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

1. Insert **Full** 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.

I. Instrument Setup (cont)

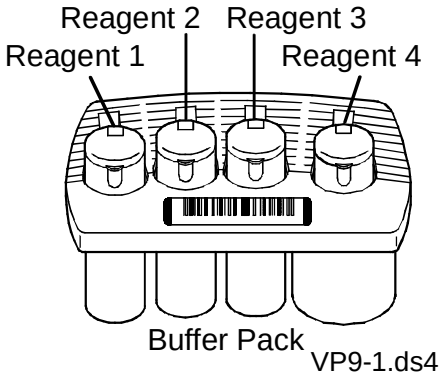
6. Monitor DC volts between LLS Board test points TP 2 and TP 8.
   a. Connect Gnd. lead to TP 8.
   b. Connect Pos. lead to TP 2.

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

II. Buffer Pack Positions

7. Enter Boom Hand Controls:
   - MONITOR
   - HND_CTRL
   - OTHER
   - BOOM
8. Move probe over Reagent 4 in buffer pack (Figure VP9-1):
   - 10
   - RIGHT (4 times)
   - 01
   - LEFT or RIGHT (until probe is centered over bottle)

II. Buffer Pack Positions (cont)



9. Drive probe down until voltage at TP 2 switches HIGH:
   - NEXT
   - 10
   - 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.

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
    - 01
    - RIGHT (until centered over matrix position)

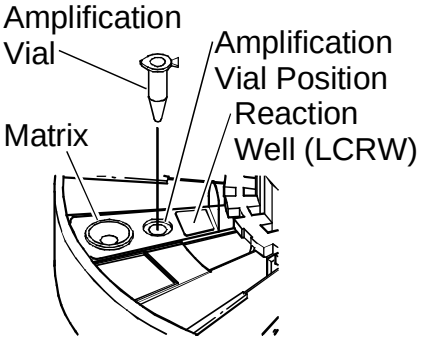
CAUTION !

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
    - 10
    - 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

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



III. Carousel Positions (cont)

23. Rotate carousel by hand until amplification vial is below probe:
    - 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.
    - 10
    - 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 (Figure VP9-2).
29. Repeat steps 22 through 28 for diluent position (Figure VP9-4).

III. Carousel Positions (cont)