# CS Series Impeller Shaft Assembly

## Service Parts List

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#### SINGLE STAGE PUMPS – CS, CSU SERIES

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<th>Impeller Rotation</th>
<th>Mechanical Seal Kits</th>
<th>Outboard End</th>
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</thead>
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<td>2, 3</td>
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<td></td>
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<tr>
<td>Single Stage (CS, CSU Series)</td>
<td>CSUC10B, CSUC10C, CSUC10D, CSUC10E, CSUC10F</td>
<td>CSUC20B, CSUC20C, CSUC20D, CSUC20E, CSUC20F</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Front</td>
<td>Without</td>
<td>6, 7</td>
<td>8, 9</td>
<td>27</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
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<tr>
<td>Single Stage (CS, CSU Series)</td>
<td>- - CSK-1</td>
<td>-</td>
<td>-</td>
<td>One-Piece</td>
<td>Front</td>
<td>Without</td>
<td>10, 11</td>
<td>-</td>
<td>27</td>
<td>-</td>
<td>-</td>
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<td></td>
</tr>
<tr>
<td>Two Stage (CSH, CSUH Series)</td>
<td>CSHC10B, CSHC10C, CSHC10D, CSHC10E, CSHC10F</td>
<td>CSCH20B, CSCH20C, CSCH20D, CSCH20E, CSCH20F</td>
<td>CSHK</td>
<td>-</td>
<td>CSHWB CSHWBX CSHWK</td>
<td>CSHYB, CSHYBX CSHYC, CSHYCX CSHYD, CSHYDX CSHYE, CSHYEX CSHFY, CSHFYX CSHUYB, CSHUYBX CSHUYC, CSHUYCX CSHUYD, CSHUYDX CSHUYE, CSHUYEX CSHUYF, CSHUYFX</td>
<td>One-Piece</td>
<td>Rear</td>
<td>Without</td>
<td>20, 21</td>
<td>-</td>
<td>26</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Two Stage (CSH, CSUH Series)</td>
<td>CSUHC10B, CSUHC10C, CSUHC10D, CSUHC10E, CSUHC10F</td>
<td>CSUHC20B, CSUHC20C, CSUHC20D, CSUHC20E, CSUHC20F</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>One-Piece</td>
<td>Front</td>
<td>Without</td>
<td>22, 23</td>
<td>-</td>
<td>27</td>
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<td>-</td>
<td></td>
</tr>
<tr>
<td>Two Stage (CSH, CSUH Series)</td>
<td>CSUHD</td>
<td>-</td>
<td>-</td>
<td>Rear</td>
<td>Without</td>
<td>24, 25</td>
<td>-</td>
<td>26, 27</td>
<td>-</td>
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</tbody>
</table>

**NOTE:** When ordering parts, provide the Pump, Transmission or PTO Serial Number.
### Separable Shaft with Packing, Rear Drive

<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2</td>
<td>Bearing housing</td>
</tr>
<tr>
<td>S3</td>
<td>Ball bearing</td>
</tr>
<tr>
<td>S4</td>
<td>Impeller</td>
</tr>
<tr>
<td>S7</td>
<td>Seal chamber cover</td>
</tr>
<tr>
<td>S10</td>
<td>Dowel pin, 1/4 x 1/2 in.</td>
</tr>
<tr>
<td>S11</td>
<td>Impeller shaft</td>
</tr>
<tr>
<td>S12</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S13</td>
<td>Wear ring (available in original size or 0.025, 0.050 and 0.075 in. undersize)</td>
</tr>
<tr>
<td>S14</td>
<td>Square key, SS, 5/16 x 2-3/4 in.</td>
</tr>
<tr>
<td>S15</td>
<td>Lubrication fitting, 1/8 in.</td>
</tr>
<tr>
<td>S16</td>
<td>Hex hd screw, 1/2-13 x 1-1/4 in., grade 5</td>
</tr>
<tr>
<td>S17</td>
<td>Lock washer, 1/2 in.</td>
</tr>
<tr>
<td>S27</td>
<td>Flinger grommet</td>
</tr>
<tr>
<td>S28</td>
<td>Flinger disc</td>
</tr>
<tr>
<td>S29</td>
<td>Outboard bearing housing cap</td>
</tr>
<tr>
<td>S30</td>
<td>Gasket</td>
</tr>
<tr>
<td>S31</td>
<td>Square head pipe plug, steel, 1/4 in.</td>
</tr>
<tr>
<td>S32</td>
<td>Oil seal, 1-7/16 x 2-3/4 in.</td>
</tr>
<tr>
<td>S33</td>
<td>Lube relief fitting, 1/8 in.</td>
</tr>
<tr>
<td>S34</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S35</td>
<td>Lock washer, 3/8 in.</td>
</tr>
<tr>
<td>S36</td>
<td>Hex hd screw, 3/8-16 x 1 in.</td>
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<tbody>
<tr>
<td>S69</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S74</td>
<td>Seal housing plug</td>
</tr>
<tr>
<td>S75</td>
<td>Bearing shield</td>
</tr>
<tr>
<td>S76</td>
<td>Seal housing gasket</td>
</tr>
<tr>
<td>S105</td>
<td>Lantern ring</td>
</tr>
<tr>
<td>S106</td>
<td>Unbalanced nut, 5/16-18</td>
</tr>
<tr>
<td>S107</td>
<td>Flat brass washer, 5/16 in.</td>
</tr>
<tr>
<td>S108</td>
<td>Stud, 5/16-18 x 1-5/8 in.</td>
</tr>
<tr>
<td>S110</td>
<td>Seal housing subassembly (includes S10)</td>
</tr>
<tr>
<td>S113</td>
<td>Packing kit, split ring (BFG rings) or individual flexible graphite (Grafoil®) ring, see page 32.</td>
</tr>
<tr>
<td>S500</td>
<td>Complete impeller shaft assembly</td>
</tr>
</tbody>
</table>
### Separable Shaft with Mechanical Seals, Rear Drive

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<tr>
<td>S7</td>
<td>Seal chamber cover</td>
</tr>
<tr>
<td>S10</td>
<td>Dowel pin, 1/4 x 1/2 in.</td>
</tr>
<tr>
<td>S11</td>
<td>Impeller shaft</td>
</tr>
<tr>
<td>S12</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S13</td>
<td>Wear ring (available in original size or 0.025, 0.050 and 0.075 in. undersize)</td>
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<tr>
<td>S14</td>
<td>Square key, SS, 5/16 x 2-3/4 in.</td>
</tr>
<tr>
<td>S15</td>
<td>Lubrication fitting, 1/8 in.</td>
</tr>
<tr>
<td>S16</td>
<td>Hex hd screw, 1/2-13 x 1-1/4 in., grade 5</td>
</tr>
<tr>
<td>S17</td>
<td>Lock washer, 1/2 in.</td>
</tr>
<tr>
<td>S29</td>
<td>Outboard bearing housing cap</td>
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<tr>
<td>S30</td>
<td>Gasket</td>
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<td>Retaining ring</td>
</tr>
<tr>
<td>S35</td>
<td>Lock washer, 3/8 in.</td>
</tr>
<tr>
<td>S36</td>
<td>Hex hd screw, 3/8-16 x 1 in.</td>
</tr>
<tr>
<td>S37</td>
<td>Hex hd screw, SS, 1/4-20 x 1 in.</td>
</tr>
<tr>
<td>S39</td>
<td>O-ring, 3 x 3-1/4 in.</td>
</tr>
</tbody>
</table>

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<tr>
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</tr>
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<tbody>
<tr>
<td>S65</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S66</td>
<td>Throttle bushing</td>
</tr>
<tr>
<td>S74</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S75</td>
<td>Seal housing plug</td>
</tr>
<tr>
<td>S76</td>
<td>Bearing shield</td>
</tr>
<tr>
<td>S95</td>
<td>Repair kit, mechanical seal, outboard end (see kit details A &amp; B)</td>
</tr>
<tr>
<td>S96</td>
<td>Repair kit, mechanical seal, drive end (see kit detail D)</td>
</tr>
<tr>
<td>S99</td>
<td>Seal housing gasket</td>
</tr>
<tr>
<td>S110</td>
<td>Seal housing subassembly (includes S10)</td>
</tr>
<tr>
<td>S500</td>
<td>Complete impeller shaft assembly</td>
</tr>
</tbody>
</table>
### Separable Shaft with Packing, Front Drive

<table>
<thead>
<tr>
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</tr>
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<tbody>
<tr>
<td>S2</td>
<td>Bearing housing</td>
</tr>
<tr>
<td>S3</td>
<td>Ball bearing</td>
</tr>
<tr>
<td>S4</td>
<td>Impeller</td>
</tr>
<tr>
<td>S7</td>
<td>Packing gland</td>
</tr>
<tr>
<td>S10</td>
<td>Dowel pin, 1/4 x 1/2 in.</td>
</tr>
<tr>
<td>S11</td>
<td>Impeller shaft</td>
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<td>Lock washer, 1/2 in.</td>
</tr>
<tr>
<td>S34</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S45</td>
<td>Hex hd screw, 1/2-20 x 2 in.</td>
</tr>
<tr>
<td>S46</td>
<td>Hex nut, 1/2-20</td>
</tr>
<tr>
<td>S69</td>
<td>Flinger</td>
</tr>
</tbody>
</table>

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<tr>
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<tbody>
<tr>
<td>S74</td>
<td>Retaining ring</td>
</tr>
<tr>
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<td>Seal housing plug</td>
</tr>
<tr>
<td>S76</td>
<td>Bearing shield</td>
</tr>
<tr>
<td>S99</td>
<td>Seal housing gasket</td>
</tr>
<tr>
<td>S105</td>
<td>Lantern ring</td>
</tr>
<tr>
<td>S106</td>
<td>Unbalanced nut, 5/16-18</td>
</tr>
<tr>
<td>S107</td>
<td>Flat brass washer, 5/16 in.</td>
</tr>
<tr>
<td>S108</td>
<td>Stud, 5/16-18 x 1-5/8 in.</td>
</tr>
<tr>
<td>S110</td>
<td>Seal housing subassembly (includes S10 and S108)</td>
</tr>
<tr>
<td>S113</td>
<td>Packing kit, split ring (BFG rings) or individual flexible graphite (Grafoil®) ring, see page 32.</td>
</tr>
<tr>
<td>S500</td>
<td>Complete impeller shaft assembly</td>
</tr>
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</table>
## Separable Shaft with Mechanical Seals, Front Drive

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<tr>
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<tr>
<td>S7</td>
<td>Seal chamber cover</td>
</tr>
<tr>
<td>S10</td>
<td>Dowel pin, 1/4 x 1/2 in.</td>
</tr>
<tr>
<td>S11</td>
<td>Impeller shaft</td>
</tr>
<tr>
<td>S12</td>
<td>Retaining ring</td>
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<td>S13</td>
<td>Wear ring (available in original size or 0.025, 0.050 and 0.075 in. undersize)</td>
</tr>
<tr>
<td>S14</td>
<td>Square key, SS, 5/16 x 2-3/4 in.</td>
</tr>
<tr>
<td>S17</td>
<td>Lock washer, 1/2 in.</td>
</tr>
<tr>
<td>S34</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S37</td>
<td>Hex hd screw, SS, 1/4-20 x 1 in.</td>
</tr>
<tr>
<td>S39</td>
<td>O-ring, 3 x 3-1/4 in.</td>
</tr>
<tr>
<td>S45</td>
<td>Hex hd screw, 1/2-20 x 2 in.</td>
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<tr>
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<tbody>
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<td>S46</td>
<td>Hex nut, 1/2-20</td>
</tr>
<tr>
<td>S65</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S66</td>
<td>Throttle bushing</td>
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<td>Seal housing plug</td>
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<td>S76</td>
<td>Bearing shield</td>
</tr>
<tr>
<td>S95</td>
<td>Repair kit, mechanical seal outboard end (see kit details A &amp; B)</td>
</tr>
<tr>
<td>S96</td>
<td>Repair kit, mechanical seal, drive end (see kit detail D)</td>
</tr>
<tr>
<td>S99</td>
<td>Seal housing gasket</td>
</tr>
<tr>
<td>S110</td>
<td>Seal housing subassembly (includes S10)</td>
</tr>
<tr>
<td>S500</td>
<td>Complete impeller shaft assembly</td>
</tr>
</tbody>
</table>
NOTE: TO ORDER ENTIRE PUMPER SHAFT ASSEMBLY, SPECIFY REF NO. S500

SEPARABLE SHAFT WITH MECHANICAL SEALS

FRONT DRIVE

S46
TIGHT TO
75 FT-LB

S65
S39

S46
S17

S75
S36
S34
S32

S66
IRON PUMPS ONLY

S39
S7
S76

S66
IRON PUMPS ONLY

S95
SEE PAGES 28 & 29

S10
S110

S11
S14

S13
S99

S99
S96
SEE PAGES 29 & 30

S99

S37
S7
One-Piece Shaft with Packing  
Front Drive  
Model CSK-1

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<td>Bearing housing</td>
</tr>
<tr>
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</tr>
<tr>
<td>S4</td>
<td>Impeller</td>
</tr>
<tr>
<td>S7</td>
<td>Packing gland</td>
</tr>
<tr>
<td>S9</td>
<td>Key, 5/16 x 1-9/16</td>
</tr>
<tr>
<td>S10</td>
<td>Dowel pin, 1/4 x 1/2 in.</td>
</tr>
<tr>
<td>S11</td>
<td>Impeller shaft</td>
</tr>
<tr>
<td>S12</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S13</td>
<td>Wear ring (available in original size or 0.025, 0.050 and 0.075 in. undersize)</td>
</tr>
<tr>
<td>S14</td>
<td>Square key, S5, 5/16 x 2-3/4 in.</td>
</tr>
<tr>
<td>S15</td>
<td>Lubrication fitting, 1/8 in.</td>
</tr>
<tr>
<td>S17</td>
<td>Lock washer, 1/2 in.</td>
</tr>
<tr>
<td>S27</td>
<td>Flinger grommet</td>
</tr>
<tr>
<td>S28</td>
<td>Flinger disc</td>
</tr>
<tr>
<td>S33</td>
<td>Lube relief fitting, 1/8 in.</td>
</tr>
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<tbody>
<tr>
<td>S45</td>
<td>Hex hd screw, 1/2-20 x 1-3/4 in.</td>
</tr>
<tr>
<td>S46</td>
<td>Hex nut, 1/2-20</td>
</tr>
<tr>
<td>S69</td>
<td>Flinger</td>
</tr>
<tr>
<td>S73</td>
<td>Bearing seal</td>
</tr>
<tr>
<td>S97</td>
<td>Bearing spacer</td>
</tr>
<tr>
<td>S99</td>
<td>Seal housing gasket</td>
</tr>
<tr>
<td>S105</td>
<td>Lantern ring</td>
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<td>S108</td>
<td>Stud, 5/16-18 x 1-5/8 in.</td>
</tr>
<tr>
<td>S110</td>
<td>Seal housing subassembly (includes S10 and S108)</td>
</tr>
<tr>
<td>S113</td>
<td>Packing kit, split ring (BFG)</td>
</tr>
<tr>
<td>S500</td>
<td>Complete impeller shaft assembly</td>
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</tbody>
</table>
## One-Piece Shaft with Packing
### Front Drive with Tachometer
#### Models CSD & CSUD

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<td>Key, 5/16 x 1-9/16</td>
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<tr>
<td>S17</td>
<td>Lock washer, 1/2 in.</td>
</tr>
<tr>
<td>S20</td>
<td>Bearing housing</td>
</tr>
<tr>
<td>S27</td>
<td>Flinger grommet</td>
</tr>
<tr>
<td>S28</td>
<td>Flinger disc</td>
</tr>
<tr>
<td>S32</td>
<td>Oil seal, 1-5/8 x 2-3/4 in.</td>
</tr>
<tr>
<td>S33</td>
<td>Lube relief fitting, 1/8 in.</td>
</tr>
<tr>
<td>S35</td>
<td>Lock washer, 3/8 in.</td>
</tr>
<tr>
<td>S36</td>
<td>Hex hd screw, 3/8-16 x 1 in.</td>
</tr>
<tr>
<td>S38</td>
<td>Tachometer driven gear</td>
</tr>
<tr>
<td>S42</td>
<td>Ball bearing</td>
</tr>
<tr>
<td>S45</td>
<td>Hex hd screw, 1/2-20 x 1-3/4 in.</td>
</tr>
<tr>
<td>S46</td>
<td>Hex nut, 1/2-20</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S47</td>
<td>Tachometer drive gear</td>
</tr>
<tr>
<td>S48</td>
<td>Tachometer gear spacer</td>
</tr>
<tr>
<td>S49</td>
<td>Tachometer gear bushing</td>
</tr>
<tr>
<td>S50</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S51</td>
<td>O-ring, 3-1/4 x 3-1/2 in.</td>
</tr>
<tr>
<td>S52</td>
<td>Spring pin, 3/16 x 1/2 in.</td>
</tr>
<tr>
<td>S53</td>
<td>Oil seal, 1-23/32 x 2-3/4 in.</td>
</tr>
<tr>
<td>S54</td>
<td>End yoke with U-bolts</td>
</tr>
<tr>
<td>S55</td>
<td>Shaft nut, 1-20</td>
</tr>
<tr>
<td>S56</td>
<td>Cotter pin, 1/8 x 1-3/4 in. (prior to April 20, 1998)</td>
</tr>
<tr>
<td>S57</td>
<td>Tachometer sleeve</td>
</tr>
<tr>
<td>S69</td>
<td>Flinger</td>
</tr>
<tr>
<td>S73</td>
<td>Bearing seal</td>
</tr>
<tr>
<td>S97</td>
<td>Bearing spacer</td>
</tr>
<tr>
<td>S99</td>
<td>Seal housing gasket</td>
</tr>
<tr>
<td>S105</td>
<td>Lantern ring</td>
</tr>
<tr>
<td>S106</td>
<td>Unbalanced nut, 5/16-18</td>
</tr>
<tr>
<td>S107</td>
<td>Flat brass washer, 5/16 in.</td>
</tr>
<tr>
<td>S108</td>
<td>Stud, 5/16-18 x 1-5/8 in.</td>
</tr>
<tr>
<td>S110</td>
<td>Seal housing subassembly (includes S10 and S108)</td>
</tr>
<tr>
<td>S113</td>
<td>Packing kit, split ring (BFG)</td>
</tr>
<tr>
<td>S500</td>
<td>Complete impeller shaft assembly</td>
</tr>
</tbody>
</table>
# One-Piece Shaft with Mechanical Seals
## Front Drive with Tachometer
### Models CSD & CSUD

<table>
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<tr>
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<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>S2</td>
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</tr>
<tr>
<td>S3</td>
<td>Ball bearing</td>
</tr>
<tr>
<td>S4</td>
<td>Impeller</td>
</tr>
<tr>
<td>S7</td>
<td>Seal chamber cover</td>
</tr>
<tr>
<td>S10</td>
<td>Dowel pin, 1/4 x 1/2 in.</td>
</tr>
<tr>
<td>S11</td>
<td>Impeller shaft</td>
</tr>
<tr>
<td>S12</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S13</td>
<td>Wear ring (available in original size or 0.025, 0.050 and 0.075 in. undersize)</td>
</tr>
<tr>
<td>S14</td>
<td>Square key, S5, 5/16 x 2-3/4 in.</td>
</tr>
<tr>
<td>S15</td>
<td>Lubrication fitting, 1/8 in.</td>
</tr>
<tr>
<td>S16</td>
<td>Hex hd screw, 1/2-13 x 1-1/4 in., grade 5</td>
</tr>
<tr>
<td>S17</td>
<td>Lock washer, 1/2 in.</td>
</tr>
<tr>
<td>S20</td>
<td>Bearing housing</td>
</tr>
<tr>
<td>S33</td>
<td>Lube relief fitting, 1/8 in.</td>
</tr>
<tr>
<td>S35</td>
<td>Lock washer, 3/8 in.</td>
</tr>
<tr>
<td>S36</td>
<td>Hex hd screw, 3/8-16 x 1 in.</td>
</tr>
<tr>
<td>S37</td>
<td>Hex hd screw, S5, 1/4-20 x 1 in.</td>
</tr>
<tr>
<td>S38</td>
<td>Tachometer driven gear</td>
</tr>
<tr>
<td>S42</td>
<td>Ball bearing</td>
</tr>
<tr>
<td>S45</td>
<td>Hex hd screw, 1/2-20 x 1-3/4 in.</td>
</tr>
<tr>
<td>S46</td>
<td>Hex nut, 1/2-20</td>
</tr>
<tr>
<td>S47</td>
<td>Tachometer drive gear</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>S48</td>
<td>Tachometer gear spacer</td>
</tr>
<tr>
<td>S51</td>
<td>O-ring, 3-1/4 x 3-1/2 in.</td>
</tr>
<tr>
<td>S52</td>
<td>Spring pin, 3/16 x 1/2 in.</td>
</tr>
<tr>
<td>S53</td>
<td>Oil seal, 1-23/32 x 2-3/4 in.</td>
</tr>
<tr>
<td>S54</td>
<td>End yoke with U-bolts</td>
</tr>
<tr>
<td>S55</td>
<td>Shaft nut, 1-20</td>
</tr>
<tr>
<td>S56</td>
<td>Cotter pin, 1/8 x 1-3/4 in. (prior to April 20, 1998)</td>
</tr>
<tr>
<td>S57</td>
<td>Tachometer sleeve</td>
</tr>
<tr>
<td>S66</td>
<td>Throttle bushing</td>
</tr>
<tr>
<td>S69</td>
<td>Flinger</td>
</tr>
<tr>
<td>S70</td>
<td>Bearing housing spacer</td>
</tr>
<tr>
<td>S71</td>
<td>Bearing spacer</td>
</tr>
<tr>
<td>S73</td>
<td>Bearing seal</td>
</tr>
<tr>
<td>S95</td>
<td>Repair kit, mechanical seal, outboard end (see kit detail C)</td>
</tr>
<tr>
<td>S96</td>
<td>Repair kit, mechanical seal, drive end (see kit detail F)</td>
</tr>
<tr>
<td>S97</td>
<td>Bearing spacer</td>
</tr>
<tr>
<td>S99</td>
<td>Seal housing gasket</td>
</tr>
<tr>
<td>S110</td>
<td>Seal housing subassembly (includes S10)</td>
</tr>
<tr>
<td>S111</td>
<td>Tachometer gear housing assembly (includes S49)</td>
</tr>
<tr>
<td>S116</td>
<td>Oil seal, 1-1/2 x 2-3/4 (formerly S32)</td>
</tr>
<tr>
<td>S500</td>
<td>Complete impeller shaft assembly</td>
</tr>
</tbody>
</table>
## One-Piece Shaft with Packing
### Front or Rear Drive without Tachometer
#### Models CSD & CSUD

<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2</td>
<td>Bearing housing</td>
</tr>
<tr>
<td>S3</td>
<td>Ball bearing</td>
</tr>
<tr>
<td>S4</td>
<td>Impeller</td>
</tr>
<tr>
<td>S7</td>
<td>Seal chamber cover</td>
</tr>
<tr>
<td>S10</td>
<td>Dowel pin, 1/4 x 1/2 in.</td>
</tr>
<tr>
<td>S11</td>
<td>Impeller shaft</td>
</tr>
<tr>
<td>S12</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S13</td>
<td>Wear ring (available in original size or 0.025, 0.050 and 0.075 in. undersize)</td>
</tr>
<tr>
<td>S14</td>
<td>Square key, SS, 5/16 x 2-3/4 in.</td>
</tr>
<tr>
<td>S15</td>
<td>Lubrication fitting, 1/8 in.</td>
</tr>
<tr>
<td>S16</td>
<td>Hex hd screw, 1/2-13 x 1-1/4 in., grade 5</td>
</tr>
<tr>
<td>S17</td>
<td>Lock washer, 1/2 in.</td>
</tr>
<tr>
<td>S27</td>
<td>Flinger grommet</td>
</tr>
<tr>
<td>S28</td>
<td>Flinger disc</td>
</tr>
<tr>
<td>S29</td>
<td>Outboard bearing housing cap</td>
</tr>
<tr>
<td>S30</td>
<td>Gasket</td>
</tr>
<tr>
<td>S31</td>
<td>Square hd pipe plug, steel, 1/4 in.</td>
</tr>
<tr>
<td>S32</td>
<td>Oil seal, 1-5/8 x 2-3/4 in.</td>
</tr>
<tr>
<td>S33</td>
<td>Lube relief fitting, 1/8 in.</td>
</tr>
<tr>
<td>S34</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S35</td>
<td>Lock washer, 3/8 in.</td>
</tr>
<tr>
<td>S36</td>
<td>Hex hd screw, 3/8-16 x 1 in.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S37</td>
<td>Hex hd screw, SS, 1/4-20 x 1 in.</td>
</tr>
<tr>
<td>S38</td>
<td>Tachometer driven gear</td>
</tr>
<tr>
<td>S42</td>
<td>Ball bearing</td>
</tr>
<tr>
<td>S45</td>
<td>Hex hd screw, 1/2-20 x 2 in.</td>
</tr>
<tr>
<td>S46</td>
<td>Hex nut, 1/2-20</td>
</tr>
<tr>
<td>S53</td>
<td>Oil seal, 1-23/32 x 2-3/4 in.</td>
</tr>
<tr>
<td>S54</td>
<td>End yoke with U-bolts</td>
</tr>
<tr>
<td>S55</td>
<td>Shaft nut, 1-20</td>
</tr>
<tr>
<td>S56</td>
<td>Cotter pin, 1/8 x 1-3/4 in. (prior to April 20, 1998)</td>
</tr>
<tr>
<td>S69</td>
<td>Flinger</td>
</tr>
<tr>
<td>S71</td>
<td>Bearing spacer</td>
</tr>
<tr>
<td>S99</td>
<td>Seal housing gasket</td>
</tr>
<tr>
<td>S105</td>
<td>Lantern ring</td>
</tr>
<tr>
<td>S106</td>
<td>Unbalanced nut, 5/16-18</td>
</tr>
<tr>
<td>S107</td>
<td>Flat brass washer, 5/16 in.</td>
</tr>
<tr>
<td>S108</td>
<td>Stud, 5/16-18 x 1-5/8 in.</td>
</tr>
<tr>
<td>S110</td>
<td>Seal housing subassembly (includes S10 and S108)</td>
</tr>
<tr>
<td>S113</td>
<td>Packing kit, split ring (BFG ring) or individual flexible graphite (Grafoil®) ring, see page 32.</td>
</tr>
<tr>
<td>S114</td>
<td>Oil seal housing</td>
</tr>
<tr>
<td>S115</td>
<td>Bearing housing</td>
</tr>
<tr>
<td>S500</td>
<td>Complete impeller shaft assembly</td>
</tr>
</tbody>
</table>
# One-Piece Shaft with Mechanical Seals
## Front or Rear Drive without Tachometer
### Models CSD & CSUD

<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>S2</td>
<td>Bearing housing</td>
</tr>
<tr>
<td>S4</td>
<td>Impeller</td>
</tr>
<tr>
<td>S7</td>
<td>Seal chamber cover</td>
</tr>
<tr>
<td>S10</td>
<td>Dowel pin, 1/4 x 1/2 in.</td>
</tr>
<tr>
<td>S11</td>
<td>Impeller shaft</td>
</tr>
<tr>
<td>S12</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S13</td>
<td>Wear ring (available in original size or 0.025, 0.050 and 0.075 in. undersize)</td>
</tr>
<tr>
<td>S14</td>
<td>Square key, 5S, 5/16 x 2-3/4 in.</td>
</tr>
<tr>
<td>S15</td>
<td>Lubrication fitting, 1/8 in.</td>
</tr>
<tr>
<td>S16</td>
<td>Hex hd screw, 1/2-13 x 1-1/4 in., grade 5</td>
</tr>
<tr>
<td>S17</td>
<td>Lock washer, 1/2 in.</td>
</tr>
<tr>
<td>S29</td>
<td>Outboard bearing housing cap</td>
</tr>
<tr>
<td>S30</td>
<td>Gasket</td>
</tr>
<tr>
<td>S31</td>
<td>Square hd pipe plug, steel, 1/4 in.</td>
</tr>
<tr>
<td>S32</td>
<td>Oil seal, 1-7/16 x 2-3/4 in.</td>
</tr>
<tr>
<td>S33</td>
<td>Lube relief fitting, 1/8 in.</td>
</tr>
<tr>
<td>S34</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S35</td>
<td>Lock washer, 3/8 in.</td>
</tr>
<tr>
<td>S36</td>
<td>Hex hd screw, 3/8-16 x 1 in.</td>
</tr>
<tr>
<td>S37</td>
<td>Hex hd screw, SS, 1/4-20 x 1 in.</td>
</tr>
<tr>
<td>S39</td>
<td>O-ring, 3 x 3-1/4 in.</td>
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<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>S42</td>
<td>Ball bearing</td>
</tr>
<tr>
<td>S45</td>
<td>Hex hd screw, 1/2-20 x 2 in.</td>
</tr>
<tr>
<td>S46</td>
<td>Hex nut, 1/2-20</td>
</tr>
<tr>
<td>S53</td>
<td>Oil seal, 1-23/32 x 2-3/4 in.</td>
</tr>
<tr>
<td>S54</td>
<td>End yoke with U-bolts</td>
</tr>
<tr>
<td>S55</td>
<td>Shaft nut, 1-20</td>
</tr>
<tr>
<td>S56</td>
<td>Cotter pin, 1/8 x 1-3/4 in. (prior to April 20, 1998)</td>
</tr>
<tr>
<td>S65</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S66</td>
<td>Throttle bushing</td>
</tr>
<tr>
<td>S69</td>
<td>Flinger</td>
</tr>
<tr>
<td>S71</td>
<td>Bearing spacer</td>
</tr>
<tr>
<td>S95</td>
<td>Repair kit, mechanical seal, outboard end (see kit details A &amp; B)</td>
</tr>
<tr>
<td>S96</td>
<td>Repair kit, mechanical seal, drive end (see kit detail E)</td>
</tr>
<tr>
<td>S99</td>
<td>Seal housing gasket</td>
</tr>
<tr>
<td>S110</td>
<td>Seal housing subassembly (includes S10)</td>
</tr>
<tr>
<td>S114</td>
<td>Oil seal housing</td>
</tr>
<tr>
<td>S115</td>
<td>Bearing housing</td>
</tr>
<tr>
<td>S116</td>
<td>Oil seal, 1-1/2 x 2-3/4 (formerly S32)</td>
</tr>
<tr>
<td>S500</td>
<td>Complete impeller shaft assembly</td>
</tr>
</tbody>
</table>
### One-Piece Shaft with Packing

**Rear Drive**

**Two Stage Pumps**

<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S4</td>
<td>Impeller, main stage</td>
</tr>
<tr>
<td>S7</td>
<td>Packing gland</td>
</tr>
<tr>
<td>S9</td>
<td>Key, 5/16 x 2-5/16 in.</td>
</tr>
<tr>
<td>S10</td>
<td>Dowel pin, 1/4 x 1/2 in.</td>
</tr>
<tr>
<td>S11</td>
<td>Impeller shaft</td>
</tr>
<tr>
<td>S12</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S13</td>
<td>Wear ring (available in original size or 0.025, 0.050 and 0.075 in. undersize)</td>
</tr>
<tr>
<td>S14</td>
<td>Square key, SS, 5/16 x 2-3/4 in.</td>
</tr>
<tr>
<td>S18</td>
<td>Hex castle nut, SS, 3/4-16</td>
</tr>
<tr>
<td>S19</td>
<td>Cotter pin, SS, 1/8 x 1 in.</td>
</tr>
<tr>
<td>S21</td>
<td>Impeller, extra pressure stage</td>
</tr>
<tr>
<td>S23</td>
<td>Ball bearing, double row</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S24</td>
<td>Retaining ring, SS</td>
</tr>
<tr>
<td>S25</td>
<td>Impeller spacer</td>
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<td>S27</td>
<td>Flinger grommet</td>
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<tr>
<td>S28</td>
<td>Flinger disc</td>
</tr>
<tr>
<td>S69</td>
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<tr>
<td>S99</td>
<td>Seal housing gasket</td>
</tr>
<tr>
<td>S105</td>
<td>Lantern ring</td>
</tr>
<tr>
<td>S106</td>
<td>Unbalanced nut, 5/16-18</td>
</tr>
<tr>
<td>S107</td>
<td>Flat brass washer, 5/16 in.</td>
</tr>
<tr>
<td>S110</td>
<td>Seal housing subassembly (includes S10 and S108)</td>
</tr>
<tr>
<td>S113</td>
<td>Packing kit, split ring (BFG ring) or individual flexible graphite (Grafoil®) ring, see page 32.</td>
</tr>
<tr>
<td>S500</td>
<td>Complete impeller shaft assembly</td>
</tr>
</tbody>
</table>

**Note:** For extra pressure stage components not shown, see extra pressure stage body service parts list.
FLINGER DETAIL

NOTE: TO ORDER ENTIRE IMPELLER SHAFT ASSEMBLY, SPECIFY REF NO. S500

ONE-PIECE SHAFT WITH PACKING
REAR DRIVE

S69 USED AFTER MARCH 21, 2002
(ALSO SEE FLINGER DETAIL)

S106 S105 S108 S113 S99 S110 S10 S9 S13 S11 S12 S14 S22 S24 S25 S28 S27 S27

S18 S21 S19
## One-Piece Shaft with Packing
### Front Drive with Tachometer
#### Models CSHD & CSUHD

<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S4</td>
<td>Impeller, main stage</td>
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<td>S7</td>
<td>Packing gland</td>
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<td>S11</td>
<td>Impeller shaft</td>
</tr>
<tr>
<td>S12</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S13</td>
<td>Wear ring (available in original size or 0.025, 0.050 and 0.075 in. undersize)</td>
</tr>
<tr>
<td>S14</td>
<td>Square key, SS, 5/16 x 2-3/4 in.</td>
</tr>
<tr>
<td>S15</td>
<td>Lubrication fitting, 1/8 in.</td>
</tr>
<tr>
<td>S16</td>
<td>Hex hd screw, 1/2-13 x 1-1/4 in., grade 5</td>
</tr>
<tr>
<td>S17</td>
<td>Lock washer, 1/2 in.</td>
</tr>
<tr>
<td>S18</td>
<td>Hex castle nut, SS, 3/4-16</td>
</tr>
<tr>
<td>S19</td>
<td>Cotter pin, SS, 1/8 x 1 in.</td>
</tr>
<tr>
<td>S20</td>
<td>Bearing housing</td>
</tr>
<tr>
<td>S21</td>
<td>Impeller, extra pressure stage</td>
</tr>
<tr>
<td>S22</td>
<td>Flinger ring</td>
</tr>
<tr>
<td>S23</td>
<td>Ball bearing, double row</td>
</tr>
<tr>
<td>S24</td>
<td>Retaining ring, SS</td>
</tr>
<tr>
<td>S25</td>
<td>Impeller spacer</td>
</tr>
<tr>
<td>S27</td>
<td>Flinger grommet</td>
</tr>
<tr>
<td>S28</td>
<td>Flinger disc</td>
</tr>
<tr>
<td>S32</td>
<td>Oil seal, 1-5/8 x 2-3/4 in.</td>
</tr>
<tr>
<td>S33</td>
<td>Lube relief fitting, 1/8 in.</td>
</tr>
<tr>
<td>S35</td>
<td>Lock washer, 3/8 in.</td>
</tr>
<tr>
<td>S36</td>
<td>Hex hd screw, 3/8-16 x 1 in.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S38</td>
<td>Tachometer driven gear</td>
</tr>
<tr>
<td>S42</td>
<td>Ball bearing</td>
</tr>
<tr>
<td>S47</td>
<td>Tachometer drive gear</td>
</tr>
<tr>
<td>S48</td>
<td>Tachometer gear spacer</td>
</tr>
<tr>
<td>S49</td>
<td>Tachometer gear bushing</td>
</tr>
<tr>
<td>S50</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S51</td>
<td>O-ring, 3-1/4 x 3-1/2 in.</td>
</tr>
<tr>
<td>S52</td>
<td>Spring pin, 3/16 x 1/2 in.</td>
</tr>
<tr>
<td>S53</td>
<td>Oil seal, 1-23/32 x 2-3/4 in.</td>
</tr>
<tr>
<td>S54</td>
<td>End yoke with U-bolts</td>
</tr>
<tr>
<td>S55</td>
<td>Shaft nut, 1-20</td>
</tr>
<tr>
<td>S56</td>
<td>Cotter pin, 1/8 x 1-3/4 in. (prior to April 20, 1998)</td>
</tr>
<tr>
<td>S57</td>
<td>Tachometer sleeve</td>
</tr>
<tr>
<td>S69</td>
<td>Flinger</td>
</tr>
<tr>
<td>S99</td>
<td>Seal housing gasket</td>
</tr>
<tr>
<td>S105</td>
<td>Lantern ring</td>
</tr>
<tr>
<td>S106</td>
<td>Unbalanced nut, 5/16-18</td>
</tr>
<tr>
<td>S107</td>
<td>Flat brass washer, 5/16 in.</td>
</tr>
<tr>
<td>S108</td>
<td>Stud, 5/16-18 x 1-5/8 in.</td>
</tr>
<tr>
<td>S110</td>
<td>Seal housing subassembly (includes S10 and S108)</td>
</tr>
<tr>
<td>S111</td>
<td>Tachometer gear housing assembly (includes S49)</td>
</tr>
<tr>
<td>S113</td>
<td>Packing kit, split ring (BFG ring) or individual flexible graphite (Grafoil®) ring, see page 32.</td>
</tr>
<tr>
<td>S500</td>
<td>Complete impeller shaft assembly</td>
</tr>
</tbody>
</table>

**Note:** For extra pressure stage components not shown, see extra pressure stage body service parts list.
One-Piece Shaft with Packing  
Front or Rear Drive without Tachometer  
Models CSHD & CSUHD

<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S4</td>
<td>Impeller, main stage</td>
</tr>
<tr>
<td>S7</td>
<td>Packing gland</td>
</tr>
<tr>
<td>S10</td>
<td>Dowel pin, 1/4 x 1/2 in.</td>
</tr>
<tr>
<td>S11</td>
<td>Impeller shaft</td>
</tr>
<tr>
<td>S12</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S13</td>
<td>Wear ring (available in original size or 0.025, 0.050 and 0.075 in. undersize)</td>
</tr>
<tr>
<td>S14</td>
<td>Square key, SS, 5/16 x 2-3/4 in.</td>
</tr>
<tr>
<td>S15</td>
<td>Lubrication fitting, 1/8 in.</td>
</tr>
<tr>
<td>S16</td>
<td>Hex hd screw, 1/2-13 x 1-1/4 in., grade 5</td>
</tr>
<tr>
<td>S17</td>
<td>Lock washer, 1/2 in.</td>
</tr>
<tr>
<td>S18</td>
<td>Hex castle nut, SS, 3/4-16</td>
</tr>
<tr>
<td>S19</td>
<td>Cotter pin, SS, 1/8 x 1 in.</td>
</tr>
<tr>
<td>S20</td>
<td>Bearing housing</td>
</tr>
<tr>
<td>S21</td>
<td>Impeller, extra pressure stage</td>
</tr>
<tr>
<td>S22</td>
<td>Flinger ring</td>
</tr>
<tr>
<td>S23</td>
<td>Ball bearing, double row</td>
</tr>
<tr>
<td>S24</td>
<td>Retaining ring, SS</td>
</tr>
<tr>
<td>S25</td>
<td>Impeller spacer</td>
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<td>Flinger grommet</td>
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<tr>
<td>S28</td>
<td>Flinger disc</td>
</tr>
<tr>
<td>S32</td>
<td>Oil seal, 1-5/8 x 2-3/4 in.</td>
</tr>
<tr>
<td>S33</td>
<td>Lube relief fitting, 1/8 in.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S35</td>
<td>Lock washer, 3/8 in.</td>
</tr>
<tr>
<td>S36</td>
<td>Hex hd screw, 3/8-16 x 1 in.</td>
</tr>
<tr>
<td>S42</td>
<td>Ball bearing</td>
</tr>
<tr>
<td>S45</td>
<td>Hex hd screw, 1/2-20 x 2 in.</td>
</tr>
<tr>
<td>S46</td>
<td>Hex nut, 1/2-20</td>
</tr>
<tr>
<td>S50</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S51</td>
<td>O-ring, 3-1/4 x 3-1/2 in.</td>
</tr>
<tr>
<td>S53</td>
<td>Oil seal, 1-23/32 x 2-3/4 in.</td>
</tr>
<tr>
<td>S54</td>
<td>End yoke with U-bolts</td>
</tr>
<tr>
<td>S55</td>
<td>Shaft nut, 1-20</td>
</tr>
<tr>
<td>S56</td>
<td>Cotter pin, 1/8 x 1-3/4 in. (prior to April 20, 1998)</td>
</tr>
<tr>
<td>S68</td>
<td>Bearing housing</td>
</tr>
<tr>
<td>S69</td>
<td>Flinger</td>
</tr>
<tr>
<td>S71</td>
<td>Bearing spacer</td>
</tr>
<tr>
<td>S99</td>
<td>Seal housing gasket</td>
</tr>
<tr>
<td>S105</td>
<td>Lantern ring</td>
</tr>
<tr>
<td>S106</td>
<td>Unbalanced nut, 5/16-18</td>
</tr>
<tr>
<td>S107</td>
<td>Flat brass washer, 5/16 in.</td>
</tr>
<tr>
<td>S110</td>
<td>Seal housing subassembly (includes S10 and S108)</td>
</tr>
<tr>
<td>S113</td>
<td>Packing kit, split ring (BFG ring) or individual flexible graphite (Grafoil®) ring, see page 32.</td>
</tr>
<tr>
<td>S500</td>
<td>Complete impeller shaft assembly</td>
</tr>
</tbody>
</table>

Note: For extra pressure stage components not shown, see extra pressure stage body service parts list.
CS, CSU
WITH SEPARABLE IMPELLER SHAFT

CSH, CSUH
WITH ONE-PIECE IMPELLER SHAFT

CSD, CSUD
DIRECT DRIVE

CSHD, CSUHD
DIRECT DRIVE

REAR DRIVE IMPELLER ROTATIONS
## S95 Outboard End Mechanical Seal Kits

<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>S3</td>
<td>Ball bearing</td>
</tr>
<tr>
<td>S30</td>
<td>Gasket</td>
</tr>
<tr>
<td>S32</td>
<td>Oil seal</td>
</tr>
<tr>
<td>S34</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S39</td>
<td>O-ring, 3 x 3-1/4 in.</td>
</tr>
<tr>
<td>S65</td>
<td>Retaining ring</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S66</td>
<td>Throttle bushing</td>
</tr>
<tr>
<td>S74</td>
<td>Retaining ring</td>
</tr>
<tr>
<td>S75</td>
<td>Seal housing plug</td>
</tr>
<tr>
<td>S76</td>
<td>Bearing shield</td>
</tr>
<tr>
<td>S95</td>
<td>Repair kit, mechanical seal outboard end</td>
</tr>
</tbody>
</table>
DETAIL A
PUMPS BUILT PRIOR TO APRIL 21, 2006

NOTE:
ALL CS. CSU PUMPS WITH SEPARABLE SHAFTS

SEAL HOUSING ASSY (REF)

TAPPED HOLES ON CS.
CSUD PUMPS ONLY

DETAIL B
PUMPS BUILT AFTER APRIL 21, 2006 (SEALED OUTBOARD BEARING)

NOTE:
ALL CS. CSU PUMPS WITH SEPARABLE SHAFTS

SEAL HOUSING ASSY (REF)

DETAIL C
PUMPS WITH TACHOMETER, BUILT ALL YEARS

NOTE:
CSU. CSUD PUMPS WITH TACHOMETER

BEARING HOUSING (REF)

DETAIL

S95 OUTBOARD END MECHANICAL SEAL KITS

NOTE: PARTS SHOWN IN BOLD TEXT INCLUDED IN MECHANICAL SEAL KIT.
<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S30</td>
<td>Gasket</td>
</tr>
<tr>
<td>S39</td>
<td>O-ring, 3 x 3-1/4</td>
</tr>
<tr>
<td>S42</td>
<td>Ball bearing</td>
</tr>
<tr>
<td>S51</td>
<td>O-ring, 3-1/4 x 3-1/2 in.</td>
</tr>
<tr>
<td>S53</td>
<td>Oil seal, 1-23/32 x 2-3/4 in.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S55</td>
<td>Shaft nut, 1-20</td>
</tr>
<tr>
<td>S66</td>
<td>Throttle bushing</td>
</tr>
<tr>
<td>S96</td>
<td>Repair kit, mechanical seal, drive end</td>
</tr>
<tr>
<td>S116</td>
<td>Oil seal, 1-1/2 x 2-3/4 (formerly S32)</td>
</tr>
</tbody>
</table>
NOTE: ALL CS, CSU PUMPS WITH SEPARABLE SHAFTS

DETAIL D

NOTE: CS, CSU WITHOUT TACHOMETER

DETAIL E

PUMPS WITHOUT TACHOMETER

S55 TORQUE TO 400-500 LBF-FT

DETAIL F

PUMPS WITH TACHOMETER

S98 DRIVE END MECHANICAL SEAL KITS

NOTE: PARTS SHOWN IN BULLETFONT INCLUDED IN MECHANICAL SEAL KIT.
## Packing Arrangements

<table>
<thead>
<tr>
<th>REF NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S113</td>
<td>Split ring packing kit (BFG rings) or individual flexible graphite (Grafoil®) ring</td>
</tr>
</tbody>
</table>
ARRANGEMENT A
FLEXIBLE GRAPHITE (GRAFOL®) RINGS
USED JANUARY 31, 1983 TO JULY 10, 2002

*REPLACED BY ARRANGEMENT B.
ARRANGEMENT B WILL BE FURNISHED FOR REPAIRS,
INDIVIDUAL S113 GRAFOL® RINGS ARE STILL AVAILABLE

ARRANGEMENT B
BRAIDED FLEXIBLE GRAPHITE (BFG) RINGS
CURRENT CONFIGURATION

PACKING ARRANGEMENTS

NOTE: ALWAYS STAGGER JOINTS IN PACKING RINGS