

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 $\pm.010$ " 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.

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Web: www.servoproductsco.com

CALIFORNIA BRANCH

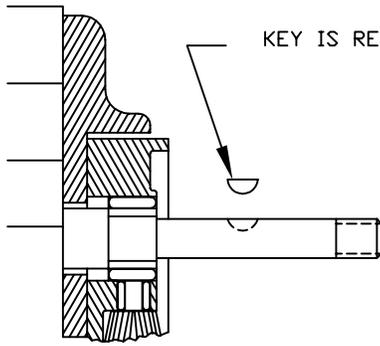
14254 Valley Blvd., Unit A
City of Industry, CA 91746
Ph. 626.961.7800 Fax 626.961.2444

HEADQUARTERS

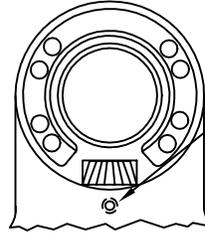
34940 Lakeland Blvd.
Eastlake, OH 44095
Ph. 440.942.9999 Fax 440.942-9100

FLORIDA BRANCH

8950 131st Ave. N.
Largo, FL 33773
Ph. 727.585.8555 Fax 727.585.6555

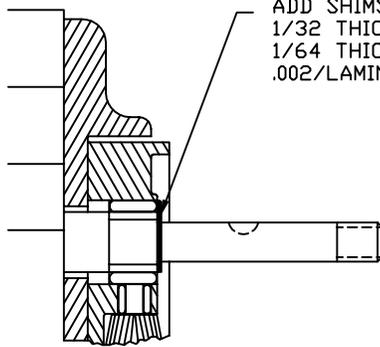


KEY IS REMOVED DURING SHIMMING

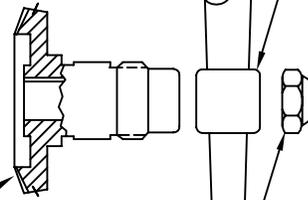


TIGHTEN SLIGHTLY (HOLDS BEVEL PINION STATIONARY DURING SHIMMING.)

STEP 1
PREPARATION



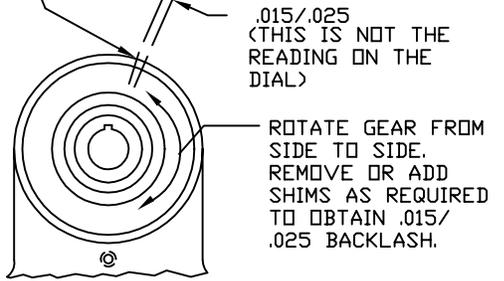
ADD SHIMS PROVIDED
1/32 THICK ARE SOLID
1/64 THICK ARE LAMINATED
.002/LAMINATION



PUSH BEVEL GEAR
AGAINST SHIMS.

INSTALL HANDCRANK.

MARK HOUSING AND BEVEL GEAR
WITH PENCIL TO CHECK BACKLASH.



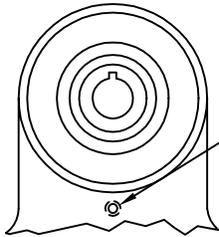
.015/.025
(THIS IS NOT THE
READING ON THE
DIAL)

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

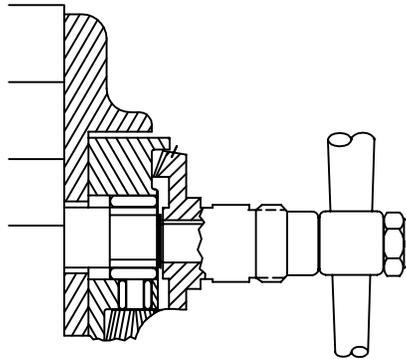
TIGHTEN NUT.

STEP 2
SHIMMING BEVEL
GEAR

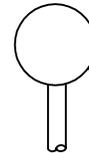
CAUTION: IF BACKLASH
IS NOT PROPERLY SET
BEFORE TURNING UNIT ON,
BEVEL GEAR MAY BE
DESTROYED.



LOOSEN SETSCREW

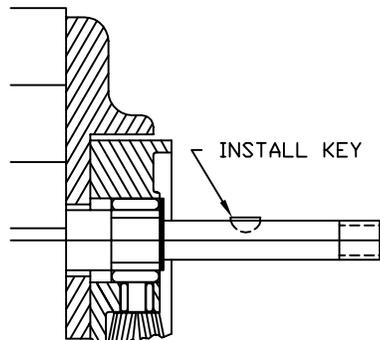


WITH POWER FEED IN
NEUTRAL POSITION, TURN
HANDCRANK. IF EXCESSIVE
GEAR NOISE OR BINDING
OCCURS, SHIMS NEED TO BE
ADDED. WHEN ADDING SHIMS,
REPEAT STEPS 1 AND 2.

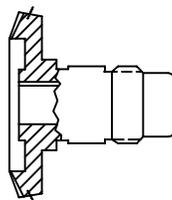


CONTROL HANDLE @
NEUTRAL POSITION

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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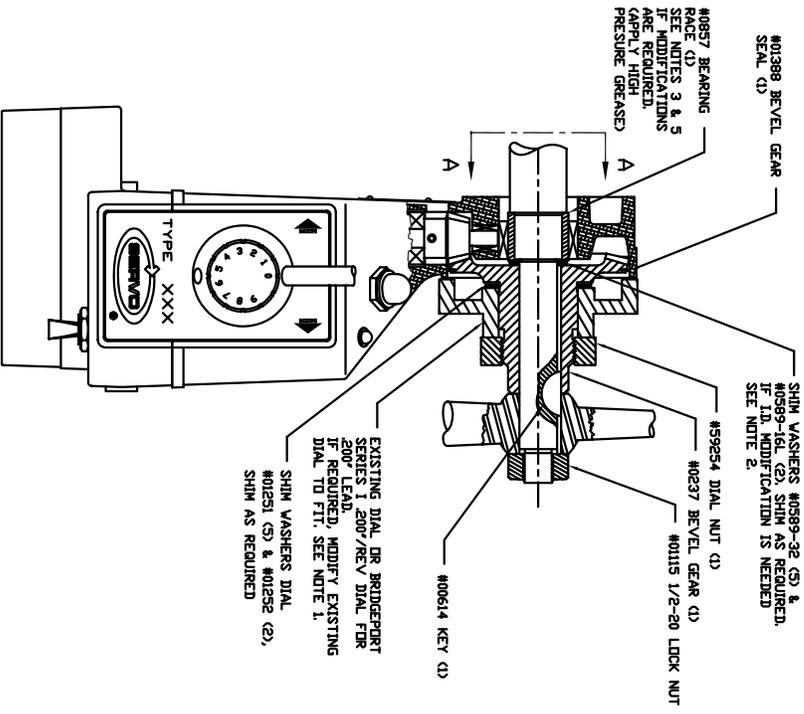
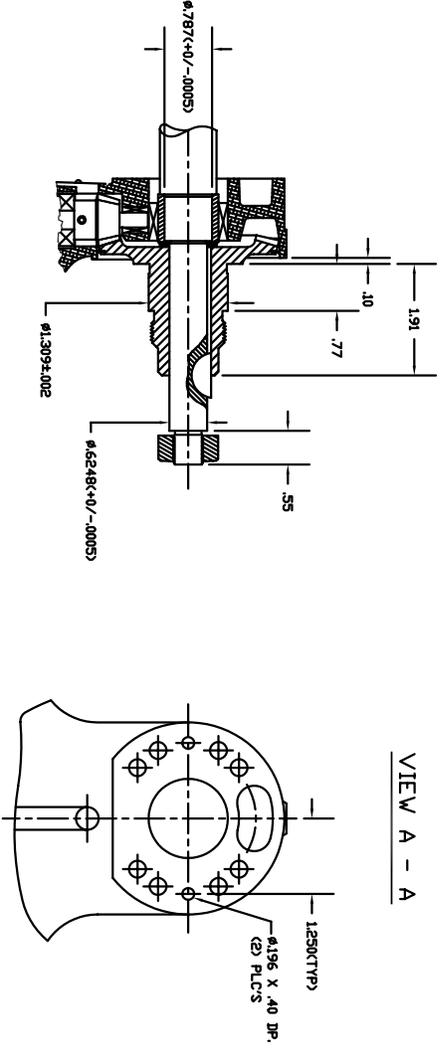
BEVEL GEAR INSTALLATION

NA-5444 C

STEP 4
LUBRICATION

REVISION		DATE	DRAWN	CHECKED
ECD	LTR	DESCRIPTION		

DIMENSIONING DETAIL



- NOTES:
- BOTH ENDS TO BE SQUARE TO THE BORE & PARALLEL TO EACH OTHER WITHIN .001 IN. TIR.
 - I.D. & O.D. TO BE CONCENTRIC WITHIN .003 IN. TIR.
 - I.D. & O.D. TO BE CONCENTRIC WITHIN .001 IN. TIR. I.D. CLEARANCE .001 IN. MAX.
 - SEE INSTALLATION INSTRUCTIONS FOR DETAIL.
 - ENDS TO BE PARALLEL TO EACH OTHER WITHIN .001 IN. TIR. I.D. CLEARANCE .003 - .005 IN. FOR SYSTEMS V/ BEARING THRUST PRELOAD PRESET BY ADJUSTING NUT DR SIMILAR ARRANGEMENT, CLAMPING OF SPACER, BEARING RACE, ETC. MUST BE AGAINST A SEPARATE SHOULDER HAS SHOWN. THE SHOULDER MUST BE SQUARE WITHIN .002 IN. TIR.
 - MOUNTING FACE MUST BE SQUARE TO FEED SCREW SHAFT WITHIN .001 IN. TIR IN 3 IN. DIA.
 - O.NLY PARTS INDICATED V/ PART NUMBER SIGN (#) ARE SUPPLIED BY SERVVO.
 - 1LG* INDICATES LENGTH TO DETERMINED BY CUSTOMER.

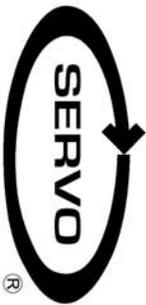
CONFIGURATION 1

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES & DECIMALS THEREOF. ANGLES ARE IN DEGREES & MINUTES. FINISH: RAAS ± 1/64, RAAS ± .005. MATERIAL: BRASS. CHECKED: G. BADDEA. DATE: 7/25/94. APPROVALS: G. BADDEA. CONTRACT NO.: N3438_1A.DWG. COMPUTER NO.: NB-3438. DRAWING NO.: NB-3438. SCALE: 1/2. SHEET: 1 OF 3.

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SERVVO PRODUCTS COMPANY
 34940 LAKELAND BLVD., EASTLAKE, OH 44095
INSTALLATION DRAWING
MODEL 2500
 SIZE CODE IDENT. NO. 0800-80046
 DRAWING NO. NB-3438
 SCALE 1/2 SHEET 1 OF 3



M-2500 TABLE FEED PARTS IDENTIFICATION LIST

- 0266 Limit Switch Gasket Qty = 1
- 1133 Limit Switch Bracket Qty = 1
- 06928 Phil Pan Hd Screw Qty = 4

- 01115 Lock Nut Qty = 1
- 00614 Key Qty = 1
- 59254 Dial Nut Qty = 1
- 01251 Brass Shim Qty = 5
- 01252 Plastic Shim Qty = 2
- 0237 Bevel Gear Qty = 1

- 0589-32 .032 Shim Qty = 5
- 0589-16L .016 Shim Qty = 2
- 0857 Bearing Race Qty = 1
- 00596 Roll Pin Qty = 2
- 00602 Soc Head Cap Screw Qty = 2