tap, 3/8-24 tap
  - e) 9/32" diameter transfer punch
  - f) flat file
  - g) 3/4" socket wrench
  - h) set of inch hex wrenches
  - i) grease
  - j) clean shop rag
- Step 2:* Clean the power feed mounting area completely.
- Step 3:* Remove the drive clutch from the elevating jack shaft.
- Step 4:* Remove the dial nut, dial, and dial carrier. (Turn the dial carrier counterclockwise to remove.) Keep the dial for reuse later.
- Step 5:* Slip bearing race #0714 onto the jack shaft as shown. Slide the power feed over the bearing race and locate against front of the knee.
- Step 6:* Using a 9/32" diameter transfer punch, transfer three mounting holes from the feed to the bearing retainer. Remove the unit, the bearing retainer and all the parts just installed. Then drill and tap 1/4-20 UNC threads through the bearing retainer.
- Step 7:* Pull jack shaft out of knee. Hold inboard end up while removing to avoid damage to the pinion gear.
- Step 8:* Press the bearing off the jack shaft.

*Step 9:* Drill the end of the jack shaft .332" (#Q) diameter by 1-1/4" deep. The .332" diameter must be concentric to the shaft O.D. within .002" T.I.R. Chamfer 1/32" x 1/2" diameter. Tap 3/8-24 x 3/4" deep. **For best results, machining should be done in a lathe.**

*Step 10:* Screw the shaft extension #58537 onto the end of the jack shaft and tighten. Finish drill 1/8" diameter hole through threaded joint and pin with the 1/8" diameter x 5/8" long roll pin. File smooth.

*Step 11:* Reassemble and replace the jack shaft in the machine.

*Step 12:* Replace the bearing retainer.

### **POWER FEED INSTALLATION**

*Step 1:* Slide spacer #57897 onto the jack shaft followed by spacer #6745 and the bearing race #0714 as shown.

*Step 2:* Slide the power feed onto the bearing race and push against the adaptor. Secure with two 1/4-20 x 1-1/8" long socket head cap screws.

*IF:* If the bearing race is not flush with the needle bearing in the unit within  $\pm 0.05$ ", then either shim behind the race or machine the spacer to correctly locate the race.

### **BEVEL GEAR INSTALLATION**

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

### **DIAL AND HANDWHEEL INSTALLATION**

*Step 1:* After getting the proper gear 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. Three 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 lock nut, place the key in the shaft, slide the handwheel in place and tighten with 1/2-20 locknut #01115.

### **LIMIT SWITCH INSTALLATION**

*Step 1:* See limit switch installation drawing NB-57658 and drawing NB-58838.

### **OPERATION**

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

*Please read **WARNINGS** on the following page.*

## 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**

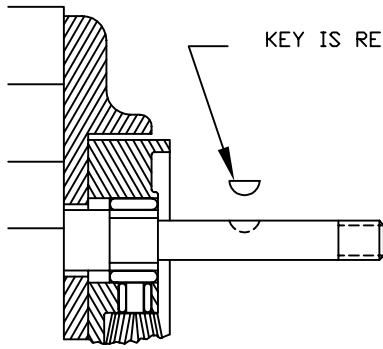
14254 Valley Blvd., Unit A  
City of Industry, CA 91746  
Ph. 626.961.7800 Fax 626.961.2444

### **HEADQUARTERS**

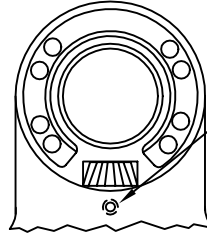
34940 Lakeland Blvd.  
Eastlake, OH 44095  
Ph. 440.942.9999 Fax 440.942-9100

### **FLORIDA BRANCH**

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

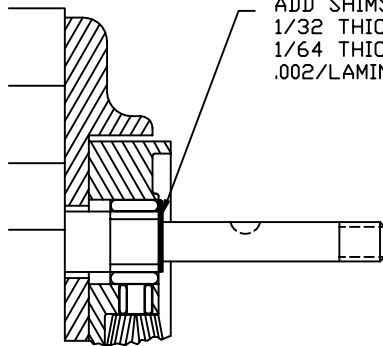


KEY IS REMOVED DURING SHIMMING

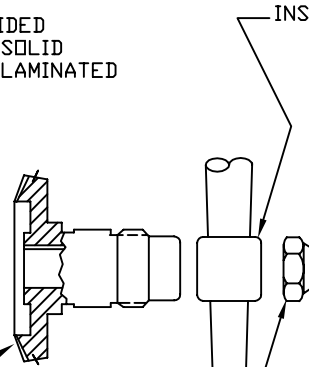


TIGHTEN SLIGHTLY (HOLDS BEVEL PINION STATIONARY DURING SHIMMING.)

STEP 1  
PREPARATION



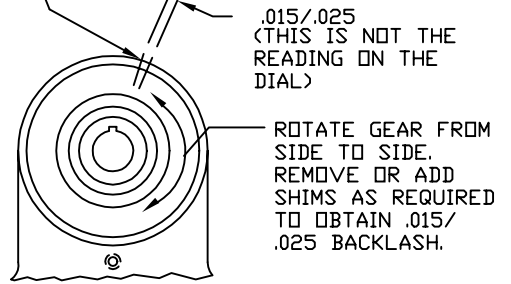
ADD SHIMS PROVIDED  
1/32 THICK ARE SOLID  
1/64 THICK ARE LAMINATED  
.002/LAMINATION



PUSH BEVEL GEAR AGAINST SHIMS.

INSTALL HANDCRANK.

MARK HOUSING AND BEVEL GEAR WITH PENCIL TO CHECK BACKLASH.



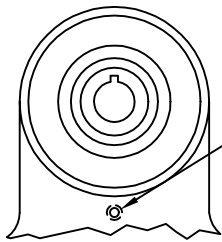
.015/.025  
(THIS IS NOT THE READING ON THE DIAL)

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

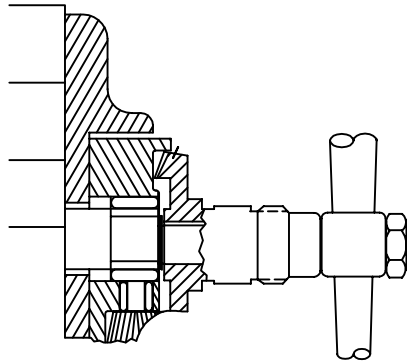
STEP 2  
SHIMMING BEVEL GEAR

TIGHTEN NUT.

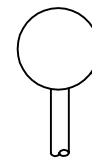
**CAUTION:** IF BACKLASH IS NOT PROPERLY SET BEFORE TURNING UNIT ON, BEVEL GEAR MAY BE DESTROYED.



LOOSEN SETSCREW

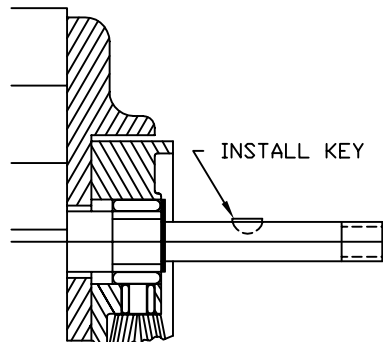


WITH POWER FEED IN NEUTRAL POSITION, TURN HANDCRANK. IF EXCESSIVE GEAR NOISE OR BINDING OCCURS, SHIMS NEED TO BE ADDED. WHEN ADDING SHIMS, REPEAT STEPS 1 AND 2.

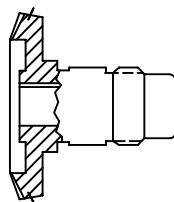


CONTROL HANDLE @ NEUTRAL POSITION

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)

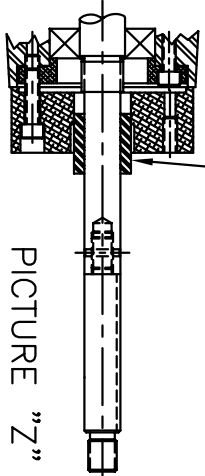
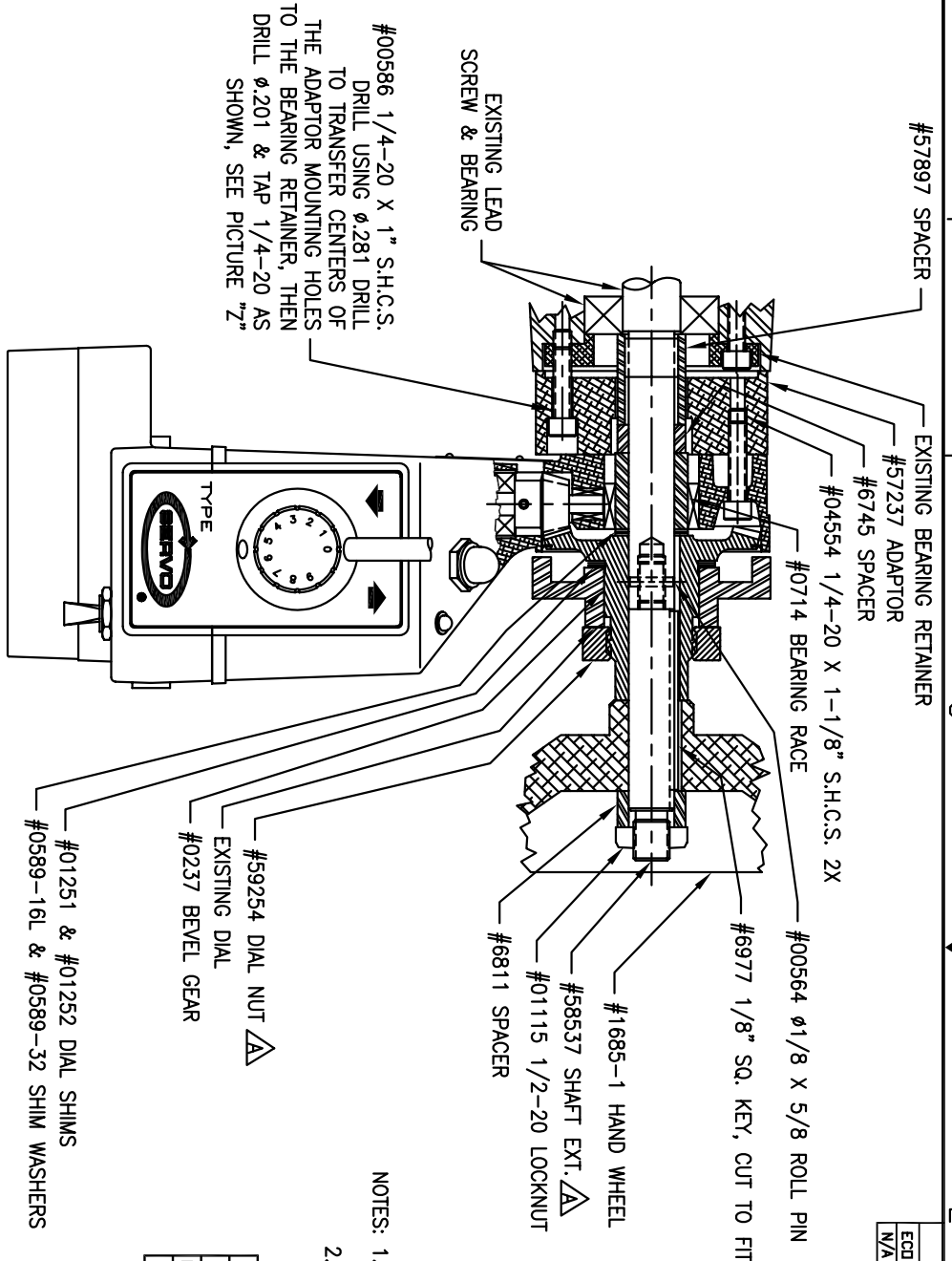
PICTURES IN THIS DRAWING ARE FOR REFERENCE ONLY. SEE INSTALLATION DRAWING OF CORRESPONDING MODEL FOR EXACT PARTS CONFIGURATION.

SERVO PRODUCTS COMPANY

BEVEL GEAR INSTALLATION

NA-5444 C

REVISION		DATE	DRAWN	CHECKED
ECD	LTR	DESCRIPTION		
N/A	A	58537 WAS 6975; 59254 WAS 2255	7/20/06	B.G.W. R.R.A.



SCALE: 15/32

#00586 1/4-20 X 1\" S.H.C.S.  
 DRILL USING  $\phi$ .281 DRILL  
 TO TRANSFER CENTERS OF  
 THE ADAPTOR MOUNTING HOLES  
 TO THE BEARING RETAINER, THEN  
 DRILL  $\phi$ .201 & TAP 1/4-20 AS  
 SHOWN, SEE PICTURE "Z"

NOTES: 1. REVIEW ALL INSTALLATION INSTRUCTIONS AND POWER FEED  
 OPERATIONS BEFORE TURNING ON SERVO POWER FEED.  
 2. SEE DRAWING NB-57658 FOR KNEE FEED LIMIT SWITCH  
 INSTALLATION, USE FOLLOWING TABLE TO RELATE PART  
 NUMBERS WITH LETTER SYMBOLS ON DWG NB-57658

SYMBOL	A-1	A-2	B	C	D
P/N	57660	1133	05245	1752	
DESCRIPTION	STANDOFF	STANDOFF	BRACKET	5/16-18 S.H.C.S.	TRIP RAIL
LENGTH	3"			3.75"	

UNLESS OTHERWISE SPECIFIED  
 PERPENDICULARITY, PARALLELISM,  
 STRAIGHTNESS, FLATNESS, ROUND-  
 CONCENTRICITY, CYLINDRICITY TO BE  
 WITHIN  $\pm$  TOTAL OR  $\pm$ 40/ft.  
 SURFACE ROUGHNESS WITHIN 125/  
 REMOVE SHARP CORNERS AND  
 EDGES .005 MIN.  
 DRAWING STANDARD PER ANSI Y43M-1982

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UNLESS OTHERWISE SPECIFIED  
 DIMENSIONS ARE IN INCHES &  
 TOLERANCES ARE AS FOLLOWS:  
 FRACTIONS DECIMALS ANGLES  
 $\pm$  1/64  $\pm$  .005  $\pm$  .015

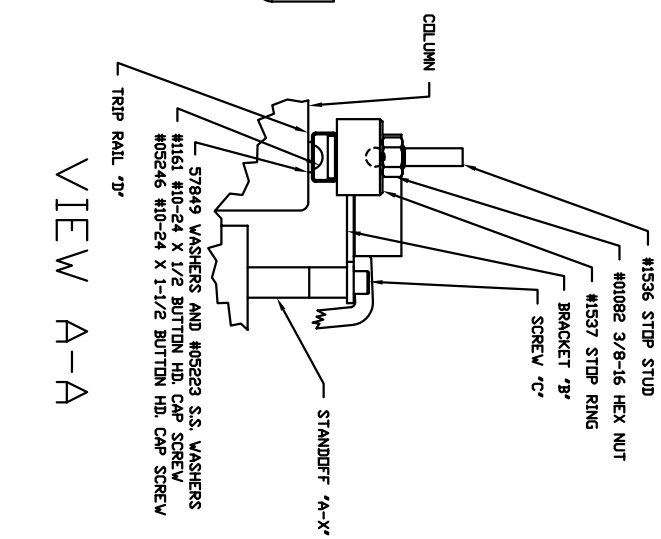
CONTRACT NO.	DATE	APPROVALS
	9/17/99	T. KU
MATERIAL		
FINISH		
DID NOT SCALE DRAWING		
APPLICATION		
NEXT ASSY		

COMPUTER NO.	DATE	APPROVALS
NB58838.A.dwg	9/17/99	T. KU
CHECKED		

**SERVO PRODUCTS COMPANY**  
 34940 LAKELAND BLVD., EASTLAKE, OHIO 44095  
**INSTALLATION DRAWING,**  
**MODEL 4380**  
**SHARP**

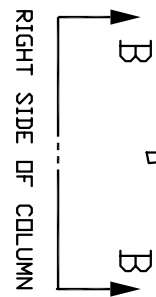
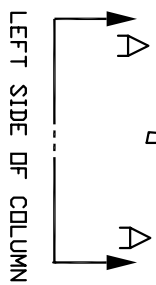
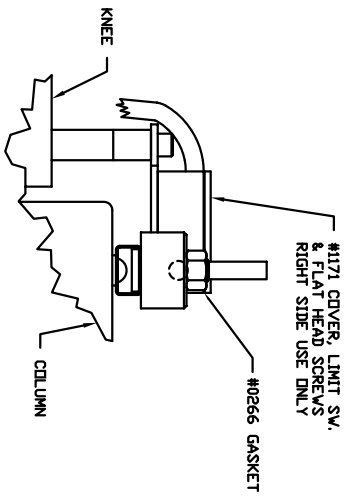
SIZE	CODE IDENT NO.	DRAWING NO.	REV.
B	0800-80809	58838	A
SCALE	5/8	SHEET	1 OF 1

REVISION		DATE	DRAWN	CHECKED
ECD	LTR			
DESCRIPTION				



VIEW A-A

VIEW B-B  
SAME COMPONENTS AS IN VIEW 'A-A'  
EXCEPT AS SHOWN



NOTES:


1. LIMIT SWITCH MAY BE MOUNTED ON EITHER SIDE OF THE COLUMN.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE TO BE WITHIN 0.1 CONCENTRICITY TO BE WITHIN 0.1 REMOVE SHARP EDGES AND CORNERS 0.05 MIN.

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CONTRACT NO.	APPROVALS	DATE	CHECKED
	T. KU	03/18/93	
APPLICATION	USED IN	DID NOT SCALE DRAWING	
NEXT ASSY			


**SERVOD PRODUCTS COMPANY**  
 34940 LAKELAND BLVD., EASTLAKE, OH 44095  
**INSTALLATION DRAWING**  
**LIMIT SWITCH, KNEE**  
 SIZE CODE IDENT. NO. DRAWING NO. REV  
 B 0800-80540 NB-57658 B  
 SCALE NONE SHEET OF