

MODEL EJ

MAINTENANCE MANUAL

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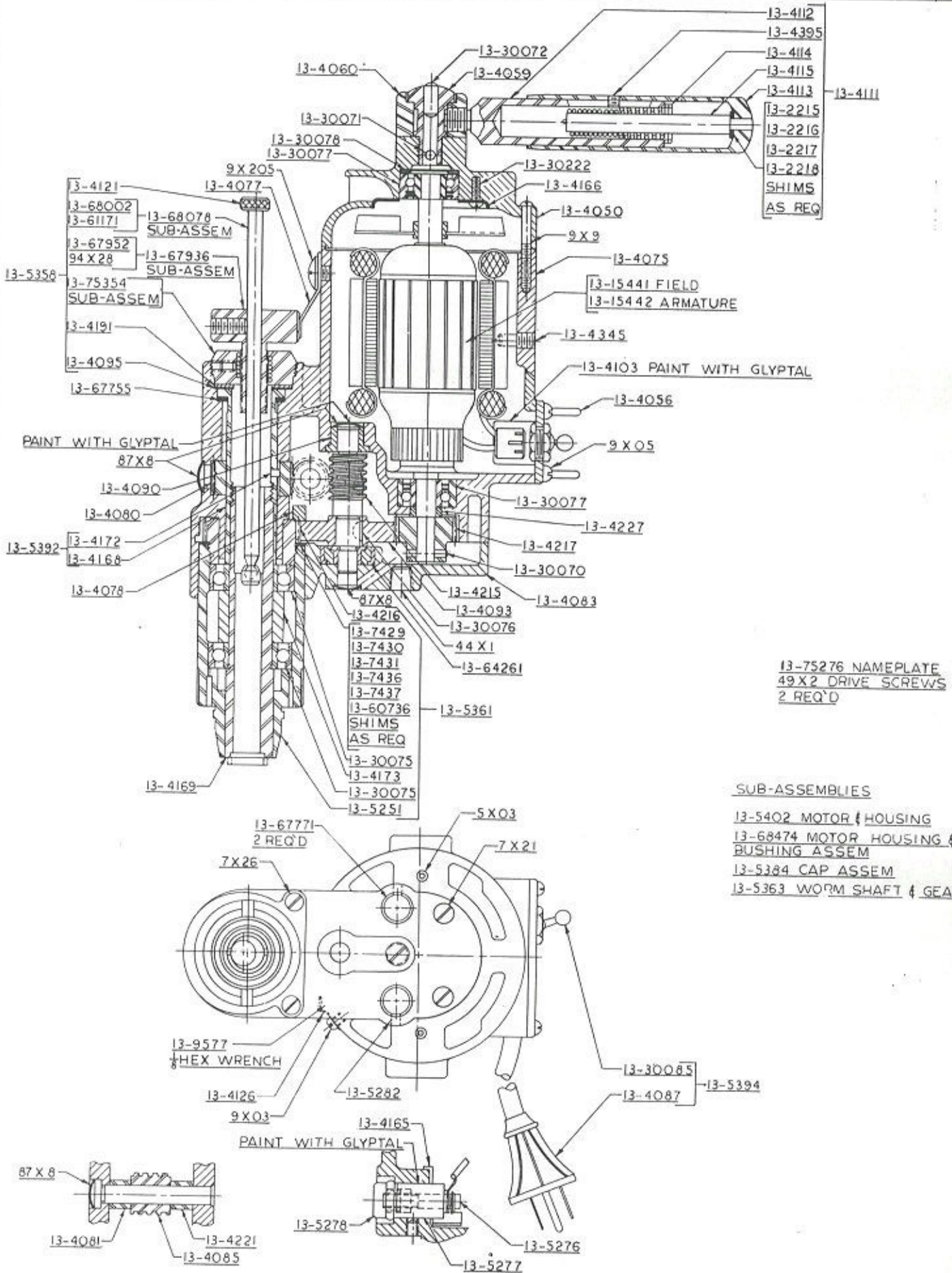
MODEL EJ
ECCENTRIC VALVE SEAT GRINDER

PARTS LIST

<u>Part Number</u>	<u>Part Name</u>
4056	Switch Plate
4075	Housing
4077	Spring
4078	Housing Tie
4080	Worm Gear
4081	Worm Gear
4083	Lower Cap
4085	Worm Gear
4087	Cord Set
4090	Bushing
4093	Fiber Gear
4094	Shim
4095	Shim
4096	Shim
4103	Insulator
4121	Nut
4126	Wrench Clip
4165	Brush and Shield
4169	Eccentric Shaft
4179	Shim
4191	Washer
4215	Worm and Shaft
4217	Drive Gear
4221	Worm and Gear Shaft
4227	Grease Slinger
4234	Thrust Plug
5276	Brush and Spring
5277	Brush Holder
5278	Brush Cap
5282	Pin
5327	Shim
5361	Spindle and Gear Assembly
5384	Cap Assembly
5392	Eccentric Shaft Holder Assembly
9577	Allen Wrench
15439	Field 220V
15440	Armature 220V

Part NumberPart Name

15441	Field 110V
15442	Armature 110V
30070	Groove Pin
30071	Groove Pin
30072	Groove Pin
30075	Bearing
30076	Key
30077	Spring
30078	Spring
30085	Switch
61077	Feed Rod Assembly
62949	Clip
64261	Rubber Bearing
67755	Loading Spring
67771	Bushing
67936	Adjusting Screw Knob
75276	Name Plate
75412	Adapter
83030	Handle
7 x 21	Screw
7 x 26	Screw
9 x 05	Screw
9 x 9	Screw
5 x 03	Screw
9 x 205	Screw
49 x 2	Screw
44 x 1	Screw
87 x 8	Expansion Plug
5 x 21	Screw
5 x 03	Screw



MODEL EJ
ECCENTRIC VALVE SEAT GRINDER

DISASSEMBLY INSTRUCTIONS

Section 1

Removing Spindle Assembly and Eccentric Shaft

Remove Eccentric Shaft (4169) with a flat piece of stock or the spanner wrench supplied with the grinder which will fit in the slot in the lower end of the eccentric shaft. The shaft can then be removed.

When the eccentric shaft is removed from the grinder the entire grinding wheel spindle may be removed simply by lifting it out of the gear case. For disassembly of spindle refer to Section 5.

Section 2

Eccentric Shaft Holder

Remove Adjusting Screw Sub Assembly (67936) from Thrust Plug Assembly. These parts are located on opposite end from Spindle Assembly. The Feed Rod Assembly (61077) will be removed with the Adjusting Screw.

Check for straightness on the Feed Rod. If bent, this assembly should be replaced. Remove from Adjusting Screw by removing knurled nut (4121) from feed rod. With nut removed and adjusting screw (94 x 28) loose, the feed rod can be slid from the adjusting screw knob.

Thrust Plug Assembly (4234) is now removed. Using special Hall-Toledo spanner wrench, the plug is turned to the left (counter clockwise). With plug removed, Washer (4191) and Shims are pulled out. Eccentric Shaft Holder Assembly (5392) is now removed. Take care in removing that the key in the shaft is aligned with the slot in the housing. The assembly should easily slip through the housing.

Section 3

Disassembly of Gear Housing

Remove Lower Cap (4083) and Housing Tie (4078) by removing the four (4) mounting screws. The cover is removed by using the Hall-Toledo impact puller tool. To use the tool, remove the 1/8 NPT plug with an allen wrench. Inspect Rubber Bearing (64261) for wear. Replace if worn.

Worm and Shaft (4215) complete with Fiber Gear (4093) can be removed from case. Inspect Bushing (4090) and replace if worn. Inspect gears for excessive wear.

Worm Gear (4085) is removed by pressing out Cross Shaft (50 x 57). Worm Gear and Spacers (4081) should be inspected for wear.

Remove Worm Gear (4080) and inspect.

Section 4

Disassembly of Motor

Motor Brushes (5276) are removed prior to disassembly of motor case. Remove Brush Cap (5278) on both sides to remove brushes and springs.

Remove Drive Pin (30070) from Motor Gear (4217) by using small arbor press. Care should be taken that the gear is properly supported to assure that the motor armature shaft does not get bent

The Motor Cap Assembly (5384) is attached to the Motor Housing (4075) by two machine screws (9 x 9). Lightly tapping the cap will free it from the upper Armature Bearing (30077). Care should be taken that the Thurst Springs (30078) are not misplaced. They are located between the bearing and the cap.

The Armature (15442 for 110V, 15440 for 220V) can now be removed from the case by gently pulling up freeing the lower bearing from the case.

If bearing replacement is necessary, remove by use of bearing puller and arbor press. A Grease Slinger (4227) is located between the lower bearing and drive gear and only needs to be removed if the lower bearing is removed.

To remove the On-Off Switch (30085) take off Switch Plate (4056) from the motor case. With switch out, wire leads can be unsoldered,

and switch removed by loosening the upper hex lock nut on the toggle side.

In removing the Motor Field (15441 for 110V, 15439 for 220V) first remove locking pin (5 x 21). The pin located on the side of the motor case is removed by using an allen wrench.

Remove field wire leads to Brush Holders (5277). Access to these wire clips is through the case opening for the On-Off Switch. The field can now be removed.

Section 5

Disassembly of Spindle

The Spindle (5251) must be securely held from rotating. Using a special Hall-Toledo wrench, remove Spindle Gear (4216) by turning to the left (counter clockwise). The special wrench conforms to the gear teeth and assures no gear teeth are damaged during removal.

After gear is removed, shims, Bearing (30075) and Spacer (4173) can be disassembled from spindle. Please note that the bearings are assembled with thrust side out. It is extremely important that this relationship be maintained. Bearings should be inspected and replaced if worn or rough. If bearings are replaced, it is necessary to reshim the spindle.

The Spindle Bearings are shimmed to obtain no end play and no preload. This is accomplished by shimming to assure some end play after gear is reassembled. Measure this end play and remove that amount in shims. Check to assure that there is no end play and that the bearings are free to rotate with spindle.

ASSEMBLY INSTRUCTIONS

Before reassembly all parts should be thoroughly cleaned and inspected. Worn parts should be replaced. Remember a precision instrument can produce accurate work only when in good condition.

Section 1

Assembly of Motor

Install Field (15441 for 110V, 15439 for 220V) into Motor Housing (4075). Rotate the field to the point where the drill point hole in the side aligns with the hole in the housing. Install alignment screw 5 x 21 to secure field in housing.

Attach wire leads to brush holders (5277) using the switch opening as access to the parts. Attach remaining field leads to the switch. These are soldered connections.

Assemble On-Off Switch (30085) to Switch Plate (4056), install switch insulator around switch and assemble to motor housing using Screws (9 x 05).

To the Armature (15442 for 110V, 15440 for 220V) assemble Bearings (30077). Bearings are installed with seal side facing inward. Proper press up tools should be used in assembling bearings to assure that the armature shaft is not bent.

The armature is installed into the motor housing, long shaft first. A slight tapping may be necessary on the armature to install bearing into housing. Turn up the assembly and after installation of Grease Slinger (4227) on shaft press Gear (4217) into place. When pressing the gear or shaft make sure that the hole in the gear and the hole in the shaft are in line.

Install Motor Cap Assembly (5384) to Motor Housing making certain that the Turust Springs (30078) are in place at the end of the bearing. Fasten assembly with Screw (9 x 9).

Complete assembly by installing Brush and Spring (5276) into housing. Curvature on brushes should align with armature curvature. Retain brushes with Brush Caps (5278).

After assembly turn armature to assure it turns freely. It is advisable at this time to run the motor before proceeding with the assembly. The motor, when running, can be warm to the touch but should not become hot. Maximum current draw is two (2) amperes.

If motor is performing as specified, pin gear to armature shaft using Pin (30070).

Section 2

Assembly of Gear Housing

Install Worm Gear (4080) in case cavity along spindle centerline.

Worm Gear (4085) is installed meshing with the 4080 gear. The gear, with Spacers (4081) on each side are held in line with the cross hole. Press Shaft (50 x 57) through housing, spacers and gear. Install Plug (87 x 8) and tap with hammer to seat.

Next, install worm shaft (4215) with the Fiber Gear (4093) into Bushing (4090) in housing. Apply grease to shaft end running in Bushing.

Apply Hall-Toledo 37337, No. 66 grease, into gear cavity. Grease should be used sparingly but sufficient to cover various gear meshes.

Place Housing Tie (4078) into position around spindle centerline. With Rubber Bearing (64261) installed into Lower Cap (4083), place assembly over housing. Cap is secured to housing using screws (7 x 26 and 7 x 21).

Section 3

Assembly of Eccentric Shaft Holder and Feed Mechanism

Align Worm Gear keyway slot with slot in housing. Place Wave Springs (2) (67755) into counterbore in top of housing. Slide Eccentric Holder (5392) into housing making sure key is aligned with slot. Select Shims and install Thrust Washer (4191) on top of holder. Install and tighten Thrust Plug (4234) using Special Hall-Toledo Spanner Wrench. A proper shim pack will establish a slight preload between the thrust washer and eccentric holders.

Before installing Feed Adjusting Screw Knob (67936) onto Thrust Plug, insert Feed Rod Assembly (61077) through knob. Feed Rod is installed with Knurled Knob (4121) removed. Install

Rod and screw in place on Feed Rod.

Install Feed Adjusting Screw Knob into Thrust Plug. There should be a drag felt when screwing in place. If no drag exists, an adjustment is advisable. If necessary to adjust, back out Thrust Plug from the housing until a small set screw hole is visible. Using an allen wrench, tighten set screw a small amount. This will result in a tighten drag on the Feed Adjusting Screw. When complete, retighten Thrust Plug.

Section 4

Assembly of Spindle (5361)

Into Spindle (5251) place Bearings (30075) with Spacer (4173). Bearings must be installed with thrust faces out. (Thrust face is usually where the bearing number is marked.) Selecting a shim pack, place shims on spindle face and install Gear (4216). Snug gear and check for possible end play in the bearings. The shim pack should be selected to give no end play but be careful the bearings are not preloaded. This can best be accomplished by selecting a large shim pack. Measure the end play after assembly of gear and then remove that amount in shims. Be sure that the gear is tight. Apply a thin coat of grease to the gear teeth. Do not grease outside diameter of spindle.

Section 5

Installation of Spindle and Eccentric Shaft

Slip Spindle Assembly into Housing mating gears together. Install Eccentric Shaft through end of spindle until threads come in contact with eccentric holder threads. Using a flat piece of stock or the Hall-Toledo Spanner Wrench, turn shaft to the right (clockwise). The shaft should be pulled up just snug and never tightened excessively.

With assembly completed and before using, it is best to run the grinder. Sit assembly on stand, plug in and turn on. The unit will heat up, in time, however, it should not get too hot to touch. Also some gear noise can be expected but assembly should be checked if noise is excessive.

Refer to Operating Instructions for proper use of the machine.