

FILM ID SYSTEM

General Operations Manual

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Version 4**



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**Film ID System, General Operations Manual
Compatible with Bennett mammography machines**

Version 4

Model 521, Model 525

Software Serial Number FL4_A_M1

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Section 1 Operating Instructions

1.1 Introduction

The Film ID System photographically exposes (FLASHES) a label onto a mammography film cassette. The label has patient name and ID information, the name of the Institution, the time and date and the X-ray parameter data. The system is completely self-contained and may be operated STAND ALONE. It may also be connected to an X-ray system with a serial communications cable and to an external computer system with a second serial cable.

Data is entered in either of three modes. In the STAND ALONE MODE, all information is entered with a keyboard. In the REMOTE MODE, some or all of the label data is automatically sent to the Film ID System from the mammography X-ray generator each time an exposure is made. In DIRECT MODE, the system emulates a serial text printer and FLASHES text label data exactly as it is received from the X-ray system. The patient and X-ray parameter data may not be edited in DIRECT mode.

The system is programmable through a setup menu. Once a system is setup and customized, the setup parameters are retained in battery-powered memory when power is turned off.

X-ray labels may be exposed or FLASHED each time the data is entered or they may be stored in the system and FLASHED one after the other in a batch. Up to 10 exposures may be saved in the FLASHER queue prior to FLASHING labels. Although the system may be used with either of the above methods, it is important to FLASH the film cassettes in the proper order.

<p>NOTE: IT IS THE RESPONSIBILITY OF THE OPERATOR TO INSURE THAT THE X-RAY LABEL INFORMATION IS FLASHED ON THE PROPER FILM CASSETTE. IT IS USUALLY EASIER TO ASSURE LABEL INFORMATION CORRECTNESS IF EACH CASSETTE IS FLASHED RIGHT AFTER IT IS EXPOSED.</p>

As X-ray labels are generated and FLASHED onto the X-ray film, the system retains up to 100 history records for printing in internal memory. The print history records may be printed on an optional text printer (if installed) by printing the system HISTORY.

1.1.1 Controls

The USER DISPLAY

An LCD for displaying all X-ray data and user interface menus. The contrast of the USER DISPLAY can be adjusted by adjusting the user display viewing angle.

The FILM CASSETTE SLOT

X-ray film cassettes are inserted into this opening prior to FLASHING the X-ray label. Insure that the cassettes are inserted fully to the right and rear of the opening prior to flashing. Note: label will not flash if cassette is not inserted fully into slot.

The KEYBOARD

An Alphanumeric keyboard for data entry and control.

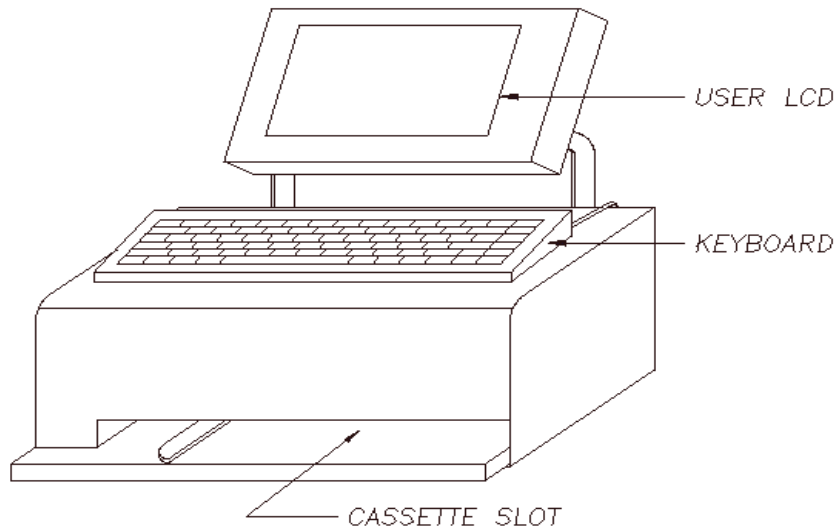
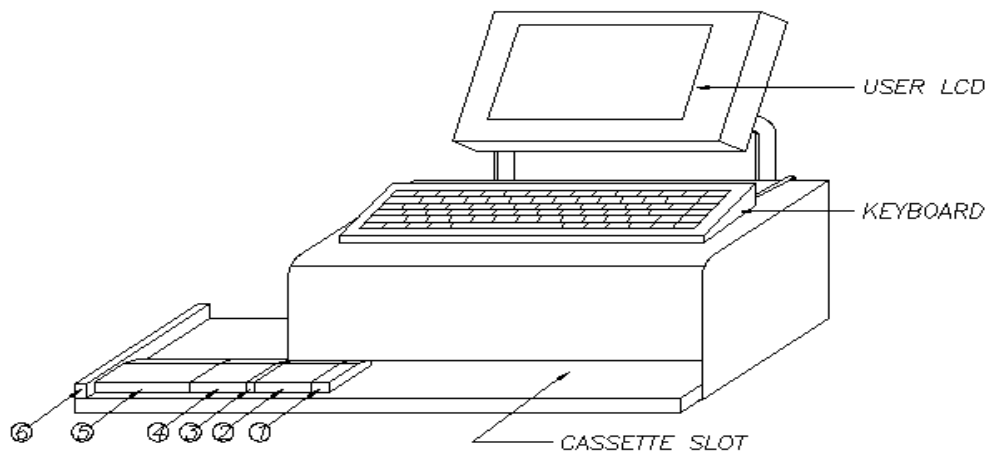


Figure 1 - 1A The Film ID System Model 521 Controls and Displays



CASSETTE GUIDE

- ① 18cm x 24cm, 24cm x 24cm
- ② 20cm x 25cm
- ③ 24cm x 30cm
- ④ 10in x 12in
- ⑤ 28cm x 35cm, 30cm x 35cm, 35cm x 35cm
- ⑥ 18cm x 43cm, 35cm x 43cm

Figure 1 - 1B The Film ID System Model 525 Controls and Displays

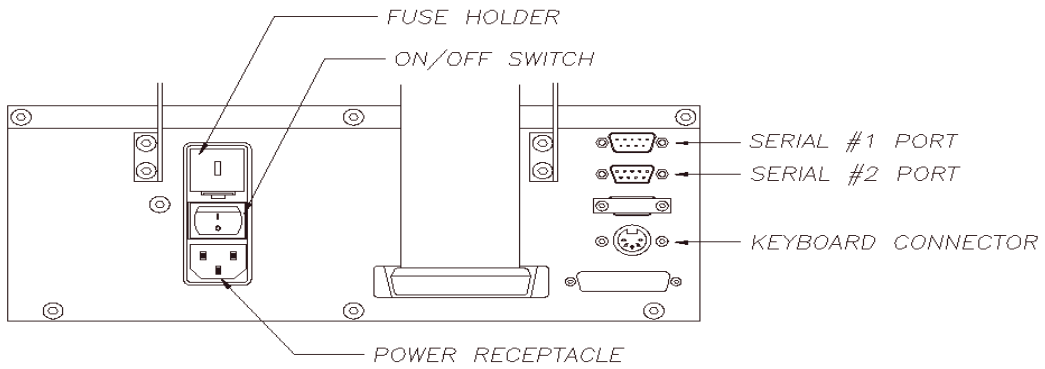


Figure 1 - 2A The Film ID System Rear Panel

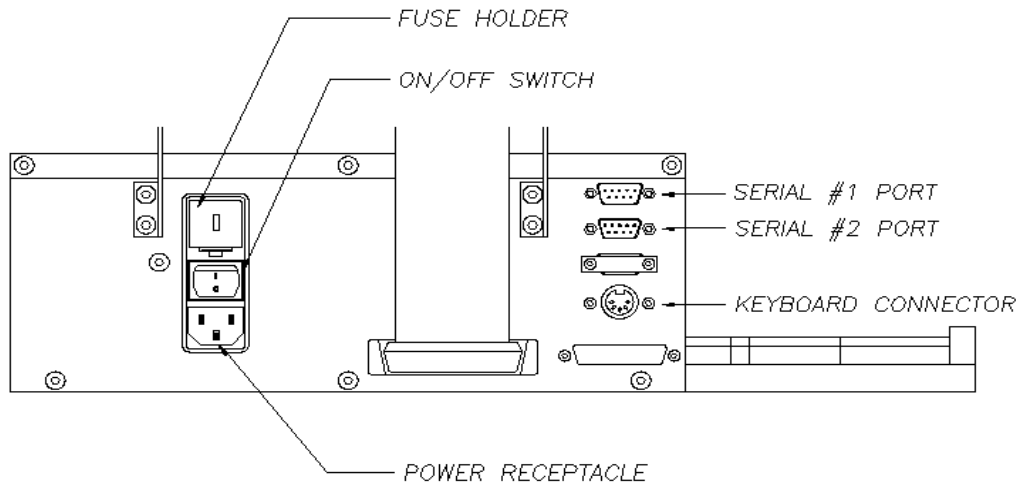


Figure 1 - 2B The Film ID System Rear Panel

1.1.2 The X-ray Label

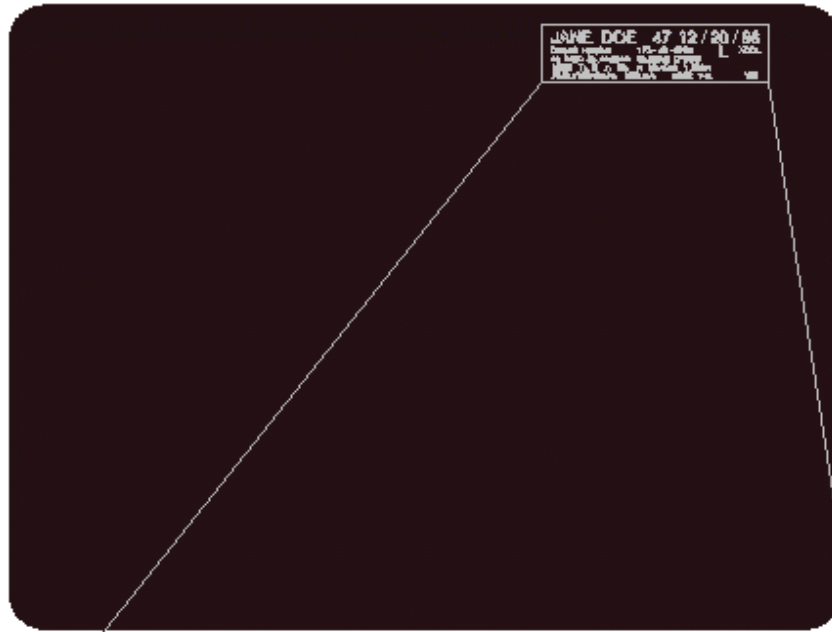
Figure 1- 3 shows the format of the labels produced by the Film ID System. The labels have multiple data fields consisting of the following:

NOTE: THE FILM ID SYSTEM IS A LABEL PRINTING DEVICE AND CANNOT PERFORM UNIT CONVERSIONS OR DOSE COMPUTATIONS FROM X-RAY PARAMETERS THAT ARE INPUT TO IT.

FIELD	DESCRIPTION	LENGTH	DEFAULT UNITS
Institution Name	The Name of the Institution	20	
Institution Address	The Address of the Institution	19	
Technologist's Initials		3	
Time	Current Time (24 hour mode)	8	
Date	Current Date	8	
Patient Name	Patient's full name	20	
Patient Age	Patient's age	3	
Patient Date of Birth	Patient's Date of Birth	8	
Patient ID	Patient's ID number	12	
Voltage	X-ray tube accelerating voltage	4	kV
Charge	Integrated beam current	5	mAs
Current	X-ray Beam Current	5	mA
Comp	(Breast) Compression Thickness	4	cm
Compression Force	Compression Force	2	dN
Anode	Anode	2	
Angle	Beam Angle	3	
View	X-ray view including side (R or L) magnification (m)	17	
Bucky	Bucky used or not	1	
Mode	Mode	1	
Corr	Corr	3	
Filt	Filter	4	

Table 1 - 1 The X-ray Data Fields

The fields displayed on the X-ray label may change depending on which X-ray model is connected to the unit. If a field is not needed, the X-Ray Label field may be hidden.



JANE DOE **102 06/25/01**
Livingston Products 123-45-6789 RCC
860 Chaddick #A 01011899
13:01 Tin B L Mo Mo 131mm 0N
26kV 5.6mAs 0.03s



Figure 1-3 The X - Ray Label Format

1.2 Operational Modes

The Film ID System has three modes of operation. The modes may be used interchangeably and if a mode is customized it will be saved even when power is turned off. Direct mode is used primarily as a diagnostic for X-ray data transfer from the X-ray machine. Stand alone mode is also used for service testing and as a backup mode in case the data transfer from the X-ray generator is unavailable for some reason.

1.2.1 DIRECT MODE

In the DIRECT MODE, X-ray and Patient data are printed directly on the X-ray Label as received from the X-ray system. The Film ID System emulates a serial text printer. Up to five lines of text data with up to 40 characters per line may be received and FLASHED on the label.

NOTE: DATA FIELDS MAY NOT BE EDITED IN THE DIRECT MODE

The X-ray Label in DIRECT MODE must be FLASHED after it is received. It may not be saved in the X-ray exposure queue. Thus, when operating in DIRECT MODE, labels are input and FLASHED in the order they are received, one after the other. The X-ray labels are stored in the label HISTORY with the other labels created using either of the other two modes.

1.2.2 STAND ALONE MODE

In the STAND ALONE MODE, all data fields are entered using the Film ID System keyboard. The Institution name and Technologist's initials are entered in the General Setup menu and are saved when the system is powered down. It is only necessary to enter these parameters once during system setup.

The Patient Name, Patient Age and Patient ID are saved from one exposure to another. It is not necessary to enter these fields for each exposure. When a new patient name is required, it can be entered with the keyboard or it can be selected from a schedule of patients (See section 1.3.3).

The rest of the X-ray data is entered for each X-ray exposure using the keyboard. The data for up to 10 exposures can be saved in the exposure queue memory, prior to FLASHING any labels. The keyboard Page Up and Page Down keys are used to scroll through and select the proper label data prior to FLASHING the label. Once a label has been FLASHED, the X-ray data is removed from the exposure queue and placed in the print history queue (if the history function is enabled).

1.2.3 REMOTE MODE

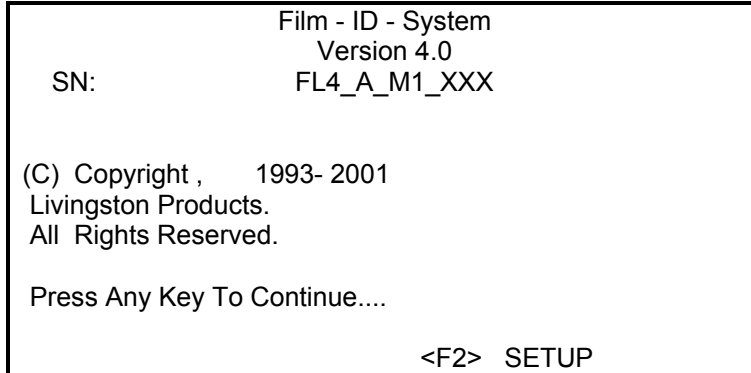
If an X-ray system is connected to the Film ID System the X-ray data, Patient data and Institution data can be automatically sent to the Film ID System for each X-ray exposure. If your particular X-ray system does not provide all the needed data fields (such as Institution Name, Patient Name, View, etc.) the system can also operate in a mixed mode where some of the data is provided by the X-ray system and other parts of the data are entered with the keyboard.

Any or all of the data fields may be sent from the X-ray generator. Which fields are sent by the X-ray system and which are entered with the keyboard can be customized for your needs. However, the X-ray system you are using must be capable of printing the X-ray fields in order to receive them in the REMOTE MODE.

1.3 System Operation

1.3.1 Turning on Power

The main power switch is located on the rear of the chassis as shown in Figure 1 - 2. After turning on power, the system performs a self test and initializes its internal memory. If a problem is detected during initialization, an error message will be written on the USER display. If this occurs, turn power off and on again and see if the message is written again. Call your customer service representative if the problem persists, otherwise you will get a user display as shown in following figure.



Press any key to enter the system Edit Menu.

1.3.2 The Edit Menu

The system Edit Menu is shown in Figure 1 - 4. The Edit menu is used to enter patient and X-ray data. Since your system can be customized, your Edit Menu may not display all the fields shown in Figure 1 - 4.

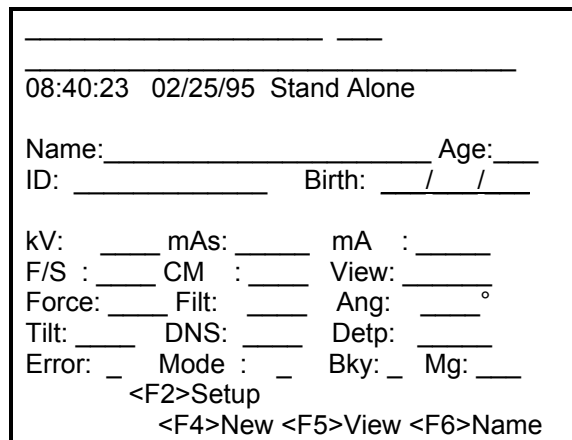


Figure 1 - 4 The Edit Menu (In "Stand-Alone" Mode)

Figure 1 - 4 shows the default fields. Some of the fields have label changes, which vary with the different manufacturers. The following table will show the possible label changes for manufacturers.

Defaults Fields	Possible Label Changes
Mode	Corr
Filter	Anode
Status	Filter

Table 1-3 The default and manufacturers label

The Edit Menu shows the operating mode on the right of the second line as shown in Figure 1 - 4. In the example in Figure 1 - 4, the operating mode is the Stand Alone mode. In the remote mode configurations for up to six X-ray models may be loaded into the ID system, so the X-ray model is displayed rather than "REMOTE." In this mode, all of the edit fields are entered with the keyboard.

To move the cursor from one data field to another, select either the Arrow 'UP' or 'DOWN' keys or select 'TAB' or 'ENTER'. Data is entered with the keyboard alphanumerical keys and with the editing keys as shown in Table 1 - 4, later in this manual.

The bottom two lines of the Edit Menu show which special keys are available. For example: If there are no other records in the X-ray exposure queue the <PgUp> and <PgDn> indicators are not shown. If there is no data the <ESC> indicator is not shown. If there are no exposures in the History or the printer option has been disabled, <F3> is not shown.

1.3.2.1 The Edit Menu in STAND ALONE MODE

In the STAND ALONE MODE, it is possible to edit all the input data fields displayed except the Institution Name and Address. They are entered in the Setup System Parameters menu.

1.3.2.2 The Edit Menu in REMOTE MODE

In the REMOTE MODE, data is received from the X-Ray generator. Some or all of the data will be available for editing. If a data field can be edited it will be displayed with a colon (:). If it is not available for editing, it will be displayed with an equal sign (=). Thus if the voltage is received from the X-ray generator it will be shown as:

kV = 25.0

and it will not be available for editing. The cursor will skip all data fields that are not available for editing.

If the Date of Birth field is enabled for editing, the age field will be automatically computed if it is enabled for display on the label but DISABLED AS A USER EDIT FIELD.

NOTE:	A DATA FIELD CAN BE MADE AVAILABLE FOR EDITING EVEN THOUGH IT IS RECEIVED FROM THE X-RAY GENERATOR. THE DATA FROM THE X-RAY GENERATOR WILL DISPLAY WITH THE COLON [:] NOT THE EQUALS [=] AFTER IT COMES IN FROM THE X-RAY GENERATOR.
-------	--

1.3.2.3 The Edit Menu Key Functions

Key Name	Indicator	Operation
Insert		Insert a character at the cursor position
Delete		Delete a character at the cursor position
Home		Jump to the Technologist's Initials field
End		Jump to the last data field
Arrow Left		Move the cursor left in the data field
Arrow Right		Move the cursor right in the data field
Arrow Up		Show the previous item from the field list
Arrow Down		Show the next item from the field list
Backspace		Delete the previous character and move the cursor to the left
TAB		Move the cursor to the next field
SHIFT TAB		Move the cursor to the previous field
ENTER		Move the cursor to the next field
ESC	<ESC>	Clear the Patient and X-ray data (Shown only if there is data to clear)
Page Up	<PgUp>	Display the previous X-ray label in the exposure queue (shown only if there is a previous page)
Page Down	<PgDn>	Display the next X-ray label in the exposure queue (shown only if there is a next page)
F1	<F1>	System Help
F2	<F2>	General Setup Menu
F3	<F3>	Print the Exposure History (Shown only if there is history to print)
F4	<F4>	Get a New Patient
F5	<F5>	Display the List of Views
F6	<F6>	Get New Patient Name, ID, DOB
F7	<F7>	Get scheduled Patient

Table 1 - 4 The System Edit Menu Keyboard Key Functions

1.3.3 Selecting a New Patient

Patient Names, Medical Records (MR), IDs and Date of Birth can be entered manually with the keyboard for each patient on each exposure or they can be setup at the beginning of the day by using the New Patient Menu. To enter the New Patient Menu, select the 'F6' function key. The USER Display will show the New Patient Menu as shown in Figure 1 - 5

NOTE: PATIENTS ENTERED THROUGH THE EDIT SCREEN ARE NOT SHOWN ON THE SCHEDULED PATIENT LIST AND MAY NOT BE "RECALLED" AT A LATER TIME.

-NEW-	New Patient
MR:	_____
Name:	_____
Birth:	__/__/____
ID	_____
Martin, K. 234-65-3334	
>Jones, Mary 111-11-1111	
Smith, Martha 555-55-5555	
<ESC>Exit <F7>Select <INS> 	

Figure 1 - 5 New Patient Menu

The New Patient Menu allows you to select a patient from a list of scheduled patients. If there are no scheduled patients, no names will appear on the USER display. If there are patients in the schedule, you may select the highlighted patient (the name pointed to by the arrow) by simply pressing the '<F7>' key. The patient name and ID will be automatically selected and displayed on the System Edit Menu.

To scroll through the list of scheduled patient names use the 'Arrow Up' and 'Arrow Down' keys. If there are patients in the schedule, the indicators, <UP> or <DOWN>, will be shown on the bottom of the USER Display. If you want to enter new patients in the schedule list then press <INS> and edit ID, Name and DOB fields.

Table 1 - 5 shows the function of the keys in the NEW Patient Menu.

Key Name	Indicator	Operation
ENTER		Select the highlighted patient as the NEW patient
UP ARROW	<UP>	Highlight the preceding patient name (shown only if there is a preceding patient name in the scheduled patient list)
DOWN ARROW	<DOWN>	Highlight the next patient name (shown only if there is a next patient name in the scheduled patient list)
ESC	<ESC>	Exit the NEW Patient Menu and make no selections
F7	<F7>	Select patient from patient schedule list
DEL		Delete a highlighted patient from patient schedule patient list

Table 1 - 5 NEW Patient Menu Key Functions

If the Film ID System is equipped with the Barcode Reader option, the patient information may be called into the edit screen by simply scanning the barcode patient ID supplied by the local Information System.

*The technologist should verify this information also prior to label exposure.

1.3.4 Entering the List of Patient Names and ID's

Patients are scheduled using the New Patient Names Menu shown in Figure 1 - 6. To enter the scheduled Patient Names Menu Press <F6> and new patients menu are shown as below.

-SETUP- Patient Names and IDs

MR: _____

Name: _____

Birth: __/__/____

ID: _____

Martin, K. 1234435

-->Jones, Mary 5699040

Smith, Martha 6540760

<ESC>Exit <F7>SELECT <INS>

Figure 1 - 6 Edit Patient Names and IDs Menu

To add a new patient to the list, key in the patient name and press Enter then key in the ID and press enter, key in the Medical Record and press enter, key in the Date of birth and press enter. The name will be added to the schedule at the end of the list.

Twenty-five Patient names and IDs may be stored in the Patient List. When twenty-five names have been added, the name at the top of the list will be removed to make room for the new name. The names will be on several pages reached by the page up and page down keys.

To insert a name in the list, move the arrow cursor with the 'Arrow Up' or 'Arrow Down' keys to the location just after where you wish the new name to be inserted. Key in the name and press enter then the ID and press the Insert key to insert the name into the list.

To delete a name from the list, move the arrow cursor to the name to be deleted and press the Delete key.

Key Name	Indicator	Operation
Enter		Jump to the next edit field and add the name and ID to the list if a name and ID have been entered
Tab	<Tab>	Jump to the other edit field
Insert	<Ins>	Insert the new name and ID in the list at the location just above the arrow
Delete		Delete the name and ID pointed to by the arrow
Arrow Up	<UP>	Move the arrow cursor up one name (Shown only if there is a pervious name)
Arrow Down	<DOWN>	Move the arrow down one name (Shown only if there is a next name)
ESC	<ESC>	Exit the List of Patients Menu

Table 1 - 6 List of Patients Menu

1.3.5 Selecting the View (Mammographic application only)

There are several ways to select view if it does not come in as part of the X-ray generator data. Each method has advantages in certain situations and experience will guide the technologist in the selection of which method is required for a given examination.

First, there is the Default Method. Normally, the defaults are used for the common screening views and angles. The maximum number of default views is four. For example, the technician programs LCC, LMLO, RCC, and RMLLO. When the technician proceeds to flash the patient, the first X-ray data will automatically have the view set to LCC, the second X-ray will then be LMLO and so forth until all four default views are used. Each technician may program his/her own sequencing of views. This may be done for up to ten technicians. The defaults are setup as part of the machine startup procedure.

Step by step procedure:

1. Go to Normal Display/Edit Screen
2. Press [F2]
3. Press 1
4. Tab down to "Initials" and type your initials
5. Press [F5]
6. Press [ENTER]
7. With the number key or the Tab key, select desired view
8. If you do not wish to use default angles, press [ENTER]. Otherwise, enter the angle you wish to use.
9. Repeat this procedure three more times for a maximum of four default views
10. Press [F6] to save and exit

If there are infrequent exceptions to the normal procedures, the programmed defaults can

be overridden by using one of the other two methods (described below) to select a new view for the exception. Once the default view mode is overridden, it remains 'OFF', until a new patient name is selected for use.

The second way to select a view is the Number Key Method. These views are already preprogrammed in the unit by the manufacturer. They are the ten most common views. They are located on a menu label above the keyboard, as depicted in Figure 1-7 below. The views can be selected manually by keying in the "number" key ('1' to '0') which corresponds to the desired view.

1	2	3	4	5	6	7	8	9	0
RCC	LCC	RMLO	LMLO	RML	LML	RLM	LLM	RXCCL	LXCCL

Figure 1 - 7 Keyboard Menu Label

For example, if you press "1", you will select the "RCC" view. Figure 1 - 7 also depicts the assignments of the numerical keys to the corresponding views. NOTE that the numerical keys are assigned to display views only when the cursor is in the view edit field.

Step by step procedure:

1. You should be in normal/edit display screen.
2. You must have the patient data in front of you, i.e. kV, mAs, etc. (an exposure record)
3. Tab down to "view" field.
4. Press number of desired field.
5. Now you are ready to complete the flash.

The third and final method of selecting the view is the List Method. You would only use this selection method if you were taking an unusual view, i.e. RSIO. It is the most laborious way of selecting a view.

Step by step procedure:

1. Press [F5] to display list of views. See Figure 1 - 8 below.

```

-VIEW-
>RCC  LCC  RMLO  LMLO
RML   LML  RLM   LLM
RXCCL LXCL RLMO LLMO
RAT   LAT  RCV   LCV
RTAN  LTAN  RFB   LFB
RLL   LRL  RRM   LRM
RID   LID  RSIO  LSIO

<1>RCC<2>LCC<3>RMLO<4>LMLO<5>RML
<6>LML<7>RLM<8>LLM<9>RXCCL<0>LXC
<M>Mag  <ESC>Exit
    
```

Figure 1 - 8 List of Views Menu

2. Using the arrow keys, place arrow to the left of the desired view.
3. To select (or remove) magnification, press 'M'
4. Press ENTER to select the view and to advance to the next entry field.
5. If you know that the view you want is a neighbor of the last used view and the

cursor is on view, you may also select from the list just by using 'Arrow Up' or 'Arrow Down' keys to display it (this allows you to select without pressing [F5] to display the whole list.)

1.3.6 Clearing Data

Hitting the ESC key will ask if you want to create a clear page. Typing Y will clear the date. The Patient Name may be cleared from the waiting for input page by selecting the F4 key. A useful feature is the another F4 will bring back the name. The USER display will show the CLEAR menu shown in Figure 1 - 9.

```
-CLEAR-  
  
<1> Clear Page.  
<2> Clear all pages.  
  
Clear Page < Y/N > N  
  
<ESC>Exit
```

Figure 1 - 9 CLEAR Menu

1.3.7 Flashing X-ray Labels

Once the patient name, ID and X-ray data has been entered for an exposure you are ready to flash the X-ray label.

1.3.7.1 Flashing in STAND ALONE or REMOTE MODES

Insure that all patient and X-ray data have been entered prior to Flashing the label. Use the 'Pg Up' or 'Pg Down' keys to select the page that is to be exposed.

Insert the Film Cassette into the CASSETTE SLOT as shown in Figure 1 - 10A or 1 - 10B. Insure that the Film Cassette is oriented as shown in the Figure. To Flash the label, press the SPACEBAR when prompted. The USER Display will indicate when the exposure is completed and will instruct you to remove the Film Cassette.

```
WARNING: IF THE FILM CASSETTE IS LEFT IN THE SLOT FOR  
LONG PERIODS OF TIME SOME FILM "FOGGING" MAY  
OCCUR, DEPENDING ON ROOM LIGHTING CONDITIONS
```

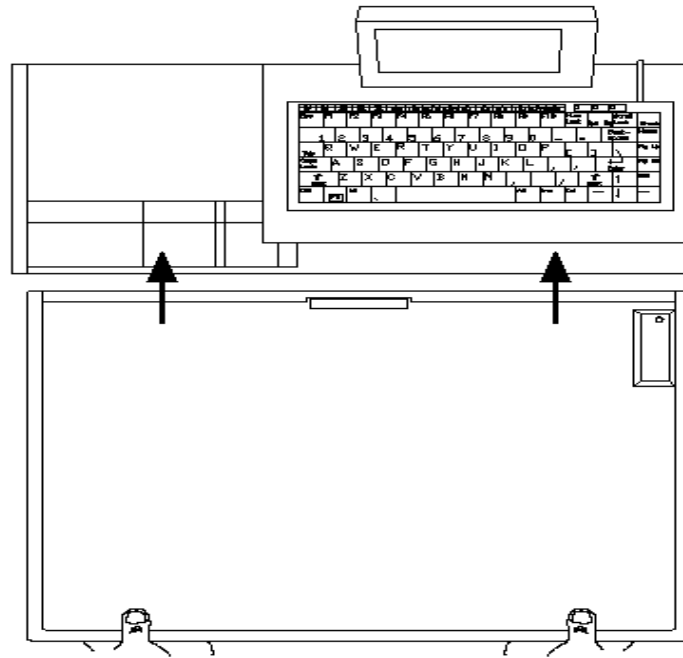
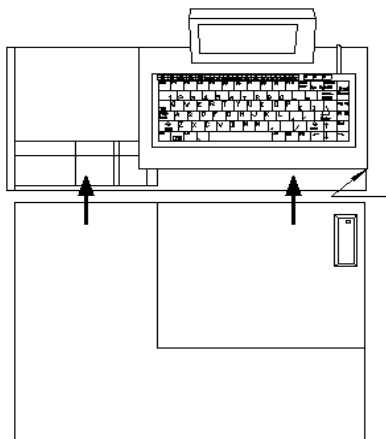



Figure 1 - 10B Inserting the Film Cassette in Model 525

CAUTION

Since Film ID System Model 525 accepts various different sizes of cassettes, careful insertion and removal is requested to prevent possible cassette jams.

- Always align the cassette parallel to the base and place the cassette to the farthest position at the right end of slot.
- Plastic guide on left side is spring loaded and performs as a secondary guide but it is not recommended as a primary guide.



- ◇USE THIS WALL AS PRIMARY GUIDE FOR CASSETTE.
- ◇CASSETTE SHOULD PUSH TO THIS RIGHT SIDE WALL DURING INSERTING AND REMOVING FROM FILM ID SYSTEM.
- ◇PLEASE INSERT AND REMOVE SLOWLY.

- Please check to see that the cassette door closes after removing from unit with empty cassette.
- In case of cassette jamming, do not try to pull out cassette. This can cause permanent damage to cassette and the Film ID System.

1.3.7.2 Flashing in DIRECT MODE

When data has been received in DIRECT MODE, the data is displayed as shown in Figure 1 - 11. It is not possible to edit the label data in DIRECT MODE. The label will be FLASHED on the film exactly as it is received from the X-ray system. For most manufacturers the direct mode is not recommended because the label format from the X-ray generator will cause X-ray data to be “pushed out” of the direct label.

```
-DIRECT- X-ray Label Direct.  
  
*****  
X-ray data from the Generator  
There may be up to five  
lines of data, 40 characters per  
line.  
  
*****  
<Left Arrow><Right Arrow>  
<F1>Help <F2>Setup <ESC>Clear
```

Figure 1 - 11 The DIRECT MODE label display

To FLASH the label in the DIRECT MODE, insert the Film Cassette into the CASSETTE SLOT as shown in Figure 1 - 10.

1.3.8 Printing History

Up to 100 exposed X-ray Labels may be saved in the system History.

To Print the HISTORY, Press 'F3'. The HISTORY will be printed on the serial text printer (if installed). The printout is a log of the data for each patient exposure with the first part of the printout being a header that is the key for reading the data in the log.

When the HISTORY has been printed you will be prompted to clear the HISTORY memory. You must eventually clear the HISTORY to make room for more label data. When you have insured that the HISTORY has been successfully printed, respond with 'Y' to clear the HISTORY and to make room for more labels.

If there is no serial printer connected to the Film ID System, the serial printer should be turned off in the System Parameters Setup Menu as discussed in section 2.2.8. When the Film ID System "PRINTER ON" is set to "N", the X-ray exposure data is not stored in the Print History Queue.

Section 2 Detailed Setup

The Film ID System is intended to be setup by an installation Technician. Under normal operating situations, it is not necessary to modify the system setup parameters. If however you choose to modify the parameters, insure that you have fully read this manual and that you understand the meaning of each parameter or you may render the system non-operational.

NOTE: DO NOT ATTEMPT TO CHANGE THE SETUP PARAMETERS UNLESS YOU FULLY UNDERSTAND THEIR USE AND MEANING!

The parameters that can be customized are outlined in Table 2 - 1.

Parameter	Setup Menu	Key Sequence
No password is required in the following sequences to gain entry:		
Institution Name	General Setup	F2 -> 1
Institution Address	General Setup	F2 -> 1
Default Technologist Initials	General Setup	F2 -> 1
Time and Date	General Setup	F2 -> 1
Flasher Exposure Time	General Setup	F2 -> 1
Create Stand Alone Page	General Setup	F2 -> 2
Editing the Patient Names	Edit Patient Names	F6
Service 'one-shot' password must be used in the following sequences to gain entry:		
Label Position	Setup Label	F2 -> PWD -> 1
Printer Port Parameters	Serial Setup	F2 -> PWD -> 1
Baud rate setting	Communication rate	F2 -> PWD -> 1
Selecting the Input Mode	Setup Input Mode	F2 -> PWD -> 2
Self Test (cannot be customized)	Self Test	F2 -> PWD -> 3
Set default fields	Set Default	F2 -> PWD -> 5
Show system statistics	System statistics	F2 -> PWD -> 8

Table 2 - 1 The Setup Parameters

2.1 The System Setup Menu

The System setup menu is entered by selecting the 'F2' function key on the top row of the keyboard. When 'F2' is selected, the System Setup Menu is displayed on the USER display as shown in Figure 2 - 1.

```

-SETUP-      System Index

<1> Setup System Parameters
(NOT USED)*

<F1> Help      <ESC> Exit
    
```

Figure 2 - 1 System Setup Menu

*Under some circumstances "<2> Create Stand Alone Page" will be displayed.

2.2 General Setup

From the System Setup Menu Shown in Figure 2 - 1, select key '1' to enter the General Setup Menu. The USER Display will show the General Setup Menu as shown in Figure 2 - 2.

```

-SETUP- System Parameters

Institution: _____
Address: _____
Technologist Initials: ____
Time: xx:xx:xx
Date: xx/xx/xx month/day/year
Flasher Exp Time: x.xxx
Address: _____
Address: _____

<ESC> Exit + Save
    
```

Figure 2 - 2 The General Setup Menu

Move from one setup field to another with the 'ENTER', the 'TAB' or the 'SHIFT TAB' keys. 'ENTER' and 'TAB' move the cursor to the next field. 'SHIFT TAB' moves the cursor to the previous field. Edit the setup data fields with the keyboard or display a selection from a table of values for the field with the 'Arrow UP' or 'Arrow DOWN' keys. The operation of the Edit keys is shown in Table 2 - 2.

Key Name	Operation
Delete	Delete a character at the cursor position
Home	Jump to the Institution Name Field
End	Jump to the Serial Printer stop bits field
Arrow Left	Move the cursor left in the data field
Arrow Right	Move the cursor to the previous field
Arrow Up	Display a previous value from a table of values for the field
Arrow Down	Display the next value from a table of values for the field.
Backspace	Delete the previous character and move the cursor to the left
TAB	Move the cursor to the next field
SHIFT TAB	Move the cursor to the previous field
ENTER	Move the cursor to the next field.
ESC	Exit the General Setup Menu and save the changes as the new defaults.

Table 2 - 2 General Setup Menu Edit Keys

2.2.1 Institution Name

The Institution Name may be up to 20 characters long. Enter the name as you wish it to appear on the X-ray label. The Institution Name entered on the General Setup Menu is the default Institution Name for your system. It will be saved and re-appear each time the system is turned off and on. It is the name that will appear on each STAND ALONE Menu Screen. The default Institution Name will also appear on the X-ray label in the REMOTE MODE if the

Institution Name is not input from the X-ray System.

2.2.2 Institution Address

The Institution Address may be up to 19 characters long. The last line on the X-ray label is an additional address line. It has been split into two parts for entry but will appear as a single line of 40 characters on the film.

2.2.3 Technologist's Initials

The technologist's initials may be three characters long. The initials that are displayed on entry to the menu will be assumed as the default initials on system power up if initials are not input from an external device. The technologist's initials may also be entered in the General Edit Menu for specific X-ray labels.

This procedure may be repeated for a list of up to 10 technicians. The entry of an 11th technician will cause the loss of the first technician defaults and initials. If fewer than 10 technologists regularly use the system a technologist may have several sets of defaults with differing view/angle information by using upper/lower case initials. For example, ABc, abc, Abc and aBc could be four different default sets.

2.2.4 Setting the Time and Date

Set the time in the 24 hour mode. Set the date in the USA standard mode as: month/day/year. If you want to set date in dd/mm/yy format, when cursor is on date field press "D" to change date format from mm/dd/yy to dd/mm/yy. The time and date entered in the General Setup Menu are used to set the system clock. The clock is battery powered and continues to run when power is turned off. When you enter the time, set the time a few seconds ahead in order to allow for the time needed to finish entering other setup parameters. The clock is set when the 'ESC' key is depressed after setting all of the General Setup Parameters. If neither a time nor date is entered, the clock is NOT set when selecting the 'ESC' key.

2.2.5 Setting the Flasher Exposure Time

The Flasher exposure time is entered in seconds. If the labels are appearing too dark, lengthen the exposure time. If they appear too light shorten the time. The default exposure time setting (factory setting) is 0.380 seconds.

2.2.6 Setup Patient Names

Refer to Section 1.33 for a discussion of editing the list of patient names.

2.3 Entering the Setup - Service Parameters

- 1) Call service (800-822-2156) to get a one-shot password.
- 2) Press 'F2' then enter the one-shot password.
- 3) The menu shown in Figure 2 - 3 will appear on the USER Display.

```
-SETUP- SERVICE PARAMETERS
<1> Communications and Flasher
<2> Select Protocol
<3> Self-test
<4> Serial Disable Delay
<5> Confirm Patients
<6> Daylight Savings
<7> Default Fields
<8> Show Statistics
*<9> System Node

* <a> Number Pages

<ESC> EXIT
```

Figure 2 - 3 Service Parameters Menu

* NOTE: IN THE SERVICE PARAMETERS MENU SELECTION NUMBER <a> AND <9> ARE OPTIONAL . FOR DETAIL SEE SECTION 2-10 AND SECTION 2-11

2.3.1 Displaying Communication and Flasher

Press '1' to display communication and flasher parameters.

2.3.1.1 Setting Label Position on Film

See Template 1 (at the end of the manual) and select the correct format of the four customer formats. Note that these four formats are the ONLY possible formats given the window position on the cassette.

The horizontal and vertical positions of the locations of the label on the X-ray film can be adjusted by setting the offsets. The horizontal offset is one character width. The vertical offset is 1/8 of a character height.

NOTE: THE FACTORY SETTINGS ARE RECORDED ON A LABEL ON THE UNDERNEATH OF THE 521 AND 525 CHASSIS.

2.3.1.2 Setting the X-ray Serial Port Parameters

Serial 1 (as labeled on the chassis) is normally connected to the X-Ray generator if the remote mode is used and I.S. interfacing is not used.

Serial 2 (as labeled on the chassis) is normally connected to a serial printer (if one is installed) and I.S. interfacing is not used.

Use the 'Arrow UP' or 'Arrow DOWN' keys to change the fields from the range of values.

Table 2 - 3 outlines the available settings for serial ports 1 and 2.

Note: Port A = Serial 1 Connector = 0
 Port B = Serial 2 Connector = 1

PORT:	On	Rate	P	E/O	#	Stop
A:	Y	2400	N	0	8	1
B:	Y	2400	N	0	8	1

PRINTER ON: N, PORT: 1
 X-RAY PORT: 0, CONTROL PORT: 1

The following table shows the baud rate and port setting for the communication option. Use Table 2-3 for setting each of the following parameters on the Film ID display.

Parameter	Range of values	Description
On	Y	Turn port on
	N	Turn port off
Rate	9600	The serial data rate
	4800	
	2400	
	1200	
	600	
	300	
P	N	Parity is not enabled
	Y	Parity is enabled
E/O	E	Even Parity (If enabled)
	O	Odd Parity (if enabled)
data	8	8 data bits
	7	7 data bits
stop	1	1 stop bit
	2	1.5 stop bits
Port	1	X-ray port
Command Channel	2	Printer port/ Computer port

Table 2 - 3 Serial 1 and 2 parameters (as labeled on the chassis)

2.3.1.3 Setting the Serial Port Parameters

2.3.1.3.1 Setting the Printer Port Parameters (Print History)

In order to make testing/troubleshooting simpler it is recommended that the serial printer be configured so that its serial parameters are identical to those of the X-ray generator, if at all possible. The printer output is a simple output of the print history buffer without any flow control so it is advisable to have a substantial (10K) buffer on the printer to hold the data. Alternately the print history may be printed after each patient (2K). If a serial printer is not installed, set the PRINTER ON value to 'N' to prevent data from being stored in the History Queue.

The history file is created AFTER the information is flashed. Until the information is flashed, the data is in the active file. After the first data is entered into the history file, a new option appears on the bottom of the screen - <F3> Print History.

2.3.1.3.2 Setting the Information System (I.S.) Interfacing Port Parameters

The serial printer may be replaced by an I.S. interface. If the I.S. interface is RS-485, which may only be accessed from the Serial-1 Connector, typical settings would be:

PORT:	On	Rate	P	E/O	#	Stop
A:	Y	9600	N	0	8	1
B:	Y	2400	N	0	8	1

PRINTER ON: Y, PORT: 0
 X-RAY PORT: 1, CONTROL PORT: 0

Please note that the X-Ray connection has been moved from Serial-1 to Serial-2 and a null modem (9 Pin) added to connect it. If an I.S. interface uses RS-232 on the Serial-2 Connector, the typical settings would be:

Note: Port A = Serial 1 Connector = 0
 Port B = Serial 2 Connector = 1

PORT:	On	Rate	P	E/O	#	Stop
A:	Y	2400	N	0	8	1
B:	Y	9600	N	0	8	1

PRINTER ON: Y PORT = 1
 X-RAY PORT = 0 CONTROL PORT = 1

In either case above, if no exposure history data is required by the I.S. interface the PRINTER ON setting should be set to 'N'.

The CONTROL PORT is the port through which the Film ID System expects to exchange control, patient demographics and data (other than Print History or X-Ray input data).

Note: If I.S. Interface does not read and then delete print history (exposure history) data records, the exposure history buffer will fill and the error message

“Print History Full...” will appear. Contact your I.S. Interface Vendor, if this occurs.

2.3.2 Selecting the Protocol Mode

Press '2' Select Protocol to get the following screen.

```
-SETUP- SELECT PROTOCOL
<1> Stand alone
<2> Direct mode
<3> MAMMOGRAPHIC
<4> MF-150
<5> HFQ-100
<6> HFQ-1000
<7> MAMOGRAPHIC
<8> HF-150-I

<F1>Help    <F2>Index    <ESC>Exit
```

Figure 2- 4 Select Protocol Menu

Data is input from an X-ray system in one of two modes.

In the DIRECT MODE, the labels are printed directly as they are received. In the REMOTE MODE, the serial input data is analyzed by the system and data fields are extracted from the text labels or data packets.

Advantages of the REMOTE MODE over the DIRECT MODE are:

- The X-ray label can be printed in a standard format.
- Additional information not available on most X-ray systems, such as Patient Name and ID, can be added to the X-ray label.
- The system can add an icon of the view to the label making it easy for a radiologist to quickly identify the view.

In order for the system to extract the X-ray data from an input record in the REMOTE MODE, it needs to be able to identify the individual data fields. There are many possible ways that data may be identified and extracted from input records. In general the input record is either a formatted label that was intended for printing or a data packet (or packets) for computer information interchange. We refer to these as “PRINTER EMULATOR” and “PACKET” modes of operation.

In the PRINTER EMULATOR method, the individual data fields are identified by four tests, consisting of an offset address, a field search length, a field header and a field footer. The four tests identify sequences of data either prior to the data field or following the data field or both. For example: The voltage is typically followed by the units kV. Thus, kV may be considered as a footer to the voltage field (following field identifier) to identify the field. The dose is often identified by the word ‘dose:’, followed by the dose value and then followed by the dose units: mGy. The dose would be identified by both a header (dose:) and a footer (mGy).

In the PRINTER EMULATOR method, it is desirable to use as many parameters as possible to identify data fields. For instance: In the above example if the voltage is only identified by the footer kV, any other use of the two characters kV could also be interpreted as a footer for the voltage and the system may select the wrong value. On the other hand if the parameters

used to identify a field are too restrictive any variation in the record will cause data loss because one or more of the identification tests will fail. For example, an extra space in the record might make it too long and cause rejection of that field.

The input method is factory set for either the PRINTER EMULATOR or the PACKET method. If a system is set for the PACKET emulator method, skip the following discussion.

In the PACKET method, data is sent to the Film-ID system in data packets either as one packet for the X-Ray data or as one packet for each data field. In the latter case, packets have identifying information that define the data field. For systems configured in the PACKET method, it is not currently necessary to enter the data field identifiers if one packet is used for each data field.

2.3.2.1 STAND ALONE MODE

Select '1' to choose the STAND ALONE mode. STAND ALONE mode is useful if you wish to expose an X-ray label by entering all the data fields with the keyboard.

2.3.2.2 DIRECT MODE

Select DIRECT MODE to input data directly from an X-ray System. In DIRECT MODE no edit functions are available, so only generator data is available.

2.3.2.3 REMOTE MODE

In REMOTE MODE, data from an X-ray generator is received, "sliced and diced" and the pieces (fields) are arranged into the standard label format along with any default and keyboard entry data to form the flash data record. Press the number corresponding to your X-ray generator model to select it.

2.3.3 Running the System Self Test

In most cases the self-test that is run by just powering the system down and up is sufficient.

SETUP TROUBLESHOOTING INSTRUCTIONS--ENTERING SERVICE MENU

- Call service to get one-shot password
- Press 'F2' to enter -SETUP- System Index
- Type in password then 'ENTER' to get to Service Parameters menu

FILM ID SYSTEM SELF TEST INSTRUCTIONS

- Press '1' communications and flasher
- Write down factory settings for X-ray and printer for use later.
- Insure the printer and X-ray are set as follows:

Note: Port A = Serial 1 Connector = 0
 Port B = Serial 2 Connector = 1

PORT:	On	Rate	P	E/O	#	Stop
A:	Y	2400	N	0	8	1
B:	Y	2400	N	0	8	1

PRINTER ON: N, PORT: 0

X-RAY PORT: 0, CONTROL PORT: 0

Exit and load the setup menu by pressing 'ESC' once.

Inspect the parameters for the Printer and X-ray serial ports. All settings except for 'On' must be the same. (On may be set for either 'Y' or 'N'.) If they are not, change the printer port settings to match the X-ray settings.

After removing the special self-test serial cable from the bag underneath the chassis, install it into Connectors Serial-1 and Serial-2 on the rear of the chassis.

- Press 'ESC' to enter -SETUP- service parameters.
- Press '3' to enter -SELF TEST-.

The system will perform a self-test that is the same as the self-test performed each time it is powered up. If there are any errors, notify the factory.

Press the space bar to test the serial ports and verify switch operation. Slide a cassette in to verify the cassette switch. Verify the "open" and "closed" status at bottom of display.

There should be NO serial data errors. The system sends data from the printer serial port to the X-ray serial port continuously at the data rate entered earlier (that is why the data rates and serial parameters set above must match). The data is also shown on the display. Byte values of 00 to FF are transmitted, received and shown on the display. The display will show Japanese characters as well as the normal ASCII character set.

Release/Remove Cassette.

If there are serial data errors:

- Inspect the serial cable.
- Insure the serial parameters are exactly the same for the Printer and X-ray system.
- Notify the factory of any errors.

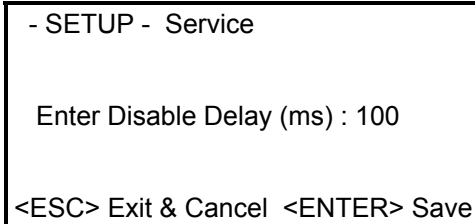
Exit -SELF TEST- by pressing <ESC> or turning OFF system power.

Return the system to its original cable configuration.

Turn power off and on and once again. Inspect the display to insure there are no errors and return the serial port settings to the original configuration (if they were changed).

2.3.4 Serial Disable Delay

Press '4' Serial Disable Delay to get the following screen



```
- SETUP - Service

Enter Disable Delay (ms) : 100

<ESC> Exit & Cancel <ENTER> Save
```

Figure 2-5 Setup serial disable delay

WARNING : DO NOT ATTEMPT TO ADJUST SERIAL DISABLE DELAY
WITHOUT CONSULTING FACTORY.

2.3.5 Confirm Patients

Using this option, this is another way to schedule patients. If you set " Confirm Patients " to <YES>, you are able to access patients information (Name, ID and DOB) from a database located on an external PC/Computer using second serial channel on Film ID system. This option is normally used with HIS/RIS interfacing in place, and operational.

Press '5' Confirm patients to get the following screen.

```
- SETUP - Service
Confirm Patients < Y,N > N?
Re -Send - 3000
```

Figure 2-6 Confirm Patients

2.3.6 Daylight Savings

By setting parameters of Daylight Savings the battery operated timer automatically takes care of changing time twice a year. The time can be changed by two modes, namely, 1). Occur 2). Date. The modes could be changed by pressing <F8> then using <UP> and <DOWN> key to set the parameters.

Press '6' Daylight Savings to get the following screen.

```
-SETUP- Daylight Savings
Daylight Savings<Y,N>N?
```

Press 'Y' to get the following screen.

```

- SETUP - Day Light Savings

Mode: Occur
      Month   Day   Occur
Start  Apr.    Sun   1st
End    Oct.    Sun   Last
<Esc> Exit <F8> Mode <UP><DOWN>
    
```

Figure 2-7 Set Daylight Savings Using “ Occur ” Mode

```

- SETUP - Daylight Savings

Mode: Date
      Month   Date
Start  Apr.    07
End    Oct.    27
<ESC>Exit <F8> Mode <UP><DOWN>
    
```

Figure 2- 8 Set Daylight savings Using “ Date ” Mode

2.3.7 Default fields

The Default Fields are usually used with manual setting of fields. The default fields are turned ‘ON’ and ‘OFF’ by typing ‘Y’ and ‘N’ respectively on those particular fields. The operator need not enter the value of that field every time an exposure is made.

Press ‘7’ Defaults Fields to get the following screen.

```

-SETUP- Default Fields

Instit:  Y   Addr: Y   Initial: Y
Name:    Y
ID:      Y   kV:   N   mAs:  N
Exp Time:N   Dose:  N   Thick: N
Force:   N   Mode:  Y   Filter: Y
Status:  Y   Calib: Y   Grid:  Y
Focus:   Y   Angle: Y   View:  Y
Age:     Y   Birth: Y
Detcp:   N                               Tilt:  N

<ESC> Exit
    
```

Figure 2- 9 Set Default Fields of the Label

2.3.8 Show Statistics

Basically, it shows the statistical history of the system. It is useful only to the manufacturer.

Press '8' Show Statistics to get the following screen.

```
- SETUP -   System Statistics
Resets :      000000021
Watchdogs:    000000000
Labels Flashed: 000000001
Records Inputs: 000000002
Records Ignored: 000000000
Records rejected: 000000003
Records cleared: 000000000
Self tests:   000000000
Setup parms:  000000017
Setup Service: 000000015
Protocol set: 000000005
```

Figure : 2- 10 See System Statistics

2.3.9 System Nodes

System Node setup is only for networking application. If one desires to connect his/her flasher unit in networking then one must set different node numbers for each flasher unit.

Press '9' Setup Node in the Service Parameters Setup to get the following screen on your display.

```
- SETUP -   Service

Enter Node : 00

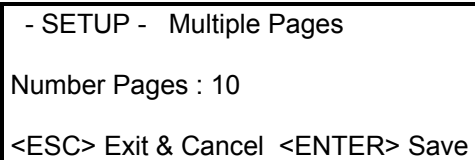
<ESC> Exit & Cancel  <ENTER> Save
```

Figure: 2-11 Setup System node

Once the node number is entered, then press <ENTER> to get back to the Service Parameters screen.

2.3.10 Multiple Pages

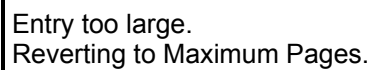
This setup is for setting multiple pages on your system. Press 'a' to get Multiple Pages setup on Service Parameters screen.



- SETUP - Multiple Pages
Number Pages : 10
<ESC> Exit & Cancel <ENTER> Save

Figure : 2-12 Set Multiple Pages

The number of pages must be set to 10 or less, otherwise you will get the following screen.



Entry too large.
Reverting to Maximum Pages.

Appendix A Unpacking the System

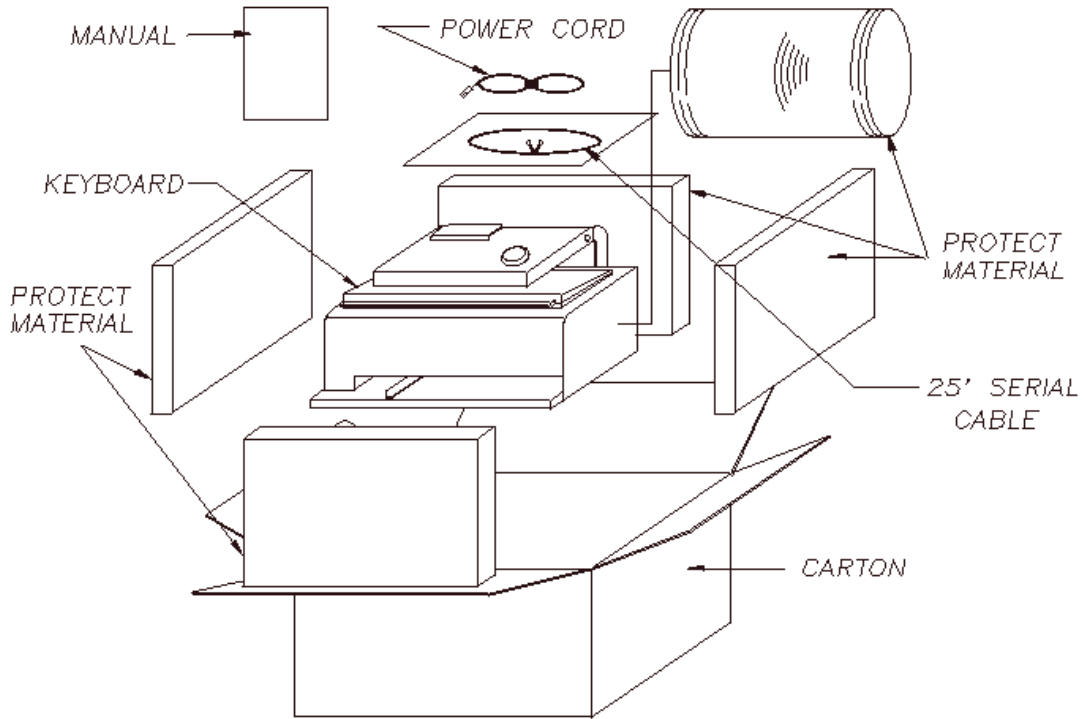


Figure A - 1A Unpacking the System Model 521

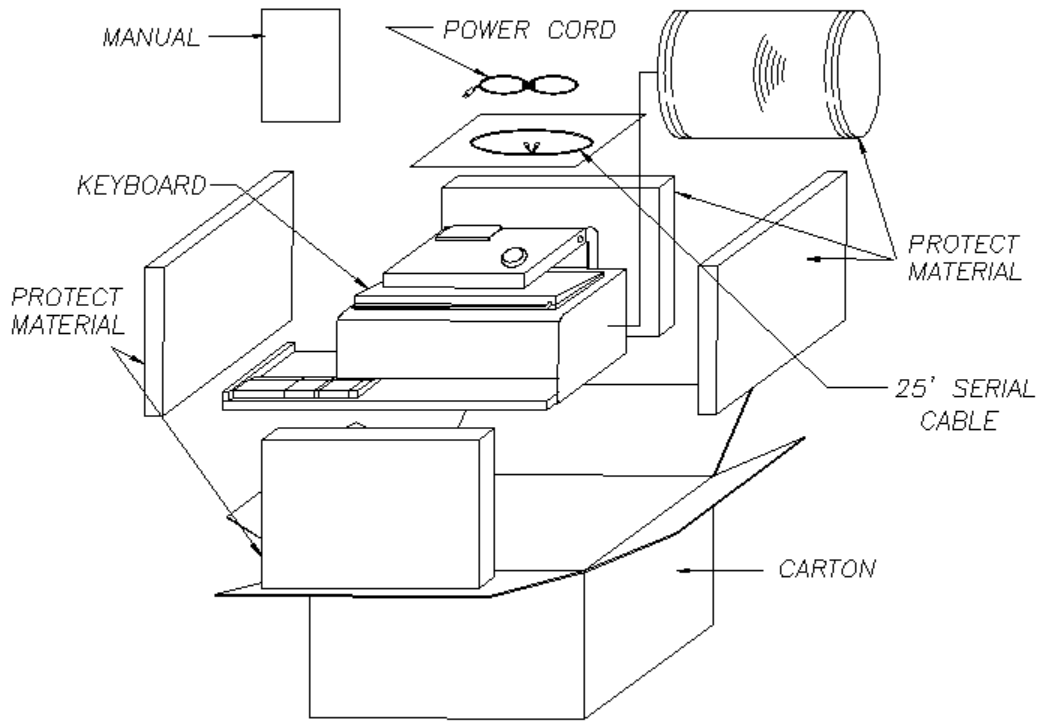


Figure A - 1B Unpacking the System Model 525

Appendix B Function Keys and Key Definitions

Key	Description	Use
F1	On Line Help	Always available
F2	Setup Index	System Edit Menu
F3	Print History	System Edit Menu
F4	New Patient	System Edit Menu
F5	List of Views, Mammographic	System Edit Menu
F6	List of Schedule Patients	System Edit Menu
F7	Select Patients From List	System Edit Menu
Key Definitions		
ESC	Exit Menu Clear Patient or Data	All Menus System Edit Mode
Arrow Up	Move Cursor to Pervious Field	All Editing/Setup Menus
Arrow Down	Move Cursor to Next Field	All Editing/Setup Menus
Arrow Left	Move Cursor Left in Field	All Editing/Setup Menus
Arrow Right	Move Cursor Right in Field	All Editing/Setup Menus
TAB	Move Cursor to Next Field	All Editing/Setup Menus
SHIFT TAB	Move Cursor to Previous Field	All Editing/Setup Menus
ENTER	Move Cursor to Next Field Enter Data	All Editing/Setup Menus NEW Menu
Backspace	Move cursor left and delete character	All Editing/Setup Menus
Insert	Insert a Character Insert a Patient Name	System Edit Menu Edit Patient List
Delete	Delete a Character Delete a Patient Name	System Edit Menu Edit Patient List
Home	Move Cursor to First Field	All Editing/Setup Menus
End	Move Cursor to Last Field	All Editing/Setup Menus
Pg Up	Display Previous Label	System Edit Menu
Pg Dn	Display Next Label	System Edit Menu

Key Definitions

Use only approved cables for connection of the serial ports. Film-ID System ports may be damaged and inoperable if improper cabling is connected even for short periods of time.

APPENDIX C

Port - 0	
Labeled	Serial - 1
Standard	RS-232
Full Duplex	RS485
Connector	9 pin mini D, Male
Enable RX 485	pin - 1 (tied to Ground)
Transmit (232) Out	pin - 2
Receive (232) In	pin - 3
Transmit (485) (+)	pin - 4
Ground	pin - 5
+12V	pin - 6
Transmit (485) (-)	pin - 7
Receive (485) (-)	pin - 8
Receive(485) (+)	pin - 9
Data Rates:	300, 600, 1200, 2400, 4800, 9600
Parity	Odd, Even or None
Data bits	7, 8
Stop Bits	1, 2

APPENDIX D

Port - 1	
Labeled	Serial - 2
Standard	RS232
Connector	9 pin mini-'D', Female
Receive (in)	pin - 2
Transmit (out)	pin - 3
Ground	pin - 5
Data Rates:	300, 600, 1200, 2400, 4800, 9600
Parity	Odd, Even or None
Data bits	7, 8
Stop Bits	1, 2

Appendix E Label Position on Film

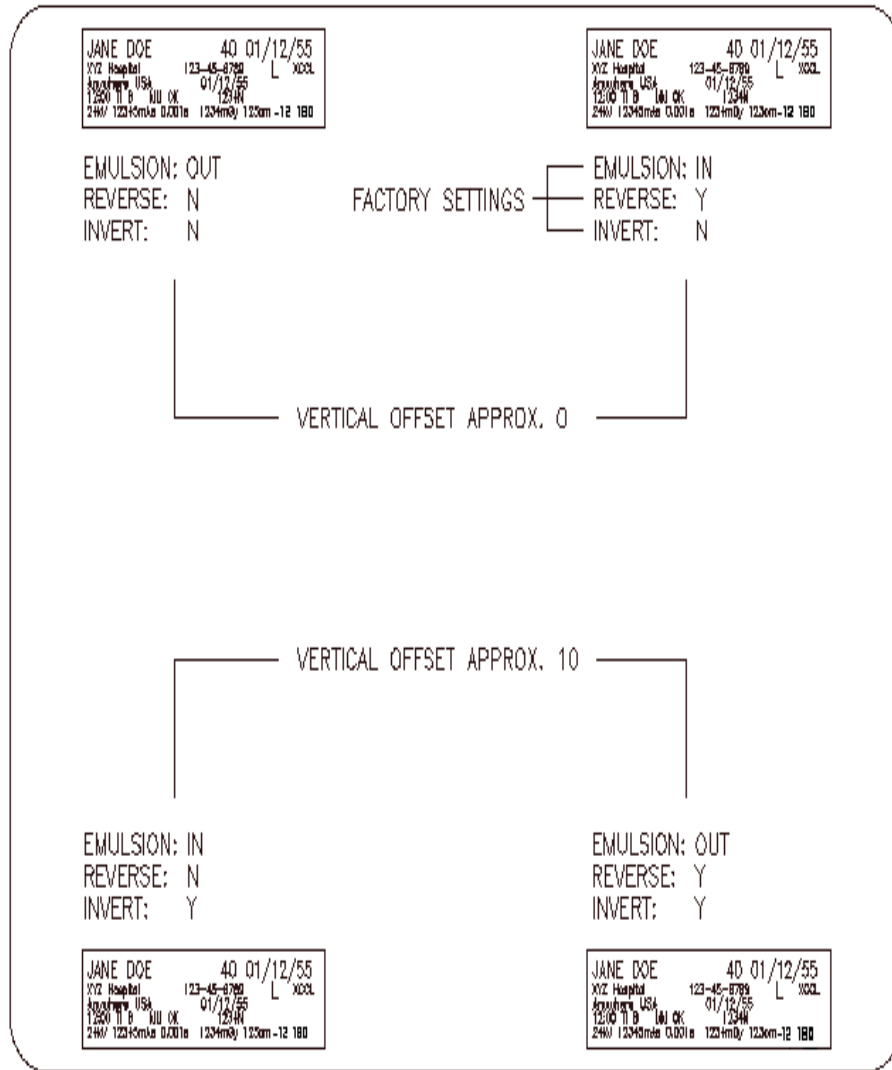


Figure A - 2 Setting Label Position on Film

APPENDIX F FILM ID SYSTEM SPECIFICATIONS

- **ELECTRICAL SPECIFICATIONS**

SUPPLY VOLTAGE: 85-240 VAC
FREQUENCY: 50/60 Hz
POWER: 120 W
INSTALLATION CATEGORY: II
POLLUTION DEGREE: 2

- **FUSE SPECIFICATION**

5 x 20 mm, 250V, 1A, TYPE FSF (quick acting)

- **OPERATING ENVIRONMENT**

TEMPERATURE: 5°C-40°C (41°F-104°F)
HUMIDITY: 10-80% (NO CONDENSATION)
ALTITUDE: up to 2,000 m (6,562 ft)

- **PHYSICAL DIMENSIONS**

MODEL 521

SIZE: 12.5 x 9 x 11 inches (318 x 226 x 279 mm)
WEIGHT: 13 pounds (5.9 kg)

MODEL 525

SIZE: 18.75 x 10 x 11 inches (476 x 254 x 279 mm)
WEIGHT: 15.5 pounds (7.1 kg)

APPENDIX G GENERAL MAINTENANCE GUIDES

- The FILM ID SYSTEM is designed for **INDOOR** use only.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired and VOID the WARRANTY.
- There are no serviceable parts in field except fuses that should be the same rating and type of fuse designated in FUSE SPECIFICATION section. If system needs upgrade or changing components, please contact your vendor.
- Do not open the case, which could impair the optic system.
- Do not insert an object other than film cassette into cassette slot. That could damage the cassette window mechanism and/or cassette sensing mechanism.
- Keep unit free from dust or debris.
- Disconnect the power cord while not in use.
- Clean the outside of unit with a slightly damp cloth. (Use water or glass cleaning fluid only.)