

Improper Installations: Pickup & Transfer Rollers

Most printer parts are keyed so that they can only be installed one way. Or, if there is more than one way that the part will physically fit into the printer, a visual inspection will make it obvious which way is the correct way. But there are a few types of parts that it is easy to install incorrectly and never know it – except that the printer mysteriously doesn't work anymore! The two most common such parts are pickup rollers and transfer rollers.

Pickup Roller Installation Problems

There are two common mistakes that we have seen with pickup roller installation, and they are both most common on the HP LaserJet 2100/2200/2300 series of printers. Complete installation procedures for both rollers (the MP pickup roller and the cassette pickup roller) would require a whole separate article, but we can briefly describe what usually goes wrong:

1. The mechanical configuration of the cassette pickup assembly on these printers is a bit different than on most HP printers. Instead of the roller attaching to a shaft that runs across the entire width of the printer, we have a shaft that runs only from the drive train to one end of the roller. In order to remove or install the roller, you have to physically decouple the shaft, and it's important to make sure that everything gets fully coupled when you put it back together. In particular, there is a bushing on the drive train end of the shaft that clips into the frame of the printer. This bushing holds the shaft in place. If the bushing comes unclipped (and it commonly does), the shaft can move left to right and come uncoupled from the roller. Always check this bushing after replacing the cassette pickup roller.

2. The MP pickup roller does have a shaft that goes all the way across, and the roller just clips onto the shaft. However, there are two ways to put the roller on the shaft, and only one of them works. Note that the roller is not perfectly round – it's D-shaped (i.e., it has a flat side and a round side). If the roller is correctly installed, when the printer is idle, the flat side of the roller should be facing down toward the paper, and the round side should be facing up away from the paper (this is a good rule of thumb for any printer with a D-shaped pickup roller). If the roller is not oriented this way, the printer will have problems picking up paper from this tray.

Transfer Roller Installation Problems

On most HP monochrome laser printers, the transfer roller only goes in one way, so there is no chance of getting it wrong. The problem arises when you install a transfer roller in an HP Color LaserJet 4500/4550 or a Lexmark printer. The transfer rollers in these printers are not keyed, so it is possible to put them in backwards. To make matters worse, the HP monochrome printers all had the transfer roller gear on the left side, so if you're used to working on those models, you'll be naturally inclined to orient the roller that way. But the Color LaserJet 4500/4550 and the Lexmark printers all have the gear on the right side – so if you do it the way you're used to, it will be backwards.

This can have several possible consequences. With the gear on the wrong side, the transfer roller doesn't get driven; therefore, it doesn't turn, and this can cause paper jams. This is what tends to happen in the 4500/4550 when the roller is installed backwards. Also, since the roller isn't designed to go in this way, it may not seat quite correctly, so that it either doesn't get good high voltage connections, or doesn't align properly with the toner cartridge and/or paper. This can cause poor transfer and consequently, light print. This is what tends to happen in Lexmark printers when the roller is installed backwards.

As with pickup rollers, there is a simple rule of thumb: in an HP monochrome printer, the gear goes on the left; in an HP color printer or a Lexmark printer, the gear goes on the right (just remember "Color right" and "Lexmark right"). If you remember this, you should never have a backward transfer roller. But just in case, if you have either of the problems described above (especially if you have just installed a transfer roller), make sure to check the orientation of the transfer roller in relation to the gear that drives it.

—Dennis Kosterman

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