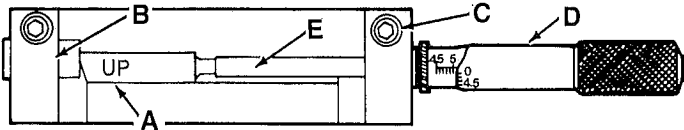


PT-2050-C PORTA-MATIC

Verifying The Micrometer Block



NOTE: The Micrometer Block is accurately preset at the factory. Occasionally, due to rough handling during shipment, the Micrometer Block may become out of specifications. It is recommended that the Micrometer Block be checked prior to setting cutter.

1. Use PT-2000-029 Setting Standard (A) to verify the Micrometer reading. Place setting standard with side stamped "Up" between cutter stop "B" and the micrometer spindle (E). Turn Micrometer Thimble until spindle (E) fits snugly against the setting standard. The Micrometer should read 5.000".
2. When Micrometer adjustment is required, loosen socket head set screw (C) and move Micrometer slightly away from cutter stop (B) Set Micrometer to read 5.000".
3. Slide Micrometer to fit snugly against setting standard (A) and securely tighten socket head cap screw (C).
4. Back off Micrometer (D) and retighten to fit snugly against setting standard (A). Recheck the Micrometer reading which should now be 5.000".

NOTE: The setting standard (PT-2000-029) is precision machined and marked with the serial number of the Porta-Matic unit it is shipped with. Lost or damaged setting standards may be replaced by ordering an oversize setting standard (PT-2000-29) which is available from Kent-Moore Heavy-Duty Division.

Setting Cutter For Bore Diameter

1. Loosen the set screw in the back end of cutter. Push spring loaded adjusting pin into body of cutter all the way. Tighten set screw.

2. After verifying the Micrometer Block, set Micrometer for the size bore your application calls for:

NH 5-1/2 Bore, V12	6.750 Dia.
V903	6.625 Dia.
NH 5-1/8 Bore, V12	6.275 Dia.

Other engine applications and bore size information are detailed on Kent-Moore's bushing information sheet (Form #PT84-509)

3. Place cutter in Micrometer Block and hold it firmly against the cutter stop.
4. Loosen set screw on cutter and allow adjusting pin to extend out against the Micrometer spindle. Tighten set screw.
5. Back off Micrometer thimble and recheck cutter setting. Back off Micrometer and remove cutter from Micrometer Block.

Preparing Block For Boring

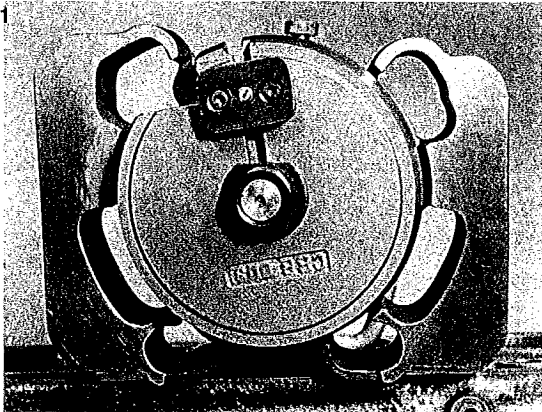
1. Steam clean block. Remove all top deck dowels and studs using PT-6200 Stud-Out Tool or equivalent.
2. Remove all burrs and high spots from top deck with a large mill cut file. Finish dress with a flat stone.
3. Using emery cloth, remove all dents and burrs from the INSIDE DIAMETERS OF THE COUNTERBORE. This area is used by cutter plates to center the Porta-Matic over the bore.

Machining The Upper Deck Bore

IMPORTANT: MAKE SURE CUTTER IS REMOVED FROM CUTTER PLATE PRIOR TO PLACING BORING MACHINE ON ENGINE BLOCK!

1. Select proper cutter plate, install plate on shaft of Porta-Matic and secure with nut and washer. (See Fig. 1)

Fig. 1



2. Open feed valve by using a quick counter-clockwise twist of the Depth Set Collar. Pull mainshaft all the way up and twist clockwise to lock. (See Fig. 2 and 3).

Fig. 2

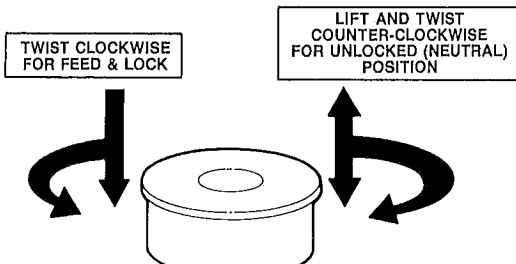
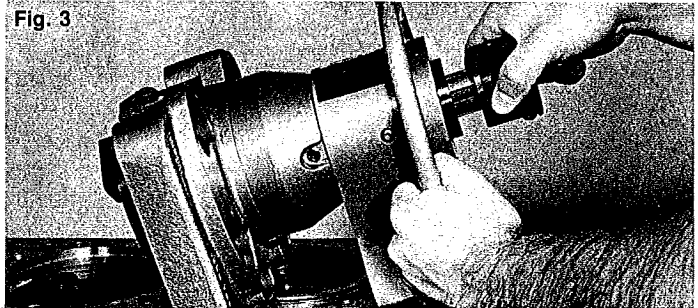
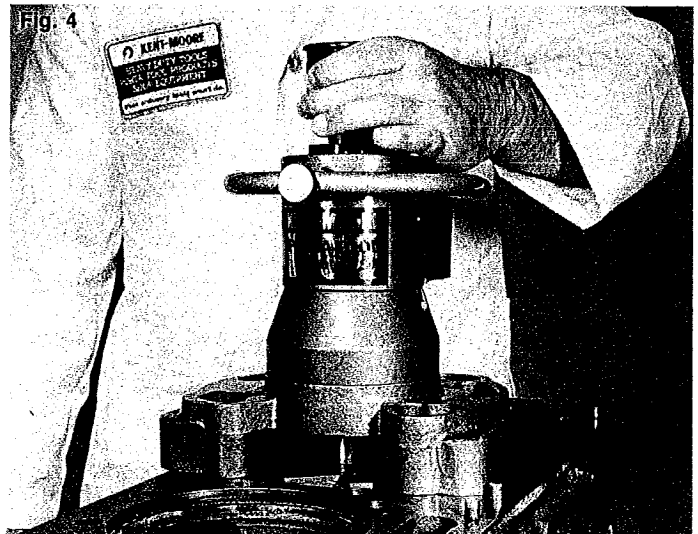


Fig. 3

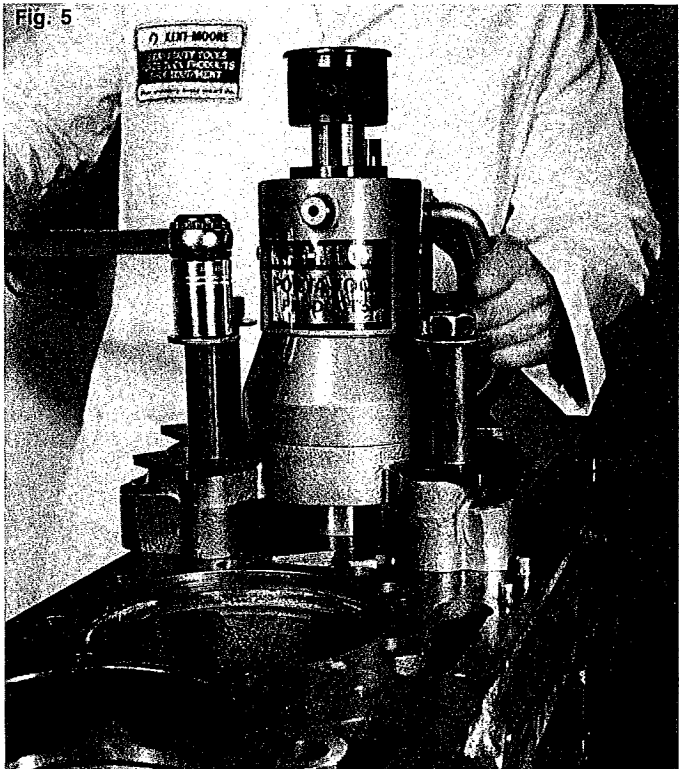


3. Place PT-2050-C over bore to be cut. Lower the cutter plate into bore by twisting the collar counter-clockwise and then pushing collar and shaft down firmly until cutter plate bottoms into bore. Rotate cutter plate counter-clockwise in bore to ensure proper alignment. (See Fig. 4)

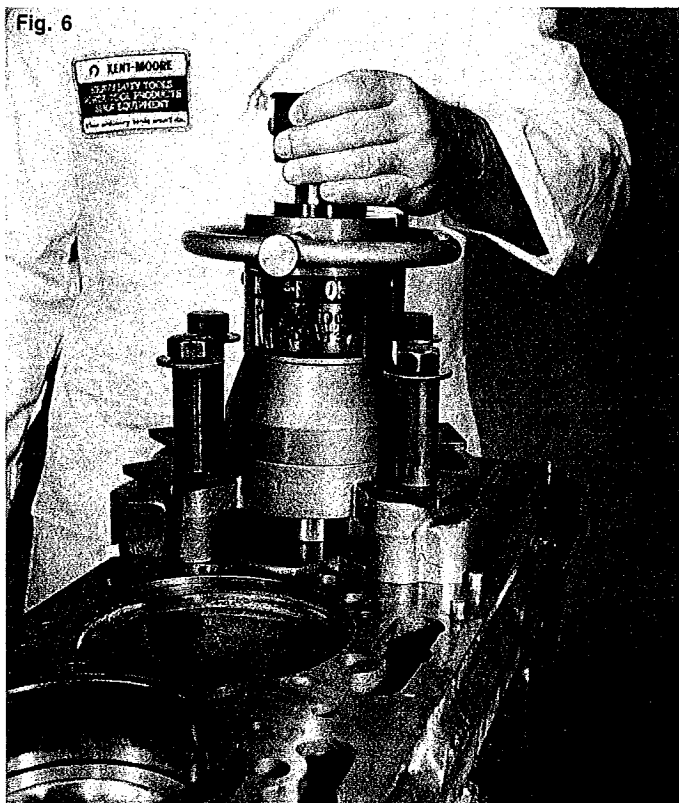
Fig. 4



4. With cutter plate centered in bore, align base plate with (4) cylinder head bolt holes in block maintaining as much baseplate-to-block contact as possible. Install washers, stud adapters and cap screws through baseplate and into block. (Handle may be swung up for easy access to cap screw).
5. Cross Torque the (4) cap head screws gradually to 50 ft/lbs. Swing handle down and lock in position. Rotate mainshaft of boring tool to ensure cutter plate is centered in bore. If binding occurs, loosen cap screws and repeat Steps 3 and 4 (See Fig. 5)



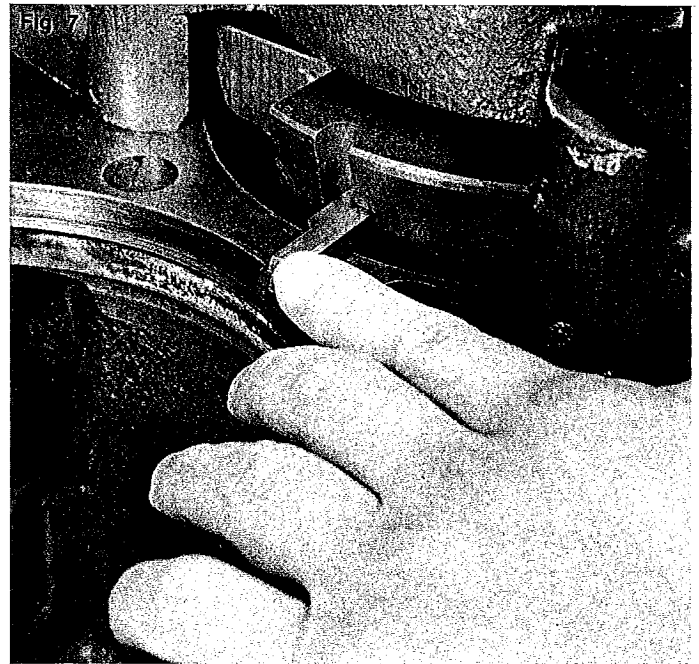
6. Retract the cutter plate from the bore and lock it in the full up position. (See Fig. 6)



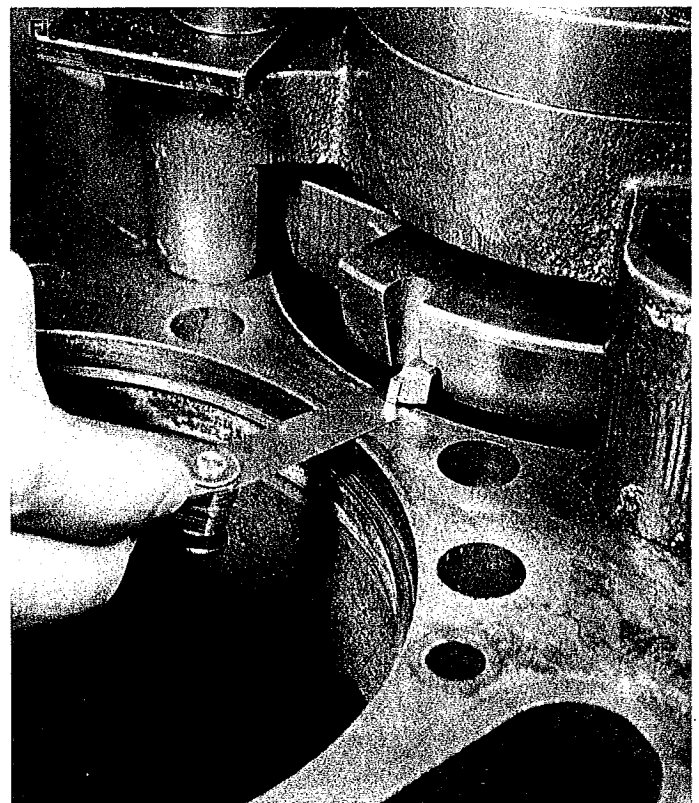
7. Insert the cutter all the way into the cutter plate and tighten cutter plate swivel pad set screw. Cutter should enter with noticeable drag due to ball spring detent on bottom of cutter holder plate. The cutter must fully contact the main shaft or the boring tool to assure accurate boring.

NOTE: THE SHARP TIP OF THE CUTTER MUST BE INSERTED INTO THE SLOT IN THE CUTTER HOLDER WITH THE TIP TO THE LOWER LEFT SIDE OF THE SLOT (SEE FIG. 7).

NOTE: CUTTER HAS A SHALLOW HOLE WHICH WILL FACE DOWNWARD WHEN CUTTER IS PROPERLY INSERTED INTO SLOT.

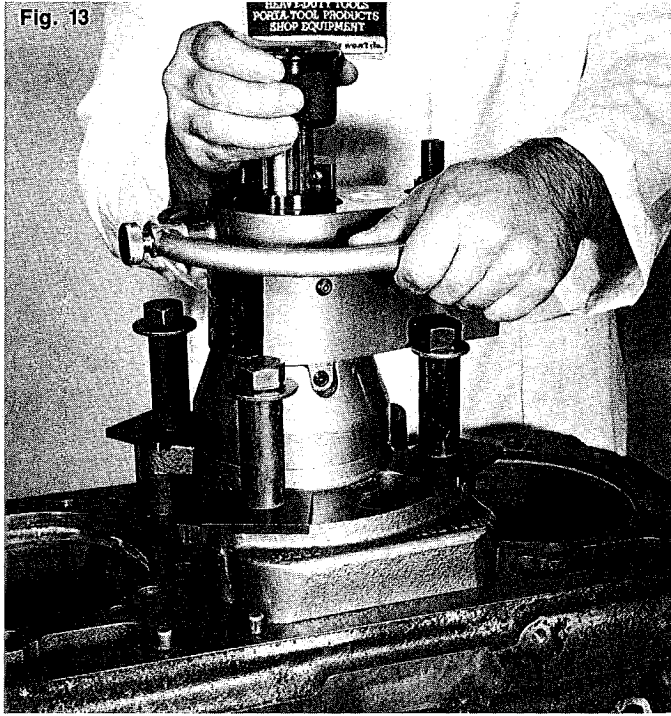


8. Place a 0.004 inch feeler gauge between the block and the cutter. Twist the depth set collar counter-clockwise and slowly lower the cutter plate until the cutter rests on the feeler gauge. (See Fig. 8)

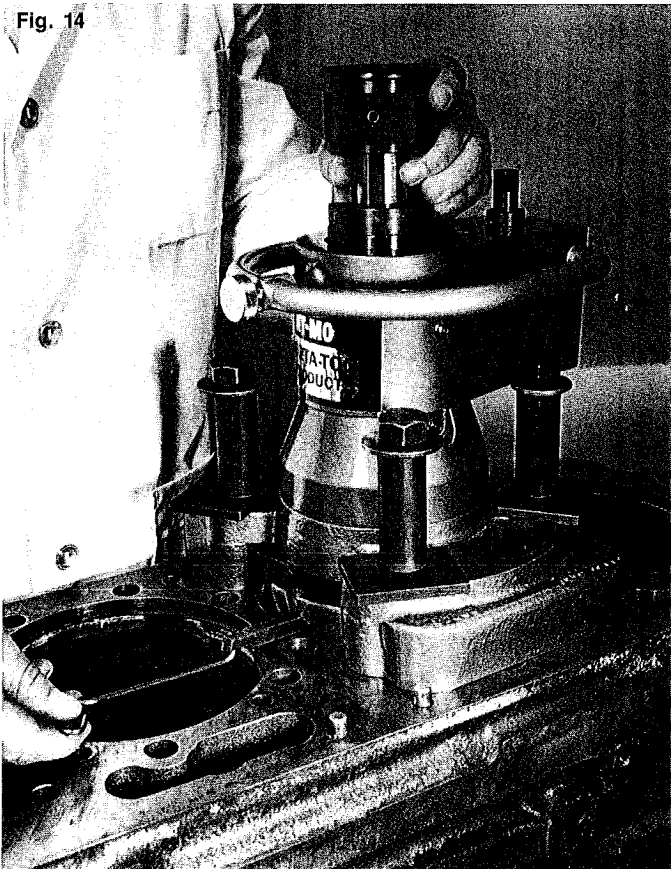


PT-2050-C PORTA-MATIC

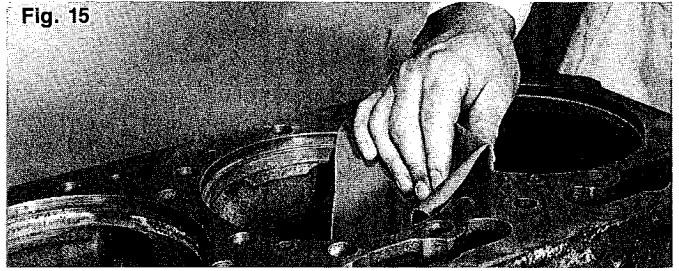
13. Remove electric drill from boring machine. With upward pressure, twist depth set collar counter-clockwise and retract cutter plate to its full up position. Twist collar clockwise to lock in up position. (See Fig. 13)



14. Loosen swivel pad set screw and insert cutter key in shallow hole to pull cutter from cutter plate. Remove boring machine. (See Fig. 14)

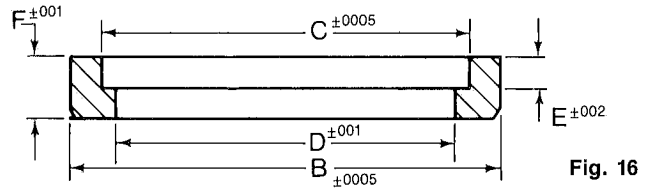


15. Clean away all shavings and deburr bore with emery cloth. (See Fig. 15)



16. Remove all chips and foreign material from the cutter recess and the access area where the cutter contacts the mainshaft. It is very simple to clean these areas with a cotton swab. Foreign material in these areas could cause the next bore to be cut oversize.

NOTE: DIAMETERS OF THE FINISHED CUT BORES MUST BE $\pm .001$ " OF THE SPECIFIED BORE SIZE. FOR BEST RESULTS, PERIODICALLY DRESS THE CUTTER TO KEEP IT SHARP USING PT-7180 PORTA-BIT SHARPENER. IF A BORE IS CUT OVERSIZE, A SPECIAL OVERSIZE BUSHING CAN BE ORDERED. KENT-MOORE STOCKS MANY OVERSIZED BUSHINGS FOR IMMEDIATE DELIVERY. YOU MAY ALSO ORDER A CUSTOM MADE OVERSIZE BUSHING MANUFACTURED TO FIT THE EXISTING BORE SO THAT NO ADDITIONAL CUTTING IS REQUIRED. SEE FIG. 16 FOR INFORMATION REQUIRED TO MAKE A SPECIAL BUSHING.



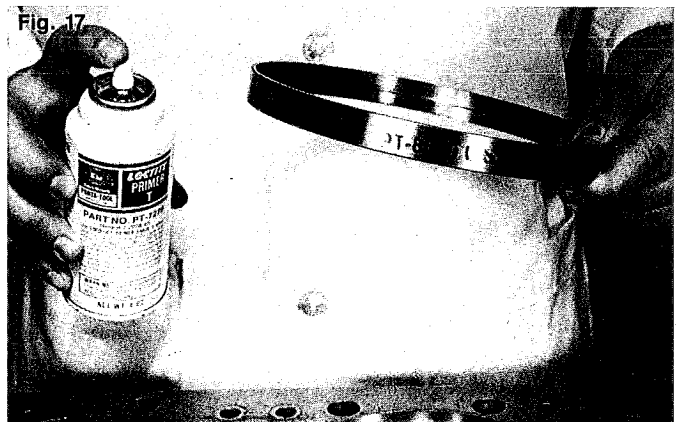
- | | |
|------------------------------------|--------------------------|
| A. Application | B. Overall Diameter: |
| 1. Engine Maker: | C. Counterbore Diameter: |
| 2. Engine Model: | D. Lower Bore Diameter: |
| 3. Cylinder Bore Size: | E. Counterbore Depth: |
| 4. Original Repair Bushing Part #: | F. Bushing Thickness: |

17. **IMPORTANT:** INSTALL THE COUNTERBORE REPAIR BUSHING AND FINISH FILE IT FLUSH WITH DECK BEFORE GOING ON TO THE NEXT BORE. NEVER ATTEMPT TO CUT ALL THE BORES AND THEN INSTALL REPAIR SLEEVES.

18. If the block is to be resurfaced, all repair bushings should be installed first. Allow at least 4 hours after the last bushing repair before resurfacing the block. This time period is required to allow the Loctite to cure.

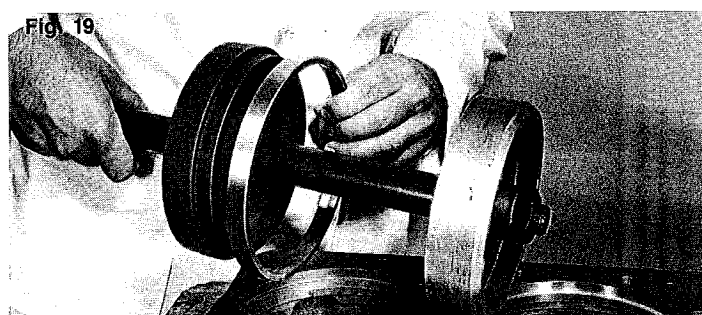
Installing Repair Bushing

1. Clean bore and bushing outside diameter thoroughly with PT-7270 Primer T. (See Fig. 17)

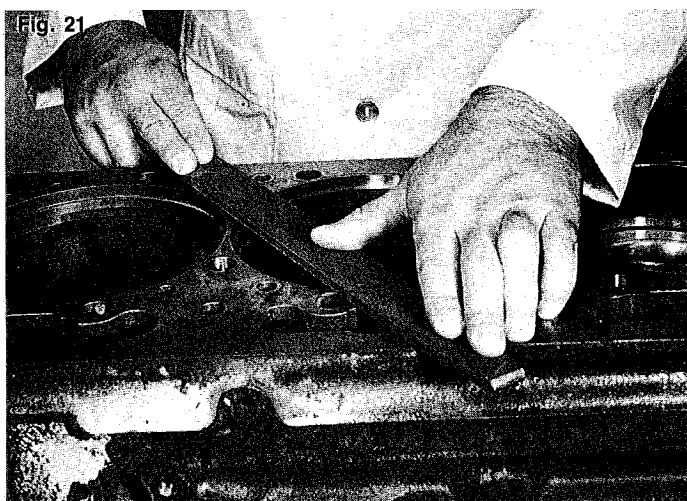
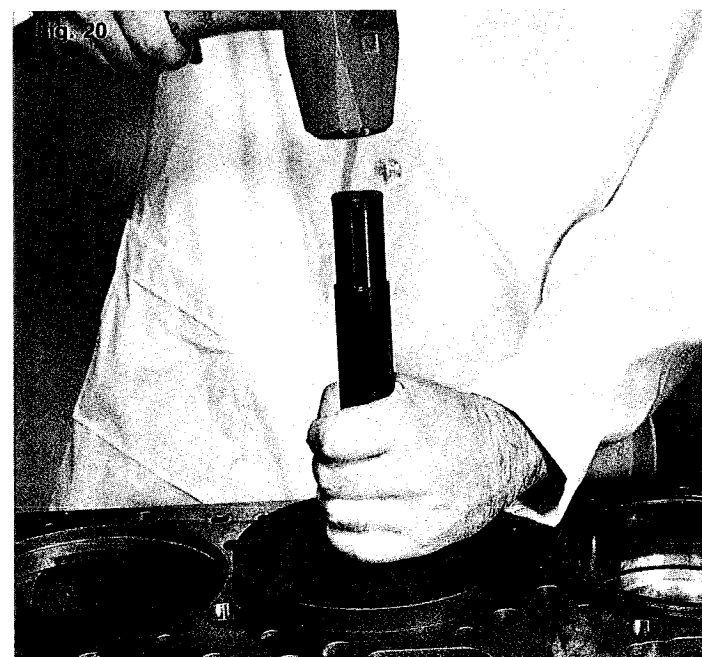




2. Lightly coat the inside diameter of newly cut bore with PT-7260 Loctite Compound (See Fig. 18) Insert bushing on driver (See Fig. 19). Using hammer and the bushing driver assembly install bushing into bore until it bottoms. A solid sound can be heard when bushing bottoms (See Fig. 20)



3. When fully installed, the bushing will protrude slightly above the top of the block approximately 0.004". This protrusion must be filed even with the top of the deck. Remove all burrs with emery cloth (See Fig. 15)



NOTE: IF ONLY ONE BORE IS TO BE REPAIRED, PROCEED TO STEP 5 (BELOW).

4. If one or more counterbores still require repair, it is not necessary to change Depth Set Collar location on mainshaft. Follow normal procedures to mount machine in next bore (See Steps 1 & 2 of Boring Instructions), then remove PT-2000-138 Depth Spacer from mainshaft. This allows the cutter plate the additional travel necessary to center the machine in the bore without the need for resetting depth of cut. Once the Porta-Matic is properly centered and torqued in place, raise cutter plate from bore, lock in up position, and REPLACE PT-2000-138 ON MAINSHAFT. Finish installing cutter in cutter plate and proceed with normal boring operations.

5. Check counterbore depth. Cut to proper depth using PT-2200-A (PT-2250-A) Counterbore Cutter, appropriate cutter plate, and normal procedures. Repair bushings are designed to be 0.005" to 0.010" shallow of required counterbore depths and must be finish cut.

NOTE: THE HYDRAULIC FEED MAY SLOWLY SETTLE DOWN INTO A REST POSITION WHEN LEFT IN UP POSITION. THIS IS NORMAL AND DOES NOT INDICATE A PROBLEM WITH THE PORTA-MATIC UNIT. IF THIS HAPPENS, IT WILL BE NECESSARY TO UNLOCK THE FEED TO RETURN UNIT TO FULL UP POSITION.

Care of Hydraulic Feed Housing:

Periodic checks should be made to ensure the main housing is completely full of 30 weight non-detergent oil. If oil level is low, tool chatter may occur.

To Check Oil Level:

With feed unit on its side and oil port in upright position, turn collar counter-clockwise. Slowly push shaft to its lowest position. Check oil level and add until full. Pull shaft to its uppermost position. Repeat until all air bubbles are removed and feed unit is full.



KENT-MOORE

**Kent-Moore Heavy-Duty Division
Sealed Power Corporation
29784 Little Mack
Roseville, MI 48066-2298
Telephone 313-774-9500**