



TURBO DRIVE INSTALLATION

MODEL 9814T KNEE FEED

Bridgeport Series 2

➔ **NOTE** This Turbo Drive Knee Feed is configured for mounting the feed on the front of the knee with the keypad facing left. The lead screw pitch is 5 turns per inch left hand with 2 to 1 reducing bevel gear set from the jack shaft to the lead screw (jack screw). See **CAUTION** below before changing anything!

CAUTION

The Turbo Drive power cable should be left **unplugged** until the drive is properly installed on the lead screw.

See the **Operation** manual to reverse the direction of travel or to change the lead screw pitch default. Turn **off** the Turbo Drive and **remove** the power plug from the wall before you attempt to change any jumpers or reverse the top housing.

WARNINGS

DO NOT install and operate this power feed without the **8" safety handwheel Servo #1685-1** for the knee feed. **This is required to prevent injury.**

Check handwheel clearances before operation.

Clearances between the surfaces of the handwheel and the non-moving parts of the equipment on which the handwheel is installed must be at least one-fourth inch (1/4") to prevent injury.

Do not operate without proper clearance!

Prevent contact during fast traverses.

WARRANTY CAUTION

There are **NO** user-serviceable parts inside the center or bottom housings. Removal of the motor, keyboard, or bottom housing screws **voids** the warranty.

REFERENCE DRAWINGS ENCLOSED

| | |
|------------|------------------------------|
| NA-58496 | Bevel Gear Installation |
| NB-58717 | Turbo Drive Installation |
| 0800-80678 | Turbo Drive Operation manual |

PREPARATION

Step 1: Gather together the following items that you will need to complete this installation.

- lathe
- 3/8" electric hand drill
- 1/8" drill, #Q drill

- d) 3/8-24 tap
- e) flat file
- f) 3/4" socket wrench
- g) set of inch hex wrenches
- h) grease
- i) 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. (Unscrew the set screw to remove.)

Step 5: Remove the three bearing housing screws and pull the jack shaft out of the knee. Hold inboard end up while removing to avoid damage to the pinion gear.

Step 6: Press the bearing off the jack shaft.

Step 7: 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 8: 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 9: Reassemble and replace the jack shaft in the machine.

Step 10: Install adaptor #58710 with three #01143 1/4-20 x 3" long socket head cap screws provided.

TURBO DRIVE INSTALLATION

Step 1: Slide bearing race #58711 onto the jack shaft as shown.

Step 2: Slide the Turbo Drive 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 $\pm .05$ ", then either shim behind the race or machine the spacer to correctly locate the race.

BEVEL GEAR INSTALLATION

Step 1: Follow the drawing NA-58496 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, install the key, dial #06366 and dial nut #59254. Slide the handwheel #1685-1 and spacer #6811 in place and tighten with 1/2-20 locknut #01115.

TURBO DRIVE OPERATION

See the separate **Servo Turbo Drive Operation** manual for complete operating instructions. Plug the unit into a properly grounded three-wire outlet supplying 110 volt single phase 50/60 Hz 6 amp power. Turn the control switch ON and follow the instructions in the manual or on the **Quick Reference** sheet for setting limits.

SERVO PRODUCTS COMPANY

Web: www.servoproductsco.com

CALIFORNIA BRANCH

1355 W. Foothill Blvd.
Azusa, CA 91702

Ph. 626.691.0121 Fax 626.334.7301

HEADQUARTERS

34940 Lakeland Blvd.
Eastlake, OH 44095

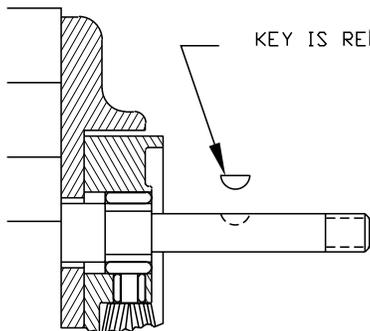
Ph. 440.942.9999 Fax 440.942-9100

FLORIDA BRANCH

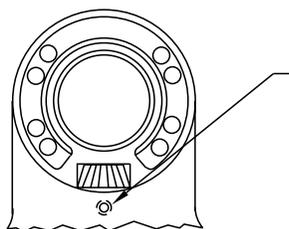
8950 131st Ave. N.
Largo, FL 33773

Ph. 727.585.8555 Fax 727.585.6555

DO NOT PLUG IN POWER UNTIL ALL STEPS ARE COMPLETED.

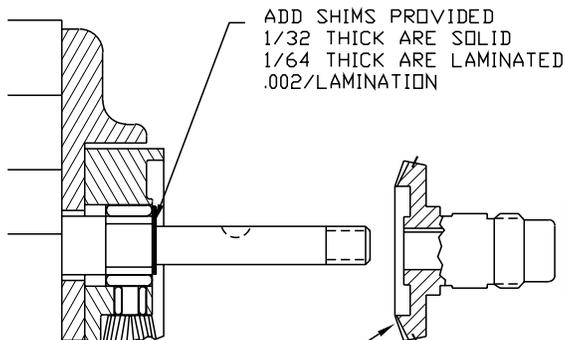


KEY IS REMOVED DURING SHIMMING

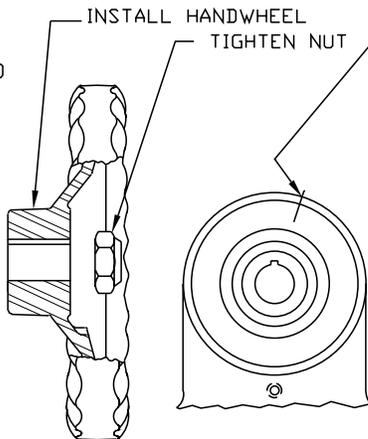


TIGHTEN SLIGHTLY (HOLDS BEVEL PINION STATIONARY DURING SHIMMING.)
(TIGHTEN UPPER ONE ONLY)

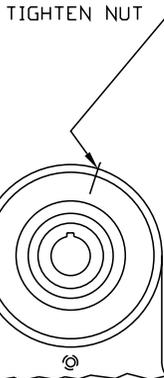
STEP 1
PREPARATION



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

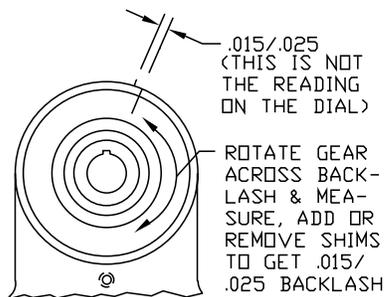


INSTALL HANDWHEEL



TIGHTEN NUT

SCRIBE ACROSS GEAR & HOUSING WHILE PUSHING GEAR AGAINST ONE SIDE OF THE BACKLASH



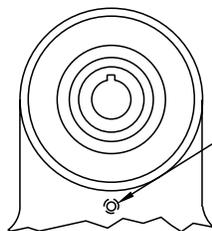
.015/.025
(THIS IS NOT THE READING ON THE DIAL)

ROTATE GEAR ACROSS BACKLASH & MEASURE, ADD OR REMOVE SHIMS TO GET .015/.025 BACKLASH

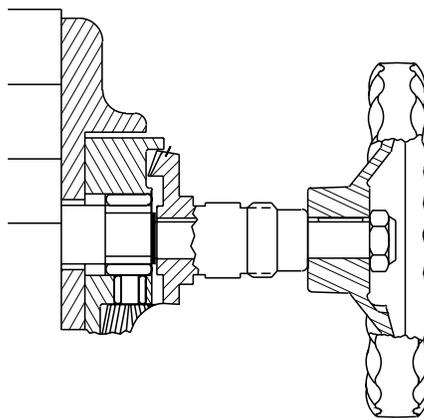
PUSH BEVEL GEAR AGAINST SHIMS.

STEP 2
SHIMMING BEVEL GEAR

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

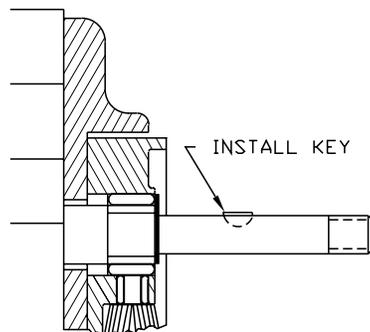


LOOSEN SETSCREW

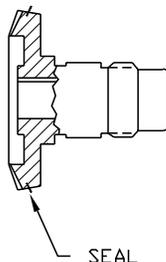


MANUALLY TURN HANDWHEEL. IF EXCESSIVE GEAR NOISE OR BINDING OCCURS, SHIMS NEED TO BE ADDED OR REMOVED, WHEN RE-SHIMMING, REPEAT STEPS 1 AND 2.

STEP 3
DOUBLE CHECK OF SHIMMING



INSTALL KEY



SEAL

STEP 4
LUBRICATION

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.

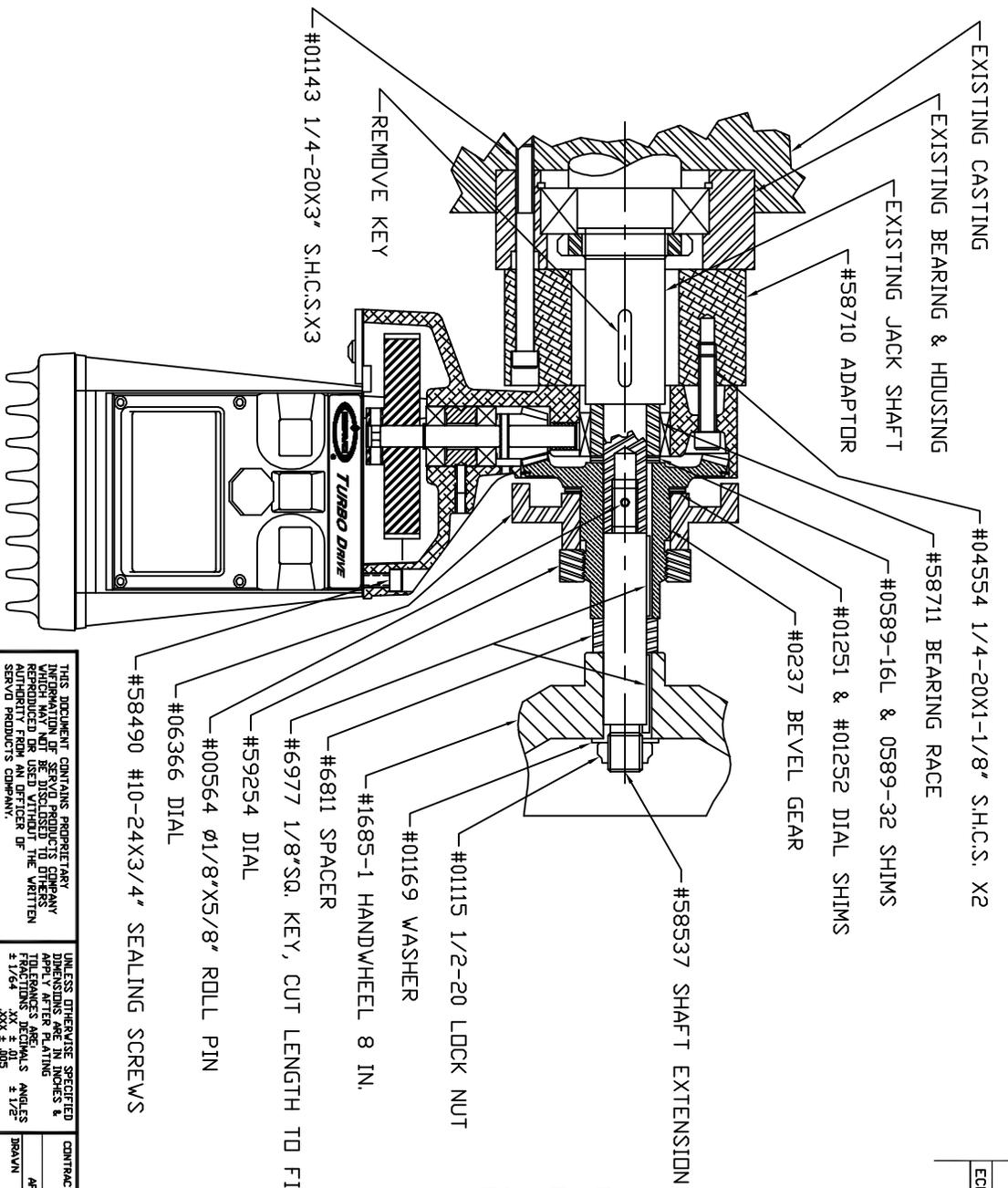


SERVO PRODUCTS COMPANY

BEVEL GEAR INSTALLATION

NA-58496

| REVISION | | DATE | DRAWN | CHECKED |
|----------|-----|-------------|-------|---------|
| ECD | LTR | DESCRIPTION | | |



NOTES:
 1. REVIEW ALL INSTALLATION INSTRUCTIONS AND POWER FEED OPERATIONS BEFORE TURNING ON SERVO POWER FEED.
 2. REMOVAL OF MOTOR, KEY PAD OR BOTTOM HOUSING VOIDS THE WARRANTY.

UNLESS OTHERWISE SPECIFIED PERPENDICULARITY, PARALLELISM, STRAIGHTNESS, FLATNESS, ROUNDNESS, CONCENTRICITY, CYLINDRICITY TO BE WITHIN 0.1 TOTAL OR 0.040/ft. SURFACE ROUGHNESS WITHIN 125 REMOVE SHARP CORNERS AND EDGES .005 MIN. DIMING STANDARD PER ANSI Y14.3M-1982

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & FRACTIONS ARE IN DECIMALS ANGLES ± 1/2° MATERIAL ± 1/64" XX ± .005

| CONTRACT NO. | APPROVALS | DATE |
|-----------------------|-----------|----------|
| | T. KU | 12/30/98 |
| APPLICATION | USED ON | |
| NEXT ASSY | | |
| DID NOT SCALE DRAWING | FINISH | |
| COMPUTER NO. | CHECKED | |

SERVO PRODUCTS COMPANY
 34940 LAKELAND BLVD. EASTLAKE, OHIO 44095

INSTALLATION DRAWING

MODEL 9814T

| | | | |
|-----------|----------------|-------------|------|
| SIZE | CODE IDENT NO. | DRAWING NO. | REV. |
| B | 0800-80776 | NB-58717 | A |
| SCALE 5/8 | | SHEET | OF |