



**TYPE 200 DRIVE
INSTALLATION
MODEL 9814 KNEE FEED
Bridgeport Series II**

CAUTION

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

WARNINGS

DO NOT use the original knee hand crank. Use the 8" safety handwheel Servo #1685-1 supplied with 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

Consult us before opening the power feed. Removal of the bottom housing screws voids the warranty.

REFERENCE DRAWINGS ENCLOSED

NA-5444	Bevel Gear Installation
NB-59960	Power Feed Installation
NC-0792	Limit switch Installation
0800-80001	Power Feed Operation manual

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) 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) general purpose lube grease
- i) clean shop rag

- Step 2:* Clean the power feed mounting area completely.
- Step 3:* Remove the drive clutch from the knee elevating hand crank 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 hand crank 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 hand crank 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 hand crank 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 hand crank shaft in the machine.
- Step 10:* Install adaptor #58710 with three #01143 1/4-20 x 3" long socket head cap screws provided.

POWER FEED INSTALLATION

- Step 1:* Slide bearing race #58711 onto the hand crank shaft 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 $\pm.05$ ", 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, 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.

POWER FEED OPERATION

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

LIMIT SWITCH INSTALLATION

Step 1: See the limit switch installation drawing NC0792.

Step 2: Test the switch by hand to be sure stopping direction is correct. The direction can be changed by turning the switch over and using the top cover and long screws supplied in the parts kit.

SERVO PRODUCTS COMPANY

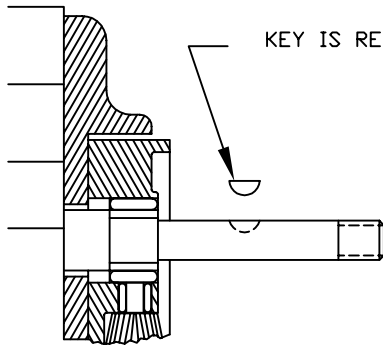
Web: www.servoproductsco.com

HEADQUARTERS

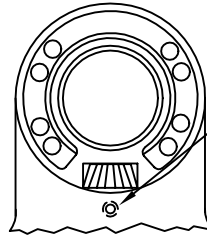
34940 Lakeland Blvd.
Eastlake, OH 44095
Ph. 440.942.9999 Fax 440.942-9100

FLORIDA BRANCH

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

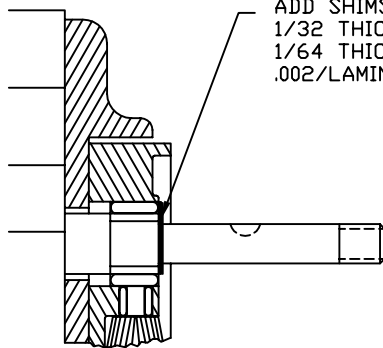


KEY IS REMOVED DURING SHIMMING

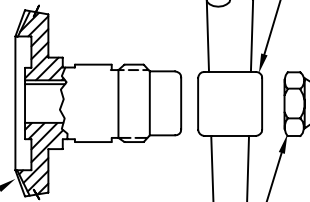


TIGHTEN SLIGHTLY (HOLDS BEVEL PINION STATIONARY DURING SHIMMING.)

STEP 1
PREPARATION



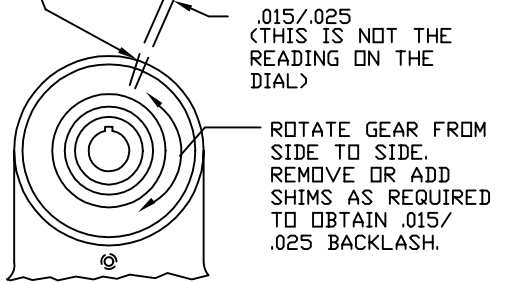
ADD SHIMS PROVIDED
1/32 THICK ARE SOLID
1/64 THICK ARE LAMINATED
.002/LAMINATION



PUSH BEVEL GEAR
AGAINST SHIMS.

INSTALL HANDCRANK.

MARK HOUSING AND BEVEL GEAR
WITH PENCIL TO CHECK BACKLASH.



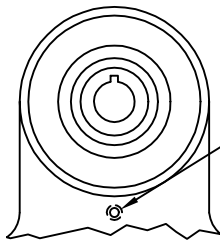
.015/.025
(THIS IS NOT THE
READING ON THE
DIAL)

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

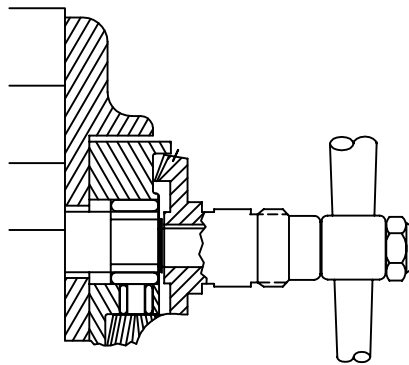
TIGHTEN NUT.

STEP 2
SHIMMING BEVEL
GEAR

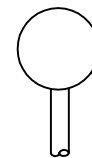
CAUTION: IF BACKLASH
IS NOT PROPERLY SET
BEFORE TURNING UNIT ON,
BEVEL GEAR MAY BE
DESTROYED.



LOOSEN SETSCREW

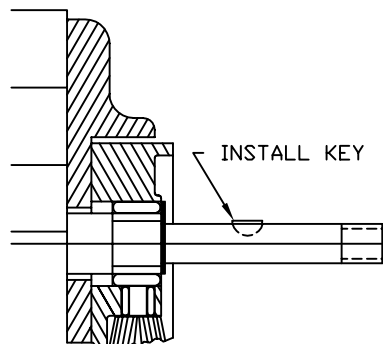


WITH POWER FEED IN
NEUTRAL POSITION, TURN
HANDCRANK. IF EXCESSIVE
GEAR NOISE OR BINDING
OCCURS, SHIMS NEED TO BE
ADDED. WHEN ADDING SHIMS,
REPEAT STEPS 1 AND 2.

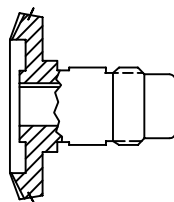


CONTROL HANDLE @
NEUTRAL POSITION

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.

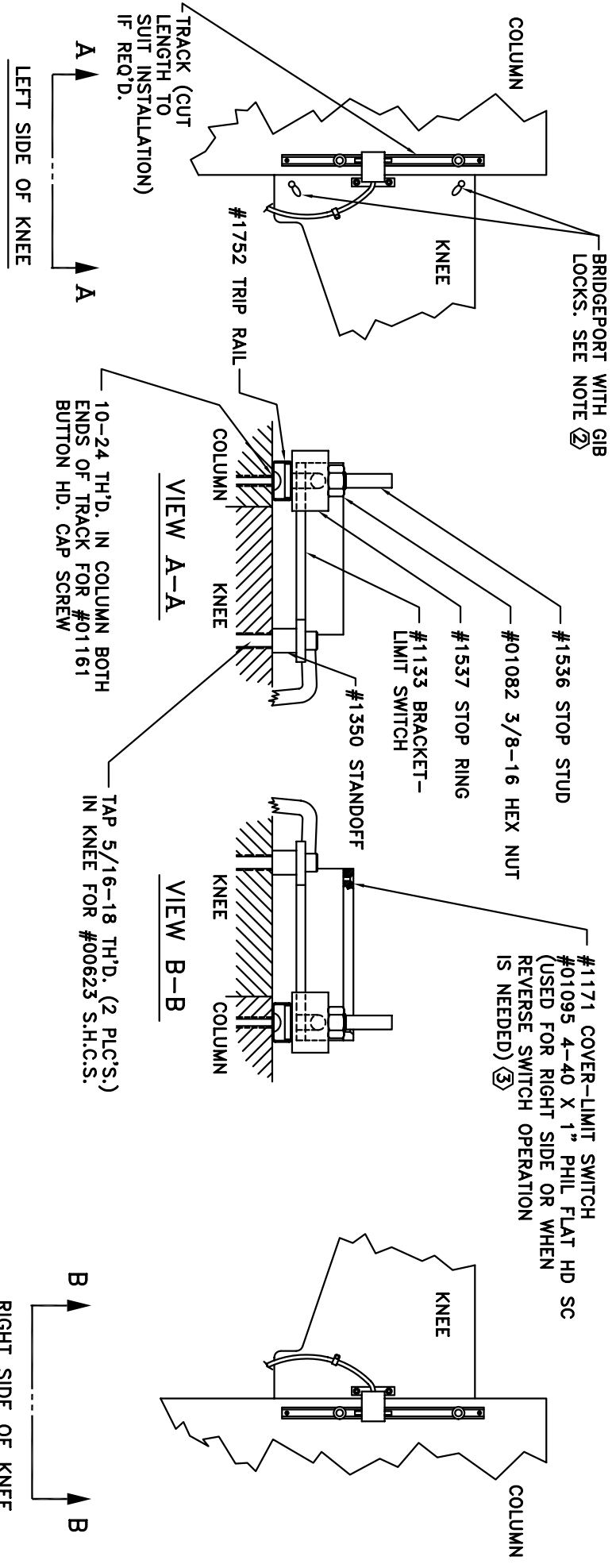
SERVO PRODUCTS COMPANY

BEVEL GEAR INSTALLATION

NA-5444 C

STEP 4
LUBRICATION

REVISION		DATE	DRAWN	CHECKED
ECD	LTR	DESCRIPTION		



- NOTES:**
1. LIMIT SWITCH MAY BE MOUNTED ON RIGHT OR LEFT HAND SIDE OF MILL.
 2. BRIDGEPORT WITH GIB LOCKS IN KNEE MOUNT LIMIT SWITCH ON RIGHT HAND SIDE OF KNEE.
 3. LIMIT SWITCH BOX MAY BE TURNED OVER TO REVERSE SWITCH OPERATION IF REQUIRED.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES & TOLERANCES ARE AS FOLLOWS: DECIMALS ± 1/64 XX ± .005 ANGLES ± 1/2° FINISH UNLESS OTHERWISE SPECIFIED, FLATNESS TO BE WITHIN .01 CONCENTRICITY TO BE WITHIN .01 REMOVE SHARP EDGES AND CORNERS .005 MIN.

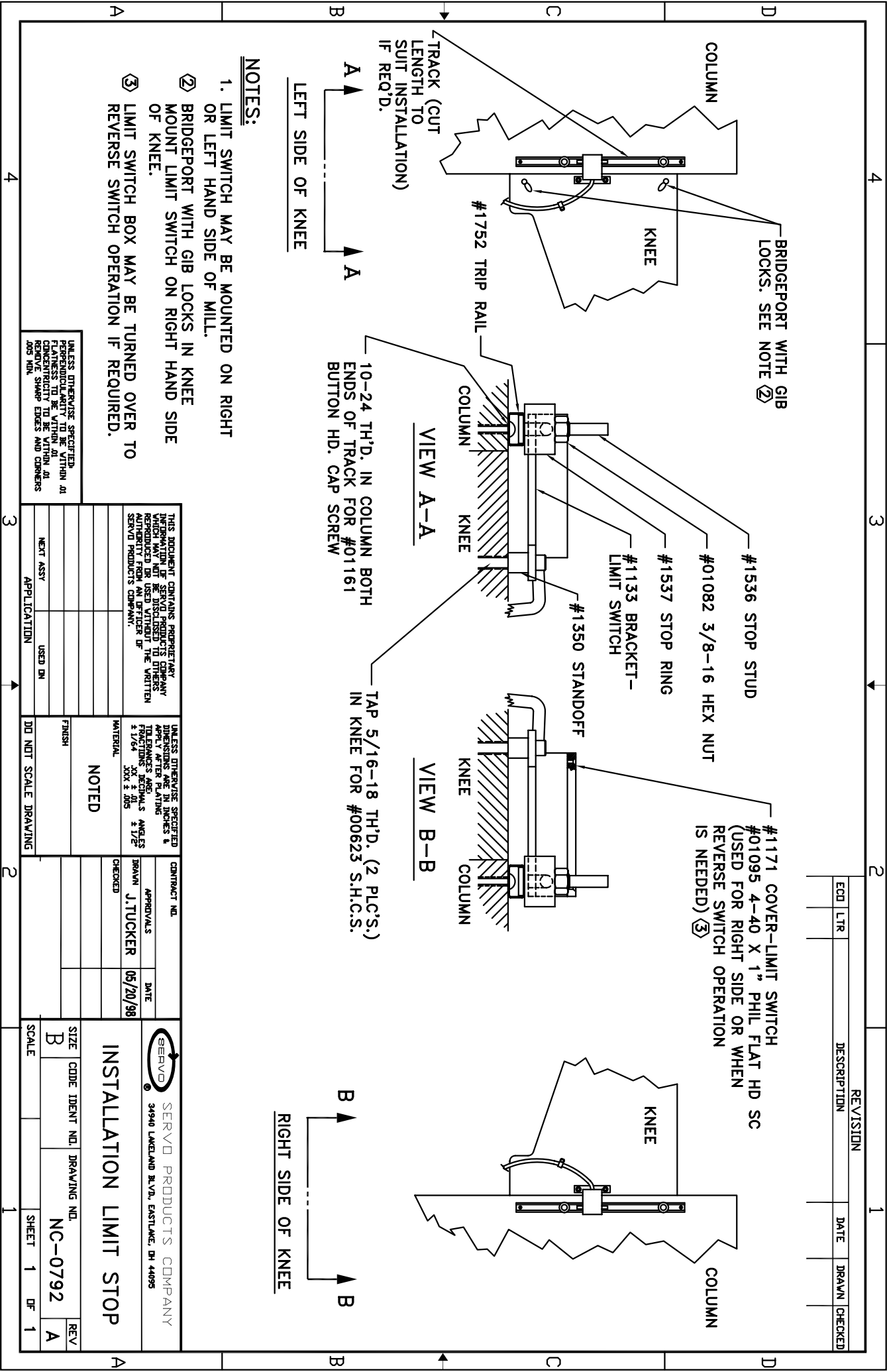
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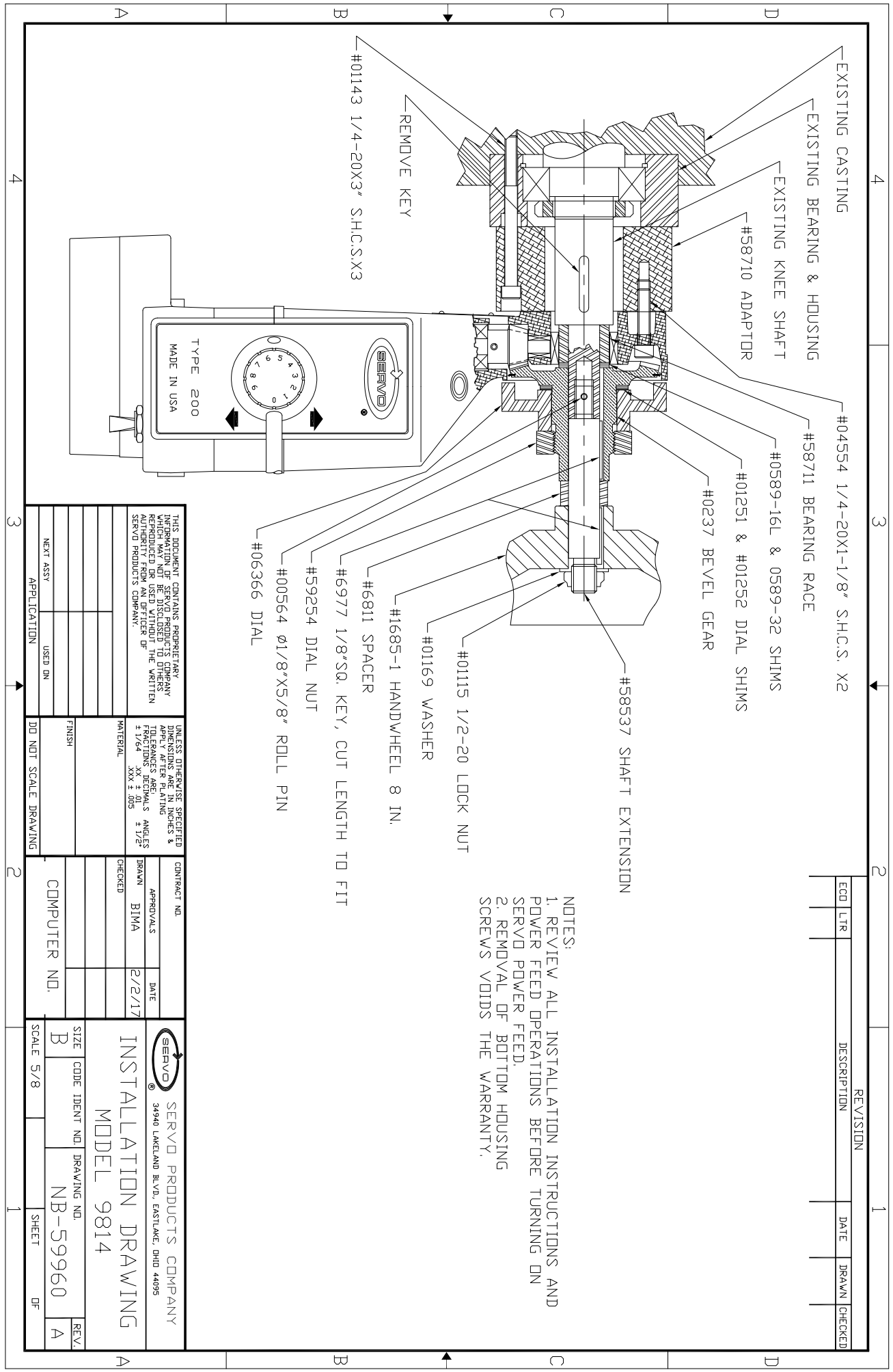
CONTRACT NO.	APPROVALS	DATE
	DRAWN J. TUCKER	05/20/98
CHECKED		

SERVOD PRODUCTS COMPANY
34940 LAKELAND BLVD., EASTLAKE, OH 44095

INSTALLATION LIMIT STOP

SIZE	CODE	IDENT	NOL.	DRAWING	NOL.
B				NC-0792	A
SCALE				SHEET	1 OF 1





REVISION		DATE	DRAWN	CHECKED
ECO	LTR			
DESCRIPTION				

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

- EXISTING CASTING
- EXISTING BEARING & HOUSING
- EXISTING KNEE SHAFT
- #58710 ADAPTOR
- #04554 1/4-20X1-1/8" S.H.C.S. X2
- #58711 BEARING RACE
- #0589-16L & 0589-32 SHIMS
- #01251 & #01252 DIAL SHIMS
- #0237 BEVEL GEAR
- #58537 SHAFT EXTENSION
- #01115 1/2-20 LOCK NUT
- #01169 WASHER
- #1685-1 HANDWHEEL 8 IN.
- #6811 SPACER
- #6977 1/8"SQ. KEY, CUT LENGTH TO FIT
- #59254 DIAL NUT
- #00564 Ø1/8"X5/8" ROLL PIN
- #06366 DIAL
- REMOVE KEY
- #01143 1/4-20X3" S.H.C.S.X3

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

CONTRACT NO.	APPROVALS	DATE	SERVO PRODUCTS COMPANY 34940 LAKELAND BLVD., EASTLAKE, OHIO 44095
	BIMBA	2/2/17	
FINISH	CHECKED		INSTALLATION DRAWING MODEL 9814
DD NOT SCALE DRAWING	COMPUTER NO.		
APPLICATION	USED ON		SIZE CODE IDENT NO. DRAWING NO. NB-59960
			SCALE 5/8
			SHEET
			REV. A