

COLT 2310, 2510, AND 2712 COMPACT TRACTORS

CHAPTER 5

PISTON RINGS – CONNECTING ROD

AND CRANKSHAFT

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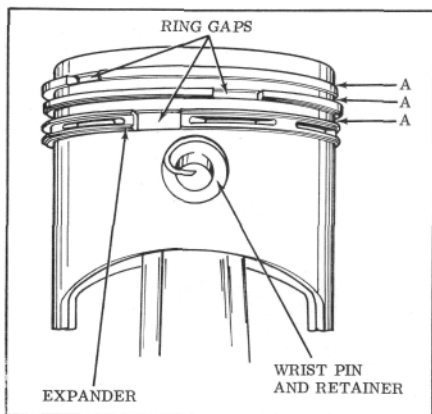


Figure 5-A-1

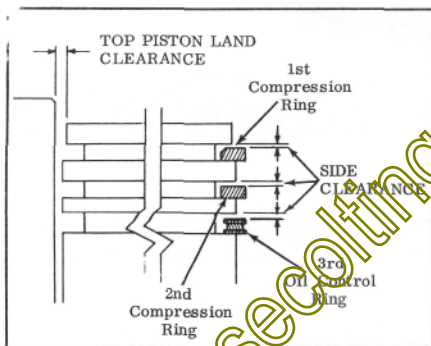


Figure 5-A-2

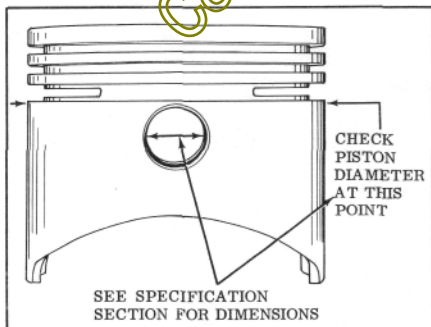


Figure 5-A-3

5-A-1 Stagger the piston ring gaps 90° apart when installing piston and ring assembly in cylinder.

The wrist pin retainer must be seated in the groove. Move the wrist pin if necessary. Failure to correctly seat the retainer may result in costly repairs.

The wrist pin is a palm press fit. If loose check connecting rod for seizing. Replace piston and wrist pin if loose.

See Figures 5-B-1, 5-B-2, and paragraphs 5-B-1, 5-B-2.

5-A-2 Check the side clearance of the ring in the groove using a feeler gauge, see Figure 5-A-2. If excessive, replace the piston. See Specifications Section for dimensions.

5-A-3 Check piston diameter on the top of the skirt, just below the oil ring groove. Check at 90° to center line of wrist pin hole. This is a cam ground piston and the diameter will not be the same when checked at another point.

Pistons and rings are available in either .010 or .020 oversize.

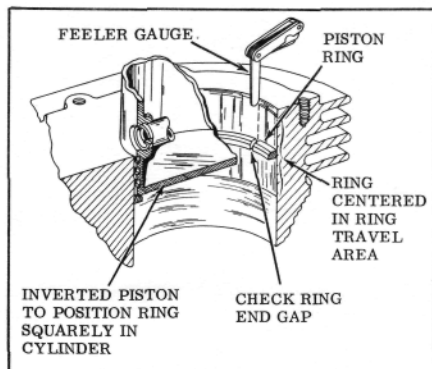


Figure 5-B-1

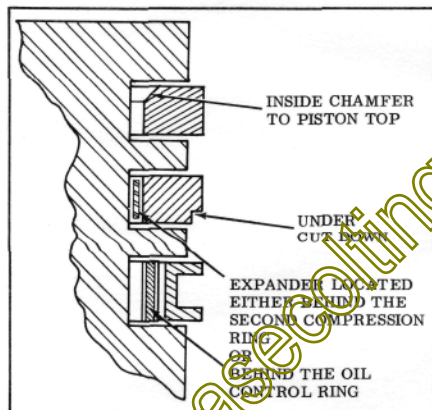


Figure 5-B-2

5-B-1 Before installing the rings, insert each ring into the cylinder bore to check the end gap. This gap check should be made in a worn cylinder, a reconditioned cylinder and a new cylinder.

An inverted piston should be used to push the ring into the cylinder to a point that would be the center of ring travel. The ring travel area will be the most worn area in a used cylinder. Insert the piston ring into the cylinder and place the top side of the piston on the ring to position the ring squarely in the bore. Measure the end gap by inserting a feeler gauge between the ring ends. Check each ring using the same procedure.

The end gap dimensions are shown in the specification division of this manual. If end gap is greater than the maximum specification then the cylinder must be measured and perhaps bored oversized. If the end gap is too small, carefully remeasure the bore for undersize dimension and enlarge if necessary.

5-B-2 Only correct piston ring installation will assure full power. Carefully note the ring sequence when removing the worn rings from the piston. Note especially the ring expander, as it may be found either behind the second (compression) ring or behind the third (oil control) ring.

Although piston rings are installed correctly, they will not perform unless the piston and cylinder are reconditioned. Clean and check the ring grooves for wear as per paragraph 5-A-1. Deglaze the cylinder bore with a fine abrasive cloth; this will aid in the seating of the rings.

When reinstalling the rings note the marks on the first and second rings indicating the top of the ring. Stagger the ring end gaps to prevent compression loss. Use plenty of A.P.I. M.S. rated oil to lubricate all friction surfaces during engine reassembly.

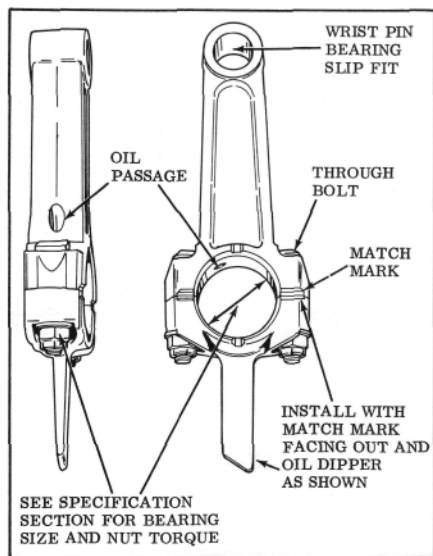


Figure 5-C-1

5-C-1 When reinstalling a used connecting rod **ALWAYS** use new nuts on the bolts. These are locking nuts and it is inexpensive insurance that the torque will be retained when the connecting rod is replaced.

This connecting rod must be installed with the match mark facing out of the cylinder, toward the P.T.O. end of the crankshaft. This will assure the correct positioning of the oil dipper. Install as illustrated.

The heads of the through bolts must be seated tight against the machined shoulder on the connecting rod. Failure to check this may result in a false torque reading and premature failure.

IMPORTANT - Torque to correct specifications. 110 inch pounds.

NOTE - Before installing, clean the connecting rod bearing surfaces with a clean cloth. Rods are coated with lead which will slightly oxidize in storage and this oxidation must be removed.

5-C-2 Torque to correct specifications — 110-inch pounds. After initial torque use a drift and a hammer (13 oz.) and strike the rod bearing cap above each lock nut. This will seat the cap releasing some torque on the lock nuts. Retorque lock nuts to specifications.

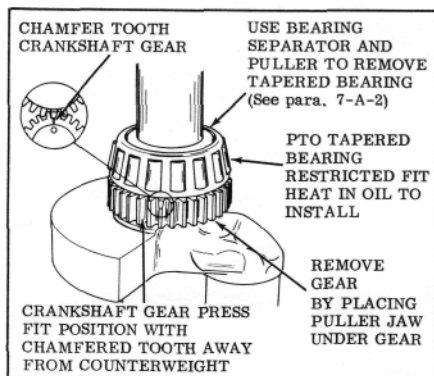


Figure 5-D-1

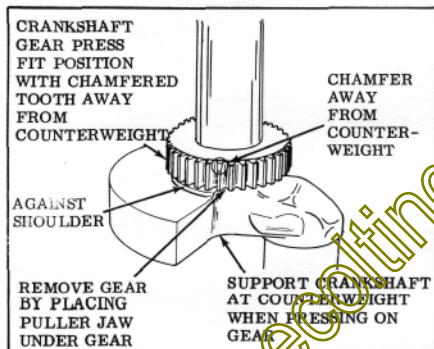


Figure 5-D-2

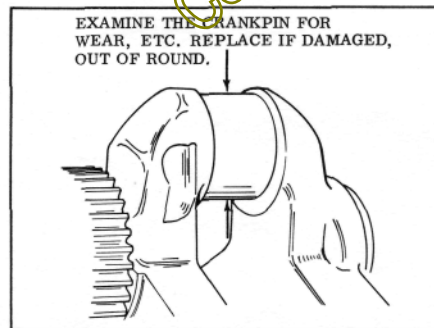


Figure 5-D-3

5-D-1 Note the chamfer tooth on the crankshaft gear. This tooth is used as a reference mark to be matched with the timing mark on the camshaft. See paragraph 6-B-3.

The crankshaft gear is replaceable. Remove gear with a conventional puller after the roller bearing has been removed. The gear and the bearing may be removed simultaneously but much difficulty may be encountered. See paragraph 7-A-2.

Roller bearing must be heated before it is installed. See correct procedure in paragraph 7-A-3.

5-D-2 Use an arbor press and suitable driver to press gear into position. Key way in gear is to fit over gear pin and beveled tooth must face P.T.O. end of crankshaft. Gear must fit tightly against shoulder.

5-D-3 Crankpins should be examined for wear, scoring, out of round. If any of these conditions are noted replace the crankshaft. See specifications, Section 10.

Lubricate the crankpin generously before attaching the connecting rod. This will prevent damage during the initial run-in after reassembly.