



## INSTALLATION & OPERATION MANUAL

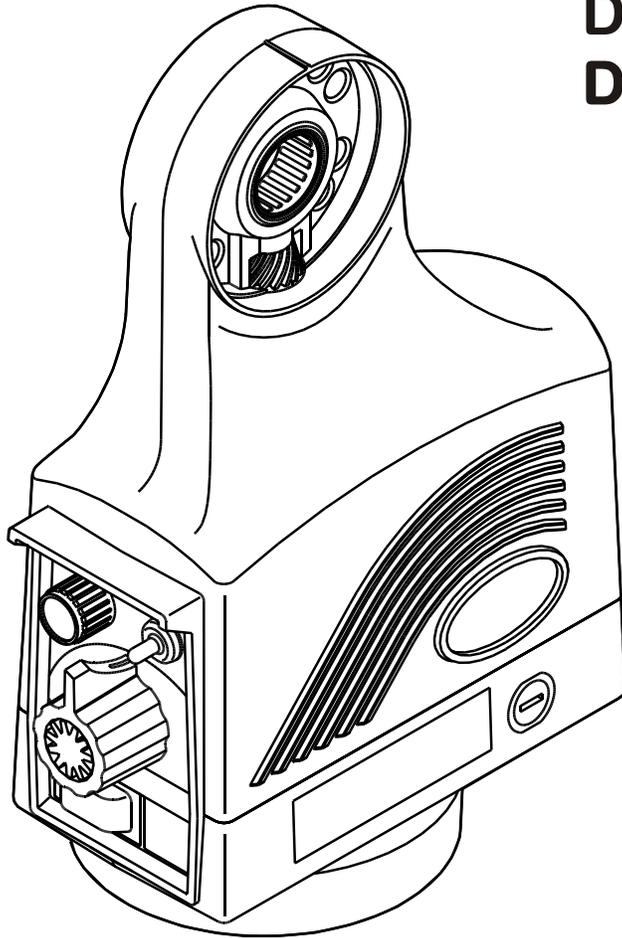
# MODEL: D-1000X

D-1000XLD

D-1000Y

D-1000YLD

D-1000Z



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- 
- ◆ PLEASE READ THE OPERATION MANUAL BEFORE USE.
  - ◆ KEEP THE MANUAL AND INSTALLATION DIRECTIONS FOR REFERENCE.

## ◆ WARNINGS BEFORE INSTALLATION

- Please be sure the power is off before installation. Do not connect the power table feed to the power to avoid an accident during installation.
- This power table feed requires AC 120V 50/60Hz electrical service. Please be sure the input power is in compliance with this requirement. If the input power is not AC 120V 50/60Hz, please use an appropriate transformer. Failure to use the correct power will damage the power feed and can create a dangerous condition resulting in injury or death.
- Except for consumable parts or maintenance parts, do not disassemble the power table feed. Opening the power feed may cause injury to operator or damage to machine and will invalidate the warranty.

## ◆ INSTALLATION

### D-1000X & D-1000XLD REPUBLIC LAGUN

#### ● PREPARATION

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

- a) Soft hammer
- b) 3/4" socket wrench
- c) Set of inch hex wrenches
- d) Grease
- e) Clean shop rag

*Step 2:* Move the table to the extreme left.

*Step 3:* Remove the nut, handle, and dial assembly from the right-hand end of the table.

*Step 4:* Remove the four cap screws holding the bearing housing in place.

*Step 5:* Using a soft hammer, tap the bearing housing off. Clean the end surface of the table.

#### ● POWER FEED INSTALLATION

*Step 1:* With the table in the extreme left-hand position, install the adaptor with the four cap screws.

***NOTE:*** On some machines the drive pinholes do not line up with the adaptor. Remove and discard the pins in such cases. The four cap screws are all that is necessary.

*Step 2:* Slide the bearing race onto the lead screw.

*Step 3:* Slide the power feed onto the bearing race and push flush to the end of the adaptor.

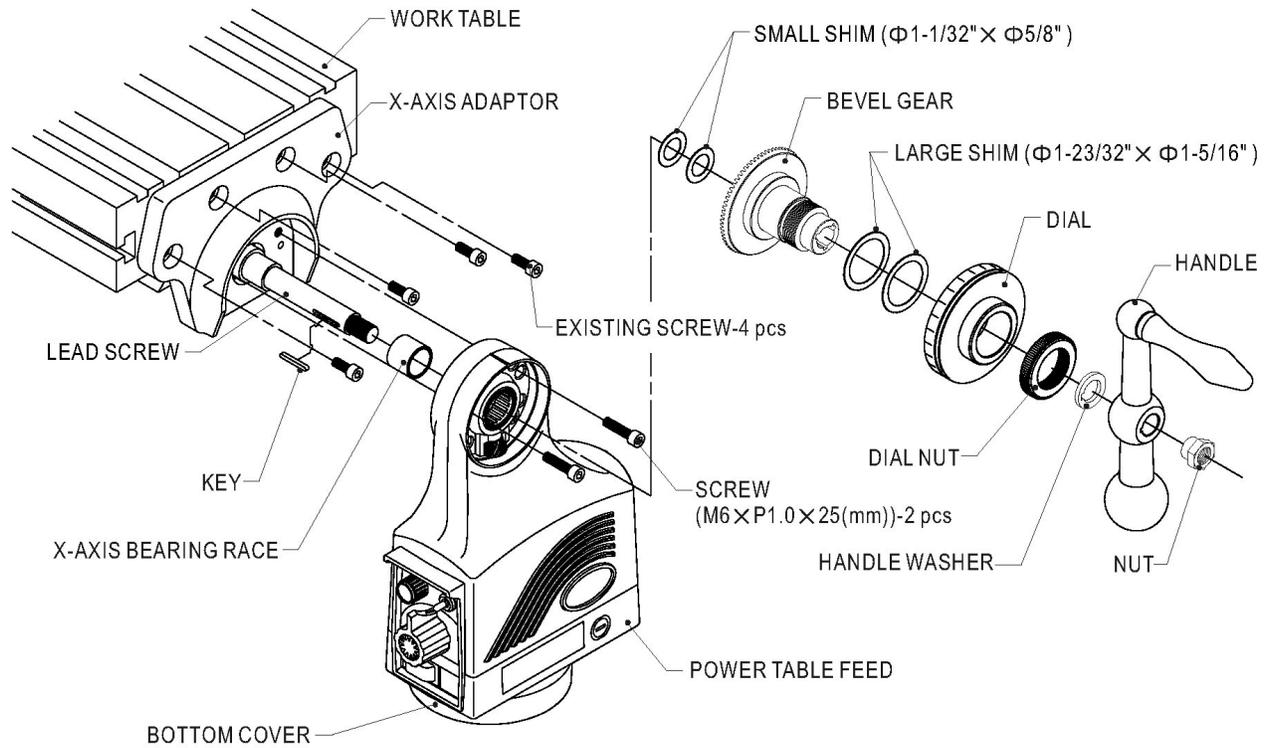
Secure with two M6XP1.0X25mm long socket head cap screws.

#### ● BEVEL GEAR INSTALLATION

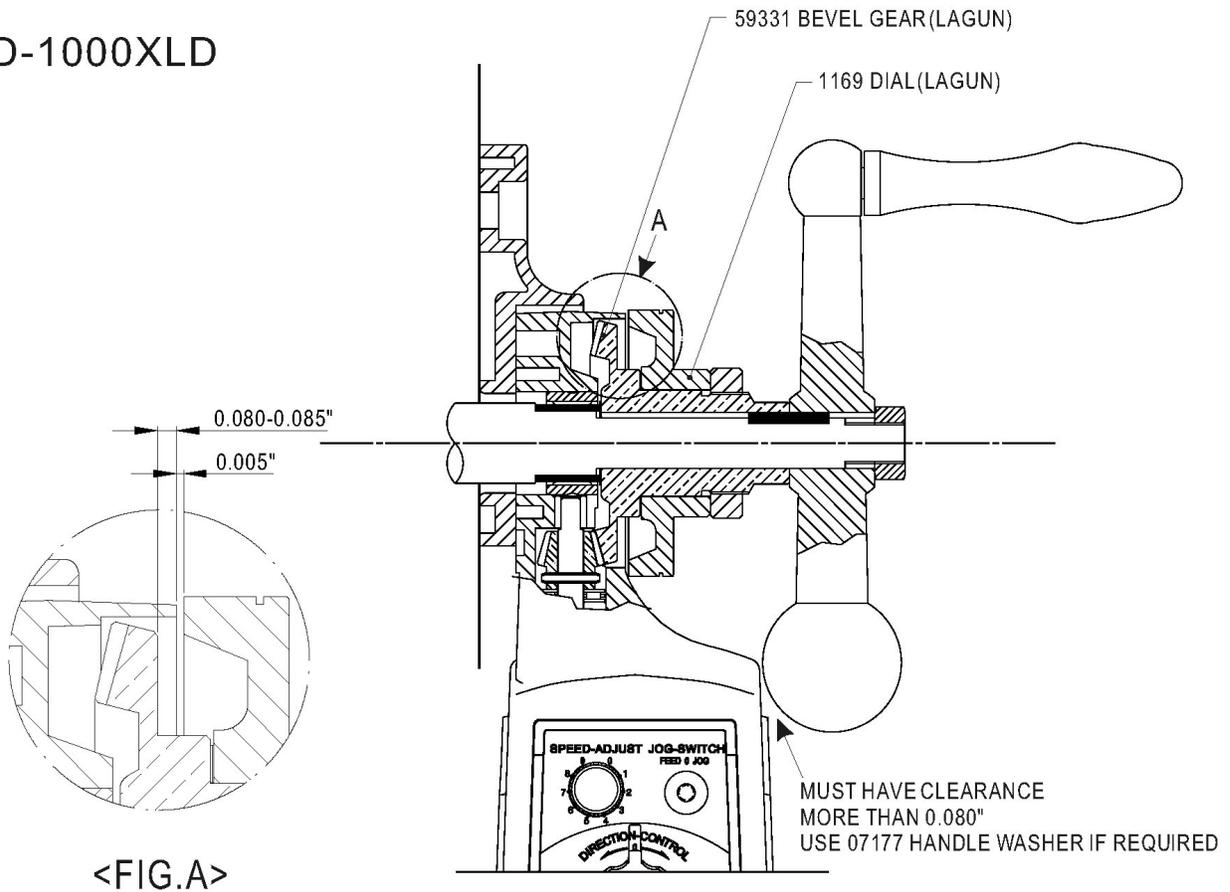
*Step 1:* Install shim washers, approx. .080 thick. See Fig.A

*Step 2:* Install key, bevel gear, and crank handle.

***Note:*** With feed in neutral turn hand crank. If it turns freely in one direction but catches in the other direction backlash is too large. If rough engagement of gear is heard or felt in both directions you probably require additional shims.



## D-1000XLD



## ● 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.

Washers are provided for this. Shim as required.

*Step 2:* In the following sequence, replace the key (if removed), dial, and dial-locking nut.

Slide the handle in place and tighten with supplied nut.

## ● LIMIT SWITCH INSTALLATION

*Step 1:* Remove the standard table stop pieces and install the table stop pieces furnished.

Put the standard stops back in a position to prevent feed stops from being set beyond extreme table travel.

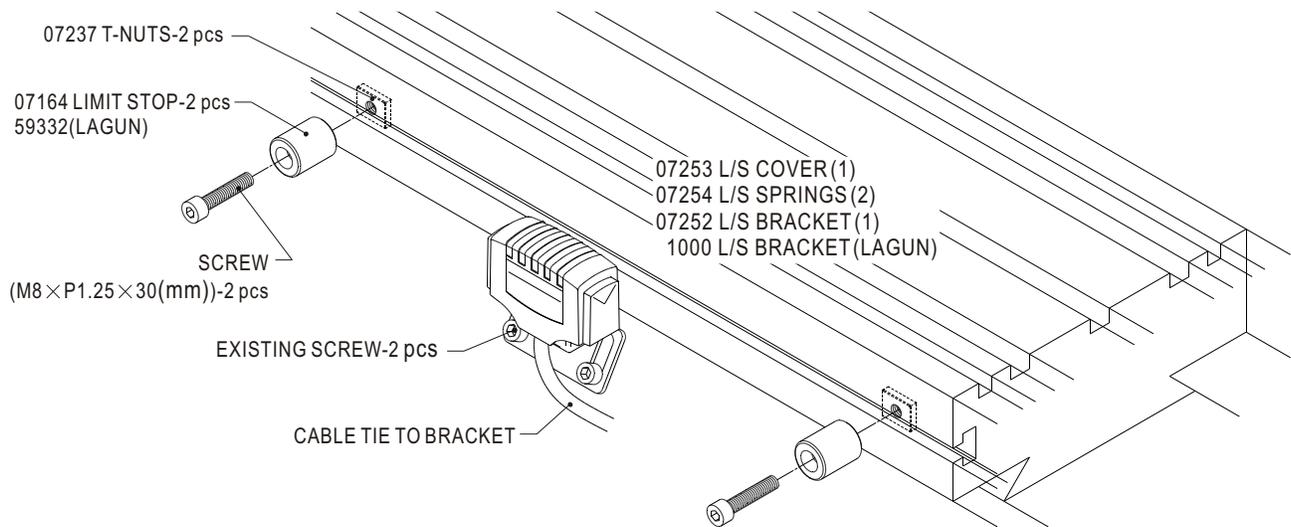
*Step 2:* Remove the T shaped table stop and install limit switch using existing screws.

A spacer may be required to space limit switch from table.

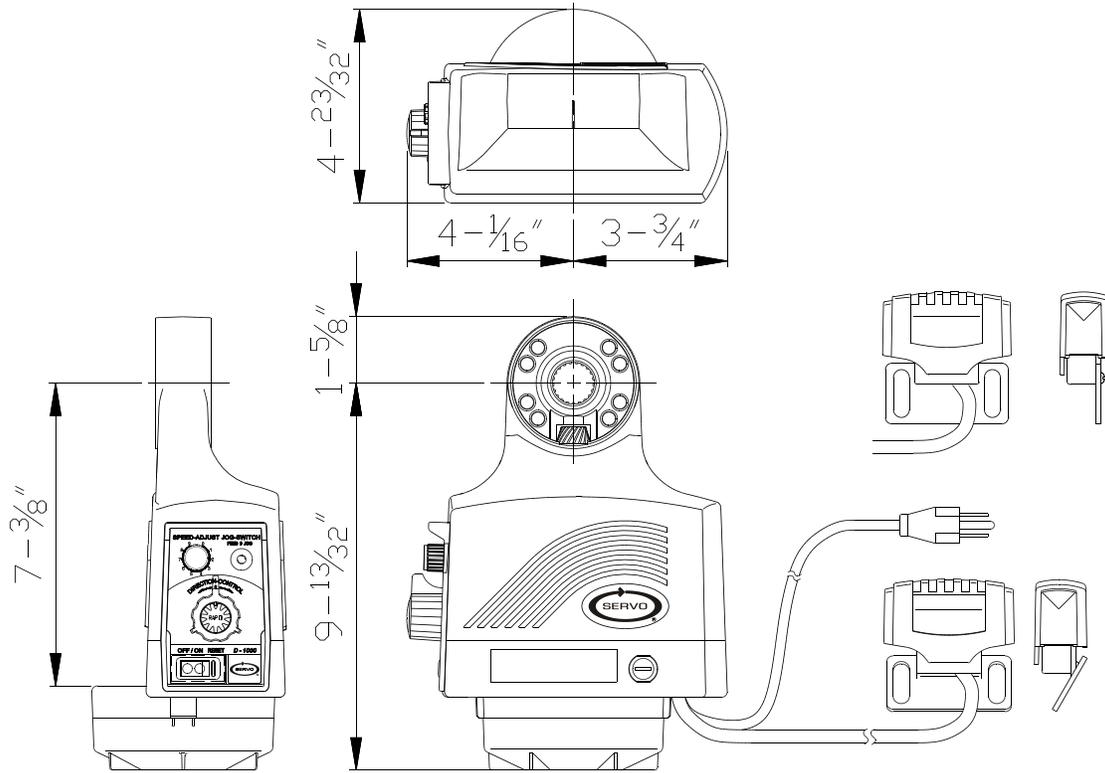
## NOTE

*Step 1:* For proper operation, the electrical limit switch should be engaged 0.4 inch before the mechanical stop to allow for coasting of the table.

*Step 2:* Put the cable clamp on the cable and secure to the right-hand chip scraper screw.

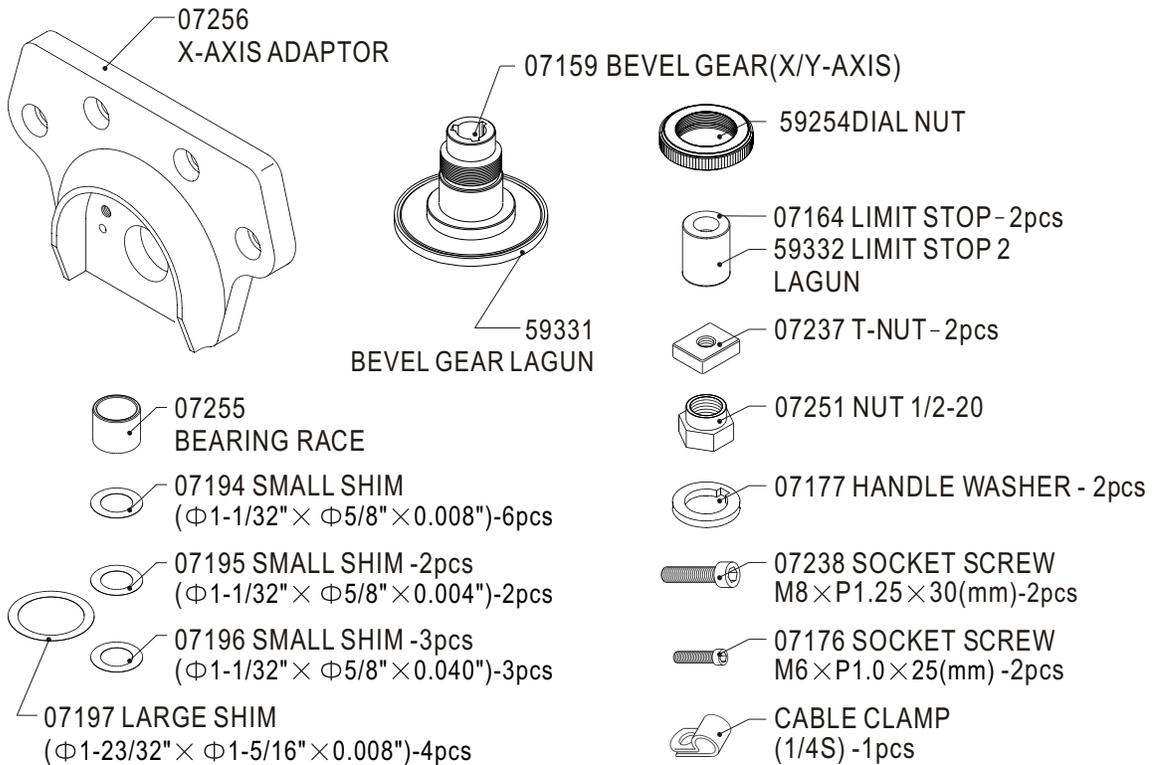


## ◆ OUTSIDE DIMENSIONS



## ◆ ACCESSORIES & PARTS LIST

### ● ACCESSORIES SPECIAL FOR D-1000X & D-1000XLD



## ◆ INSTALLATION

### D-1000Y

#### ● POWER FEED INSTALLATION

*Step 1:* Move the table to the front of the knee.

*Step 2:* Remove the nut, crank, dial assembly, and key from the lead screw.

*Step 3:* Remove bearing retainer from bearing housing

*Step 4:* Install bearing retainer supplied using existing screws.

**NOTE:** IF EXISTING SCREWS ARE TOO SHORT REDRILL AND TAP 1/4-20 AND INSTALL USING 1/4-20 X 1.00 (3) SUPPLIED.

*Step 5:* Screw shaft extension onto lead screw. Using pilot hole drill 5/32 thru and install roll pin. File smooth.

*Step 6:* Slide bearing race on to lead screw. Slide power feed on to bearing race. Using M6 X P1.0 X 25mm (2) secure power feed to adaptor.

#### ● BEVEL GEAR INSTALLATION

*Step 1:* Install shim washers approx. .080 thick See Fig.A

*Step 2:* Install key, bevel gear and crank handle.

**NOTE:** With feed in neutral turn hand crank. If it turns freely in one direction but catches in the other direction backlash is too large.

If rough engagement of gear is heard or felt in both directions you require additional shims.

#### ● 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. Metal washers are provided for this. Shim as required.

*Step 2:* In the following sequence, replace dial and dial locking nut, slide the crank onto shaft extension and secure with supplied nut.

#### ● LIMIT SWITCH INSTALLATION

*Step 1:* Mount limit switch on end of saddle, right hand side of mill.

*Step 2:* After determining proper location of limit switch using limit switch bracket as a template drill and tap 5/16-18 (2) places.

*Step 3:* Install limit switch bracket using (2) spacers and (2) 5/16-18 X 1.50 long screws.

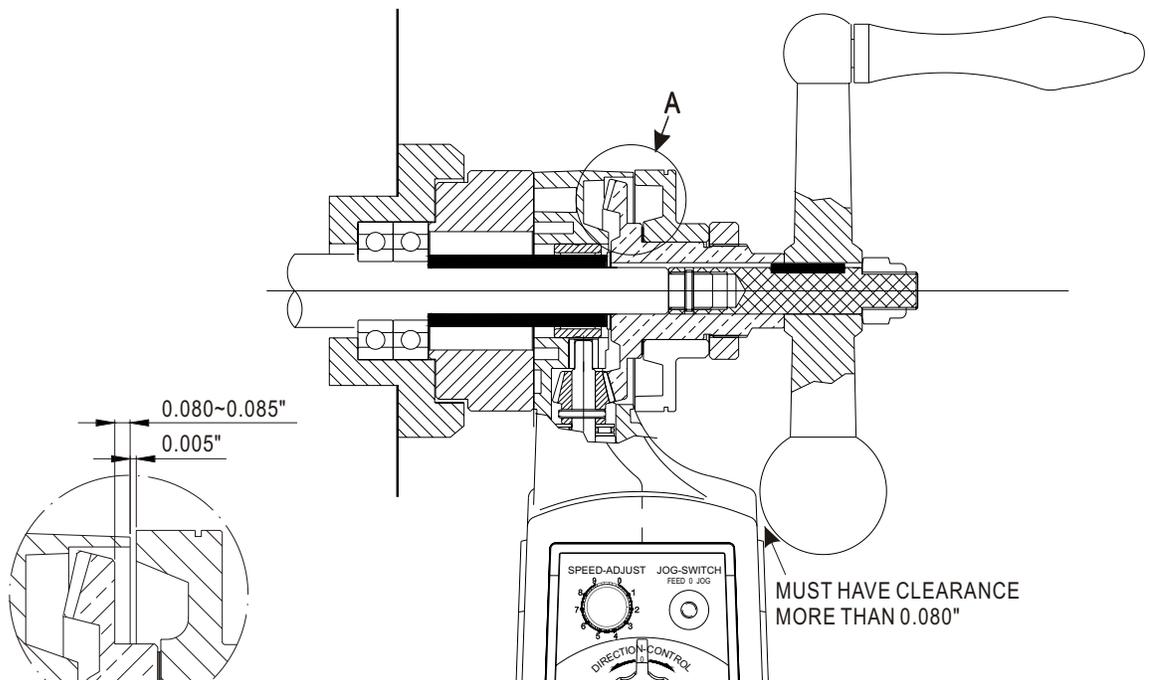
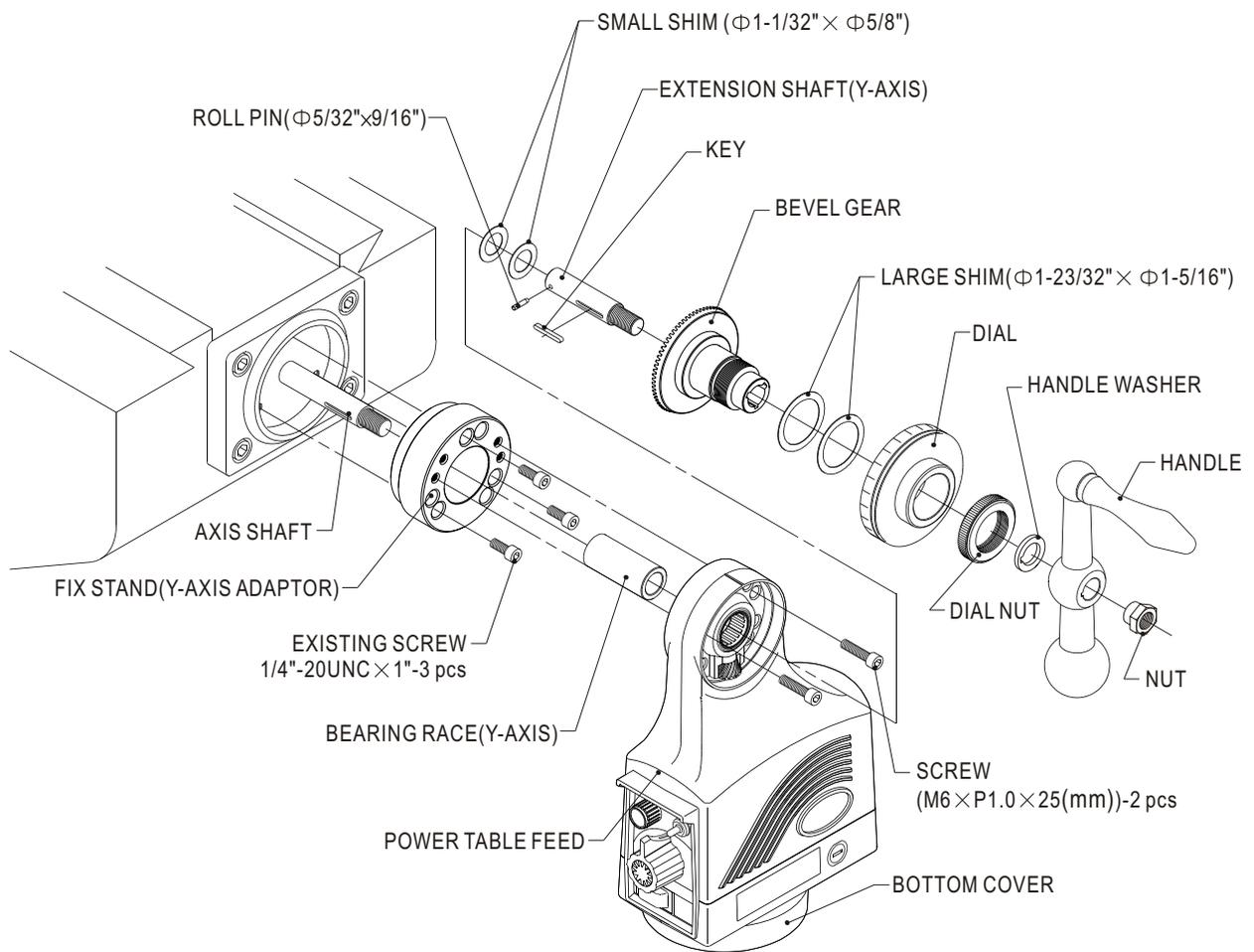
*Step 4:* Using trip rail as a template, drill and tap 10-24 (4) places.

*Step 5:* Install trip rail with (4) 10-24 B.H.C.S.

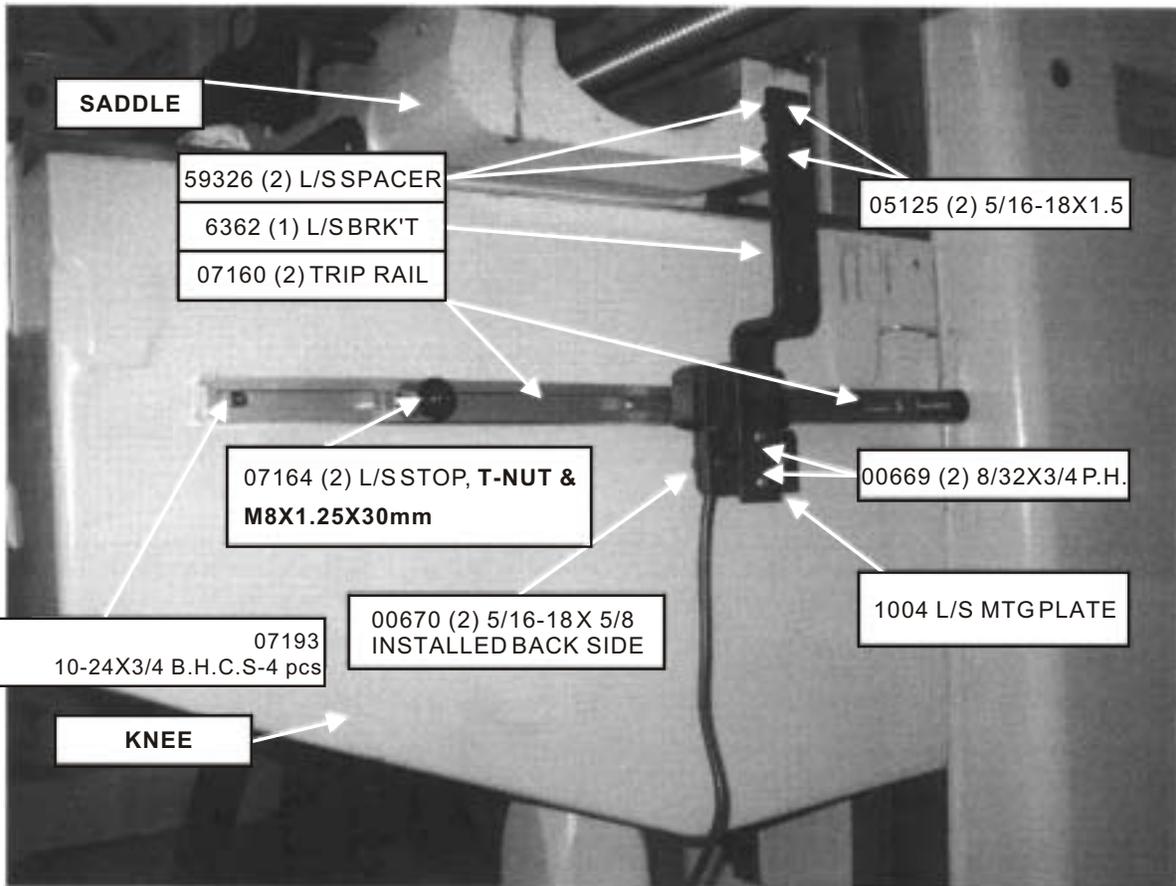
#### NOTE

**1. LIMIT SWITCH INSTALLATION DESIGNED FOR SERIES 1 TYPE MILLS MANUFACTURED IN USA.**

**2. MOUNTING OF TRIP RAIL AND LIMIT SWITCH MAY HAVE TO BE REPOSITIONED OR MODIFIED DEPENDING ON MANUFACTURE**



<FIG.A>



● ACCESSORIES FOR D-1000Y



## ◆ INSTALLATION

### D-1000YLD CROSS FEED

#### ● POWER FEED INSTALLATION

*Step 1:* Move the table to the front of the knee.

*Step 2:* Remove the nut, crank, dial assembly, and key from the lead screw.

*Step 3:* Remove bearing retainer from bearing housing

*Step 4:* Install bearing retainer supplied using existing screws.

**NOTE:** IF EXISTING SCREWS ARE TOO SHORT REDRILL AND TAP 1/4-20 AND INSTALL USING 1/4-20 X 1.00 (3) SUPPLIED.

*Step 5:* Screw shaft extension onto lead screw. Using pilot hole drill 5/32 thru and install roll pin. File smooth.

*Step 6:* Slide spacer onto lead screw.

*Step 7:* Crank saddle toward column ensuring that the lead screw is firmly engaged with cross shaft bearing.

*Step 8:* Slide bearing race onto lead screw. Slide power feed onto bearing race. Using M6X P1.0 X 25mm (2) secure power feed to adaptor.

#### ● BEVEL GEAR INSTALLATION

*Step 1:* Install shim washers, approx. .080 thick See Fig "A "

*Step 2:* Install key, bevel gear and crank handle.

**NOTE:** With feed in neutral turn hand crank. If it turns freely in one direction but catches in the other direction backlash is too large.

If rough engagement of gear is heard or felt in both directions you probably require additional shims.

#### ● 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. Metal washers are provided for this. Shim as required.

*Step 2:* In the following sequence, replace dial and dial locking nut, slide the crank onto shaft extension and secure with supplied nut.

#### ● LIMIT SWITCH INSTALLATION

*Step 1:* Mount limit switch on end of saddle, right hand side of mill.

*Step 2:* After determining proper location of limit switch using limit switch bracket as a template drill and tap 5/16-18 (2) places.

*Step 3:* Install limit switch bracket using (2) spacers and (2) 5/16-18 X 1.50 long screws.

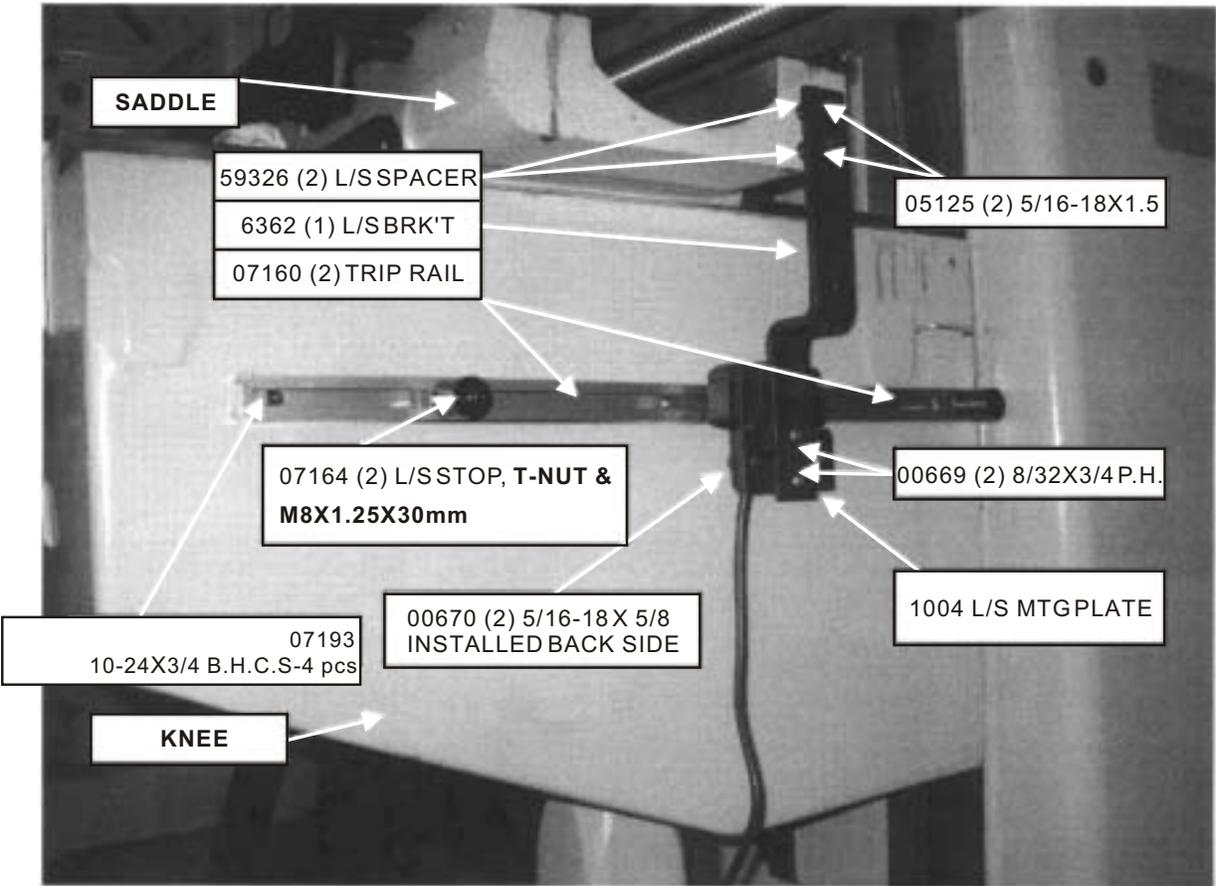
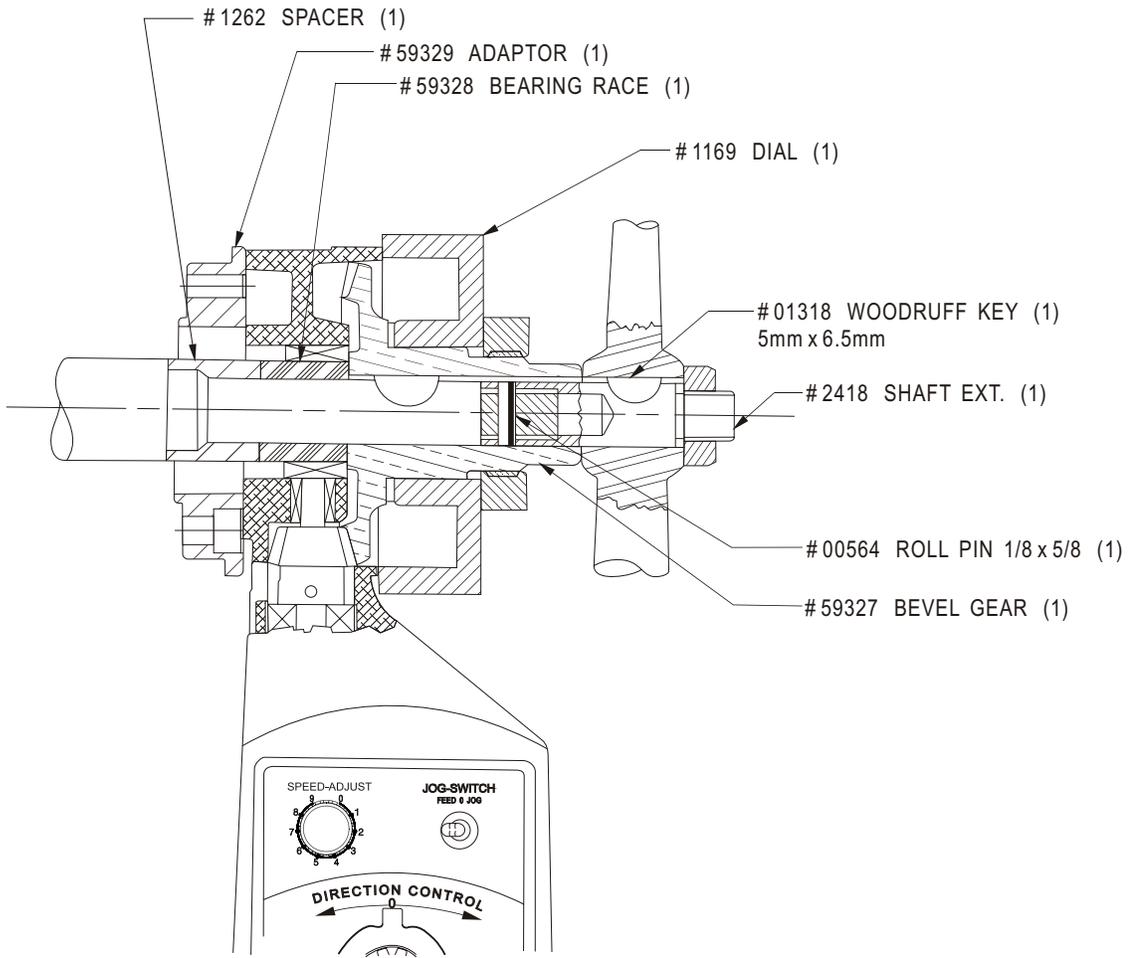
*Step 4:* Using trip rail as a template drill and tap 10-24 (4) places.

*Step 5:* Install trip rail with (4) 10-24 X 3/4 long B.H.C.S.

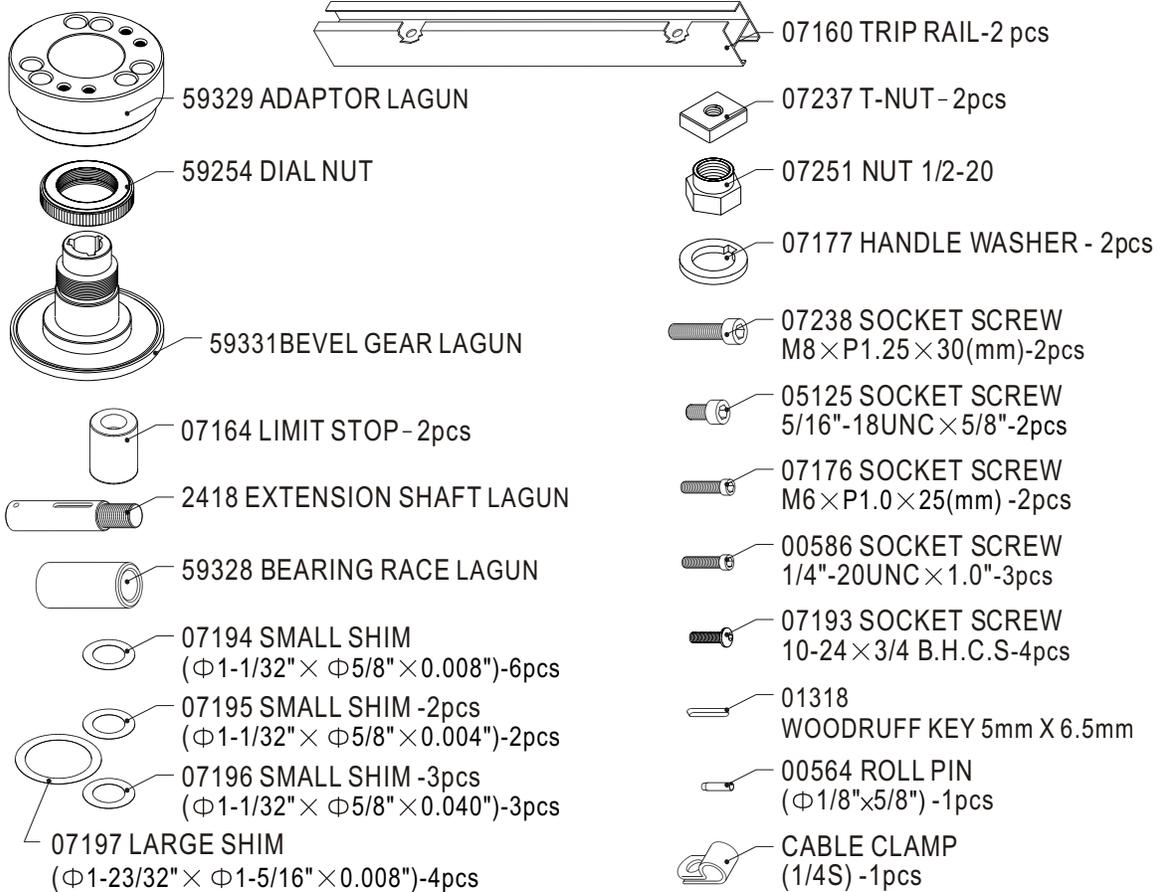
#### NOTE

**1. LIMIT SWITCH INSTALLATION DESIGNED FOR SERIES 1 TYPE MILLS MANUFACTURED IN USA.**

**2. MOUNTING OF TRIP RAIL AND LIMIT SWITCH MAY HAVE TO BE REPOSITIONED OR MODIFIED DEPENDING ON MANUFACTURE**



## ● ACCESSORIES FOR D-1000YLD



## ◆ INSTALLATION D-1000Z

### ● REFERENCE DRAWINGS ENCLOSED

*Step 1:* Remove all hardware from jackshaft (Hand crank, nut, dial, bearing retainer etc.)

*Step 2:* Mount bearing retainer with existing screws. If hole pattern will not line up use bearing retainer as a template. Transfer holes to mill, drill and tap 1/4-20 ensuring that mounting holes for power feed are in the correct position.

*Step 3:* Secure with 1/4-20 x 1.00 long S.H.C.S

*Step 4:* Screw shaft extension onto jackshaft and tighten.

*Step 5:* Slide power feed, bevel gear, 7/8 nut, spacer and hand wheel to ensure you have the correct stack up.

AS ALL KNEES ARE NOT QUITE THE SAME, MODIFICATIONS MAY BE REQUIRED.

*Step 6:* After determining that you have the correct stack up remove all items except shaft extension.

*Step 7:* Using pilot hole in shaft extension drill #5 (.205 dia.) thru and pin with roll pin. File smooth.

### ● POWER FEED INSTALLATION

*Step 1:* Slide the power feed onto shaft extension and secure with M6 x 25 mm c.h.c.s. (2)

### ● BEVEL GEAR INSTALLATION

*Step 1:* Install shim washers approx. .080 thick. See FIG.A

*Step 2:* Install bevel gear, nut, spacer and hand wheel.

**NOTE: With feed in neutral turn hand wheel. If it turns freely in one direction but catches in the other direction backlash is too large.**

**If rough engagement of gear is heard or felt in both directions you require additional shims.**

### ● 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. Shim as required.

### ● LIMIT SWITCH INSTALLATION

*Step 1:* After determining correct position of limit switch drill and tap 1/4"-20 for trip rail (4) places.

*Step 2:* Drill and tap 5/16 - 18 in knee for limit switch box.

*Step 3:* Using 5-16 x 2-1/2 s.h.c.s. and standoff install limit switch.

(Standoff may have to be modified)

**NOTE: LIMIT SWITCH INSTALLATION DESIGNED FOR SERIES ONE TYPE MILLS. MOUNTING OF TRIP RAIL AND LIMIT SWITCH MAY HAVE TO BE REPOSITIONED DEPENDING ON MANUFACTURE**

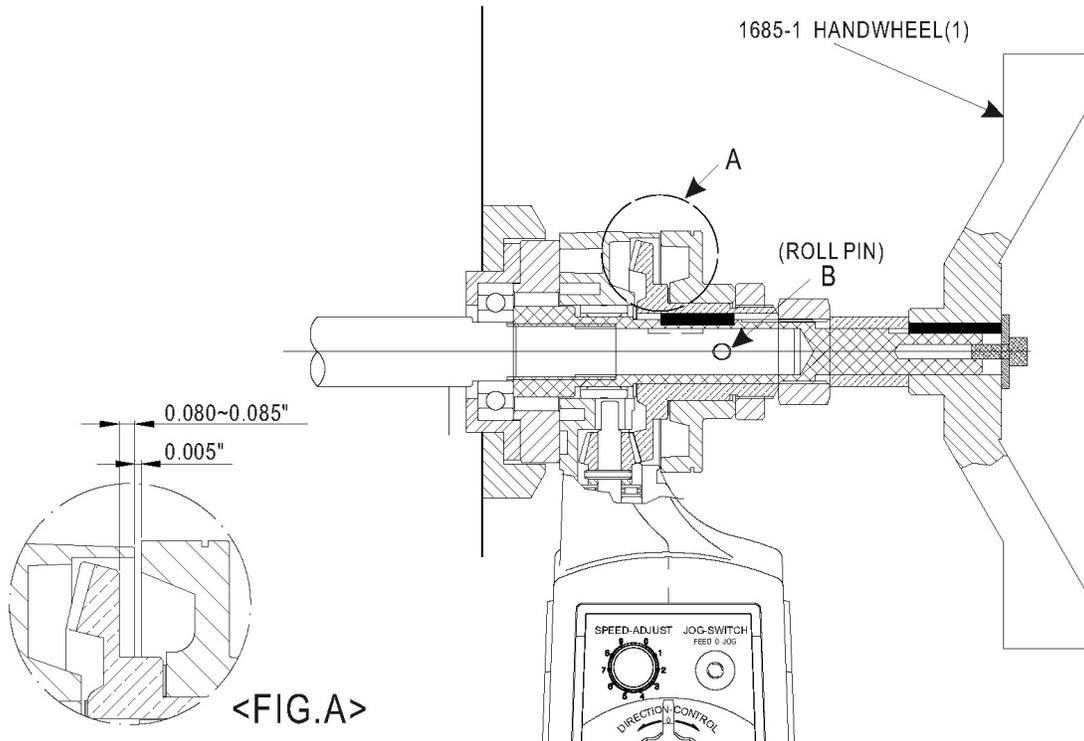
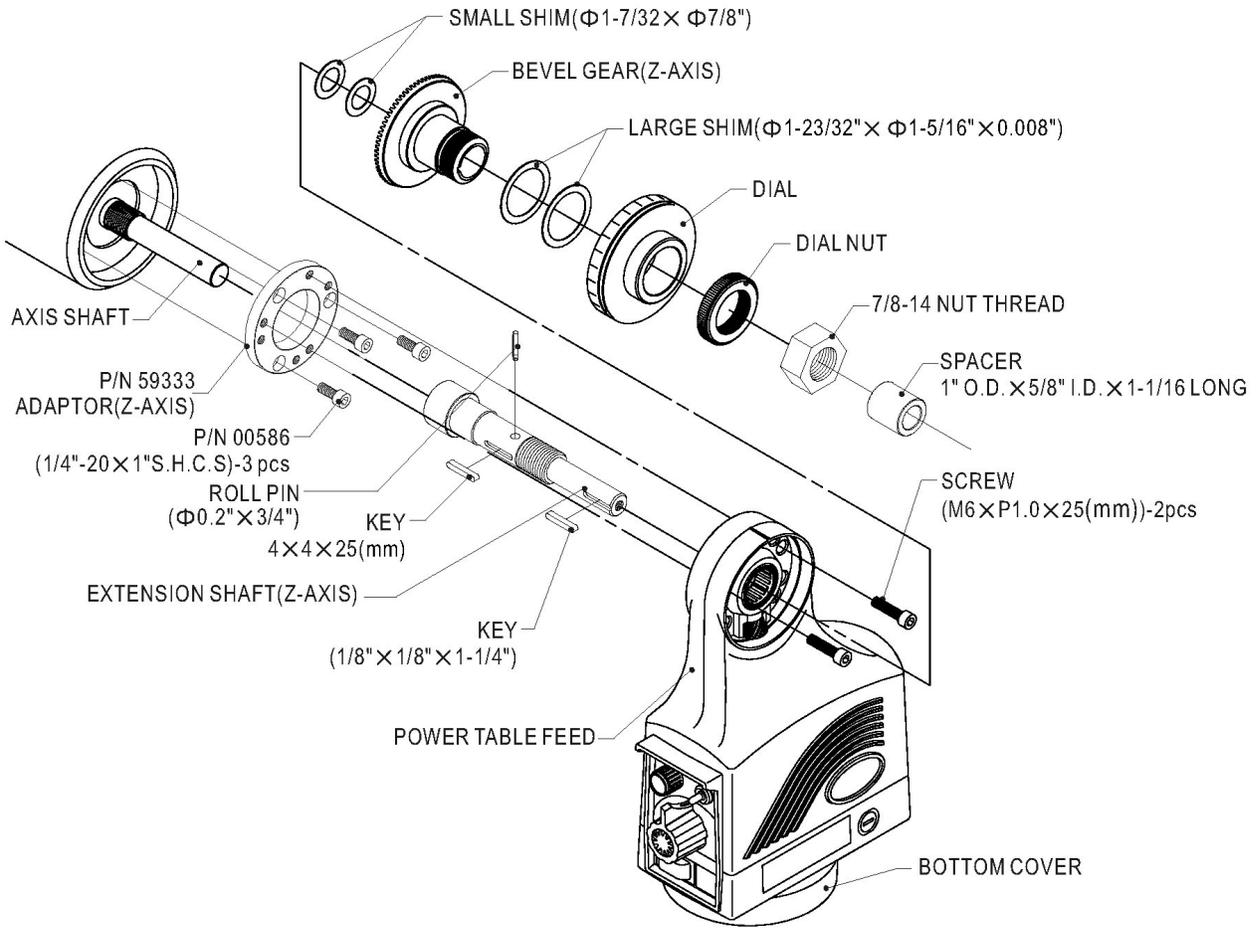
## WARNINGS

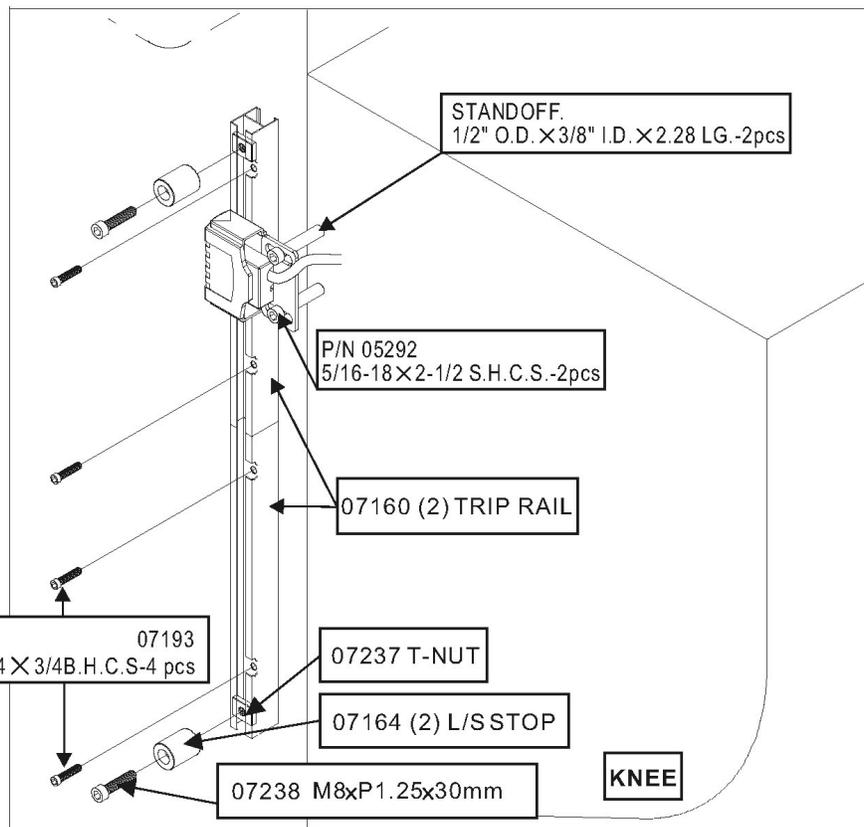
### **Check hand crank clearances before operation.**

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.





● ACCESSORIES FOR D-1000Z

- |  |  |  |  |
|--|--|--|--|
|  | 07166 EXTENSION SHAFT (Z-AXIS)                       |  | 07160 TRIP RAIL-2 pcs                              |
|  | 59333 ADAPTOR (Z-AXIS)                               |  | 07237 T-NUT -2pcs                                  |
|  | 59254 DIAL NUT                                       |  | HEX NUT 7/8-14 (Z-AXIS) 07260                      |
|  | 07167 BEVEL GEAR (Z-AXIS)                            |  | 07261 STAND OFF L/S 1/2 O.D. × 3/8 I.D. × 2.28 LG. |
|  | 59331 BEVEL GEAR LAGUN                               |  | 05292 SOCKET SCREW 5/16"-18UNC × 2-1/2"-2pcs       |
|  | 07164 LIMIT STOP -2pcs                               |  | 07238 SOCKET SCREW M8 × P1.25 × 30(mm)-2pcs        |
|  | 07259 HAND WHEEL SPACER                              |  | 07176 SOCKET SCREW M6 × P1.0 × 25(mm) -2pcs        |
|  | 07233 SMALL SHIM (Φ1-7/32 × Φ7/8" × 0.008")-4pcs     |  | 00586 SOCKET SCREW 1/4"-20UNC × 1.0"-3pcs          |
|  | 07234 SMALL SHIM (Φ1-7/32 × Φ7/8" × 0.004")-2pcs     |  | 07193 SOCKET SCREW 10-24 × 3/4 B.H.C.S.-4pcs       |
|  | 07235 SMALL SHIM (Φ1-7/32 × Φ7/8" × 0.040")-2pcs     |  | SOCKET PARALLEL KEY 4 × 4 × 25(mm)-1pcs            |
|  | 07197 LARGE SHIM (Φ1-23/32 × Φ1-5/16" × 0.008")-4pcs |  | SOCKET PARALLEL KEY 1/8" × 1/8" × 1-1/4"-1pcs      |
|  |  |  | ROLL PIN (Φ0.2 × 3/4) -1pcs                        |
|  |  |  | CABLE CLAMP (1/4S) -1pcs                           |

## ◆ OPERATION (FIG.10)

AVAILABLE FOR LONGITUDINAL/ CROSS /KNEE TRAVEL \_\_\_\_\_

### ● POWER CONNECTING

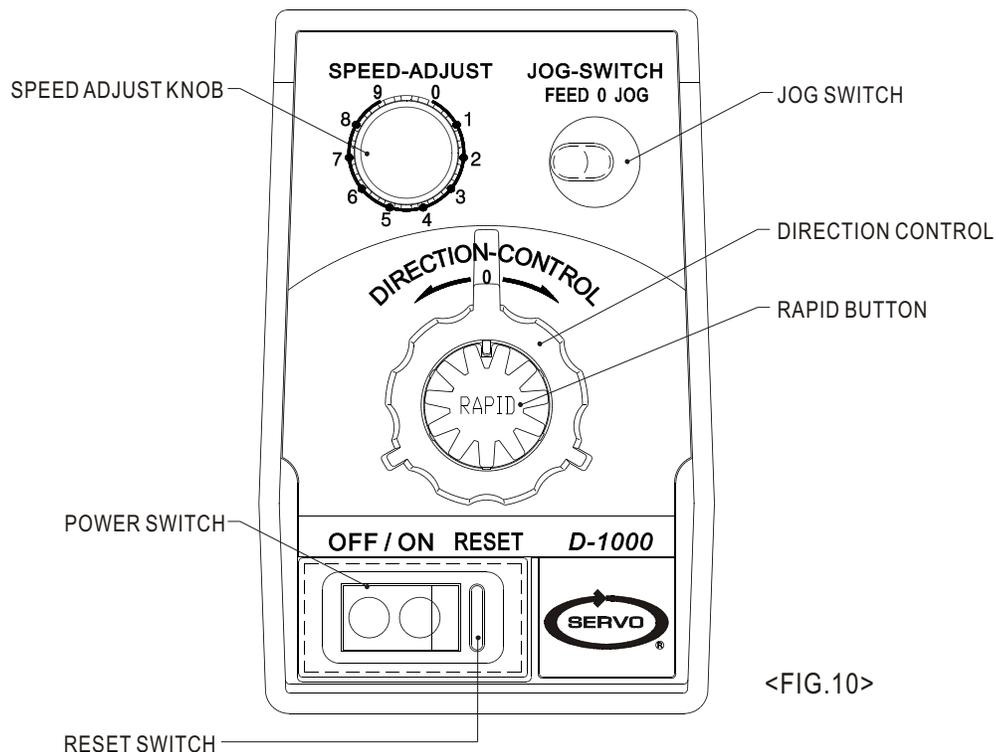
1. Power feed requires 120VAC 50/60 Hz electrical service. Please be sure input power is in compliance with this requirement. If the input power is not 120VAC 50/60Hz please use an appropriate transformer. Failure to use the correct power will damage the power feed and can create a dangerous condition resulting in injury or death.
2. Please avoid cable exposure to high temperature, high humidity or any sharp objects.
3. Turn off power switch by pressing left side of switch. Connect plug to 120VAC 50/60Hz . Use a three prong grounded outlet only.

### ● CHECKING & CONFIRMING

1. Set "jog switch" at "FEED" position. Set speed-adjust between 2 and 3. Set direction control knob to 0 position.
2. Turn on power switch, turn directional control to left or right to check power feed is moving in the right direction.
3. Depress limit switch in direction of travel, repeat in opposite direction to ensure limit switch is stopping power feed.

### ● POWER SWITCH AND RESET SWITCH

1. The right side of power switch is ON. The left side is OFF. The red light will show when power is ON.
2. The red oblong button on right side is reset switch



<FIG.10>

### ● DIRECTION CONTROL AND RAPID BUTTON

1. Position direction-control to direction you want the power feed to move.
2. The rapid button is in the center of direction-control.

### ● SPEED ADJUST KNOB

1. The speed can be adjusted according to operator's requirement. The speed range is 0 to 9.

### ● JOG SWITCH

1. For jog movement, move jog switch to 0 position
2. Set speed-adjust to 0
3. Set direction-control to direction you want power feed to move.
4. The amount power feed will move depends on speed setting. The smaller the setting the less the power feed will move. The higher the speed setting the further the power feed will move.
5. Toggle the jog switch to jog position and release, the power feed will stop. If you hold jog switch power feed will continue to move until released.
6. After obtaining power feed position, set jog switch to 0 position and direction-control to 0 position.
7. Set jog switch to feed position. You can begin normal machining.

***Note: After operating jog switch, turn "DIRECTION CONTROL" to "0" position. Then move "JOG SWITCH" to "0" "FEED" position.***

2. Be sure to follow the above procedure required for jog operation to avoid any damage or injury caused by improper operation.

## ◆ MAINTENANCE

### ● MAINTENANCE FOR GEAR LUBRICATION (FIG. 11)

Every 6 months, open the bottom cover, and check if lubrication for bevel spiral gear is sufficient. It is suggested to use graphite type lubrication, do not use silicone type lubrication.

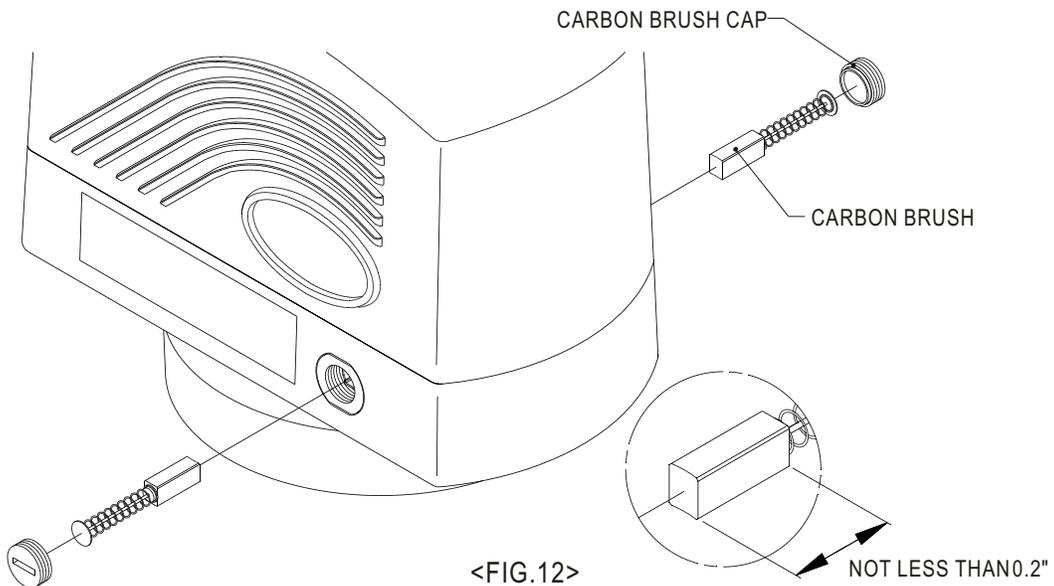
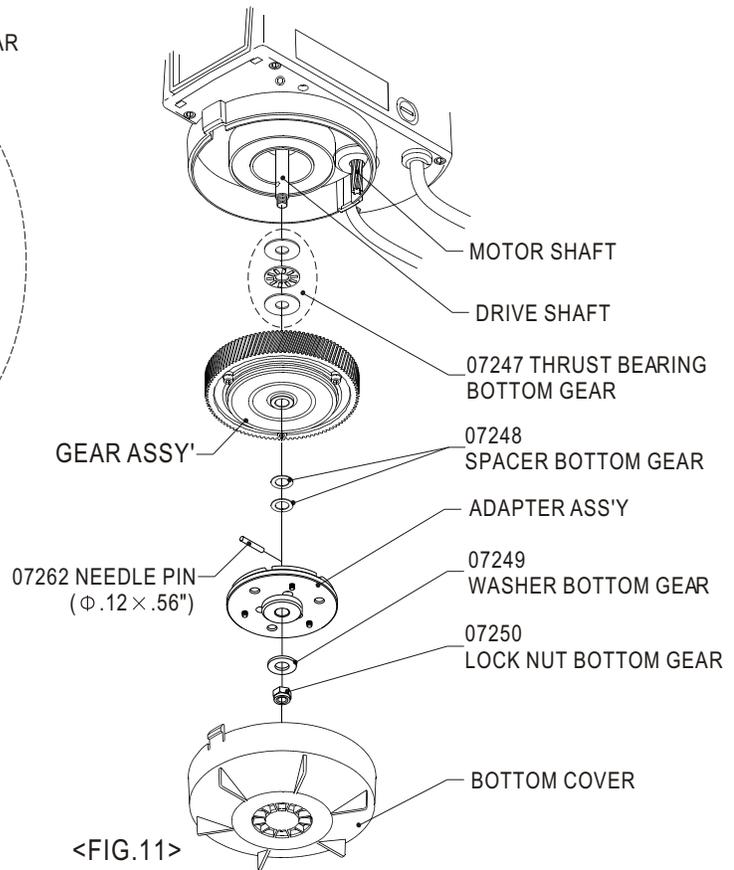
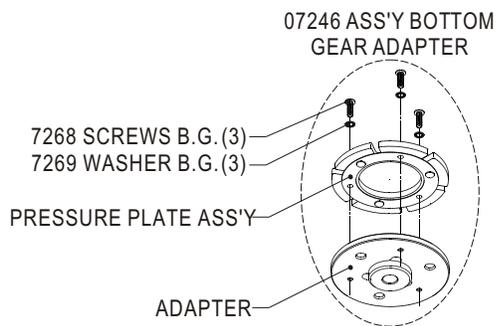
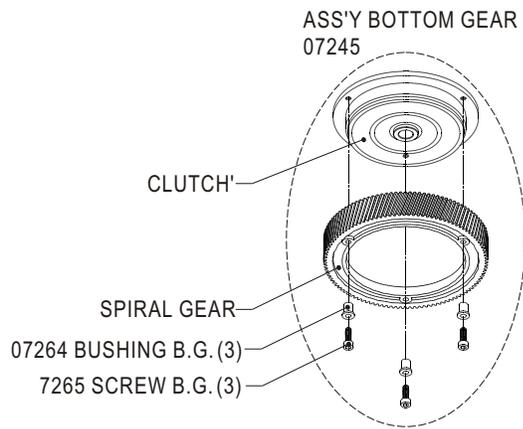
### ● CHECKING FOR GEARWEAR (FIG. 11)

To check the condition of spiral gear (made of plastic 107T) remove bottom gear cover. If gear is worn out, please replace with a new gear. The procedure to replace the gear is as follows:

1. Open the bottom cover (press the edge of hooks on both sides, and pull down.)
2. Loosen lock nut, sequentially take out washer, adaptor ass'y, roll pin, spacer washer, Gear ass'y and thrust bearing.
3. Disassemble gear ass'y, replace bevel spiral gear, and then install it back sequentially.
4. The pressure plate assembly and surface of Gear Assembly must be kept clean, and cannot contain oil. If there is any oil, please clean it with solvent, do not clean with water.

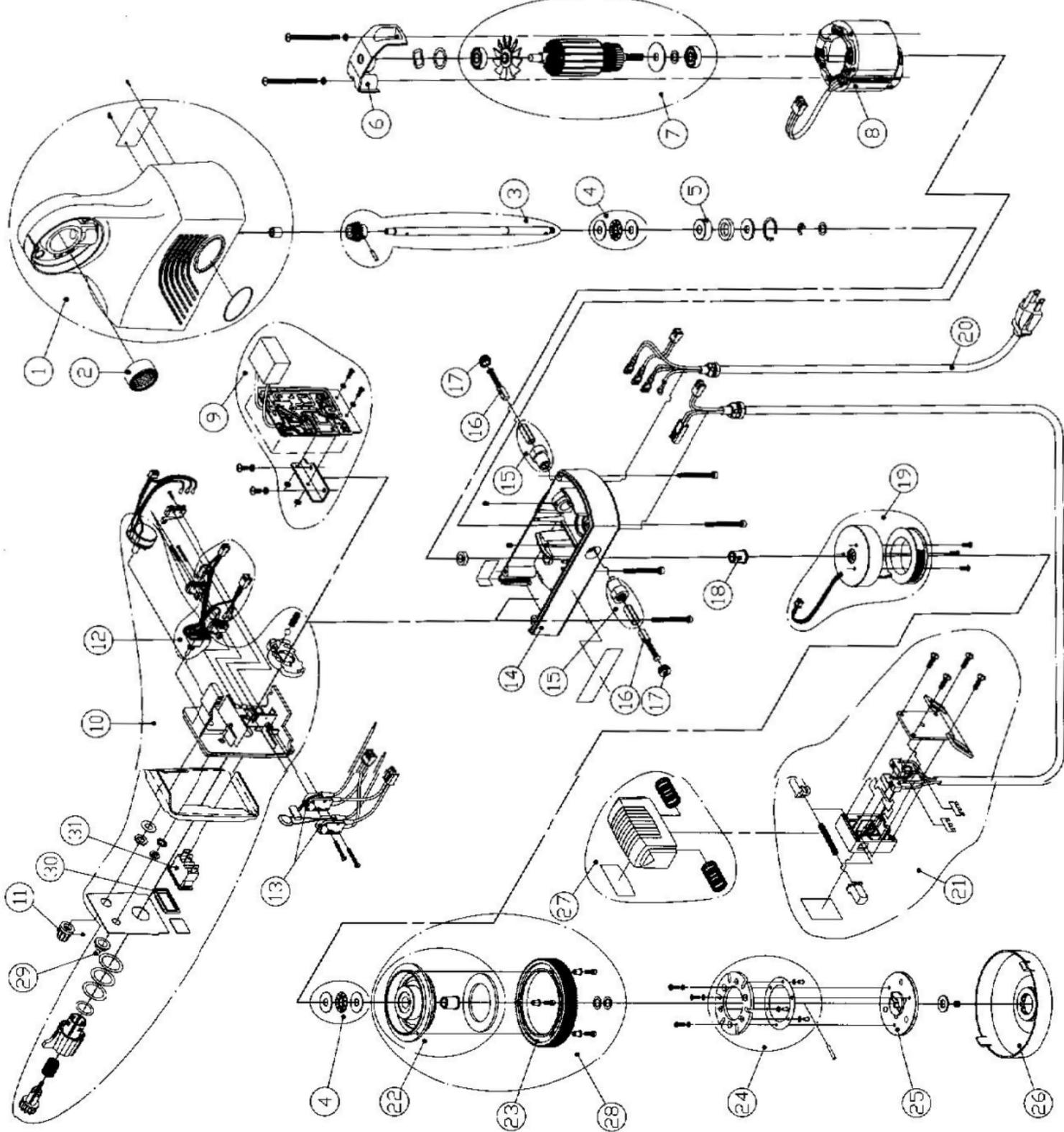
### ● CHECKING FOR CARBON BRUSH WEAR (FIG. 12)

In every 6 months, open carbon brush cap, to check if brush is worn out. If the length of the brush is less than 0.2", the brushes must be replaced immediately.



## ◆ TROUBLESHOOTING

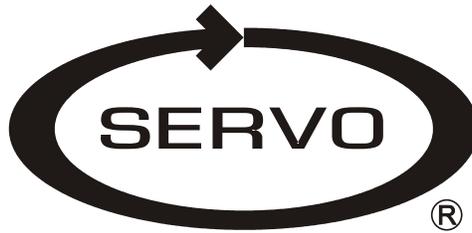
Condition	Checking	Solution
ON/OFF light is not ON, power table feed is not working.	1. Check if power is plugged in	● Check power outlet & plug.
	2.ON/OFF switch at ON position.	● Press the switch to ON position. (Red light is ON)
	3.Reset switch is popped up.	● Reduce tool load, press reset Switch, restart the power feed
ON/OFF light is ON, Power feed is not working	1.Check jog switch is in "FEED" position?	● Turn direction-control to 0 off position. Move jog switch to feed position and restart power feed
	2.Speed adjust knob at "0" Position?	● Turn the speed adjust knob clockwise direction until the required speed achieved.
Power feed slipping	1.Open bottom cover, check the motor shaft & gear shaft not engaged.	● Clutch wore out, to replace york set and occlusion softset (FIG. 11)?
	2.Open bottom cover and check if spiral gear is worn out.	● Replace spiral gear. (FIG. 11)?
	3.Carbon brush wore out. (Less than 0.2".)	● Open the carbon brush caps and replace two carbon brushes.



◆ PARTS LIST

NO.	PART NAME	PART NO.
1	TOP HOUSING	07442
2	NEEDLE BEARING	07443
3	BEVEL GEAR SET (18T)	07444
4	THRUST BEARING	07247
5	TALLOY BRASS	07445
6	MOTOR BRACKET	07446
7	ARMATURE SET	07239
8	STATOR SET	07240
9	CIRCUIT BOARD SET	07241
10	SWITCH BRACKET SET	07447
11	SPEED ADJUST KNOB	07448
12	JOG SWITCH SET	07438
13	MICRO SWITCH	07242
14	BOTTOM HOUSING	07449
15	CARBON BRUSH HOLDER	07172
16	CARBON BRUSH	07173
17	CARBON BRUSH COVER	07174
18	TALLOY BRASS	07450
19	MAGNETIC YORK SET	07451
20	POWER CABLE	07452
21	LIMIT SWITCH SET	07244
22	YORK SET	07453
23	SPIRAL GEAR (107T)	07168
24	OCCCLUSION SOFT SET	07266
25	ADAPTER	07454
26	GEAR HOUSING	07163
27	LIMIT SWITCH COVER SET	07455
28	BOTTOM GEAR ASSY	07245
29	JOG SWITCH BOOT	07440
30	ON/OFF SW BOOT	07439
31	ON/OFF SWITCH	07437

MECHANICAL PARTS



## **SERVO PRODUCTS CO**

### **HEADQUARTERS**

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Ph. 800 521 7359  
Fax 400 942 9100

### **CALIFORNIA BRANCH**

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Azusa, CA 91702  
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Fax 626 334 7301

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