BROTHER® HL-2030 TN350/2000/2025
TONER CARTRIDGE REMANUFACTURING INSTRUCTIONS

BROTHER® TN350/2000/2025 TONER CARTRIDGE

REMANUFACTURING THE BROTHER HL-2030 TN350/TN2000/TN2025 TONER CARTRIDGES

By Mike Josiah and the Technical Staff at UniNet

Released in January 2005, the Brother HL-2030 printer engine is based on a 20ppm, 1200 DPI laser engine. While it is similar to previous Brother engines, there are differences. Beside physically looking different, the toner is also new. The first section of this article covers the theory behind these cartridges. If you are already familiar with the pitfalls of the HL-1240 cartridges, there is nothing new in the theory here. If you are not however, it would be best to read through this section. It may save you a few very frustrating hours.

MACHINES BASED ON THIS ENGINE

HL-2030, 2040, 2070N
MFC-7020, 7220, 7225, 7420, 7820
DCP-7020
Intellifax 2820, 2920

With a retail price of $137.00 USD for the HL-2040, they are very popular.

Brother has only released one cartridge for these machines: the TN350 (TN2000 in Europe, TN2025 in Asia/Australia). The TN350 cartridge is rated for 2,500 pages at 5% coverage. The DR350 drum unit (DR2000 Europe, DR2025 in Asia/Australia) is new as well. It will be covered in a future article.

One change for these cartridges is the presence of a flag gear that resets the printer. The starter cartridges that come with new printers do not have this gear. We are working on new flag gears, but until they become available, the starter cartridges cannot be remanufactured.

As with previous Brother cartridges, the waste toner is repelled out of the drum cartridge and picked up by the developer roller in the toner cartridge and brought back into supply chamber. That is why there will always be a good amount of toner left in the supply chamber when the cartridge is finished. This remaining toner must 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 will 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 cleaning section of the drum cartridge consists of a "cleaning brush" and a recovery blade. The cleaning brush has two opposite charges placed on it during the print cycle. The first attracts any remaining toner off the drum. The second repels the toner off the brush back onto the drum where it then transfers back into the toner cartridge. This is all done in a timing sequence that does not interfere with the printing process. If the cleaning brush becomes contaminated with bad toner that will not charge, the brush will not be able to clean itself, and back grounding will occur. It seems to be the nature of contaminated toner that it will accept most of the charge to be cleaned off the drum, but it will not accept the charge that would allow the brush to clean itself off at all. A properly working cleaning brush will at any given time have only a small amount of toner on it. Once contaminated, toner will accumulate, which will only cause the problems to get worse.

Since the developer roller actually contacts the drum, some 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.

The remaining "toner" in the toner cartridge 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 printin 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 with out doing anything to it, the cartridge will shade. This will happen because the charge level that the printer was trying so hard to keep up has dissipated out 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. In the event that they forget, and you have a shading cartridge, the toner must be completely cleaned out again (do not use the same toner over). New fresh toner must be installed.

3. The drum unit needs to be taken apart and cleaned out with emphasis on the cleaning brush area.
This is a very simple process but very necessary once contaminated.

How to run test pages, printer troubleshooting, as well as common cartridge problems will be covered at the end of this article.

TOOLS REQUIRED

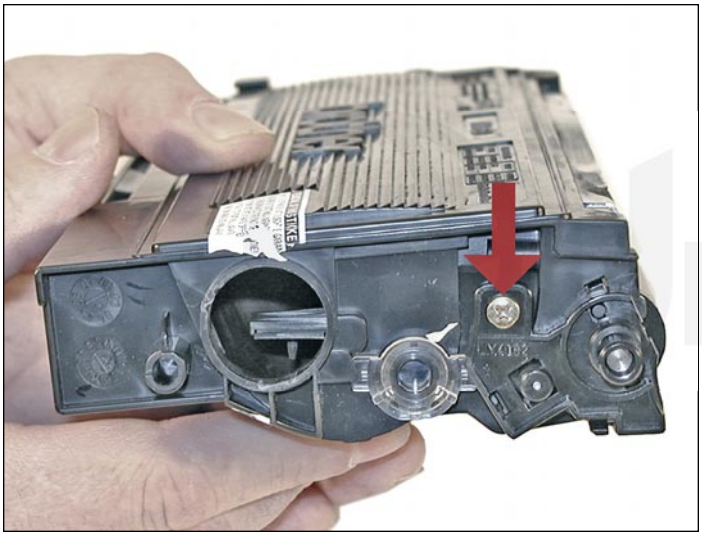
1. Toner approved vacuum
2. Phillips head screwdriver
3. Small common screwdriver
4. Needle nose pliers

SUPPLIES REQUIRED

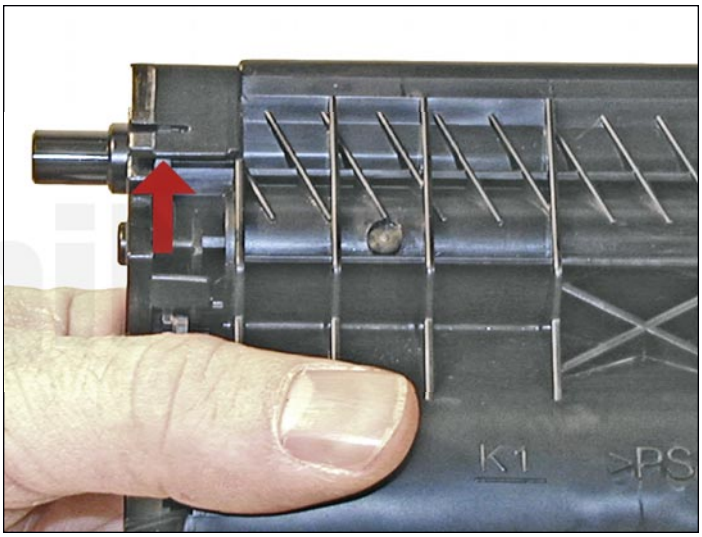
1. Black replacement toner for use in Brother HL-2030 (90g)
2. Lint-free cotton cloths
3. Toner magnet cloths
4. White lithium grease

1. Vacuum the exterior of the cartridge.

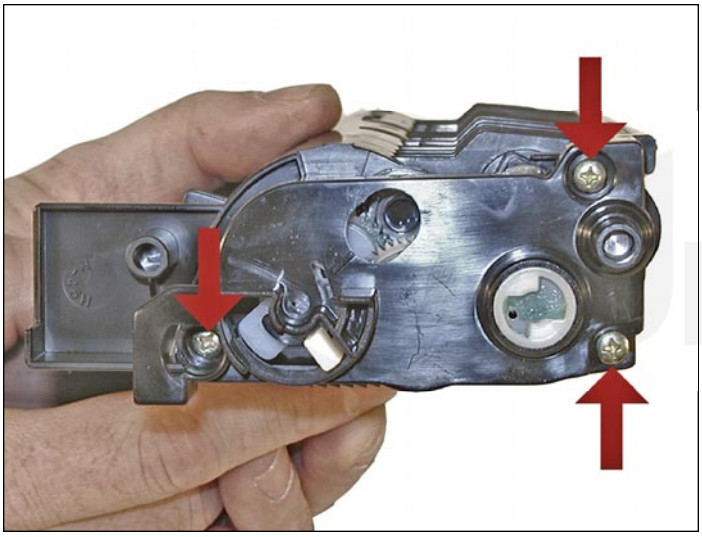
2. Remove the fill plug from the toner cartridge. Dump the remaining toner and vacuum/blow out the cartridge. Make sure that the gear area is clean. Leaving any toner in the teeth of the gears may cause a tooth to be damaged and cause a clicking noise. We have found it best to use compressed air to clean them out, but to also keep one hand over the gears to protect them.



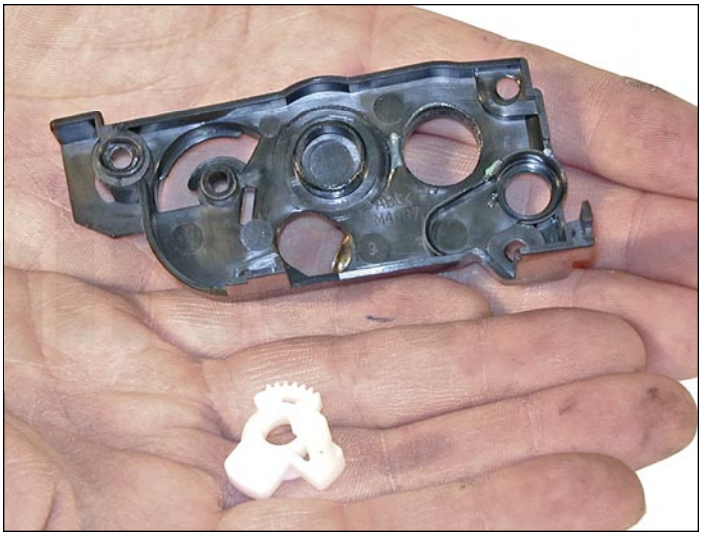
3. On the non-gear side of the developer roller, remove the screw.



4. Locate the two tabs on the developer roller end plate, and pry off.



5. On the gear side, remove the three screws, and cover-plate.



6. A white flag gear will fall off as the plate is removed. This flag resets the printer when the cartridge is installed.

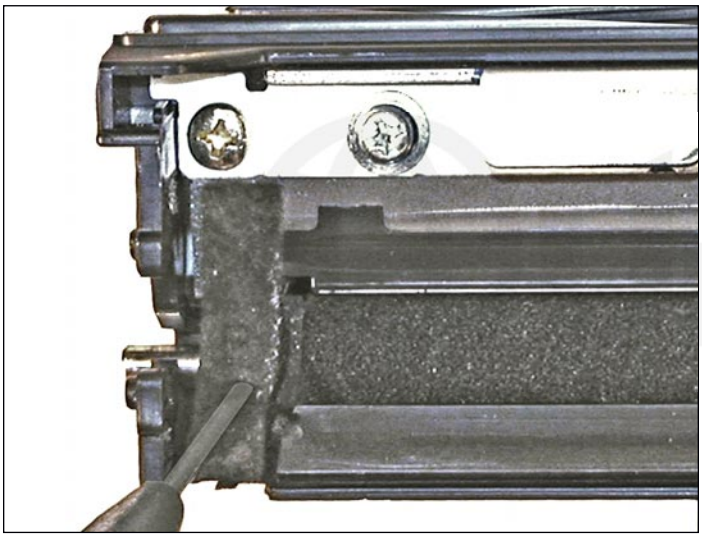
New starter cartridges do not have this flag gear. Until they are available, the starter cartridges cannot be remanufactured.

7. Remove the black plastic spacer from the developer roller shaft.

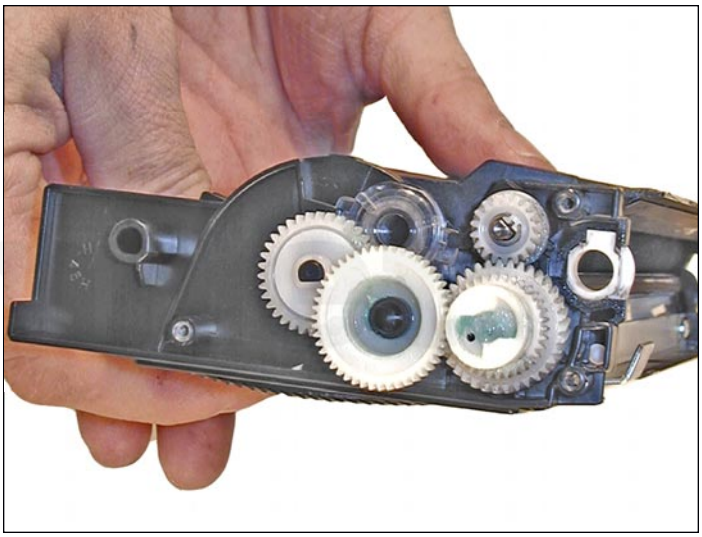
8. Remove the E-Ring and small gear.

9. Remove the developer roller.

10. Vacuum the doctor blade and foam feed roller clean. We do not recommend that the doctor blade be removed and the developer roller felt seals will be disturbed. Once a new blade is available, great care will have to be taken not to tear the seals, causing a leak. The doctor blade can be easily cleaned by blowing the excess toner off, and wiping down with a lint free cloth. Be very careful not to leave any lint behind.



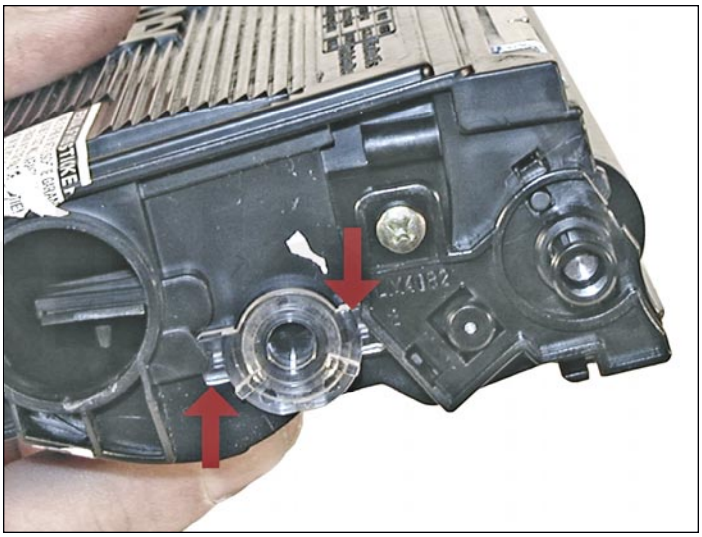
11. Inspect the magnetic roller felts. If they are compressed (shiny), roughen them up with a small screwdriver.



12. Clean the gears, making sure that they have no toner on them. This is a good time to also check the gear shafts to make sure there is enough grease. If the shafts appear dry, or the grease is contaminated with toner, clean the shaft and inside of the gear. Replace the grease with white lithium grease.

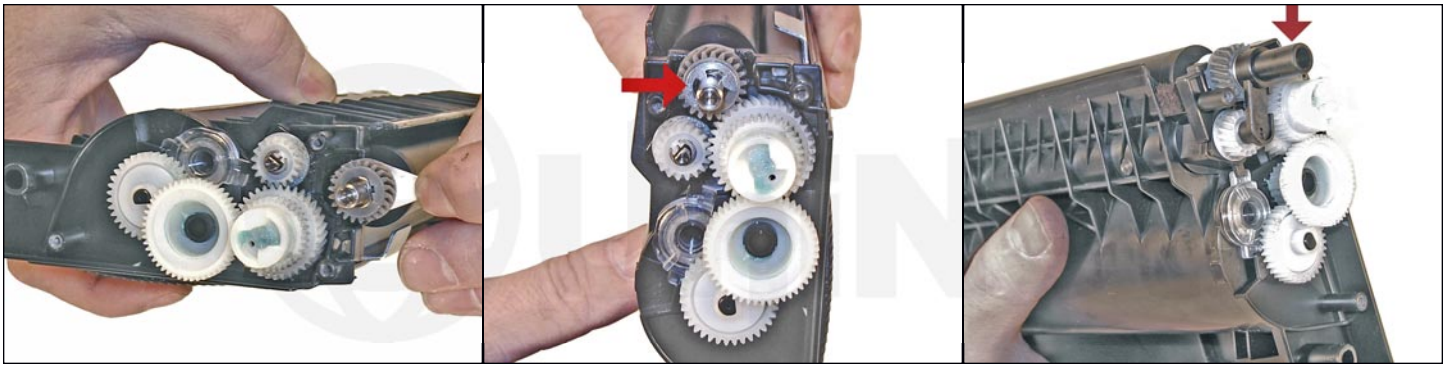
13. Clean the developer roller with a lint free cloth. Do not use any chemicals other than a dedicated cleaner for Brother rollers to clean the roller. A dry clean cloth will work fine.

14. Re-install the developer roller long shaft side to the gear side.



15. Install the small outside end plate and screw on the non-gear side.

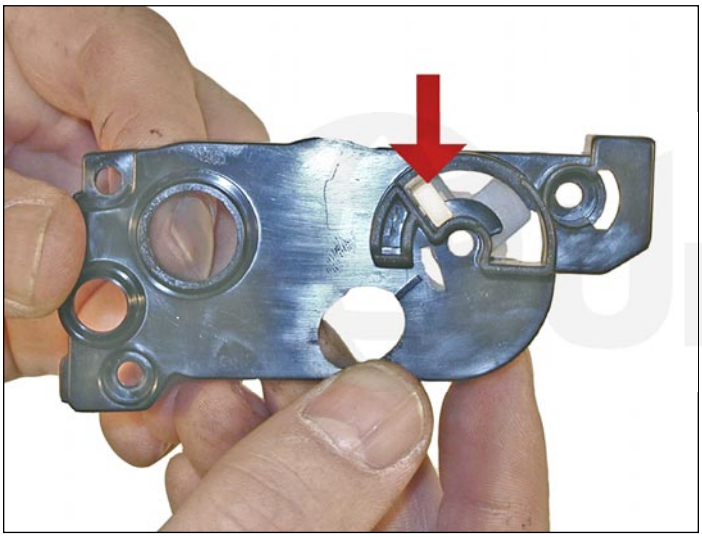
Make sure the clear plastic plug for the optical sensor is locked in the proper position.

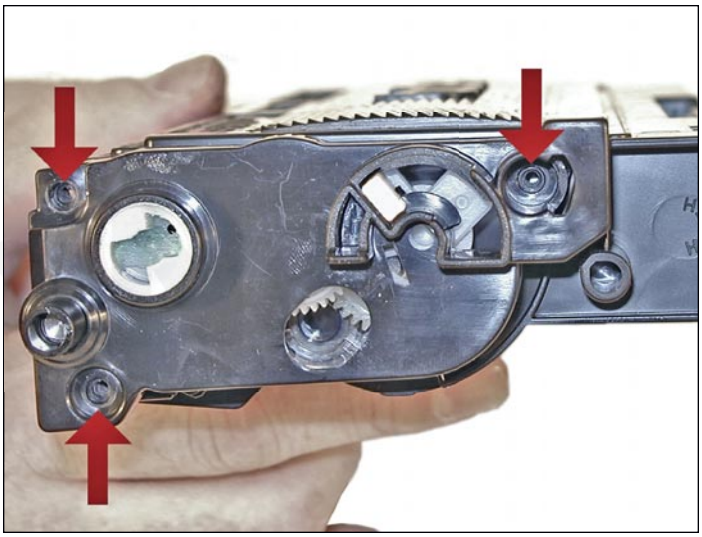


16. Install the developer roller gear, c-ring, and black axle.

Make sure all the other gears are meshing properly.

You may have to release the white spacer on the mag shaft to get the gear back on.





17. Set the flag gear.

Install the gear cover plate and three screws.

18. Fill the cartridge with toner for use in Brother 2030.

19. Replace the fill plug.

Wipe the cartridge down to remove any remaining toner dust.

20. Install the developer roller cover.

TEST PAGES

1. To print a test page from these machines, first turn the machine off.
2. Press and hold the GO button and turn the printer back on.
3. All the LED's will light up and go off.
4. When the TONER LED comes on, release the GO button.
5. Press the GO button again and the printer will print out the test page.

This can also be accomplished through the printer driver.

MACHINE TROUBLESHOOTING

These machines have four LED's to indicate the status or various problems.
We have listed some of the more common ones here:

Yellow TONER light blinking/Green READY light on:	**Toner Low**
Yellow TONER light on/READY light out:	**Toner out**
Yellow DRUM light blinking/Green READY light on:	**Drum life over soon**
All lights blinking:	**Service call needed**

When the GO button is pressed, a secondary set of errors will show:

Yellow TONER light on:	**Fuser error**
Yellow DRUM light on:	**Laser error**
Yellow TONER/Red PAPER lights on:	**Main Motor failure**
Red PAPER light on:	**Engine PCB failure**