RA-16 Rotary Atomizer Upgrade Kit

1. Introduction

This instruction sheet explains the procedure for installing the upgrade kit onto your RA-16 rotary atomizer.

The upgrade kit replaces the RA-16 rotary atomizer’s charge ring assembly with the RA-20 rotary atomizer’s charge ring assembly. This upgrade enables the RA-16 rotary atomizer to be classified as a non-incendive spray device, matching the RA-20 rotary atomizer’s compliance with FM standard 7260, dated March 1996. This retrofit does not make the RA-16 rotary atomizer a listed device, but it does give the atomizer the main components of the FM-approved design.

The charge ring assembly consists of the charge ring, cup, distributor, and nozzle. The cup assembly (including the distributor) and nozzle must be ordered separately from the upgrade kit. If you did not choose a cup assembly and nozzle when you ordered the upgrade kit, refer to the Parts section of this instruction sheet to order your specific components from your Nordson representative.

2. Disassembly

WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

WARNING: Shut off the turbine air, turn off the electrostatic voltage, and relieve the fluid pressure before you perform the following tasks. Failure to observe this warning may result in equipment damage, personal injury, or even death.

1. Remove the cup.
   a. See Figure 1. Insert the 1/8-in. hex-key ball driver (2), supplied with the RA-16 rotary atomizer, through the hole and duckbill seal in the side of the charge ring (1).
   b. Rotate the cup (4) and push on the ball driver (2) until it drops into the hole in the turbine shaft.
   c. Hold the ball driver (2) and turn the cup (4) counterclockwise (as viewed from the front) to unscrew it from the turbine shaft.
   d. Discard the old cup assembly.
2. Disassembly (contd.)

Fig. 1 Removing the cup assembly
1. Charge ring
2. Ball driver
3. Distributor
4. Cup

2. See Figure 2. Unscrew the nozzle (9) from the fluid tube (4).

3. Remove the three oval-head screws (1) securing the rear shroud (2) to the rear mounting plate. Slide the shroud off of the atomizer.

4. Remove the flat-head screws (10) and O-rings (11) securing the front shroud (6) to the turbine assembly (3).

**NOTE:** Remember the orientation of the front shroud in relation to the turbine assembly while you separate them. Orientation varies between different versions of the RA-16 rotary atomizer. The shroud and turbine must be reassembled exactly as they were disassembled.
2. **Disassembly (contd.)**

5. Remove the front shroud (6) and charge ring (8) from the turbine assembly (3).

6. Remove the three screws (12) securing the front shroud (6) to the charge ring (8).

7. Separate the charge ring (8) from the front shroud (6) and remove the O-ring (7).

8. Discard the old charge ring (8), O-ring (7), and screws (12).

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Fig. 2 Removing the front shroud and charge ring

1. Oval-head screws
2. Rear shroud
3. Turbine assembly
4. Fluid tube
5. O-ring
6. Front shroud
7. O-ring
8. Charge ring
9. Nozzle
10. Flat-head screws
11. O-rings
12. Screws
3. **Installing the Charge Ring Assembly**

1. See Figure 2. Install the new O-ring (7) into the slot of the new charge ring (8).

2. Line up the charge ring (8) with the front shroud (6).
   
   a. See Figure 3. Insert the extended post (1) on the charge ring through the corresponding notch (2) on the front shroud.

   **NOTE:** The screw holes (3) in the front shroud will line up with the corresponding holes in the charge ring when the extended post (1) is inserted in the front shroud notch (2).

   ![Fig. 3 Charge ring detail](image)

   
   1. Extended post  
   2. Notch  
   3. Screw holes

   b. See Figure 2. Secure the charge ring (8) to the front shroud (6) with the three screws (12).
3. Lubricate the turbine O-ring (5) with commercial O-ring lubricant before installing the front shroud (6).

4. Install the front shroud (6) and charge ring (8) onto the turbine assembly (3).

**NOTE:** Be sure to line up the front shroud and charge ring with the turbine assembly in the same way that you removed it.

5. Secure the front shroud and charge ring to the turbine assembly with the flat-head screws (10) and O-rings (11).

6. Slide the rear shroud (2) onto the atomizer.

7. Line up the holes on the rear shroud (2) with the holes on the rear mounting plate. Secure the rear shroud to the atomizer with the three oval-head screws (1).

8. **See Figure 1.** Screw the distributor (3) into the front of the cup (4). Note that the distributor has left-hand (reverse) threads.

9. Insert the 1/8-in. hex-key ball driver (2) through the hole and duckbill seal in the side of the charge ring (1).

**NOTE:** Make sure that the driver drops into the hole in the turbine shaft, just as it did in *Disassembly*, step 1b.

10. Hold the ball driver (2) and turn the cup (4) clockwise (as viewed from the front) to screw it into the turbine shaft.
4. Parts

Use the following parts lists to order the correct components for your RA-16 rotary atomizer upgrade kit.

Upgrade Kit

See Figure 2.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part</th>
<th>Description</th>
<th>Quantity</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>—</td>
<td>302 141</td>
<td>Kit, upgrade, RA-16 rotary atomizer</td>
<td></td>
<td>A</td>
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<tr>
<td>8</td>
<td>230 921</td>
<td>• Housing, charge ring, w/resistor</td>
<td>1</td>
<td></td>
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<tr>
<td>NS</td>
<td>125 123</td>
<td>• • Seal, duckbill valve</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>940 453</td>
<td>• O-ring, Viton, black, 4.00 x 4.12 x 0.06</td>
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<td></td>
</tr>
<tr>
<td>12</td>
<td>982 878</td>
<td>• Screw, fil, 10-32 x 0.500, nylon</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

NOTE A: The cup assembly and nozzle are not included in the upgrade kit. Order the correct cup and nozzle for your application using the following parts lists.

Cups and Distributors

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Quantity</th>
<th>Note</th>
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</thead>
<tbody>
<tr>
<td>302 126</td>
<td>Cup, 2 in. dia, w/fins, insert, assembly</td>
<td>1</td>
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<tr>
<td>302 127</td>
<td>Cup, 2 in. dia, smooth, insert, assembly</td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>302 130</td>
<td>Cup, 2.5 in. dia, w/fins, assembly</td>
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<td>A</td>
</tr>
<tr>
<td>302 131</td>
<td>Cup, 2.5 in. dia, smooth, assembly</td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>295 369</td>
<td>Distributor, cup</td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>295 390</td>
<td>Distributor, emulsion</td>
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<td>B</td>
</tr>
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</table>

NOTE A: All cup assemblies include a distributor, part 295 369.

B: Optional distributor, used with emulsions. Replaces distributor, part 295 369.
### Nozzles

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Quantity</th>
<th>Note</th>
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</thead>
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<tr>
<td>295 382</td>
<td>Nozzle, fluid, 0.020 in.</td>
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<td>A</td>
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<tr>
<td>295 383</td>
<td>Nozzle, fluid, 0.030 in.</td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>295 384</td>
<td>Nozzle, fluid, 0.040 in.</td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>295 385</td>
<td>Nozzle, fluid, 0.050 in.</td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>295 386</td>
<td>Nozzle, fluid, 0.060 in.</td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>295 387</td>
<td>Nozzle, fluid, 0.070 in.</td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>295 388</td>
<td>Nozzle, fluid, 0.080 in.</td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>940 092</td>
<td><strong>O-ring, Viton, black, 0.22 x 0.34 in.</strong></td>
<td>1</td>
<td>A</td>
</tr>
</tbody>
</table>

**NOTE A:** All nozzles include an O-ring, part 940 092.

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