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Profile: 8825, 8830 (Xerox Engineering Printers) Part 1

In my article writing adventures, most of the time, I have kept to the Xerox brand copiers. Once in a while I've strayed into the Engineering Copiers and on occasion I've been known to hit on a printer which is like a copier we already know. This time, it's an Engineering Printer which happens to cross rather closely to an Engineering Copier. Back in the beginning of 2003, there were a pair of articles published in ENX which covered the 3030 style copiers (3030, 3050, 3060). The 8825 and 8830 are Digital Printers which happen to have quite a lot in common with the 3030 style.

It may come as a surprise that the 8825/8830 digital printers have anything at all in common with the analog 3030 copiers. I can think of no other instances in which Xerox used an analog machine as the basis for creating a digital printer… usually the design starts over with the possibility of some parts in the feeder or fuser crossing over if anything. In this case, you can refer to a list of Status Codes from the 3030 and although there will be new codes not listed in the 3030 book, and there are 3030 codes which would never show up on an 8825 or 8830 console, the list remains mostly valid. Same goes for the Diagnostic Codes.

A primary difference is that the 8825 does not offer scanning capability and therefore has no Document feed components, and no exposure lamp. For writing on the photoreceptor, it uses an LED Array, so the drum is a different material, although the drum cleaning blade crosses over just fine.

The toner is dual-component, using the same shot of developer as found in the 3030 as a starter shot. The machine is designed to continually refresh the developer supply by adding some with each new toner cartridge… the older developer gets removed from the system (much the same way as the developer did in the 5018 copiers). Developer replacement therefore, isn't at a specified interval, but instead would only be necessary in the case of loss or contamination of developer material.

The fuser is similar in some ways… same Upper Fuser Roller and stripper fingers. Also, these use the same idea for the pressure in the fuser; they use a "Fabric Guide" (the fabric piece which mounts on a plate which then serves as the pressure for the fusing instead of a pressure roll).   A new feature in the 8825/8830 is a Fuser Web. The previous machines had used a wick and oil pad system for lubricating the fuser… but now you'll find a 3

foot long web roll… similar in appearance to the much shorter 5018 fuser web. Sounds scary? Maybe, but so far, no reports of webs wrapping around the fuser roll, so our fears may be unfounded… time will tell.

   Now let's have a look at the meanings behind some of the Status Codes. While these codes follow the basic lines of the 3030 copier, you'll find some differences. You'll not find any 'A' codes for example as those pointed to Document jams (obviously, no document feeder, no 'A' codes).

STATUS CODES:

'C' codes are mostly related to Paper Feed problems.

'E2-' codes are paper jams inside the printer.

'E4-' codes are exit jams.

'E5-' codes indicate interlocks which are open.

'J1-01' means out of Toner.

'J2-02' indicates a Toner Cartridge Home position sensor problem.

'LL' codes can indicate a wide range of problems. Here is a quick list:

  'LL-05': Fuser Web end of life.

  'LL-06': Fuser web motor not seen turning.

  'LL-10': Paper transport or Xerographic module are disconnected.

  'LL-12': Drum motor failure.

  'LL-21': High Voltage Charge failure.

  'LL-22': High Voltage Transfer failure.

  'LL-30': Cutter fault.

  'LL-41'through 'LL-45': Fuser problems.

  'LL-50': Problem with "Bulk Power Supply," which provides 26VDC.

  'LL.60': NVM (Non Volatile Memory) failure.

  'LL.90': Overtoned condition.

  'LL.91': Low Toner problem.

'U1-01': Print Counter is disconnected.

That does it for the Status Codes…

   As is the case with most of the Engineering class copiers and printers, unless you know these machines really well, you'll not want to place them under contract. Keep things time-and-materials and be prepared for the possibility that you may in some relatively rare cases need to call in the

cavalry… It's also advisable that you pick up a full Service Manual or have the customer pick one up from Xerox. The part number for the Service Manual which I've been drawing from is 701P08690.

In a future article, we'll cover the Diagnostic test codes as well as some of the more commonly needed adjustments. Hopefully some of the similarities to other Engineering machines will be helpful in your decision as to whether or not to tackle these when they come calling… they are relatively few and far between after all, so it's good to know when your learning curve applies to some extent to other models.

Profile: 8825, 8830 (Xerox Engineering Printers) Part 2

In the May issue of ENX, you can find Part 1 of this series on the Xerox 8825 & 8830 Engineering Printers. These machines are earning folks respect out there… they are reportedly reliable pieces of equipment. So, lets finish up where we left off in May's article. In Part 1 of this series, we compared and contrasted these machines to their 3030 analog engineering copier predecesors… we also hit on the Status Codes and their meanings. Now, let's delve into the diagnostic codes and adjustments.

To get into diagnostics mode, you'll press and hold the '0' button while turning on the power. The display will prompt you for the "Chain" which is the first part of any of the diagnostic codes. So, type in the first part of the code followed by "Enter". Then input the "Test" which is the second part of the code followed by "Enter" again. Pressing "Exit" will stop a test in progress and pressing "Exit" again would clear the "Chain". To exit diagnostics you can either turn off the power and wait 5 seconds before powering back up… or you can enter diagnostic code '03-61' which will exit you directly to warm up mode.

Similarly to many of the Xerox machine's I've dealt with here, there are three basic types of Diagnostic Codes available. The first set are the Input codes which allow you to test various switches and sensors. Second are the Output Codes which test things like motors, solenoids, lamps, etc. Finally are the codes which the Manual refers to as "Special Tests" which are basically adjustment codes for the NVM (Non Volatile Memory). There is also kind of a sub set of sorts in the code '09-21' which gives you access to a few adjustments relating to copy quality.

So here goes… For the Input Codes, you enter your code and then go and manually actuate / deactuate the sensor being tested… if that sensor and it's circuit is working, the display will change state between '0' (low) and '1' (high).

Following is a partial list of the codes available (for the sake of saving space, I've left off a few which you'll not likely use). I've placed asterisks next to any items which could use a bit of explanation (will give some more detail after the list):

<u>Input Codes:</u>
01-01 Front Door Interlock
01-05 Cut Sheet Feed Shelf Interlock
01-06 Top Cover Interlock
02-02 Keyboard Test
07-01 Module Loop Interlock*
07-02 Cutter Drawer Interlock
07-07 Roll 1 Input Sensor
07-08 Roll 2 Sensor
07-09 Roll 3 Sensor
07-10 Roll 1 Motion Sensor
07-11 Roll 2 Motion Sensor
07-12 Roll 3 Motion Sensor
07-13 Roll 1 Drawer Sensor
07-14 Roll 2 Drawer Sensor
07-15 Roll 3 Drawer Sensor
07-21 Cutter Home Sensor
08-01 Bypass Sensor
08-02 Buckle Sensor
08-03 Media Registration Sensor
08-07 Exit Sensor
08-08 Catch Tray Full Sensor
09-01 Toner Ctg. Home Sensor
09-02 Drum Motor Stall Sensor
10-05 Fuser Jam Switch
10-08 Fuser Open Sensor
10-10 Fuser Scorch Sensor (overheat thermistor)

* The Module Loop Interlock is a circuit which sees that both the Media Transport Module and the Xerographic Module are installed (if either is missing, the interlock isn't made (and the test will read low (0)).

Next lets have a look at the Output Diagnostic Codes which operate the motors, solenoids, etc. To activate any component, enter the first part of the code followed by 'Start', then the second half of the code… when you press 'Start', the component should activate. To stop the component press 'Exit'. Following is a list of Output Codes, followed by some extremely important warnings (there are some things you need to know which I've marked with *!* and some things which need to be run together which I've marked with a single asterisk).

Output Codes:

02-01 Display (Individual LED's)
02-03 Service Meter (1/2 click on 'Enter', balance of click on 'Exit')
02-10 Control Panel LED's
04-03 Runs Drum, Developer & Fuser Motors (*!* caution)
07-03 Roll Feed Motor (Forward)
07-04 Roll Feed Motor (Reverse)
07-16 Roll Drive Motor and Roll 1 Feed Clutch
07-17 Roll Drive Motor and Roll 2 Feed Clutch
07-18 Roll Drive Motor and Roll 3 Feed Clutch
07-20 Cutter Brake
07-23 Cutter Drive Motor
07-27 Roll 1 Rewind Clutch
07-28 Roll 2 Rewind Clutch
07-29 Roll 3 Rewind Clutch
07-30 Roll 1 Feed Clutch
07-31 Roll 2 Feed Clutch
07-32 Roll 3 Feed Clutch
07-33 Bypass Clutch
09-05 Toner Dispense Motor
09-14 Cooling Fans (slow speed if fuser cold)
09-17 Transport Drive Motor
09-25 Toner Cartridge (1 revolution)
09-56 Test Pattern (be patient)
09-57 Display area coverage of last print made
09-66 Erase Lamp
10-09 Fuser Power Relay On

! Caution… The Fuser must be at the run temperature before the Drive Motors are switched on to prevent damage to the fuser. (cold fuser oil can be very viscous and will do some serious damage if you aren't aware of this).

* There are some codes which must be run together (or "Chained" as the Service Manual calls it)… to "Chain" several codes, you enter your first code… then press the "Media" button… then enter your next code… press "Media" again to add a third and so forth. To stop a bunch of chained codes, you can press and hold the Dot (.) button while pressing the "Exit" button… this will clear all of the codes which were entered.

- For 07-28 (Roll 2 Rewind Clutch), you must first start up the Roll Feed Motor in the forward direction using code 07-04 (Roll feed motor - forward)… then chain the other code to see if the clutch you're testing works.

- For 07-27 (Roll 1 Rewind Clutch, <u>or</u> 07-29 (Roll 3 Rewind Clutch), you'll first need to start up the Roll Feed Motor in the reverse direction using code 07-03 (Roll feed motor – reverse).

Finally we come to the "Special Tests" or NVM (non volatile memory) adjustments… you enter the codes the same way as the input or output codes, but to change a value, you press the "Enter" button and then use the "Previous" and "Next" arrow keys to select the value you want. Then press "Enter" again to lock in your selection. Here's the list:

<u>Special Tests (Memory Adjustments):</u>
02-63 Inches vs. Metric Billing Meter count (0=Inch, 1=Metric)
03-60 NVM Reset to Defaults (entering 1 resets all to the US defaults)
03-61 Exits Diagnostic Mode
03-63 Resets NVM to a backup file.
03-91 Recent Fault Log
03-92 Fault History Log (# of occurrences of each fault code since log was
       last cleared)
06-02 Vertical Magnification
07-00 Cut Length Adjustment
08-60 Image Registration
09-06 Tone Up / Tone Down (adjusts concentration to set point)
09-21 Electrostatic setup *
09-22 Disables toner faults (select 'Yes' for running with toner faults, then use code 03-61 to exit to run mode)
09-26 Reset Toner Control Bias to default
09-55 Test Pattern from memory (9 patterns available)
10-04 Fuser Run Test (automatically warms up the fuser and displays the thermistor reading… once up to temp, the Drum / Developer and Fuser Drive Motors are switched on… All interlocks must be closed for this test to run).

10-10 Fuser Scorch Sensor (overheat thermistor)… 1 = temp less than 420 degrees F, 0 = temp over 420 degrees.
10-26 Reset Fuser Control NVM to default values.
10-30 Reset Oil Web count.
10-32 Web Oil Rate (default = 100%, range is from 50 - 200)
10-33 Advance Oil Web (used to tension the web properly when oil assy is removed and reinstalled)
10-34 Estimate Oil Web life
10-60 Fuser Temp adjustment (bond media)
10-62 Fuser Temp (vellum media adjustment)
10-63 Fuser Temp (film media adjustment)

* The Electrostatic Setup code 09-21 has more to it. From that code, you can run sub-tests using the number keys as follows:
1 = Transfer Detack Corotrons on
2 = Adjust Charge (Vhigh)
3 = Adjust Charge (Vlow)
4 = Adjust Image Density (higher number lightens copy) run the 09-06 code to tone up / tone down automatically after you adjust the image density.
5 = Illuminates the LED Image Bar for observation purposes (that's the thing which writes on the drum in this machine)
6 = Calibrates the Toner Control Sensor
7 = Humidity Sensor control point setting

That is about it on this series… Happy repairing to you all!