Models: e-STUDIO6530c Series
Subject: Developer Maintenance

Overview

This bulletin describes the factors involved in properly managing developer life for the e-STUDIO6530c series.

Detail

To reduce possible deterioration of the carrier in the development system, the e-STUDIO6530c series implements "Self Refreshing Development'". This system automatically exchanges the original carrier with new carrier that is supplied with the toner during operation. Under normal operating conditions, the developer material in the e-STUDIO6530c series does not need to be replaced on a regular basis. However, replacement may be needed under certain operating conditions.

Self Refreshing Development System:

The toner cartridges for the e-STUDIO6530c Series contain a specified amount of carrier along with the toner. As toner is added during printing, new carrier enters the developer unit. This causes the volume of carrier in the unit to increase. This increase of volume causes the used carrier to over flow and exit the developer unit thereby refreshing the developer material. As long as a sufficient amount of toner/carrier mixture is regularly added, developer performance will be maintained.

If the printing ratio of the customer's originals is low (less than 2%), a sufficient amount of developer material is not supplied often enough and the developer will not be refreshed resulting in possible deterioration of the developer material.

To prevent deterioration from going unnoticed, a "Time for Developer (*) Maintenance" message will be displayed on the control panel when a deterioration of the developer material condition is judged by the machine firmware. The (*) in this message represents the specific color of developer (Y, M, C, or K)

The judgment of developer deterioration is determined using several factors including Toner Supply Ratio, Drive Ratio and Pixel Counters. These factors are used internally to calculate the "Performance Index". When the Performance Index exceeds a predetermined threshold, the "Time for Developer (*) Maintenance" message will be displayed indicating that the developer may be near the end of its useful life.

When the developer material is replaced, the current values for the print and drive counts are cleared in the sub unit menu of the PM support mode for the developer unit. The values of the Supply ratio, Drive ratio and Performance index are also cleared in the sub unit menu (Details).

Responding to the "Time for Developer (*) Maintenance" message:

The display of the "Time for Developer (*) Maintenance" message does not always mean that the developer material must be replaced. This message is designed to indicate the possibility of developer deterioration before severe image quality degradation due to developer wear occurs. When the message is displayed, use the following procedure to determine whether replacement of the developer material is warranted.

1.) Using the following steps enter the PM mode and check the developer sub unit details to confirm all of the developer units for which the performance index has exceeded the threshold value. It is possible for more than one developer unit to reach the threshold at the same time.

    a. Use [6]+[START]+[POWER]ON to access the PM Support Mode and press [2] to enter the Main Screen.

*EXCHANGE

MAIN UNIT	OUTPUT PAGES [k]	PM OUTPUT PAGES [k]	DRIVE COUNTS [k]	PM DRIVE COUNTS [k]
CLEANER/DRUM/CHARGER (K)	**83k**	**225k**	**127k**	**285k**
CLEANER/DRUM/CHARGER (Y)	**71k**	**225k**	**117k**	**285k**
CLEANER/DRUM/CHARGER (M)	**71k**	**225k**	**117k**	**285k**
CLEANER/DRUM/CHARGER ©	**71k**	**225k**	**117k**	**285k**
FILTER (1)	**83k**	**225k**	**127k**	**285k**
FILTER (2)	**83k**	**225k**	**113k**	**222k**
DEVELOPER	**--**	**--**	**--**	**--**
TRANSFER BELT CLEANER	**83k**	**225k**	**127k**	**285k**
2nd TRANSFER	**83k**	**225k**	**81k**	**242k**
FUSER (1)	**83k**	**225k**	**1209k***	**902k**

    b. Access the Developer sub menu by selecting "Developer" on the LCD and press the [SUB UNIT] button at the bottom of the screen.

*EXCHANGE

SUBUNIT	OUTPUT PAGES [k]	PM OUTPUT PAGES [k]	DRIVE COUNTS [k]	PM DRIVE COUNTS [k]
BLACK DEVELOPER	**83k**	**--**	**113k**	**--**
YELLOW DEVELOPER	**71k**	**--**	**103k**	**--**
MAGENTA DEVELOPER	**71k**	**--**	**103k**	**--**
CYAN DEVELOPER	**71k**	**--**	**103k**	**--**

    c. Access the details screen for each developer by selecting the developer in the list and press the [Details] button at the bottom of the screen.

    A "*" is displayed next to the present number of the performance index if it has exceeded its threshold number.

SUBUNIT	SUPPLY RATIO	DRIVE RATIO	PERFORMANCE INDEX	THRESHOLD
BLACK DEVELOPER	**215**	**355**	***101**	**100**
YELLOW DEVELOPER	**511**	**166**	**32**	**100**
MAGENTA DEVELOPER	**550**	**166**	**31**	**100**
CYAN DEVELOPER	**450**	**166**	**34**	**100**

> **Note:**
> Any developers that have a Performance Index that has exceeded or is near the threshold listed in the right hand column, should be evaluated for signs of developer wear.

2.) Run a combination of customer's samples, test charts and internal test prints to determine if there are any signs of developer wear.

3.) If signs of developer wear are observed, replace the effected developer following the replacement procedures outlined in section 11.5.25 of the e-STUDIO6530c series Service Manual under "Developer Material"

4.) If no signs of developer wear are observed in the printed samples, 08-2675 can be used to reset the Developer Maintenance message so that it will be displayed at a later time by temporarily extend the threshold. To adjust this code, enter the 08 setting mode and access 2675 then enter the sub code for the developer in question and increase the threshold value by 10. (See example below)

*EXCHANGE

SUBUNIT	SUPPLY RATIO	DRIVE RATIO	PERFORMANCE INDEX	THRESHOLD
BLACK DEVELOPER	**215**	**355**	***101**	**110**
YELLOW DEVELOPER	**511**	**166**	**32**	**100**
MAGENTA DEVELOPER	**550**	**166**	**31**	**100**
CYAN DEVELOPER	**450**	**166**	**34**	**100**

Note:
If 08-2675 is increased more than 10, the Developer Maintenance message might not be displayed before image quality deteriorates. Adjusting 08-2675 higher than 110 is not recommended.

In the event the end user does not want this function enabled, the Developer Replacement Display can be disabled by setting 08-2670 to 1. Disabling this function will prevent the Developer Maintenance message from being displayed.

Warning:
When the Developer Replacement Display is disabled, the machine must be carefully monitored for signs of developer wear to maintain image quality. Disabling this function is not recommended.