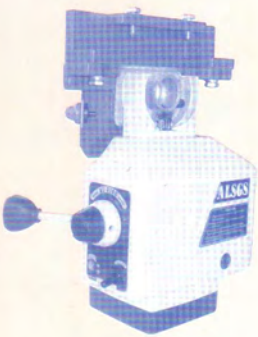
ALSGS

POWER FEED

AL-310S
AL-410S
AL-510S



ALB-310SX

Welcome to use this power feed.It will make your job convenient and make you happy. Please read this manual carefully for your assembly and use of this machine.

SPECIFICATIONS

Model	R.P.M.	Max.R.P.M.	Max.Torque	Voltage
AL-510S(X,Y,Z)	0~180	180	650in-lb	110V(220V-240V)50/60Hz
AL-410S(X,Y,Z)	0~140	200	550in-lb	110V(220V-240V)50/60Hz
AL-310S(X,Y,Z)	0~140	200	450in-lb	110V(220V-240V)50/60Hz
ALB-310SX	0~140	200	450in-lb	110V(220V-240V)50/60Hz

SAFETY WARNING&CAUTIONS

1. Keep work area clean.Do not use this machine in damp,wet locations.Do not use this machine in the presence of flammable gases or liquids.
2. The power source must coordinate with the power feed.
3. The SWITCH(034)should be in the "OFF"position when not in use or before plugging.
4. Do not place any other thing on the machine.Avoid water or other liquids to splash on the machine.
5. Do not use inappropriate attachments in an attempt to exceed the tool's capacities.
6. Maintain tools with care.

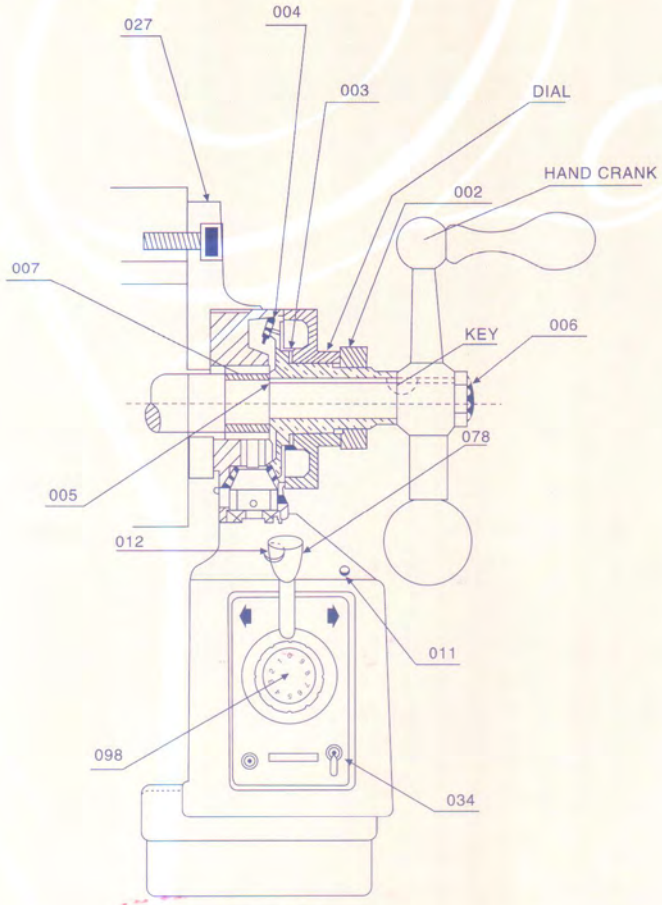
UNPACKING

Ref.	Item Description	Qty
027	Adapter	1
005	Shim φ16xφ22x0.2	4
004	Bevel Gear	1
003	Shim φ35xφ45x0.2	4
02	Dial Nut	1
095	Tiavel Stop Assembly	2
006	Locking Nut	1

DRIVE UNIT INSTALLATION

Step 1: Remove the HAND CRANK,DIAL and BEARING FLANGE from the right side of the table.

Step 2: Install the power feed with the ADAPTER(027)to the place of the BEARING FLANGE. Assemble the ADAPTER onto the table end using four hex. screws.This should be done together with step 3 in order for the correct position of the lead screw.



(Figure) 1

Step 3: Slide the INNER RING(007)over the lead screw of the table and then into the hole of the needle bearing of the power feed.At last the INNER RING should touch the lead screw's shoulder.Please reter to Figure 1(027,007)

Step 4: Insert the key in the keyway on the lead screw.

Step 5: Smear graphite base grease on the teeth of the BEVEL GEAR(004).Place small amount of grease onto the inner face of the BEVEL GEAR FLANGE.

Step 6: Install the BEVEL GEAR onto the lead screw with key and press it up against the. DRIVE GEAR(061).

Notice: Generally, before installing BEVEL GEAR (004) , you should insert several SHIMS. (005) between INNER RING (007)and BEVEL GEAR(004), so that you can get the smallest possible gap between the gear assembly.The quantity of the SHIMS (005) you will use is determined by your trial.
Please refer to Figure 1:005,004 etc.

tep 7: Install the appropriate DIAL on the BEVEL GEAR(CL004)referring Figure1 and close to the Power feed flange(Do not touch each other!). Then you may need several SHIMS (CL003) to meet the above requirement.

Step 8: Screw the NUT(002) into the BEVEL GEAR to avoid the DIAL loose.

Step 9: Reassemble the HAND CRANK removed in Step 1 onto the lead screw.And then tighten BEVEL GEAR(004)or you can use the LOCKING NUT(006)to tighten it.

LIMIT ASSEMBLY INSTALLATION

The power feed is equipped with LIMIT SWITCH ASSEMBLY(051)and TRAVLE STOP ASSEMBLY(095).Its assembly is as follows (Please refer to Figure2):

Step1:Remove the original travel stop assembly on the table and assembly the TRAVLE STOP ASSEMBLY(B18) supplied instead.

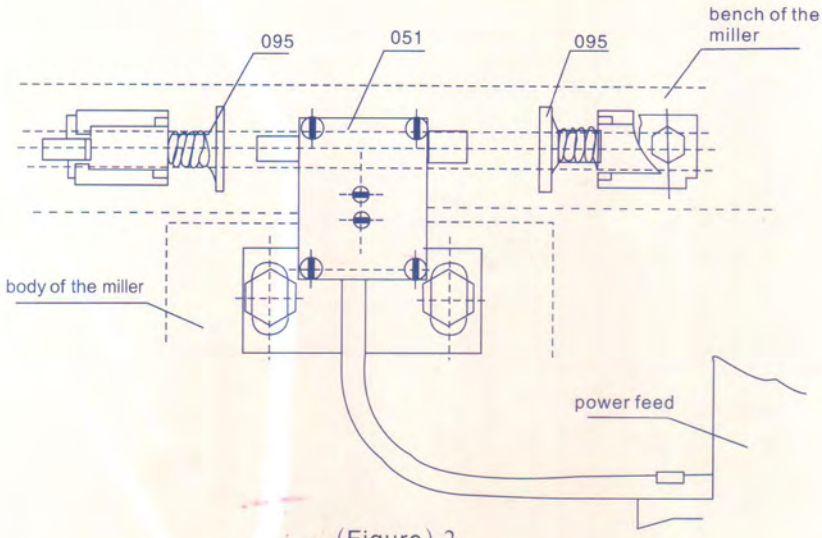
Step2:Remove the original limit block and assembly the LIMIT SWITCH ASSEMBLY (B05)supplied instead.

NOTICE

1、Be sure the two touching tods of the LIMIT SWITCH ASSEMBLY(051)and the rod of the TRAVEL STOP ASSEMBLY(B18)should be on the same axis.

2、The TRAVLE STOP ASSEMBLY(095) should be installed several millimeters less than the stroke because of the inertia.

3、Protect the cord of the LIMIT SWITCH. Do not let it be winded by the moving pieces or the table.



(Figure) 2

OPERATION

The operation of the power feed is as follws(Please refer to Figure3):

Step 1: Make sure the ON–OFF SWITCH(034) is in the "OFF" position and the CONTROL HANDLE ASSEMBLY(078) in the neutral (middle) position.

Step 2: Plug the power table feed cord into the stipulated outlet.

Step 3: Turn the ON–OFF SWITCH to the "ON" positon,then LIGHT TRANSMITTER(011)should light up.

Step 4: Turn the CONTRAL HANDLE(078) away from the middle position to one direction,then the table will move to the same direction.Turn the SPEED CONTROL KNOB ASSY(096)clockwise,then the moving speed of the table will be higher gradually.

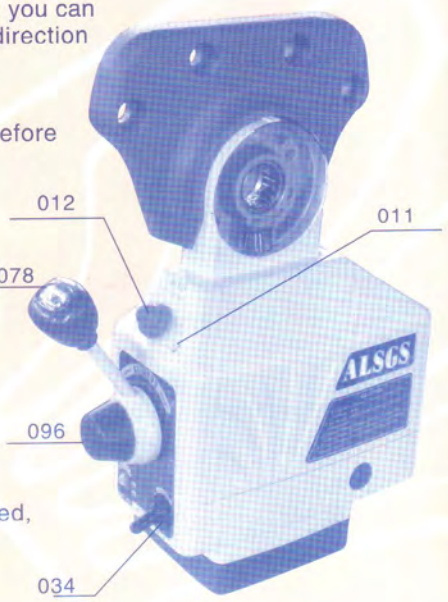
Step 5: If you want to change the moving direction of the table,Please turn the CONTROL HANDLE to the middle position until the power feed stops. And then you can ture the CONTROL HANDLE to the direction you want.

(Make sure the power feed stops before you change the direction)

NOTICE

1 The speed is controlled by the SPEED CONTROL KNOB ASSY(B19). Position "0" represents "stop" ang "9" represents the highest speed.

2 RAPID SWITCH BUTTON (012)is for fast moving of the table When it is pressed, then the table will move in high speed.



(Figure)3

PERIODIC MAINTENANCE

1、Clean the machine every 250 hours such as the rotor direction change,carbon inside the machine and other dirt so that the insulation can be ensured.

2、Lubrication.Insert lubrication oil into the gears and smear graphite base grease on the teeth of the gears

REPLACEMENT OF BRUSH

Step 1: Remove the BRUSH CAP(053) (Please refer to Figure4).Then the BRUSH (050)may spring out.Do not loosen the BRUSH.If the BRUSH does not spring out, gently remove the BRUSH using the tip of your screwdriver.

Step 2: Examine the concave surface of the BRUSH. The surface should be smooth and clean. If you find large scratch marks in the BRUSH or that parts of the BRUSH have broken off or the length left of the BRUSH is only 6mm, replace the BRUSH immeniately with an approved replacement BRUSH. If the BRUSH is merely dirty,you can clean the BRUSH with a pencil eraser.Clean off any bits of erser remaining on the BRUSH.

Step 3: There is a SPRING and BRASS PLUG sttached to the BRUSH.Turn the BRASS PLUG until the prongs are vertical and push the BRUSH into the BRUSH HOLDER(052). Thread the BRUSH CAP into the BRUSH HOLDER and tighten.

(Figure)4 Removeal of the Brush cap

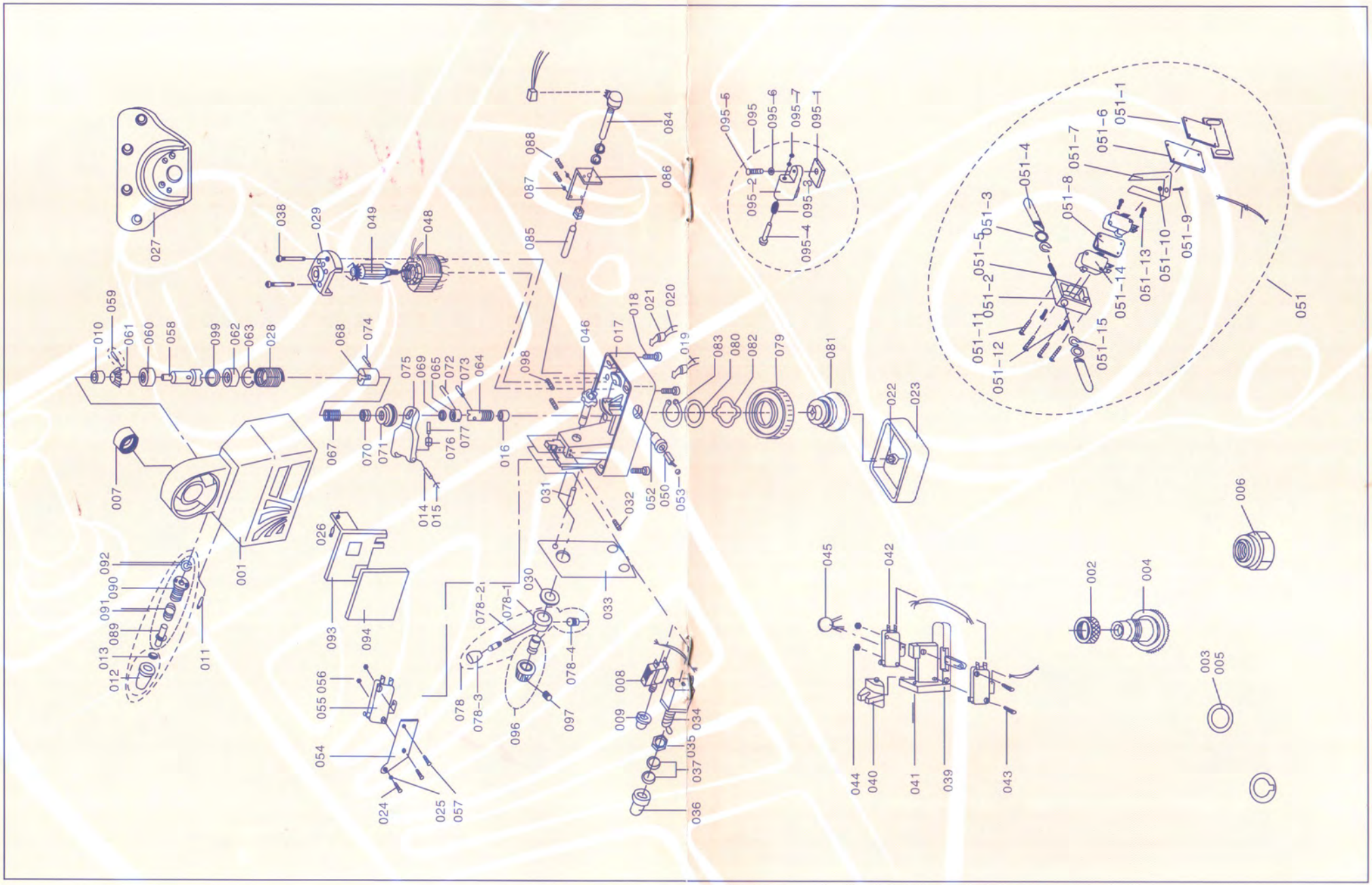
PARTS LIST

NO.	Description	Qty
001	TOP HOUSING	1
002	NUT	1
003	SHIM φ35xφ45x0.2mm	4
004	BEVEL GEAR	1
005	SHIM φ16xφ22x0.2mm	4
006	LOCKING NUT	1
007	NEEDLE BEARING NK120/16	1
008	CIRCUIT BREAKER SUPPORT	1
009	CIRCUIT BREAKER COVER	1
010	BUSHING BEARING	1
011	LIGHT TRANSMITTER	1
012	HEX.SEAL BOOT	1
013	NUT	1
014	LIFT FORK SHAFT	1
015	CRESCENT RING 6	1
016	BUSHING BEARING	1
017	BOTTOM HOUSING	1
018	SCREW M5x35	4
019	POWER CORD	1
020	CONTROL CORD	1
021	CORD CLAMP	4
022	LOCKING NUT M8	1
023	BOTTOM COVER	1
024	SCREW M4x10	1
025	SPRING WASHER 4	1
026	SCREW M4x6	1
027	ADAPTOR	1
028	SPRING GOR TOP HOUSING	1
029	BEARING MOUNT	1
030	WASHER	1
031	SPRING PIN 5x14	1
032	SETSCREW	2
033	LABEL	1
034	ON–OFF SWITCH	1
035	NUT	1
036	CAP OF ON–OFF SWITCH	1
037	NUT	1
038	SCREW M5x75	2
039	MICRO SWITH HOLDER	1
040	SWITCH ACTURATOR	1

PARTS LIST

NO.	Description	Qty
041	PIN,ACTURATOR 2x25	1
042	MICRO SWITCH	2
043	SCREW M3x30	2
044	NUT M3	2
045	CAPACITOR	1
046	CAM	1
047	SPRING PIN 2x14	1
048	MOTOR FIELD ASSY.	1
049	ARMATURE ASSY	1
050	BRUSH	2
051	LIMIT SWITCH ASSY.	1
051-1	HOLD PLATE	1
051-2	LIMIT SWITCH HOLDER	1
051-3	LIMIT PLATE	2
051-4	ACTUATOR	2
051-5	SPRING	1
051-6	LIMIT SWITCH GASKET	1
051-7	ACTUATOR	1
051-8	CONNECTING PLATE	1
051-9	SCREW M3x6	1
051-10	NUT M3	1
051-11	SCREW M3x35	4
051-12	SCREW M3 x 16	2
051-13	SCREW M3 x 14	2
051-14	MICRO SWITCH	2
051-15	CRESCENT RING 6	2
052	BRUSH HOLDER	2
053	BRUSH CAP	2
054	MICRO SWITCH HOLDER	1
055	MICRO SWITCH	1
056	NUT M3	2
057	SCREW M3x14	2
058	DRIVE GEAR SHAFT	1
059	SPRING PIN 3x14	1
060	BEARING 6082NTN	1
061	DRIVE GEAR	1
062	SPACER	1
063	CRESCENT RING 22	1
064	DRIVING SHAFT	1
065	SHAFT MOUNT	1

SCHEMATIC DIAGRAM OF PARTS



PARTS LIST

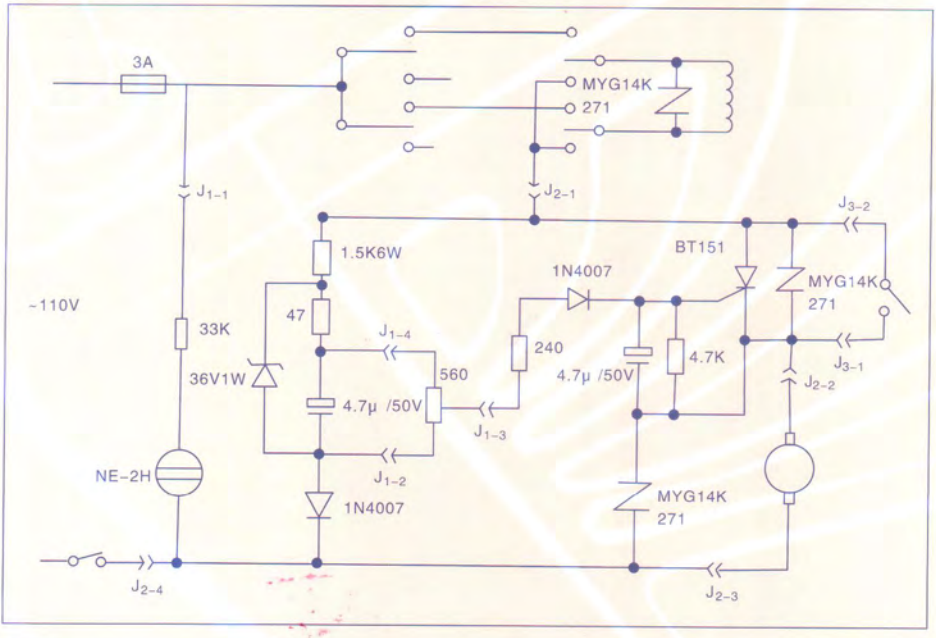
NO.	Description	Qty
067	SPRING	1
068	CLUTCH	1
069	WASHER	1
070	BEARING	1
071	SPRING COVER	1
072	PIN 2.5x15	1
073	PIN 3x18	1
074	SPRING PIN 3x15	1
075	LIFTFORK	1
076	LIFTFORK RING	1
077	PIN,LIFTFORK RING 3x12	1
078	CONTROL HANDLE ASSY.	1
078-1	CONTROL HANDLE DISC	1
078-2	CONTROL HANDLE	1
078-3	HANDLE KNOB	1
078-4	SET SCREW	1
079	ZYTEL GEAR WITH OUT HUB	1
080	WASHER	1
081	HUB OF ZYTEL GEAR	1
082	SPARING WASHER	1
083	CRESCENT RING 32	1
084	POTENTIOMETER ASSY.	1
085	RING OF POTENTIOMETER	1
086	SARAIN OF POTENTIOMETER	1
087	WASHER 4	2
088	SCREW M4x6	2
089	RAPID SWITCH PLUNGER	1
090	RAPID SWITCH HOUSING	1
091	SPRING FOR RAPID SWITCH	1
092	CRESCENT RING 4	1
093	CIRCUIT BOARD ASSY.	1
094	CIRCUIT BOARD INSULATOR	1
095	TRAVEL STOP ASSEMBLY	2
095-1	TRAVEL STOP	2
095-2	TRAVEL STOP BASE	2
095-3	TRAVEL STOP SHAFT	2
095-4	SPRING	2
095-5	BOLT	2
095-6	WASHER	2
095-7	CRESCENT RING	2
096	SPEED CONTROL KNOB	1
097	SET SCREW	1
098	SCREW M4 x 4	2
099	O-RING	1

TROUBLE	REASONS AND SOLVEMENTS
The LIGHT TRANS MITTER does not glow.	1.There is something wrong with the power supply or the wire connecting. 2.The CIRCUIT BREAKER is damaged. 3.ON–OFF SWITCH(034)is not in "ON"position or damaged. 4.If the motor can move,then the LIGHT TRANSMITTER is damaged.
The motor does not work when pushing CONTROL HANDLE (078)either left or right.	1.When pressing RAPID SPEED BUTTON(012), the motor rotates: ①SPEED CONTROL KNOB is not in the"0"position. ②POTENTIONMETER(084)can not work properly ③CIRCUIT BOARD(003)is damaged. 2.When pressing RAPID SPEED BUTTON(012),the motor dose not rotate: ①The BRUSH and the ROTOR are not touching properly or the BRUSH is used up. ②The circuit inside is broken.
Current leakage	1.There is short circuit across the BRUSH(050)and the OUTER COVER(017) of the power feed.Or there is short circuit in LIMIT SWITCH(051). 2.The carbon powder from the BRUSH results in short circuit.

TROUBLE SHOOTING

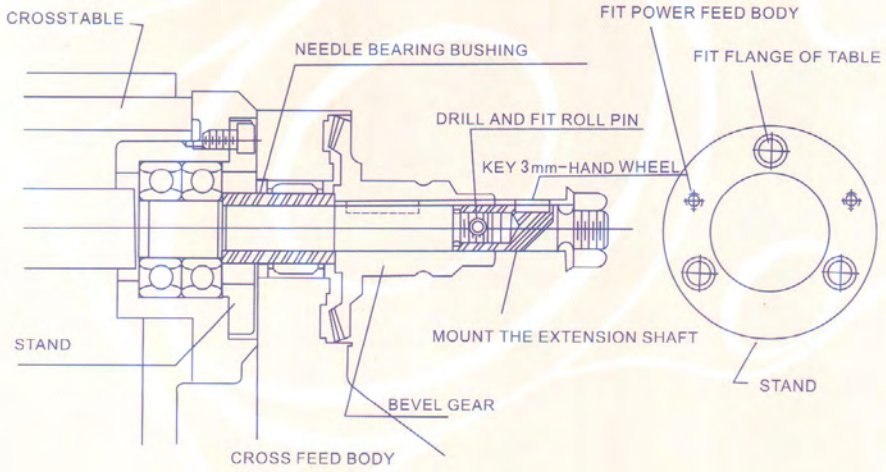
TROUBLE	REASONS AND SOLVEMENTS
High speed can not be obtained when pressing RAPID SPEED BUTTON(012)	The MICRO SWITCH (055)under the RAPID SPEED BUTTON(012)is not connected.
The machine is in the high speed when not pressing PRAID SPEED BUTTON(012).	1.The RAPID SPEED BUTTON(012)can not work and the MICRO SWITCH(055)is in the condition of connecting. 2.The RESISTANCE(MYG14K)or the SILICON CONTROLLED RECTIFIER(BT141)on the circuit board is in the condition of short circuit.
The table moves in uneven speed.	The lead screw of the table is not good enough.

CIRCUIT DIAGRAM

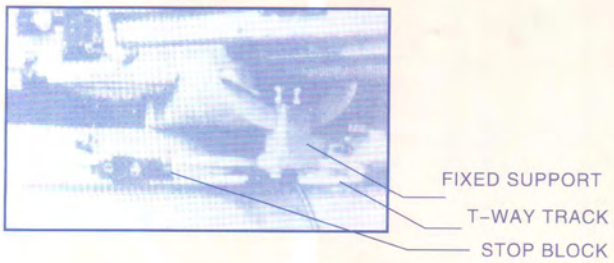


INSTRUCTION OF INSTALL CROSS FEED

For ideal installation,should not modify the cross travel lead screw.

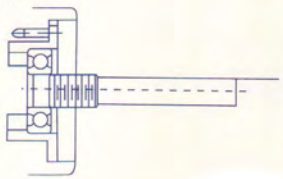


INSTALL T-WAY TRACK FOR CROSS-FEED



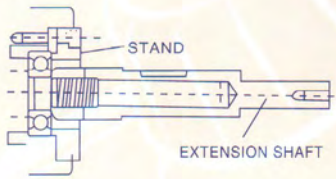
HOW TO INSTALL KNEE LIFT FEED

STEP1.



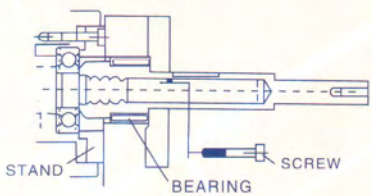
Remove hand crank,dial,dial sccket.
bearing flange and·····Etc.

STEP2.



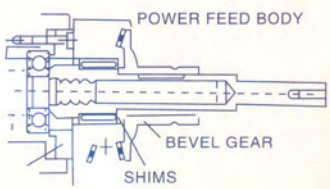
Install extension shaft
Important: (1)shaft end must be against inner ring of bearing
(2)Inner shaft is 16 or 18 threaded unc.

STEP3.



Tighten stand to flange then tighten knee feed on the flange.
Important.For angular positioning.

STEP4.

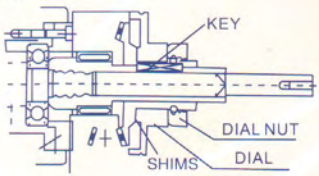


Install gear key not in.
Important Use hand to push & turn bevel gear to check backlash.

(1) If necessary add a few shims to obtain proper backlash.Or
(2) Modify leading edge of gear to obtain proper back lash.
Then repack gear with grease.
Replack gear then push and turn to check for backlash.

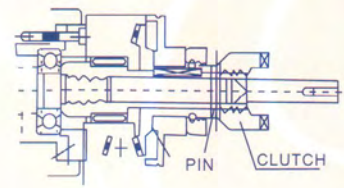
HOW TO INSTALL KNEE LIFT FEED

STEP5.



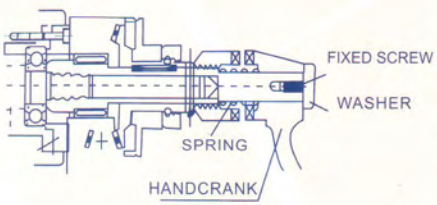
Remove the bevel gear after Step(4)is O.K.then install key, replace gear,install dial,and tighen dial nut(Add a few shims if dial is grinding the gear)
Important.Pack with grease before installing the gear (Do not use silicon-type grease.)

STEP6.

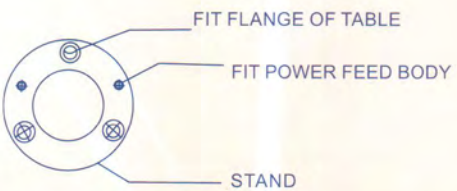


Install Check Cluth Against Bevel Gear Then Drivl Through One Hole Of 5mm Dia.Then Drive Spring Pin.
Important:Be sure you have followed each step carefully and correclly before installing the spring pins.
Suggestions.Install hand crank rotate in clockwise direction to check for proper shimming and that there is no binding action.

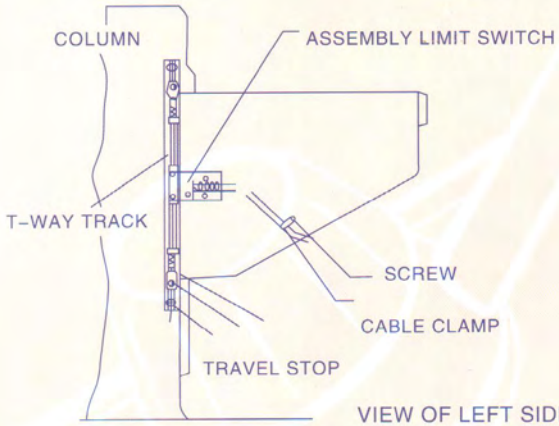
STEP7.



Inatall spring handcrank(already installed), then tighten washer and screw.
Important For operational safety,please lubricate this part and install as per instructions.

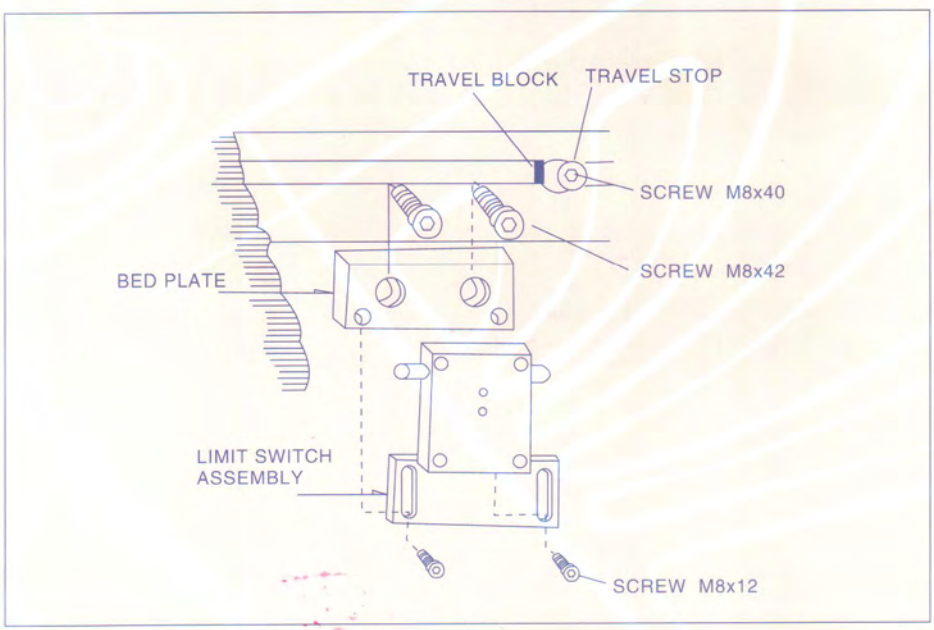


INSTALL T-WAY TRACK FOR KNEE-LIFT FEED

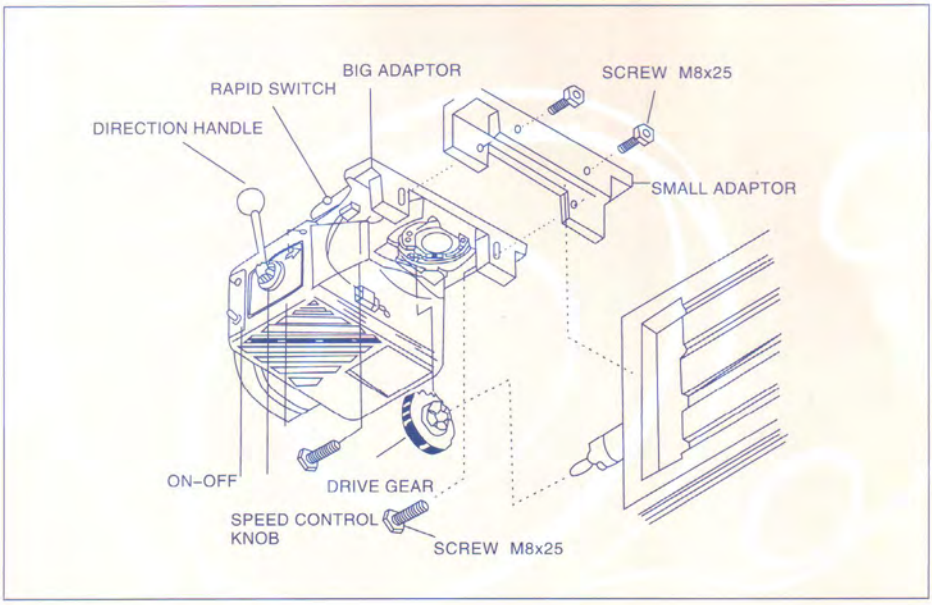


VIEW OF LEFT SIDE OF KNEE AND COLUMN

ASSY-LIMIT ASSEMBLY INSTRUCTION



LONGITUDINAL FEED-HORIZONTAL ARRANGEMENT



Assembly

1. Move the T-Table to the extreme left-hand position.
2. Remove the hand crank,dial and bearing flange from the T-Table.
3. If necessary,install an extension shaft appropriate for your T-Table,and assemble the drive gear.
4. Remove the two screws(M8 x 25) from the small Adapter.
5. Assemble power feed-horizontal to Big Adapter.
6. Adjust she position and clearance of Gears
7. Tighten the screw on the Drive Gear.
8. Tighten the two screws(2-M8 x 25)of the Small Adapter.
9. Place some graphite grease onto the teeth of the Drive Gears.

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