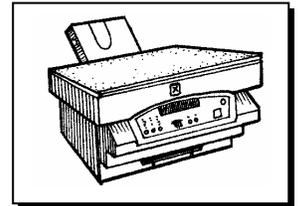# XE-60 style
(WorkCentre XE60/62/80/82, XE90fx, DocuPrint P8)
# TECHNICAL INFORMATION
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## STATUS CODES:
Note: Press the 'Print' Button to view a subcode…
CH      Toner Cartridge not present or not seated properly
C1      Front Door Open
E1      Paper Jam / Misfeed
E2      Paper Jam
E3      Paper Jam (on exit)
E7-03  Laser Output error.
E7-04  CCD ('Charge Coupled Device' or "photoelectric converter") white level error
E7-05  CCD black level error
E7-12  CCD shading level error
E7-14  ASIC communication error (try clearing by turning off & on… otherwise Main PWB is bad)
E7-15  Copy Lamp problem
H2      Thermistor Open
H3      High fuser temperature
H4**   Low fuser temperature
J2*     Drum Cartridge end of life
L1      Mirror Base did not leave home position
L3      Mirror Base did not return to home position after copy cycle
L4      Main motor problem
L6      Polygon motor (drives the laser) problem
P       Paper feed problem (Paper didn't reach the paper feed sensor in time)
U2-01  Counter Memory Data failure
U2-04***  Memory Failure

## DIAGNOSTICS:
**To enter diagnostics**: Turn on the power and within 4 seconds press the following sequence:
'Clear', 'Exposure Mode', 'Clear', 'Exposure Mode' (Exposure Mode is the button on the far left).
The console will go completely blank.
**To enter a code**: Select the first part of the code using the copy quantity buttons, followed by the
'Print' button, then the second part of the code followed by the 'Print' button again.
**To exit diagnostics**: Press 'Clear' repeatedly or turn the power off.

**\*To Reset the Drum Count:** Open the front door. Then hold down the Copy Contrast Key while
closing the front door… continue to hold the 'Copy Contrast' button for at least 3 seconds until the
3 Copy Contrast indicators blink & the console comes to ready. The drum count is reset to zero and
the machine will run another 18,000 copies before calling J2 again.

**\*\*To clear a fuser code**:(14) Enter diagnostics, select '14' followed by 'Print'… exit diagnostics.

**\*\*\*To Clear a U2 code**:(16) Enter diagnostics, select '16' followed by 'Print'… exit diagnostics.

**To read Copy Count**: Press & hold the 'Clear' key… the display will flash the total copy count
2 digits at a time.

# Specific Symptom / Code Troubleshooting:

**E2 Status Codes:**  You can test all of the sensors in the Paper Path using diagnostic code 30-1… Enter diagnostics, then select '30', and press 'Print', then select '1' followed by 'Print' again.  Then go and manually actuate and deactuate each of the sensors… each sensor has it's own indicator lamp on the console which will go on and off when you flip it's actuator on / off.  First there's the Feed Sensor… Then there's the Exit Sensor which is found in the fuser assembly.  It is actuated by an actuator which sometimes gets knocked loose.

(incorrect)          (correct)

       If the problem came up right after you reassmbled the machine, you'll want to know that the E2 code can be caused by misassembly of the covers… The Feed Sensor's actuator is attached to and swings on the bottom cover… it can be reinstalled backwards in such a way that it feels right, but fails to actuate the sensor when the machine is reassembled.
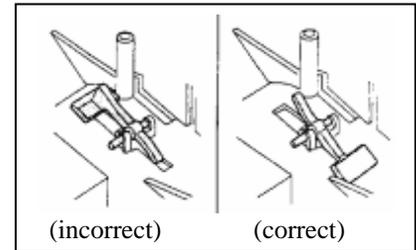
**Persistent H2 Status Codes:**
You'll want to check for a bad (open) thermistor.  This is the part that looks like a flat tape on a small black plastic mount with two white wires coming off of it.  This actually makes direct contact with the surface of the fuser roller and controls the temperature.  It can be measured while the fuser unit is still in place.  There are three wiring harnesses coming from the right side of the fuser unit.  The thermistor is the white connector with two white wires.  If you disconnect the connector and measure between the two leads you should measure around 400K ohms at room temperature.  If the circuit measures infinite (open) the thermistor needs to be replaced.  If you had the lamp out and handled it with bare hands you will have to clean it with alcohol because finger print oil will cause the lamp to blow in rather short order.

**H4 Status Codes:**
The H4 status code means that the fuser did not warm up.  Did you power the machine up with the fuser disconnected?  If so this is what caused the code which locks into the machine's memory and must be cleared using the diagnostics mode.  Otherwise, it could be a bad heat lamp or either of the thermofuses are an open circuit.  These should all measure continuity at a relatively low resistance (6 Ohms or less).  To clear the H4 you must enter diagnostics mode by turning the power on, then in moderately rapid succession enter the following keys.  "Clear", "Exposure Mode" (key on the far left of the console), "Clear", "Exposure Mode".  At this point the indicators on the control console will go out.  Using the copy quantity keys enter "14" then press the start key.  Now if you turn the power off and back on the code will be cleared.  If the H4 comes back something in the fuser is disconnected or blown.

**Approximately 1/3 of the Copy is Blank:**
       On this series, this is a common question with a simple answer.  There is a "Width Switch" in the paper path which sees the size of the paper as it feeds in.  If the Width Switch doesn't see the paper going through, the machine assumes that the paper is narrow.  The result is that the logic only places an image on approximately 2/3 of the width of an 8 ½ x 11 sheet of paper… the rest is left blank.
       Usually, the problem is that the actuator for the Paper Width Switch has been knocked out of position or installed incorrectly.  This actuator is found mounted on the Rear Cover of the machine.

**Narrow Deletion Lines running from Lead Edge to Trail Edge:**
- **Debris in the Toner Cartridge:**
       Contamination of the Toner Cartridge can be one possible cause.  If you look at the Toner Cartridge you'll see where the "starvation lines" can be found on the Magnetic Roller… areas where something (usually paper dust) is trapped behind the Toner  Metering Blade preventing toner from being properly metered onto the Mag Roll.  This problem is particularly prevalent because the machine relies on 100% transfer of the toner… any remaining toner (along with paper dust unfortunately) gets back into the toner supply during a cleaning cycle which occurs between copies.
       A temporary fix for this is to use a narrow piece of mylar or even a business card to slide gently between the Mag Roll and the Metering Blade on the Toner Cartridge back and forth to knock loose any debris.  A more long term fix is to replace the Toner Cartridge and advise the customer to use only high quality papers (which leave less paper dust).
- **Something blocking the Laser:**
       Anything blocking the laser from firing onto the drum will produce a blank or light area from the lead edge to the trail edge.  If you remove the Toner Cartridge and Drum Cartridge and then clean the long narrow slit glass on the outside of the Laser Unit, that will often solve the problem (sometimes toner or other contamination gets up onto that slit glass and blocks the laser).

**XE-60** *style* **Diagnostics** (Continued):

**Checking Counters:**
**Checking the Total Copy Count**: (22-5) Enter diagnostics, select '22', 'Print' followed by '5', 'Print'...The copy count will flash 3 digits at a time for a total of six digits (for example: 012 345 would indicate 12,345 copies). (Can also be done by holding the 'Clear' button for 7 seconds)
**Checking the Drum Cartridge (CRU) Count**: (22-12) Enter diagnostics, select '22', 'Print' followed by '12', 'Print'...The copy count will flash 3 digits at a time for a total of six digits (for example: 002  345  would indicate 2,345 copies).

**Testing Switches & Sensors:** (Input Component Codes)
In diagnostic mode, enter the code for the component, press 'Print', then manually actuate the switch or sensor and watch for the corresponding Lamp to turn on & off.
Note:  Document related tests only apply to the XE90fx

| Code | Component | Control Console Lamp to watch |
|------|-----------|-------------------------------|
| 1-2  | Scan Home Sensor | Drum Cartridge Lamp |
| 2-2  | Set Detect Sensor | Toner Cartridge Lamp |
| 2-2  | Document Path Sensor | Paper Jam Lamp |
| 2-2  | Document Cover Closed Sensor | Drum Cartridge Lamp |
| 2-2  | Document Position Sensor | SDF Jam Lamp |
| 30-1 | Paper Feed Sensor | Toner Cartridge Lamp |
| 30-1 | Fuser Jam Sensor | Paper Jam Lamp |
| 30-1 | Paper Exit Sensor | Drum Cartridge Lamp |
| 30-1 | Drum Reset Sensor | R/E Lamp |

**Checking Clutches, Motors, Lamps, Solenoids & Corotrons:** (Output Component Codes)
Use these codes to test a component such as a clutch or motor.  Enter the code followed by 'Print' to activate a component.  Most components activate for 1 second (Exposure lamp lights for 5 sec.)
*Note that the "Document Feeder" tests are for the XE90fx only.

| Code | Component |
|------|-----------|
| 1-1  | **Scan Drive Motor**<br>- The first time 'Print' is pressed, optics move into home position... Then select the magnification you want to observe... The second time 'Print' is pressed, optics scan at the speed corresponding to the magnification selected.<br>- The Drum Cartridge Lamp turns on whenever the scanner reaches the home position. |
| 2-3* | **SDF Motor** (SDF Motor on for 10 sec. at a speed corresponding to the selected magnification. |
| 2-4* | **Document Feed Solenoid** (Solenoid cycles 20 times when 'Print' is pressed). |
| 2-5* | **Document Exit Pinch Roll Solenoid** (Exit Pinch Roll Solenoid cycles 20 times when 'Print' is pressed). |
| 2-6* | **Document Exit Roll Clutch**  (Exit Roll Clutch cycles 20 times when 'Print' is pressed). |
| 2-7* | **Document Deflection Gate Solenoid** (Deflection Gate Solenoid cycles 20 times when 'Print' is pressed). |

__Checking Clutches, Motors, Lamps, Solenoids & Corotrons:__ (Output Component Codes)

| Code | Component |
|------|-----------|
| 5-1 | __Control Panel Lamps__ (All console lamps light for 5 sec. when 'Print' is pressed). |
| 5-2 | __Fuser Lamp & Fuser Exhaust Fan__ (Press 'Print', lamp pulses on 5 times & Exhaust Fan will run in high speed mode). |
| 5-3 | __Exposure Lamp__ (Lamp lights for 5 seconds each time 'Print' is pressed). |
| 6-1 | __Paper Feed Solenoid__ (Feed Solenoid cycles 20 times when 'Print' is pressed). |
| 25-1 | __Main Motor__ (Main Motor turns on for 30 seconds when 'Print' is pressed) |
| 25-10 | __Polygon Motor__ (Laser Polygon motor on for 30 seconds when 'Print'is pressed). |
| 64-1 | __Test Pattern__ (Produces a solid grey test print when the 'Print' button is pressed). |

__Adjustments: (NVM Settings)__

__Fuser Temperature Adjustment:__ (43-1)
Enter diagnostics... Enter '43','Print', '1','Print'... the current setting is displayed. (default = 1)
0=150c...__1=155c__...2=160c...3=165c...4=170c...5=175c. If you want to change the setting, use the copy quantity button & press 'Print' to lock in your selection.

__Fuser Temperature Adjustment for Multiple Copy Runs (after 20 copies) :__ (43-4)
Enter diagnostics... Enter '43,'Print'...'2','Print'... the current setting is displayed. (default = 1)
0=150c...__1=155c__...2=160c...3=165c...4=170c...5=175c. Change using the copy quantity select button & press 'Print' to lock in your selection.

__Exposure Adjustment:__ (46-1…for XE90fx SDF=51-6)
Should be done after replacing Exposure lamp, Exposure Sensor, Exposure PWB, or Main PWB
- First clean all optics & align the "Exposure Plates" on the Exposure Lamp Carriage so that the copy is evenly exposed.
- Then select '46', 'Print', '1', 'Print'… Place a Test Pattern on the glass, select the copy mode (Auto,Text, Photo, or Toner save) you wish to adjust… Press 'Print' to run a copy. The current exposure level is displayed. Increase the number shown (range is from 00 to 99, Default is 50) to increase exposure (lighter copy). Decrease the number shown to darken the copy.
- For SDF Exposure adjustment, (XE90fx only) follow same procedure but use the diagnostic code '51', 'Print', '6' 'Print' instead of the 46-1 shown above.

__Magnification Adjustments__: (48-1) Ranges are from 00 to 99, Default=50.
- "Front to Rear" magnification: (adjusts the position of the lens)
  *Automatic adjustment*: Enter diagnostics, select '48', 'Print', '1', 'Print'. Press the 'Exposure Mode' button until only the 'Auto' lamp is lit, then press 'Print'... the machine will scan the reference line on the calibration strip, calculate the "correct" magnification & automatically adjust the setting... the new setting appears in the display.
  *Manual adjustment:* To manually adjust the setting, enter '48,'Print','1','Print' and then press the 'Exposure Mode' button until only the only the 'Text' lamp is lit… the current setting is displayed (Range is 00-99, Default=50). Adjust up to increase magnification, down to decrease. Press 'Clear' to Exit diagnostics & store new settings.
- ."Lead Edge to Trail Edge" magnification: (adjusts the scan speed)
  Same procedure as for "Front to Rear" but press the 'Exposure Mode' button until only the 'Photo' lamp is lit.

**XE-60** *style* **Adjustments** (Continued):

**Registration & Deletion Adjustments**: (50-1)  Ranges are 00 to 99, Default=50
- Lead Edge Registration:(changes the timing of the sheet).
  Enter diagnostic code '50', 'Print', '1', 'Print'… press the 'Exposure Mode' button until the 'Auto' lamp is lit… Increase number shown to decrease the distance between the lead edge & the image.  Each 1 step increment produces a shift of 01.mm.
- SDF Lead Edge Registration: Same as above but press 'Exposure Mode' button until 'Auto',  & 'Text' lamps are lit to make your changes.
- Lead Edge Deletion: Same as above but press 'Exposure' and 'Copy Contrast' buttons until only the 'Auto' lamp is lit. Adjust number up to increase deletion, down to decrease.
- Trail Edge Deletion: Enter diagnostic code 50-1… press 'Exposure Mode' until the 'Auto', 'Text' & 'Photo' lamps are lit… adjust number shown up to increase, down to decrease.

**Front to Rear Registration** (Center Offset) **Adjustments**: (50-10)  Ranges are 00-99, Default=50
Paper Tray:  Enter '50','Print','10','Print'.  Use the Exposure Mode button to select 'Auto' & the Paper Tray Select button to choose 'Paper Tray 1', the current value is displayed… To shift the image toward the front of the machine, increase the number… to move towards the rear, decrease. A change of 1 produces a 0.1mm shift.

**Registration Buckle:** (51-2) Ranges from 00 to 99… Default=50
- Paper Tray Registration Buckle: Enter diagnostics, select '51', 'Print', '2', 'Print'…press the 'Exposure' button until the 'Auto' lamp & the paper tray you want to change the setting for is lit (Paper Tray 1 or Tray 2) are lit.  Use copy quantity buttons to change.

**Configuration Codes**: To display & change various machine configurations… to change, select new number with copy quantity buttons, then press 'Print'

| Code | Function | Range | Default | Details |
|------|----------|-------|---------|---------|
| 26-6 | Paper Size Type | 0, 1, or 2 | - | 0 = Inch Series<br>1 = AB Series<br>2 = Japan AB Series |
| 26-7 | Copies per Minute setup. (Read Only, can not be changed from this code) | 10,12,15 | - | 10CPM = '10' displayed<br>12CPM = '12' displayed<br>15CPM = '15' displayed |
| 26-20 | Trail Edge Deletion | 0 or 1 | 0 | 0 = Trail Deletion allowed<br>1 = Deletion Not allowed |
| 26-30 | CE mark application | 0 or 1 | 0 | 0 = CE mark application control off<br>1 = CE mark application control on |
| 26-38 | Drum Cartridge Life End | 0 or 1 | 0 | 0 = End of Life disabled<br>1 = End of Life Enabled |
| 26-39 | Memory capacity | 0,1 or 2 | - | 0 = No memory<br>1 = 4 Mbyte<br>2 = 6 Mbyte |
| 26-40 | Polygon motor Off time setting | 0,1,2,3 | - | 0 = 0 seconds<br>1 = 30 seconds<br>2 = 60 seconds<br>3 = 90 seconds |

**XE-60** *style* **Diagnostics** (Continued):

**User Programmable Features**: To customize the machine to the customer's preferences.
To change a feature, select the 'Toner Saver Mode' using the 'Copy Quality' button.  Then press &
hold the 'Copy Quality' down for about 6 seconds till the lights on the Copier Diagram flash.  Then
use the 'tens' button to select the Program # you want to change.  Then press 'Print'… the current
setting will flash.  Press the 'ones' key to select the Option # desired followed by the 'Print' button
to lock in the selection.  To change Program #10 (Zoom R/E Preset), use the R/E up & down arrow
buttons instead of the 'ones' button.

| Program # | Program description | Options |
|---|---|---|
| 1 | Auto Clear time-out | 0 = Off<br>1 = 30 seconds<br>2 = 60 seconds (default)<br>3 = 90 seconds<br>4 = 120 seconds |
| 2 | Time-out to Power Save | 0 = Off<br>1 = 45 seconds<br>2 = 90 seconds (default)<br>3 = 2 minutes<br>4 = 5 minutes |
| 3 | Time-out to Power Shut-off | 0 = 2 minutes<br>1 = 5 minutes (default)<br>2 = 15 minutes,  3 = 30 minutes<br>4 = 60 minutes,  5 = 120 minutes<br>6 = Off |
| 4 | Default Magnification | 0 = 100%  (default)<br>1 = 99%<br>2 = 101% |
| 5 | Default Copy Quality | 0 = Auto (default)<br>1 = Text<br>2 = Photo<br>3 = Toner Saver |
| 6 | Exposure Adjustment ("Copy Contrast") | 0 = -4 (lightest)<br>1 = -3,  2 = -2<br>3 = -1,  4 = Nominal (default)<br>5 = +1,  6 = +2<br>7 = +3,  8 = +4 (darkest) |
| 7 | Paper Trail Edge Void (4 mm) | 0 = On (default)<br>1 = Off |
| 10 | Zoom R/E Preset | 50-200% in 1% increments (default=50%) |

**SPECIFICATIONS:**
**Manufacturer:**  Sharp® Corporation  also sold as AL-800 etc.
**Copies/Minute:** 6 Copies per Minute.
**Suggested Retail Price:**  Ranges from $
**Zoom Capabilities:**  50-200%… Presets = 70, 78, 86, 100, 129, 141
**First Copy Time:**
**Yields:**
Drum Cartridge (13R553): 18,000 (gives a 1000 copy warning light)
Toner Cartridge (6R916): 3,000 (Assumes average area coverage of 5%...Regular full page of text)