Pistons and Connecting Rods - Assemble

SMCS - 1225-016

Assembly Procedure

Table 1

<table>
<thead>
<tr>
<th>Tool</th>
<th>Part Number</th>
<th>Part Description</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6V-6192</td>
<td>Pliers</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>7M-3978 (1) or 149-7179 (2)</td>
<td>Ring Expander</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>5P-8639</td>
<td>Hydraulic Press (Connecting Rod Bearing)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>8F-0024</td>
<td>Hose Assembly</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1P-2375</td>
<td>Connecting Coupler</td>
<td>1</td>
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<tr>
<td></td>
<td>1P-2376</td>
<td>Connecting Coupler</td>
<td>1</td>
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<tr>
<td></td>
<td>5P-8651</td>
<td>Spacer</td>
<td>1</td>
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<td></td>
<td>5P-8649</td>
<td>Adapter</td>
<td>1</td>
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<tr>
<td></td>
<td>8P-8650</td>
<td>Bushing Adapter</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>9U-6600</td>
<td>Hydraulic Pump</td>
<td>1</td>
</tr>
</tbody>
</table>

(1) Use with C-15 Engines
(2) Use with C-16 Engines

Note: Prior to removal from the engine, the pistons and connecting rod assemblies were marked. The components must be reassembled together. The components must be installed in the original location in the engine. Do not interchange any of the components.

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.
1. Install a new piston pin bearing (4) in connecting rod (6) and remove the old piston pin bearing, as follows:

**NOTICE**

The connecting rod must be heated for the installation of the piston pin bearing. Do not use a torch.
a. Heat Length (Y) of connecting rod (6) to a temperature of 175 to 260 °C (347 to 468 °F).

(Y) Maximum Length for heating the connecting rod ... 85 mm (3.4 inch)

b. Use Tooling (C) to remove the old bearing and install the new bearing at the same time. The adapter of Tooling (C) should make full contact with the surfaces of the connecting rod.

**Note:** Orient the bearing joint within ± 5 degrees of either Location (X).

c. Allow the connecting rod and the bearing to cool to room temperature.

2. Use a pin boring machine to machine the bore of the piston pin bearing to the correct diameter.

Diameter of piston pin bore ... 55.035 ± 0.008 mm (2.1667 ± 0.0003 inch)
3. Check the clearance between the ends of piston rings (1), (2), and (3). Refer to the Specifications Manual, "Pistons And Rings" for the specifications.
4. Install oil ring spring (3) in the oil ring groove of the piston.

5. Position oil ring (3) over the oil ring spring. Position the oil ring so that the gap is 180 degrees from the joint in the oil ring spring. Install the oil ring on the piston with Tooling (B).

6. Use Tooling (B) to install intermediate piston ring (2) with the side that has the identification "UP-2" toward the top of the piston.

7. Use Tooling (B) to install top piston ring (1) with the side that has the identification "UP-1" toward the top of the piston.

8. Position piston rings (1), (2), and (3) so the gaps are 120 degrees from each other.


10. Put the piston in position on connecting rod (6). Apply clean engine oil to piston pin (9) and install the piston pin. Install retainer rings (8) with Tooling (A). Make sure that the retainer rings are fully seated in the grooves of the piston.

11. Install connecting rod bearings (10) in connecting rod (6) and connecting rod cap (11). Make sure that the bearings are installed so that the bearing tabs fit into the notches in the connecting rod and in the connecting rod cap.

12. Install dowel (12) in connecting rod cap (11).

End By: Install the pistons and connecting rods. Refer to the Disassembly and Assembly Manual, "Pistons and Connecting Rods - Install" for the procedure.