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1.1 PRODUCT DESCRIPTION OVERVIEW

Product Description

The PPC™ Parallel Processing Center is a semi-automated, batch-oriented instrument that performs bead enzyme immunoassays on blood serum and plasma samples. It can be operated as a stand alone instrument or connected to a series of up to four sample preparation instruments by RS-232 interfaces. These instruments may include the Flexible Pipetting Center (FPC™) or the POS ID. One of the four RS-232 ports may be set up and then connected to a host computer for information transfer.

1.2 HOW TO USE THIS MANUAL

This service manual contains information for servicing the PPC™ System. It is divided into six chapters.

Chapter 1. General Data

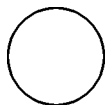
This chapter contains information on use of the Service Manual, System Specifications, and System Block Diagrams with Wiring Diagrams.

Chapter 2. Troubleshooting

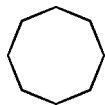
This chapter provides an introduction to basic Troubleshooting Methods, Normal Operating Procedures, and Error Codes.

Chapter 3. Parts Lists

This chapter provides the Supplemental Tools list, Supplies list, and exploded view drawings of field spare parts (and their configuration) indexed to item number and description on the Parts List (PL). The following descriptions and associated symbols are provided to show the types of procedures in Chapters 4 and 5.



Removal & Replacement Procedure (R&R)



Verification Procedure (VP)



Both Removal Replacement and Verification Procedures

A number within any of the symbols is the line item number of the associated Parts List.

Chapter 4. Removal & Replacement

This chapter contains Removal & Replacement procedures that are indexed by number to the related Parts List in Chapter 3. For example, RR-1.5 is the Removal & Replacement procedure for Parts List PL-1, line item 5. (See Figure 1-1 below.)

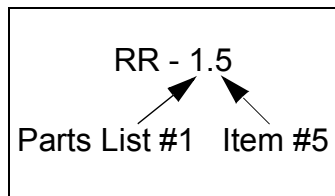


Figure 1-1. R&R Numbering

Chapter 5. Verification Procedures

This chapter contains adjustment and test procedures required to verify proper instrument operation after repairs. Verification Procedures (VPs) are also used to assist with troubleshooting.

Chapter 6. PM/Total Call

This chapter contains Preventative Maintenance (PM) procedures, the Total Call procedure, and the PM/Total Call checklist.

Manual Revision Marks

PPC™ Service Manual revision pages are provided periodically to update and maintain current configuration changes and servicing techniques. The changes are identified in the following manner:

Text Revisions

A Black Bar is inserted in the left margin near changes to text for significant changes that impact servicing of the instrument.

Art Revisions

A black bar at the left of the art number (drawing number) for significant changes that impact the servicing of the instrument.

(See Figure 1-2.)

Page Revisions

If anything on a page has been changed, the Text Part Number will be changed by an increment in the dash number (-xxx) for that page. (e.g., from -101 to a -102.)

A new title page with a revision log will be sent with each change package. The revision log will contain the page number of each changed or added page along with the revision dash number of that page. Pages not listed in the log remain as original pages.

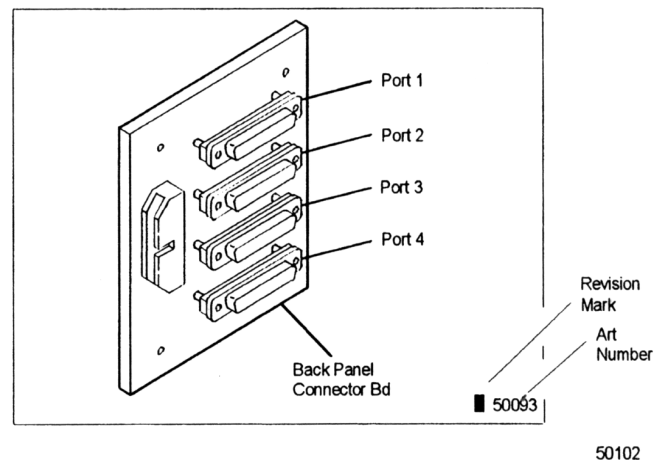


Figure 1-2. Revision Marks

Identification of Unique Items

If information, a procedure, or a spare part is unique to the United States field service, then **(US)** is noted beside the item. If the item is unique to International field service, the symbol **(INTL)** is noted beside the item. If an item is unique to a specific country, the country is noted in parenthesis next to the item.

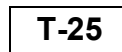
Example:

Item	Part No.	Description
11	LN09A84-17	Fax Modem (Canada)
	LN09A83-04	Fax Modem (Denmark)
	LN09A83X-05	Fax Modem (Finland)
	LN09A83-46	Fax Modem (France)
	LN09A83-07	Fax Modem (Germany)

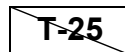
TSB/ISA Symbols

Two symbols are used to show areas or sections in the Service Manual that have been affected by a Technical Service Bulletin (TSB) or an Instrument Service Advisory (ISA). Refer to the appropriate TSB or ISA documentation specific to the affected section for additional information.

The following symbols are used to show a particular part or area of a figure that has been modified by a particular TSB. The TSB number is within the symbol.

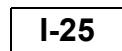


TSB 50-025 Installed



TSB 50-025 Not Installed

The symbol below is used to identify an ISA containing additional information regarding a specified part or area of the Service Manual.



Note, Caution, Warning, and Danger Tags

Note, Caution, Warning, and Danger tags are inserted throughout the manual to warn, assist, and inform the user. The following examples identify the tag format and provide descriptive information regarding the tag type.

NOTE: Denotes general information and helpful hints. Failure to comply with a Note will not affect safety, effectiveness, or performance.

CAUTION

Denotes a minor, non-immediate, or potential hazard. Failure to comply may result in unexpected instrument performance or may expose the operator, FSE, or FSR to potentially hazardous conditions.

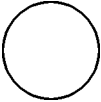


WARNING





Denotes a clear and present danger or questionable result effectiveness. Failure to comply may result in incorrect instrument performance leading to instrument failure, erroneous results, or a hazard to the operator, FSE, or FSR

DANGER

Denotes a high probability of exposure to a hazard. Failure to comply will expose the operator, FSE, or FSR to a significant risk of serious injury or death.

Definition of Symbols

Symbol	Definition
>	Greater Than
<	Less Than
»	Approximate
	Removal & Replacement Procedure (R&R)
	Verification Procedure (VP)
	Both Removal & Replacement and Verification Procedures
<div>T-25</div>	TSB 50-025
<div>I-25</div>	ISA 50-025

Symbol	Definition
	The biohazard symbol identifies an activity or area where the operator may be exposed to potentially infectious materials or substances.
	The electrical shock warning symbol alerts the user to the possibility of electrical shock in noted activity or at a posted location.
	The general warning symbol identifies a physical, mechanical, or procedural situation where the operator must be aware, alert, and cautious to prevent possible injury.
	The electrostatic discharge symbol identifies an activity or area where the operator must wear a grounding strap while servicing the system. The grounding strap must be attached to a proper grounding fixture.
(L)	Logic Low: + 1.00VDC and less.
(H)	Logic High: + 4.75 to + 5.25 VDC
GND	Chassis Ground (GND) unless otherwise stated.

Biohazard Safety

Consider all clinical specimens such as reagents, controls, and calibrators that contain human blood or body fluid as potentially infectious. Wear gloves, lab coats, and safety glasses. Follow standard biosafety practices when handling these items. Refer to [VP-39](#).

Biohazard Disposal

Dispose of all clinical specimens, reagents, controls, calibrators, cuvettes, and other disposables that may be contaminated according to local, state, federal, and/or country regulations governing the treatment of regulated, medical wastes.

Biohazard Spills

Clean spills of potentially infectious materials according to established biosafety practices. Absorb the spill with absorbent material. Prepare a 1.0% sodium hypochlorite solution (one part household bleach to four parts water). Wipe the spill area with a detergent solution. Wipe exterior surfaces with the prepared bleach solution and allow to stand for a minimum of ten minutes. Rinse with water or detergent solution. Wipe the area dry with absorbent towels. Complete decontamination procedures from [VP-39](#).

Electrical Safety

The PPC™ instrument has an AC Power Supply Assembly located on the left side of the instrument. Always remove the power and disconnect the power cord before servicing or moving the instrument. The power cord should not be reinstalled until servicing is completed.

In situations where power is required to verify repairs and operation, ensure the following criteria are met:

- All personnel are clear of the instrument before restoring power.
- Ensure all tools, trays, and extraneous parts are cleared from the instrument.
- Remain clear of the instrument until all mechanical systems have settled into an operation mode.

Electrostatic Discharge

Many of the components of the printed circuit boards within the PPC System are susceptible to electrostatic discharge (ESD). Environmental conditions such as floor covering and relative humidity contribute to electrostatic charge buildup. Use the Static Service kit when handling printed circuit boards.

Static Procedures

- Keep each printed circuit board in its static protective bag until ready for use.
- Use an approved, static-protective field service kit when removing printed circuit boards from the protective bags or instrument and also when installing the boards.
- Replace defective printed circuit boards into protective bags when returning them for repair.

Static Service Kit

The Static Service Kit is designed to keep the FSR/FSE, the replacement part, and the instrument at voltage ground. The kit consists of the following items:

- Static protective mat used as a work surface
- Grounding wrist strap and attached cable
- Grounding clip or cable

Follow the instructions included in the kit. Always set up the kit before working with printed circuit boards.

Lifting Safety

The PPC™ instrument is large and heavy. To avoid potential injury, the instrument should be lifted by more than one person. If the instrument must be turned or moved for accessing subsystems or components, ensure the PPC is well supported at all times.

1.3 SYSTEM SPECIFICATIONS

This section contains instrument dimensions, space requirements, and the electrical and environmental requirements.

Physical Dimensions	
Depth	21.5" (54.6 cm)
Width	36.0" (91.4 cm)
Height	20.5" (52.1 cm)
Weight	140 lbs. (63.6 kg)
Electrical Requirements	
Input (Non-CE Mark)	110 (90-132 VAC @ 50/60 Hz) 220 (196-264 VAC @ 50/60 Hz)
Input (CE Mark)	100/120 (fuse 250V 10A) 220/240 (fuse 250V 5A)
Fuse(s)	10 amp Slow Blow, 5 amp Slow Blow
700 VA	Nominal Operating Condition
Connector	3-prong, grounded outlet (US)
Environmental Requirements	
Operating Temperature	Not Specified
Location	Flat, level surface. Avoid exposure to direct heat, drafts, moisture, or sunlight. Use adequate ventilation for top, back, and side. Provide sufficient space at the Tray Loader and exit to facilitate operation.

Environmental Requirements (Cont.)	
Humidity	Not Specified
Assay Principle	Dual Wavelength Spectrophotometry
Wavelength Selection	460nm & 600nm Diachroic Filters
Absorbance Range	0.0-2.20 A; determined by application software
Repeatability	Better than 0.0025A Standard Deviation or 0.5% CV, whichever is greater
Linearity	0-1.5A better than 0.005A or 2% CV, whichever is greater, and 0-2.2A or 3.5% full scale or less
Drift	≤ ± 0.005A over a one hour period
Light Source	Tungsten-halogen lamp
Processing	
Washing	14 ± 3 ml wash water per well followed by pressurized air at 25 ± 5 psi for 1.5 seconds
Dispensing	Volume determined by dispenser used; available sizes include 50, 100, 150, 175, 200, and 300 ml
Throughput	Washes and dispenses 60 wells in under two minutes using a 60-well tray

1.4 CE MARK CERTIFICATION

Several engineering changes were made to the PPC™ instrument to declare compliance with the European Union CE Marking Directives for Abbott Diagnostics Division (ADD) instrumentation. The CE Mark Directives specify essential requirements regarding product safety and quality.

Notes throughout this manual referencing CE versus Non-CE Mark subassemblies and components will outline any differences that may exist between the two configurations that affect Verification Procedures (VPs), Removal & Replacement (R&R) procedures, Isolation Procedures (IPs), or instrument performance specifications.

Refer to the PPC instrument **TSB 50-034** for a list of all affected parts and upgrade procedures for reconfiguring a Non-CE Mark PPC instrument to the CE Mark level.

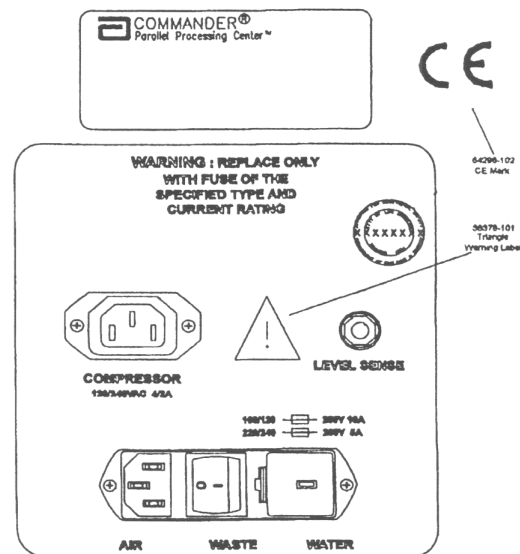


Figure 1-3. CE Mark Back Panel Labels

