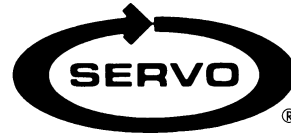


POWER FEED INSTALLATION

Model M-2380 Knee Feed

Exacto, Maxmill, Do All and
Supermax



REFERENCE DRAWINGS ENCLOSED

NA-5444	Bevel Gear Installation
NC-0792	Limit Switch Installation
NB-3265	Power Feed Installation
ND-6292	Type 140 Servo Drive
0800-80001	Servo Power Feed Operation

PREPARATION

- Step 1:* Remove the drive clutch from the elevating jack shaft. (The 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:* Carefully pull the jack shaft out of the knee. **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 and 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:* Drill 1/8 diameter through the shaft extension and pin the shaft extension with the 1/8 x 5/8 long roll pin. File smooth.
- Step 9:* Reassemble the jack shaft as before.
- Step 10:* Replace the jack shaft in the machine.

POWER FEED INSTALLATION

- Step 1:* Slide the bearing race onto the jack shaft with the counterbored end against the bearing.
- Step 2:* Slide the feed unit over the bearing race and against the mill. Spot the mill feed mounting holes in the bearing retainer. Drill and tap 1/4-20 thread in two places.
- Step 3:* Secure the feed with 1/4-20 x 1" 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. Four washers are provided for this, two solid and two laminated. Shim as required.

Step 2: In the following sequence, put on the dial locking nut, replace key in the shaft (if removed), slide on the .140" thick spacer if required, then slide handwheel in place. Add the washer and lock nut.

LIMIT SWITCH INSTALLATION

Step 1: See limit switch installation drawing NC-0792 enclosed.

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!

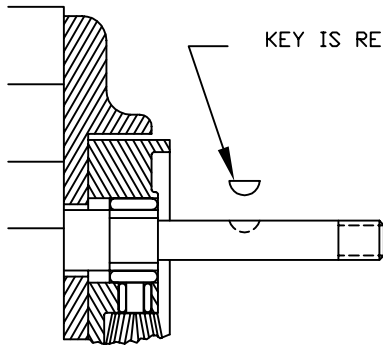
Prevent contact during fast traverses.

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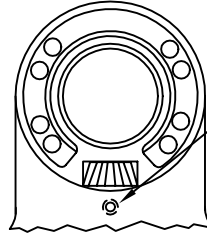
433 North Fair Oaks Avenue, Pasadena, CA 91103 USA
Phone: 800.521.7359 or 626.796.2460 Fax: 626.796.3845

Web: www.servoproductsco.com

Call for the location of our regional Service Centers.

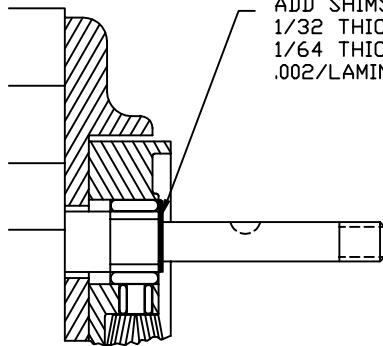


KEY IS REMOVED DURING SHIMMING

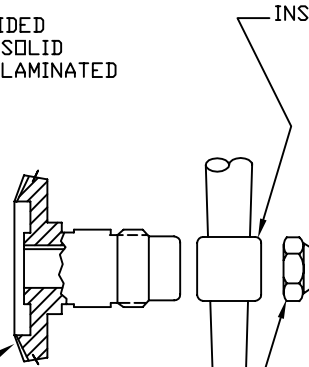


TIGHTEN SLIGHTLY (HOLDS BEVEL PINION STATIONARY DURING SHIMMING.)

STEP 1
PREPARATION



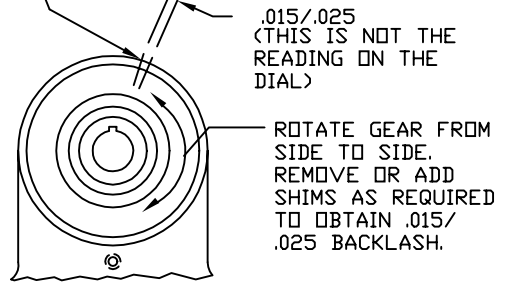
ADD SHIMS PROVIDED
1/32 THICK ARE SOLID
1/64 THICK ARE LAMINATED
.002/LAMINATION



PUSH BEVEL GEAR AGAINST SHIMS.

INSTALL HANDCRANK.

MARK HOUSING AND BEVEL GEAR WITH PENCIL TO CHECK BACKLASH.



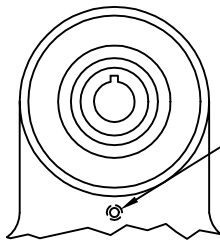
.015/.025
(THIS IS NOT THE READING ON THE DIAL)

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

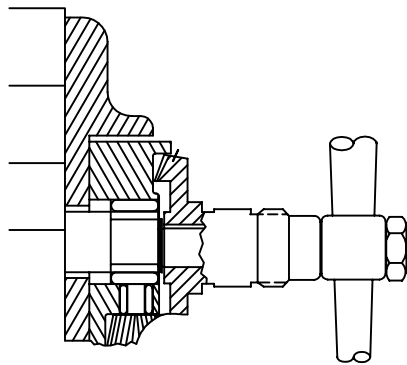
TIGHTEN NUT.

STEP 2
SHIMMING BEVEL GEAR

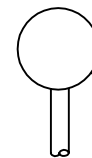
CAUTION: IF BACKLASH IS NOT PROPERLY SET BEFORE TURNING UNIT ON, BEVEL GEAR MAY BE DESTROYED.



LOOSEN SETSCREW

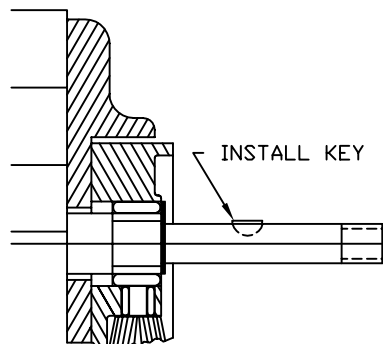


WITH POWER FEED IN NEUTRAL POSITION, TURN HANDCRANK. IF EXCESSIVE GEAR NOISE OR BINDING OCCURS, SHIMS NEED TO BE ADDED. WHEN ADDING SHIMS, REPEAT STEPS 1 AND 2.

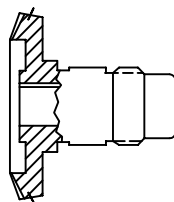


CONTROL HANDLE @ NEUTRAL POSITION

STEP 3
DOUBLE CHECK OF SHIMMING



INSTALL KEY



SEAL

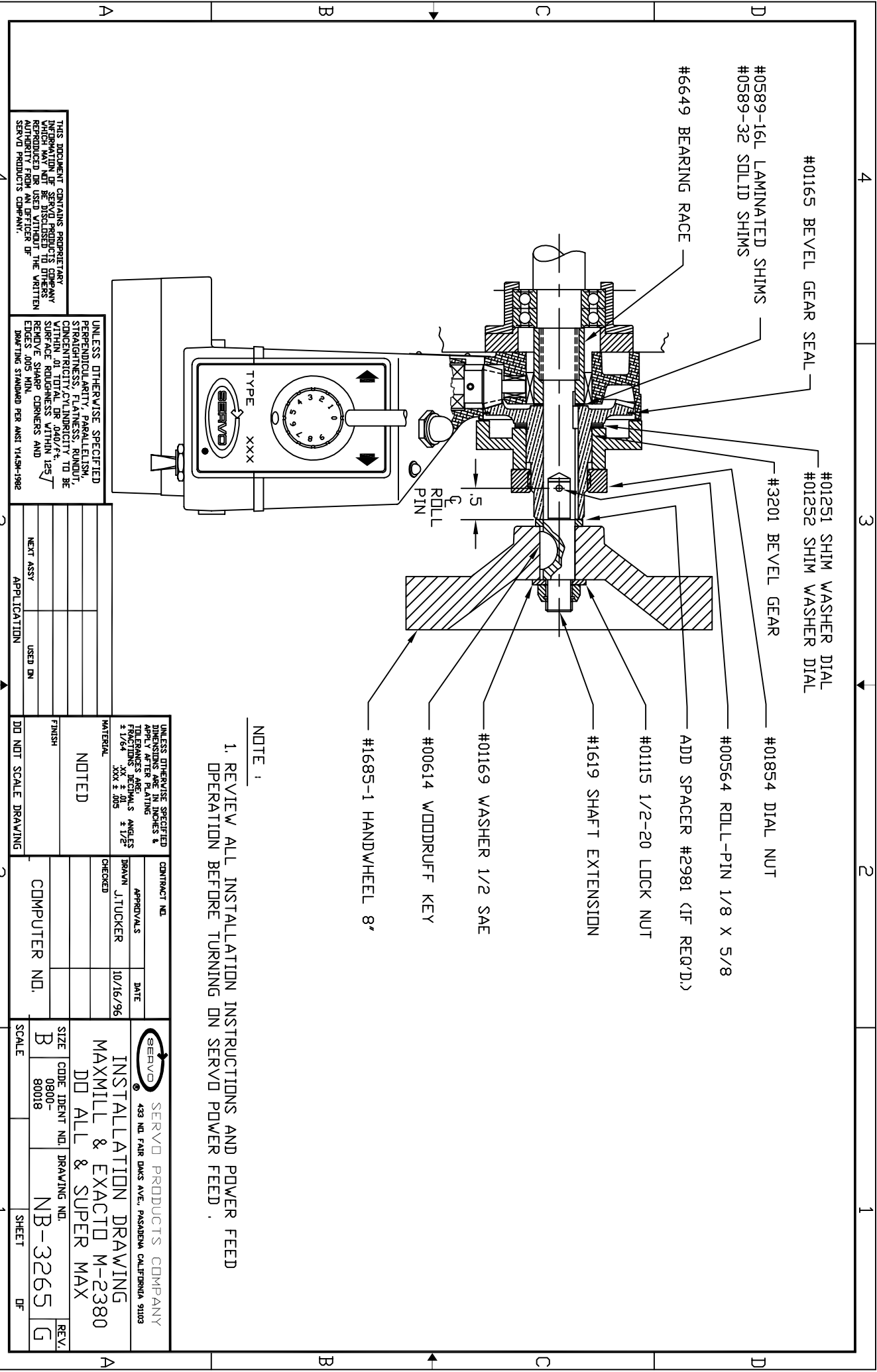
REMOVE GEAR, PACK WITH GREASE. (DO NOT USE SILICONE TYPE GREASE) REPLACE GEAR. (DO NOT LOSE ANY SHIMS)

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



NOTE :
 1. REVIEW ALL INSTALLATION INSTRUCTIONS AND POWER FEED OPERATION BEFORE TURNING ON SERVO POWER FEED .

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION WHICH MAY NOT BE DISCLOSED TO OTHERS WITHOUT THE WRITTEN AUTHORITY FROM AN OFFICER OF SERVO PRODUCTS COMPANY.

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. DRAWING STANDARD PER ANSI Y14.5M-1982

APPROVALS	DATE
DRAWN J.TUCKER	10/16/96
CHECKED	

CONTRACT NO.	DATE
APPROVALS	10/16/96
DRAWN J.TUCKER	
CHECKED	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & TOLERANCES ARE FRACTIONS DECIMALS ANGLES	CONTRACT NO.	DATE
± 1/64 ± .005 ± .005 ± 1/2°	APPROVALS	10/16/96
MATERIAL	DRAWN J.TUCKER	
NOTED	CHECKED	
FINISH	COMPUTER NO.	
DID NOT SCALE DRAWING		

INSTALLATION DRAWING
 MAXMILL & EXACTO M-2380
 DO ALL & SUPER MAX

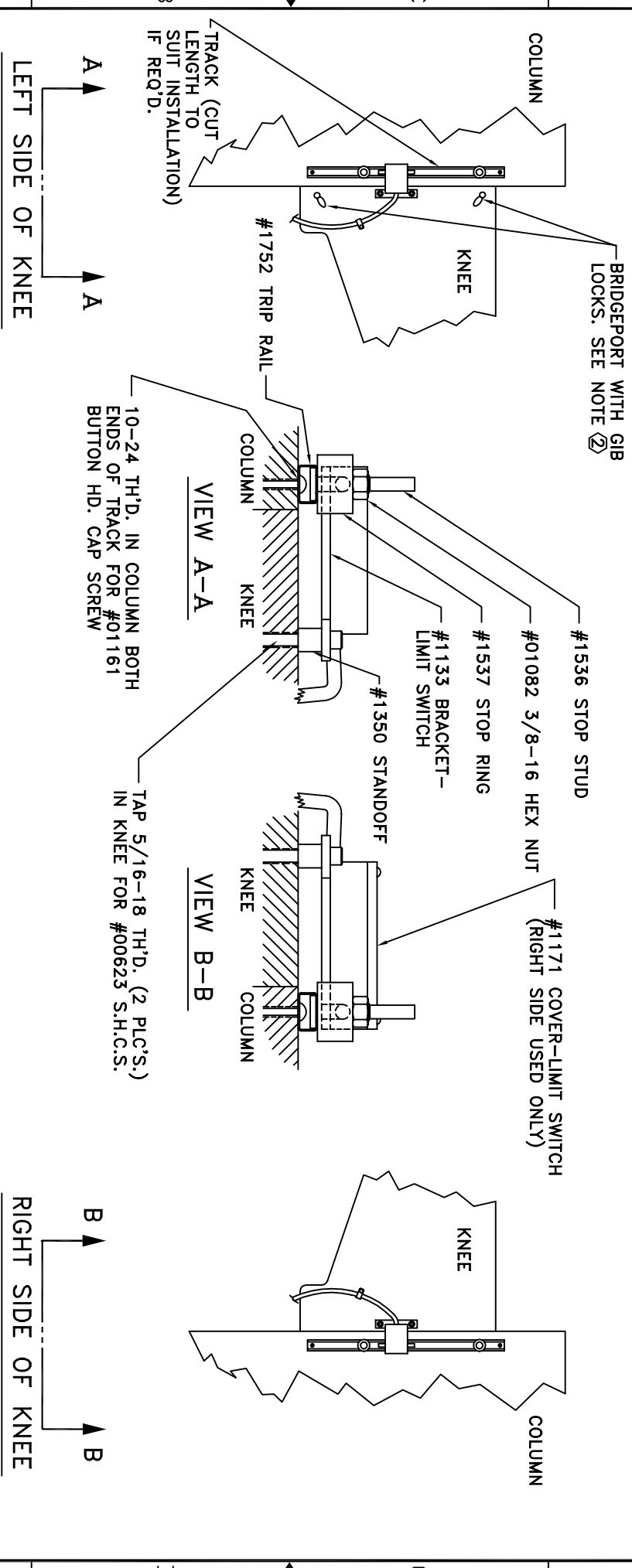
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SIZE B
 CODE 0800-80018
 DRAWING NO. NB-3265
 REV. G

SCALE B
 SHEET 1 OF 1

REVISION		DATE	DRAWN	CHECKED
ECD	LTR	DESCRIPTION		

- NOTES:**
- LIMIT SWITCH MAY BE MOUNTED ON RIGHT OR LEFT HAND SIDE OF MILL.
 - BRIDGEPORT WITH GIB LOCKS IN KNEE MOUNT LIMIT SWITCH ON RIGHT HAND SIDE OF KNEE.



UNLESS OTHERWISE SPECIFIED, FLATNESS TO BE WITHIN .01, CONCENTRICITY TO BE WITHIN .01, REMOVE SHARP EDGES AND CORNERS .005 MIN.

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MATERIAL: NOTED

FINISH: NOTED

DID NOT SCALE DRAWING

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

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INSTALLATION LIMIT STOP

SIZE: B CODE IDENT. NO.: DRAWING NO.: NC-0792

SCALE: SHEET 1 OF 1