CDRS/Kodak Printer Notes
(Preliminary Draft)

There are two parts to these notes:

- **Installation Notes**
  Intended for Evans & Sutherland field service personnel.

- **Printing Procedure**
  Intended for the CDRS/ESV user. Since the Kodak printer interface is done through UNIX, the system manager is the person most likely to manage the printer.

Consider these notes preliminary; there is no E&S part number for this document. This document will probably be included in the next release of the system manager guide and/or release notes.

Installation Notes

1. Prior to installation of the CDRS interface to the Kodak printer, the Kodak driver software must be installed on the ESV.

   Note: It is recommended that you be the only user logged onto the machine while loading this software.

   a. Insert the ES/Kodak Printer tape 2.0 into the tape drive, then login as root. Enter the following lines (press RETURN after each line):

      cd /
      /usr/pkg/bin/inst

   b. Now follow the instructions given on the screen as shown below. Your responses are shown in bold face type. Remember to press RETURN (<cr>) after each response:

```
Software package installation

Install package relative to where  [/]?  <cr>

Please mount the  (first,  if multiple tapes) distribution
tape, then press return...  <cr>
Rewinding the tape...
Verifying tape id... ok

Extracting packaging information tree... kodak2.0

Installation Information

Packages will be read in from the local Q24 tape drive.
Machine type:  m120-1

Is this information above correct?  (y  n)  [y]?  y
```

========== checking subpackages ==========

The following subpackages may be installed:

kodak   -- Kodak 2.0 Release

========== selecting subpackages ==========

You may select all of the above subpackages by answering "y" to the
following question. If you answer "n" then you will be asked to
select the optional subpackages you would like to have installed.

Install ALL subpackages (y n) [n]? y

========== setting system clock/calendar ==========

The current value of the clock is: Tue Apr   9 08:36:20 MDT 1991
Is the clock correct (y n) [y]? y

========== verifying single-user mode ==========

This system is not presently in single-user run level. Installation
of a package can fail if performed at this run level. We recommend
that the system be brought to a single-user run level (using "init
S") prior to performing the installation.

Are you absolutely sure you wish to continue (y n) [n]? y

========== preserving local files ==========

No preserve list or findmods list for kodak- preserve not executed.

========== verifying disk space ==========

Do you want to check for space (please do so unless you really
understand the consequences) (y n) [y]? y

The system will now be checked to verify that there is enough disk
space with the current configuration to successfully install the package
(and any selected optional subpackages). For large packages (especially
operating system packages), this can be time consuming...

There is enough space.

========== stripping old links ==========

Stripping links for subpackage kodak...

========== extracting files from subpackage archives ==========

rewinding the tape...
Verifying tape id... ok
Forward spacing the tape...

Loading subpackage: kodak...
Forward spacing the tape...
rewinding the tape...

========== running comply ==========

running first comply pass...
running second comply pass...
There were no comply messages from the second pass.

========== doing uncompress Tue Apr   9 08:51:19 MDT 1991 ==========

```
========= cleaning up old versions =========

An attempt will now be made to clean up any files left over from previous
versions of the software which has just been installed.

Searching for old versions to remove...

========= restoring preserved user files =========

No preserve list or findmods list for kodak-  no files restored.

========= cleaning up =========

Remove install tools  (y  n)  [n]?  y

========= installation complete =========

To configure the SCSI printer device for the Kodak Printer, type the
following while logged on as root:

    mknod  /dev/scsi/printer  c  16  80;  chmod  666  /dev/scsi/printer

INSTALLATION COMPLETE
```

2. The machine to which the printer is attached must be running version 1.3.2 (or higher) of the O/S.

3. The accompanying tar tape contains the following files (all files should have CDRS ownership):

   Note: It may be necessary to create the directory tree for the .lisp files.

   • **xkpr**
     To be loaded in the /usr/bin/x11 directory of any machine accessing the printer if it is not already present.

   • **xwd**
     To be loaded in the /usr/bin/x11 directory of any machine accessing the printer if it is not already present.

   • **windowgrab**
     To be loaded in the $SRC/bin/Mips_bin/ directory if it is not already present.

   • **init-kodak.lisp**
     To be loaded in the $SRC/cdrs/mh/hardcopy directory. If this directory does not exist, it must be created.

   • **lispkodak.lisp**
     To be loaded in the $SRC/cdrs/mh/hardcopy directory. If this directory does not exist, it must be created.

4. The local environment file for CDRS must be modified to include the following lines:

   ```
   :EVAL (load "$SRC/cdrs/mh/hardcopy/lispkodak.lisp")
   :EVAL (load "$SRC/cdrs/mh/hardcopy/initkodak.lisp")
   ```

5. The /etc/printcap file on any ESV accessing the printer (different than the machine to which the printer is directly attached) must be modified to include:

```
cp|kodak|Kodak Color Printer:\
    :lp=:rm=[machine-name]:rp=cp:sd=/usr/spool:lf=/usr/spool/lw/lw-log
```

where [machine-name] is replaced with the name of the machine to which the printer is directly attached (don't use the brackets).

6. The /etc/printcap file on the ESV to which the printer is directly attached must be modified to include:

```
cp|kodak|Kodak Color Printer:\
:lp=/dev/null:sd=/usr/spool/lp:\
:lf=/usr/adm/kodak-log:af=/usr/adm/kodak.acct:\
:sh:of=/usr/etc/kodakdriver:
```

Accordingly, there must be a directory called /usr/spool/lp.

Create the files /usr/adm/kodak.acct and /usr/adm/kodak-log as follows:

```
touch  /usr/adm/kodak.acct
touch  /usr/adm/kodak-log
chmod  666  /usr/adm/kodak.acct
chmod  666  /usr/adm/kodak-log
```

7. Any machine accessing that printer must have its name placed in the /etc/hosts.equiv file of the machine with the printer.

8. Before making a print, check off the following items (failure to do so may crash the system):

   - The CDRS/ESV is on and functioning properly.
   - The Kodak printer is on and functioning properly.
   - Any machine accessing the ESV with the Kodak printer is properly linked to that machine via ethernet.
   - A printer daemon is running on both the ESV with the Kodak printer and any machine accessing the ESV with the Kodak printer. (There should be a soft link from /etc/init.d/printer to /etc/init.d/bsd43_lpd before the machine is booted. The command printer start can be used to start the deamon if necessary.)
   - The printer should be configured as device 5. (SCSI ID = 5)
   - The ESV must have a SCSI printer device. This is accomplished by the commands:

   ```
   mknod  /dev/scsi/printer  c  16  80
   chmod  666  /dev/scsi/printer
   ```

Printing Procedure

Before making color prints with the Kodak printer, specific files and directories must be installed by your Evans & Sutherland field service personnel.

Making a Color Print

1 Bring up the screen which is to be printed, and position the model to the desired angle.

2 Press the END key from the keyboard. After a few seconds the ESV will beep, letting you know the image is being copied. In about 30–60 seconds the ESV beeps again, signaling the end of the process.

> Warning! After END is pressed, do not alter the display in any way until after the second beep.

After the image has been sent to the printer, it takes approximately 5 minutes to complete the print. During some of this time, running CDRS may be sluggish while it processes the print.

Printer Mechanism

The process described above creates a specially formatted file called /usr/tmp/image.k. This is then spooled to the printer, called cp.

To see what jobs are queued on the printer, type lpq -Pcp in another x window. Other unix commands directed to this printer are also valid.

Titles

Titles can be printed on the top or bottom of the printed image. The title for the top is a string set to the environmental variable KODAK_TOP Similarly, the title for the bottom is contained in the environmental variable KODAK_BOTTOM. If these environmental variables are not set, nothing is printed.

These variable must be set up before CDRS is started. The commands are:

setenv KODAK_TOP [message]

or

setenv KODAK_BOTTOM [message]

Printer Errors

1. The LCD on the front of the Kodak printer tells you what must be done.

   • The "cage" in front of the machine opens like a door (to the left).

- The drawer which holds paper is a drawer on the bottom of the machine (open the cage first).

- The door on the inside of the machine opens downward like an oven door (open the cage first).

2. Turning the printer on and off sometimes corrects spurious problems.

3. Opening the door to the inside of the machine and closing it firmly correct some problems with the ribbon.

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