### Chapter 36

**SPECIAL TOOLS**

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36-10 Special Tools

The following is a list of Robinson R22-series special tools.

R22-series special tools are to be used in conjunction with the applicable instructions for continued airworthiness, for their designated maintenance task.
36-20 Illustrations and Tasks

Refer to Figure 36-1.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MT016-1</td>
<td>Engine Hoist</td>
</tr>
<tr>
<td>2</td>
<td>MT050-1</td>
<td>Main Rotor Rigging Fixture</td>
</tr>
<tr>
<td>3</td>
<td>MT050-2</td>
<td>Tail Rotor Rigging Fixture</td>
</tr>
<tr>
<td>4</td>
<td>MT053-1</td>
<td>Main Gearbox Drain Assembly – Thread Type Chip Detector</td>
</tr>
<tr>
<td>5</td>
<td>MT054-1</td>
<td>Main Gearbox Drain Assembly – Quick Disconnect Chip Detector</td>
</tr>
<tr>
<td>6</td>
<td>MT068-1</td>
<td>Horizontal Stabilizer Rigging Tool</td>
</tr>
<tr>
<td>7</td>
<td>MT091-1</td>
<td>Holder – Engine Ring Gear (includes MT091-3 decal)</td>
</tr>
<tr>
<td>8</td>
<td>MT091-3</td>
<td>Decal (torquing instructions)</td>
</tr>
</tbody>
</table>

FIGURE 36-1 SPECIAL TOOLS
36-20 Illustrations and Tasks (continued)

Refer to Figure 36-2.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MT092-1</td>
<td>Fan Puller (includes MT092-3 spacer)</td>
</tr>
<tr>
<td>2</td>
<td>MT092-3</td>
<td>Spacer – Fan Puller</td>
</tr>
<tr>
<td>3</td>
<td>MT122-1</td>
<td>Main Rotor Hub, Bolt Elongation (teeter hinges &amp; A154-1 hub coning hinges)</td>
</tr>
<tr>
<td>4</td>
<td>MT122-15</td>
<td>Main Rotor Hub, Bolt Elongation (B370-1 hub coning hinges)</td>
</tr>
<tr>
<td>5</td>
<td>MT146-1</td>
<td>Blocks – Swashplate Rigging (set of 2)</td>
</tr>
<tr>
<td>6</td>
<td>MT147-1</td>
<td>Bleed Tool – Main Rotor Blade Spindle</td>
</tr>
<tr>
<td>7</td>
<td>MT173-4</td>
<td>Socket – 1-11/16 (3/4-inch drive, 12-point)</td>
</tr>
<tr>
<td>8</td>
<td>MT173-5</td>
<td>Torque Wrench Extension – Tool Set (no longer available)</td>
</tr>
<tr>
<td>9</td>
<td>MT173-6</td>
<td>Tube Weldment (no longer available)</td>
</tr>
<tr>
<td>10</td>
<td>MT173-7</td>
<td>Socket – 1-1/2-inch (3/4-inch drive, 12-point)</td>
</tr>
<tr>
<td>11</td>
<td>MT173-8</td>
<td>Socket – 2-inch (3/4-inch drive, 12-point)</td>
</tr>
</tbody>
</table>
Refer to Figure 36-3.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MT179-4</td>
<td>Balancing Bar – Tail Rotor Assembly Static Balance</td>
</tr>
<tr>
<td>2</td>
<td>MT200-1</td>
<td>Dial Indicator</td>
</tr>
<tr>
<td>3</td>
<td>MT201-1</td>
<td>Pressing Fixture – Tail Rotor Hub Bearing</td>
</tr>
<tr>
<td>4</td>
<td>MT234-1</td>
<td>Helicopter Lifting Fixture</td>
</tr>
<tr>
<td>5</td>
<td>MT260-6</td>
<td>Tail Rotor Drive Shaft Runout Attachments Kit</td>
</tr>
<tr>
<td>6</td>
<td>MT294-1</td>
<td>Collective Spring Retainer</td>
</tr>
</tbody>
</table>

FIGURE 36-3  SPECIAL TOOLS
Refer to Figure 36-4.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MT295-1</td>
<td>Tail Rotor Gearbox Output Shaft Seal Replacement Tools (includes items 2, 3, 4, and Figure 36-9 item 5)</td>
</tr>
<tr>
<td>2</td>
<td>MT295-3</td>
<td>Punch</td>
</tr>
<tr>
<td>3</td>
<td>MT295-6</td>
<td>Screw</td>
</tr>
<tr>
<td>4</td>
<td>MT295-10</td>
<td>Mandrel</td>
</tr>
<tr>
<td>5</td>
<td>MT303-1</td>
<td>Clutch Bearing (A184) Removal and Installation Tools</td>
</tr>
<tr>
<td>6</td>
<td>MT303-3</td>
<td>Clutch Bearing (A184) Removal and Installation Tools (use with MT303-1 tools when hydraulic press is unavailable)</td>
</tr>
</tbody>
</table>

**FIGURE 36-4 SPECIAL TOOLS**
Refer to Figure 36-5.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MT329-1</td>
<td>Plug Assembly (A648-1 or A648-3 Bearings)</td>
</tr>
<tr>
<td>2</td>
<td>MT329-2</td>
<td>Support Weldment (A154-1 Hub)</td>
</tr>
<tr>
<td>3</td>
<td>MT329-8</td>
<td>Plug – Main Rotor Hub Bearing Installation</td>
</tr>
<tr>
<td>4</td>
<td>MT329-10</td>
<td>Tube</td>
</tr>
<tr>
<td>5</td>
<td>MT329-11</td>
<td>Plug Assembly (A648-2 Bearings)</td>
</tr>
<tr>
<td>6</td>
<td>MT329-13</td>
<td>Support Weldment</td>
</tr>
<tr>
<td>7</td>
<td>MT331-4</td>
<td>Sheave Alignment Bar</td>
</tr>
<tr>
<td>8</td>
<td>MT352-1</td>
<td>Main Rotor Blade Trim Tab Gage (includes MT200-1 dial indicator)</td>
</tr>
<tr>
<td>9</td>
<td>MT354-1</td>
<td>Teeter Moment Tool (no longer available; replaced by MT354-7)</td>
</tr>
<tr>
<td>10</td>
<td>MT354-7</td>
<td>Teeter Moment Tool (R22, R44, R66)</td>
</tr>
</tbody>
</table>

**FIGURE 36-5 SPECIAL TOOLS**
Refer to Figure 36-6.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MT357-1</td>
<td>0.125-inch dia. Cobalt Drill Bit</td>
</tr>
<tr>
<td>2</td>
<td>MT357-2</td>
<td>0.375-inch diameter Reamer</td>
</tr>
<tr>
<td>3</td>
<td>MT357-4</td>
<td>Hex Driver (Snap-On Part No. FABL8)</td>
</tr>
<tr>
<td>4</td>
<td>MT357-5</td>
<td>Torque Adapter (Snap-On Part No. FRDH101)</td>
</tr>
<tr>
<td>5</td>
<td>MT357-6</td>
<td>Wrench (Open end; Snap-On Part No. LTA1214)</td>
</tr>
<tr>
<td>6</td>
<td>MT357-7</td>
<td>Wrench (Box end; Snap-On Part No. XDH78A)</td>
</tr>
<tr>
<td>7</td>
<td>MT357-8</td>
<td>Nipple Chuck</td>
</tr>
<tr>
<td>8</td>
<td>MT357-9</td>
<td>Taper Gage</td>
</tr>
</tbody>
</table>

**FIGURE 36-6 SPECIAL TOOLS**
Section 36-20 Illustrations and Tasks (continued)

Refer to Figure 36-7.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MT358-1</td>
<td>0.750-inch dia. Spot-Facing Tool</td>
</tr>
<tr>
<td>2</td>
<td>MT359-1</td>
<td>Spring Scale (0-30 lb)</td>
</tr>
<tr>
<td>3</td>
<td>MT376-1</td>
<td>Blocks – Main Rotor Rigging (set; holds cyclic in neutral position)</td>
</tr>
<tr>
<td>4</td>
<td>MT526-1</td>
<td>Main Rotor Blade Trim Tab Bender (stainless steel skin)</td>
</tr>
<tr>
<td>5</td>
<td>MT526-8</td>
<td>Main Rotor Blade Trim Tab Bender (aluminum skin)</td>
</tr>
</tbody>
</table>

FIGURE 36-7  SPECIAL TOOLS
Refer to Figure 36-8.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MT556-1</td>
<td>Tail Rotor Elastomeric Bearing Replacement Tools (includes items 2 thru 4, and 7)</td>
</tr>
<tr>
<td>2</td>
<td>MT556-2</td>
<td>Mandrel Assembly</td>
</tr>
<tr>
<td>3</td>
<td>MT556-5</td>
<td>Support</td>
</tr>
<tr>
<td>4</td>
<td>MT556-6</td>
<td>Cap</td>
</tr>
<tr>
<td>5</td>
<td>MT569-1</td>
<td>Main Rotor Bolt Drilling Fixture (teeter hinge &amp; A154-1 hub coning hinge bolts)</td>
</tr>
<tr>
<td>6</td>
<td>MT569-6</td>
<td>Main Rotor Bolt Drilling Fixture (B370-1 hub coning hinge bolts)</td>
</tr>
<tr>
<td>7</td>
<td>AN4-25A</td>
<td>Bolt</td>
</tr>
<tr>
<td>8</td>
<td>AN970-4*</td>
<td>Washer – Tap Test Tool</td>
</tr>
</tbody>
</table>

* Or 1965 or later U.S. quarter dollar coin in good condition.
36-20 Illustrations and Tasks (continued)

Refer to Figure 36-9.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2020HR</td>
<td>ACES Probalancer Analyzer (or equivalent dynamic balancer)</td>
</tr>
<tr>
<td>2</td>
<td>60297-12</td>
<td>Engine Operator’s Manual (O-360 engine; refer to Lycoming Service Letter No. L114)</td>
</tr>
<tr>
<td>3</td>
<td>60297-30</td>
<td>Engine Operator’s Manual (O-320 engine; refer to Lycoming Service Letter No. L114)</td>
</tr>
<tr>
<td>4</td>
<td>9HT4441</td>
<td>Extension Bar (3/4 square drive x 8 inch)</td>
</tr>
<tr>
<td>5</td>
<td>92470A113</td>
<td>Screws (#4 x 0.75 inch)</td>
</tr>
</tbody>
</table>

FIGURE 36-9 SPECIAL TOOLS