TECHNICAL DOCUMENT

Remanufacturing the Ricoh Aficio 200 Drum Cartridge

First released in November 1996, the Ricoh Aficio 200 series of copiers are based on a 20ppm 600 dpi Ricoh engine.

These drum units are somewhat unique in that the developer and the PCR are both located in the drum unit. The drum unit is rated for 45,000 pages. When remanufacturing these cartridges, the developer and the drum should be replaced together. These two items must be matched to each other or over-toning (back-grounding) will occur.

The toner for these machines comes in a kit filled with 216g of toner. The toner is rated for 8,000 pages. The toner for these machines is only available in kits. See Figure 1

Other machines based on the Aficio 200 engine are the:

Gestetner 3220

Lanier 5020 MFD

Nashuatec D420

Savin 9920DP

These machines are Multi-Function in that they copy, print, and fax. With a list price of about $350.00, they are very profitable. (Pricing is set by the Ricoh dealer).

Figure 1

There are two issues with these cartridges that you must be aware of before remanufacturing them. The first is that a seal for the developer is very necessary. Filling the cartridge with developer through the main auger is time consuming, and it is difficult to get all the developer in. The sealed hopper easily holds all the developer and the seal will also allow you to ship the cartridge when complete. An unsealed cartridge will definitely leak.

The second is that there is a toner sensor built into the cartridge. Before any cleaning is done, this sensor should be removed and placed in an anti-static bag to protect it from damage. This sensor is easily damaged.

Last but not least, there is a simple reset procedure that must be done with two small gears on the side of the cartridge. This procedure will be covered at the end of this article.

Supplies Required

Toner approved vacuum.

A small Common screw driver

Phillips head screwdriver

A spring hook

Needle nose pliers

Tools Required

325g Aficio 200 developer
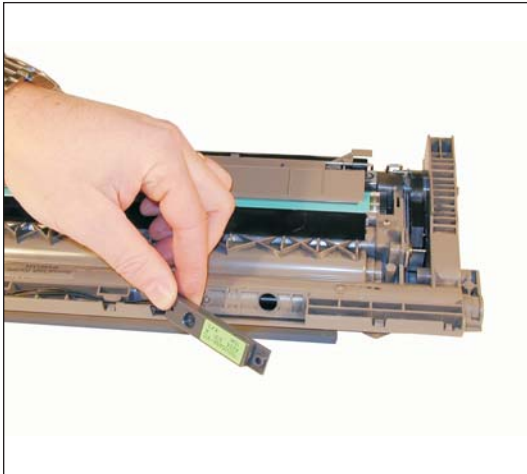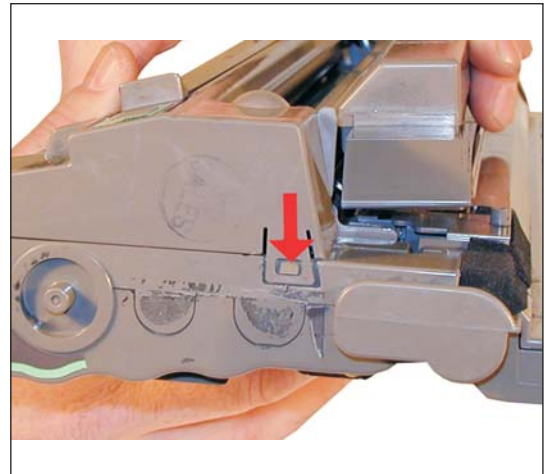
New Drum

New Wiper Blade

Sealing Strip

Figure 2

Figure 3

1) Gently pry off the toner sensor from the cartridge. Place in a Static proof bag for protection. Failure to do this will result in a damaged sensor, and the cartridge will not work properly. See Figure 2

2) Carefully pry off the tabs on both the left and right sides. See Figure's 3 & 4 (Figure 4 on next page)

Figure 4

Figure 5

Figure 6

3) Pry the three tabs off the front edge of the cartridge, lift the cover off. See Figure's 5 & 6
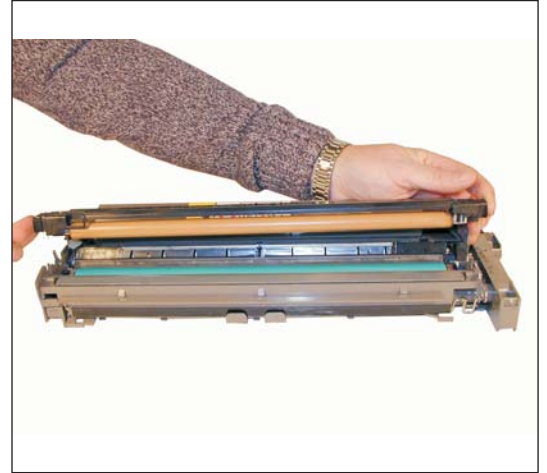
Figure 7

Figure 8

4) Separate the wire harness on the top cover at the small white connector. See Figure 7
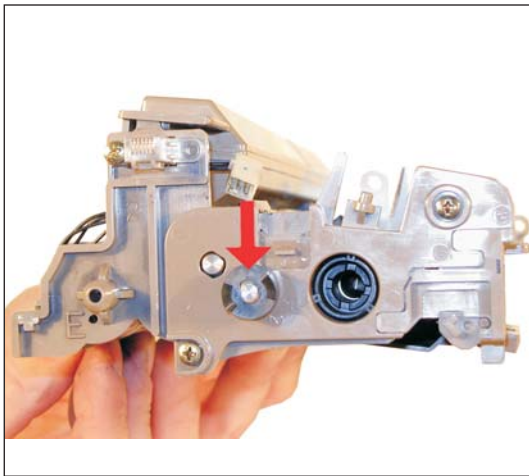
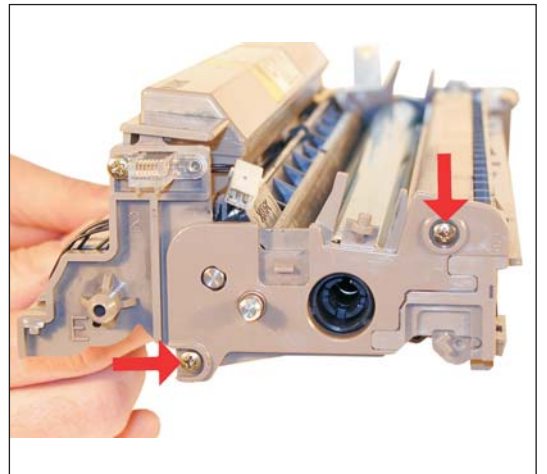5) Remove the entire PCR assembly. See Figure 8

Figure 9

Figure 10

6) Remove the small black gear from the contact side of the cartridge. (The right side with the drum facing up, and towards you). See Figure 9

7) Remove the two screws from the left End Cap. See Figure 10

Ricoh Aficio 200 Drum Cartridge (Continued)
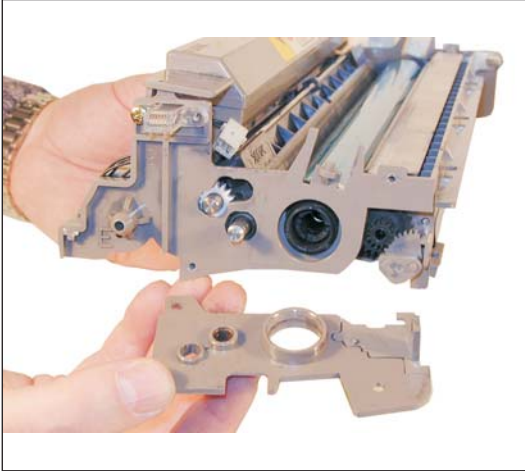
Figure 11

Figure 12

8) Carefully work the end cap loose. It has a very tight fit. See Figure 11

9) Turn the cartridge upside down, and pry off the three tabs that hold the developer chamber on. See Figure's 12 & 13

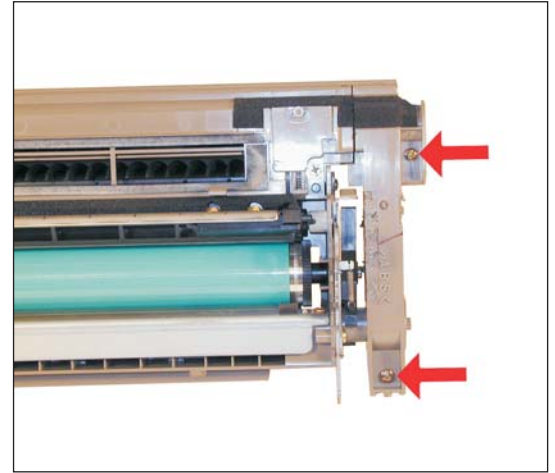10) Clean out any remaining Developer

Figure 13

Figure 14

11) On the right side of the cartridge, remove the top two screws on the small auger cover. See Figure 14
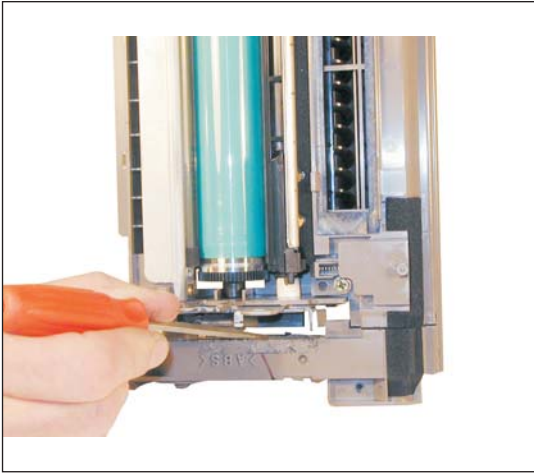
Figure 15

Figure 16

12) Peel back the labels on both sides of the cover. The inside label is difficult to get at, but it must be removed. We have found the easiest way to remove the inside label is to peel off the top, and force the label off the inside by pressing a dull common screwdriver against the seal. See Figure 15

13) Remove the two screws on the back auger cover. Note that these screws are much larger than any of the others. See Figure 16
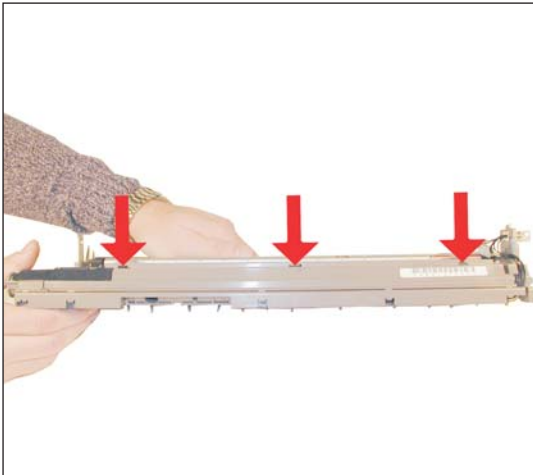

Figure 17

Figure 18

14) Pry the three tabs on the back auger cover loose. Remove the back cover and clean out any remaining developer. See Figure's 17 & 18
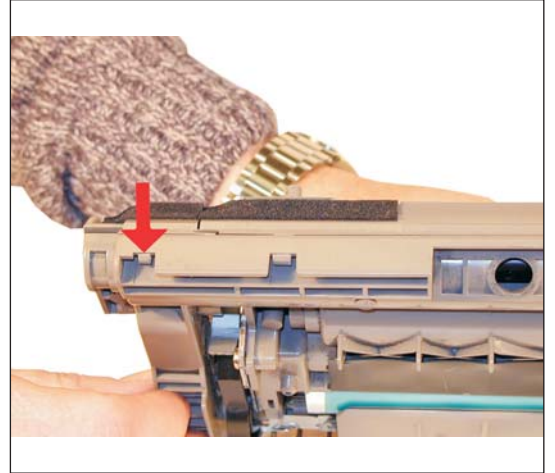
Figure 19

Figure 20

15) Remove the plug on the side of the cover, press in on the locking tab and remove the top cover. See Figure's 19, 20, and 21
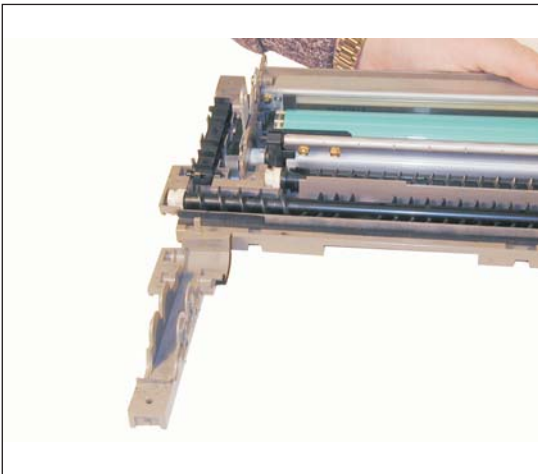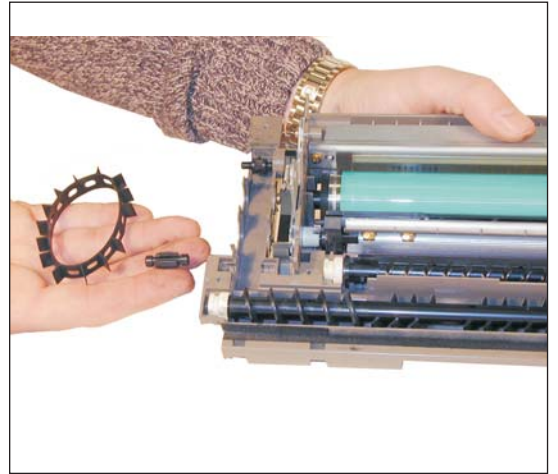

Figure 21

Figure 22

16) Remove the auger drive belt and paddle wheel. Clean out any remaining developer. See Figure 22
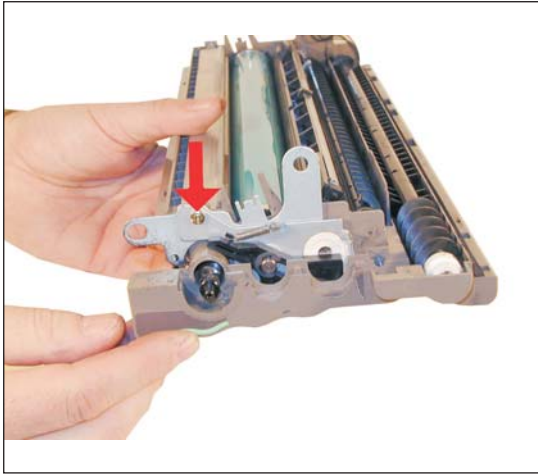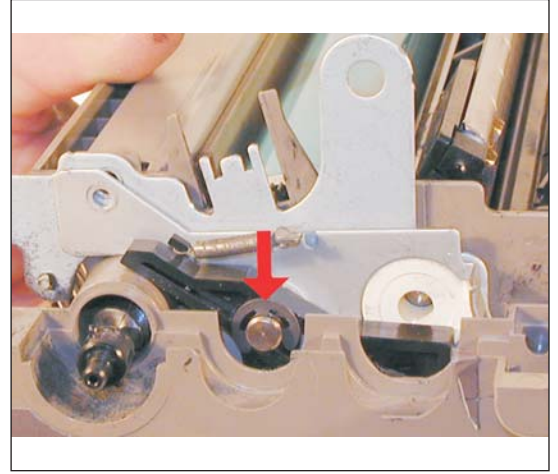
Figure 23

Figure 24

17) On the same side of the cartridge, remove the top left screw on the drum plate. See Figure 23

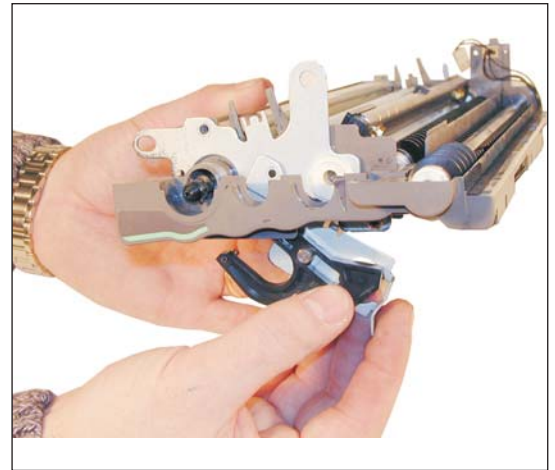18) Remove the E-ring and spring. See Figure's 24 & 25

Figure 25

Figure 26

19) Remove the outside metal drum plate and rocker arm. See Figure's 26 & 27 (Figure 27 on next page)
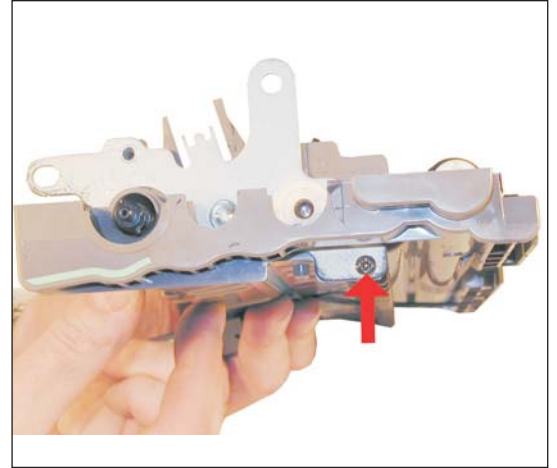
Figure 27

Figure 28

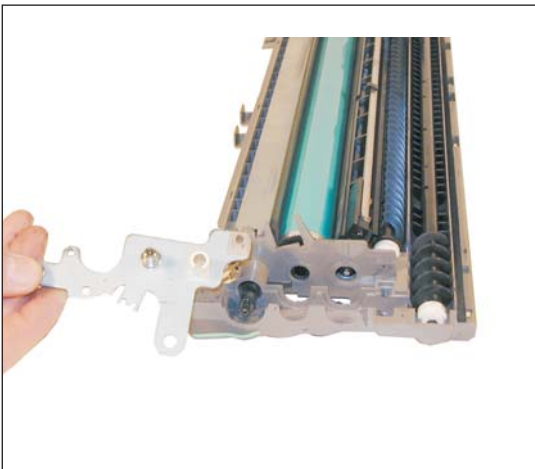20) Remove the remaining screw on the inside drum plate, and the plate. See Figure's 28 & 29

Figure 29

Figure 30

21) Carefully lift out the magnetic roller assembly. Remove any remaining developer. See Figure 30

Figure 31

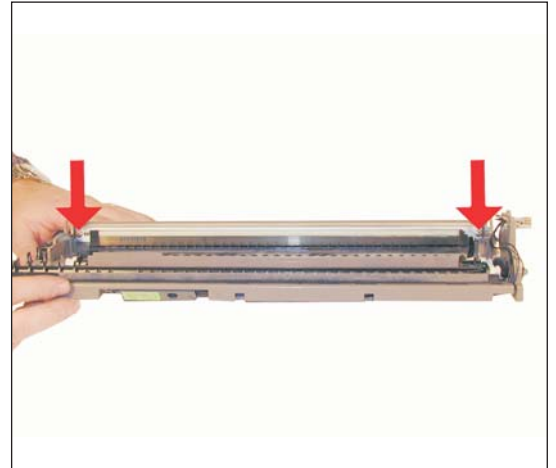Figure 32

22) Remove the drum. See Figure 31

23) Remove the two screws and the wiper blade. See Figure 32
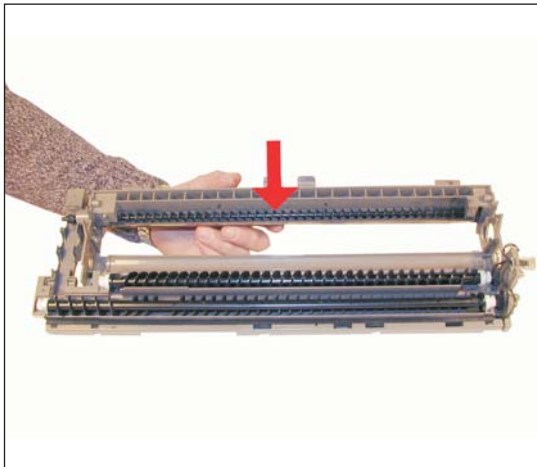

Figure 33

Figure 34

24) Clean out the auger area. Make sure that the auger stays in its slot. The gear on the opposite side of the shaft can be lost if it comes loose. See Figure 33
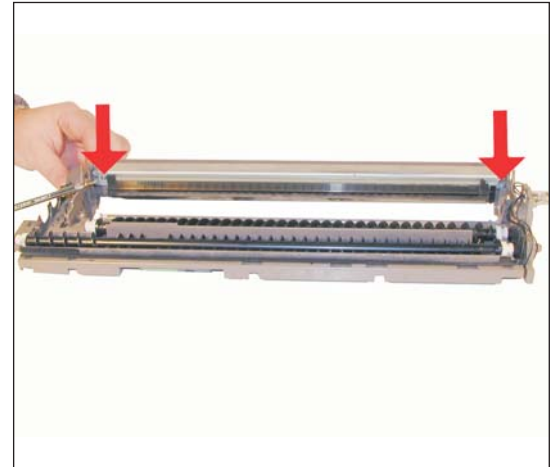
25) Coat the wiper blade with your preferred lubricant, and install the blade and two screws in the cartridge. See Figure 34

Figure 35

Figure 36

26) Install the new drum. Due to the high page count on these cartridges, it is highly recommended that both the drum and wiper blade be replaced. See Figure 35

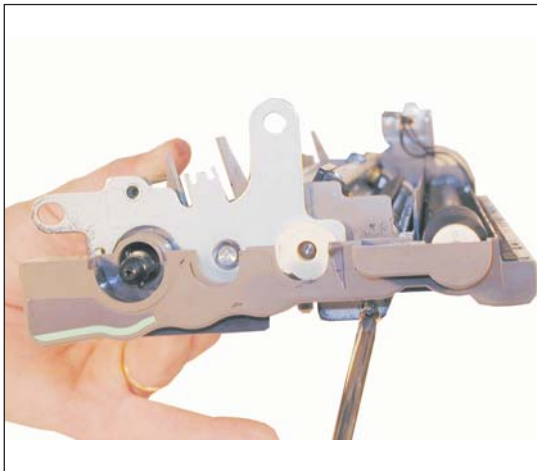27) Install the cleaned magnetic roller assembly. See Figure 36

Figure 37

Figure 38

28) Install the inside metal drum plate and the back screw only. See Figure 37

29) Install the outside metal drum plate, the plastic rocker arm and screw. It is easiest to install the arm from the bottom. See Figure's 38 & 39 (Figure 39 on next page)
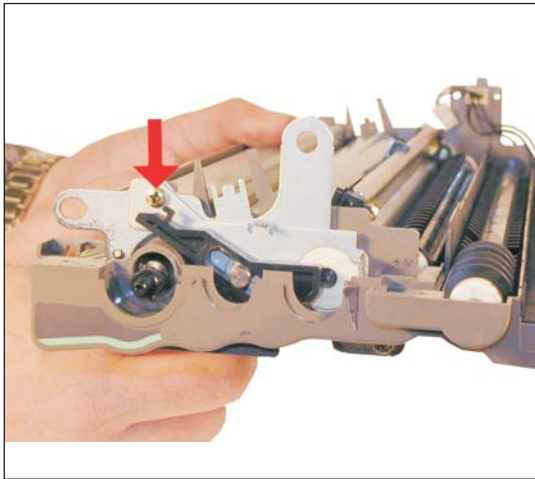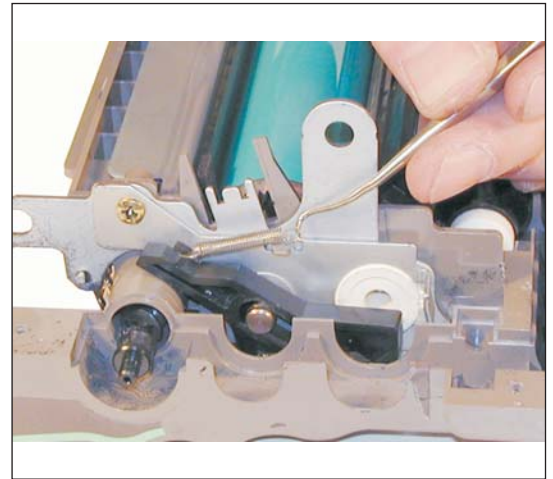
Figure 39

Figure 40

30) Install the small spring. See Figure 40

Figure 41
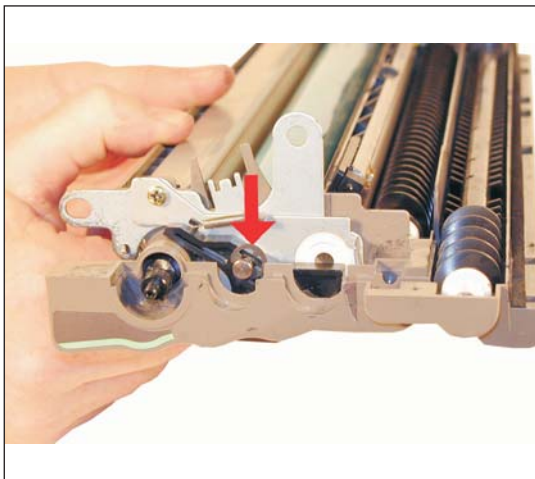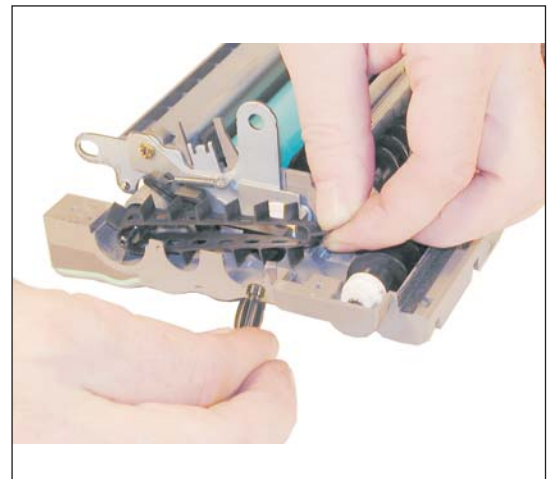

Figure 42

31) Install the E-Ring. See Figure 41

32) Install the auger drive belt and paddle wheel. See Figures' 42 & 43 (See figure 43 on next page)
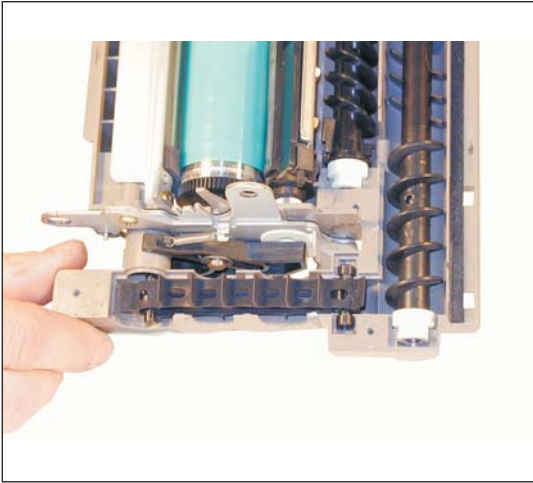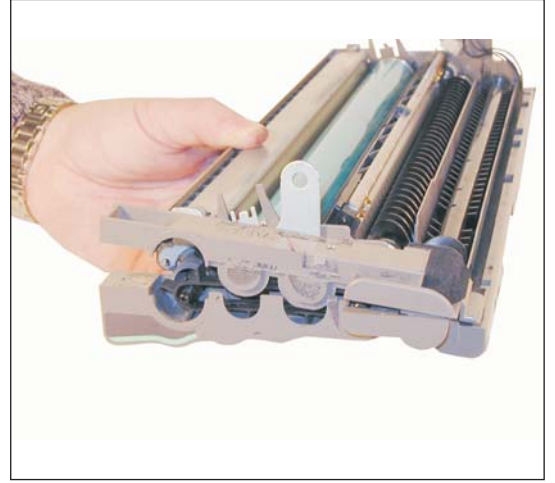
Figure 43

Figure 44

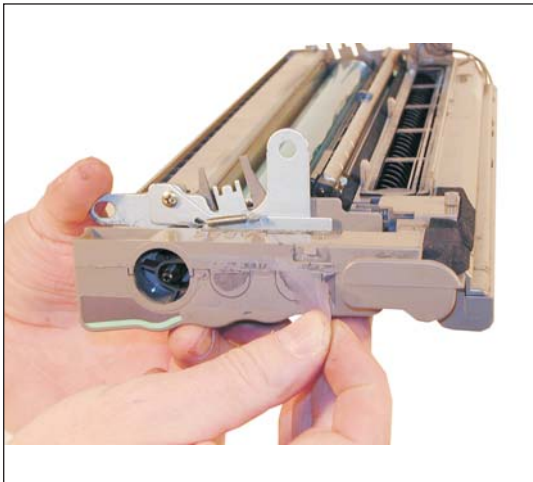33) Install the small auger top cover and screws. Place tape across both seams of the cover. See Figure's 44 & 45

Figure 45

Figure 46

34) Install the large back auger cover and two large screws. Be careful not to damage the wire harness. See Figure 46
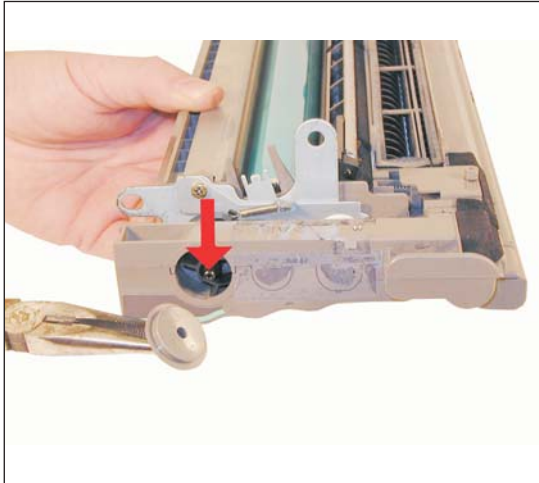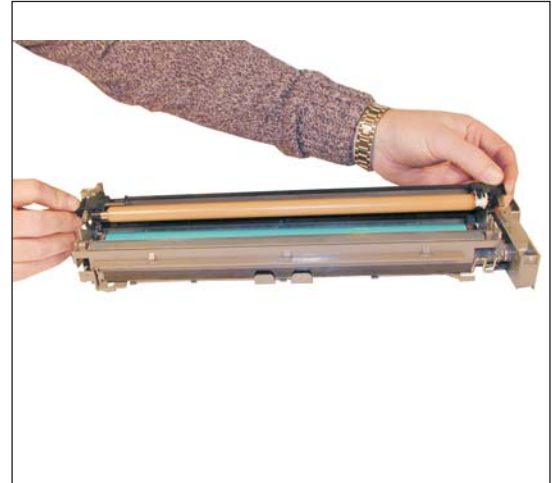
Figure 47

Figure 48

35) Install the plug on the small auger covers. Make sure that the center of the plug fits over the long auger shaft. See Figure 47

36) Clean the PCR with water, and install the assembly in the cartridge. Make sure the contacts are on the contact side of the cartridge, (Non-auger). See Figure's 48 & 49
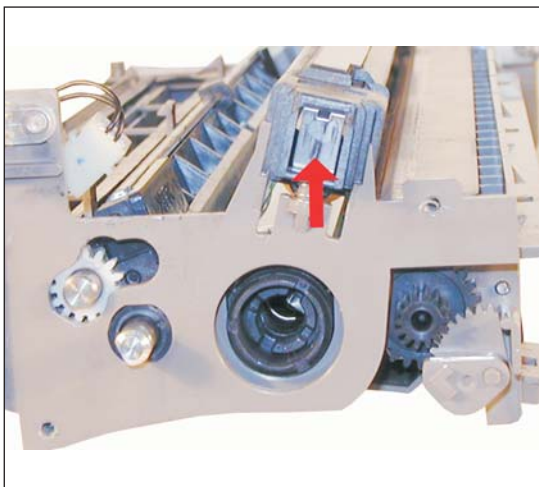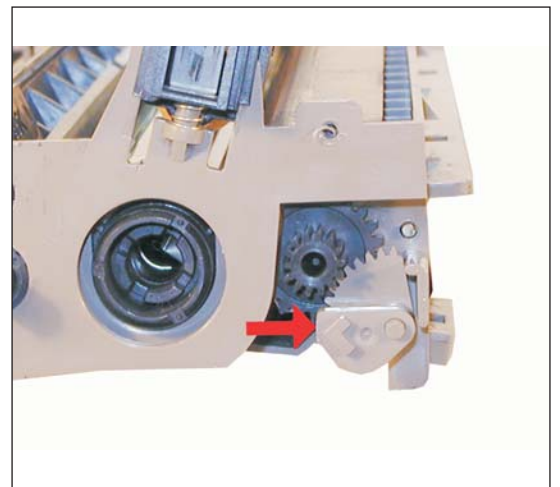

Figure 49

Figure 50

37) The reset gear must now be set. This gear and flag combination tells the machine that a new cartridge has been installed. The machine then takes readings from its sensors to measure the charge of the developer and drum. From those readings, it sets up the density for that drum unit. If they are not reset, the machine will continue to think the old cartridge is installed, and will use the old settings. This will usually cause light print or back grounding. Set the gear as shown in Figure 50
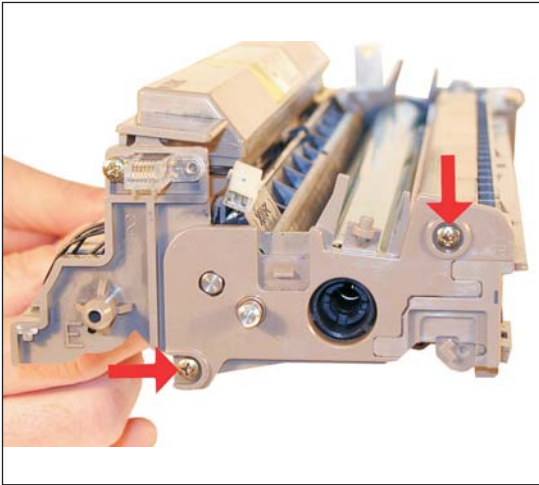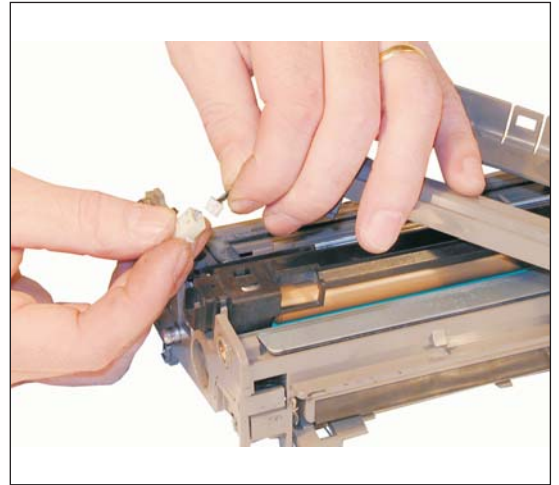
Figure 51

Figure 52

38) Install the end cap and screws on the contact side of the cartridge. See Figure 51

39) Re-connect the wire harness and install the top cover. Make sure all 5 tabs are snapped in place. See Figure's 52 & 53
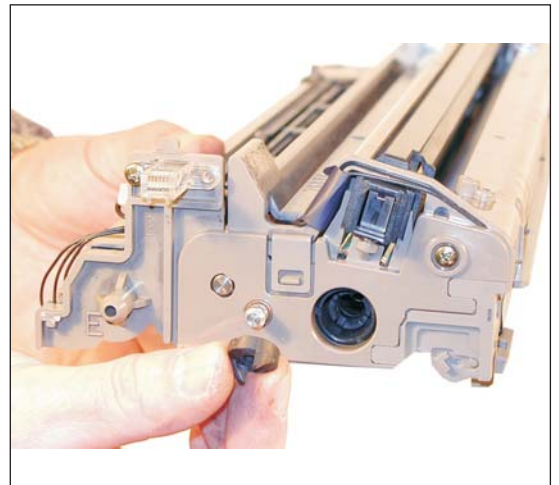

Figure 53

Figure 54

40) Install the black gear on the keyed shaft. See Figure 54

Figure 55

Figure 56

41) Fill the developer chamber with 325g Aficio 200 developer. See Figure 55

42) Install the sealing strip, pull tabs towards the flat edge of the chamber. See Figure 56

Figure 57

43) Install the developer chamber on the cartridge. See Figure 57

The cartridge is finished!

MACHINE ERROR CODES

Error 120-123: Scan problems

Error 320-324: Laser problems

Error 390: Toner density sensor

Error 393: Toner density sensor

Error 500: Main Motor locked

Error 542-546: Fuser errors

To get more information on these and other error codes, you have to enter the diagnostics mode and run simulations. This should only be attempted by qualified technicians who have the proper documentation, and are familiar with Ricoh machines.