# VP-9: LLS VOLTAGE DELTA CHECK (pg 1 of 8)

Time: 20 minutes

Purpose: To verify proper functioning of LLS circuitry

### Introduction

This procedure includes these groups of tasks:

- I. Instrument Setup Steps 1-6
- II. Buffer Pack Positions Steps 7-14
  III. Carousel Positions Steps 15-29

# I. Instrument Setup

- I. Insert <u>Full</u> buffer pack in Reagent Receiver/Heater Block.
- 2. Load blank cell in Carousel position 1.
- 3. Load reaction cell in Carousel position 2.
- 4. a. Load amplification vial in reaction cell.b. Dispense 5 drops of buffer in tube; close.
- 5. Dispense 5 drops of buffer in each well in blank and reaction cells.

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- Instrument Setup (cont)
- 6. Monitor DC volts between LLS Board test points TP 2 and TP 8.
  - a. Connect Gnd. lead to TP 8.
  - b. Connect Pos. lead to TP 2.

For these	Tasks	Steps
positions		
Buffer Pack only	Section II.	7- 14
Carousel only	Skip Section II.	15- 29
	Go to Section III.	
Buffer Pack and	Section II and	7- 29
Carousel	Section III	

### **II. Buffer Pack Positions**

- 7. Enter Boom Hand Controls:
- MONITOR
  - HND\_CTRL
  - OTHER
  - BOOM
- Move probe over Reagent 4 in buffer pack (Figure VP9-1):
  - **1**0
  - RIGHT (4 times)
  - **■** 01
  - LEFT or RIGHT (until probe is centered over bottle)

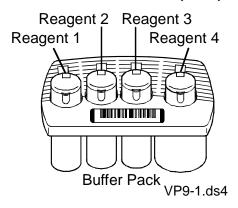
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# II. Buffer Pack Positions (cont)



- 9. Drive probe down until voltage at TP 2 switches HIGH:
  - NEXT
  - **1**0
  - DOWN (until voltage switches)
- 10. Record high voltage value.
- 11. Drive probe up until voltage at TP 2 switches LOW:
  - UP
- 12. Record low voltage value.

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### II. Buffer Pack Positions (cont)

- 13. Calculate Voltage Delta for this position:
  - a. Subtract Low Voltage from High Voltage.
  - b. Compare Voltage to Delta in chart (Figure VP9-2).
- 14. Repeat steps 8 through 13 for each remaining reagent position:
  - HOME
  - NEXT

When all 4 positions have been checked, check Carousel positions (if desired) (steps 15-29).

Location	LLS Position	Delta VDC
Buffer Pack	Reagent 4	≥ 3.75 VDC
Buffer Pack	Reagent 3	≥ 3.75 VDC
Buffer Pack	Reagent 2	≥ 3.75 VDC
Buffer Pack	Reagent 1	≥ 3.75 VDC
Reaction Cell	Amplification Vial	≥ 3.0 VDC
Reaction Cell	Reaction Well (LCRW)	≥ 1.0 VDC
Blank Cell	Dispense Well (DSPW)	≥ 2.5 VDC
Blank Cell	Incubation Well (RWC1)	≥ 1.0 VDC
Blank Cell	Predilution Well (PWC1)	≥ 1.0 VDC

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### **III. Carousel Positions**

- 15. Move probe over blank cell matrix position (Figure VP9-3):
  - HOME ■ NEXT
  - HOME■ 99 (2 times)
  - RIGHT
  - 10011 ■ 01
    - RIGHT (until centered over matrix position)

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#### **CAUTION!**

DO NOT attempt to step probe down more than 1 step at a time. Incorrect Delta voltages will result.

- 16. Drive probe down until voltage at TP 2 switches HIGH:
  - NEXT
  - **1**0
  - DOWN (until voltage switches)
     Voltage will gradually increase.
     Continue to drive down until voltage makes a significant jump.
- 17. Record high voltage value.
- 18. Drive probe up until voltage at TP 2 switches LOW:
  - UP

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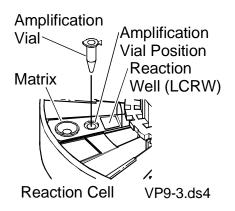
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### III. Carousel Positions (cont)

- 19. Record low voltage value.
- 20. Calculate Voltage Delta for this position:
  - a. Subtract low voltage from high voltage.
  - b. Compare Delta to chart in Figure VP9-2.
- 21. Repeat steps 15 through 20 for each remaining blank cell position.
- 22. Move probe over reaction cell amplification vial (Figure VP9-3):
  - HOME
  - NEXT
  - 20
  - RIGHT



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# **III. Carousel Positions (cont)**

- 23. Rotate carousel by hand until amplification vial is below probe:
  - **1** 01
  - RIGHT or LEFT (until probe is centered over tube)
- 24. Drive probe down until voltage at TP 2 switches HIGH.

NOTE: Voltage will gradually increase. Continue to drive down until probe punctures tube and voltage makes a significant jump.

- **1**0
- NEXT
- DOWN (until voltage switches)

- 25. Record high voltage value.
- 26. Drive probe up until voltage at TP 2 switches LOW:
  - UP (until voltage switches)
- 27. Record low voltage value.
- 28. Calculate Voltage Delta for this position:
  - a. Subtract low voltage from high voltage.b. Compare Voltage to Delta in chart

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(Figure VP9-2). 29. Repeat steps 22 through 28 for diluent position (Figure VP9-4).

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### **III. Carousel Positions (cont)**

Incubation Well (RWC1)
Predilution Well (PWC1)
Sample Well
(SPCM)
Well
(DSPW)
Blank Cell
VP9-4.ds4

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