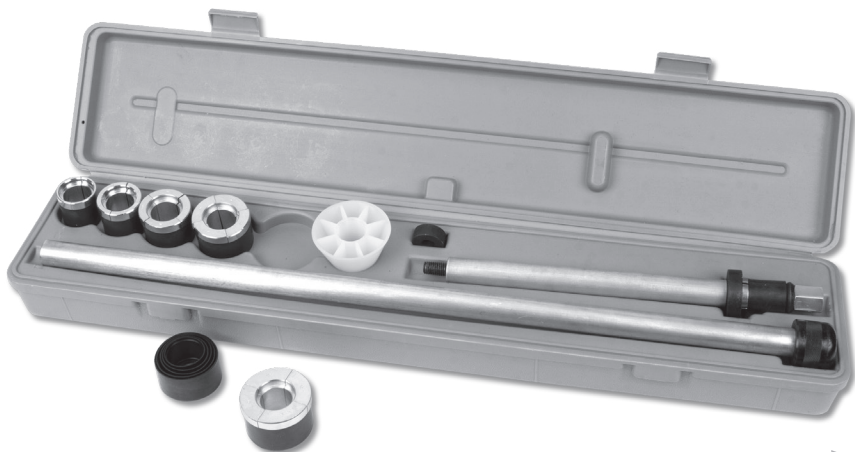


CAMSHAFT BEARING TOOL

Item Number W89220

OWNER'S MANUAL



▲WARNING

It is the owner and/or operators' responsibility to study all WARNINGS, operating, and maintenance instructions contained on the product label and instruction manual prior to operation of this product. The owner/operator shall retain product instructions for future reference.

The owner and/or operator are responsible for maintenance, maintaining all decals or warning labels and while in use, maintaining the unit in good working order. If the owner and/or operator are not fluent in English, the product warnings and instructions shall be read and discussed with the operators' native language by the purchaser/owner or his designee. Make sure that the operator comprehends its contents. Safety information shall be emphasized and understood prior to usage. The product shall be inspected per the operating instructions.

Users of this product must fully understand these instructions. Each person operating this product must also be of sound mind and body and must not be under the influence of any substance that might impair their vision, dexterity or judgment.

Protect yourself and others by observing all safety information.

Failure to comply with instructions could result in personal injury and/or property damage!

If you encounter any problems or difficulties, please contact our customer service department at: 1-800-426-1262 between 6:30 a.m. and 4:30 p.m. Pacific time.

Please read these instructions carefully and retain them for future use.



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Performance Tool®

SAFETY GUIDELINES / DEFINITIONS

PRIOR TO USING THIS PRODUCT, READ AND UNDERSTAND ALL INSTRUCTIONS AND SAFETY PRECAUTIONS AS OUTLINED IN THE VEHICLE MANUFACTURER'S MANUAL AND ENGINE DIAGNOSTIC/REPAIR MANUALS. This instruction manual is intended for your benefit. Please read and follow the safety, installation, maintenance and troubleshooting steps described within to ensure your safety and satisfaction. The contents of this instruction manual are based upon the latest product information available at the time of publication. The manufacturer reserves the right to make product changes at any time without notice.

▲ WARNING: Read and understand this entire instruction manual before attempting to assemble, install, operate or maintain this product. Failure to comply with the instructions may result in serious personal injury and/or property damage!

The following signal words are used to emphasize safety warnings that must be followed when using this product:

▲ DANGER Indicates an imminently hazardous situation that, if not avoided, WILL result in death or serious injury.

▲ WARNING Indicates a potentially hazardous situation that, if not avoided, COULD result in death or serious injury.

▲ CAUTION Indicates a potentially hazardous situation that, if not avoided, MAY result in minor or moderate injury.

▲ NOTICE Indicates important information, which if not followed, MAY cause damage to equipment.

▲ WARNING DO NOT operate this product if damaged during shipment, handling or misuse. Before each use, inspect the general condition of the tool. Check for cracks, breaks, or bends in the equipment and any other condition that may affect its safe operation. If a problem occurs with the equipment, immediately discontinue its use and have the problem corrected before further use. Do not use damaged equipment. If you have any questions, or require assistance with damaged or missing parts, please contact our factory customer service department at: 1-800-426-1262.

Please have the serial number, model number, and date of purchase available for reference when calling.

IMPORTANT SAFETY INFORMATION

▲ WARNING
READ, UNDERSTAND AND FOLLOW ALL INSTRUCTIONS AND WARNINGS BEFORE OPERATING THIS PRODUCT. FAILURE TO DO SO MAY RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE AND WILL VOID WARRANTY.

1. KEEP WORK AREA CLEAN AND DRY. Cluttered, or wet work areas invite injuries.
2. KEEP CHILDREN CLEAR OF WORK AREA. Do not allow children to handle this product.
3. STORE IDLE EQUIPMENT. When not in use, tools and equipment should be stored in a dry location to inhibit rust.
4. DO NOT USE THIS PRODUCT IF UNDER THE INFLUENCE OF ALCOHOL OR DRUGS. Read warning labels on prescriptions to determine if your judgment or reflexes are impaired while taking drugs. If there is any doubt, do not attempt to use this product.
5. USE EYE PROTECTION. Wear ANSI approved safety glasses when using this or any other testing equipment.
6. DRESS SAFELY. Non-skid footwear or safety shoes should be worn. Do not wear loose clothing or jewelry as they can become caught in moving parts. Wear a protective hair covering to prevent long hair from becoming caught in moving parts.
7. DO NOT OVERREACH. Keep proper footing

- and balance at all times to prevent injury,
8. STAY ALERT. Use common sense and watch what you're doing at all times. Do not use this product when you are tired or distracted from the job at hand.
9. CHECK FOR DAMAGED PARTS. Before using this product, check for damaged parts and any other conditions that may affect the operation of this product. Insure that it will operate properly and perform its intended function. Replace or repair damaged or worn parts immediately.
10. MAINTAIN THIS PRODUCT WITH CARE. Keep this tool clean and dry after each use for better and safer performance.
11. USE THE RIGHT PRODUCT FOR THE RIGHT JOB. There are certain applications for which this product was designed. Do not use small equipment, tools or attachment to do the work of larger industrial equipment, tools or attachments. Do not use this product for a purpose for which it was not intended.

OPERATION

Determine the size of the bearing I.D.

1. First choose the correct expanding driver from the listing below. Place the expanding driver onto the expander assembly. Be sure to line up each of the segments of the driver with the separations on the expander assembly. Lubricate the smooth side of the rubber sleeve to help with putting the driver on the expander.

Bearing Inside Diameter	Driver #	Washer
1.125 to 1.475	Expander Only	1-1/4"
1.475 to 1.700	No. 1	1-1/4"
1.700 to 1.925	No. 2	1-3/4"
1.925 to 2.150	No. 3	1-3/4"
2.150 to 2.375	No. 4	1-3/4"
2.375 to 2.690	No. 5	1-3/4"

2. Next place the nylon centering cone over the driving shaft. Now screw the expander assembly and driving washer from above on to the shaft. The kit comes with a driver shaft extension; this may be needed for removal of the rear bearings.
3. Place the expander assembly into the front of the block and tighten the expander on the first bearing for removal, typically the front of block is done first. Be sure to tighten until snug in the bearing.
4. Center the cone in first bearing housing and drive bearing out. Loosen the expanding driver assembly to relieve pressure and pull tool back through the next bearing to be driven. Repeat the processes above until all bearings are removed.

▲NOTICE: Some blocks have a sealed cam valley making the camshaft inaccessible except from the ends. In these cases use a socket and extension to enlarge and reduce the expander assembly while you remove, or install each bearing.

INSTALLATION INSTRUCTIONS

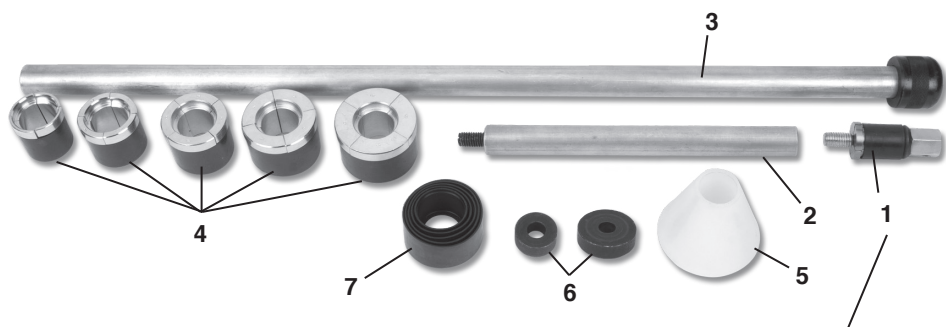
1. The expander assembly needs to be reduced before installing the new bearings. Be sure separation lines are aligned, referenced in the bearing removal section above.
2. Insert the tool from the front of the block through the cam bearing housings until it's in front of the rear bearing housing. Now place the new bearing on the expanding driver and tighten until the bearing is held firmly in place.

▲NOTICE: Make sure the oil feed holes in the bearings are in the proper location, refer to the Manufacturer's specifications.

Some blocks have oil holes in the bearing receiver ports that need to be lined up for proper lubrication.

3. With the nylon centering cone in place at the first housing drive the bearing into place. Repeat this step until all bearings are driven except the front or first bearing. To drive the number one bearing, you need to move to the rear of the engine. Again use the nylon centering cone in the first bearing housing at the rear of the block.

PARTS LIST



1. Expander Assembly
2. Short Driver Shaft
3. Driver Shaft Extension
4. Expanding Bearing Drivers
5. Nylon Centering Cone
6. Driver Washers
7. Replacement Rubber Sleeves

Expander Components



1 YEAR LIMITED WARRANTY

PERFORMANCE TOOL® extends only the following warranties, and only to original retail purchasers. These warranties give specific legal rights. Except where prohibited by local law, the law of the State of Washington governs all warranties and all exclusions and limitations of warranties and remedies. There may be other rights which vary from state to state.

PERFORMANCE TOOL® warrants the product to be free from defects in materials and workmanship under normal use and service. A defective product may be returned for a free replacement within 90 days from the date of purchase, provided that product is returned to place of purchase immediately after discovery of defect. After 90 days and up to one year from date of purchase, PERFORMANCE TOOL® will replace at no charge any parts which our examination shall disclose to be defective and under warranty. These warranties shall be valid only when a sales receipt showing the date of purchase accompanies the defective product or defective part(s) being returned. For part(s) after 90 days, please remit your request, postage prepaid to:

PERFORMANCE TOOL, P.O. Box 88259 Tukwila, WA 98138

These warranties exclude blades, bits, punches, dies, bulbs, fuses, hoses, and other consumables which must be replaced under normal use and service. These warranties shall not apply to any product or part which is used for a purpose for which it is not designed, or which has been repaired or altered in any way so as to affect adversely its performance or reliability, nor shall these warranties apply to any product or part which has been subject to misuse, neglect, accident or wear and tear incident to normal use and service.

PERFORMANCE TOOL® does not authorize any other person to make any warranty or to assume any liability in connection with its products.

Except for warranties of title and the limited express warranties set forth above, PERFORMANCE TOOL® makes no express or implied warranties of any kind with respect to its products. In particular, PERFORMANCE TOOL® makes no implied warranty of merchantability and no implied warranty of fitness for any particular purpose, except that for goods purchased primarily for personal, family or household use and not for commercial or business use, PERFORMANCE TOOL® makes an implied warranty of merchantability (and, if otherwise applicable, an implied warranty of fitness for a particular purpose), but only for the particular qualities or characteristics, and for the duration, expressly warranted above. The laws on limitation of implied warranties may differ from state to state, so the above limitations may not apply in all cases.

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