

COMMON CARTRIDGE FAILURES

By Mike Josiah and the Technical Staff at UniNet

Common failures usually involve the primary components of a cartridge: **OPC drum, wiper blade, magnetic roller, doctor blade** and **PCR**. Other failures involve the recovery blade, electrical contacts, assembly pins, bushings, drum shutters and the housing itself. This is a generic listing of common problems, and does not specifically relate to any particular cartridge. See the individual instructions for specific cartridge problems.

OPC DRUM

The most common cartridge failure is due to the drum. The drum has the wiper blade scraping any excess toner off it as well as the paper rubbing against it as it prints. Common OPC drum failures are:

Perfectly straight and very thin line:

Indicates a scratched drum.

Dots that repeat down the page:

Indicates a chip in the drum surface. The distance between the dots is dependent on the circumference of the drum.

Gray smears of toner across page:

Caused by a light damaged drum (sunlight). The distance between the smears is dependent on the circumference of the drum.

Gray “tire tracks” on right or left side of page:

This failure is also sometimes described as wind blown sand. It is caused by a worn out drum.

In all the above cases:

The drum should be replaced. There is no reliable way to fix a damaged drum.

WIPER BLADE

Wiper blades clean any remaining toner from the drum. Common wiper blade failures are:

Gray thin line down the page:

This is caused by a cut or worn blade.

Gray page with toner visible on drum:

Caused by a very old wiper blade that has gotten stiff. Blades will usually have turned yellow in the process. Yellow blades should never be used.

Poorly lubricated blade:

A poorly lubricated blade will flip and usually damage the drum. It should be replaced. Blade can also stick to the drum if the cartridge is inactive for a while.

MAGNETIC ROLLER

The magnetic roller is a coated aluminum roller that carries the toner from the supply chamber to the drum. Most failures are usually due to excessive wear and scratches. All toners are abrasive, that when combined with the pressure of the doctor blade pressing the toner against the roller causes wear.

Light print:

Worn out magnetic rollers is the largest cause of a light printing cartridge. There is a black conductive coating that wears off the sleeve over time. If in a visual inspection of the roller, you can see the silver tube, the coating is worn out, and the sleeve should be replaced. This failure will show up more on solid black areas and gray scales. Normal text will most times print just fine.

White voids in the print:

This is caused by scratches in the coating. Normally one or two scratches will not cause a problem, but when there are more than that voids will occur. This is especially true when the scratches are all in the same general location.

Light and dark banding across page:

This is caused by a bent or warped magnetic roller. This normally happens when a hub (especially the metal ones) is pressed into the sleeve at an angle. Metal hubs should be removed and replaced with a special press.

Intermittent printing:

A bad magnetic roller contact can print either light or blank pages.

Thick gray smears that repeat at the circumference of the sleeve:

This is normally caused by a static charge on the sleeve. Vacuuming the toner off a sleeve when the humidity is less than 40% RH will cause a static charge. The best way to get rid of it is to clean the roller with a dedicated magnetic roller cleaner.

PCR

The PCR places the initial charge on the drum, as well as erases the residual charge at the end of the cycle. Because of this dual role, there are some very severe failures from them. Most of the failures will show up more in the winter where the humidity is low than in the summer when it is high. Common PCR failures are:

Ghosting:

Where an image that was printed on the top of the page is repeated lightly at the bottom. This happens when the outer coating of the PCR is worn out, or when too much cleaning fluid is used, and not all is wiped off.

Gray background over the entire page:

This again is caused by the outer coating on the PCR being worn.

A cut in the PCR:

Results in a repeating black mark at the circumference of the roller.

Random dots across the page:

These can be either black, or white in black areas. This is caused by excess padding powder sticking to the PCR.

DOCTOR BLADE

The doctor blade controls the amount of toner on the magnetic roller. A worn doctor blade will cause light prints. It can also cut grooves into the mag surface resulting in a line of missing toner (white voids) down the printed page.

MAGNETIC ROLLER BUSHINGS

Magnetic roller bushings keep a specific gap from the magnetic roller to the drum. The edges of the drum ride directly on these bushings. Cracked, worn, missing or toner filled bushings will physically tear the coating off an OPC drum. These bushings should be inspected every time the cartridge is rebuilt.

RECOVERY BLADES

The recovery blade guides the toner that the wiper blade removed from the drum into the waste chamber. A damaged recovery blade will cause random dots all over the page. This will get worse as more printing is done. The most common damage to a blade is that it gets bent down during remanufacturing. The toner will then accumulate on top of the blade and start to drop off. The more printing is done, the more will accumulate and drop off. If a cartridge is returned to you for this problem, it must be carefully taken apart and the recovery blade inspected. Most times the toner on top of the blade will have fallen inside the waste chamber during shipping or the transportation from the customer to you. So a test in your printer will probably not repeat the problem unless a few hundred pages are run.