THE HP P2015 TONER CARTRIDGE

DOC# 0379

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Remanufacturing the HP P2015 Toner Cartridge

The HP P2015
Toner Cartridge

First released in December 2006, the HP LaserJet P2015 series of printers are based on a 1200dpi, 27ppm Canon engine. As with all the new HP cartridges, these cartridges use a chip to monitor toner low functions. They use the older larger format chip board as found on the 4200/4300 series, not the smaller version found on many other newer cartridges like the CLJ 2600. The P2015 cartridge looks somewhat like an updated version of the 1320 (Q5949X) cartridge but are not interchangeable with them. Testing is on going and it is very possible that many of the current 1320 supplies will work in these cartridges. Check you're your supplier as this should be settled by the time you are reading this. The cartridges for the P2015 are the Q7553A and Q7553X and are rated for 3,000 Pages and 7,000 pages respectively**.**

The LaserJet P2015 series of printers use a 400 MHz processor and the most basic unit has 32Mb of DDR2 memory expandable to 288mb. They all show a first page out at less than 8.5 seconds. The entire series has a monthly duty cycle of 15,000 pages/month, but the recommended monthly page volume is only 3000 pages. Obviously this is not designed as a workhorse machine. The cartridges are listed on HP's web site with prices of $80.99 for the A, and $147.99 for the X cartridge. (Pricing as of December 2006).

So far the machines based on the P2015 engine are the:

LaserJet P2015, P2015d, P2015n, P2015dn, and the P2015x

Like some of the other recent HP cartridges, there are parts that use plastic rivets/plastic welding to hold them together. While there are still some normal screws used, the cartridge is not as straight forward or "recycling friendly" as one would like.

As with all other black HP cartridges, the chips on these cartridges do not shut down the entire cartridge, they disable the toner low features. The cartridge will run if the chip is removed, but the error message must be cleared first. As with past HP chips, the toner low function is disabled if a used chip is installed.
Printing test pages, cartridge troubleshooting as well as some simple machine troubleshooting is covered at the end of the article.

The theory for these cartridges is the same as most of the other HP/Canon monochrome cartridges so we will not go into it here.

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Required Tools

Toner approved vacuum.
A small Common screwdriver
A Phillips head screwdriver
Needle nose pliers or Flush cutting Wire Cutters
Dremmel tool with side cutting bit. (Hobby rotary saw)

Required Supplies

Toner 330g HP-P2015 type (Preliminary weight)
New OPC Drum (Under Investigation)
New Wiper Blade (Under Investigation)
New PCR [Optional] (Under Investigation)
New mag. Roller [Optional] (Under Investigation)
New Dr. Blade [Optional] (Under Investigation)
99% Isopropyl Alcohol
Magnetic Roller Cleaner
Drum Lubricant
Conductive Grease
White Lithium grease

1) Remove the drum cover by prying up the main bar on the top of the cartridge. See **Figures 1 & 2**

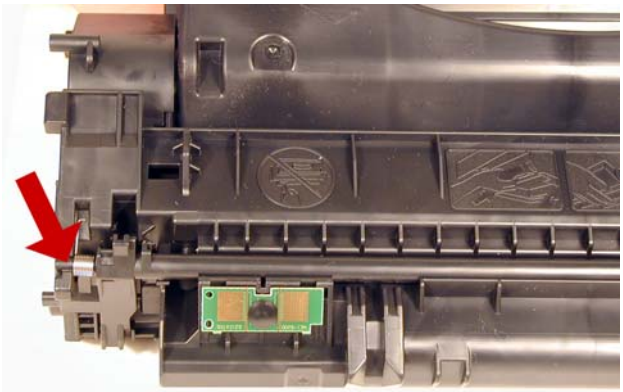

Figure 1

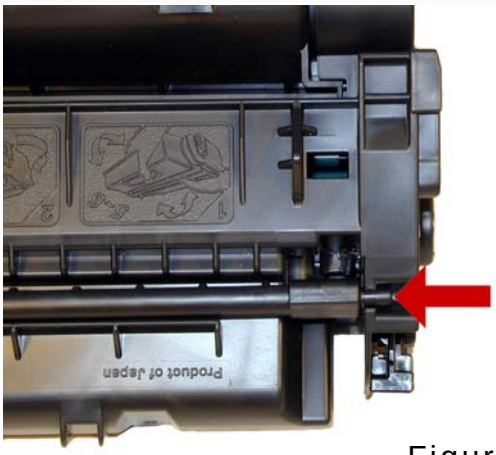

Figure 2

2) Note on each end of the cartridge there are small silver pins. To separate the two halves these pins must be removed. Like the HP-1200 cartridges, these pins cannot be pulled out or pushed in from the outside of the cartridge. Small holes must be but in the top of the cartridge to allow the pins to be pushed out. **Figures 3 & 4** show the area uncut.

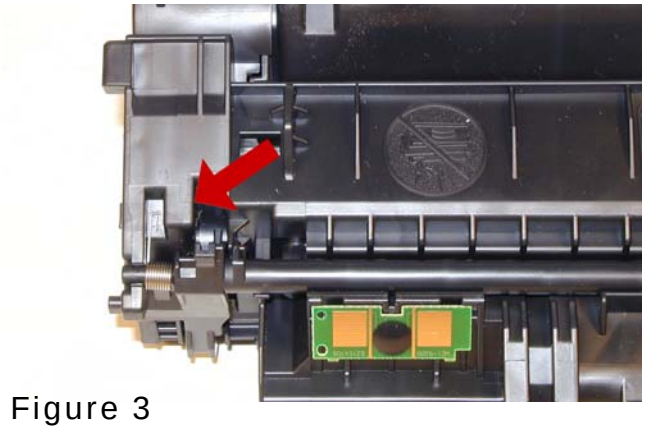

Figure 3

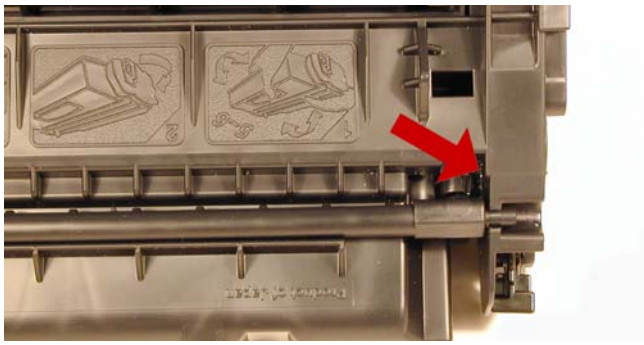

Figure 4

3) To remove the pins, cut the holes with the Dremmel tool and a side cutting bit. See **Figures 5 & 6**

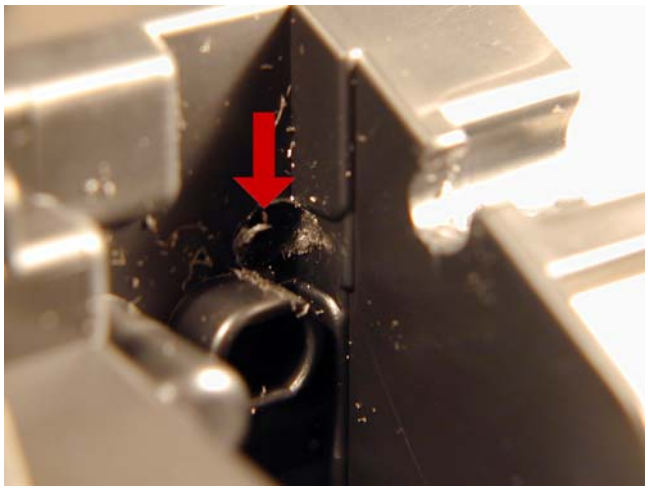

Figure 5

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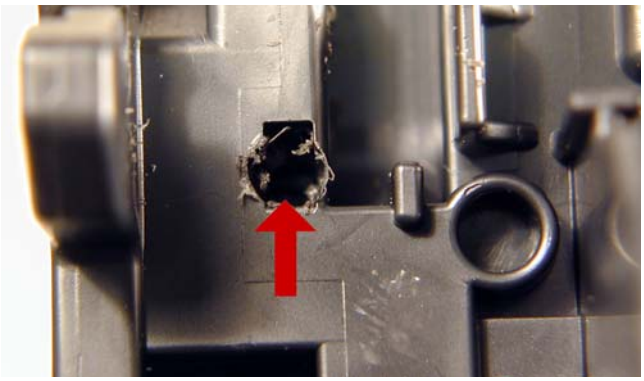

Figure 6

4) Push the pins out with a small Jewelers screwdriver, remove them with the wire cutters or pliers. See **Figures 7 & 8**

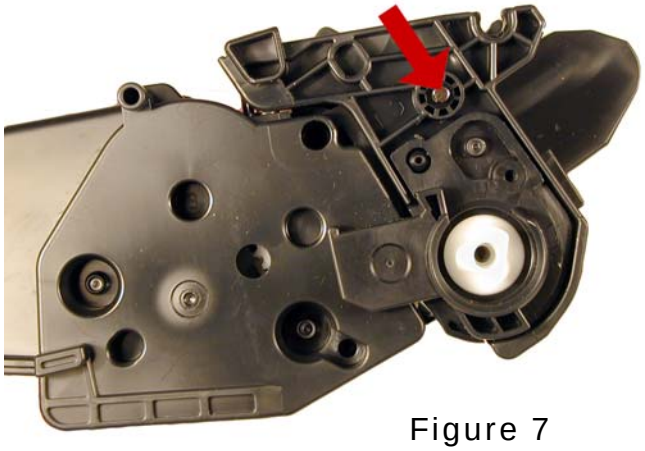

Figure 7

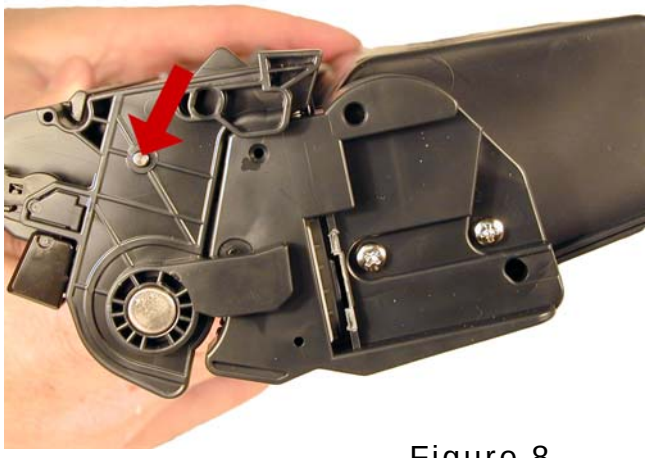

Figure 8

5) Separate the two halves See **Figure 9**

Figure 9

6) On the Waste section, take a common jewelers screwdriver and insert it between the drum and side wall of the cartridge. Gently pry the metal drum axle pin out from the cartridge. Remove the axle pin with the wire cutters. This must be done this way as the opposite side plastic drum axle is held in with plastic rivets. While they can be drilled out and screws used, there is then the possibility of miss-alignment and premature drum wear. See **Figures 10, 11 & 12**

Figure 10

Figure 11

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Figure 12

7) Remove the Photoconductive Drum. See **Figure 13**

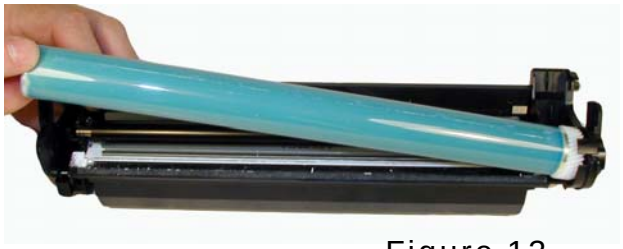

Figure 13

8) Remove the Primary Charge Roller (PCR), by prying it out of the clips on either end. Clean the PCR with your preferred cleaner and place the aside. See **Fig. 14**

Figure 14

9) Remove the wiper blade and 2 screws. See **Fig. 15**

Figure 15

NOTE: Be very careful not to damage or distort the thin Mylar Recovery Blade next to the wiper blade. If this blade is bent or damaged in any way, it should be replaced.

10) Clean out any remaining waste toner. Make sure the foam seals under the wiper blade are clean and not damaged. See **Figure 16**

Figure 16

11 Lightly coat the new blade with you preferred lubricant. Install the Wiper Blade and 2 screws into the cartridge. See **Figure 17**

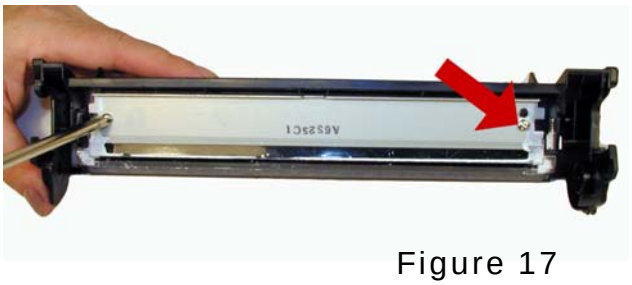

Figure 17

12) Clean the 2 PCR holders, and place a small amount of conductive grease on the black PCR holder, install the PCR. See **Figure 18**

Figure 18

13) If you are re-using the drum, check to make sure the grease on the drum drive gear and hub is clean. If not remove it and replace. White Lithium grease can be used here. Install the drum. See **Figure 19**

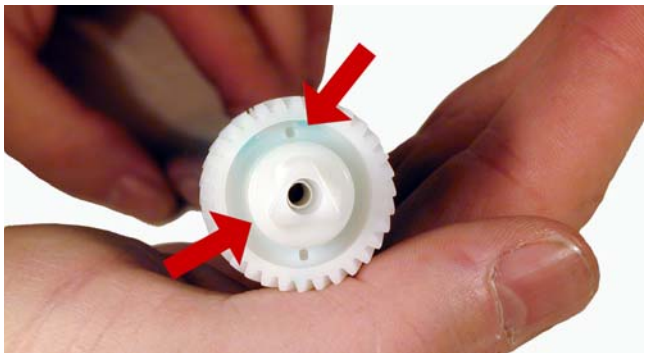

Figure 19

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14 Replace the conductive grease on the end of the metal drum axle tip, and install on the cartridge. See **Figures 20 & 21**

Figure 20

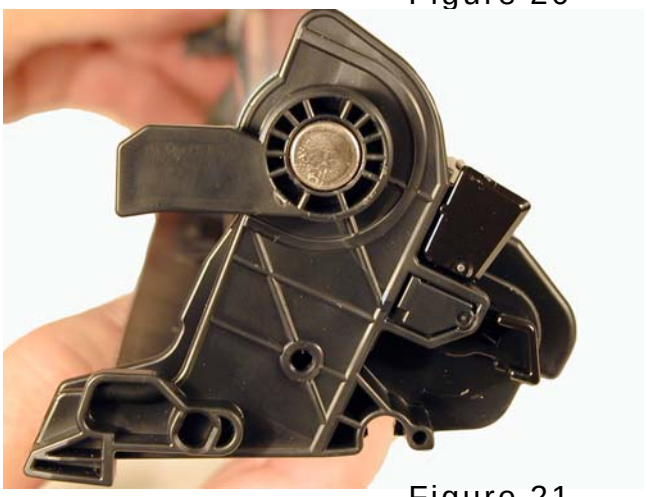

Figure 21

15) Place the waste chamber aside.

16) On the supply section, remove the 2 screws from the left side (Non-Gear side) end cap. See **Figure 22**

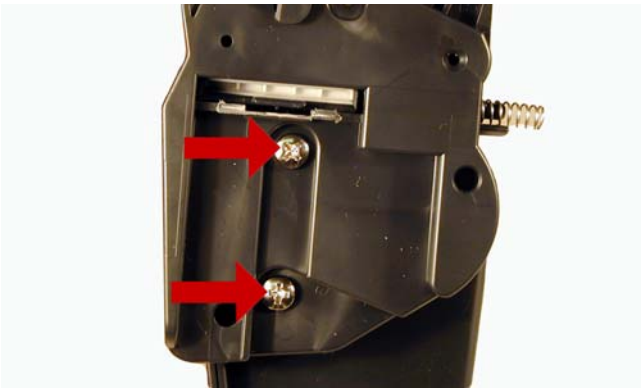

Figure 22

17) Gently pry off the end cap, a plastic rivet will snap off just below the Dr. Blade. So far is our tests it has not been a problem, but it is possible that this section may need to be secured. See **Figures 23 & 24**

Figure 23

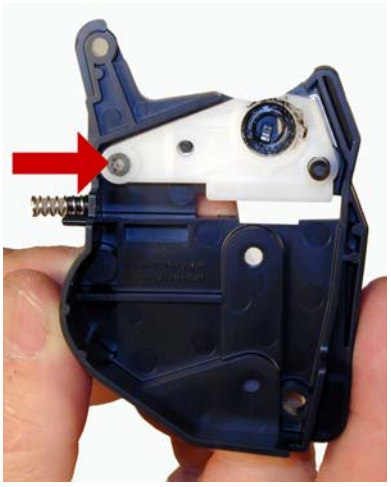

Figure 24

18) Remove the magnetic roller assembly from the cartridge. See **Figure 25**

Figure 25

19) Remove the mag. roller drive gear so it does not get lost. See **Figure 26**

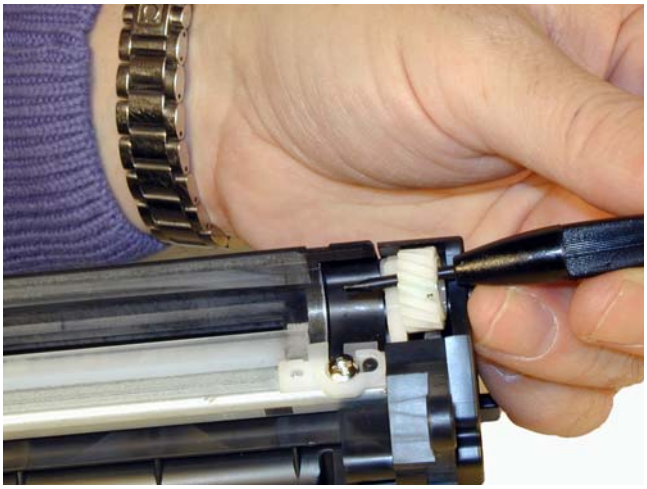

Figure 26

20) Remove the 2 screws and doctor blade. Pry the bar up being very careful not to break the alignment pins. See **Figures 27 & 28**

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Figure 27

Figure 28

21) Clean out any remaining toner.
22) There is no fill hole in these cartridges so it must be filled through the DB slot. Fill the cartridge with 330g (Preliminary weight) of P2015 toner. See **Figure 29**

Figure 29

23) If a seal is available, install it now.
24) Make sure the doctor blade seals are clean. If they are coated with toner, clean them lightly with a cotton swab and alcohol until they are sticky again. Install the doctor blade and 2 screws. See **Figures 30 & 31**

Figure 30

Figure 31

25) Clean the mag roller contact plate on the contact end cap. Replace the conductive grease.

26) Install the Mag. Drive gear. Make sure the locking part of the gear faces the roller.

27) Clean the mag roller sleeve with a dedicated mag roller cleaner.

28) Install the mag roller. Turn the stationary magnet so that the keyed end will fit into the drive gear and the end cap. See **Figure 33**

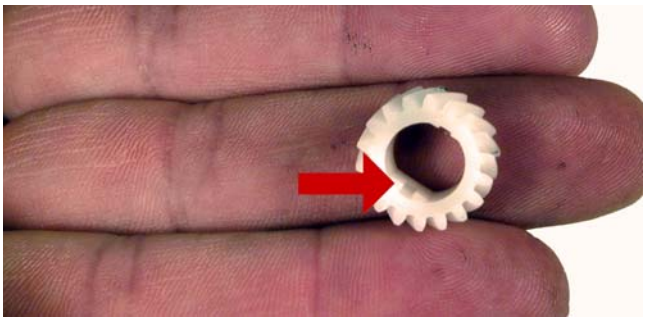

Figure 33

29) Install the contact end cap and 2 screws. If the end cap does not fit, the stationary magnet most likely is not set correctly. See **Figure 35**

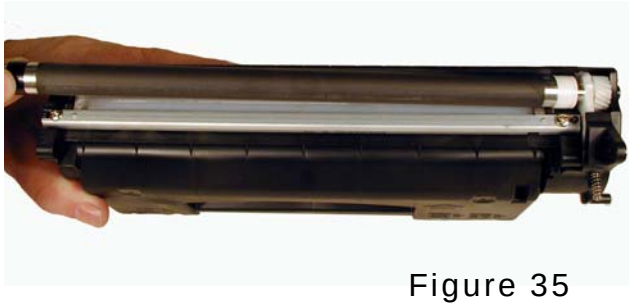

Figure 35

30) Place the 2 halves together. Make sure the springs are set, and install the 2 pins. See **Figures 36, 37 & 38**

31) Set the spring on the drum cover arm as shown. Snap the arm and cover into place. Make sure the spring loaded arm is set right. See **Figures 39 & 40**

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Figure 36

Figure 37

Figure 38

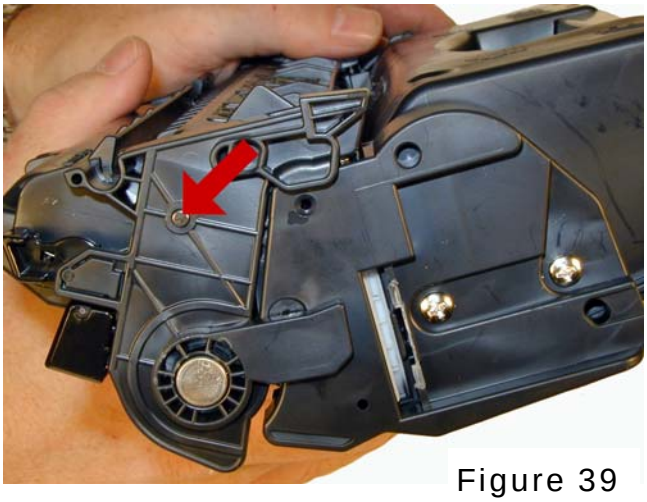

Figure 39

32) Replace the chip. See **Figure 41**

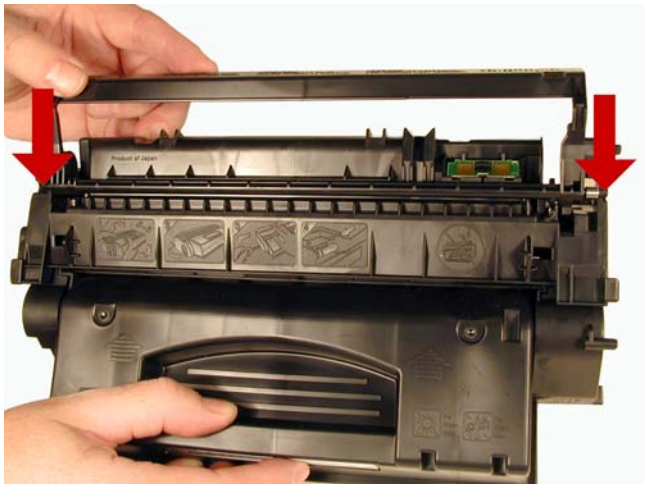

Figure 41

Running the Cleaning page.

The cleaning page helps keep the fuser free of toner/ dust particles. HP recommends that for best results a sheet of transparency be used. If this is not available, use copier grade18-24lb smooth surface paper.

1) Make sure the printer is idle and the ready light is on.
2) Load the transparency in tray 1.
3) On the printers control panel, press and hold the "GO" button until the ATTENTION, READY and GO lights come on. When all three lights are on, release the "GO" button.
4) Press "GO" again. The cleaning page will run. This process takes about 2 minutes to complete.

Printing Test Prints

Demo Page

1) Press the "GO" button when the ready light is on and the printer is idle.
2) The demo page will print.

Configuration Page

1) Press the "GO" button until the ready and Error lights start blinking
2) Release the "GO" button
3) The Configuration Page and Supplies Status page will run

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Supplies Status page

The Supplies Status page will automatically print when the Configuration page is run.

Cartridge Troubleshooting:

Repetitive defect chart:

75.4mm Drum
69.0mm Lower pressure roller
56.5mm Upper Fuser Film
46.2mm Transfer roller
44.0mm Magnetic roller
43.0mm Registration roller
37.7mm PCR

A dirty or Bad Primary Charge Roller (PCR): this will show on the test print as vertical gray streaks down the page, as a gray background throughout the page, or as ghosting where part of a previously printed area is repeated.

Dirty PCR Connection: This will show as horizontal dark black bars across the page, or as shading throughout the page.

Scratched Drum: This is shown by a very thin, perfectly straight line that runs from the top to the bottom of the test page.

Chipped Drum: This will show as a dot or series of dots that repeat every 75.4mm.

Light Damaged Drum: This will show up as a shaded area on the test print that should be white. Again this will repeat every 75.4mm.

Worn-Out Drum: This will usually show up as shading on the right side of the page. It will usually start right from the edge of the page, and work in towards the center. The pattern will normally look like tire tracks.

Bad Wiper Blade: This will show as either a gray line approximately 1/8" thick or as shading across the entire page. In either case there will be a film of toner on the drum surface that matches the defect.

Bad Magnetic Roller Bushing: When this round shaped bushing wears out, gray scale pages, and pages with heavy graphics will exhibit light and dark lines across the page.

Printer Troubleshooting

These machines do not have a text display, just a series of lights. Some of the more common error light patterns are:

Toner Light on: Toner low
Toner Light blinking: Toner missing
Attention Light Blinking: Engine Error
Attention light, Ready light and GO light all on. Fatal Error

If a fatal error is showing, press and hold the GO button and a secondary message will show. Some of these are:

Ready light on: Laser/Scanner error
Attention light on: Engine error
Attention light blinking: fan error
Ready and Go lights blinking: fuser error

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