

TECHNICAL DOCUMENT



- [Overview](#)
- [Required Tools](#)
- [Materials Needed](#)
- [Disassembly](#)
- [Troubleshooting](#)
- [Running Test Pages](#)
- [Changing Printer Density](#)
- [Changing the Printer Resolution](#)

*Lexmark T-630 Toner Cartridges

DOC-0324

OVERVIEW



First introduced in June 2001, the Lexmark T630 series is based on the Lexmark T630 1200 dpi engine. Depending on the model, the print speed is from 30-45 pages per minute. As with all of Lexmark's new heavy duty machines these machines are loosely based on the older Optra S machines but these are much faster. Due to the speed and fuser characteristics, the toner is completely different. This toner is also different from the T620 series.

The machines currently available based on the T630 engine are:

T630	T630dn	T630n
T630	T632dtn	T632dtn
T632n	T634	T634dtn
T634dtn	T634n	T634tn

As with the T520/T620 machines, these cartridges have ARD (Anti-Recycling devices) installed in the Prebate or "Return Program" cartridges that will not allow the cartridge to be used again until the chip board is replaced. As with other Lexmark cartridges, the Non-prebate or standard cartridges will work with out replacing the chips. Lexmark seems to have abandoned the Prebate name and gone with "Return Program" instead. Same mess, different name! The programming used in these chips is similar to the code used in the new T420 series. Lexmark has added a few new wrinkles to the code that is making it a little harder to develop a repair chip. It is currently being worked on and at the time of this writing (May,2003), chips are not available. They should be available as you read this. Check with your chip vendor to see if they are available.

The Encoder wheel in these cartridges does not indicate the toner yield as in the Optra S cartridges, that is now done by the chip. The encoder wheel only indicates if the cartridge is a Prebate or not.

For cartridges used in MICR only machines, make sure that the chip you are using is a dedicated MICR chip. This is also strictly a chip function. If the cartridge is to be used in other than a Lexmark machine the chip is different again. So far IBM, Dell, and Toshiba have not released any machines using this engine, but they probably will. As the chip will again be different, check with your chip supplier to make sure that their chip will work with your machine.

All that being said, these cartridges have a huge profit potential (See below). Even with the extra cost of the chip, and having to be careful what machine it goes into, they are more than worthwhile to do.

The Lexmark Part #'s for these cartridges are as follows:

**"Return Program" 5K*
cartridge: 12A7460 list \$99.00****

“Return Program” 21K* cartridge: 12A7462, List \$ 330.00**

“Return Program” 32K* cartridge: 12A7465, List \$ 355.00**

Standard 5K* cartridge: 12A7360 list \$149.00**

Standard 21K* cartridge: 12A7362, List \$380.00**

Standard 32K* cartridge: 12A7365, List \$405.00**

* Yield based on 5% coverage

** List prices current as of May 27th 2003

There are also two label cartridges, the 12A7468, and the 12A7469.

Lexmark only lists the extra high yield cartridges (32K) for the T632 and the T634 series. The lower yield cartridges will give an unsupported cartridge error. The same will happen if the extra high yield cartridge is installed in the T630 machines.

The T63x series of cartridges are different physically from the T620 in that they have two large notches in the front edge of the waste chamber. Since all of the cartridges from the Optra S on are somewhat similar, we are showing all the different cartridge versions here. See Figure's 1-6



FIGURE 1



FIGURE 2

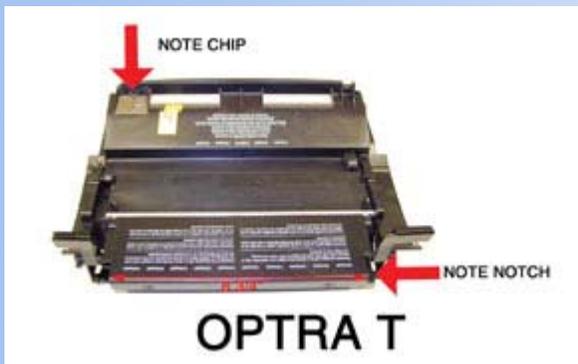


FIGURE 3



FIGURE 4



FIGURE 5

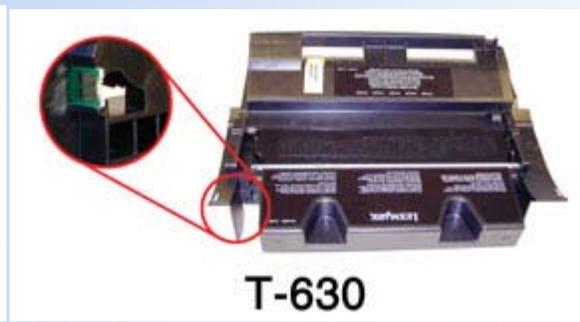


FIGURE 6

As with the Optra S machines, the Primary Charge Roller (PCR) is not in the cartridge, it's in the printer, and is rated for 300,000 pages. The Wiper Blade inside the cartridge has an external felt brush that keeps the PCR clean. Some of the starter cartridges have wiper blades without this felt. It is very important that the blade be replaced with a new one that has the felt. Otherwise a buildup on the PCR may occur.

It should also be noted that because of the play between the toner hopper and the OPC drum, a shipping lock should be installed in every cartridge. This holds true even if you are going to hand deliver the cartridge. This holds true for all the cartridges based on the Optra S design.

Machine Cartridge/troubleshooting as well as how to run test prints will be covered at the end of this article.

REQUIRED TOOLS



- Toner approved vacuum.
- Small screwdriver (Common Style)
- Phillips head screwdriver (#1)
- Needle-nose pliers
- Spring Hook

MATERIALS NEEDED



- T-630 Toner: Use 188g for the 5K cartridge, 780g for the 21K cartridge, and 1200g for the 32K cartridge
- Drum padding powder (Kynar) Do NOT use Zinc Sterate on these cartridges!
- Cotton Swabs
- Isopropyl Alcohol
- Cotton Pads
- Long life OPC Drum (Optional)(4059 Style)
- Wiper Blade (4059 Style with PCR cleaner!)
- Shipping Lock
- Felt Wand (4059 Style)

- Recovery Blade (4059 Style)
- Retaining Blades

DISASSEMBLY



1. Vacuum the exterior of the toner cartridge. Be careful of the drum!
2. Place the cartridge on the bench drum side up (Label face down), with the toner supply towards you.
3. With a spring hook, remove the two springs from each end of the cartridge. See Figure 7
4. There are two plastic posts from the hopper that fit into the cartridge shell. Pull the edge of the shell out to release the posts, and lift up the hopper so that the posts are free. See Figure 8
5. Slide the hopper to the right, and remove from the cartridge. Pull it out so that the large white bearing comes free. Place the hopper aside. See Figure 9
6. Remove E-Ring from the small white helical gear end of the drum axle. There is no need to remove the opposite E-ring. See Figure 10



FIGURE 7



FIGURE 8



FIGURE 9



FIGURE 10

7. Slide the Drum Axle out of the cartridge. Hold the small helical gear while pulling it out so that the drum is not damaged in the process. Note the location of the small spring. See Figure's 11 & 12
8. Gently lift the Drum up and out of the cartridge, if you are going to reuse the drum, place it in a light protected area. Be careful not to lose the spring, its' purpose is to keep the drum from rotating backwards. See Figure 13
9. Remove the Wiper Blade by removing the two screws on either end of the Wiper Blade. See Figure 14

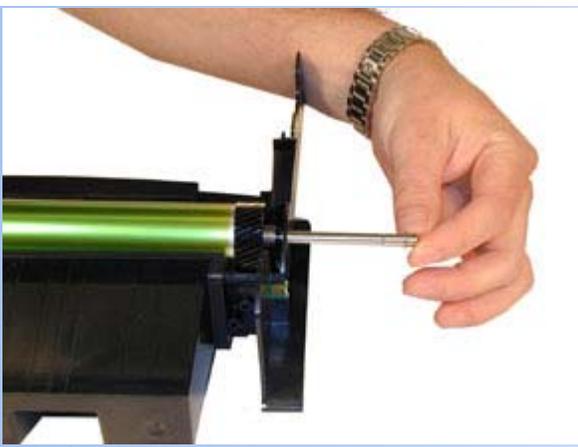


FIGURE 11

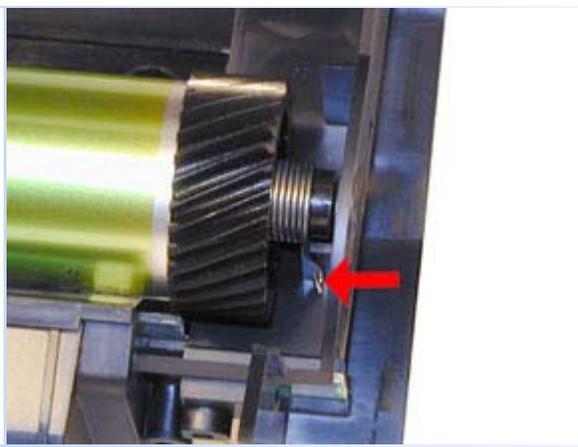


FIGURE 12



FIGURE 13

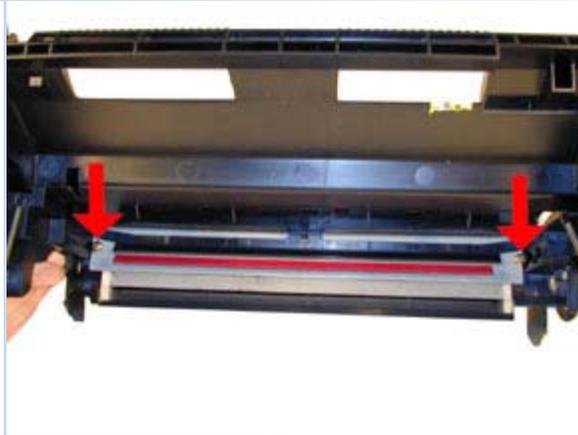


FIGURE 14

10. Place the cartridge so that the waste bin is face-up. Take a razor blade and cut the foam seal that runs along the back edge of the wiper blade to separate it from the cartridge. Make sure to cut along the plastic/foam, and not the blade. See Figure 15

11. Hold the cartridge so that it is up-right (Standing up with the waste bin on the table). With one hand, hold the laser shutter open, and with the other hand, remove the Wiper Blade. See Figure 16

NOTE 1: The OEM Wiper Blade has the PCR cleaning assembly attached to it. It cannot be removed from the Blade without damaging it. Our new replacement Wiper Blades come complete with this assembly attached. The "Starter cartridges" that came with a new printer do not have the PCR Cleaning Assembly on the Wiper Blade. The blades on the starter cartridges must be replaced.

12. Make sure that the two end foams are clean and in their proper place See Figure 17

13. Pad the new Wiper Blade with Kynar padding powder, replace the blade and two screws into the cartridge. (Don't use Zinc Sterate on these cartridges! See Figure 18)



FIGURE 15



FIGURE 16

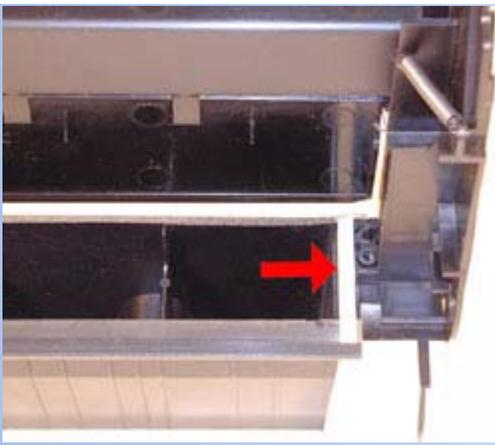


FIGURE 17



FIGURE 18

14. Place a piece of clear tape along the edge of the Wiper Blade. If the tape does not stick well, the area should be cleaned with alcohol. It is very important to get a good seal with the tape, otherwise the cartridge will leak. Trim away any excess tape. See Figure 19
15. Be careful not to allow any tape into the laser port opening!
16. With a pair of needle nose pliers, gently pry off the Encoder Wheel. Make sure you pry it off from the center shaft so that the wheel does not become damaged. Place the wheel in a safe place. Remember, this wheel tells the cartridge what type of cartridge it is, Prebate or Non-Prebate. The chip is what tells the machine what type of yield the cartridge has. If this wheel becomes damaged, it must be replaced. See Figure 20
17. Remove the drive gear from the developer roller shaft. See Figure 21
18. Remove the Doctor Blade Spring by pressing down on the center of the spring. See Figure 22



FIGURE 19



FIGURE 20

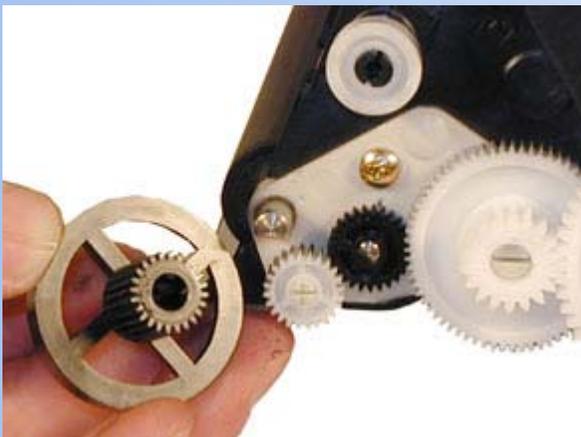


FIGURE 21



FIGURE 22

19. Remove the metal contact plate from under the developer roller shaft and bushing. See Figure 23
20. On the left (fill Plug) side of the Static Roller there is a small metal bushing, take a small screwdriver, and pry the bushing up so that the tab on the bushing is facing up. This will release the bushing, and Developer Roller. See Figure 24
21. Remove the Developer Roller. Note that the spacers are now clear instead of white. See Figures' 25 & 26



FIGURE 23



FIGURE 24



FIGURE 25



FIGURE 26

NOTE: Always remove the Doctor Blade Spring before removing the Developer Roller, failure to do this will cause the Doctor Blade to slide down from its original position and break the seal.

22. Remove the fill plug from the hopper. Pry the plug out from the base next to the hopper. The fill plug is also a breather cap. It is best to remove both sections at once and to clean them from the outside. These plugs tend to leak if they have been separated. See Figure 27
23. Vacuum the Toner Hopper clean.
24. With a cotton swab dipped in alcohol, clean the Developer Roller seals located on either end of the static roller section. These seals are made of a white plastic. Also clean the electrical contact that touches the Developer Roller shaft. See Figure 28
25. Carefully vacuum or blow off the Developer Roller, Be careful not to touch the roller with your hands, or to damage this roller in any way.
26. Inspect the inner and outer retaining blades (Black Mylar). If they are bent in any way, they must be replaced as they will leak. See Figure 29
27. Install the contact plate onto the cartridge. See Figure 30



FIGURE 27

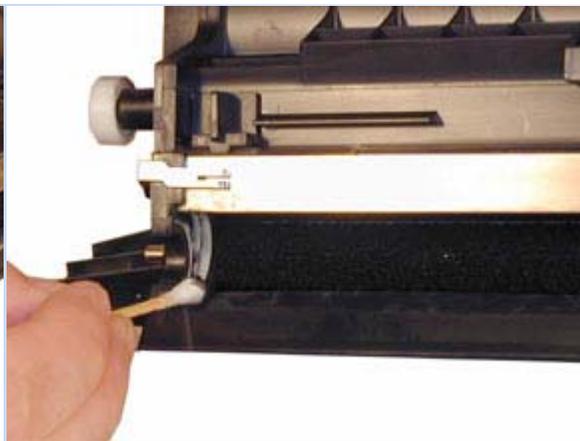


FIGURE 28

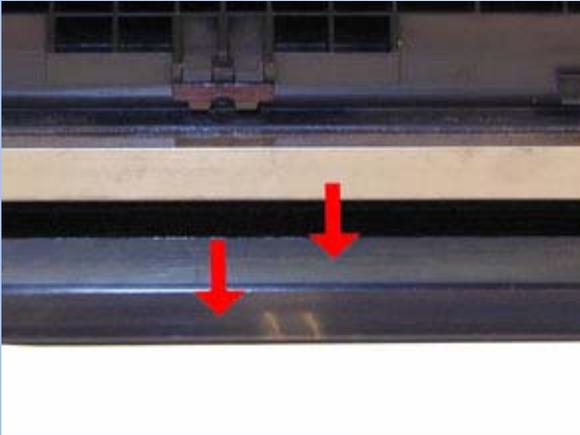


FIGURE 29

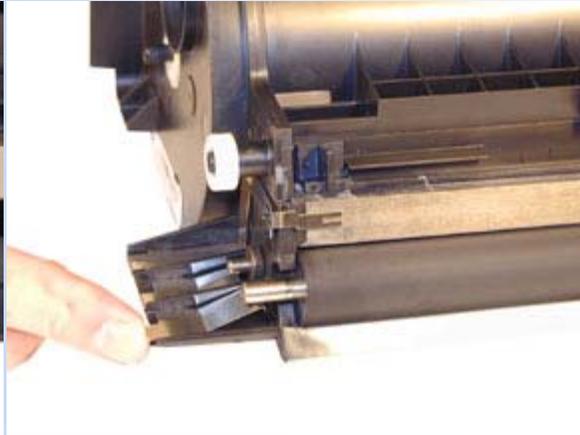


FIGURE 30

28. Place the keyed end of the Static Roller into the cartridge, and install the roller. See Figure 31
29. Install the bushing onto the developer roller shaft, turning it so that the tab is facing down. This will lock the roller in place. See Figure 32
30. Install the Doctor Blade Spring. See Figure 33
31. Fill the hopper with the appropriate amount of toner. Remember, the amount of toner that can be placed in the cartridge is controlled by the chip. Use 870G for the 30k cartridge, and 290g for the 10k cartridge. Install the Fill Plug. See Figure 34
32. Install the Encoder Wheel

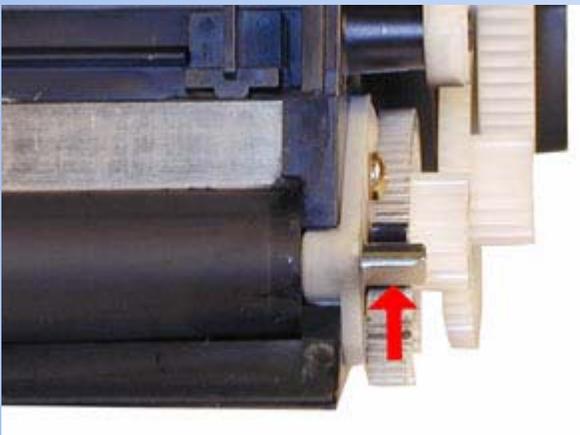


FIGURE 31

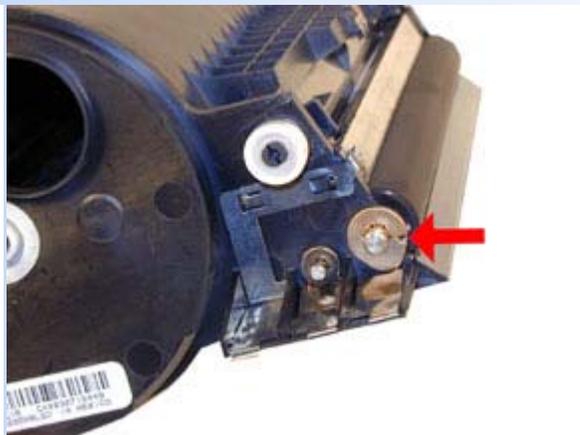


FIGURE 32



FIGURE 33



FIGURE 34

33. Take the OPC drum and lightly coat with the Drum Padding Powder,(Kynar). Do NOT use DPP (Zinc Sterate), this powder will ruin the wiper blade.
34. Place the OPC Drum into the cartridge with the small helical gear on the NON-Contact side of the cartridge. Make sure that the spring is in the proper position! See Figure 35
35. Install the Drum Axle pin into the small white gear side of the drum.
36. The Axle must be installed this way to prevent the axle from bending and damaging the drum ground contact located inside the drum. See Figure 36
37. Install the E-Ring on the end of the axle. See Figure 37
38. Remove the old chip with a pair of pliers, and install the new chip. The chip will just pull out, and slide back in. There are a few different physical versions of the aftermarket chips. Check with your supplier for the correct installation. See Figure 38



FIGURE 35

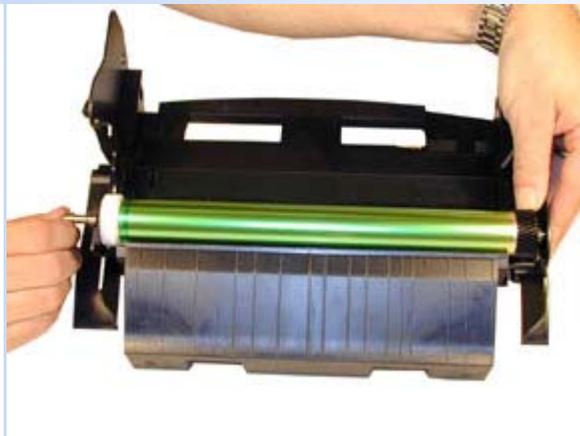


FIGURE 36



FIGURE 37

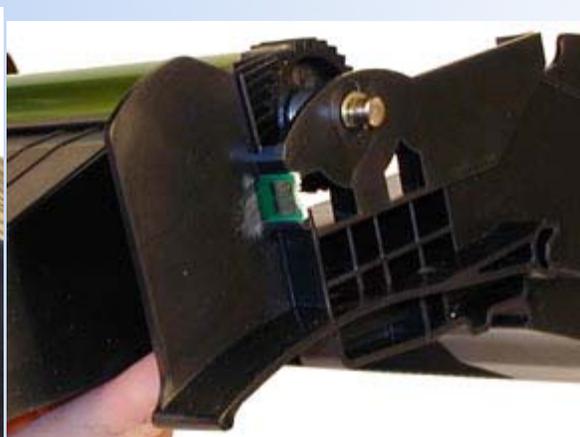


FIGURE 38

39. Take the Toner Hopper and install it left side first. Make sure that the left side post, and the white bearing are in their proper slot. See Figure 39
40. On the right side of the cartridge, pull the cartridge shell out so that the right side post falls into its slot. See Figure 40
41. With the spring hook, replace both springs on to the Toner Supply Chamber. See Figure 41
42. Re-install the Developer Roller drive gear. See Figure 42
43. A shipping lock must now be installed. This lock should be used even **if you are going to hand deliver the cartridge** It will prevent the toner hopper from coming in contact with the OPC Drum, and causing damage to either the Drum or the Developer Roller. Press the two red tabs into the sides of the cartridge as indicated in the picture supplied with the lock. See Figure 43
44. Although the only cartridges that come with the felt wands are the label type, we still feel that they should be included, and changed each cartridge. After running life tests on OEM cartridges in new machines, we have seen some dirty looking upper fuser rollers.
45. Replace the felt wand in the machine by lifting up the external plastic cover located over the fuser assembly. This is the same place that all the Optra S based machines use.



FIGURE 39



FIGURE 40



FIGURE 41

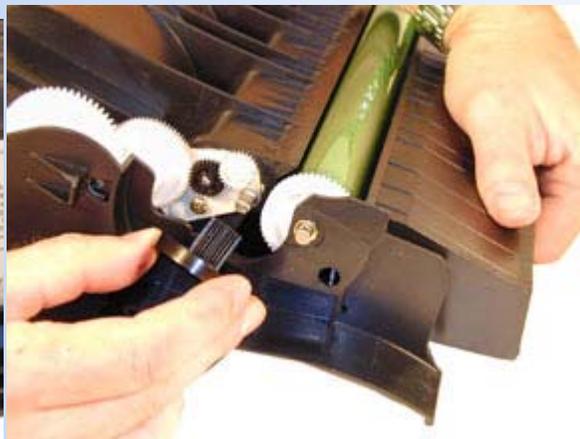


FIGURE 42

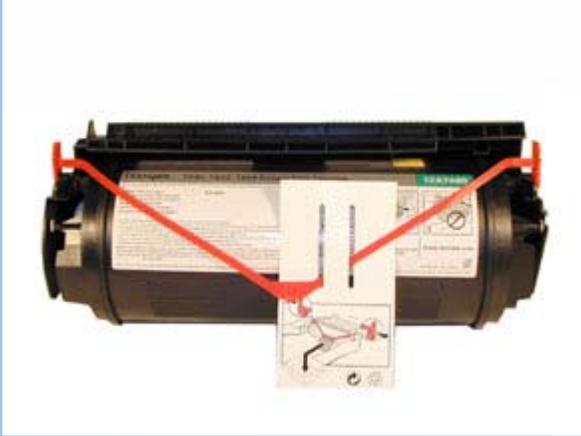


FIGURE 43

CARTRIDGE TROUBLESHOOTING



Dirty Primary Charge roller: Located inside the PRINTER, this will show on the test page as vertical gray streaks down the page, or as a gray background throughout the page.

Scratched drum: this is shown by a very thin, perfectly straight line that runs from the top to the bottom of the test page.

Chipped drum: This will show as a dot or series of dots that repeat 2 times per page. Any drum defects will repeat 3 times per page based on the drum circumference of 5.2".

Light damaged drum: This will show up as a shaded area on the test print that should be white. Again this will repeat 3 times per page.

Bad wiper blade: This will show as either a gray line approximately 1/8" thick, or as shading across the entire page. In either case there will be a film of toner on the drum surface.

Weak Dr. Blade Spring: This will usually show as shaded areas on one or both sides of the page.

Machine Error Codes:

32	Unsupported Print cartridge: (Wrong chip, encoder wheel combination, or bad chip). If this happens immediately upon cartridge installation, there is either a bad contact to the chip, or the chip is bad. If the machine cycles and then the message appears, the wrong encoder wheel is installed. In the T632 machines, this message will also show if the extra high yield cartridge is not installed.
80	Scheduled maintenance (300,000 page)
88	Toner Low
200-280	Various paper jams

RUNNING TEST PAGES



Printer menu:

Press the "MENU" key until "Utilities Menu" is displayed
 Press "SELECT"
 Press the "MENU" key until "Print Menu" is displayed
 Press "SELECT" w:

Font Sample:

Press the "MENU" key until "Utilities Menu" is displayed
 Press "SELECT"
 Press the "MENU" key until "Print Fonts" is displayed
 Press "SELECT"
 Select either the PCL fonts or the Postscript fonts,
 Press "SELECT"

The Print Menu page contains the printer page count, toner level, cartridge serial number, cartridge size, if it is Prebate or not, and the cartridge type, (Normal, MICR, Label).

CHANGING THE PRINTER DENSITY



Press the "MENU" key until "Quality Menu" is displayed

Press "SELECT"

Press the "MENU" key until "Toner darkness" is displayed

Press "SELECT"

Choose a number between 1 and 10. "8" is the default setting

CHANGING THE PRINTER RESOLUTION



Press the "MENU" key until "Quality Menu" is displayed

Press "SELECT"

Press the "MENU" key until "Print Resolution" is displayed

Press "SELECT"

The options available are 300, 600, 1200 Image Q, and 1200 Dpi. The 1200 Image Q is for bitmapped pictures. The printer default is 600 Dpi.

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*** These chips are designed to work on Non-Prebate, (Non-return) cartridges only**