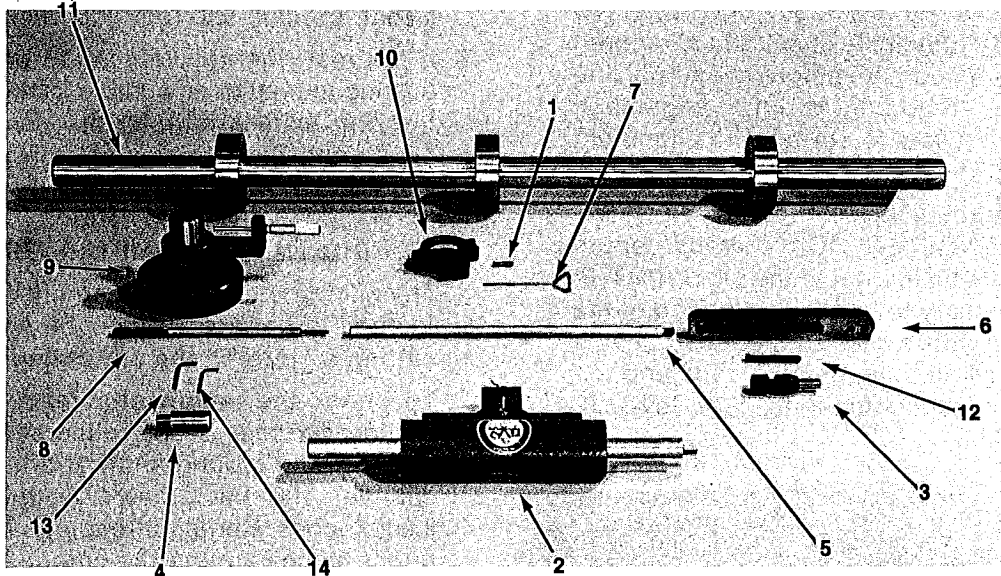


Instructions for use of PT-1200

UNIVERSAL LINE BORING TOOL

READ CAREFULLY BEFORE USING

The PT-1200 UNIVERSAL LINE BORING TOOL is actually a combination main bearing alignment checking bar and boring tool designed for use in the repair of diesel engine blocks; and if used in conjunction with the Main Bearing Saddle Repair Kits — a tool for salvaging diesel engine blocks. The PT-1200 is designed especially for use on truck engine blocks. Centering and test ring groups for working on the truck engines are available, but not included with this tool.



DET #	PART #	PART DESCRIPTION		
1	PT-1000-003	Cutter (1 1/4")	PT-1000-061	Ring Group (3.8125) DD 6'71
	*PT-1000-014	Steel Box	PT-1000-062	Ring Group (4.8125) DD 8V'71/92
2	PT-1000-016	Feed Unit	PT-1000-064	Ring Group (4.0620) Cum 903
3	PT-1000-020	Universal Drive	PT-1000-065	Ring Group (5.8460) Cum K6
4	PT-1000-023	Drive Adapter	PT-1000-066	Ring Group (3.5020) (Cum 4-5/8 V6/8 Val-Vale)
5	PT-1000-024	Torsion Bar	PT-1000-067	Ring Group (3.2525) DD 4'53
6	PT-1000-025	Torsion Bar Bracket	PT-1000-068	Ring Group (3.7525) DD 6V'53
7	PT-1000-036	Cutter Key	PT-1000-069	Ring Group (4.2515) MACK 673/675
8	PT-1000-038	Knurl Handle Wrench	PT-1000-076	Ring Group (4.3170) MACK 864
9	PT-1000-050	Micrometer Base Assy	PT-1000-086	Ring Group (3.6885) IHC DT-466
10	PT-1000-055	Large Cutter Holder	PT-1400-034	Ring Group (3.7070) (CAT 4.50 V8p1673 1100/1300)
11	PT-1000-057	Line Bore Bar		
	*PT-1500-002	Setting Standard	PT-1400-035	Ring Group (3.8155) (CAT 4.75 4 & 6 1674)
12	PT-10012	Sq. Hd Set Bolt	PT-1400-036	Ring Group (5.1338) (CAT 5.40 V8-90° 1693)
13	PT-16005	Hex Key (5/32")	PT-1400-037	Ring Group (5.6340) (CAT 5.40 V8, V12, V16-60 3406)
14	PT-16008	Key Key (1/8")		
AVAILABLE ACCESSORIES ADDED TO "PT-1200"				
	PT-1000-008	Ring Group (4.2520) DD 110		
	PT-1000-009	X-Small Cutter Holder		
	PT-1000-048	Upright Bearing Assy		
	PT-1000-056	Line Bore Bridge		
	PT-1000-058	Upright Bearing Stop		
	PT-1000-060	Ring Group (4.7500) (CUM 5-1/8 NH, 5 1/2 NH)		
			CAT	Caterpillar
			Cum	Cummins
			DD	Diesel Allison
			IHC	International Harvesters
			MACK	Mack Truck

*NOT SHOWN



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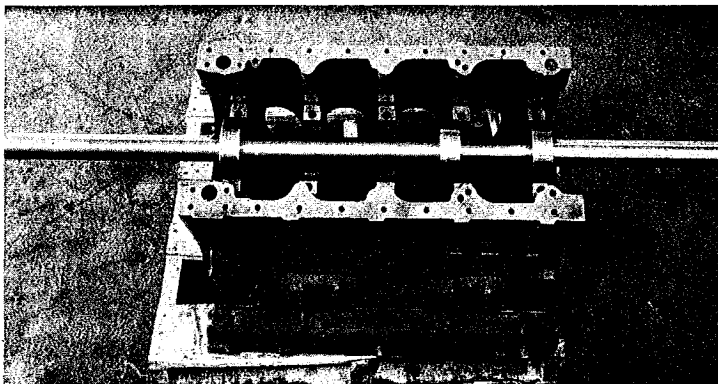
PREPARATION OF ENGINE BLOCK

1. Remove all burrs and irregularities from the engine oil pan ledge and from each side of the main bearing journals.
2. The cylinder block should be cleaned: Allow the Line Boring Tool to stabilize to room temperature.
3. Check each bore diameter with a dial bore gauge. Damaged caps can easily be replaced with semi-finished caps; SEE ENGINE SHOP MANUALS.
4. Plug all oil hole passages with thick grease to prevent metal chips from entering passages.

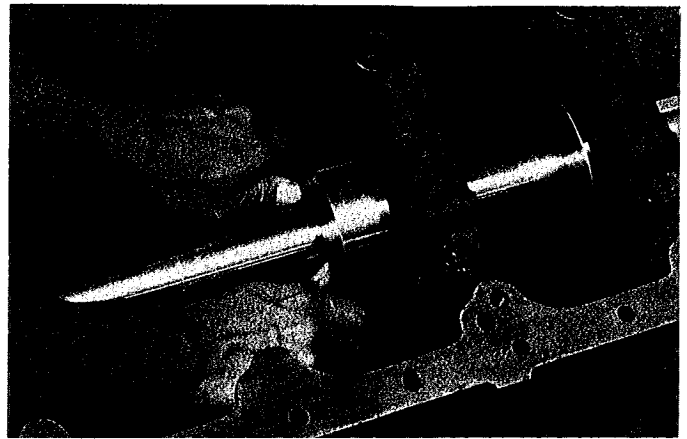
CHECKING ALIGNMENT OF THE MAIN BEARING BORES

A unique feature of the "PT-1200" LINE BORING TOOL is its ability to quickly check the alignment of the main bearing journals before the actual line boring operation. If a journal is out of alignment, line boring is necessary to correct the alignment in relationship to the other bearing journals.

1. After following the instructions for "PREPARATION OF THE ENGINE BLOCK" install a centering ring in each end journal of the block. (NOTE: It may be necessary to lightly tap the top of the centering ring with a plastic mallet to seat it properly.) Install all main bearing caps and torque to required specifications, SEE ENGINE SHOP MANUALS.



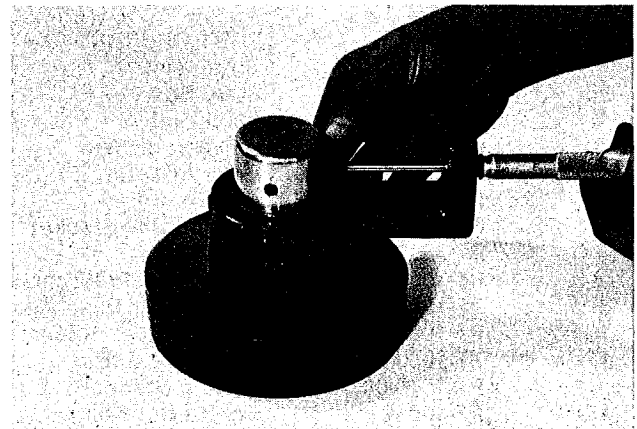
2. Apply a coat of oil in the centering ring bores, on both diameters of the test ring, and on the entire length of the line boring bar for lubrication.
3. Rotating the boring bar slowly, slide the bar through one centering ring and slip on the test ring. Pass the boring bar through the remaining bearing journals and the other centering ring.
4. While slowly rotating the bar, push the test ring (by applying light finger pressure against the test ring on both sides of the boring bar) through each main bearing journal.



5. If the test ring will not pass through a bearing journal, check for burrs around the journal. But if the test ring refuses to pass through a majority of the journals move the centering rings to different journals and repeat procedure.
6. If the test ring still refuses to pass through a bearing journal or an audible click is heard when the ring exits a journal; the journal is out-of-alignment. Be sure to mark the journals to be salvaged.

CHECKING THE MICROMETER SETTING

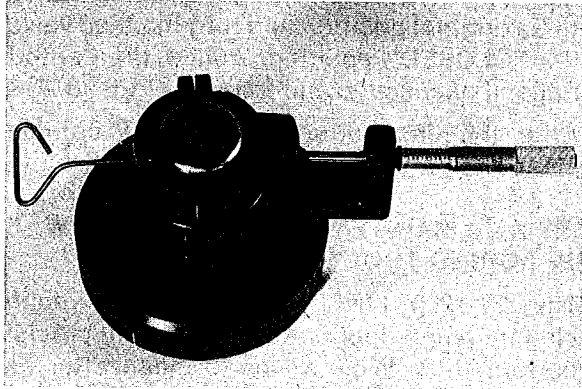
1. The Micrometer Base Assembly is preset at the factory; but should always be checked before setting a cutter in the cutter holder.
2. To check the micrometer reading, insert the ground surfaces of the round setting standard between the ground shaft and the micrometer spindle. The micrometer reading should be 3.000 inches. Compare readings from three different places around the chromed shaft.



3. If adjustment of the micrometer is necessary, loosen the screw holding the micrometer in place and position micrometer (by sliding micrometer in or out of holder) until a 3.000 inch reading is obtained. Tighten screw.
4. Recheck the micrometer reading by backing off the micrometer and again turning the spindle against the setting standard. Again be sure to compare the micrometer readings in three different places around the chromed shaft.

SETTING CUTTER TO REQUIRED BORE SIZE

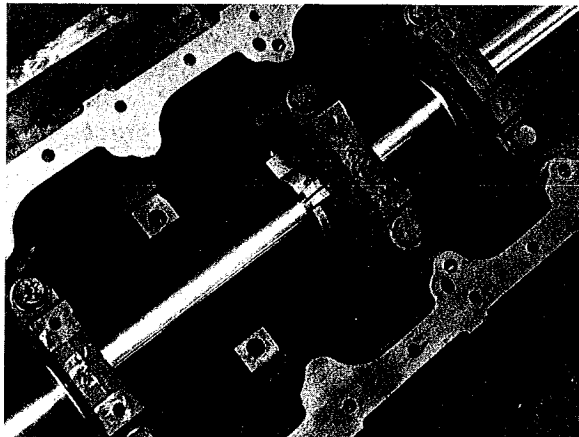
1. Using the Micrometer Assembly, install appropriate cutter holder onto the ground chromed shaft aligning the hole for the cutter with the corresponding hole in the chromed shaft (scribed lines on the shaft and cutter holder will easily identify hole locations). Be sure to keep the gap at both ends of the cutter holder identical when tightening the cutter holder onto the shaft.



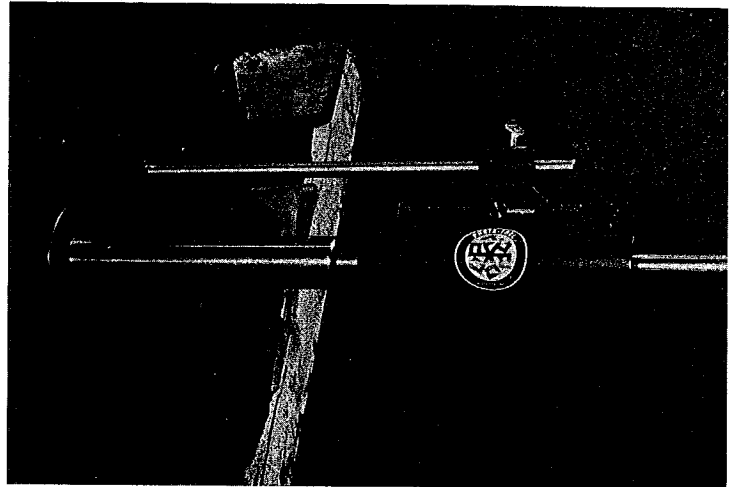
2. Insert the appropriate cutter into the cutter holder, making sure it is short enough so it doesn't extend into the chrome shaft. Adjust micrometer to the required specifications, see ENGINE SHOP MANUALS. Now, using the cutter key, push cutter lightly against the micrometer spindle and tighten the screws to lock the cutter in position. (IMPORTANT!!! When positioning cutter be careful to just touch the micrometer spindle or the carbide tip may be damaged!!!)
3. Recheck the cutter setting by backing off micrometer spindle and gently contacting the carbide tip. (IMPORTANT!!! Carbide tip may chip if the micrometer spindle is swept across it.)

MOUNTING FEED UNIT TO THE ENGINE BLOCK

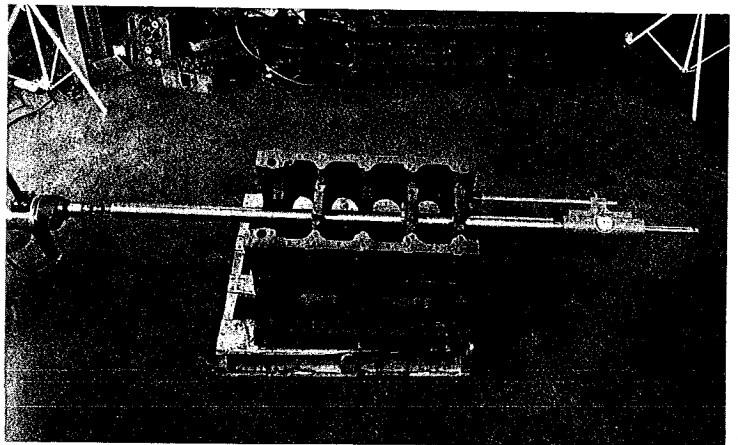
1. After following the procedures for "PREPARATION OF THE ENGINE BLOCK", insert the centering rings placing one in an adjacent bearing journal to the journal to be bored and the other in the end journal next to where the feed unit will be mounted.



2. Oil the centering ring bores and the entire length of the boring bar. While slowly rotating the boring bar, slide the bar through the centering ring bores and through the engine block. After the bar is slid through the bearing journals and centered in the engine block, bolt the torsion bar bracket (through the slotted hole) loosely onto the engine block opposite the end from which the boring bar will be driven with the hand drill.



3. Insert the torsion bar into the threaded hole at the end of the torsion bar bracket and thread the Square Head Set Bolt into the remaining hole.
4. Install the feed unit into the boring bar locking it in position by tightening the set screw at the end of the bar. Slide the feed unit onto the torsion bar and tighten the Square Head Set Bolt (hand tight). The boring bar must slide in and out of the block easily after these tightening operations.



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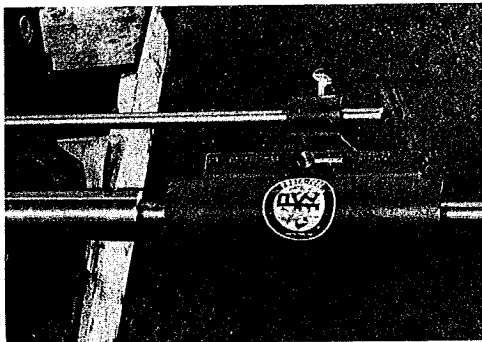
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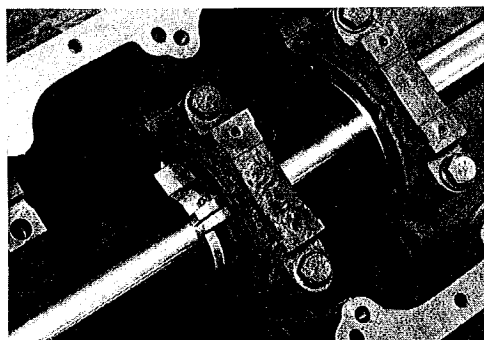
PORTA-TOOL
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CUTTING THE MAIN BEARING JOURNALS

1. After mounting the feed unit to the engine block and locking the feed shaft into the boring bar, turn the valve on the feed unit to the "OPEN" position and move the feed unit towards the block. Tighten the thumb screw on the feed unit to secure it to the torsion bar and tighten the Square Head Set Bolt in the torsion bracket to stabilize the feed unit. Now slide the boring bar through the block until the feed unit stops the movement of the bar and turn the valve on the feed unit to the "CLOSED" position.



2. Install the drive adapter with the 1/2" end out of the boring bar and lock in position with the set screw. Chuck the universal drive in with a 1/2" heavy-duty right hand rotation hand drill (450-500 RPM).
3. After following the instructions for "Setting the Cutter to Bore Size" wipe the boring bar and the cutter holder clean and position the cutter holder on the boring bar next to the journal to be cut (Note direction of travel). To assemble the cutter holder place the lower half of the cutter holder over the socket head cap screws, then slip the halves together and tighten screws.



4. Always compare the tip of the cutter with the journal bore while turning the boring bar by hand to insure correct setting. CAUTION: Always double check cutter specifications before boring, make sure boring bar is well-lubricated during all boring operations, and do not use lubricant on the cutter!!!

5. Attach the hand drill and universal drive to the drive adapter and bore the bearing journal. CAUTION: Do not push the drill, allow the feed unit to regulate the feed of the cutter!!! After boring out the journal check the bore size with a dial gauge.
6. To cut the next journal, remove the cutter holder from the boring bar and turn the feed valve to the "OPEN" position. Push the boring bar back to its original position and turn the feed valve to the "CLOSED" position. Adjust the centering rings, if necessary, and follow STEPS #3, 4, & 5.
7. After the line boring operation is complete, clean the engine block thoroughly.

CARE AND MAINTENANCE OF YOUR NEW LINE BORING TOOL

1. The PT-1200 LINE BORING TOOL requires cleaning and lubrication to obtain precision performance. Wipe all parts clean after each use and coat with a thin film of lightweight oil to prevent rust and corrosion during storage. Do not drop or damage any part of the tool as this may cause difficulty in obtaining true finished bores.
2. Remove the snap ring and the micrometer holder from the Micrometer Base Assembly and clean the preservative from all parts; oil lightly with clean oil. Install the micrometer holder and snap ring. Adjust the socket head cap screw until the holder becomes tight on the chromed shaft, then loosen the screw until the holder moves with a slight drag.
3. Keep the cutter honed to prevent chattering during the boring operations!!! To help keep the cutter in excellent condition we recommend the PT-7180 PORTA-BIT SHARPENER designed especially to hone the cutter back to the original angles.
4. The line bore feed unit must always be completely filled with oil to prevent cutter chatter or erratic feed. To fill the unit with oil, place the feed unit in a level position and pull the shaft all the way back. Now remove the plug nearest the shortest exposed part of the feed shaft and fill with 30W Non-Detergent Oil, replace plug. Push the feed shaft to the opposite side and remove the remaining plug, fill with oil and replace plug. Continue repeating procedure until all air bubbles in the oil disappear.

For Warranty or Repairs send to:

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