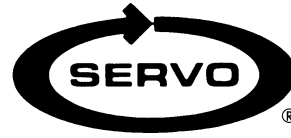


POWER FEED INSTALLATION

Model M-9819 Knee Feed

Atrump Mill



REFERENCE DRAWINGS ENCLOSED

NA-5444	Bevel Gear Installation
NB-57658	Limit Switch Installation
NB-57655	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:* Pull the jack shaft out of the knee carefully. **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 x 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:* Place the shaft extension into the end of the jack shaft. Drill 3/16 diameter through shaft extension and pin extension with 3/16 x 5/8 roll pin. File smooth.
- Step 9:* Reassemble the jack shaft as before.
- Step 10:* Replace the jack shaft in machine.

POWER FEED INSTALLATION

- Step 1:* Slide the bearing race onto the jack shaft with the counterboarded end against the bearing.
- Step 2:* Slide the feed unit over the bearing race 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 feed with 1/4 - 20 x 1" long socket 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 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 and replace the key in shaft (if removed). Then slide the handwheel in place. Add the washer and locking stop nut.

LIMIT SWITCH INSTALLATION

Step 1: See limit switch installation on drawings NB-57658 and NB-57655.

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!

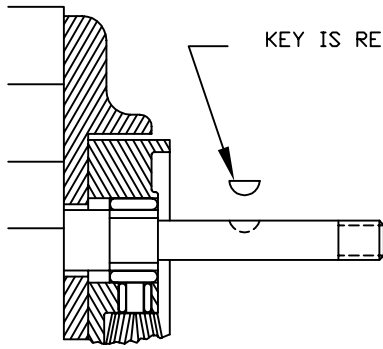
Prevent contact during fast traverses.

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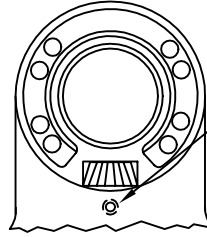
433 North Fair Oaks Avenue, Pasadena, CA 91103 USA
Phone: 800.521.7359 or 626.796.2460 Fax: 626.796.3845

Web: www.servoproductsco.com

Call for the location of our regional Service Centers.

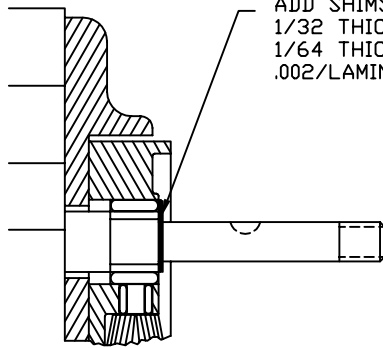


KEY IS REMOVED DURING SHIMMING

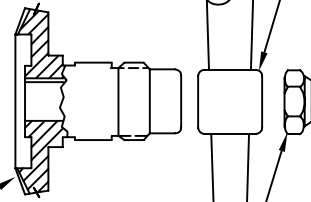


TIGHTEN SLIGHTLY (HOLDS BEVEL PINION STATIONARY DURING SHIMMING.)

STEP 1
PREPARATION



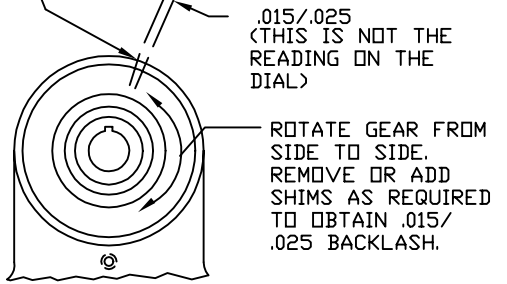
ADD SHIMS PROVIDED
1/32 THICK ARE SOLID
1/64 THICK ARE LAMINATED
.002/LAMINATION



PUSH BEVEL GEAR AGAINST SHIMS.

INSTALL HANDCRANK.

MARK HOUSING AND BEVEL GEAR WITH PENCIL TO CHECK BACKLASH.



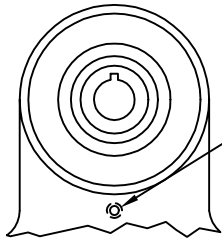
.015/.025
(THIS IS NOT THE READING ON THE DIAL)

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

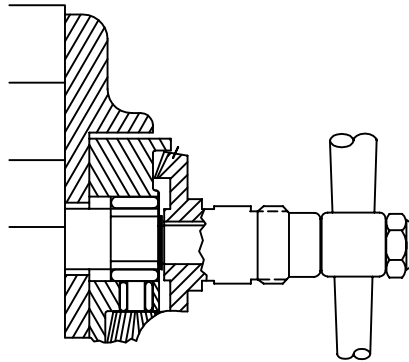
TIGHTEN NUT.

STEP 2
SHIMMING BEVEL GEAR

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



LOOSEN SETSCREW

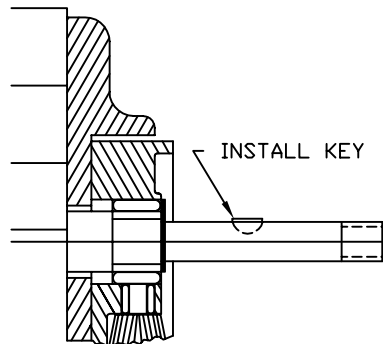


WITH POWER FEED IN NEUTRAL POSITION, TURN HANDCRANK. IF EXCESSIVE GEAR NOISE OR BINDING OCCURS, SHIMS NEED TO BE ADDED. WHEN ADDING SHIMS, REPEAT STEPS 1 AND 2.

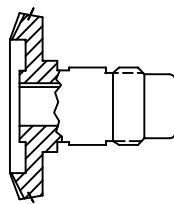


CONTROL HANDLE @ NEUTRAL POSITION

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.

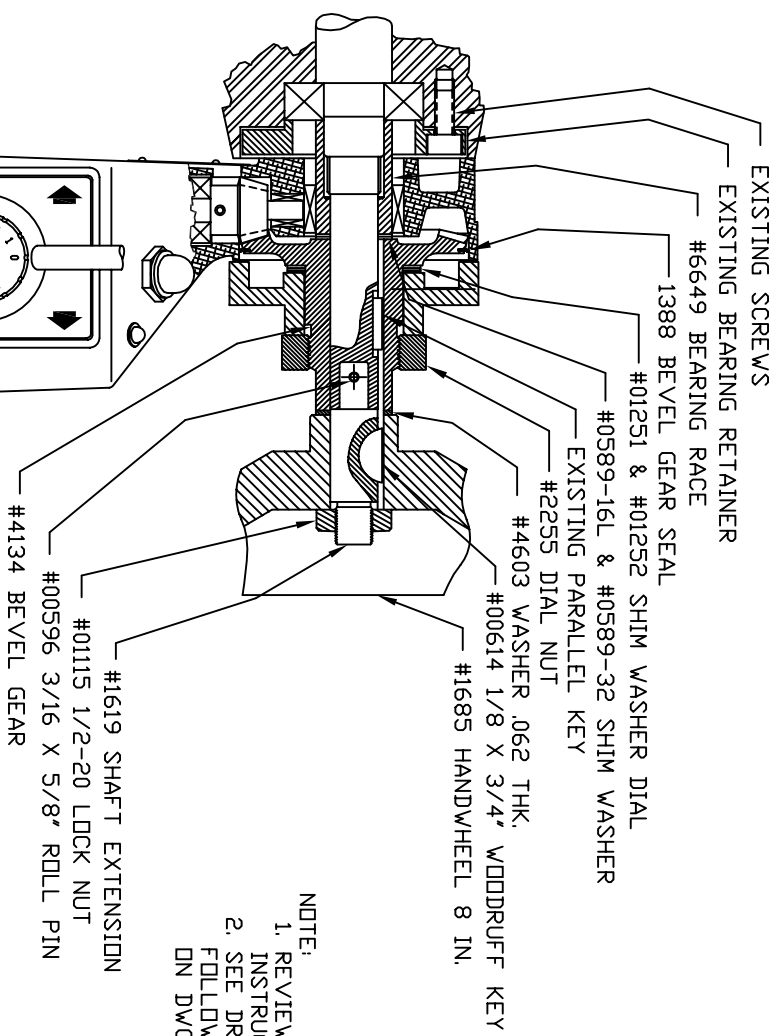
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BEVEL GEAR INSTALLATION

NA-5444 C

STEP 4
LUBRICATION

REVISION		DATE	DRAWN	CHECKED
ECD	LTR	DESCRIPTION		



NOTE:
 1. REVIEW ALL INSTALLATION INSTRUCTIONS AND POWER FEED OPERATION INSTRUCTION BEFORE TURNING ON SERVO POWER FEED.
 2. SEE DRAWING NB-57658 FOR KNEE 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	-	1861	05245	1752
DESCRIP.	STANDOFF	-	BRACKET	1/4-20 S.H.C.S.	TRIP RAIL
LENGTH	3.0	-	-	3.75	-

UNLESS OTHERWISE SPECIFIED PERPENDICULARITY, PARALLELISM, STRAIGHTNESS, FLATNESS, ROUNDNESS, CONCENTRICITY, CYLINDRICITY TO BE WITHIN .01 TOTAL OR .040/ft. SURFACE ROUGHNESS WITHIN 125 REMOVE SHARP CORNERS AND EDGES .005 MIN. DRAWING STANDARD PER ANSI Y14.5M-1982

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

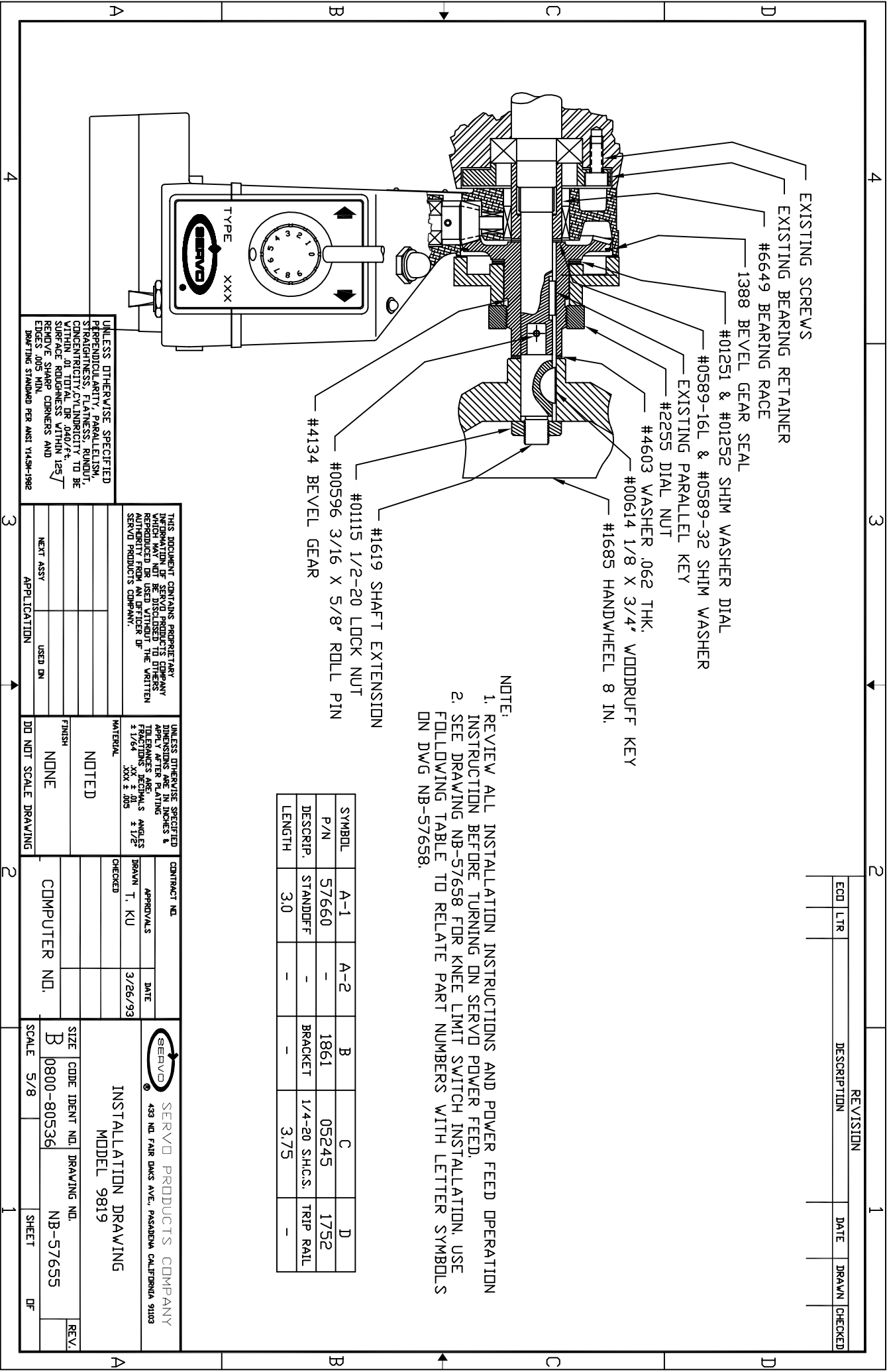
CONTRACT NO.	APPROVALS	DATE
	T. KU	3/26/93
CHECKED		
FINISH	NONE	
DID NOT SCALE DRAWING		
APPLICATION	USED ON	
NEXT ASSY		

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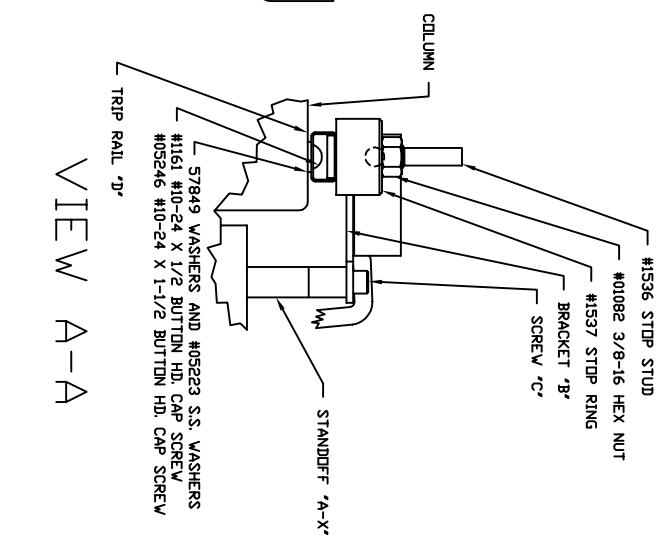
INSTALLATION DRAWING
 MODEL 9819

SIZE CODE IDENT. NO. DRAWING NO. REV.
 B 0800-80536 NB-57655

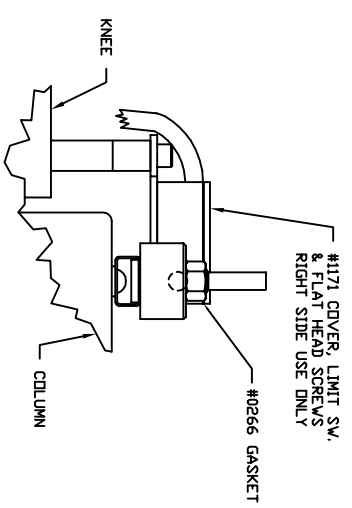
SCALE 5/8 SHEET DF



REVISION		DATE	DRAWN	CHECKED
ECD	LTR			
DESCRIPTION				

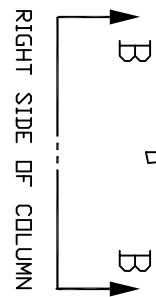
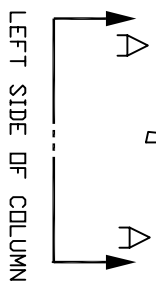


VIEW A-A



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, FINISHES TO BE WITHIN .015 CENTRICITY TO BE WITHIN .01 REMOVE SHARP EDGES AND CORNERS .005 MIN.

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DRAWN T. KU		APPROVALS	CHECKED	03/18/93	
FINISH		MATERIAL			
NEXT ASSY		APPLICATION		USED ON	


SERVOPRODUCTS COMPANY
 433 N. FAIR OAKS AVE., PASADENA CALIFORNIA 91103

INSTALLATION DRAWING
LIMIT SWITCH, KNEE

SIZE	CODE IDENT. NO.	DRAWING NO.	REV.
B	0800-80540	NB-57658	B
SCALE	NONE	SHEET	OF