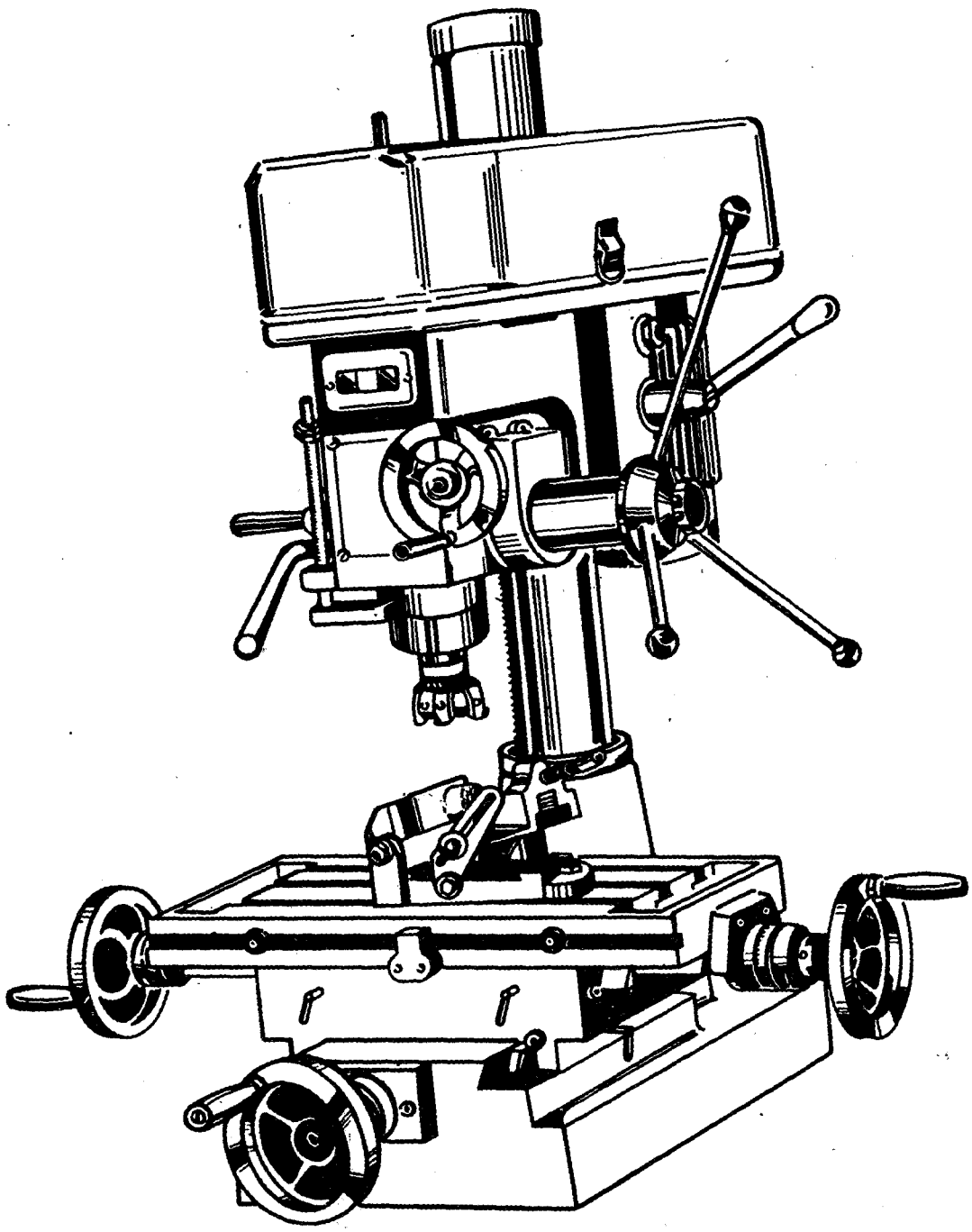
DRILLING/ MILLING MACHINE



MODEL RF-15/ 20/ 30
INSTRUCTION MANUAL

Thank you for purchasing the RF-15/20/30 Drilling & Milling 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. 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.

2. SPECIFICATIONS:

SPECIFICATION	RF-15	RF-20	RF-30
Drilling capacity	20mm	3/4"	32mm 1¼"
Full-back cutter capacity	63mm	2½"	75mm 3"
End mill capacity	13mm	1/2"	20mm 3/4"
Max. distance spindle nose to table	400mm	15¾"	520mm 20½"
Spindle stroke	100mm	4"	130mm 5"
Working area at table	470x160mm 18½" x6¼"	520x160mm 20½" x6¼"	600x240mm 23½"x9½"
Right and left stroke of table	320mm 12½"	400mm 15¾"	400mm 15¾"
Forward and backward stroke of table	135mm 5¼"	155mm 6"	160mm 6¼"
Spindle center to column	202mm	8"	208mm 8 1/8"
Overall height	900mm	35½"	1100mm 43¼"
Spindle speed RPM 50 cycle	80-1700 (8 speeds)		110-1560(8 speeds)
Spindle speed RPM 60 cycle	90-1920 (8 speeds)		130-1750(8 speeds)
Motor	½HP or 1 HP		1HP or 2HP
Net weight	140kg 308lbs	170kgs 374lbs	326kgs 717lbs
Standard accessories	2½"cutter ½"chuck	2½"cutter ½"chuck 2½"vise	3 cutter ½"chuck 3½" angle vise

3. MOUNTING MACHINE

(1) Be sure to fix the head on the column and put the hanger on the head before moving machine. While moving machine, please keep its balance and safety.
(2) Do not mount machine at the sunshine place to avoid the deformity of machine and the loss of accuracy.
(3) Check to see if the motor turning in clockwise direction before connecting the electric distribution line.
(4) Mount machine to a sturdy table or base. It is advisable that the table you choose be well constructed to avoid any vibration during operation.
(5) Four holes are provided on the machine base (4-06) for mounting. Before tightening bolts make sure the work table on the machine is level lengthwise and crosswise. Use shims if necessary.

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.

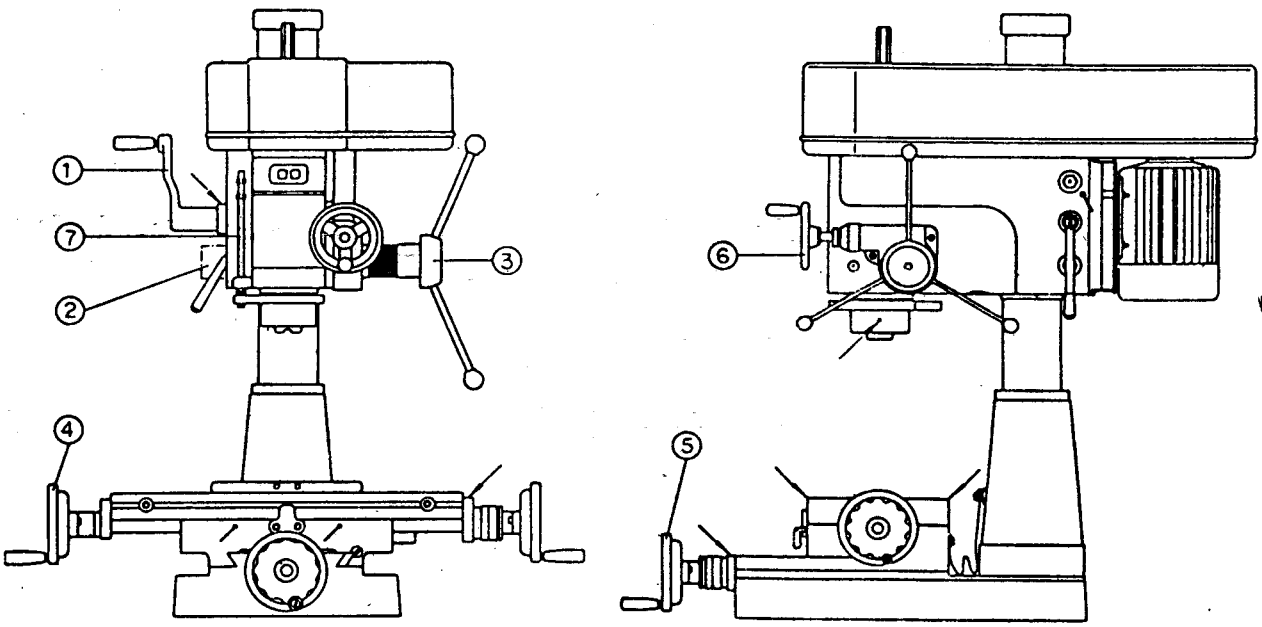


Fig. 1

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 three bolts (3-52) shown in Fig. 2. Use the left side head handle (3-58) 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 bolt according to 3-52. Tighten three bolts at the same time to fix the head if drilling & milling too much.

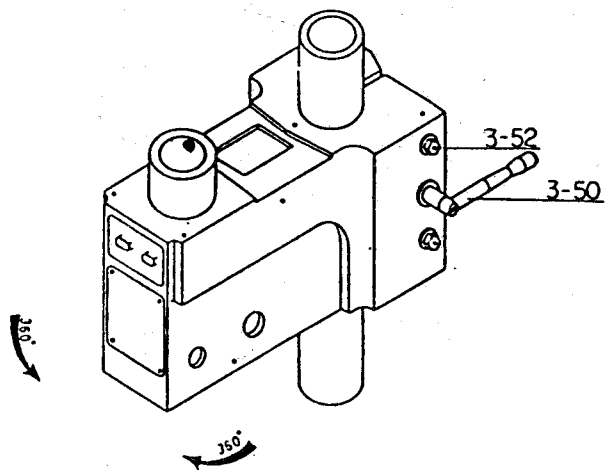


Fig. 2

(4) Preparing RF-15/20/30 for Drilling
- (a) Make the feed handle (3-36) and the worm (3-32) inner gear uncluching by moving feed handle, then stop down feed.

(5) Preparing RF-15/20/30 for Milling
- (a) Adjust screw on the graduated dial (3-54) to its highest position.
- (b) Make the feed handle and the worm inner gear cluching by moving the feed handle, then perform milling by micro feed.
- (c) Adjust spindle to the desired working position by spindle handle wheel (3-43) and lock the rack gear sleeve (3-16) at the desired height with fixed bolt.

7. ADJUSTING TABLE SLACK

(1) Your RF-15/20/30 is equipped with full length tapered sliding plate (4-07, 4-27) to adjust for excess slack in fore and aft, left and right table travel.
(2) Tighten the sliding plate bolt (4-12) clockwise with a big screw driver for excess slack.
(3) Release the sliding plate bolt a little counterclockwise if too tight.
(4) To adjust left and right travel, adjust the sliding plate bolt until feel a slight drag when turning the table (Fig. 3).
(5) To adjust fore and aft travel, adjust the sliding plate bolt as shown in Fig. 3.

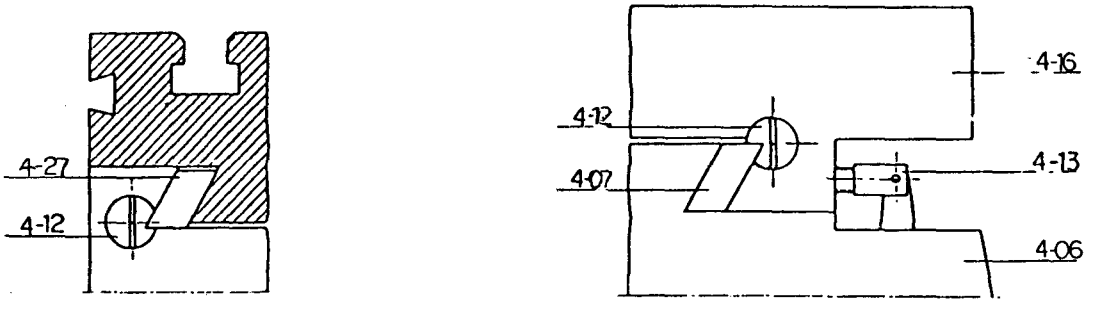


Fig. 3

8. CLAMPING, TABLE BASE, AND MACHINE BASE

(1) When milling left and right, it is advisable to lock the fore and aft table travel to insure the accuracy of your work. To do this, tighten the small leaf screw (4-13) located on the right side of the table base (Fig. 4).
(2) To tighten the left and right travel of the table for fore and aft milling, tighten the two small leaf screw (4-13) on the front of the table base (Fig: 4).
(3) Adjustable travel stops are provided on the front of the table for control of cross travel and the desired milling length.

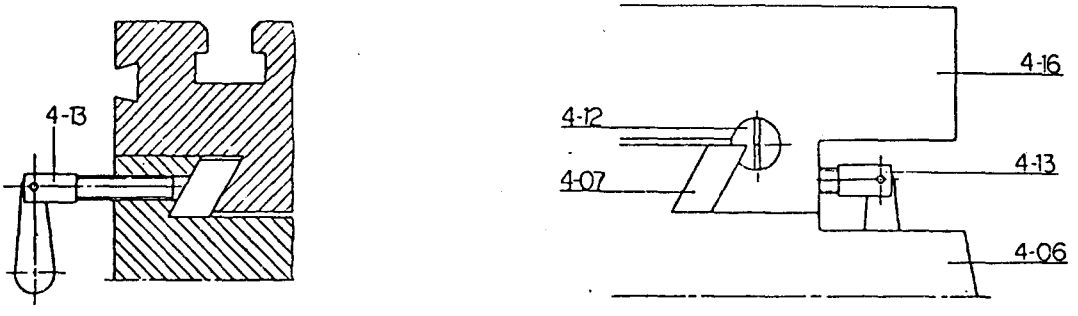
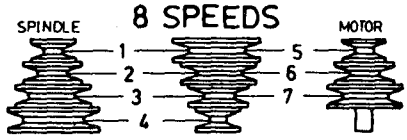


Fig. 4

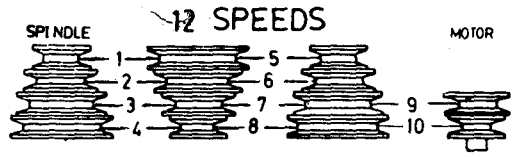
9. SPEED CHANGING

(1) Turn power off.
(2) Remove belt cover by releasing side latches.
(3) Loosen motor mount leaf screw (3-51).
(4) Push motor in order to loosen belts (right side of motor mount is fixed, left side with motor screw (3-114) to tighten or loosen belts.)
(5) Loosen two screws of base for speed change pulley (3-76) that also adjust the location of base for speed change pulley.
(6) Select the suitable R.P.M. from speed charts of Fig. 5, 6. 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 before turn power on.



RF-30			RF-20,15		
SPEED(RPM)		BELT POSITION	SPEED(RPM)		BELT POSITION
50℘	60℘		50℘	60℘	
110	130	4-5	90	110	4-5
180	210	3-5	170	200	3-5
270	300	2-5	180	220	4-6
400	450	3-6	260	320	2-5
470	530	4-7	350	430	4-7
830	930	1-6	800	970	1-6
1110	1250	2-7	1040	1260	2-7
1560	1750	1-7	1550	1890	1-7

Fig. 5



RF-30					
SPEED(RPM)		BELT POSITION	SPEED(RPM)		BELT POSITION
50℘	60℘		50℘	60℘	
75	85	4-5-10	450	505	1-6-10
100	115	4-5-9	555	625	2-7-10
130	150	4-6-10	780	875	1-7-10
190	215	4-6-9	965	1090	3-8-9
245	280	2-5-9	1415	1595	2-8-9
305	345	3-6-9	1975	2225	1-8-9

Fig. 6

10. TO CHANGE TOOLS

(1) Removing Face Mill or Drill Chuck Arbor
Loosen the arbor bolt (3-01) at the top of the spindle (3-17) approximately 2 turns with a wrench. Rap the top of the spindle sharply with a mallet.
After taper has been broken loose, hold chuck arbor (3-21) in one hand and unscrew spindle 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 (3-01) 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 (3-39) down until the oblong hole in the rack gear sleeve appears. Line up this hole with the hole in the spindle. Insert key (3-68) through holes and strike lightly with a mallet. This will force the taper drill out.

11. ORDERING REPLACEMENT PARTS

Complete parts list is attached. If parts are needed, contact your local distributor.

12. EXTRA TOOLING AND ACCESSORIES

Each of RF-15/20/30 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
End Mills
Cutter Arbor
Taps
Collets
Adapters and Sleeves

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. 7:

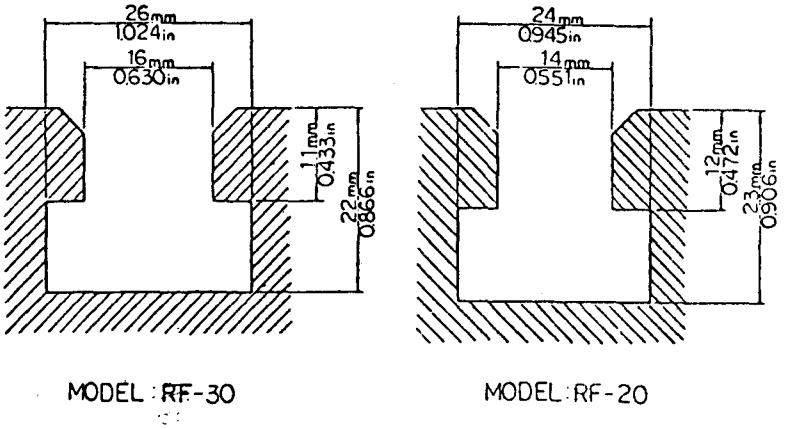


Fig. 7

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 plate 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 lubricanting 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 libricant is insufficant, fill it.

(3) Monthly Maintenance
   (a) Adjust the accurate gap of slide both in right and left feed and forward and backward 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.

Part No.	Description	Number Required
3-01	Chuck Arbor Bolt	1
3-02	Spindle Nut	1
3-03	SpindlePulley	1
3-04	Belt Bottom Cover	1
3-05	Outer Bearing Cover	1
3-06	Spindle Taper Sleeve	1
3-07	Ball Bearing	2
3-08	Bearing Spacer	1
3-09	C-Retainer Ring	1
3-10	C-Retainer Ring	1
3-11	Head Body	1
3-12	Rubber Ring	1
3-13	Feed Base	1
3-14	Inner Bearing Cover	2
3-15	Taper Roller Bearing	1
3-16	Rack Gear Sleeve	1
3-17	Spindle Shaft	1
3-18	Taper Roller Bearing	1
3-19	Bearing Cap	1
3-20	Cutter Arbor	1
3-21	Chuck Arbor	1
3-22	Handle Bolt	1
3-23	Handle Grip	1
3-24	Handle Rod	1
3-25	Fixed Guide Tube	1
3-26	Fixed Guide Nut	1
3-27	Screw Key	1
3-28	Spring Cover	1
3-29	Spring	1
3-30	Spring Base	1
3-31	Pinion Shaft	1
3-32	Worm Gear	1
3-33	Worm Shaft Cover	1
3-34	C-Retainer Ring	1
3-35	Bearing Spacer	1
3-36	Feed Handle	1
3-37	Handle Body	1
3-38	C-Retainer Ring	1
3-39	Handle Rod	3
3-40	Plastic Round Ball	3
3-41	Handle Bolt	1
3-42	Handle Grip	1
3-43	Spindle Handle Wheel	1
3-44	Slight Adjusting Indicator	1
3-45	Worm Sleeve	1
3-46	Ball Bearing	2
3-47	Worm Shaft	1
3-48	Indicating Plate	1

Part No.	Description	Numbe Requir
3-50	Head Body Handle	1
3-51	Leaf Screw	1
3-52	Head Body Bolt	3
3-54	Graduated Rod	1
3-55	Graduated Dial	1
3-56	Switch	1
3-57	Name Plate	1
3-58	Head Handle	1
3-59	Worm Shaft	1
3-60	Worm	1
3-61	Worm Shaft	1
3-62	Compression Spring	1
3-63	Pin	1
3-64	Tension Spring	1
3-65	Spring Shackle Rod	1
3-66	Motor Base	1
3-67	Motor	1
3-68	Key	1
3-69	Belt Cover	1
3-70	Motor Pulley	1
3-71	V-Belt	1
3-72	Ball Bearing	2
3-73	Speed Change Pulley	1
3-74	V-Belt	1
3-75	Pulley Base Shaft	1
3-76	Speed Change Pulley Base	1
3-77	Clip Plate	1
3-78	Switch Box	1
3-91	Hexagon Head Bolt	4
3-92	Washer	12
3-93	Cross-Recess Round Head Screw	4
3-94	Hexagon Head Bolt	1
3-95	Hexagon Nut	6
3-96	Hexagon Nut	3
3-97	Hexagon Nut	2
3-98	Cross-Recess Round Head Screw	5
3-99	Pin	1
3-100	Hexagon Socket Head Screw	2
3-101	Hexagon Socket Headless Screw	1
3-102	Hexagon Socket Headless Screw	1
3-103	Hexagon Socket Headless Screw	1
3-104	Key	1
3-105	Rivet	3
3-106	Key	1
3-107	Pin	1
3-108	Hexagon Nut	2
3-109	Washer	2
3-110	Hexagon Socket Headless Screw	1

Part No.	Description	Number Required
3-111	Washer	4
3-112	Cross- Recess Round Head Screw	4
3-113	Hexagon Head Bolt	4
3-114	Hexagon Head Bolt	2
3-115	Hexagon Head Bolt	2
3-116	Key	1
3-117	Electric Cord Protective Ring	3
3-118	Electric Socket	1
4-01	Table Handle Wheel	3
4-02	Dial Clutch	2
4-03	Thrust Bearing	4
4-04	Square Flange	1
4-05	Table Screw	1
4-06	Base	1
4-07	Sliding Plate	1
4-08	Column Base	1
4-09	Column Flange Ring	1
4-10	Rack	1
4-11	Column Head	1
4-12	Sliding Plate Bolt	2
4-13	Leaf Screw	4
4-14	Movable Fixed Block	1
4-15	Table Base Nut	1
4-16	Center Base	1
4-17	Antidust Plate	1
4-18	Antidust Plate	1
4-19	Antidust Plate	1
4-20	Table Clutch	1
4-21	Thrust Bearing	1
4-22	Left Flange	1
4-23	Table Nut	1
4-24	Table Screw	1
4-25	Handle Bolt	3
4-26	Right Flange	1
4-27	Sliding Plate	1
4-28	Table	1
4-29	Fixed Block	2
4-30	Movable Fixed Ring	2
4-31	Stand Door	1
4-32	Front Stand	1
4-33	Stand Slide Plate	2
4-34	Bottom Plate	1
4-35	Rear Stand	1
4-36	Handle Grip	3
4-91	Hexagon Head Screw	4
4-96	Hexagon Nut	3

Part No.	Description	Number Required
4-102	Hexagon Socket Headless Screw	1
4-112	Hexagon Socket Headless Screw	3
4-121	Pin	3
4-122	Hexagon Socket Head Screw	6
4-123	Oil Ball	4
4-124	Washer	4
4-125	Washer	4
4-126	Hexagon Head Bolt	4
4-127	Hexagon Socket Head Screw	4
4-128	Hexagon Nut	4
4-129	Hexagon Socket Head Screw	2
4-130	Hexagon Head Bolt	1
4-131	Hexagon Socket Head Screw	2
4-132	Hexagon Head Bolt	2
4-133	Hexagon Socket Head Screw	2
4-134	Door Buckle	1
4-135	Cross-Recess Round	16

Part No.	Description	Number Required
5-01	Chuck Arbor Bolt	1
5-02	Spindle Nut	1
5-02	Spindle Pulley	1
5-04	Belt Bottom Cover	1
5-05	Outer Bearing Cover	1
5-06	Spindle Taper Sleeve	1
5-07	Ball Bearing	2
5-08	Bearing Spacer	1
5-09	C-Retainer Ring	1
5-10	C-Retainer Ring	1
5-11	Head Body	1
5-12	Rubber Ring	1
5-13	Feed Base	1
5-14	Inner Bearing Cover	2
5-15	Taper Roller Bearing	1
5-16	Rack Gear Sleeve	1
5-17	Spindle Shaft	1
5-18	Taper Roller Bearing	1
5-19	Bearing Cap	1
5-20	Cutter Arbor	1
5-21	Chuck Arbor	1
5-22	Handle Bolt	1
5-23	Handle Grip	1
5-24	Handle Rod	1
5-25	Fixed Guide Tube	1
5-26	Fixed Guide Nut	1
5-27	Screw Key	1
5-28	Spring Cover	1
5-29	Spring	1
5-30	Spring Base	1
5-31	Pinion Shaft	1
5-32	Worm Gear	1
5-33	Worm Shaft Cover	1
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5-35	Bearing Spacer	1
5-36	Feed Handle	1
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5-38	C-Retainer Ring	1
5-39	Handle Rod	3
5-40	Plastic Round Ball	3
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5-47	Worm Shaft	1
5-48	Indicating Plate	1

Part No.	Description	Number Required
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5-51	Leaf Screw	1
5-52	Head Body Bolt	3
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5-55	Graduated Dial	1
5-56	Switch	1
5-57	Name Plate	1
5-58	Head Handle	1
5-59	Worm Shaft	1
5-60	Worm	1
5-61	Worm Shaft	1
5-62	Compression Spring	1
5-63	Pin	1
5-64	Tension Spring	1
5-65	Spring Shackle Rod	1
5-66	Motor Base	1
5-67	Motor	1
5-68	Key	1
5-69	Belt Cover	1
5-70	Motor Pulley	1
5-71	V-Belt	1
5-72	Ball Bearing	2
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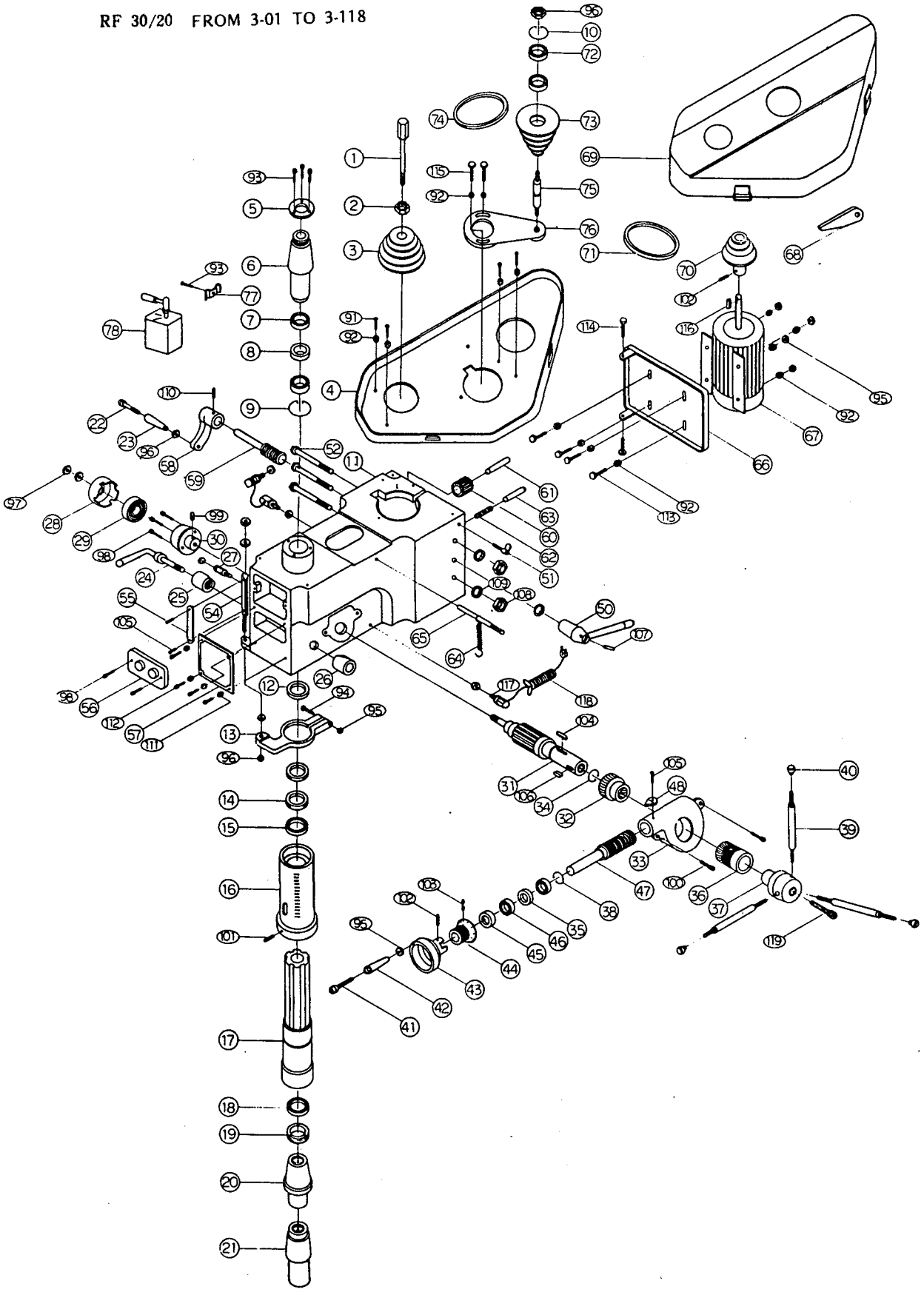
5-96	Hexagon Nut	3
5-97	Hexagon Nut	2
5-98	Cross-Recess Round Head Screw	5
5-99	Pin	1
5-100	Hexagon Socket Head Screw	2
5-101	Hexagon Socket Headless Screw	1
5-102	Hexagon Socket Headless Screw	1
5-103	Hexagon Scoket Headless Screw	1
5-104	Key	1
5-105	Rivet	3
5-106	Key	1
5-108	Hexagon Nut	2
5-109	Washer	2
5-110	Hexagon Socket Headless Screw	1
5-111	Washer	4

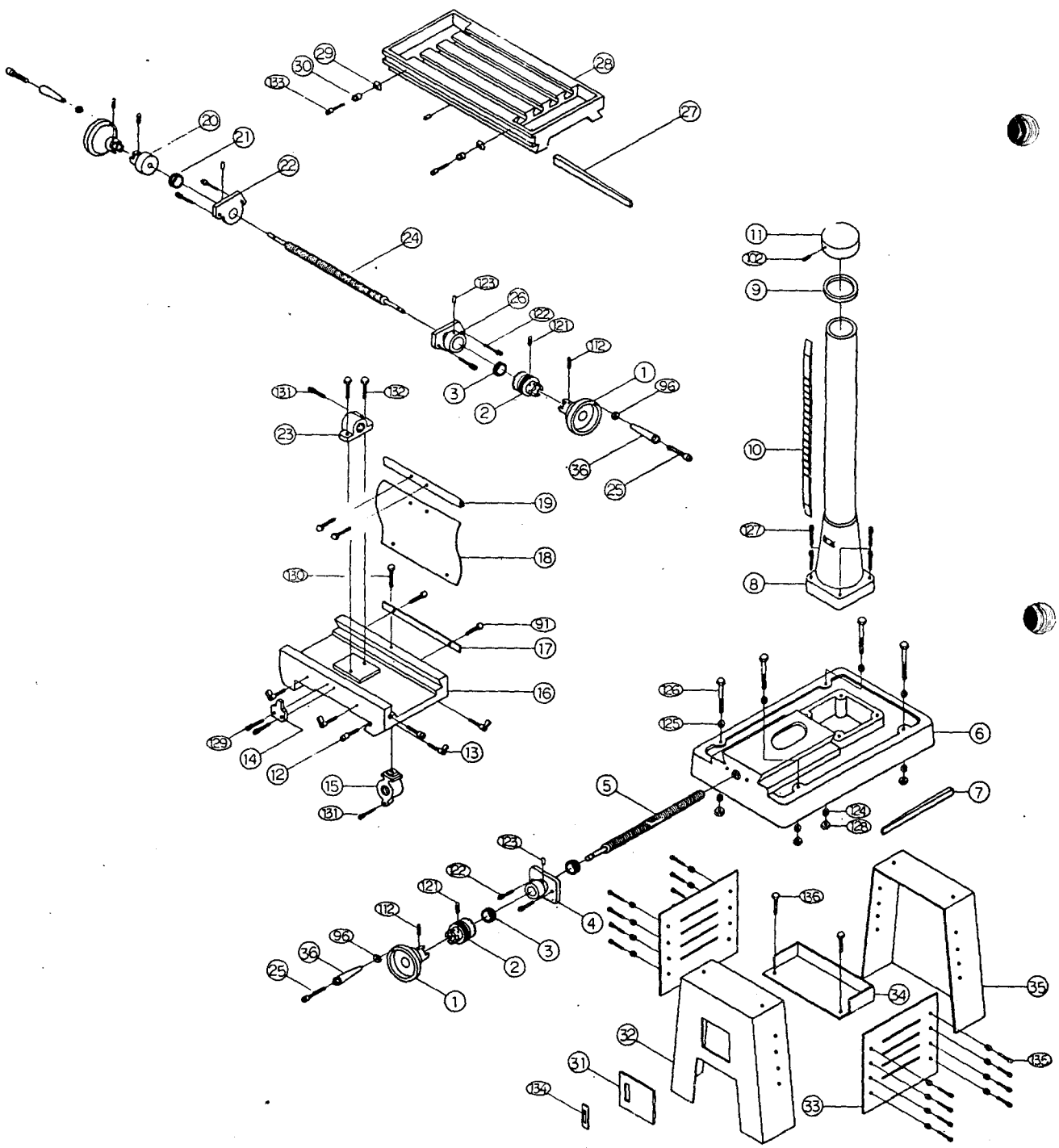
Part No.	Description	Number Required
5-112	Cross-Recess Round Head Screw	4
5-113	Hexagon Head Bolt	4
5-114	Hexagon Head Bolt	2
5-115	Hexagon Head Bolt	2
5-116	Key	1
5-117	Electric Cord Protective Ring	3
5-118	Electric Source Plug Socket	1
6-01	Table Handle Wheel	2
6-02	Dial Clutch	2
6-03	Thrust Bearing	4
6-04	Square Flange	1
6-05	Table Screw	1
6-06	Base	1
6-07	Sliding Plate	1
6-08	Column Base	1
6-09	Column Flange Ring	1
6-10	Rack	1
6-11	Column Head	1
6-12	Sliding Plate Bolt	2
6-13	Leaf Screw	4
6-15	Table Base Nut	1
6-16	Center Base	1
6-17	Antidust Plate	1
6-18	Antidust Plate	1
6-19	Antidust Plate	1
6-23	Table Nut	1
6-24	Table Screw	1
6-25	Handle Bolt	2
6-26	Right Flange	1
6-27	Sliding Plate	1
6-28	Table	1
6-31	Stand Door	1
6-32	Front Stand	1
6-33	Stand Side Plate	2
6-34	Bottom Plate	1
6-35	Rear Stand	1
6-36	Handle Grip	2
6-37	Indicating Plate	1
6-38	Scale	1
6-91	Hexagon Head Screw	4
6-96	Hexagon Nut	3
6-102	Hexagon Socket Headless Screw	1
6-105	Rivet	4
6-112	Hexagon Socket Heagless Screw	3
6-121	Pin	3
6-122	Hexagon Socket Head Screw	6

Part No.	Description	Unmber Rescription
6-123	Oil Ball	4
6-124	Washer	4
6-125	Washer	4
6-126	Hexagon Head Bolt	4
6-127	Hexagon Socket Head Screw	4
6-128	Hexagon Nut	4
6-129		
6-130	Hexagon Head Screw	1
6-131	Hexagon Socket Head Screw	2
6-132	Hexagon Head Screw	2
6-134	Door Buckle	1
6-135	Cross-Recess Round Head Screw	20
6-136	Hexagon Head Screw	2

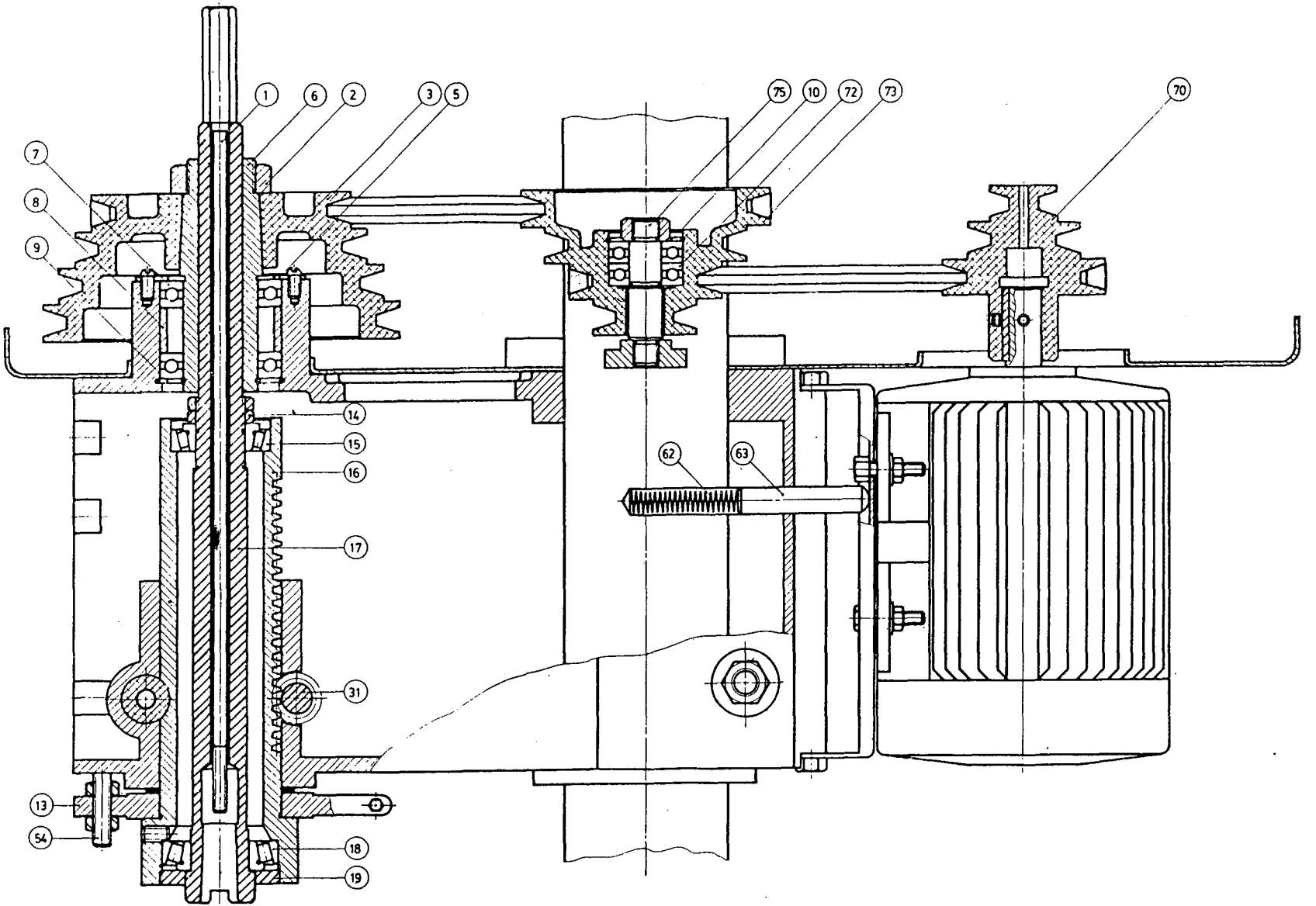
RF 30/20 FROM 3-01 TO 3-118



RF 30/20 FROM 4-01 TO 4-136



RF30/20 ASSEMBLY DRAWING
FROM 3-01 TO 3-118



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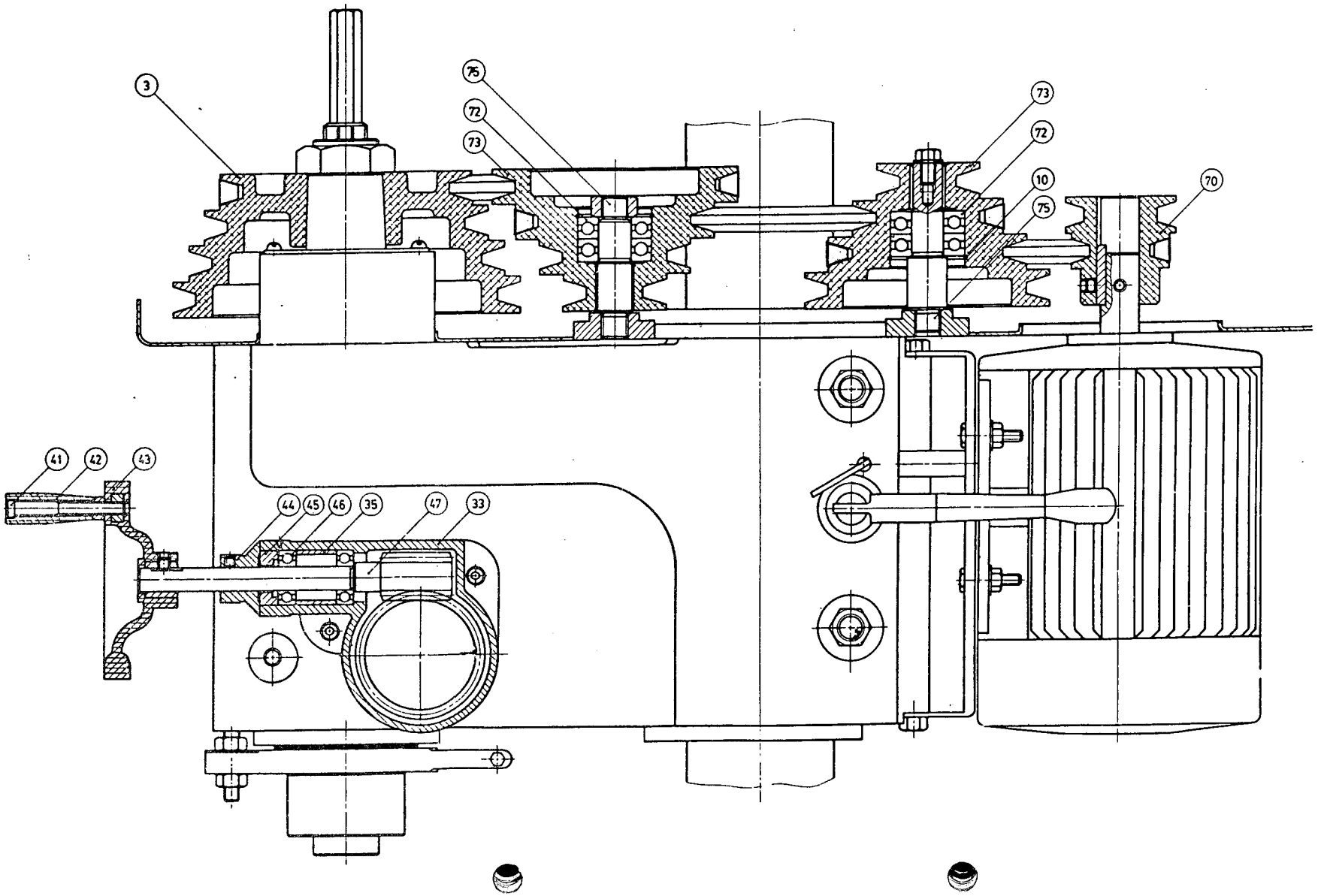
FROM 3-01 TO 3-118



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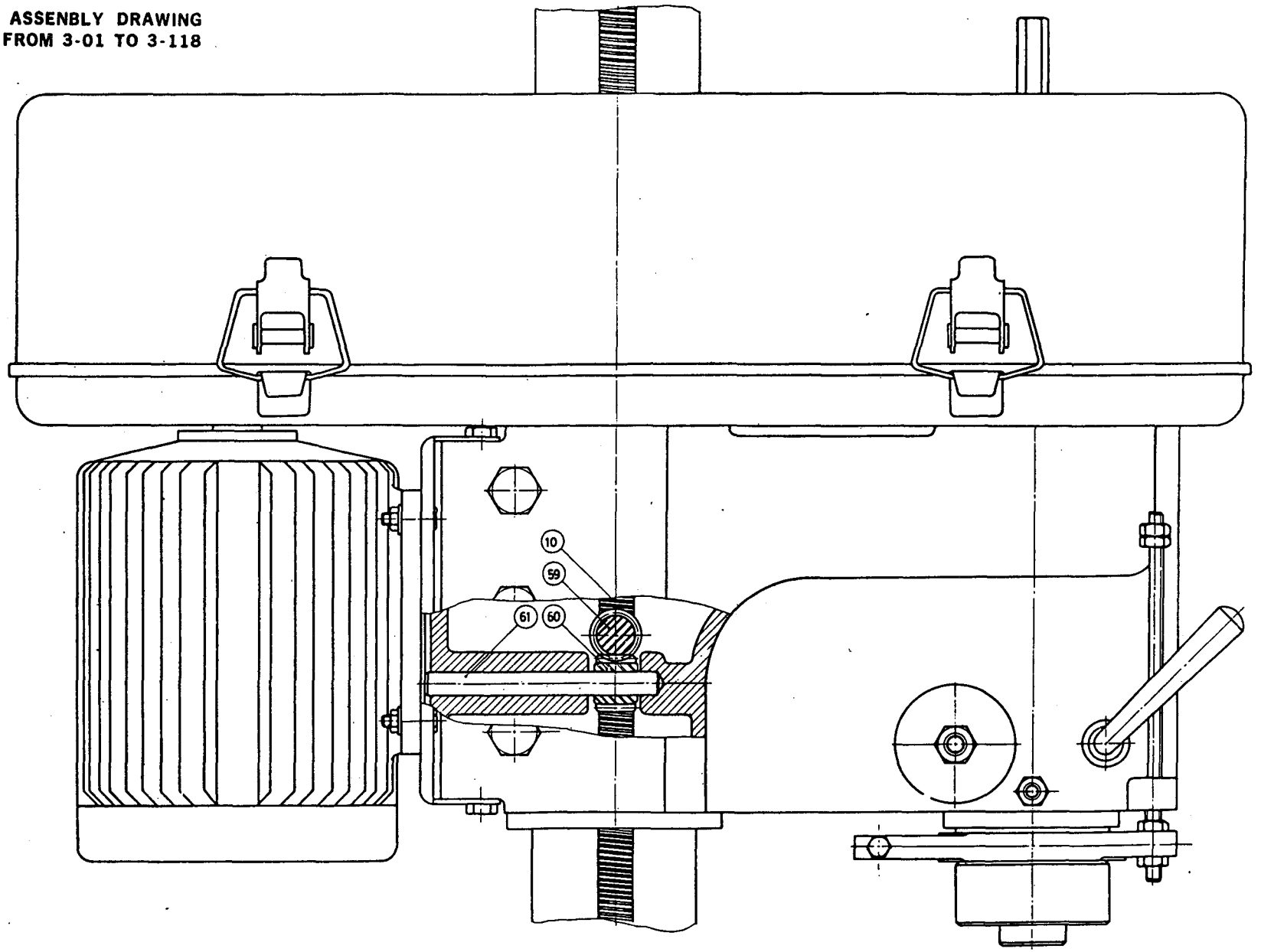
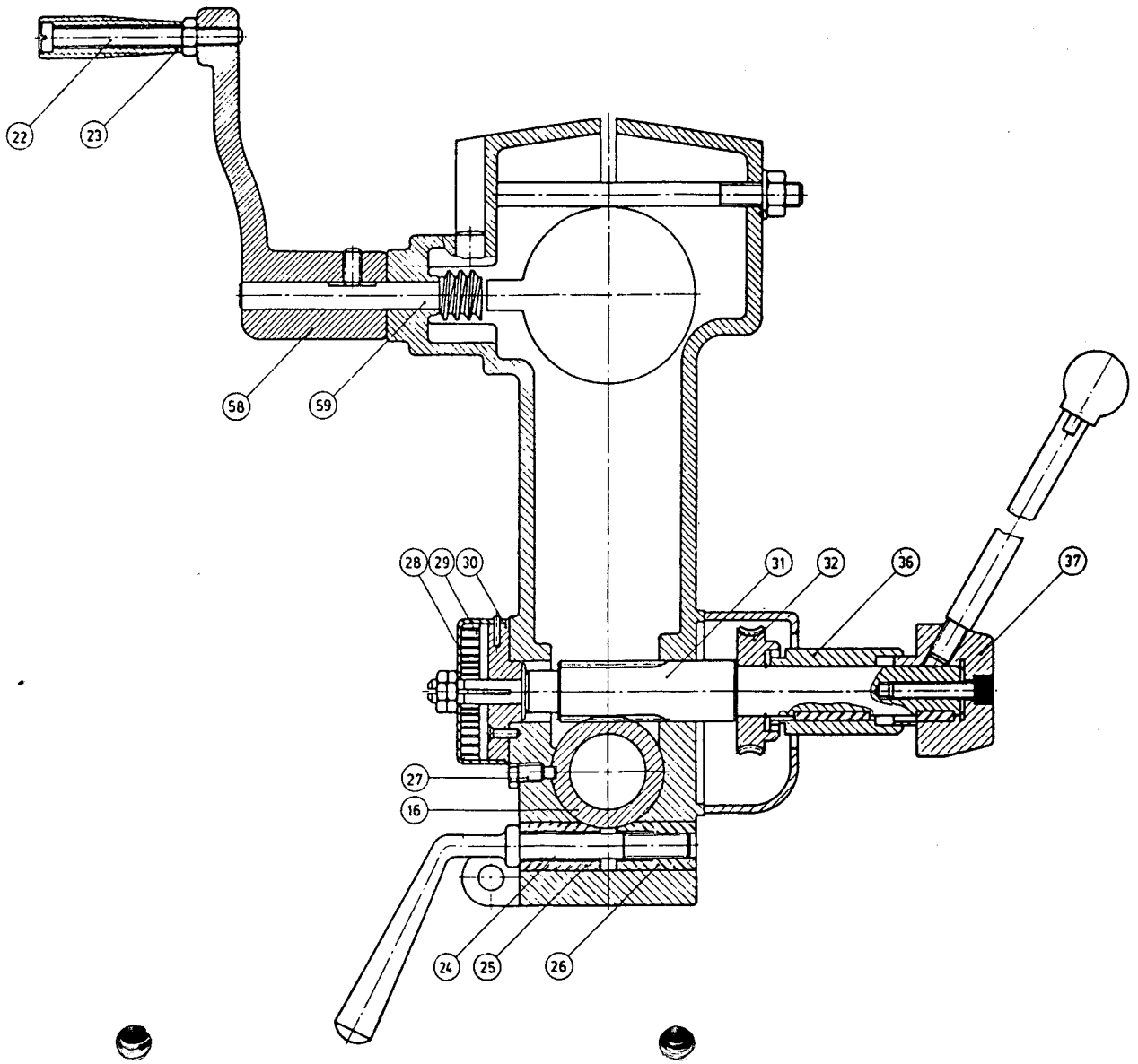
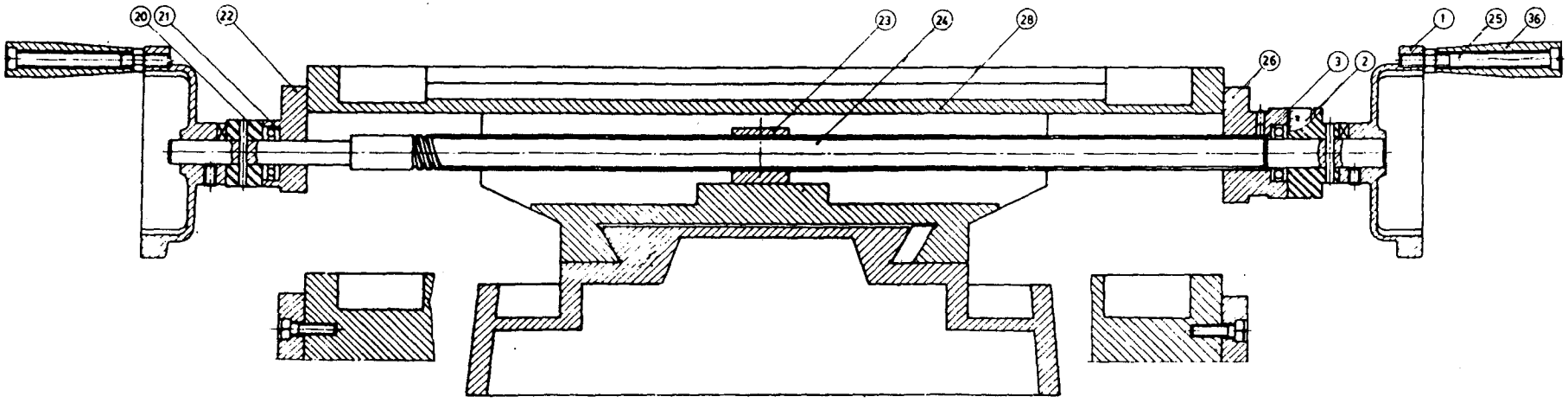
FROM 3-01 TO 3-118



RF30/20 ASSEMBLY DRAWING
FROM 3-01 TO 3-118



RF30/20 ASSEMBLY DRAWINC
FROM 4-01 TO 4-135



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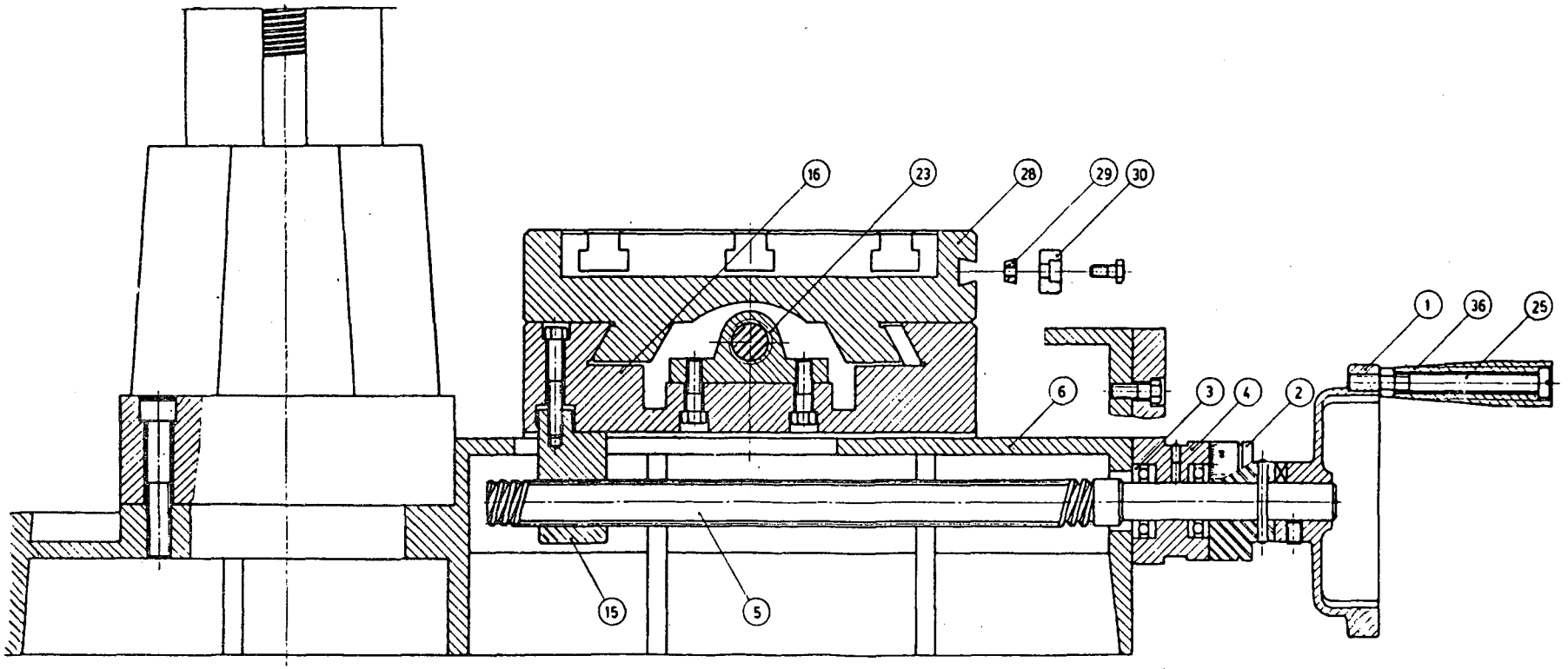
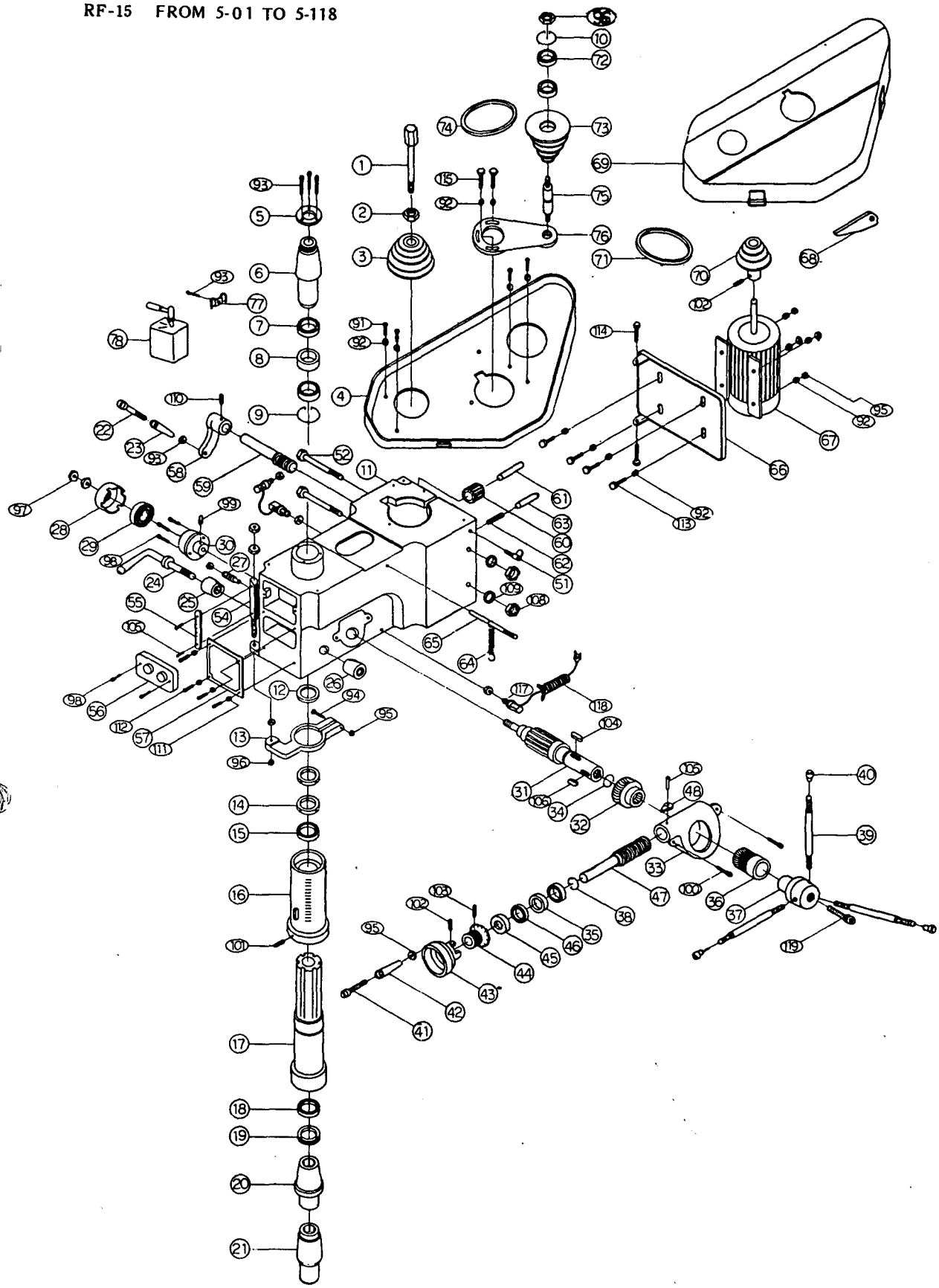
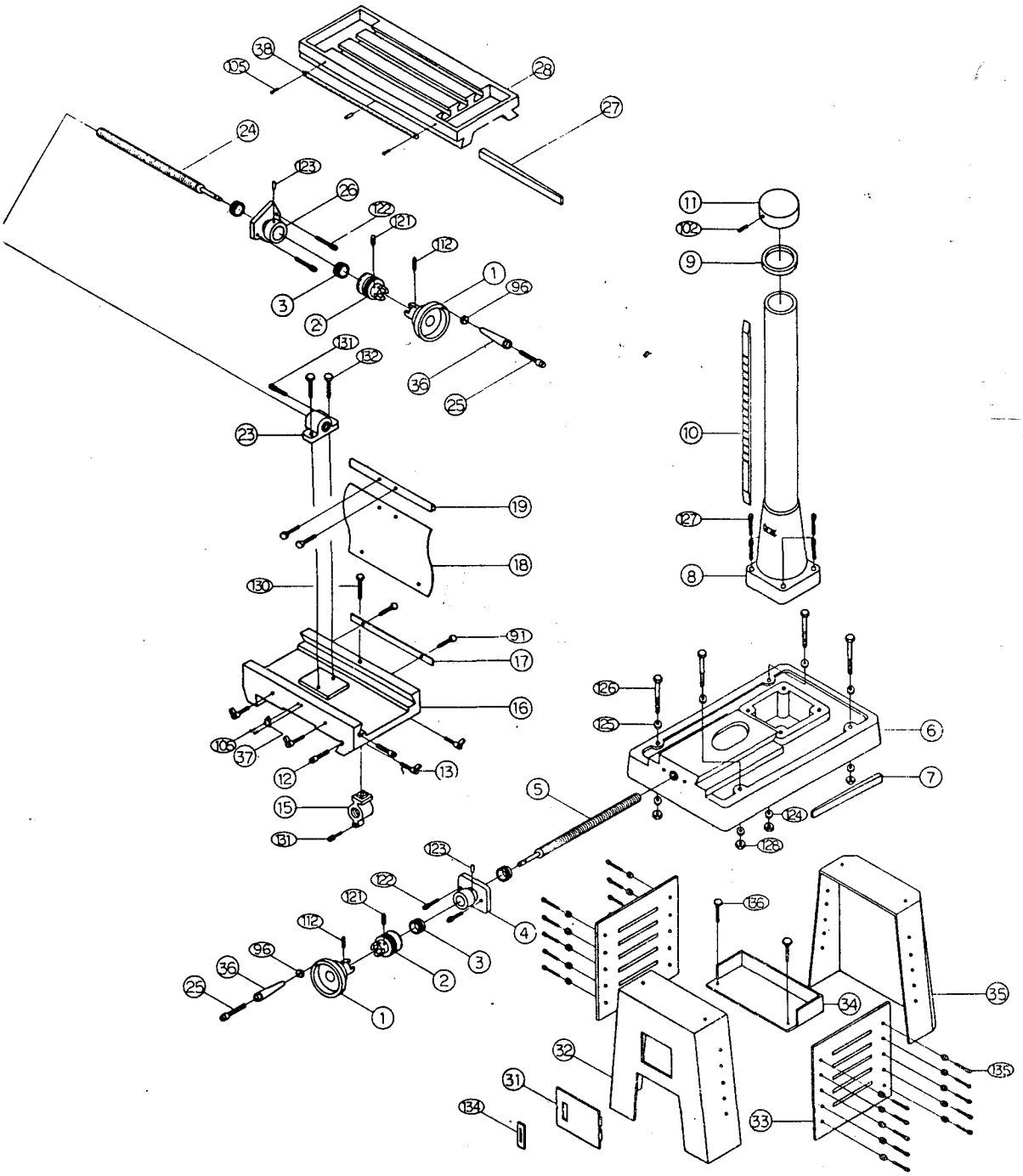
FROM 4-01 TO 4-135



RF-15 FROM 5-01 TO 5-118



RF-15 FROM 6-01 TO 6-136



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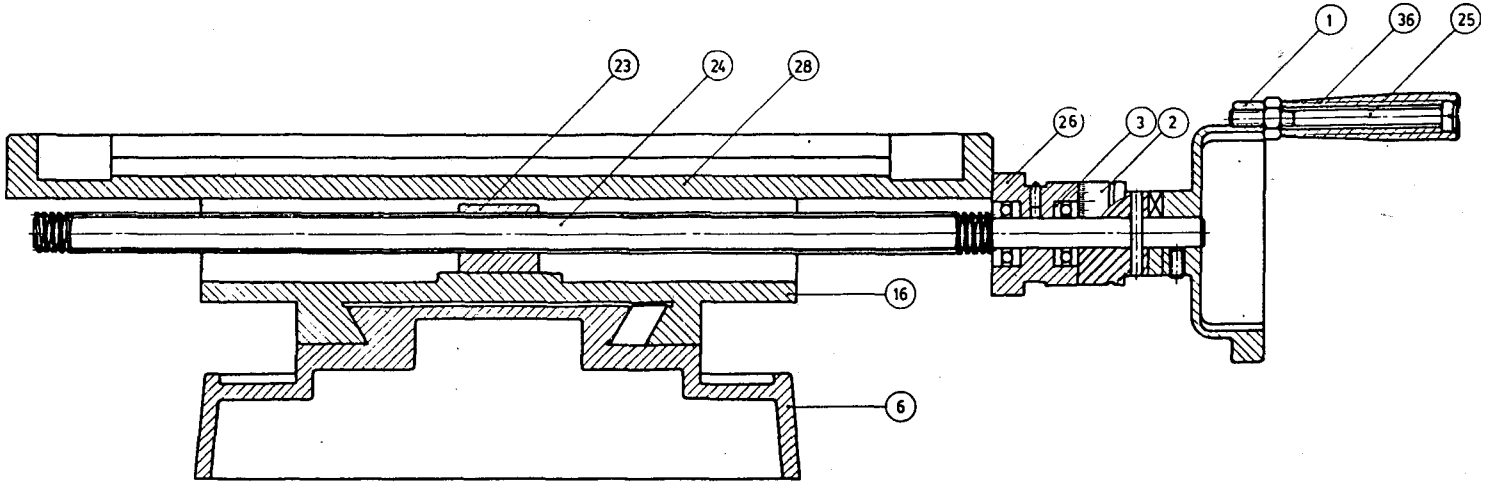
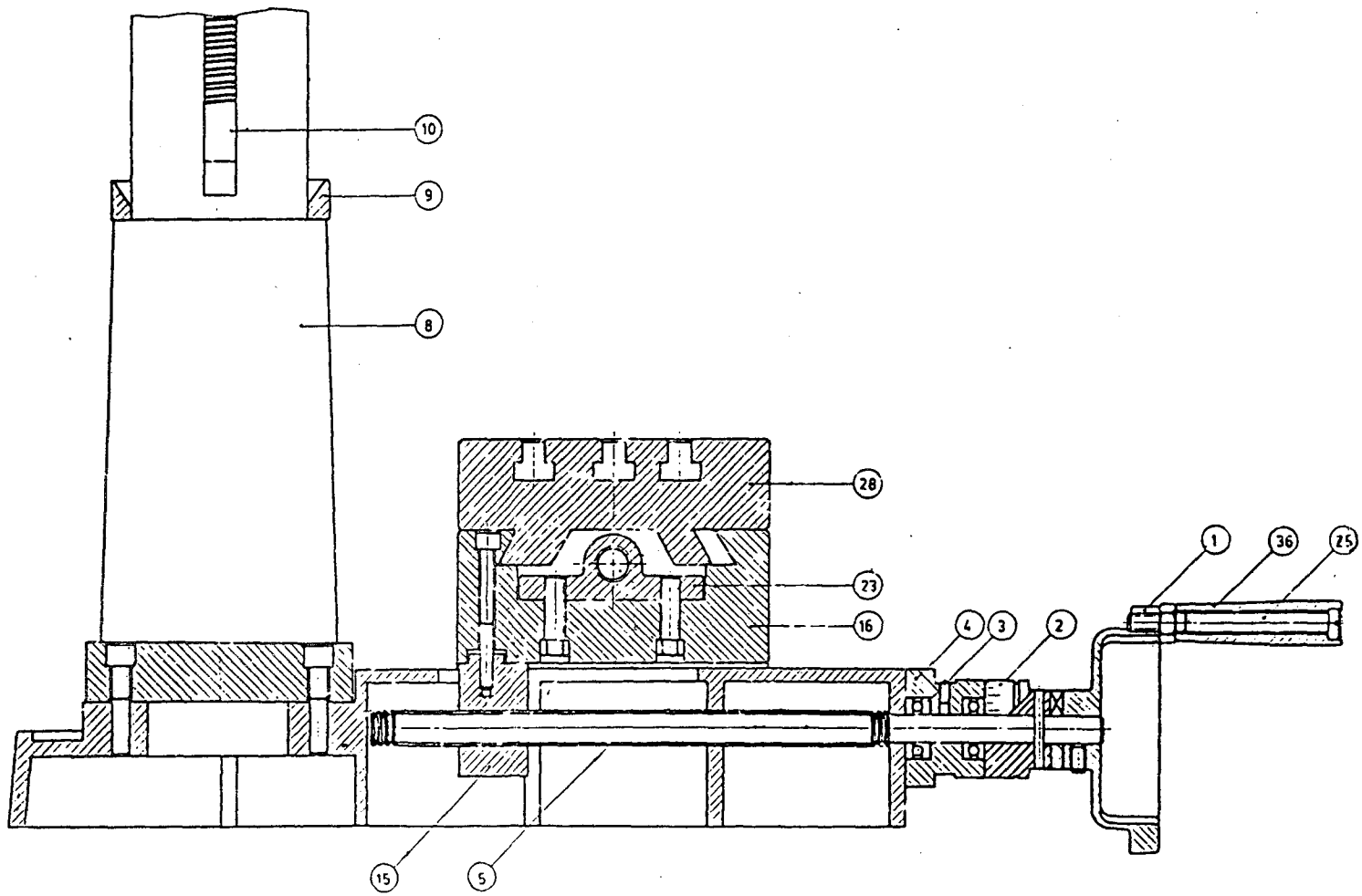
FROM 6-01 TO 6-136



RF15 ASSEMBLY DRAWING
FROM 6-01 TO 6-136



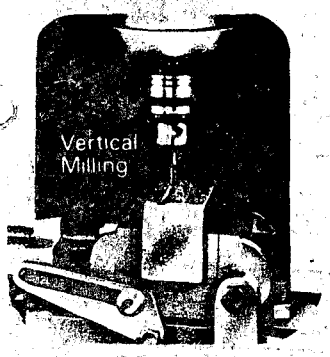
DRILLING & MILLING MACHINE

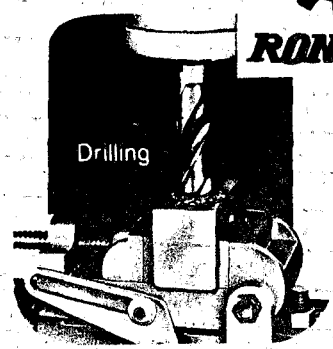
Don. R990-0
RF-20.

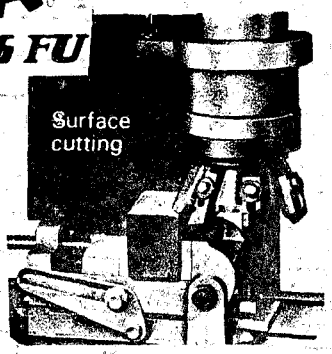
FEATURES:

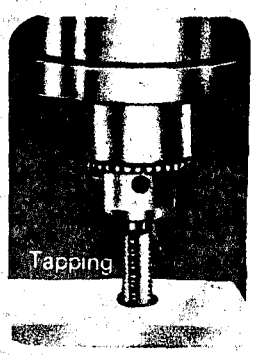
1. This machine has several uses, such as Surface Cutting, Drilling, Milling and also can be equipped with an electric switch for Tapping.
2. This machine is small, light, and suitable for home use.
3. This machine is of fine quality, can be operated easily, and it is not limited to skilled operators.
4. In order to position accurately, the compound table has graduated dials on the two screws.
5. 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.

RONG FU









SPECIFICATION OF MODEL	RF-30		RF-20	
Drilling capacity	32mm	1¼"	20mm	⅝"
Full-back cutter capacity	75mm	3"	63mm	2½"
End mill capacity	20mm	¾"	13mm	½"
Swing	420mm	16½"	348mm	13¹¹⁄₁₆"
Max. distance spindle nose to table	370mm	14½"	355mm	14"
Spindle taper	M.T. No. 3 or R-8			
Spindle stroke	130mm	5"	1000mm	3⅛"
Diameter of spindle sleeve	75mm	3"	62mm	2⅞"
Head swivel	360°			
Diameter of column	102mm	4"	92mm	3⅝"
Spindle speed R.P.M. 50 cycle	110, 180, 270, 400, 470, 830, 1110, 1560		80, 140, 185, 290, 380, 860, 1110, 1700	
Spindle speed R.P.M. 60 cycle	130, 210, 300, 450, 530, 930, 1250, 1750		90, 160, 210, 330, 430, 970, 1250, 1920	
Right and left stroke of table	400mm	15¾"	300mm	11¹¹⁄₁₆"
Forward and backward stroke of table	140mm	5½"	153mm	6"
Working area of table	240×600mm	9⅜" ×23½"	160×520mm	6¼" ×20½"
Overall height	1100mm	43⅜"	940mm	37"
Motor	1 HP or 2 HP		½HP or 1 HP	
Net weight (with motor)	326 kgs	717 lbs	170 kgs	374 lbs
Gross weight (with motor)	366 kgs	805 lbs	200 kgs	440 lbs
L×W×H	36" ×30¼" ×49"		27" ×30" ×37"	

Appl.: Spray R275.0