

Section 8


ELECTRONIC TECHNICAL SERVICE MANUALS

This section details the procedure to develop electronic manuals within the TSO Technical Communications department.

8.1 CREATING PDF FILES

To create an eTSM, color is applied to the Adobe FrameMaker document, and the document is converted to Adobe Portable Document Format (PDF). The conversion from FrameMaker to Acrobat is performed for each section of the manual. To convert the FrameMaker document, refer to [Table 8-1, Document Colors](#), and proceed as follows:

1. Apply color as needed to the Framemaker document, using the guidelines in [Table 8-1](#).
2. Print each section of the manual using Acrobat Distiller.

 **Note:** Assure that the “Spot color as black and white” box is unchecked.

3. Insert each section into the master PDF document.
4. In Acrobat, set View to Single Page.

Table 8-1. Document Colors

Type	Description	Color
Tag	Level head	Blue
	Ruling line above level head	Blue
	Ruling line below level head	Blue
	Caution	Red
	Warning	Red
	Table borders	Blue
	Inside table borders for header rows	White
	Bullet symbol	Blue
	Page header and footer	Blue
	Left column of Section 8, Specifications	Blue

Table 8-1. Document Colors		
Type	Description	Color
	Main section title in contents section	Blue
	Figure and table entries in contents section	Blue
	Index letter level head	Blue
Text	Part reference numbers and encompassing circles in IPB drawings	Red
	Part reference numbers in IPB table	Red
	In-text references to figures	Blue
	Text in table headings--with blue fill	White
	Page number references in the index	Blue
	Bulleted section list in Section 1	Blue
	The phrase "Contact Hospira" and/or Contact Hospira Technical Support Operations"	Red
	"See" or "Refer to" when in parentheses with a reference	Blue
	Conjunctions (such as "and") between references	Black
Punctuation	Punctuation after a reference or between two references	Black
	Commas between page references in an Index entry	Black
	Punctuation within a single reference	Blue
	Parentheses around a reference or multiple references	Blue

8.1.1

ADDING COLOR IN ADOBE ACROBAT

Color can also be added in Adobe Acrobat by using the Text Attributes feature. To change text color in Acrobat, proceed as follows:

1. Select the Text Touch Up tool, and highlight the text to be changed.
2. Right click on the highlighted text and select Attributes.
3. In the Attributes dialog box, make the changes to the text, then close the dialog box.

8.1.2

START PAGE

The Start Page is a CorelDraw graphics file. Enter the correct manual number and title, convert the Start Page to a .pdf file, and install it as the first page of the master eTSM document (see *Figure 8-1, Start Page*).

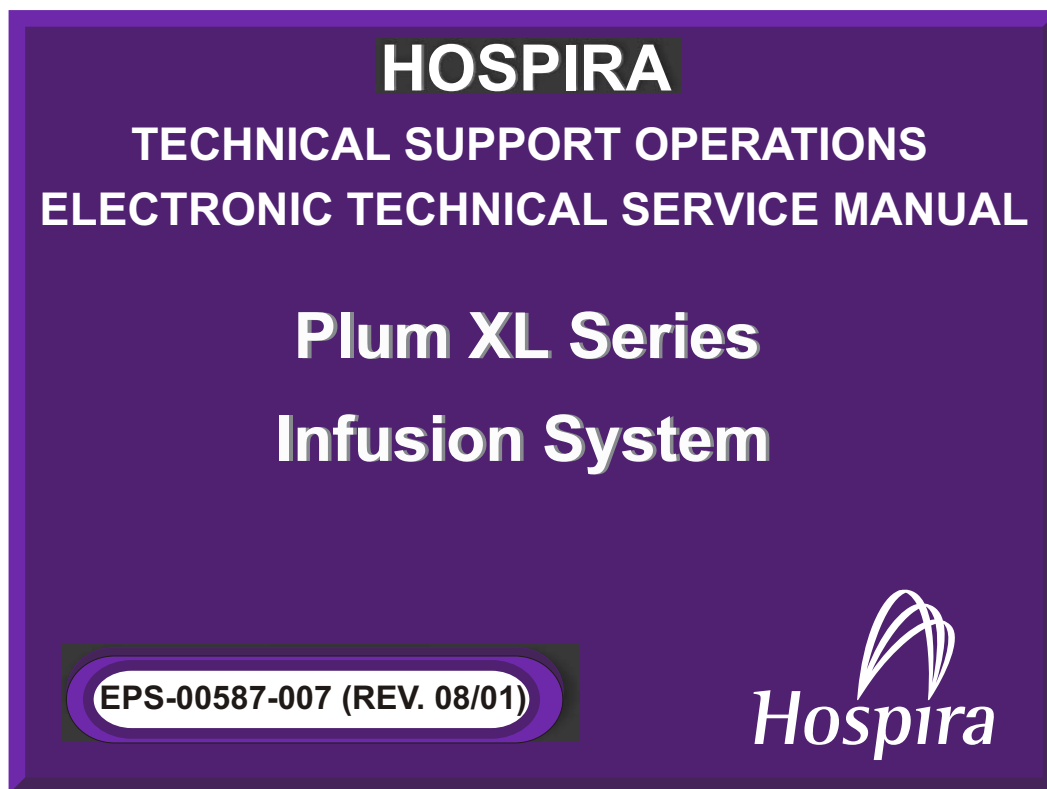


Figure 8-1. Start Page

8.2

ETSM DEVELOPMENT

The following sections outline the steps required to develop an eTSM.


8.2.1

CREATING LINKS

Links are created after colors have been added and a master PDF file has been generated. Links allow ease of navigation throughout the manual. eTSM links include the following:

- Level Heads
- Start Page
- Cover Page
- Contents
- Figures
- Tables

- In-Text References
- Section 9 Drawings
- Illustrated Parts Breakdown (IPB)
- Index

 **Note:** The base magnification (zoom or view) for eTSM links is Fit Width, unless otherwise specified.

8.2.1.1

LEVEL HEADS

Level Head links allow the user to zoom to a centered view of a section by clicking on the Level Head.

 **Note:** In eTSM development, setting the Level Head links first streamlines the process of linking the document.

1. Hide the navigation pane, and set the zoom to Fit Width.
2. Scroll to position the Level Head at the top center of the page view window.
3. Select the link tool, and draw an invisible link around the entire Level Head. Set the link.

8.2.1.2

START PAGE

The Start Page is linked to the cover page.

1. Zoom out so the entire Start Page is visible.
2. Select the link tool, and draw a link around the entire page.
3. Go to the Cover Page, set the zoom to Fit in Window, and center the page, allowing for left and right offset.
4. Scroll to position the top of the Cover Page to the top of the page view window, and set the link.

8.2.1.3

COVER PAGE

The Cover Page is linked to the first page of the Contents section.

1. Zoom out so the entire Cover Page is visible.
2. Select the link tool, and draw a link around the entire page.
3. Go to the first page of the Contents section

8.2.1.4

CONTENTS

Each entry in the Contents section is linked to the corresponding section, figure, or table.

1. Select the link tool, and draw an invisible link around the section, title, and page number of a Contents entry and go to the referenced target page.
2. For sections, click on the Level Head of the referenced section to set the view, then set the link.
3. To link figures, refer to [Section 8.2.1.5](#).
4. To link tables, refer to [Section 8.2.1.6](#).
5. To link Section 9 drawings, refer to [Section 8.2.1.9](#).

8.2.1.5

FIGURES

Links to figures in Section 1 through Section 8 are at a magnification of Fit Width or Fit View, based on the overall size of the figure, individually selected magnification, and page centering.

1. Select the link tool, and draw an invisible link around the figure reference.
2. Go to the page containing the target figure.
3. Using the zoom tool, set the zoom so the entire figure is visible.
4. Center the page view window, and set the link.

8.2.1.6

TABLES

Links to tables are at a magnification of Fit Width, with the table at the top center of the page.

1. Draw an invisible link around the table reference and go to the page containing the target table.
2. Set the zoom to Fit Width, scroll the table to the top center of the page view window, and set the link.

8.2.1.7

IN-TEXT REFERENCES

1. Draw an invisible link around the section reference. For references that wrap to two lines of text, create two separate links.
2. Go to the page of the target section, click on the Level Head to set the view, and set the link.
3. Link the text strings “contact Hospira” and/or “contact Hospira Technical Support Operations” to telephone, address, and website information in Section 6.
4. Draw a link around the phrase, go to Section 6.1 (Technical Assistance), click on the level head to set the view, and set the link.

8.2.1.8**SECTION 9 DRAWINGS**

The Title Block of a Section 9 drawing is linked to a view of itself to enable the user to zoom in and read the drawing information.

1. To link the Title Block to a view of itself, set the zoom to Fit View at 300% and center the Title Block in the page view window.
2. Draw an invisible link around the Title Block and set the link to the current view.

8.2.1.9**ILLUSTRATED PARTS BREAKDOWN (IPB)**

Each part reference number in the IPB drawings is linked to the corresponding information in Table 9-2 (Illustrated Parts Breakdown). Each entry in Table 9-2 is linked to a full screen view of the corresponding part.

1. Select the link tool, and draw an invisible link around the part reference number and encompassing circle.
2. Go to the IPB table (Table 9-2), scroll the corresponding part number entry to the top center of the page view window, and set the link.
3. Draw a link around the part reference number in the table.
4. Return to the IPB drawing, zoom to a 300% magnification with the part centered in the page view window, and set the link.

8.2.1.10**INDEX**

Page numbers in the Index are linked to the section or figure referenced.

1. Select the link tool, and draw an invisible link around the page number of an Index entry. Go to the referenced target page.
2. If the reference is to a section, click on the Level Head of the referenced Section to set the view.
3. For Figure references, refer to [Section 8.2.1.5](#).
4. For Section 9 drawings, click on the Title Block to zoom to 300%, and set the link.

8.2.2**EMBEDDING THUMBNAILS**

Thumbnails are graphic representations of PDF document pages and allow the user to move to a particular area of any page. Thumbnails are embedded as the final step in eTSM development. To embed thumbnails, open the Navigation Pane, click on the Thumbnails tab, and select Embed All Thumbnails from the flyout menu.

 **Note:** Repeat the process if any pages of the PDF document are replaced.

8.3**PROOFREADING ELECTRONIC
TECHNICAL SERVICE MANUALS**

When the eTSM is complete, the links must be verified, and the eTSM must be compared to the paper-based manual to assure identical content.

Verify and proofread all links, as illustrated in *Table 8-2, Proofreading eTSMs*.

Table 8-2. Proofreading eTSMs	
Link	What to Verify
Start Page	Links to Cover Page with zoom at "Fit in Window"
Cover Page	Links to Table of Contents
Level Heads	Moves as close as possible to the top of the page when clicked
Section References	Links to the correct section, table, or figure Level heads do not move when clicked
Figure References	Links to a centered view of the figure with the entire figure visible on the page
Table References	When clicked, correct table appears as close as possible to the top of the page
Contact Hospira	Links to Section 6.1, Technical Assistance Level head does not move when clicked
Table of Contents	All links are to correct pages and correct sections Level heads do not move when clicked
Index	All links are to the correct pages Level heads do not move when clicked
IPB and assembly drawings	IPB table appears with linked item as close as possible to the top of the page
IPB Table	Referenced part is centered on the page
Title Blocks in Section 9	Linked to a view of itself with 300% magnification
Thumbnails	All thumbnails are current, and match the content of the eTSM

When all links are verified, print a copy of the manual and verify that the content is identical to the Approval Copy. Sign and date the cover of the eTSM copy and add the statement "The content of this PDF file is identical to the approved final hard copy labeling."

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Section 9

TECHNICAL SERVICE BULLETINS

Technical Service Bulletins (TSBs) provide a way to communicate with Technical Service Manual users without updating the manual. TSBs can be used to present new information, or to emphasize information already in the Technical Service Manual. The new information presented in TSBs is integrated into the TSM when it is updated. These bulletins are distributed as electronic documents and are posted on Hospira's web site, www.hospira.com.

An example of a TSB appears on the following page. This page can also be used as a template when creating new TSBs.

May 2004

*Air in Line Test for AIM[®], AIM Plus, APM[™], APM II and ANNE[™]**

Air in Line Detection

The air in line test for AIM, AIM Plus, APM, APM II, and ANNE, is designed to perform a functional check of the air detection system. This test is also referenced in the appropriate System Operating Manuals and Installation Test Guides.

In the past, Hospira has recommended that users perform this test, as part of the full Installation Test, on an annual basis. **Hospira is now instructing users of these devices to perform the test immediately after receiving this Technical Service Bulletin.**

After this initial test, schedule completion of the air in line test once every three months, or when one of the following occurs:

- Pump is inadvertently mishandled (for example, dropped or jarred)
- Pump is cleaned
- Pump case is opened
- Pump is serviced

Failure to follow recommended procedures may result in failure to detect air in line. Refer to the appropriate System Operating Manual or Installation Guide for further information.

Air in Line Test

The following equipment is needed to perform the air in line test

- Pump
- Administration set
- Water reservoir

To perform the air in line test, refer to the appropriate System Operating Manual and proceed as follows:

1. Install a primed administration set in the pump.
2. Enter a delivery program.
3. Initiate program.
4. Remove the proximal end of the tubing from the supply reservoir and verify air fills the tubing.
5. Verify audible alarm sounds and AIR IN LINE flashes on the display.
6. Press the [SILENCE] key to silence the alarm, then the [STOP] or [RUN/STOP] key to return to the stop mode.

Note: The AIM, AIM Plus, APM, APM II, and ANNE should always be used with IV administration sets that are configured with air elimination filters.

Note: The information presented in this Technical Service Bulletin supplements information presented in previously issued System Operating Manuals and Technical Service Manuals. Subsequent versions of these manuals will contain the information presented herein.