

41.2 Error in the 5Si/8000/8100

The 41 error has been around in one form or another for as long as HP has been making laser printers. In the early days, it was a relatively simple error – it always meant “temporary loss of beam detect” (a milder version of the 51 error), and was usually caused by a bad laser/scanner assembly, a bad DC Controller board, or bad connections between these two items.

In later years, HP added sub-codes (such as 41.2, 41.3, 41.5, etc.) and expanded the 41 error code to include various kinds of paper feed errors. So now you have to consider several possibilities when you encounter a 41 error – and sometimes even HP’s service manuals can be misleading (recommending that you replace the laser/scanner, for instance, when the error is really a paper feed issue).

But even when it is still a laser-related error (like the old days), it can be tricky sometimes. One such case is the 41.2 error on the WX engine (the LaserJet 5Si/8000) and its successor, the LaserJet 8100/8150. This is indeed a “temporary loss of beam detect”, but most of the time, it is not caused by any of the usual suspects (laser/scanner, DC Controller, etc.). What tends to cause the error in this engine is high-voltage arcing that confuses and disrupts the beam-detect circuit.

The high-voltage arcing can be caused by:

- ✦ a bad High Voltage Power Supply (as you might suspect);
- ✦ a bad toner cartridge (the primary load on the HVPS);

- ✦ bad connections between the HVPS and the toner cartridge;

- ✦ bad connections to the transfer roller (the other high voltage load).

The last of these (bad connections to the transfer roller) is by far the most common. This is why you will often see the error (intermittently, accompanied by a half-printed page with a black line separating the printed half from the blank half) after installing a transfer roller or maintenance kit. There are two electrical connections to the transfer roller, one on each end, and both are easily damaged.

To show these connections, we have provided photos of the Feeder Assembly (what the transfer roller mounts to), removed from the printer for greater clarity.

The left, or front, connector is a copper leaf spring that directly contacts the metal shaft of the transfer roller. We believe that this is just a ground path that discharges the roller after the high voltage is removed. If it were missing completely, you might never notice (our test bed seemed to print normally with this contact removed). But if it’s making a poor connection, it can arc and cause the 41.2 error (we have seen this happen!). Whenever you install a transfer roller, check to make sure that this leaf spring looks like Figure 2, and that it makes a solid connection to the metal shaft when the roller is installed. It can easily get bent or dislodged if you’re not careful. In most cases, you can just bend it back to its normal position. If it’s too badly mangled to do that, your options are to remove it completely (better to not have it there at all than to have a bad connection)

or replace the entire feeder assembly (the leaf spring is not available separately).

The right, or rear, connector is a coil spring that connects high voltage through the bushing (which must be at least somewhat conductive) to the right end of the transfer roller shaft. This is a more important connection – if it’s missing, you will definitely get a light, ugly-looking print. But, like the other one, if it’s poorly connected, it can arc and cause the 41.2 error. Each end of the spring fits around a plastic nub (one on the bottom of the bushing, and the other on the floor of the feeder assembly). As long as it’s on the nubs, you should have a good connection, but if either end comes off, you will have a problem. This shouldn’t happen unless the bushing has been removed, but it’s worth checking when you’re installing the roller, and especially if your printer has 41.2 errors or light print. If it’s not correctly positioned, you can remove the bushing (spread the plastic supports slightly and push up on the bushing) and reposition the spring. If either of these (bushing or spring) is missing or damaged, they are available individually.

If all of these connections look good and you have a known good toner cartridge, and you’re still getting a 41.2 error, it’s always possible that you have a bad laser/scanner or DC Controller. But these are relatively rare on the WX engine. The high voltage problems that we’ve been discussing seem to be more common on this engine, so always check these first.

—Dennis Kosterman

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Fig. 1 Feeder Assy without transfer roller, connection points circled.



Fig. 2 Close-up of left (front) connection point.



Fig. 3 Close-up of right (rear) connection point.