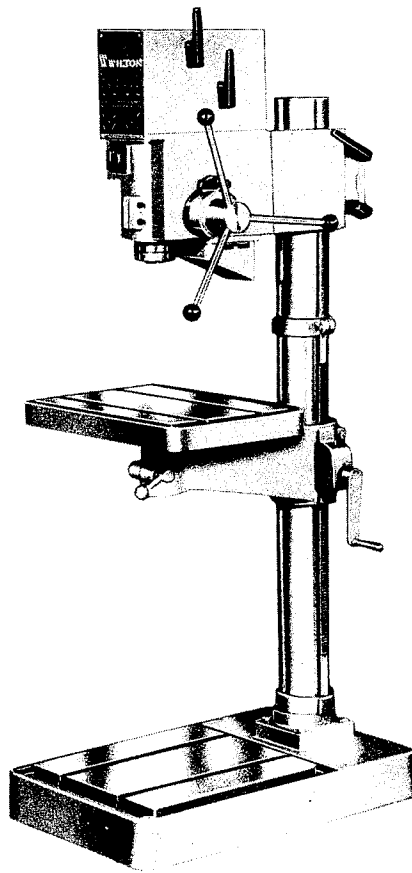


907913A

OPERATORS' MANUAL & REPAIR PARTS LIST

GEARED-HEAD DRILL PRESSES

study carefully before operating



No. 24203
Floor Model

SERIES
20600
24200

WILTON
Wilton Corporation/Machinery Division

For Special Service, contact your Wilton Dealer or Machinery Service,
Des Plaines, IL 60018, Telephone Number 312/827-7700.

HOW TO SET UP – OPERATE AND MAINTAIN SERIES 20600 and 24200 DRILL PRESSES

You have purchased a fully guaranteed machine tool that has been carefully factory checked and tested for accuracy and mechanical perfection. But before placing this new machine in operation, the millwright and the operator should read this part of the publication fully. Doing so will avoid damage, unnecessary expense, and wasted time.

SET-UP

1. Remove front and top of box.
2. Remove table and base from opposite sides of box.
3. Remove 4 cap screws and crank handle from base.
4. Next, remove bolts holding column flange to box bottom, but not before providing support for the column and head.
5. If a mechanical lift is used to remove the head and column sub-assembly from the box, use a web sling under the head about at the mid-point.
6. Lower on to the base and install 4 cap screws.
7. Install crank on table raising mechanism main shaft. Push the handle on to the shaft until the hub and the end of the shaft are even. Be sure that set-screw in crank's hub engages flat on said shaft.
8. Work table goes on next. Place table stem in table-knee bore.
9. As shipped, the head is clamped to the column but the head raiser pinion is disengaged from the rack to avoid gear and rack tooth damage.

To re-engage:

- a. Slide the spoked wheel and pinion shaft assembly out of the head.
- b. Raise the head up about 4" on the column. To do this manually, it's a 2-man lift. With mechanical lift place a web sling under the head about at its mid-point. You can raise it too by employing the table raiser. If you do, place a suitable block between the table and the underside of the quill.
- c. Now, re-insert the pinion back into the head. To mesh pinion teeth with rack teeth may require slight further up-or-down repositioning of the head, slight rotation of the pinion, or both.

Once in mesh, lock the head clamp.

Finally, with pinion/hub assembly in as far as it will go, drive the dog point set-screw of the hub into the groove of the pinion shaft.

The machine should be bolted to a firm foundation. Metal shims should be placed between the base and the floor to overcome uneven surfaces, so bolting down will not distort the base.

ELECTRICAL CONNECTIONS

Connect the motor only to power line whose voltage, cycles and phase match those on the nameplate. Damage can result from lack of such precautions. Being 2-speed, this is not a dual voltage motor.

Should you need one for any reason, a switch connection diagram is located in the switch cover.

If the drill turns counter-clockwise upon starting the first time, it is necessary to reverse any two of the 3 power leads on the motor junction box terminals

LUBRICATION

All gears and bearings were oiled or received a full application of grease at the factory.

The oil fittings on top of the gear housing should each receive an application of a few drops of quality machine oil daily if machine is continuously operated; or weekly or bi-weekly depending on usage, if used only occasionally.

The gears are lubricated manually. They are reached by removing one side of the gear box (upper part of head). To avoid chipping enamel, draw a sharp knife point along the casting joints the first time you open the head.

Use fairly viscous gear grease having high pressure and clinging qualities. "Lubriplate" or its equivalent is excellent. Since steel and fibre gears alternate, such applications of grease need be made not oftener than every two weeks for machines in 8 hour daily use, and proportionately less ten based on actual use.

Over oiling or over greasing, also lubricants that are too thin can damage the motor.

OPERATION

TABLE ARM

The table arm is moved vertically by means of crank, worm, worm gear and rack. It will not drop when lock lever is released.

HEAD POSITIONING

The head positioning mechanism consists of two elements, a head-column lock, and a locking crank that operates a rack and pinion assembly. Releasing the head-column lock allows the head to be rotated about and raised and lowered on the column. Pushing the crank handle in and turning it moves the head up and down. Releasing the handle causes the locking mechanism to reengage and hold the head in place.

GEAR BOX

Each pair of gears consists of one steel gear and one fiber gear. They are always engaged, and spindle speeds are changed by means of hardened and ground clutch dogs sliding along the ground shafts. Speeds are selected by means of levers on the right-hand side and the motor speed switch. Do not shift gears when machine is running. When the switch is turned off, gears can be changed as the spindle makes its last few revolutions; or while turning by hand.

TO SET DEPTH STOPS

Three rigid stops regulate drilled depth. The end of quill travel is the lowest depth. The top screws (1) on each of two adjustable rings (2,3) provide additional stops. The two rings are split and by loosening the clamping screws the rings can be rotated to place the stop screws where desired.

Pivoted cams (4,5) engage the stop screws on the respective rings. After the cam strikes the screw for the shallowest depth, depress front of cam, and quill moves down till second cam strikes the stop screw. Depress front of second cam and move

quill to end of its travel for the lowest stop.

If it ever becomes necessary to remove the quill spindle assembly, proceed as follows.

USE OF MULTIPLE HEAD AND TAPPING ATTACHMENTS

The end of the quill consists of an upper rigid and lower rotating ground collars.

The lower collar is intentionally a few thousandths under the O.D. of the upper. This provides clearance when drilling heads or tappers having rigid yokes for installation directly on the quill are employed.

Such yokes should be bored 3.071/3.0715. They should bear upon the total rigid collar, and not clamped so tightly that they overload (bind) the lower spindle bearing.

HOW TO LOCK QUILL IN HEAD

Some operations other than drilling and tapping are more successfully performed with quill locked absolutely rigid. These include end milling, key slotting and others.

Merely screw in the two hollow-cap screws (1) located on lower front of the head adjacent to the quill. See Fig. 1.

Normally it is not necessary to disturb the setting of the hollowhead set screw (2) located between those 2 cap screws. See section on "How to Adjust Quill Return Spring".

TAPPING WITHOUT TAPPING HEAD (24203 Only)

The hand reverse switch permits instant reversal of the 3-phase motor. Every time the 220 volt motor reverses rotation at say 1750 rpm., the initial current is 10.4 amps. Normal full load current is 2.2 amps. The number of reversals of these standard motors should be limited to about 4 cycles per minute, otherwise heating becomes excessive. Reversing switch available for Model 20606. For tapping jobs at production rates above 4 cycles per minute, use a mechanical tapping attachment incorporating its own reverse mechanism.

MAINTENANCE

LUBRICATION

At least once yearly, disassemble the quill from the head, and the spindle from the quill. (See section on Adjusting Spindle for End Play). Flush out the ball and roller bearings of old grease and foreign matter, and repack with fresh.

The table raising gear case has an oil reservoir. Check the level at least once a year. Occasionally apply grease to its rack, also to the rack for raising the head.

HOW TO ADJUST QUILL RETURN SPRING

Amount of tension on this spring largely controls free or lazy return of the quill, but not entirely. Three other factors contribute:

1. On new machines quill fits the head bore snugly. A few hours frees them up considerably.
2. Anti-corrosion film on the quill during shipment should be removed with solvent before 1st time use. Once removed lightly oil the quill surface.
3. The head casting is split where bored to receive the quill. Thereafter 2 cap screws (1) fig. 1 are provided to both clamp it rigid, also to take up for eventual wear. But a third screw (2) fig 1 provides means for opening the bore if the slit head binds it and causes lazy return of the quill. With the 2 cap screws (1) loose, screw (2) in to open the bore slightly, or, if not tight enough, back it off. Then screw in the cap screws again but only so that they merely touch on the casting their ends seat on.

Should it become actually necessary to wind up the return spring more for desirable quill return action, proceed as follows:

1. Lock the quill in the head so that later when other parts are disengaged, it does not drop. Do this by tightening the two hollow cap screws in the front of the head casting (2 fig. 1).
2. Remove the feed pinion nut on the left side of the head as you face it, then the washer.
3. Now slide the pinion shaft out to the right of the head just enough to disengage it from the quill rack.
4. When disengaged, rotate the feed pinion by the feed handle in the direction to wind up the spring the desired amount.

HOW TO ADJUST SPINDLE END PLAY

1. Lock the quill in the head so that later, when other parts are disengaged, it does not drop. Do this by tightening the two hollow cap screws in the front of the head casting (2 fig 1).
2. Remove the feed pinion nut on the left side of the head as you face it, then the washer.
3. Now slide the pinion shaft out to the right of the head just enough to disengage it from the quill rack.
4. With the feed pinion disengaged, loosen the cap-screws (1) fig. 1 again, and remove the entire quill assembly.
5. End play in the spindle, and pre-load on the spindle bearings is controlled by a locknut 1114 or 1414 on 20600 and 24200 respectively.

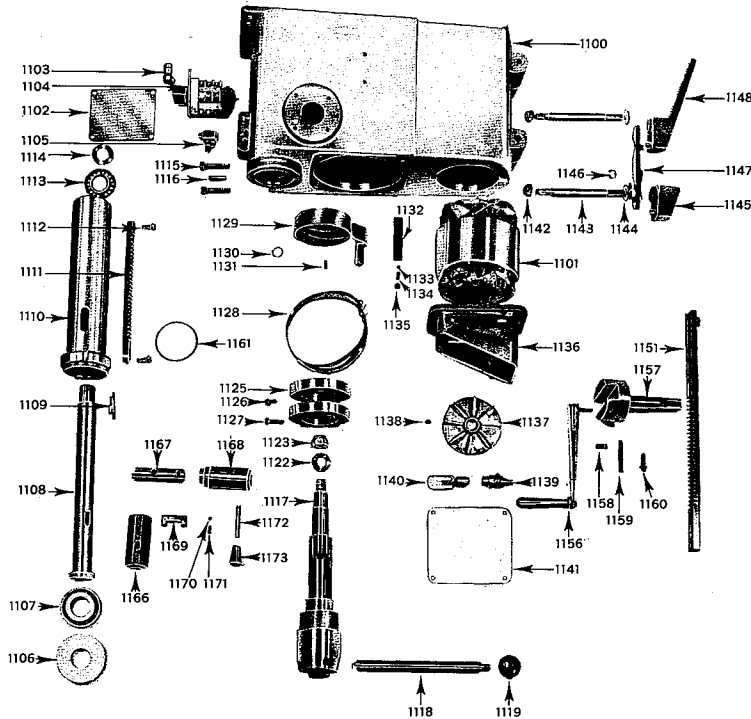
Use care to avoid over-tightening this nut. Too much will bind the bearing causing heating and early failure. Set it just so no spindle end play is present, but no more!

HOW TO ADJUST HEAD TO COLUMN AND TABLE KNEE TO COLUMN CLAMPS

To increase their locking efficiency, first remove the 2 nuts opposite the lock handle. Next, turn in the 2 studs identical amounts (usually a partial turn suffices), and re-install the nuts.

Fig. 1 - HEAD

Series 20600

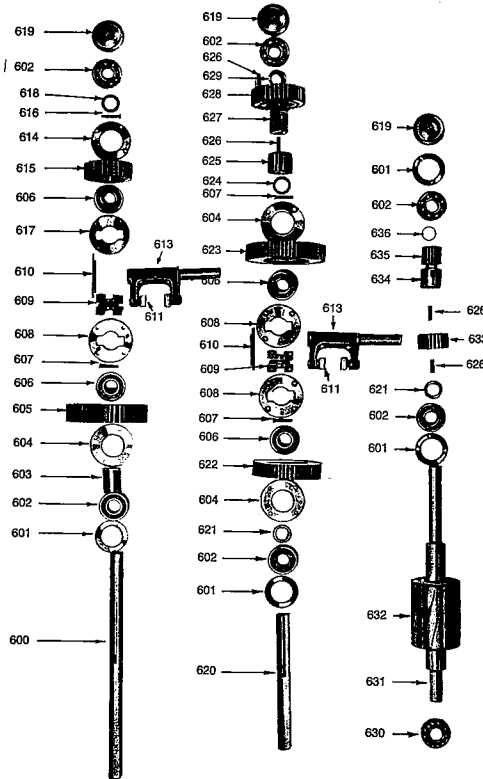
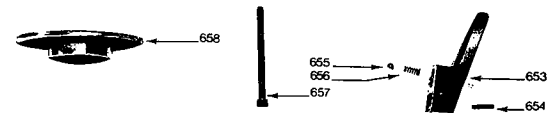
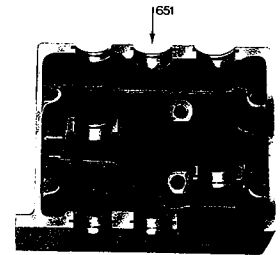
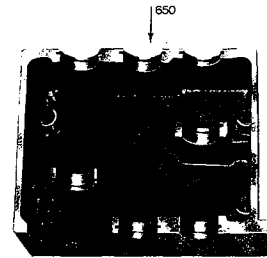
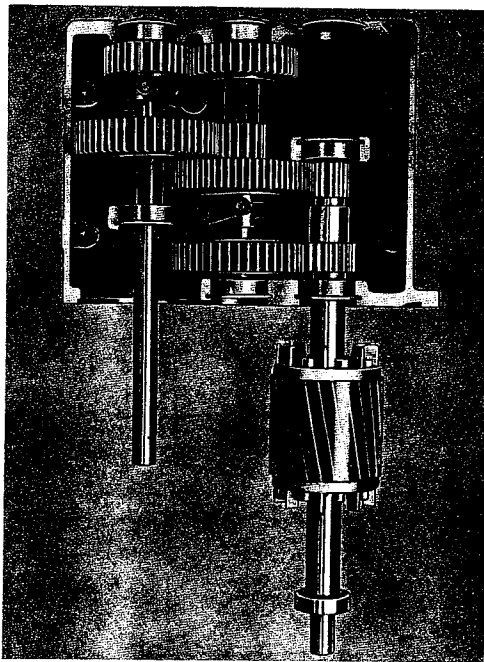


PART NO.	DESCRIPTION
1116	Screw P6SS, M8 x 30
1117	Feed Pinion
1118	Handle
1119	Hand knob
1122	Washer
1123	Nut
1125	Scale ring
1126	Screw EC6S, M6 x 10
1127	Screw EC6S, M6 x 22
1128	Return spring 1820241
1129	Spring housing
1130	Safety Washer SgA 15
1131	Taper pin
1132	Stop dog
1133	Steel ball
1134	Spring
1135	Screw P6SS, M8 x 8
1136	Bearing bracket
1137	Fan
1138	Screw SK6SS, M6 x 8
1139	Lamp socket
1140	Bulb
1141	Protective glass
1142	Nut
1143	Stud
1144	Washer
1145	Locking arm
1146	Safety washer
1147	Locking link with studs
1148	Locking lever socket
1151	Rack
1156	Crank
1157	Gear arm
1158	Spring
1159	Pin
1160	Screw with locking nut
1161	O-ring
1165	Reflector
1166	Push sleeve
1167	Shaft
1168	Sleeve
1169	Key
1170	Steel ball
1171	Spring
1172	Pin
1173	Knob

PART NO.	DESCRIPTION
1100	Housing
1101	Stator
1102	Switch guard
1103	Seal sleeve
1104	Switch
1105	Switch for machine lamp
1106	Roller bearing cover
1107	Taper roller bearing 30206
1108	Drill spindle, standard
1108	Milling spindle
1109	Driving key
1110	Quill
1111	Rack
1112	Screw DIN 7984, M8 x 15
1113	Ball bearing 6205 Z
1114	Locking nut
1115	Screw EC6S, M8 x 40

Fig. 2 - GEAR BOX

Series 20600

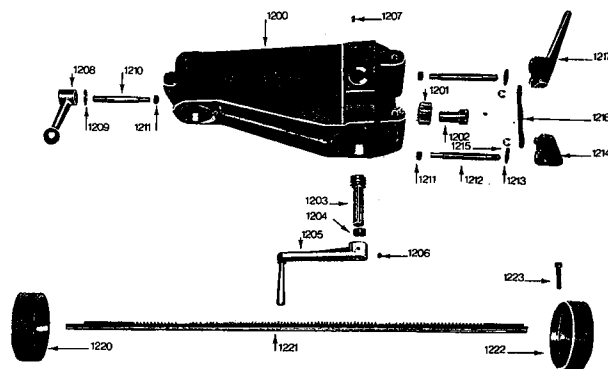
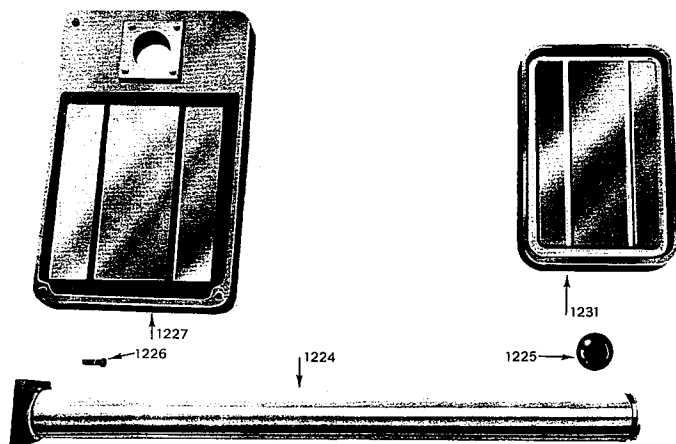


180

Part No.	DESCRIPTION
600	Drive spindle shaft
601	Ring
602	Ball bearing 6203
603	Spacer
604	Washer 60mm
605	Gear 51 teeth, fibre, no bearing
605 a	Gear 51 teeth, fibre, with bearing
606	Ball bearing 4203
607	Rivet
608	Retaining washer
609	Shifter dog

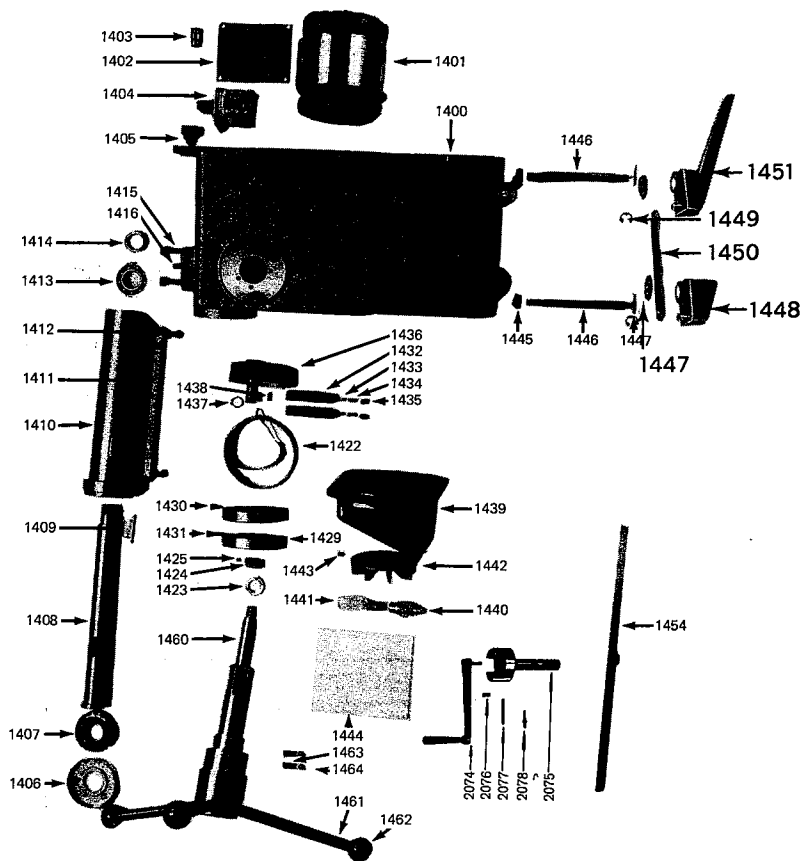
Part No.	DESCRIPTION
610	Key
611	Guide pin
613	Shifter fork
614	Washer
615	Gear 30 teeth, steel, no bearing
615 a	Gear 30 teeth, steel, with bearing
616	Rivet
617	Washer
618	Spacer
619	Cap with lubricator
620	Intermediate shaft
621	Spacer
622	Gear 46 teeth, fibre, no bearing
622 a	Gear 46 teeth, fibre, with bearing
623	Gear 68 teeth, fibre, no bearing
623 a	Gear 68 teeth, fibre, with bearing
624	Spacer
625	Gear 16 teeth, steel
626	Key
627	Spacer
628	Gear 37 teeth, fibre
629	Spacer
630	Ball bearing 6203 2RS
631	Motor shaft
632	Rotor
633	Gear 17 teeth, steel
634	Spacer
635	Gear 16 teeth, steel
636	Spacer
650-651	Gear box housing, both halves
652	Hand knob
653	Gear lever
654	Pin
655	Steel ball
656	Spring
657	Screw EC6S M8 x 110mm
658	Ring

Fig. 3 - COLUMN, BASE, ARM, WORK TABLES
Series 20600



PART NO.	DESCRIPTION
1200	Table arm
1201	Gear 17 teeth
1202	Shaft for 1201
1203	Worm gear
1204	Spacing ring
1205	Crank
1206	Screw P6SS M8 x 8
1207	Lubricator
1208	Lever with hand knob
1209	Washer
1210	Stud
1211	Nut
1212	Stud
1213	Washer
1214	Locking arm
1215	Safety washer
1216	Locking link
1217	Locking lever
1220	Column ring
1221	Rack
1222	Stop ring
1223	Screw EC6S M8 x 30
1224	Column
1225	Column cover
1226	Screw M12 x 40
1227	Base plate with T-slots and oil groove
1231	Table with T-slots and oil groove, 20" x 25"

Fig. 4 - HEAD
Series 24200

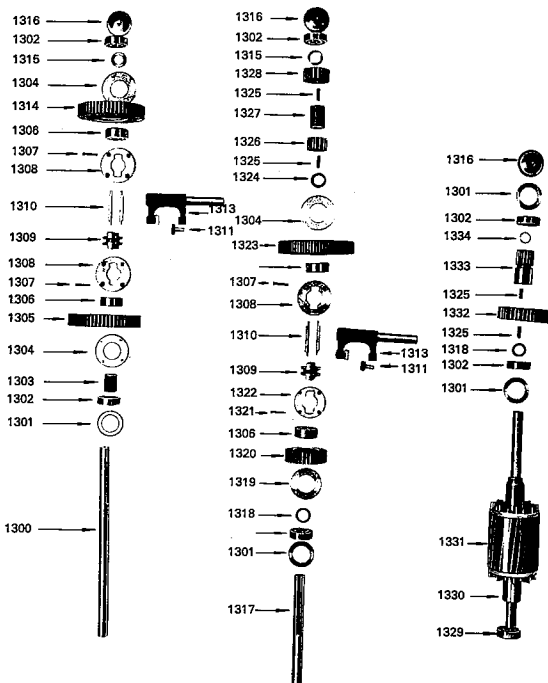
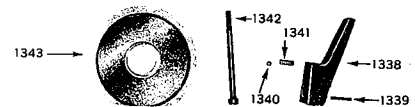
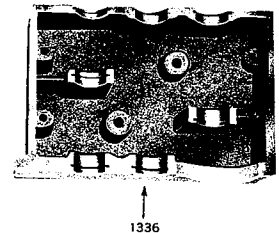
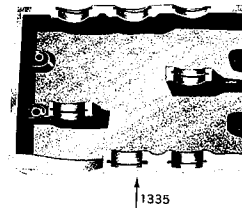
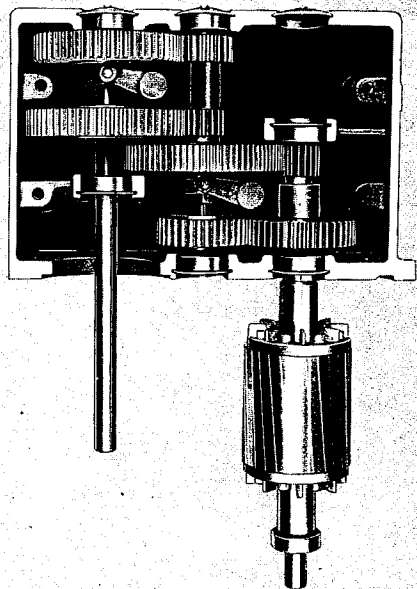


Part No.	DESCRIPTION
1400	Head casting
1401	Stator
1402	Switch guard
1403	Seal
1404	Switch
1405	Switch for machine lamp
1406	Roller bearing cover
1407	Taper roller bearing 30206
1408	Drill spindle, standard
1408 b	Milling spindle
1409	Key
1410	Quill
1411	Rack
1412	Screw DIN 7984, M8 x 15
1413	Ball bearing 6205 Z
1414	Locking nut
1415	Screw EC6S, M8 x 40
1416	Screw P6SS, M8 x 30
1422	Return Spring - 1820241
1423	Washer
1424	Nut

Part No.	DESCRIPTION
1425	Screw P6SS, M8 x 8
1429	Ring
1430	Screw EC6S, M6 x 10
1431	Screw EC6S, M6 x 22
1432	Stop dog
1433	Steel ball
1434	Spring
1435	Screw P6SS, M8 x 8
1436	Spring housing
1437	Safety washer SgA 15
1438	Taper pin
1439	Bearing bracket
1440	Lamp socket
1441	Bulb - 1811811 220V SCREW IN
1442	Fan - 4119241 Bayonet type 10W 100V
1443	Screw SK6SS, M6 x 8
1444	Protective glass
1445	Nut
1446	Stud
1447	Washer
1448	Locking arm
1449	Safety washer
1450	Locking link
1451	Locking lever socket
1454	Rack
1460	Gear shaft for spindle feedut
1461	Lever for spindle feed
1462	Hand knob
1463	Spring
1464	Steel ball
2074	Crank
2075	Gear Arm
2076	Spring
2077	Pin
2078	Screw w/Locking Nut

Fig. 5 - GEAR BOX

Series 24200

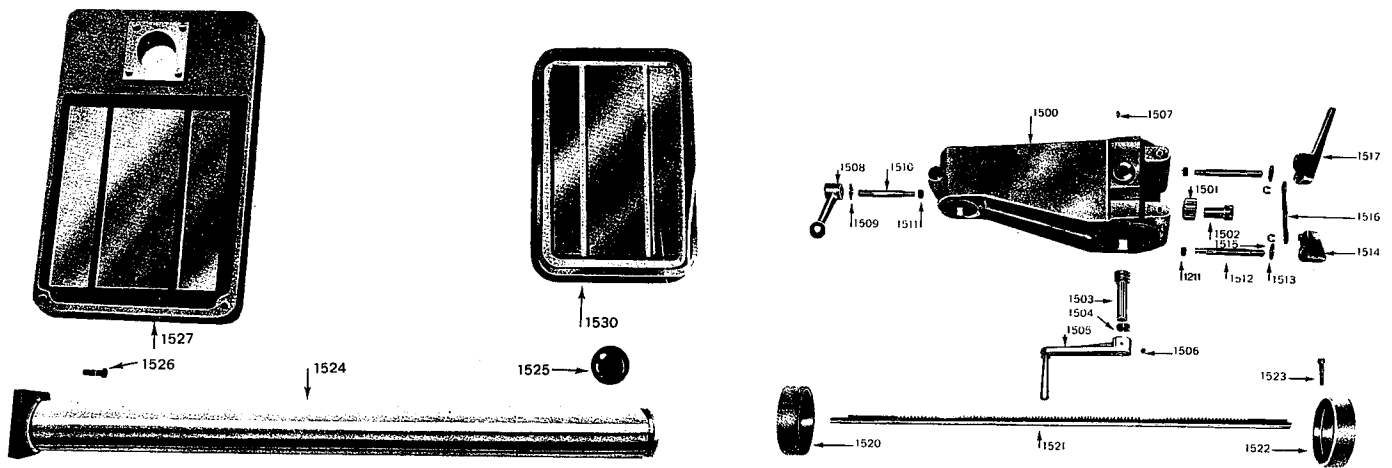


Part No.	DESCRIPTION
1310	Key
1311	Guide pin
1313	Shifter fork
1314	Gear 55 teeth, fibre, no bearing
1314 b	Gear 55 teeth, fibre, with bearing
1315	Spacer
1316	Cap with lubricator
1317	Intermediate shaft
1318	Spacer
1319	Washer
1320	Gear 34 teeth, fibre, no bearing
1320 b	Gear 34 teeth, fibre, with bearing
1321	Rivet - 1818231 3mm x 26mm
1322	Retaining washer 54mm
1323	Gear 82 teeth, fibre, no bearing
1323 b	Gear 82 teeth, fibre, with bearing
1324	Spacer
1325	Key
1326	Gear 15 teeth, fibre
1327	Spacer
1328	Gear 20 teeth, steel
1329	Ball bearing 6203 2RS
1330	Rotor shaft
1331	Rotor
1332	Gear 41 teeth, steel
1333	Gear 18 teeth, steel
1334	Spacer
1335-1336	Gear box housing, both halves
1338	Gear lever - 1818391
1339	Pin - 1818401
1340	Steel ball - 1818421
1341	Spring - 1818421
1342	Screw EC6S M8 x 100mm
1343	Guide plate

Part No.	DESCRIPTION
1300	Drive shaft
1301	Ring
1302	Ball bearing 6203
1303	Spacer
1304	Washer
1305	Gear 60 teeth, fibre, no bearing
1305 b	Gear 60 teeth, fibre, with bearing
1306	Ball bearing 4203
1307	Rivet - 1818101 4mm x 26mm
1308	Retaining washer
1309	Shifter dog

Fig. 6 - COLUMN, BASE, ARM, WORK TABLES

Series 24200



PART NO.	DESCRIPTION
1500	Table arm
1501	Gear 17 teeth, steel
1502	Shaft for 1501
1503	Worm gear
1504	Spacer
1505	Crank
1506	Screw P6SS, M8 x 8
1507	Lubricator
1508	Lever with hand knob
1509	Washer
1510	Stud
1511	Nut
1512	Stud
1513	Washer
1514	Locking arm
1515	Safety washer
1516	Locking link
1517	Locking lever socket
1520	Ring
1521	Rack
1522	Stop ring
1523	Screw, M8 x 30
1524	Column
1525	Column cover
1526	Screw M12 x 40
1527	Base plate with T-slots and oil groove
1528	Base plate
1530	Table with T-slots and oil groove, 20" x 25"



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