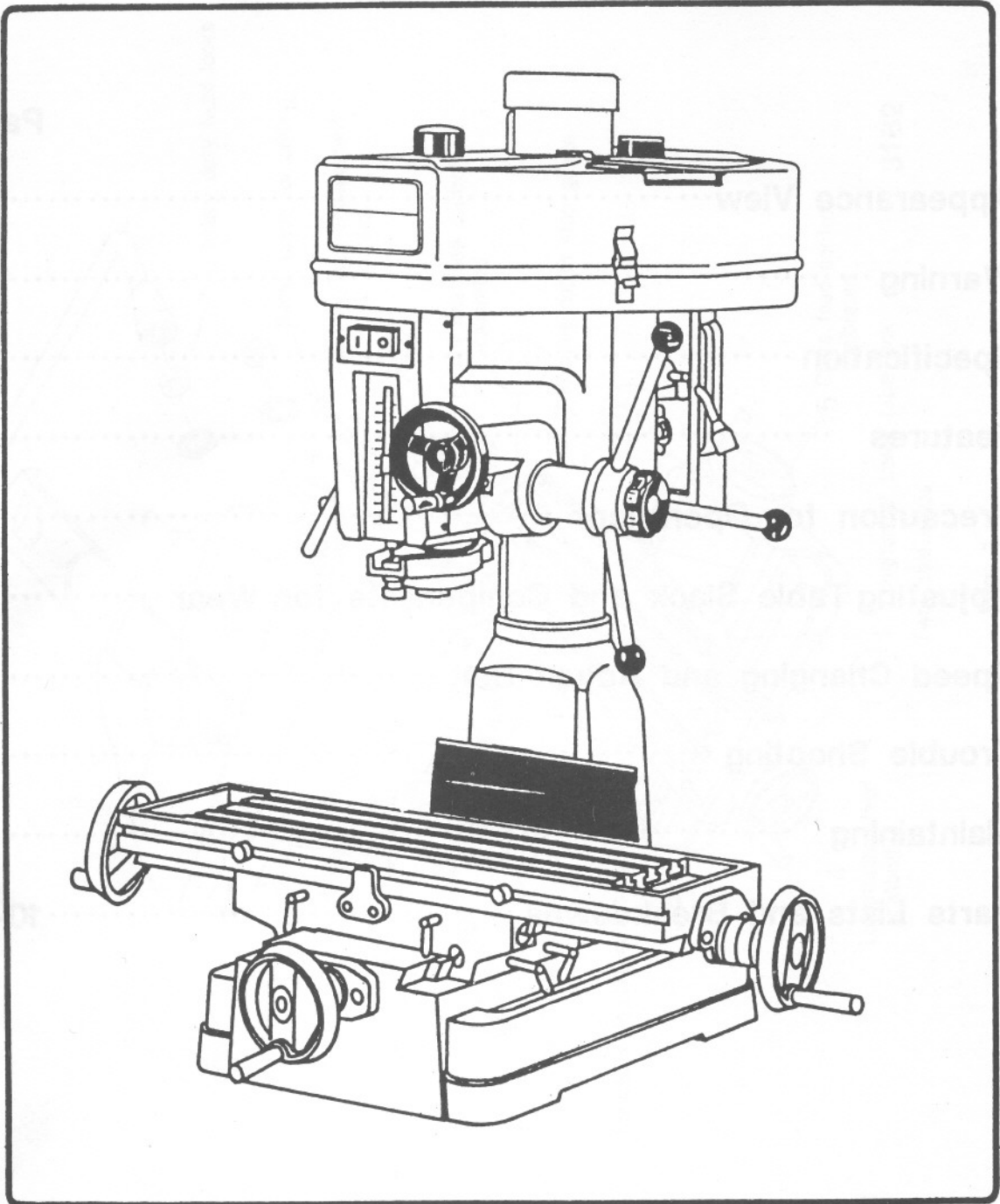


COMPLEX MACHINE



MODEL RF-31
INSTRUCTION MANUAL

WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY

As with all machinery there are certain hazards involved with operation and use of the machine. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result.

This machine was designed for certain applications only. We strongly recommends that this machine NOT be modified and/or used for any application other than for which it was designed. If you have any questions relative to its application DO NOT use the machine until you contact with us and we have advised you.

SAFETY RULES FOR ALL TOOLS

A. USER:

1. **WEAR PROPER APPAREL.** No loose clothing, gloves, rings, bracelets, or other jewelry to get caught in moving parts.

Nonslip foot wear is recommended. Wear protective hair covering to contain long hair.

2. **ALWAYS WEAR EYE PROTECTION.** Refer to ANSLZ87.1 standard for appropriate recommendations.

Also use face or dust mask if cutting operation is dusty.

3. **DON'T OVERREACH.** Keep proper footing and balance at all times.

4. **NEVER STAND ON TOOL.** Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.

5. **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.** Don't leave tool until it comes to a complete stop.

6. **DRUGS, ALCOHOL, MEDICATION.** Do not operate tool while under the influence of drug, alcohol or any medication.

B. USE OF MACHINE:

1. **DON'T FORCE TOOL.** It will do the job better and be safer at the rate for which it was designed.

2. **USE RIGHT TOOL.** Don't force tool or attachment to do a job for which it was not designed.

3. **SECURE WORK.** Use clamps or a vise to hold work when practical. It's safer than using your hand frees both hands to operate tool.

4. **USE RECOMMENDED ACCESSORIES.** Consult the owner's manual for recommended accessories. The use of improper accessories may cause hazards.

5. **AVOID ACCIDENTAL STARTING.** Make sure switch is in "OFF" position before plugging in power cord.

C. ADJUSTMENT:

MAKE all adjustments with the power off. In order to obtain the machine. precision and correct ways of adjustment while assembling, the user should read the detailed instruction in this manual.

D. WORKING ENVIRONMENT:

1. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents.

2. **DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well-lighted.

3. **KEEP CHILDREN AND VISITORS AWAY.** All children and visitors should be kept a safe distance from work area.

E. MAINTENANCE

1. **DISCONNECT** machine from power source when making repairs.

2. **CHECK DAMAGED PARTS.** To read every details of trouble shooting, repair it very carefully and make sure the operator won't get injurt and damage the machine.

Thank you for purchasing the. **RF-31 COMPLEX** Machine. if properly cared for and operated, this machine can provide you with years of accurate service. Please read this manual carefully before using your machine.

1.

SPECIFICATION

MODEL		RF-31(N2F)	
Drilling capacity		32mm(1¼")	
Face mill capacity		76mm(3")	
End mill capacity		20mm(¾")	
Swing		405mm(15-7/8")	
Max. distance spindle nose to table		480mm(18")	
Spindle taper		M.T.3 R-8	
Spindle stroke		130mm(5")	
Diameter of Spindle sleeve		75mm(3")	
Head swivel		360°	
Diameter of column		115mm(4-1/2")	
Overall height (w/o stand)		1100mm(43-1/2")	
Machine stand height		760mm(30")	
Length		1080mm(42-1/2")	
Width		1010mm(39-3/4")	
Motor		1-1/2HP – 2HP	
Spindle speed (r.p.m.)	12S	50Hz	125-2500(4 pole)(75-1685 6 pole)
		60Hz	150-3000(4 pole)(95-2020 6 pole)
Standard accessories		3"-cutter 1/2" chuck 3½" angle vise	
Forward and backward travel of Table		175mm(7")	
Right and left travel of table		500mm(19-3/4")	
Working area of table		730mm × 210mm(28¾" × 8¼")	
Gross weight		300kgs (660 lbs)	
Measurement		27.2 Cuft	
Extra accessories		Power down (spindle) feed Power longitudinal (table) feed Tapping switch Forward & Reverse switch Magnetic switch Emergency switch Collet chuck Work light Cabinet stand 23 speeds (2 speed motor). Extension column Clamping kits	
Noise		80 dB MAX	

2. FEATURES:

- (1) This machine has, several uses, such as surface cutting, drilling, milling, and also can be equipped with an electric switch for tapping.
- (2) This machine is of fine quality, can be operated easily, and it is not limited to skilled operators.
- (3) The drilling and milling operation can be performed by two methods:
 - 1). Hand operation, which makes quick drilling.
 - 2). Worm gear feed operation, which makes slow milling.
- (4) Bronze adjustable nuts, which adjust the thread clearance and reduce the wear. They also make screws rotated smoothly and increase the thread accuracy.
- (5) Whole column which makes this machine strong, stable, and also keep the high accuracy.
- (6) Head of tough cast ensures its accuracy lasting and enduring through the treatment of precise boring cylinder, grinding, and internal stress relief.
- (7) To adjust belt and change speed, new pulley cover is easy to open the cover.

3. DELIVERY & INSTALLATION:

- (1) BE SURE all locks of headstock & column are tighten before operation.
- (2) ALWAYS Keep proper footing & balance while moving this 300kgs machine. and only use heavy duty fiber belt to lift the machine as per Fig. A.
- (3) KEEP machine always out from sun, dust, wet, raining area.
- (4) POSITION & tighten 4 bolts into base holes properly after machine in balance.
- (5) TURN OFF the power before wiring, & be sure machine in proper grounding. Overload & circuit breaker is recommended for safety wiring.
- (6) CHECK carefully if main shaft in clockwise direction while running test., if not, reverse the wiring then, repeat the test till spindle direction is correct.



Fig. A

4. CLEANING & LUBRICATING

- (1) Your machine has been coated with a heavy grease to protect it in shipping. This coating should be completely removed before operating the machine. Commercial degreaser, kerosene or similar solvent may be used to remove the grease from the machine, but avoid getting solvent on belts or other rubber parts.
- (2) After cleaning, coat all bright work with a light lubricant. Lubricate all points in Fig.1. with a medium consistency machine oil.
- (3) Lubricating points as shown in arrows.

5. USE OF MAIN MACHINE PARTS (See Fig.1)

- (1) To raise and lower the head by head handle.
- (2) Equipped with an electric switch for tapping operation clockwise or counterclockwise.
- (3) To adjust the quick or slow feeding by feed handle.
- (4) To adjust the table left and right travel by table handle wheel.
- (5) To adjust the table fore and aft travel by table handle wheel.
- (6) To operate the spindle handle wheel for micro feed.
- (7) To adjust the scale size according to working need.

6. PRECAUTION FOR OPERATION

Check all parts for proper condition before operation; if normal safety precautions are notice carefully, this machine can provide you withstanding of accurate service.

(1) Before Operation

- (a) Fill the lubricant.
- (b) In order to keep the accurate precision, the table must be free from dust and oil deposits.
- (c) Check to see that the tools are correctly set and the workpiece is set firmly.
- (d) Be sure the speed is not set too fast.
- (e) Be sure everything is ready before use.

(2) After Operation

- (a) Turn off the electric switch.
- (b) Turn down the tools.
- (c) Clean the machine and coat it with lubricant.
- (d) Cover the machine with cloth to keep out the dust.

(3) Adjustment of Head

- (a) To raise and lower the head, loosen the two heavy duty head lock nuts shown in Fig.1. Use the left side head handle to raise and lower the head on its rack and pinion mechanism. When the desired height is reached, tighten the bolts to avoid vibration.
- (b) Head may be rotated 360° by loosening the same bolts mentioned above. Adjust the head to the desired angle, then fix the heavy duty head locknuts. It is Tighten the same time to fix the head if drilling & milling too much.

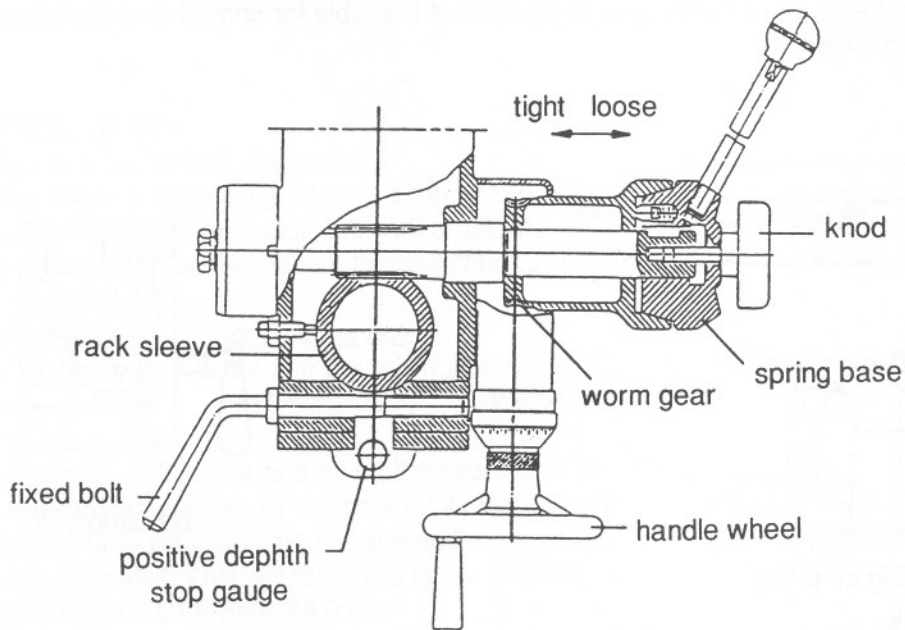


Fig.2.

- (4) Preparing for Drilling (see fig. 2)(Except addition power feed system).
Turn of the knob make loose the taper body of worm gear and spring base. Then we decide spindle stroke setting the positive depth stop gauge for drilling blind hole or Free state for pass hole.
- (5) Preparing for Milling (see fig. 2)(Except addition power feed system).
 - (a) Adjust the positive depth stop gauge to highest point position.
 - (b) Turn tight of the knod be use to taper friction force coupling the worm gear and spring base.
Then turning the handle wheel by micro set the sprindle of work piece machining height.
 - (c) Lock the rack sleeve at the desired height with fixed bolt.

7. ADJUSTING TABLE SLACK AND COMPENSATE FOR WEAR(see fig. 3)

- (1) Your machine is equipped with Jib strip adjustment to compensate for wear and excess slack on cross and longitudinal travel.
- (2) Clockwise rotation the job strip bolt with a big screw for excess slack otherwise a little counter clockwise if too tight.
- (3) Adjust the jib strip bolt until feel a slight drag when shifting the table.

8. CLAMPING, TABLE BASE, AND MACHINE BASE (see Fig. 3)

- (1) When milling longitudinal feed, it is advisable to lock the cross feed table travel to insure the accuracy of your work. To do this, tighten the small leaf screw located on the right side of the table base.
- (2) To tighten the longitudinal feed travel of the table for cross feed milling, tighten the two small leaf screw on the front of the table base
- (3) Adjustable travel stops are provided on the front of the table for control of cross travel and the desired milling length.

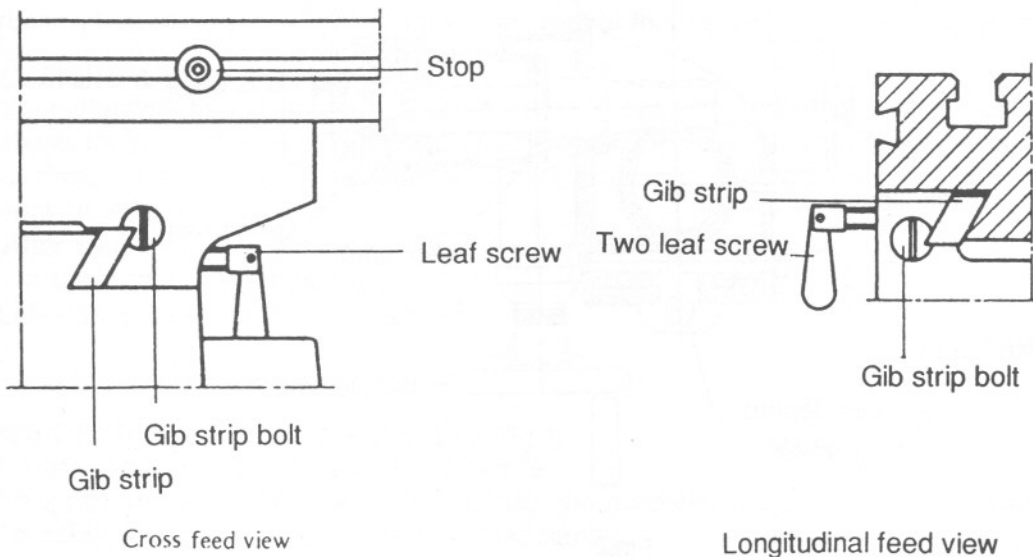


Fig.3.

9. SPEED CHANGING AND ADJUST BELT (Step See Fig. 4)

- (1) Turn power off.
- (2) Open belt cover by releasing side latches step see(a)(b)(c)
- (3) Loosen motor mount leaf screw.
- (4) Push motor in order to loosen belts(head side of motor mount is set fixed, two motor's ear side with motor screw to tighten or loosen of belts.)
- (5) Loosen two screws for base of speed change inter pulley that also adjust the location of base for speed change inter pulley.
- (6) Select the suitable R.P.M. from speed charts of Fig. 5 Then place the belts on the desired pulley steps.
- (7) Tighten two screws of base for speed change pulley and the bolt of motor mount lock.
- (8) Cover the belt cover with counter step (2) after turn power on;

30MM

SPINDLE 12 SPEEDS MOTOR

50%	60%	BELT POSITION	50%	60%	BELT POSITION
125	150	4-5	710	850	1-6
185	225	3-5	1000	1200	2-7
210	255	4-6	1250	1500	3-8
300	350	2-5	1350	1600	1-7
350	400	3-6	1900	2300	2-8
420	500	4-7	2500	3000	1-8

Fig.5.

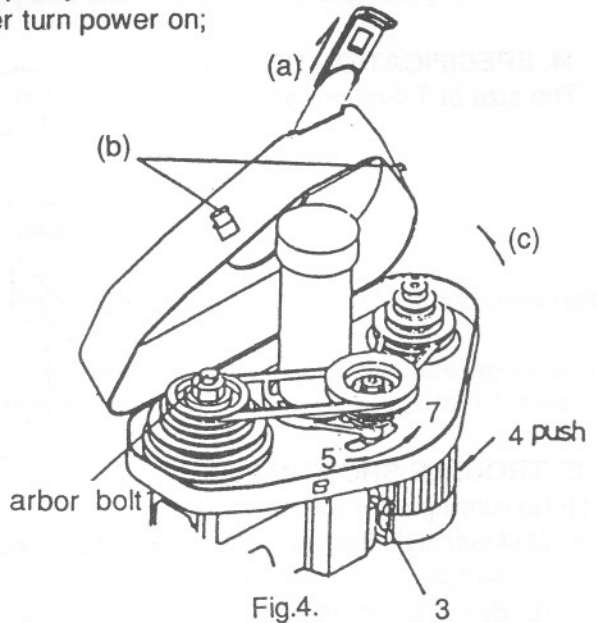


Fig.4.

10. TO CHANGE TOOLS

- (1) Removing Face Mill or Drill Chuck Arbor
Loosen the arbor bolt (see fig. 4) at the top of the spindle shaft approximately 2 turns with a wrench. Rap the top of the arbor bolt with a mallet.
After taper has been broken loose, holding chuck arbor on hand and turn detach the arb bolt with the other hand.
- (2) To Install Face Mill or Cutter Arbor
Insert cutter and cutter arbor into the taper of spindle. Tighten arbor bolt detach securely, but do not overtighten.
- (3) Removing Taper Drills
 - (a) Turn down the arbor bolt and insert the taper drill into the spindle shaft.
 - (b) Turn the rapid down handle rod down until the oblong hole in the rack sleeve appears.
Line up this hole with the hole in the spindle. Insert key punch key through holes and strike lightly with a mallet. This will force the taper drill out.

11. ORDERING REPLACEMENT PARTS

Copmlete parts list is attached. if parts are needed, contact your local distributor.

12. EXTRA TOOLING AND ACCESSORIES

Each of machine is equipped with a MT#3 spindle taper or a R-8 spindle taper (examples below). Contact your local distributor or a major cutting tool distributor to obtain any of these accessories: Taper drills, Reamers, Taps Collects, Adapters and Sleeves.

Deluxe Stand
 Cooling System
 Work Lamp
 3" Face Mill Cutter
 Face Milling Cutter
 NT#30 Spindle Taper

Power Table Feed
 Emergency Switch
 Collect Chuck
 3-Way Angle Milling Vise
 7 Pcs Milling Chuck

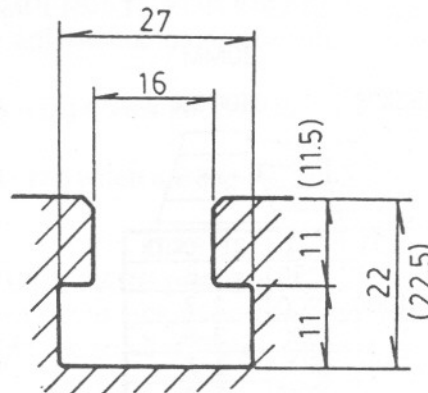
52 Pcs Clamping Kit
 Magnetic Switch
 3 1/2" Angle Vise
 1/2" Drill Chuck
 K-Type Milling Vise

13. TAPPING EQUIPMENT

This machine can be equipped with an electric switch for tapping operation clockwise or counterclockwise, and the working depth also can be adjusted by the limit switch. (Electric switch will be installed according to your requirement, and you must pay the cost only.)

14. SPECIFICATION OF T-SOLT

The size of T-Solt on table as Fig 6:



RF-31

Fig.6.

15. TROUBLE SHOOTING

- (1) No running after switch on:
 - (a) Main switch interruption while volts irregular - Adjust input voltage and draw back the main switch.
 - (b) Break down of fuse in switch box - Replace with new one.
 - (c) In case of too much current, the overload relay jumps away automatically - Press the overload relay, and it will return to the correct position.
- (2) Motor Overheat and No Power:
 - (a) Overload - Decrease the load of feed.
 - (b) lower voltage - Adjust to accurate voltage.
 - (c) Spoiled contact point of magnetic switch - Replace with new one.
 - (d) Breakdown of overload relay - Connect it or replace with new one.
 - (e) Motor is poor - Replace with new one.
 - (f) Break down of fuse or poor contact with wire (it is easily to spoil motor while short circuit) - Switch off power source at once and replace fuse with new one.
 - (g) The tension of pulley V-belt too tight - Adjust for proper tension of V-Belt.
 - (h) If this machine with the tapping attachment, there is an aid plum screw fix on the motor mount in order to avoid the motor pulleys shake while turning.
- (3) The temperature of spindle bearing is too hot:
 - (a) Grease is insufficient - Fill the grease.
 - (b) The spindle bearing is fixed too tight - turning with no speed and feel the tightness with hand.
 - (c) Turning with high speed for a long time - Turn it to lightly cutting.
- (4) Lack of power with main spindle revolving:
 - (a) the tension of V-belt too loose - Adjust for proper tension of V-belt.
 - (b) Motor has burned out - Change a new motor.
 - (c) Fuse has burned out - Replace with new one.

- (5) table travel has not balanced:
 - (a) The gap of spindle taper too wide - Adjust bolt in proper.
 - (b) Loosening of leaf bolt - Turn and fasten in place.
 - (c) Feed too deep - Decrease depth of feed.
- (6) Shake of spindle and roughness of working surface has taken place during performance:
 - (a) The gap of spindle bearing too wide - Adjust the gap in proper or replace bearing with new one.
 - (b) Spindle loosening up and down - Make two of inner bearing covers on the top tight each other. Do not overtighten two inner bearing covers with the taper bearing; it is ok as long as no gap between them.
 - (c) The gap of taper sliding loate too Wide - Adjust the tension of bolt in proper.
 - (d) Loosening of chuck - Fasten chuck.
 - (e) Cutter is dull - Resharpen it.
 - (f) Workpiece has not hold firmly - Be sure to tighten workpiece.
- (7) Micro feed does not work smoothly:
 - (a) Loosening of clutch - Be sure to tighten it.
 - (b) Worm and worm shaft has worn out - Replace with new one.
 - (c) Loosening of handwheel fixed screw - Be sure to tighten it.
- (8) Without accuracy in performance:
 - (a) Imbalance of heavy workpiece - Must be considerate of the principle of balance while holding workpiece.
 - (b) Often use of hammer to strike workpiece - Forbidden to use hammer to strike workpiece.
 - (c) Unaccurate horizontal table - Check and maintain table for keeping accurate horizontal after a period of use.

16. MAINTAINING

That's easier to keep machine in good condition or best performance by means of maintaining it at any time than remedy it after it is out of order.

- (1) Daily Maintenance (by operator)
 - (a) Fill the lubricant before starting machine everyday.
 - (b) If the temperature of spindle caused overheating or strange noise, stop machine immediately to check it for keeping accurate performance.
 - (c) Keep work area clean; release vise, cutter, workpiece from table; switch off power source; take chip or dust away from machine and follow instructions lubricating or coating rust-proof oil before leaving.
- (2) Weekly Maintenance
 - (a) Clean and coat the cross leading screw with oil.
 - (b) Check to see if sliding surface and turning parts lack of lubricant. If the lubricant is insufficient, fill it.
- (3) Monthly Maintenance
 - (a) Adjust the accurate gap of slide both on cross and longitudinal feed.
 - (b) Lubricate bearing, worm, and worm shaft to avoid wear.
- (4) Yearly Maintenance
 - (a) Adjust table to horizontal position for maintenance of accuracy.
 - (b) Check electric cord, plugs, switches at least once a year to avoid loosening or wearing.

HEAD PARTS

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY
1	6101	Chuck Arbor Bolt	MT3 M10xP1.5	1	21	6121-4	Chuck Arbor	W7/16"-20 (R8)	1
1	6101-1	Chuck Arbor Bolt	MT3 M12xP1.75	1	21	6121-6	Chuck Arbor	W3/8"-16MT3	1
1	6101-2	Chuck Arbor Bolt	MT3 W3/8"-16	1	21	6122-1	Key		1
1	6101-3	Chuck Arbor Bolt	MT3 W1/2"-12	1	21	6122-2	Washer	4mm	1
1	6101-4	Chuck Arbor Bolt	R8 W7/16"-20	1	21	6122-3	Chuck Arbor	NT30	1
1	6101-5	Chuck Arbor Bolt	NT30 M12xP1.75	1	22	3027-1	Lever		1
2	6102	Spindle Lock Nut		1	23	6123	Fixed Ring	ϕ 2x ϕ 41	1
3	6103	Spindle Pulley		1	24	6124	Handle Rod	240L	1
4	6504-1	Belt Bottom Cover (For Metal Belt Cover Only)		1	24	6124-1	Handle Rod	165L	1
5	6105	Outer Bearing Plate	ϕ 105x ϕ 66x2.5t	1	25	6125-1	Fixed Tight Collar		1
6	6106	Spindle Taper Sleeve		1	26	6126-1	Fixed Tight Collar (Thread)		1
7	CA6009ZZ	Ball Bearing (6009ZZ)	6009ZZ	2	27	6127	Screw Key	3/8"-16UNC-38L	1
8	6108	Bearing Spacer	ϕ 74x ϕ 68x22	1	35	6135	Bearing Spacer	ϕ 34x ϕ 27.5x30L	1
9	6109	C-Retainer Ring	ϕ 3x ϕ 80	1	38	6138	Lock Bolt With Knob		1
10	6110	C-Retainer Ring	ϕ 2x ϕ 52	1	39	6139	Handle Rod		3
11	6511	Head Body		1	40	290086	Plastic Round Knob	6-1-PF64	3
12	6112	Rubber Flange		1	42	6142-2	Head Wheel		1
13	6513	Feed Base		1	44	6144	Micro Adjusting Indicator	0~2.25 (mm)	1
14	6114	Lock Nut	ϕ 29.5-20x5.5t	2	44	6144-1	Micro Adjusting Indicator	0~0.09(Inch)	1
15	CA30206J	Taper Roller Bearing (30206J)	30206J	1	45	6145	Worm Cover	FC	1
16	6116-2	Rack Sleeve	MT3	1	46	CA6202Z	Ball Bearing (6202Z)	6202Z	2
16	6116-6	Rack Sleeve	R8	1	47	6147	Worm Shaft		1
17	6117	Spindle Shaft	MT3	1	50	6550	Lock Handle		1
17	6117-2	Spindle Shaft	R8	1	51	6151	Leaf Screw	3/8"-16UNC	1
17	6117-3	Spindle Shaft	NT30	1	51	6151-1	T Screw	5/16"-18UNC-37L	1
18	CA30207J	Taper Roller Bearing (30207J)	30207J	1	52	6552	Head Body Fixed Bolt	5/8"-150L	2
19	6119	Bearing Cap	MT3 R8	1	54	6554	Graduated Rod		1
19	6119-1	Bearing Cap	NT30	1	55	6555	Graduated Dial		1
20	6120	Cutter Arbor	25.4 M10xP1.5	1	56	6556	Switch		1
20	6120-1	Cutter Arbor	25.4 M12xP1.75	1	57	6557	Speed Chart		1
20	6120-2	Cutter Arbor	25.4 W3/8"-16	1	58	6158	Head Handle		1
20	6120-3	Cutter Arbor	25.4 W1/2"-12	1	59	6559	Worm Shaft		1
20	6120-4	Cutter Arbor	25.4 W7/16"-20	1	60	6160	Worm Gear		1
20	6120-7	Cutter Arbor	27 M10xP1.75	1	61	6561	Worm Gear Shaft	ϕ 9/16"x64.3L	1
20	6120-9	Cutter Arbor	R8	1	62	6162	Compression Spring		1
21	6121	Chuck Arbor	M10x1.5 MT3	1	63	6563	Pin		1

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY
66	6566	Motor Mount		1	131	H01260	Hex. Head Screw	5/16"x1/2"L	5
67		Motor		1	132		Washer		12
68	6168	Punch Key		1	133	H04140	Cross Round Head Screw	1/4"x3/8"L	3
69	6169-4	Belt Cover (Metal)		1	134	H01260	Hex. Head Screw	1/4"x2"L	1
69	6169E	Belt Cover (PE)		1	135		Hex. Nut	1/4"	1
69-1	6169-1	Spindle Cover (For Metal Belt Cover Only)		1	136		Spring Pin		1
69-1	6169B	Spindle Cover (For PE Belt Cover Only)		1	137		Star Washer	AW06 ϕ 30	1
69-2	6169-3	Shelf		1	139	H04140	Cross Round Head Screw	3/16"x3/4"L	3
71		V-Belt (B34)	B-34	1	140		Spring Pin	ϕ 3x12L	2
72	CA6204Z	Ball Bearing (6204Z)	6204Z	2	141		Hexagon Nut	3/8"	1
73	6173	Inter Pulley		1	142		Key	7x7x20L	1
74		V-Belt (B42)	B-42	1	143		Hex. Socket Head Screw	5/16" x 1/2"L	2
75	6175	Inter Pulley Shaft		1	144		Washer	1/4"	1
76	6576-1	Speed Change Inter Pulley Base		1	145		Hex. Socket Headless Screw	5/16"x5/16"L	3
77	6577	Clip Plate		1	146		Hex. Socket Headless Screw	1/4"x1/4"L	1
79	6179	Rubber Collar		1	147		Hex. Socket Head Screw	3/16"x7/16"L	2
85	6185	Plum Screw	1/4"-20UNC	1	148		C-Retainer Ring	ϕ 15	1
92	6192	Set Position Block		1	150		Hex. Nut	5/8"	4
93	6193	Fixed Nut		1	151		Washer	5/8"x1-9/16"x3t	2
94	6194	Support Base		1	152		Cross-Recess Round Head Screw	1/8"x3/8"L	4
95	6195	Handle		1	153		Hex. Socket Headless Screw	5/16"x5/16"L	1
96	6196	Front Cover Plate		1	154		C-Retainer Ring	ϕ 14	2
97	6197	Push Switch Protection Piece		1	155		Hex. Socket Head Screw	1/4"x1"L	4
101	61101	Head Raise Bracket		1	156	H01260	Hex. Head Screw	5/16"x1"L	4
102	61102	Limit Plate		1	157	H01260	Hex. Head Screw	7/16"x3/4"L	2
103	61103	Spring Cover		1	158		Hex. Nut	5/16"	4
104	61104	Spring		1	159		Key	7x7x37L	1
105	61105	Spring Base		1	160	H01260	Hex. Head Screw	5/16"x1-1/2"L	2
106	61106	Pinion Shaft		1	161		Washer	5/16"	2
107	61107	Worm Gear		1	162	61162	Outline Bush		2
108	61108	Feed Cover		1	163	H04140	Cross Round Head Screw	1/4"x1/2"L	4
110	61110	Handle Base		1	164		Cross -Recess Round Head Screw	3/16"x3/8"L	2
114	61114	Bushing		1	184	H04140	Cross -Round Head Screw	5/32"x1/4"L	1
115	61115	Spring		1	185		Washer	5/32"	1
130		Hex. Socket Headless Screw	M4x8L	1	187		Spring Washer	1/4"x1"x1.5t	2
					188	H05010	Flat Cross Head Screw	3/16"x3/8"L	1
					190	6554-1	Graduated Rod	TW12-10x235L	1
					181		E-Retainer Ring	E12	1
					208		Hex. Nut	W3/8" - 16	1

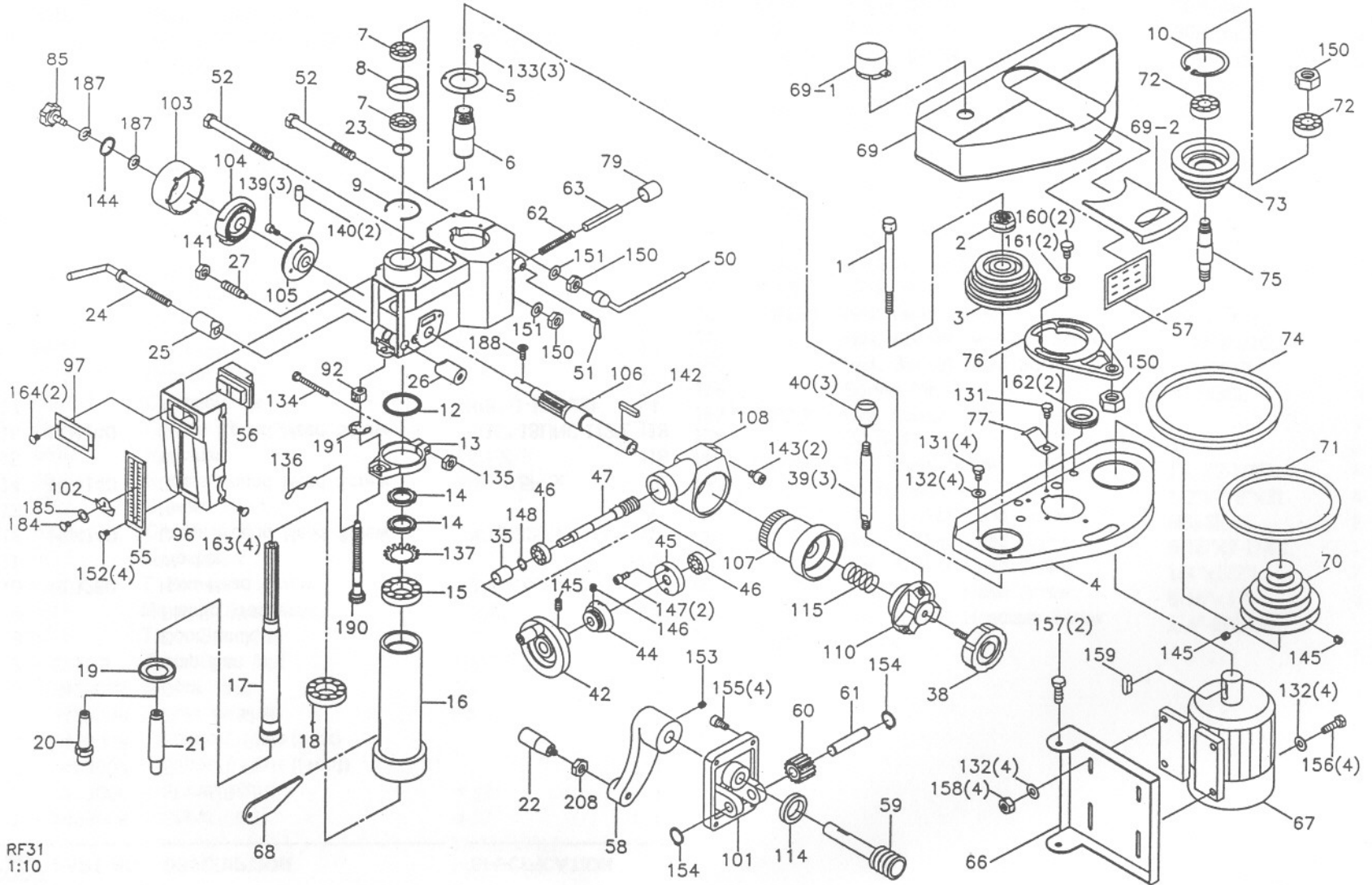
TABLE BASE PARTS

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY
1	6601	Table Handle Wheel	φ 17	3	24	6224	Table Screw	30B (mm)	1
1-1		Hex. Socket Head Screw	3/8"-16UNC	3	24	6224-1	Table Screw	30B (Inch)	1
1-2		Handle		3	24	6224-2	Table Screw	30L (mm)	1
1-3		Hexagon Nut	3/8"	3	24	6224-3	Table Screw	30L (Inch)	1
2	6602	Dial Clutch		2	26	6226	Right Flange	φ 17	1
2-1	6602-1	Graduated Dial (Metric)		2	27	6627	Gib Strip		1
2-1	6602-2	Graduated Dial (Imperial)		2	27	6627-1	Gib Strip	30L	1
3	CA51103	Thrust Bearing (51103)	51103	4	28	6628	Table	30B	1
4	6604	Square Flange	φ 17	1	28	6628-1	Table	30L	1
4-2		Rivet	φ 2	4	29	6229	Fixed Block		2
5	6605	Table Screw	TM23.5xP2.5	1	30	6230	Movable Fixed Ring		2
5	6605-1	Table Screw	TM23.5-10	1	121	61121	Limit Plate		2
6	6606	Base		1	131	H01260	Hex. Head Screw	5/16"x1/2"L	6
7	6607	Gib Strip		1	145		Hex. Socket Headless Screw	5/16"X5/16"L	1
8	6608	Column Base	30B	1	156		Hex. Socket Head Screw	5/16"X1"L	2
8	6608-1	Column Base	30H	1	166		Spring Pin	φ 5x38L	3
9	6609	Column Base Ring		1	167	6602-3	Link Screw		2
10	6610	Rack	600.5L	1	168		Oil Ball	3/16"	5
10	6610-1	Rack	885.5L	1	172	H01260	Hex. Head Screw	1/2"x2-1/2"L	4
11	6611	Column Head		1	173		Spring Washer	1/2"x7/8"x3t	4
12	6212	Gib Strip Bolt		2	174		Hex. Socket Head Screw	M5x6L	2
13	6213	Leaf Screw		4	175		Hex. Socket Head Screw	5/16"X2-1/4"L	1
13	6151-1	T Screw		4	176		Hex. Socket Head Screw	1/4"x1/2"L	2
14	6214	Movable Fixed Block		1	182		Hex. Socket Head Screw	5/16"x1"L	6
15	6215	Table Base Nut	TM23.7xP2.5	1	189		Hex. Socket Headless Screw	1/4"-20UNC	3
15	6215-1	Table Base Nut	TM23.7-10	1	190	6630	Washer		1
16	6616	Center Base	30B	1					
16	6616-1	Center Base	30L	1					
17	6217	Antidust Plate		1					
19	6219	Antidust Plate		1					
20	6620	Table Clutch	φ 17	1					
22	6222	Left Flange	φ 17	1					
23	6223	Table Nut	TM23.7xP2.5	1					
23	6223-1	Table Nut	TM23.7-10	1					
23	6223-2	Table Nut	TM24xP5	1					

STAND PARTS (OPTION)

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY
1	2423005	Stand (Left)		1
2	2423006	Stand (Right)		1
3	2423007	Support Plate (Front)		1
4	2423008	Support Plate (Rear)		1
5	2423009	Built In Shelf		1
6	2423013	Door		1
7	6231-5	Chip Pan		1
8		Door Lock		1
9		Plastic Washer	3/8"	4
10	H01260	Hex. Head Screw	3/8"-16UNC-4"L	4
11		Washer		2
12	H04140	Cross Round Head Screw	NO.8-32UNC-1/4"L	2
13		Plate		1
14	H04140	Cross Round Head Screw	M4x0.5P-5L	2
15		Washer	5/16"	18
16	H04140	Cross Round Head Screw	5/16"-18UNC-1/2"L	18
17		Washer	3/8"x1-1/4"x3t	4

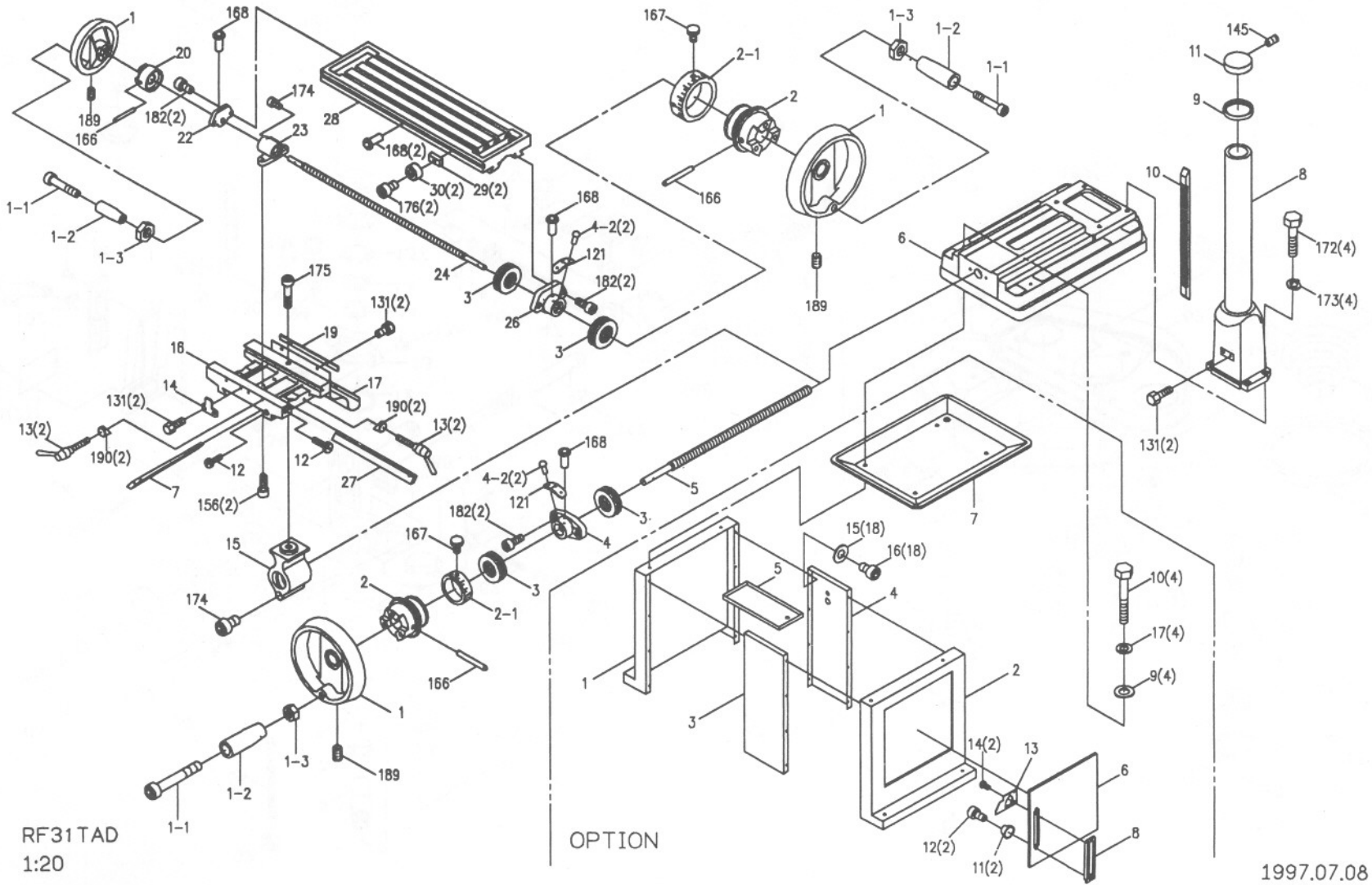
WITH METAL BELT COVER



14

RF31
1:10

15



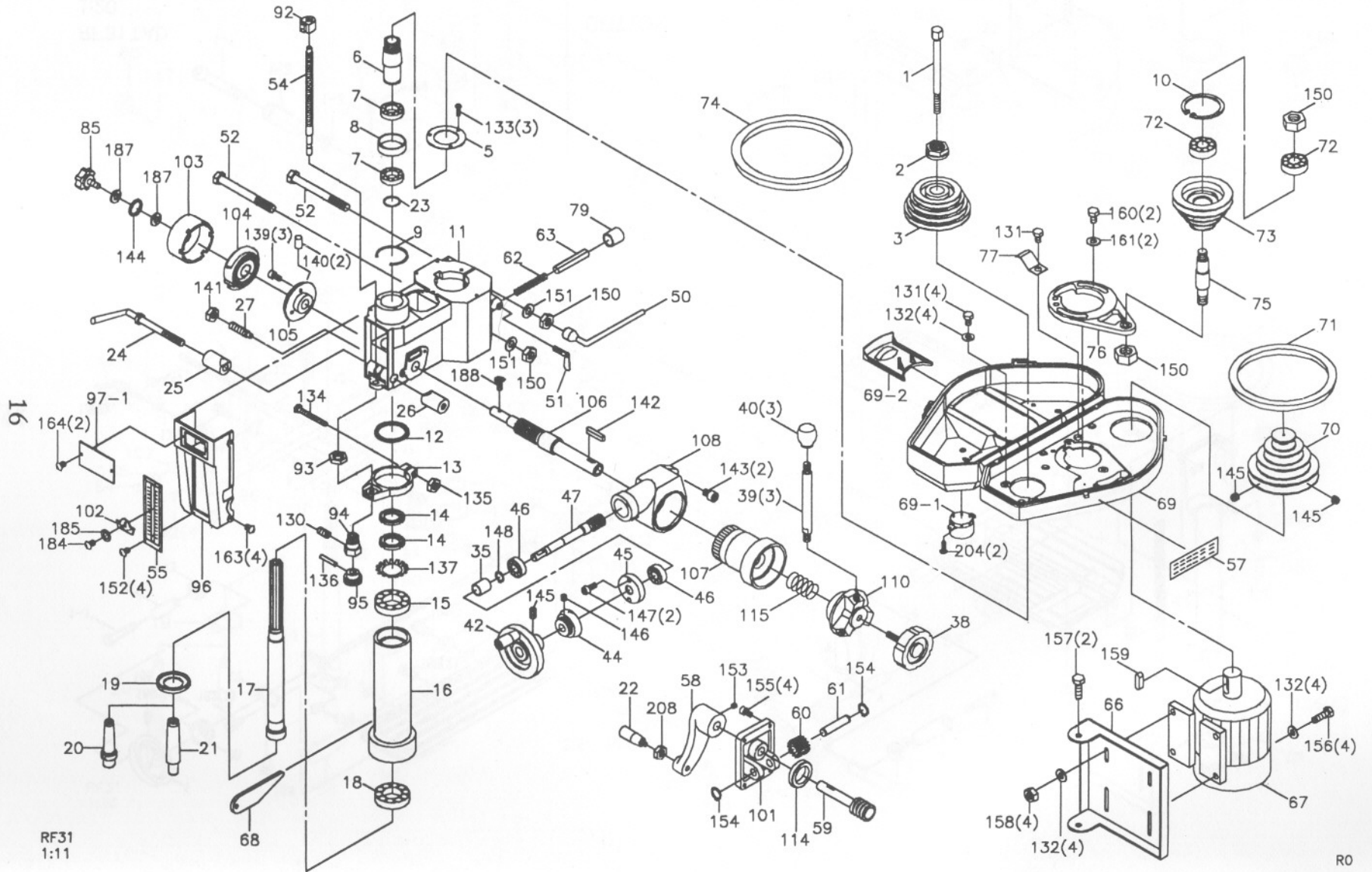
RF31TAD
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OPTION

1997.07.08

MAIN BE SET CODES

WITH PE BELT COVER



RF31
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RO

WITH PE BELT COVER

MANUFACTURER:
ADDRESS:
SERIAL No.:

PLEASE WRITE DOWN THE SERIAL NO. ON THIS BLOCK
FROM THE NAME PLATE AFTER YOU RECEIVE THIS MACHINE.