

PT 22 10 (3823558) COUNTERBORE LEDGE TOOL BASIC KIT

For use on Mack E-7 and Cummins C & L10 Engines

TOOL FUNCTION: To resurface cylinder liner counterbore area of engine block. The counterbore tool cuts an even counterbore ledge to obtain a correct liner protrusion dimension.

Fig. 1 PT 2210 BASIC KIT AND SERVICE PART LISTING

Cummins Part No.	Det. No.	Part No.	Description	Amount
3823559	1	PT 2210-9	Basic Machine	(1)
3823560	2	PT 2210-13	Special Washer	(4)
3823565	3	PT 2210-15	Box Assy. (not illustrated)	(1)
3823563	4	PT 2200-17	T-Handle	(1)
3823562	5	PT 2210-14	Hex Key	(1)
3823561	6	PT 2210-32	Spacer (C and L-10)	(4)
3823564	7	PT 2200-14	Cutter Plate Holder	(1)
	8		9/16 SAE Washer	(4)
	9	PT 2200-83	Spacer Block	(1)

Fig. 2 CUTTER PLATE KITS (Available for use with PT 2210)

Cummins Part No.	Part No.	Application	Service Cutter Bit	Cummins Part No.
	PT 2210-3	Mack E-7	PT 2210-11	
3823569	PT 2210-4	Cummins L10	PT 2210-12	3823570
3823567	PT 2210-5	Cummins C	PT 2210-12	3823570

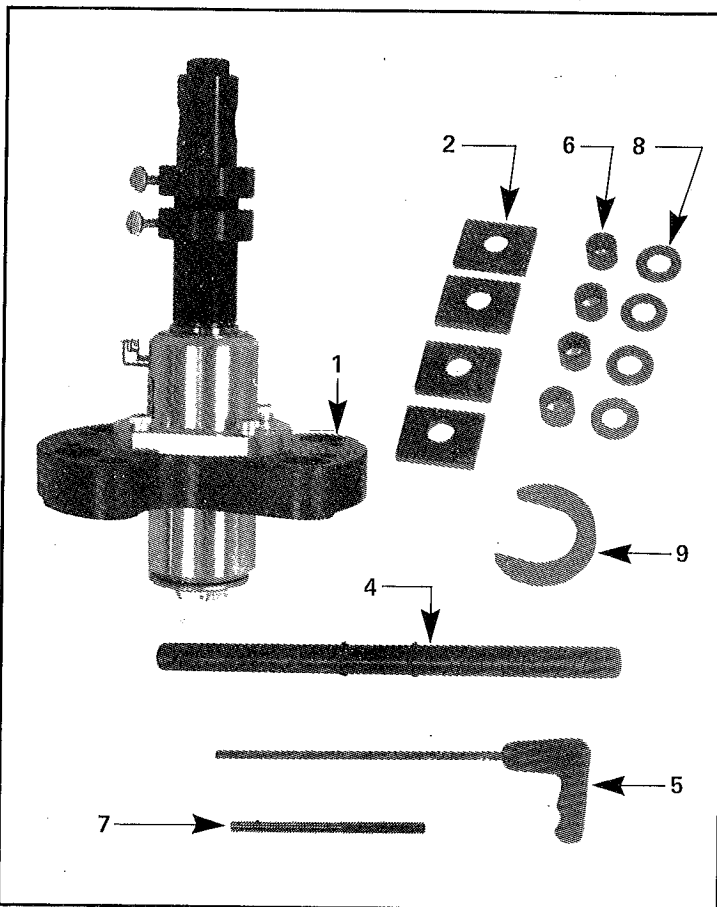


Fig. 1

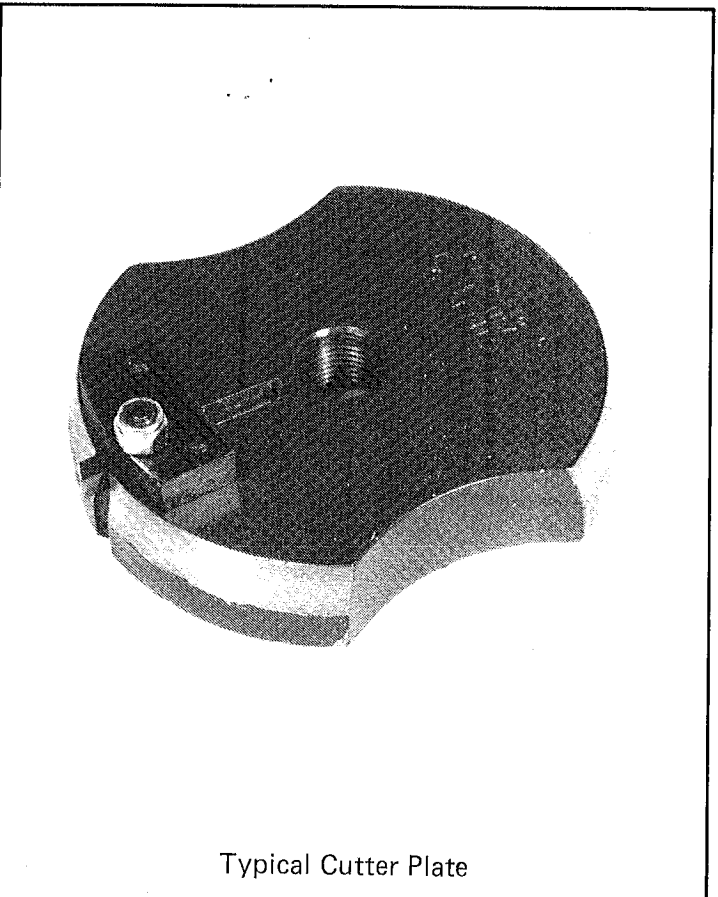


Fig. 2

Instructions

Step 1 PREPARE BLOCK

- A. Remove the cylinder head, piston, and liner of the cylinder to have the counterbore ledge machined. This procedure can be performed either in or out of chassis. If in chassis, cover the crank shaft and any oil hole gallery to prevent machining chips from entering.
- B. Make sure the top deck of the block is clean and free of burrs. Use a finish mill file (PT 2000-400 or equiv.) and fibrous abrasive pad (PT 2901 or equiv.).
- C. Measure and record the ledge depth in four places 90° apart. Refer to engine manufacturers shop manual for specifications and procedures.

Use PT 5025 Dial Depth Gauge and PT 5025-10 4" Stylus Extension for Cummins C engine, and PT 5025-11, 3" Stylus Extension for Cummins L10 and Mack E-7. (See Fig. 3)

Mark the shallowest point.

Subtract the lowest number from the highest number. This is the minimum amount to be machined for clean-up.

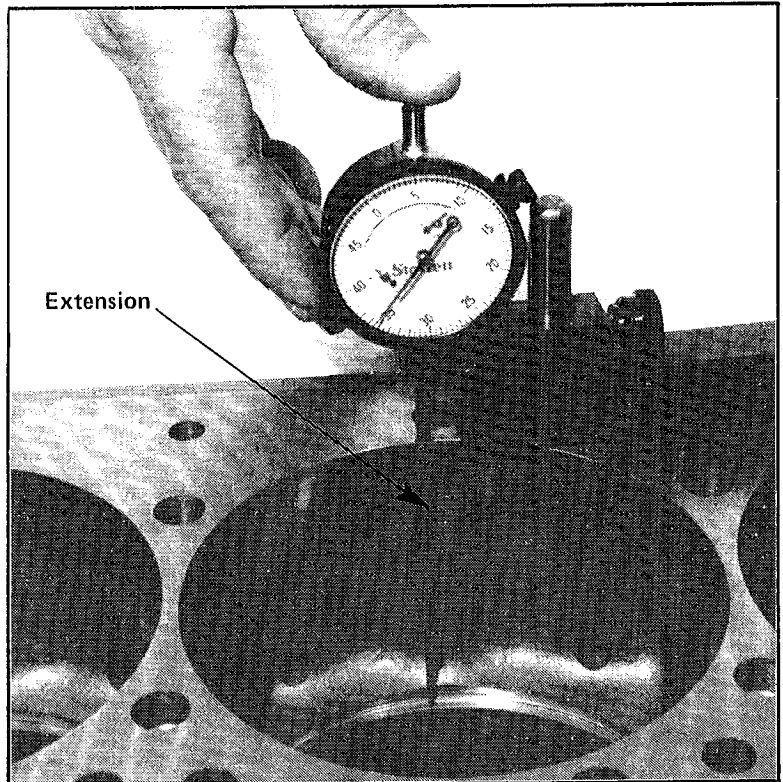


Fig. 3

Step 2 SET THE CUTTER

Loosen the two cutter bit hold down cap screws. Install the tool bit into cutter plate by turning the cutter bit adjuster counterclockwise. (See Fig. 4) Cutter bit face must be facing towards a clockwise rotation cut.

NOTE: The point of cutter should not extend beyond the outer diameter of the cutter plate. If the cutter bit does stick out, damage to the tool bit will occur when installing counterbore tool onto engine block.

Do not tighten cutter bit hold down cap.

Step 3 INSTALL THE CUTTER PLATE

Install the cutter plate on the main shaft. Use PT 2200-14 Cutter Plate Holder to tighten securely. **NOTE:** Hole in side of cutter plate accepts the holder (See Fig. 4).

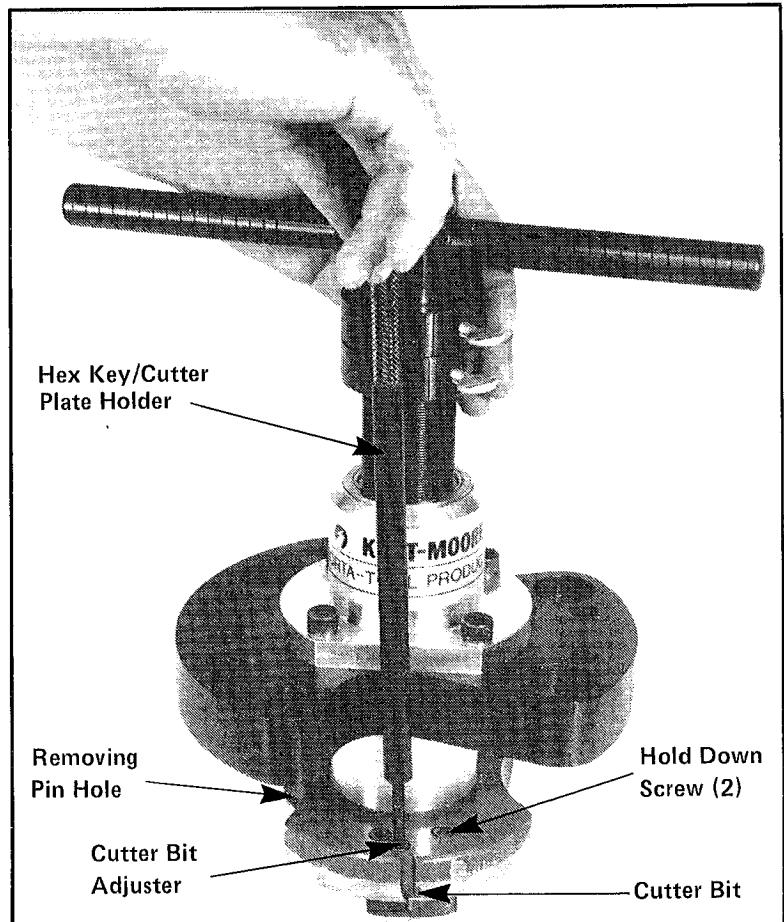


Fig. 4

Step 4 LOCATE THE TOOL

Position the tool in the cylinder bore by backing off the depth set collars and lowering the cutter plate into the counterbore to center the tool. Secure the base plate to block with engine head bolts and special washers and spacers (included with tool). Cross tighten bolts (diagonally) to 30 ft. lbs. torque. (See Fig. 5)

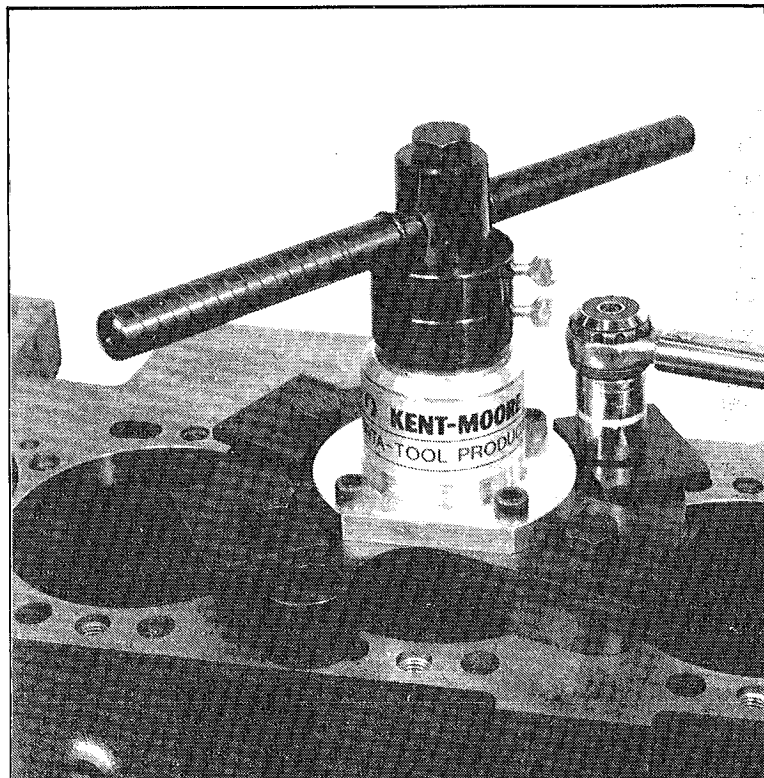


Fig. 5

Step 5 CHECK TOOL LOCATION

Lift the T-Handle slightly (so cutter plate is not in contact with counterbore) and rotate mainshaft clockwise to ensure cutter plate turns freely without binding up. If necessary, loosen cap screws and reposition the tool (per step 4).

Step 6 ADJUST CUTTER BIT

Using the counterbore tool handle, raise the cutter plate from the counterbore seat by approximately 1/2". (See Fig. 6)

Use PT 2210-14 Hex Key Wrench to turn the tool bit adjusting screw clockwise until tool bit can rest on counterbore ledge. (Do not touch counterbore wall). Back off the lower depth set collar and lower the cutter plate until the cutter bit rests on the ledge. Install PT 2200-83 Spacer Block between main housing and bottom depth set collar (See Fig. 7). Rotate the bottom depth set collar down until the collar contacts spacer block. Now, rotate the collar five graduations (.005") in a clockwise direction. Each graduation on the collar is one thousandth (.001"). This will lift the cutter bit .005" off the counterbore ledge, thus allowing for an accurate setting of the cutter bit.

Use PT 2210-14 Hex Key Wrench to turn the tool bit adjusting screw clockwise until tool bit contacts liner engine block wall or the lower primary counterbore ledge step wall. If the cutter bit will not adjust, adjust the bottom collar .005" more and recheck cutter bit hold-down screws, they should be loose.

It may be necessary to use a flashlight to see this step.

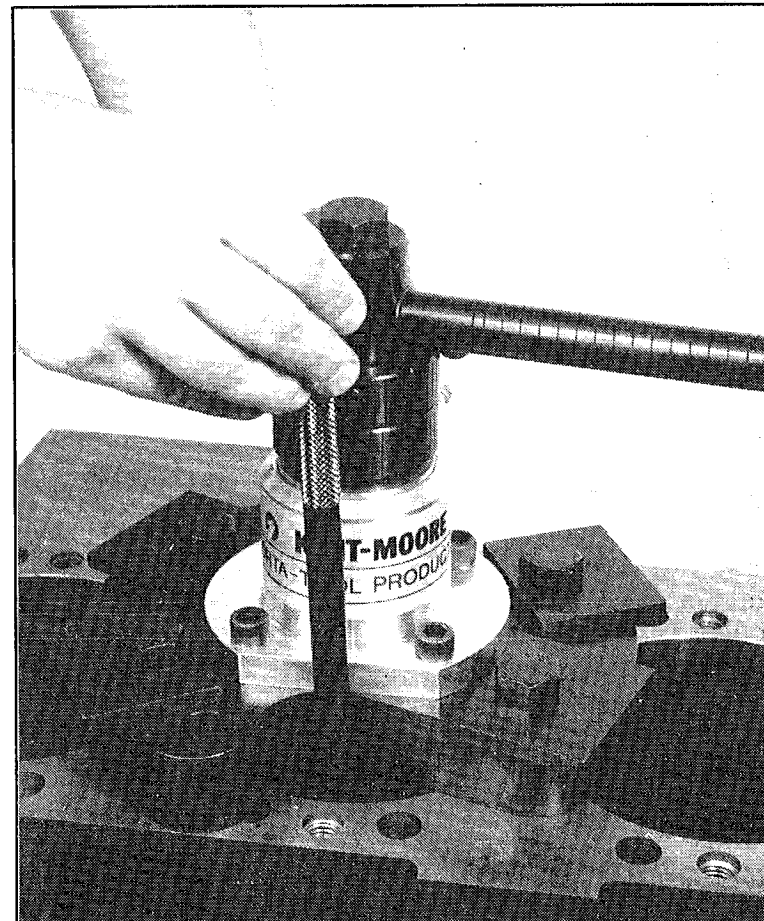


Fig. 6

Step 7 ZERO OUT THE DEPTH SET COLLARS

Back off depth set collar and carefully lower the cutter plate into the bore and allow the cutter to rest on the counterbore ledge. Rotate both depth set collars down until the bottom collar contacts the PT 2200-83 Spacer Block. Do not force the collar beyond this point, as it will lift the cutter plate and prevent an accurate zero reading.

Step 8 SETTING THE DEPTH OF CUT

Determine the final depth of cut and back off the top depth set collar accordingly. Each graduation on the depth set collar increases the depth of cut by one thousandth (.001"). Tighten the thumb screw on the top collar securely.

Step 9 CUTTING THE COUNTERBORE

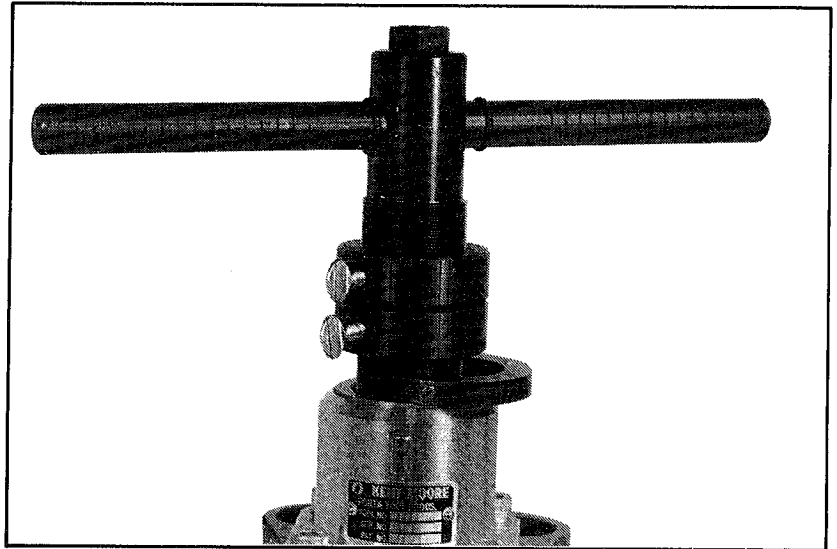
Fill oil pit on the tool's main housing with 30W non-detergent oil to maintain lubrication during use. Back off the bottom depth set collar two graduations (.002 Max.) or less and tighten the thumb screw securely. Cut the counterbore by turning the T-Handle clockwise and maintain constant downward pressure on the tool. Do not stop in the same handle position. Alternate where stopping to avoid creating a ridge in the counterbore. Continue backing off the lower depth set collar (no more than two graduations per cut) and check depth measurements between each adjustment. Plan to take a one thousandths (.001") final cut to meet the final predetermined counterbore depth. This ensures a very fine machined finish will be obtained.

Upon completion of your final cut, adjust the upper collar against the lower collar and lock in place. This allows all remaining bores to be cut to the same depth.

Step 10 TOOL REMOVAL

Loosen the two cutter bit hold down cap screws and rotate cutter bit adjusting screw counterclockwise until cutter bit is retracted into cutter plate. Remove 4 machine hold down bolts and remove Counterbore Machine.

Fig. 7



NOTE: Remove PT 2200-83 Spacer Block before relocating counterbore machine in next bore. This will allow you to locate the Taper Cutter Plate into the bore without readjusting the top depth set collar. Reinstall the Counterbore Machine and follow step 6 thru 10 for additional counterbore ledge cutting.

SP^x

Exponent of Excellence

KENT-MOORE

PT 2210-10A

*Kent-Moore
Heavy Duty Division
SPX Corporation*

*29784 Little Mack
Roseville, MI 48066-2298*

*1-800-328-6657 (USA, Canada)
Telex 244040 KMTR UR
Fax 313-774-9870*