BROTHER® HL-L2300 SERIES DR630
DRUM CARTRIDGE REMANUFACTURING INSTRUCTIONS

BROTHER DR660 DRUM CARTRIDGE

REMANUFACTURING THE BROTHER HL-L2300 SERIES DR630 DRUM CARTRIDGE

By Mike Josiah and the Technical Staff at UniNet

Released in July 2014, the Brother HL-L2300 printer engine is based on a new 27-32ppm, 1200 DPI laser engine. These machines have a first page out in less than 8.5 seconds, and come standard with 8MB or 32MB of memory depending on the machine. The HL-L2300 series also have duplexing built in. Our HL-2360 machine came with a starter cartridge, which is rated for 700 pages. The starter cartridge does not come with any reset gears.

The DR630 drum unit is rated for 12,000 pages. There are two different toner cartridges available for these machines, the TN630 is rated for 1,200 pages and the TN660 is rated for 2,600 pages.

There are different part numbers for these cartridges depending on your region. They are as follows...

CARTRIDGE REGION	DRUM	TONER STANDARD	TONER HIGH YIELD
North/South America	**DR630**	**TN630**	**TN660**
Europe	**DR2300**	**TN2310**	**TN2320**
Asia/Middle East/Africa	**DR2355**	**TN2360**	**TN2380**
Oceania	**DR2325**	**TN2330**	**TN2350**

CURRENT MACHINES RELEASED SO FAR FOR THIS SERIES

HL-L2300D	**HL-L2320D**	**HL-L2340DW**
HL-L2360DW	**HL-L2365DW**	**HL-L2380DW**
DCP-L2520DW	**DCP-L2540DW**	**MFC-L2700DW**
MFC-L2720DW	**MFC-L2740DW**	

NOTE: Starting with the HL-6180 series, there were some major changes in the way the toner cartridge AND the drum cartridge works in this series. In case you missed it, we are covering the theory again...

NEW BROTHER PRINT THEORY

As with previous Brother cartridges, the waste toner is repelled off of the drum to be transferred to the toner unit, but the method of how this works is now very different.

The waste toner is still transferred to the supply chamber, and this remaining toner MUST still be completely removed from the supply chamber before adding new toner. Failure to do this will cause backgrounding. In addition to contaminating the toner cartridge, this may also contaminate the cleaning section of the drum cartridge, which in turn will contaminate the toner cartridge again. The reasons for this are explained in the following cartridge theory section...

The first new item in this engine is a paper-cleaning roller. This roller cleans off any extra paper dust before the printing process even begins. It is located just after the paper-feed rollers.

The cleaning section of the drum cartridge no longer consists of a "cleaning brush" and is now a paired system of the cleaning roller assembly and the transfer roller, but these rollers only play a minor part. The developer roller now has two functions. In addition to transferring the good toner to the OPC for printing, it now also cleans off the majority of the waste toner from the drum. This is done by a very complicated series of different electrical charges, and a series of directional changes on the drum and developer rollers. The developer roller and drum change direction, and charge four times per full drum rotation. This is such a complicated process that the printers actually have a rotation controller PCB with a microcomputer on it to control it all.

The cleaning roller cleans off any remaining toner that the developer roller did not remove. The transfer roller basically self-cleans itself of any residual toner or paper dust that might have accumulated in the printing process.

When the drum is cleaned by the transfer roller the surface potential of the drum is dropped (from 900V to about 200V). At this point the transfer roller and cleaning roller will release the waste toner to the drum. This waste toner is actually then charged by the corona wire so that the developer roller can pick it up and bring it back into the toner hopper. Both rollers release the waste toner at the same time. This was done to keep the print speed high, the power supply low, and the cost of the two rollers and cartridges down.

The drum unit also now has a small waste chamber next to the cleaning roller. The reason for this waste area is for things such as paper dust that does not transfer well. Since there is a paper-cleaning roller before the cartridges in the printer, this area in theory should stay fairly empty. The metal roller next to the cleaning roller helps keep the cleaning roller free of anything that does not transfer.

Since the developer roller now does most of the cleaning work, the condition of the roller while always important, is now much more so. If the roller has any contamination on it from the toner additives (OEM or aftermarket), it will interfere with the cleaning cycle and ghosting/backgrounding will result. If the cleaning roller gets contaminated and not cleaned properly the same problem will result. The main culprit for this used to be the charge felt. It is now the developer roller. It is very important that the developer roller be cleaned with a dedicated developer roller cleaner. Never use alcohol of any type, as this will strip the conductive coating off the roller.

Since the waste toner is transferred back into the supply of the toner cartridge - once you print with a bad toner cartridge, the drum unit will become contaminated. Even when you change out the toner with a good properly recycled or new OEM cartridge, the drum unit will transfer some of the bad toner back into the good toner cartridge, which will again cause backgrounding. Both cartridges will be contaminated again - it can be a vicious circle.

The remaining "toner" in the toner cartridge, when toner low is reached, is just below the bare minimum that can maintain the proper charge level. When the "change toner" light comes on, the toner will not charge up to the proper level and will cause the backgrounding. As the toner cartridge reaches the end of its useful life, the printer senses the low charge level in the toner supply and will try to keep the charge level up. This constant charging keeps an almost "empty" cartridge from backgrounding. Once the printer cannot get the remaining toner up to the minimum charge, the "change toner" light comes on. The cartridge at this point will still be printing properly. If you were to take that same cartridge out of the machine for a few days, and then put it back in the printer without doing anything to it, the cartridge will background. This will happen because the charge level that the printer was trying so hard to keep up has dissipated, and the materials left can no longer accept a proper charge.

WHAT DOES THIS ALL MEAN?

1. Make sure that your cartridge technicians thoroughly clean out the supply chamber of the toner cartridge.

2. Clean the developer roller with an approved developer roller cleaner (NOT alcohol - that will strip off the conductive coating)

3. In the event that they forget, and you have a backgrounding cartridge. The toner must be completely cleaned out again (do not use the toner over), and NEW fresh toner MUST be installed.

4. Clean the developer roller (again) with an approved developer roller cleaner (NOT alcohol).

5. The drum unit then has to be taken apart and cleaned out with emphasis on the cleaning roller and transfer roller. This is a very simple process but very necessary once it is contaminated.

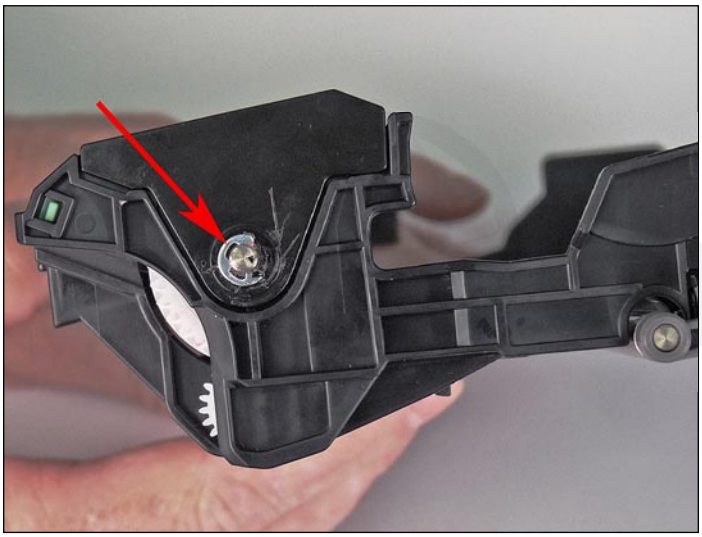
According to our tests, there will be approximately 45-50 grams of toner left when the cartridge is spent. This is normal. The toner left however, as stated above, is waste toner/paper dust only and must be thrown out or there will be backgrounding issues.

REQUIRED TOOLS

1. Toner approved vacuum
2. Phillips head screwdriver
3. Small common jewelers screwdriver
4. Needle nose pliers

REQUIRED SUPPLIES

1. Replacement drum for use in the Brother DR630
2. 99% isopropyl alcohol
3. Cotton or foam cleaning swabs



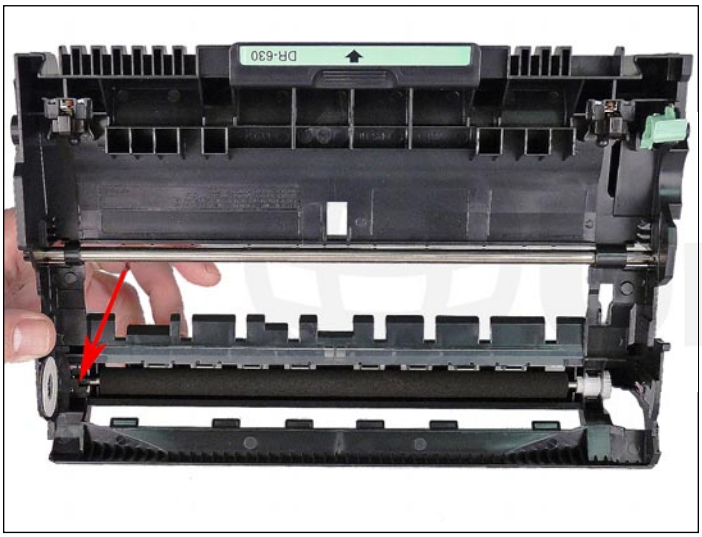
1. Vacuum the exterior of the cartridge.

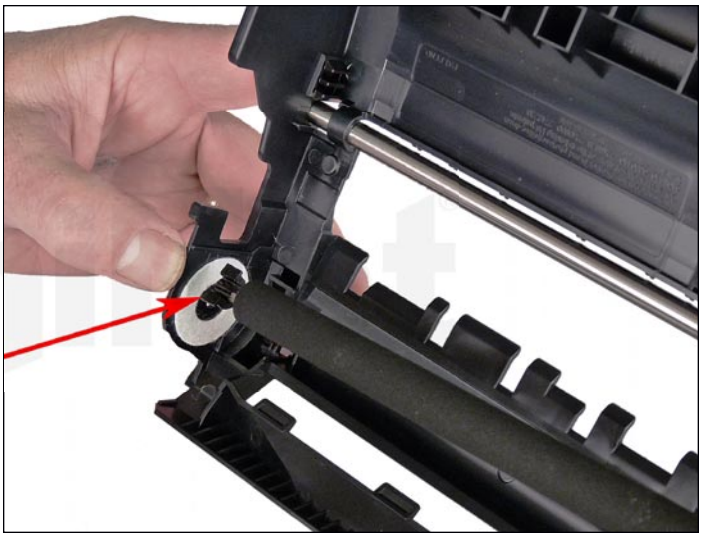
2. With the drum facing you, remove the “E” ring on the right side of the drum axle.

3. Remove the axle from the left side.

4. Lift off the Corona Wire Assembly.

5. Remove the drum.





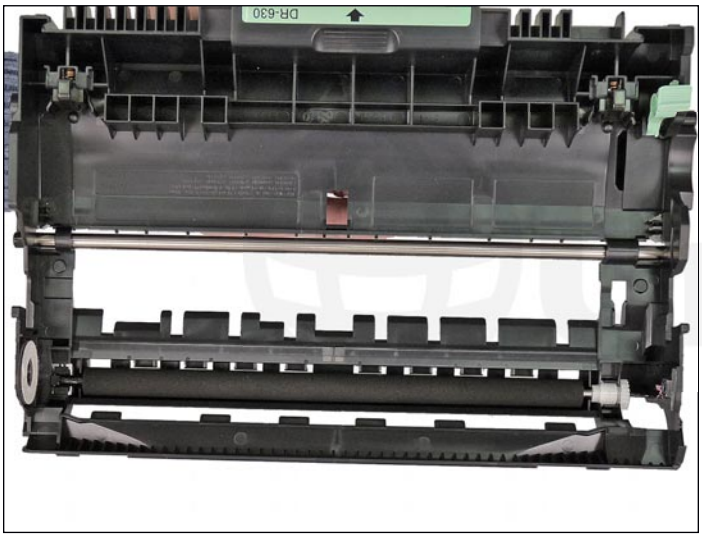
6. Remove the Transfer Roller from the cartridge.

The left side has a half bushing that will most likely come out with the roller.

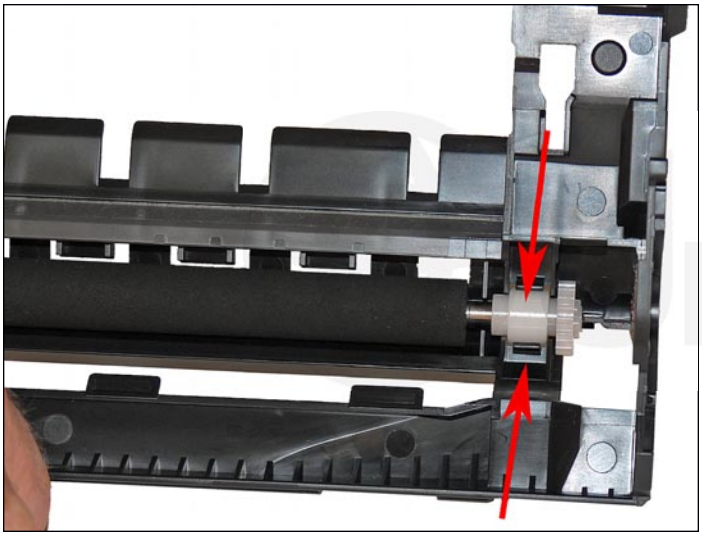
Be very careful not to lose this bushing!

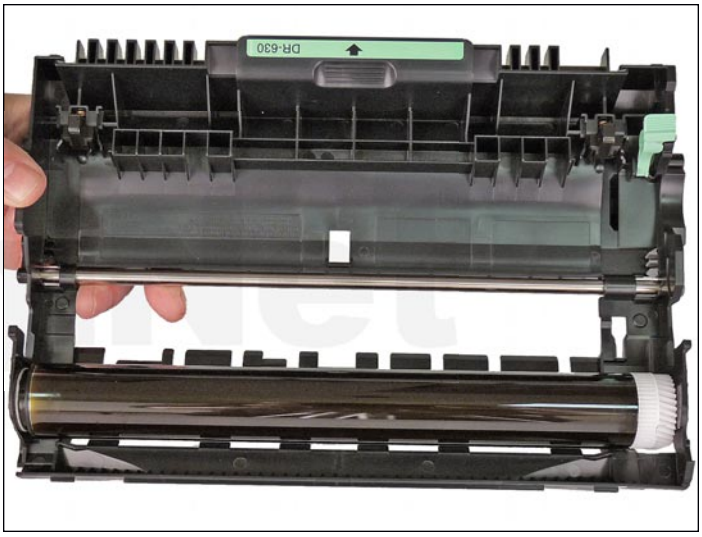
7. Clean the Transfer Roller with compressed air or a toner approved vacuum.

Clean and replace the conductive grease from the 1/2 bushing and the left end of the roller.



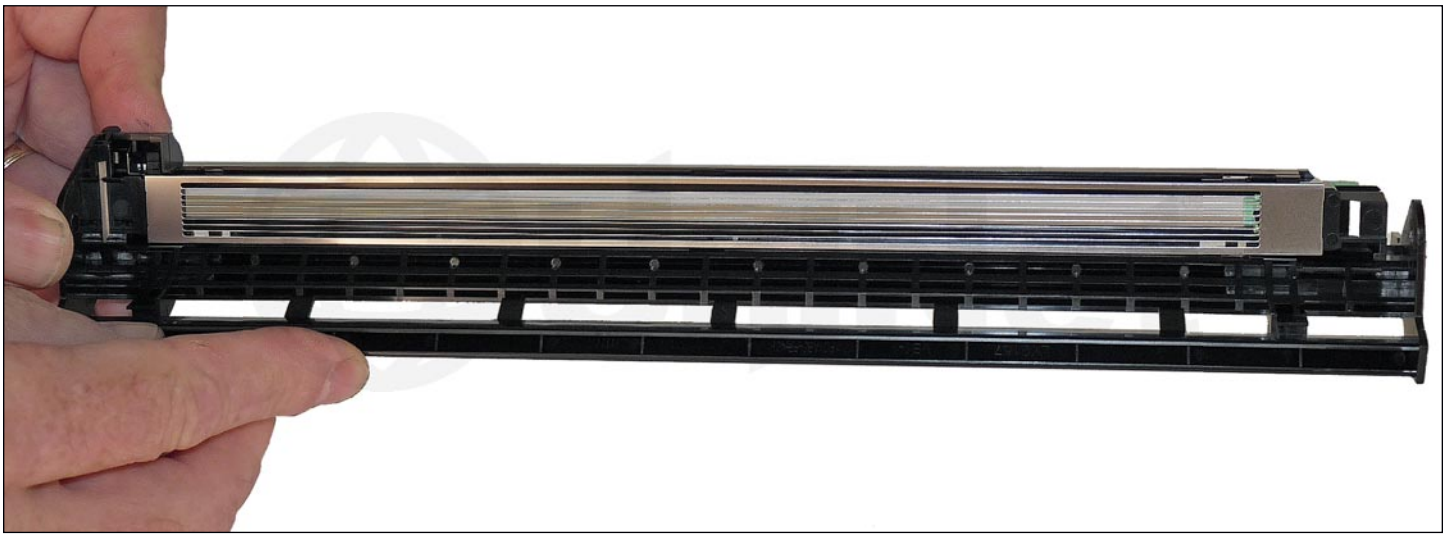
8. Install the 1/2 bushing.



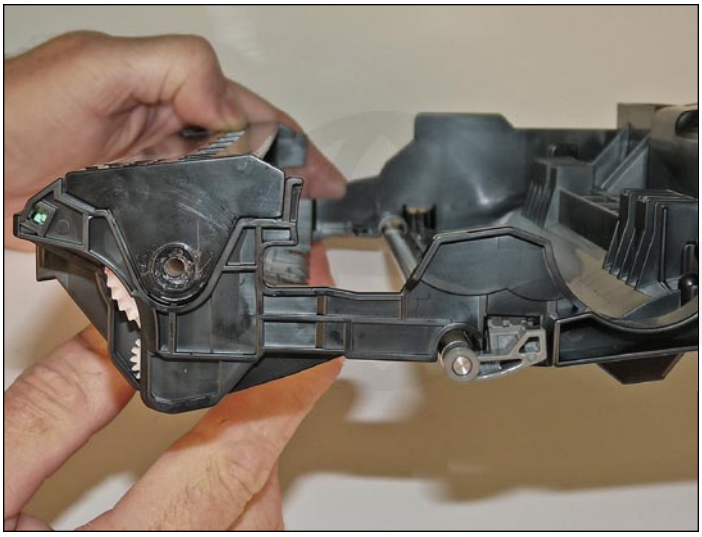


9. Install the Developer Roller.

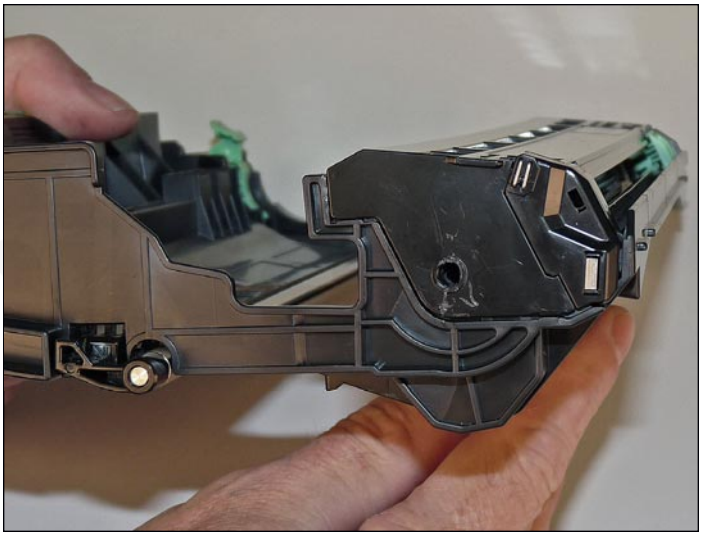
Make sure the white bushing on the right side fits into its slot.



10. Install the drum (gear side to the right).



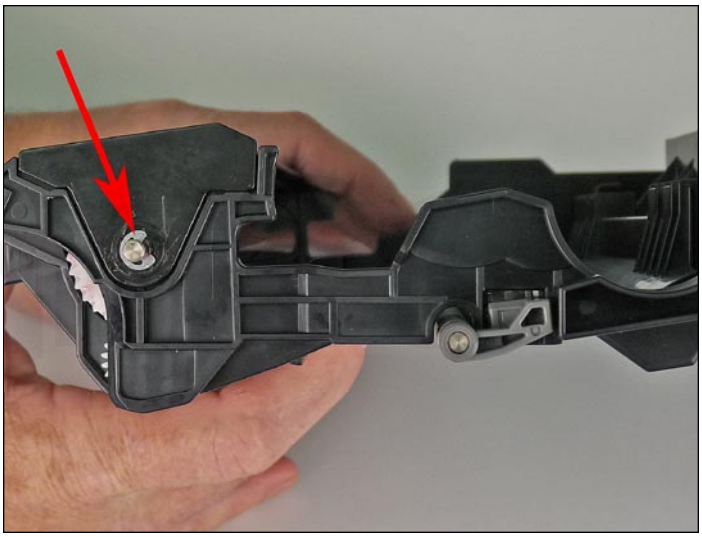
11. Clean the Corona Wire and Corona Wire Grid with 99% isopropyl alcohol. Make sure not to leave any remnants of the cleaning swab behind - especially on the grid, as the edges are very sharp.



12. Install the Corona Wire Assembly.

Each side is different so it only fits one way.

13. Install the drum axle from the left side.



14. Install the “E” ring onto the axle.

CARTRIDGE TROUBLESHOOTING

Dark black line usually about 1/4” wide running vertically down the page:
The built-in Corona Wire Cleaner is probably not in its “home position” (right side of the cartridge). The arrow on the cleaner should line up with the arrow on the cartridge. Check to see if the cleaner is in the home position, and if the corona wire and/or grid is dirty.

Backgrounding/ghosting:
The transfer roller is dirty, the drum is worn, or the most likely cause comes from the toner cartridge. The waste toner was never cleaned out properly during remanufacturing or the toner is empty and the waste toner is being used for printing. In either case, the transfer roller in the drum unit needs to be cleaned and the toner cartridge replaced (see the printer/cartridge operation theory at the beginning of these instructions).

RESETTING THE DRUM COUNTER

There are several machine groups, and each has a different reset procedure. The groups are determined by the display-type. Each group is listed below...

HL-L2300D, HL-L2320D, HL-L2321D:

1. Open the front cover
2. Press and hold "GO" for about four seconds until all the LEDs light up
   Once all 4 LEDs are lit, release "GO"
3. Close the front cover of the machine
4. Make sure the drum LED is now off

HL-L2305W, HL-L2340DW, HL-L2360DN, HL-L2360DW, HL-L2361DN, HL-L2365DW, HL-L2366DW:

1. Open the front cover
2. Press and hold "OK" for about two seconds to display the “DRUM UNIT” option, and then press "OK"
3. Press the “UP ARROW” key for “RESET” to reset the drum counter
4. Close the front cover

DCP-L2500D, DCP-L2520D, DCP-L2520DW, DCP-L2540DN, DCP-L2540DW, DCP-L2541DW
MFC-L2700D, MFC-L2700DW, FC-L2701D, MFC-L2701DW, MFC-2703DW:

1. Open the front cover
2. Press and hold "OK" for about two seconds to display "REPLACE DRUM?"
3. For DCP Models, press the "UP ARROW" key for “RESET” to reset the drum counter
   For MFC Models, press "1" to reset the drum counter
4. Close the front cover

HL-L2380DW, DCP-L2560DW, MFC-L2720DW, MFC-L2740DW:

1. If the front cover is still open, close it
   Press the **RED "X"** to interrupt the error
2. Press "SETTINGS"
3. Press "ALL SETTINGS"
4. Press the "DOWN ARROW" to display "MACHINE INFO"
   Press "MACHINE INFO"
5. Press the "DOWN ARROW" to display "PARTS LIFE"
   Press "PARTS LIFE"
6. Press and hold "#" until the LCD message changes
7. Press "DRUM"
8. Press "YES"
9. Press "HOME"