Subject
The following instructions provide a step-by-step procedure to:
1. Remove reservoir from the SCR container.
2. Replace heating element.
3. Replace level/temperature sensor.

Tools required for removing the reservoir from the SCR container:
- 4mm Allan socket or key
- Flat head screwdriver
- Large channel locks
Tools required to replace the heating element and level sensor:
- 1 Torx T20 Screwdriver
- 1 Solder
- 1 Solder iron
- 1 X-ACTO knife
- 1 Wire striper
- 1 Extension bar with 10mm socket
- 1 Long pliers
- 1 Heat gun
Removing the reservoir from the SCR container

Step 1:
Remove the three 4mm Allan screws from the urea pump (see Fig.1).

![Fig. 1](image1)

The image below shows the 4mm Allen screw once it is removed from the urea pump.

![Fig. 2](image2)
Step 2:
Lift up the urea pump and remove it from the tank.

Step 3:
Ensure that the two oil seals are still in their correct seating locations (see Fig. 4).
Step 4:
Locate the two alignment arrows. There is one arrow on the tank and another on the reservoir (see Fig. 5). The two arrows must align during the re-installation process.

Fig. 5

Step 5:
Remove the large retaining nut by turning the top counter clockwise.

Fig. 6
Step 6:
Using the flat head screwdriver, gently lift the top of the reservoir.

Fig. 7

Step 7:
Lift and pull the large rubber seal upwards.

Fig. 8
Step 8:
Now remove the rubber seal completely out of the way.

![Fig. 9](image)

Step 9:
Put your hands on the side walls of the reservoir and turn counter clockwise (see Fig. 10). Keep turning until the reservoir is released from the main tank. In some cases, it will take a considerable amount of force to rotate the reservoir. If you are unsuccessful, reposition your hands around the walls and try again.

![Fig. 10](image)
Step 10:
Once the reservoir is released from the main tank, lift up and remove the reservoir completely.

Fig. 11
Step 11:
Removal is complete.

Note: To re-install the reservoir, simply follow the steps in reverse order starting from Step 11.

Helpful Tips:
- Make sure that the aligning arrows point towards each other before you attempt to remove the retaining nut.
- When re-installing the large rubber seal, ensure that the bottom of the seal sits on the outside walls of the reservoir.
- The pump has two oil rings: one large ring and one small ring.
Replacing the heating element

Step 1:
Use long pliers to remove the two star nuts that are attached to the urea heating unit (see Fig. 1). The red circles indicate the position of the two star nuts (see Fig. 2).

Fig. 1

Fig. 2
Step 2:
Unclip the temperature sensor. Remove the heating element and temperature sensor from the base of the tank.

Fig. 3

Step 3:
Remove the pick-up hose from the heating element by prying the hose backwards.

Fig. 4
Step 4:
Use an X-ACTO knife to cut and remove the heat shrink that holds the wiring for the heating element to the vacuum tube (see Fig. 5).

Step 5:
Pull the wire for the heating element out of the vacuum tube (see Fig. 6). The pick-up hose and heating element wire will become completely separated (see Fig. 7).
Step 6:
Cut the heating element wire where it is connected to the harness.
Step 7:
Cut off the remaining heat shrink.

Fig. 9

Step 8:
Pull out the wire from the grommet.

Fig. 10
Step 9:
Slide the wire out of the base. Then remove the old heating element from the base (see Fig. 12).

Fig. 11

Fig. 12
Step 10:
Slide the new heat element wires into the new heat shrinks provided.

Fig. 13

Step 11:
Slide the pick-up tube into the opposite side of the heat shrink.

Fig. 14
**Step 12:**
Slide the vacuum tube to about 1/2 inch past the heat element as pictured below.

![Fig. 15](image15.jpg)

**Step 13:**
Remove the screw with the T20 Torx screwdriver. Place the wires into the channels on both sides of the pick-up tube and tighten the screw back up. Ensure that the tube is firmly inserted back in to the lid. Poor fitment will result in pressure build-up codes stored.

![Fig. 16](image16.jpg)
**Step 14:**
Push the wires through the grommet holes (using a little oil will help).

![Fig. 17](image)

**Step 15:**
The result should look like the image below (see Fig. 18).

![Fig. 18](image)
Step 16:
Once properly placed, use a heat gun to shrink the shrink tube.

Fig. 19

Step 17:
Strip the heat element wires on the harness side

Fig. 20
<table>
<thead>
<tr>
<th>QUALITY MANAGEMENT SYSTEM</th>
<th>Urea Tank Heater, Level and Temperature Sensors Replacement Instructions - BMW</th>
</tr>
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**Step 18:**
Cut the heat element wires to approximate length. We suggest that you cut the wires slightly longer so that you have room to work with.

![Fig. 21](image1.jpg)

**Step 19:**
Strip the heat element wires.

![Fig. 22](image2.jpg)
Step 20:
Slide the included heat shrink over the longer wires.

Fig. 23

Step 21:
Twist the wires together.

Fig. 24
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**Step 22:**
Solder the wires.

![Fig. 25](image-url)

**Step 23:**
Once the wires cool down, slide the heat shrink and shrink the tube.

![Fig. 26](image-url)
**Step 24:**
Crush the star nut to use for reinstallation

![Image](image1.png)

**Fig. 27**

**Step 25:**
Use the extension with the 10mm socket to re-install the star nuts once you place the heat element at the bottom of the base.

![Image](image2.png)

**Fig. 28**
Step 26:
Place the heat element inside the urea tank. The heat element should fit perfectly by using the guides.

Fig. 29

Step 27:
Re-install the pick-up tube holder if it was removed (see Fig. 30). If you did not remove the pick-up tube filter, the base should look similar to Fig. 31 (see next page).

Fig. 30
Fig. 31
Level sensor / temperature sensor replacement steps

Step 1:
Remove the retaining clip from the level sensor.

Step 2:
Pull the level sensor out of the reservoir.
Step 3:
Cut the sensor wire.

Fig. 3

Step 4:
Remove the retaining bracket.

Fig. 4
Step 5:
Lube the rubber grommet with some WD40 and pull it out.

Step 6:
Cut off all six wires on the other end. Caution – DO NOT cut the thick red and white heater wires!
Step 7:
Feed the new level sensor wire though the lid.

Fig. 7

Step 8:
Leave 5" slack inside.

Fig. 8
Step 9:
Insert all six wires into the shrink tubes provided.

Fig. 9

Step 10:
Solder together the corresponding colors
White to white, black to black, grey to grey red to red, blue to blue and yellow to yellow.

Fig. 10
**Step 11:**
Using heat gun shrink all tubes.

![Fig. 11](image1.jpg)

**Step 12:**
Zip tie all wires together.

![Fig. 12](image2.jpg)
Step 13:
Reinstall retaining bracket. Ensure that the rubber pick-up tube is firmly inserted back in to the lid. Poor fitment will result in pressure build-up codes stored.

Step 14:
Re-install the sensor back in to the reservoir.
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**Step 15:**
Secure it with the retaining clip.

Fig. 15

Congratulations, you just saved yourself $1,000.00 dollars!