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RBC DILUENT SYRINGE OVERPRESSURE

RBC Diluent Syringe Overpressure

Check center section of shear valve

Is notch in correct position?

Yes

Remove and reinstall Shear Valve & release pressure from RBC Diluent Syringe (See Note) Run backgrounds

No

Check RBC dilution pathway for pinched/ crimped tubing

Pinched/ crimped tubing seen?

Yes

Remove crimps/ massage tubing Go to Diagnostics, More, Initialization Run backgrounds

No

Does error recur?

Yes

Refer to HS or dispatch service

No

Problem resolved

NOTE:
Remove RBC diluent syringe from bracket (do not disconnect tubing)

- Pull down slightly on plunger
- Reinitialize analyzer by going to:
  - Main
  - Diagnostics
  - More
  - Initialization
- If cannot initialize, cycle power and reinitialize

Does error recur?

Yes

Remove, clean, and reinstall shear valve & release pressure from RBC diluent syringe (See Note) Run backgrounds

No

Problem resolved

Does error recur?

Yes

Clean/replace RBC Diluent Syringe

No

Problem resolved

Refer to HS or dispatch service

Problem resolved
**HGB LYSE EMPTY (CELL-DYN 3200)**

1. **Press CLEAR FAULT and observe HGB Lyse Syringe**
2. If syringe is moving properly, proceed to check reagent cube and inlet lines.
   - Cube empty?
   - Reagent correct?
   - Inlet line reaches to bottom?
   - Vent hole in cap open?
   - Foam seal removed from under cap?
   - Lines not crimped?
   - Ports not plugged?
   - Check fluid level in syringe
3. If syringe is not moving properly, refer to HS or dispatch service.
4. **Clean or replace syringe**
   - Does error recur?
     - Yes: Dispatch Service
     - No: Problem resolved
5. **Check reagent filled properly? Are reagent lines not crimped?**
   - Yes: Refer to HS or dispatch service
   - No: Does error recur?
     - Yes: Disable analyzer, exercise valve 24 using valve puller, massage and reseat tubing in valve 28
     - No: Cycle power
6. **Does error recur?**
   - Yes: Dispatch Service
   - No: Problem resolved
**WBC LYSE EMPTY (CELL-DYN 3200)**

Press CLEAR FAULT and observe WBC Lyse Syringe

Is syringe moving properly?

- Yes
  - Clean or replace syringe
  - Does error recur?
    - Yes
      - Dispatch Service
    - No
      - Problem resolved

- No
  - Check reagent cube and inlet lines:
    - cube empty?
    - reagent correct?
    - inlet line reaches to bottom?
    - vent hole in cap is open?
    - foam seal removed from under cap?
    - lines not crimped?
    - ports not plugged?
    - check fluid level in syringe
  - Is syringe filled properly? Are reagent lines not crimped?
    - Yes
      - Refer to HS or dispatch service
    - No
      - Disable analyzer, and exercise valve 25 using valve puller
      - Massage and reseat tubing in valve (normally closed) 23
      - Does error recur?
        - Yes
          - Dispatch Service
        - No
          - Problem resolved
      - Cycle power
      - Does error recur?
        - No
          - Problem resolved
        - Yes
          - Dispatch Service
**LYSE EMPTY (CELL-DYN 3500/3700)**

Lyse Empty
(CELL-DYN 3500/3700)

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- lines not crimped?
- ports not plugged?
- check fluid levels in syringe

Press CLEAR FAULT

Prime lyse to waste chamber 2 by removing tubing from V 36 (NCV)

Floss tubing into NCV 36

Exercise solenoids 42, 47

Does error recur?

No

Problem resolved

Yes

Does error recur?

No

Problem resolved

Yes

Check WIC/HGB Lyse Syringe:
- seated and moving correctly?
- tubing crimped?
Clean/reseat syringe as needed and remove crimps

Does error recur?

No

Problem resolved

Yes

Check lyse inlet line for crimps or plugs
Remove lyse inlet tubing & flush line with warm DI water

Does error recur?

No

Refer to HS or dispatch service

Yes

Cycle Power

Problem resolved

Does error recur?

No

Problem resolved

Yes

Does error recur?

No

Problem resolved

Yes

Does error recur?

No

Problem resolved

Yes

Does error recur?

No

Problem resolved

Yes

Does error recur?

No

Problem resolved

Yes

Does error recur?
DILUENT/SHEATH EMPTY (CELL-DYN 3200)

Press CLEAR FAULT and open front left door

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- lines not crimped?
- ports not plugged?
- check fluid level in syringe

Run background

Does error recur?

Press CLEAR FAULT, run background, and observe diluent and sheath reservoirs

Does fluid reach the sensor electrodes?

Check reservoirs for cracks / leaks

Check sensor contacts at top of reservoirs are seated properly. Reset if indicated. Run background count.

Does error recur?

Problem resolved

No

Yes

Yes

No

Yes

No

Yes

Yes

No

Yes

Go to A

Problem resolved
DILUENT/SHEATH EMPTY (CELL-DYN 3200)

A

Check for salt buildup at reservoir connectors and clean if present

Problem resolved

Does error recur?

Yes

- Verify diluent/sheath plumbing is free of restrictions
- Exercise valves 61, 62, 63, and 64
- Are reservoirs cracked and leaking?
- Clean sensor contacts (electrodes and connector at top of reservoir) and contacts are touching

Run background

Problem resolved

Does error recur?

Yes

Cycle power

Problem resolved

Does error recur?

Yes

Refer to HS or dispatch service

Does error recur?

No

No

No

Yes
REAGENT EMPTY - DILUENT, SHEATH, HGB LYSE (CELL-DYN 3000)

CELL-DYN 3000
Reagent Empty
Diluent
Sheath
HGB Lyse

Press RUN and observe reagent reservoirs

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- lines not crimped?
- ports not plugged?
- check fluid level in syringe

Clean sensor contacts
Ensure sensor is seated correctly

Run background

Check reservoir for cracks

Floss NCV tubing (V6-1 (Diluent), V6-2 (Sheath), V6-3 (HGB Lyse)) for affected reservoir or replace check valve

Does error recur?

Yes

No

Problem resolved

Does error recur?

Yes

No

Cycle power

No

Problem resolved

Refer to HS or dispatch service

Does error recur?

Yes

No

Floss NCV tubing (V6-1 (Diluent), V6-2 (Sheath), V6-3 (HGB Lyse)) for affected reservoir or replace check valve

Cracks seen?

Yes

No

Refer to HS or Dispatch Service

Problem resolved

Does error recur?

Yes

Go to A

Problem resolved

Refer to HS or dispatch service

Page 1 of 2
REAGENT EMPTY - DILUENT, SHEATH, HGB LYSE (CELL-DYN 3000)

A

Exercise vacuum and pressure solenoids for affected reservoir
Diluent pressure and vacuum - V5-1, 5-2
Sheath pressure and vacuum - V5-3, 5-4
HGB Lyse pressure and vacuum - V5-5, 5-6

Problem resolved No Does error recur?

Yes

Cycle power

Problem resolved No Does error recur?

Yes

Refer to HS or Dispatch Service

Page 2 of 2
REAGENT EMPTY - DILUENT, SHEATH, DETERGENT (CELL-DYN 3500/3700)

CELL-DYN 3500/3700
Reagent Empty
Diluent
Sheath
Detergent

Clear fault

Press RUN and observe reagent reservoirs

Does fluid reach sensor contacts?

Yes

Clean sensor contacts
Ensure sensor is seated correctly

Problem resolved

No

Does error recur?

Yes

Cycle power

No

Refer to HS or dispatch service

Does error recur?

Yes

Check reservoir for cracks

Cracks seen?

Yes

Refer to HS or Dispatch Service

No

Floss NCV tubing for affected reservoir or replace check valve

Does error recur?

Yes

No

Problem resolved

Go to A

Does error recur?

Yes

Does error recur?

No

Problem resolved

Yes

No

Problem resolved

Go to A

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- lines not crimped?
- ports not plugged?
- check fluid level in syringe

Does error recur?

No

Problem resolved

Yes
REAGENT EMPTY - DILUENT, SHEATH, DETERGENT (CELL-DYN 3500/3700)

Exercise vacuum and pressure solenoids for affected reservoir
V5-1 Diluent pressure
V5-2 Diluent vacuum
V5-3 Sheath pressure
V5-4 Sheath vacuum
V5-5 Detergent pressure
V5-6 Detergent vacuum

Does error recur?

Problem resolved

Yes

Cycle power

Problem resolved

Does error recur?

Yes

Refer to HS or Dispatch Service
SHEAR VALVE POSITION FAULT

Did error occur after cleaning shear valve?

Yes

Remove and reinstall shear valve correctly (CELL-DYN 3000: use lubricant)

Reinitialize system

Does error recur?

Yes

Cycle power

Does error recur?

Yes

Refer to HS or dispatch service

No

No

Problem resolved

Yes

Clean and inspect shear valve

Is shear valve damaged/pins broken?

Yes

Refer to HS or Dispatch service

No

Reinstall shear valve correctly

Problem resolved

Problem resolved
**VACUUM ACCUMULATOR WET**

Observe waste line for obstructions or correct draining

Is waste line draining correctly?  
- Yes
  - Drain accumulators
    - CELL-DYN 3500/3700/3200: through DIAGNOSTICS menu (go to Diagnostics, More, Drain accumulator)
    - Reinitialize system
    - Does error recur?  
      - No → Problem resolved
      - Yes → Cycle power
        - Does error recur?  
          - No → Problem resolved
          - Yes → Refer to HS or dispatch service
    - Does error recur?  
      - No → Problem resolved
      - Yes → Remove obstruction/reseat tubing

- No → Remove obstruction/reseat tubing

Problem resolved

Refer to HS or dispatch service
CLOG ERROR (RBC OR WIC)

Run background

Does error recur?

No

Problem resolved

Yes

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- lines not crimped?
- ports not plugged?
- check fluid level in syringe

Does error recur?

No

Problem resolved

Yes

RBC Clog:
- clean/replace 10 mL syringe
- clean air filter
- run autoclean

Verify aperture plate(s) are correctly installed and check for cracks
Reseat and clean per OPS manual

Does error recur?

No

Problem resolved

Yes

Exercise solenoids around affected transducers and massage and reseat tubing at solenoids
(See Note)

Does error recur?

No

Problem resolved

Yes

Go to A

NOTE:
Solenoids
CELL-DYN 3000:
3-1, 3-2, 3-3, 3-6, 3-7, 3-8

CELL-DYN 3500/3700:
RBC: 3-1, 3-2, 3-3, 3-4, 3-5, 3-7, 3-8
WIC: 8-1, 8-2, 8-3, 8-4, 8-5, 8-7, 8-8
**CLOG ERROR (RBC OR WIC)**

A

Check transducer(s) and metering tubes for cracks or leaks

CRACKS/LEAKS SEEN?

Yes

Dispatch Service

No

Check quality of meniscus in metering tube

GOOD MENISCUS?

Yes

Cycle power

No

Does error recur?

Yes

Refer to HS or dispatch service

Problem resolved

Does error recur?

No

Check fitting between top of metering tube and V 3-7 (RBC) or V 8-7 (WIC)

Clean or flush metering tube if needed

Problem resolved

Does error recur?
FLOW ERROR (RBC OR WIC)

Flow Error (RBC or WIC)

Run background

Does error recur?

Problem resolved No

Inspect transducer/vent solenoids and pinch tubing
Massage and reseat tubing in solenoids as needed
SEE NOTE

Problem resolved No

Does error recur?

Problem resolved No

Verify aperture plate(s) are correctly installed and not cracked
Reseat/replace if indicated

Problem resolved No

Does error recur?

Check transducer(s) and metering tubes for cracks or leaks

Cracks/leaks seen?

No Go to A

Yes

Dispatch Service

NOTE:
Solenoids
CELL-DYN 3000:
3-1, 3-2, 3-3, 3-6, 3-7, 3-8

CELL-DYN 3500/3700:
RBC: 3-1, 3-2, 3-3, 3-4, 3-5, 3-7, 3-8
WIC: 8-1, 8-2, 8-3, 8-4, 8-5, 8-7, 8-8


FLOW ERROR (RBC OR WIC)

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- lines not crimped?
- ports not plugged?
- check fluid level in syringe

Run background

Problem resolved → No → Does error recur?

Yes → Check quality of meniscus in metering tube – it should look like an upside down U.

No → Check fitting between top of metering tube and V 3-7 (RBC) or V 8-7 (WIC) and exercise valves if indicated. Clean metering tubes (See Note)

Yes → Problem resolved → No → Run autoclean

Does error recur?

Yes → Cycle power

Problem resolved

Refer to HS or Dispatch Service

Does error recur?

Yes → Problem resolved

No → Does error recur?

Yes → Cycle power

Yes → Problem resolved

Note:
To clean RBC or WIC metering tube:

CELL-DYN 3000: V38 (RBC)
CELL-DYN 3500/3200: V38 (RBC), V88 (WIC)

1. Disconnect tubing above V38 or V88.
2. Connect 20 mL syringe filled with 20% bleach to tubing.
3. Open V38 or V88 until syringe is half empty.
4. Release solenoid and wait 5 minutes.
5. Open V38 or V88 until syringe is empty and release solenoid.
6. Fill syringe with HGB Lyse reagent and repeat step 5.
7. Run background.
WOC / WBC FLOW ERRORS

Check the following syringes:
- CELL-DYN 3000: WBC metering syringe
- CELL-DYN 3200: Sample injection syringe
- CELL-DYN 3500/3700: WOC metering sheath syringes
**WOC / WBC FLOW ERRORS**

1. **Check transfer peristaltic pump tubing for wear or holes. Replace as needed.**
   - **SEE NOTE**
   - **Does error recur?**
     - **No** → **Problem resolved**
     - **Yes** → **Verify WOC/WBC mixing chamber fills correctly, bubble mix is good (Swirl mix for CELL-DYN 3200)**

2. **Mixing chamber OK?**
   - **No** → **Check for pinched tubing. Exercise bubble mix solenoid 2-4**
   - **Yes**
     - **Check channel offsets (<2.0, N/A on CELL-DYN 3200)**
     - **Offsets in specs?**
       - **Yes** → **Clean Shear Valve**
       - **No** → **Dispatch Service**

3. **Does error recur?**
   - **No** → **Problem resolved**
   - **Yes** → **Cycle power**

**NOTE:**
- CELL-DYN 3000: WBC transfer peripump tubing
- CELL-DYN 3200: Sample transfer peripump tubing
- CELL-DYN 3500/3700: WOC transfer peripump tubing
ELEVATED PLT BACKGROUNDS / LRI

Check that ground wire is attached, front covers on Repeat background

Does problem recur? Yes

Run electrical background No

Is it a CELL-DYN 3200? Yes

Empty/fill flow cell

Does problem recur? No

Problem resolved

Go to C

Is electrical background = 0? Yes

Check diluent/sheath reagent:
- correct list #?
- frozen?
Replace if needed and prime twice after replacing

Does problem recur? Yes

Run autoclean

Does problem recur? No

Problem resolved

Go to A

Problem resolved No

Check diluent/sheath reagent:
- correct list #?
- frozen?
Replace if needed and prime twice after replacing

Problem resolved No

Does problem recur? Yes

Go to A

Problem resolved No

Check diluent/sheath reagent:
- correct list #?
- frozen?
Replace if needed and prime twice after replacing

Problem resolved No

Does problem recur? Yes

Go to A

Problem resolved No

Check diluent/sheath reagent:
- correct list #?
- frozen?
Replace if needed and prime twice after replacing

Problem resolved No

Does problem recur? Yes

Go to A

Problem resolved No

Check diluent/sheath reagent:
- correct list #?
- frozen?
Replace if needed and prime twice after replacing

Problem resolved No

Does problem recur? Yes

Go to A

Problem resolved No

Check diluent/sheath reagent:
- correct list #?
- frozen?
Replace if needed and prime twice after replacing

Problem resolved No

Does problem recur? Yes

Go to A

Problem resolved No

Check diluent/sheath reagent:
- correct list #?
- frozen?
Replace if needed and prime twice after replacing

Problem resolved No

Does problem recur? Yes

Go to A

Problem resolved No

Check diluent/sheath reagent:
- correct list #?
- frozen?
Replace if needed and prime twice after replacing

Problem resolved No

Does problem recur? Yes

Go to A

Problem resolved No

Check diluent/sheath reagent:
- correct list #?
- frozen?
Replace if needed and prime twice after replacing

Problem resolved No

Does problem recur? Yes

Go to A

Problem resolved No

Check diluent/sheath reagent:
- correct list #?
- frozen?
Replace if needed and prime twice after replacing

Problem resolved No

Does problem recur? Yes

Go to A

Problem resolved No

Check diluent/sheath reagent:
- correct list #?
- frozen?
Replace if needed and prime twice after replacing

Problem resolved No

Does problem recur? Yes

Go to A

Problem resolved No

Check diluent/sheath reagent:
- correct list #?
- frozen?
Replace if needed and prime twice after replacing

Problem resolved No

Does problem recur? Yes

Go to A

Problem resolved No

Check diluent/sheath reagent:
- correct list #?
- frozen?
Replace if needed and prime twice after replacing

Problem resolved No

Does problem recur? Yes

Go to A

Problem resolved No

Check diluent/sheath reagent:
- correct list #?
- frozen?
Replace if needed and prime twice after replacing

Problem resolved No

Does problem recur? Yes

Go to A

Problem resolved No

Check diluent/sheath reagent:
- correct list #?
- frozen?
Replace if needed and prime twice after replacing

Problem resolved No

Does problem recur? Yes

Go to A
**ELEVATED PLT BACKGROUNDS / LRI**

A

- Check Diluent (Diluent/Sheath syringe for CELL-DYN 3200) syringe for leaks/ bubbles/buildup Clean or replace if indicated

  Run background

  Problem resolved → No

  Does problem recur?

  Yes

  Clean RBC/PLT Aperture Plate and (CELL-DYN 3000/3500/3700 only) shear valve as precaution

  Run background

  Problem resolved → No

  Does problem recur?

  Yes

  CELL-DYN 3000/3200: Check/ replace (if indicated) diluent/ sheath filter

  Run background

  Problem resolved → No

  Does problem recur?

  Yes

  Drain/fill baths and reservoirs (flow cell on CELL-DYN 3200)

  Problem resolved → No

  Does problem recur? 

  Yes → Go to B

Page 2 of 4
ELEVATED PLT BACKGROUND / LRI

B

Perform prepare for shipping procedure

Run 3-5 backgrounds

Problem resolved No

Does problem recur?

Yes

Clean or drain vacuum accumulators

Run background

Problem resolved No

Does problem recur?

Yes

Clean fan filters

Run background

Problem resolved No

Does problem recur?

Yes

Clean waste line

Problem resolved No

Does problem recur?

Yes

Run background

Problem resolved No

Does problem recur?

Yes

Check transducer electrodes for corrosion Clean transducer if indicated (to clean transducer, see note:)

Does problem recur?

Yes

Cycle power

No

Refer to HS or Dispatch Service

Problem resolved No

Does problem recur?

Yes

Note:

Transducer cleaning
1. From Main menu, press:
   Special Protocols, Empty Xducers
2. Disconnect vent tubing at top of transducer (at top right port of first transducer)
3. Connect 20 mL syringe filled with 20% bleach solution to top of the port
4. Inject bleach solution until the left side of transducer is half filled and reconnect tubing.
5. Allow bleach to soak for 5 minutes.
6. Press: Fill Xducers Main menu Run
7. Run 5 backgrounds
ELEVATED PLT BACKGROUNDS / LRI

Check for power cords resting on diluent or waste lines
Remove if found

Run background

Problem resolved

Does problem recur?

Yes

Check waste sensor dummy plug (if used)
Reseat plug

Problem resolved

Does problem recur?

Yes

Clean fan filters, drain or clean vacuum accumulators, and waste line

Run background

Problem resolved

Does problem recur?

Yes

Check environment:
- printer/other devices on or near CELL-DYN? (e.g.: centrifuge, air conditioning)
- flickering/fluorescent lights?
- humidity?
- CELL-DYN connected to UPS?
Remove potential interferences

Problem resolved

No

Does problem recur?

Yes

Cycle power

Problem resolved

No

Does problem recur?

Yes

Refer to HS or Dispatch Service

Problem resolved

Yes
CONTROLS OUT OF RANGE

- Verify QC means/limits
  - Check storage/handling
  - Condition of QC when received
  - Rerun controls

Does problem recur?

Yes

- Are backgrounds within specs?

No

- Troubleshoot backgrounds

No

Yes

- Run Fresh Controls

Does problem recur?

No

Yes

- Troubleshoot aspiration system of affected system

Does problem recur?

No

Yes

- Troubleshooting imprecision

No

- Precision within specs?

Yes

- Run precision

No

Yes

- Verify mode to mode calibration
  - Recalibrate if needed

Does problem recur?

No

Yes

- Go to OPEN / CLOSED mode

Problem resolved

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- ports not plugged?
- check fluid level in syringe

Does problem recur?

No

Problem resolved

Yes

- Run autoclean

Does problem recur?

No

Problem resolved

Yes

- Go to Incomplete Aspiration Tree

Are samples aspirated correctly?

No

Go to OPEN / CLOSED mode

Yes

Run precision

Yes

Run Fresh Controls

Yes

No

Problem resolved
**CONTROLS OUT OF RANGE**

Problem occurring in OPEN or CLOSED mode

OPEN / CLOSED

Were Controls rerun? No → Controls still out of range? Yes → Try a different box of controls

Yes → Issue resolved

Are multiple parameters out of range? No → Controls still out of range? Yes → Controls within range?

Yes → Were controls mixed by hand, warmed to room temperature for 15 minutes, and stored inside refrigerator shelf?

Yes → Redo controls mixed by hand

No → Issue resolved

Clean shear valve, clean Y-fitting (for CELL-DYN 3000/3500/3700) or Y-valve (for CELL-DYN 3200) and rerun Controls

Check affected parameters

Does problem recur? No → Problem resolved

Yes → Check syringes:
- seated/moving properly?
- filling?
Clean/replace as needed

Does problem recur? No → Problem resolved

Go to A

Follow flow chart for affected parameter

WOC/ WBC → Go to A
NOC → Go to B
WIC → Go to C
RBC → Go to D
HGB → Go to E
MCV → Go to F
PLT → Go to G

Controls within range?

Yes → Issue resolved

No → Issue resolved
CONTROLS OUT OF RANGE - WBC / WOC

A

Run precision

Precision within specs?

Yes

Empty WOC flow cell and rerun controls

No

Rerun precision

Is precision within range?

No

Is placement of neutrophil population correct on 0/10 scattergram?

No

Replace WOC peripump tubing and rerun controls

Yes

Clean WOC flow cell or perform clean for ship and rerun controls

Issue resolved

Problem resolved

No

Does problem recur?

Yes

Issue resolved

No

Run normal patient sample

Is precision within specs?

Yes

Clean or replace as needed

No

Verify correct operation of syringes (see NOTE)

Does problem recur?

Yes

Problem resolved

No

Go to AA

NOTE:
Check the following syringes:
CELL-DYN 3000: WBC metering syringe & WOC sheath syringe
CELL-DYN 3200: Sample injection syringe
CELL-DYN 3500/3700: WOC metering syringe & WOC sheath syringe
CONTROLS OUT OF RANGE - WBC / WOC

AA

Check WBC/WOC mixing chamber for proper draining, filling & bubble mix
Exercise mix chamber solenoids

Is mixing chamber draining/filling correctly?

Yes

Verify WBC/WOC calibration by performing a calibration verification and calibrate if indicated
Run controls

Problem resolved

No

Is the WOC within range?

Yes

Dispatch service

No

Dispatch service

No

Yes

Problem resolved

No

Dispatch service

Yes

Problem resolved
CONTROLS OUT OF RANGE - NOC (CELL-DYN 3200 ONLY)

Run precision

Is precision within range?

Yes → Issue resolved

No → Are HGB results affected?

Yes → Clean shear valve and HGB flow cell

No → Check solenoid 41

Massage and reseat tubing

Does problem recur?

Yes → Verify NOC calibration by performing a calibration verification and calibrate if indicated

Rerun controls

Problem resolved

No → Problem resolved

Refer to HS or dispatch service

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- lines not crimped?
- ports not plugged?
- check fluid level in syringe

Problem resolved

No → Problem resolved

Refer to HS or dispatch service

Verify sample injection syringe or WOC metering syringe is not leaking, has no bubbles, and is moving up/down properly (visually inspect)

- change Transfer Pump Tubing

Is precision within range?

Yes → Clean shear valve and HGB flow cell

No → Check solenoid syringe

- seated/moving properly?
- filling?
- Clean or replace as needed

Does problem recur?

Yes → Check staging pathway from shear valve to HGB flow cell for obstructions

Problem resolved

No → Problem resolved

Refer to HS or dispatch service

Yes → Refer to HS or dispatch service
CONTROLS OUT OF RANGE - WIC

Is precision within range?

Yes

Run Precision

No

Troubleshoot imprecision by cleaning WIC aperture plate
Redo precision

Is precision within specs?

Yes

Return controls

No

Check WIC/HGB Lyse and Diluent syringes
Clean/replace as needed

Does problem recur?

Yes

Verify WIC calibration by performing a calibration verification
Calibrate if indicated
Retum controls

No

Problem resolved

Refer to HS or dispatch service

Is WIC within range?

Yes

Problem resolved

No

Verify transducer operation by emptying, filling, draining & bubble mix
Exercise transducer solenoids, massage and reseat tubing

Solenoids 8-1, 8-2, 8-3, 8-4, 8-5, and 8-7

See chart of solenoids to exercise

Refer to HS or dispatch service

Refer to HS or dispatch service

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- ports not plugged?
- check fluid level in syringe

Is precision within range?

Yes

Is WIC within range?

No

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- ports not plugged?
- check fluid level in syringe

Is precision within range?

Yes

Verify WIC/HGB Lyse and Diluent syringes
Clean/replace as needed

Does problem recur?

Yes

Verify WIC calibration by performing a calibration verification
Calibrate if indicated
Retum controls

No

Problem resolved

Refer to HS or dispatch service

Refer to HS or dispatch service

Refer to HS or dispatch service

Refer to HS or dispatch service
CONTROLS OUT OF RANGE - RBC

D

Run precision

Is precision within specs?

Yes

Clean RBC aperture plate (except CELL-DYN 3200)

No

Troubleshoot Imprecision

Problem resolved

No

Solenoids 3-1, 3-2, 3-3, 3-4, 3-5, and 3-7

Verify transducer operation
Exercise transducer solenoids, massage and reseat tubing (except CELL-DYN 3200)

No

Refer to HS or dispatch service

No

Is transducer operating correctly?

Yes

CELL-DYN 3200
Verify RBC mixing chamber for proper fill/drain; swirl mix

No

Check Diluent syringe
Clean/replace as needed

Problem resolved

Does problem recur?

No

Yes

Problem resolved

Does problem recur?

No

Yes

Massage tubing through solenoid 5-4 and verify RBC chamber is draining, filling, and swirl mixing properly for CELL-DYN 3200

Problem resolved

Does problem recur?

No

Yes

CELL-DYN 3200: check vacuum #2 (3.5” open, 5.0” closed)

No

Vac #2 within specs?

Refer to HS or dispatch service

Yes

Verify RBC calibration by performing calibration verification using calibrator
Calibrate if indicated

Problem resolved

Does problem recur?

No

Yes
CONTROLS OUT OF RANGE - HGB

- Run precision
- Check precision within specs?
  - Yes: Check HGB reference and HGB voltage within specs and document
  - No: Troubleshoot HGB imprecision by cleaning HGB Flow Cell and rerun precision
- Is precision within range?
  - Yes: HGB reference within specs?
  - No: Check HGB reference within specs?
  - Yes: HGB Reference
    - Yes: Refer to HS or dispatch service
    - No: Check HGB syringes
      - Clean/replace as needed
      - Rerun controls
- Does problem recur?
  - No: Problem resolved
  - Yes: Refer to HS or dispatch service
- Verify HGB calibration by performing the calibration verification
  - Calibrate if indicated
- Does problem recur?
  - No: Problem resolved
  - Yes: Refer to HS or dispatch service
CONTROLS OUT OF RANGE - MCV

Run precision

Troubleshoot Imprecision

Is precision within specs?

Yes

Clean RBC Aperture Plate and RBC / PLT Transducer
(CELL-DYN 3000/3500/3700 only)

CELL-DYN 3200: verify RBC mixing chamber is draining and swirl mixing properly
Replace Diluent / Sheath if indicated

Problem resolved

Does problem recur?

Yes

Check RER data
(CELL-DYN 3000/3500/3700 only)
25-35% for normal patient

Refer to HS or dispatch service

Is RER data within specs?

Yes

Verify MCV calibration by performing calibration verification
Calibrate if indicated
Rerun controls

Problem resolved

Does problem recur?

Yes

Refer to HS or dispatch service

No

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- lines not crimped?
- ports not plugged?
- check fluid level in syringe

No

Page 9 of 10
CONTROLS OUT OF RANGE - PLT

Troubleshoot imprecision by cleaning RBC aperture plate or replacing Diluent / Sheath filter (for CELL-DYN 3200) or Rerun precision.

Run precision

Is precision within specs?

Yes

Rerun controls

No

Troubleshoot imprecision by cleaning RBC aperture plate or replacing Diluent / Sheath filter (for CELL-DYN 3200) or Rerun precision.

Does problem recur?

No

Problem resolved

Yes

Verify transducer operation
Exercise transducer solenoids, massage and reseat tubing (CELL-DYN 3000/3500/3700 only)

Is precision within range?

No

Refer to HS or dispatch service

Yes

Issue resolved

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- lines not crimped?
- ports not plugged?
- check fluid level in syringe

CELL-DYN 3200: RBC / PLT mix chamber; swirl

Does problem recur?

No

Problem resolved

Yes

Verify PLT calibration by performing calibration verification
Calibrate if indicated
Rerun controls

Does problem recur?

No

Problem resolved

Yes

Refer to HS or dispatch service

Does transducer operating correctly?

No

Check Diluent syringe Clean/replace as needed

Problem resolved

Yes

Verify transducer operation
Exercise transducer solenoids, massage and reseat tubing (CELL-DYN 3000/3500/3700 only)

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- lines not crimped?
- ports not plugged?
- check fluid level in syringe

CELL-DYN 3200: massage tubing through solenoid 5-4
WIC / WOC MISMATCH (CELL-DYN 3500/3700 ONLY)

WIC / WOC Mismatch (multiple samples)

Run controls in open mode

Are WIC and WOC correct?

Yes

Troubleshoot closed mode

Run precision

Is WIC correct?

Yes

Troubleshoot WOC

Go to D

No

Troubleshoot imprecision

No

Precision within specs?

Yes

Check closed mode aspiration

See Incomplete Aspiration tree

Does problem recur?

Yes

Verify mode to mode calibration Calibrate if indicated

Problem resolved

No

Does problem recur?

Yes

Problem resolved

No

No

Yes

Go to A

Page 1 of 6
**WIC / WOC MISMATCH**

A

- **Run precision**
  - Precision within specs? Yes
  - Check reagent cube and inlet lines:
    - cube empty?
    - reagent correct?
    - inlet line reaches to bottom?
    - vent hole in cap is open?
    - foam seal removed from under cap?
    - ports not crimped?
    - check fluid level in syringe

  No
  - Troubleshoot imprecision
  - Is sample aspirating correctly?
    - Yes
      - Go to B
    - No
      - Go to Incomplete Aspiration tree

- Problem resolved
  - Does problem recur?
    - Yes
      - Check WOC Sheath and metering syringes:
        - filled/seated/ moving properly?
      - Clean/replace if needed
    - No
      - Problem resolved
      - Does problem recur?
        - Yes
          - Check sample aspirations/shear valve
        - No
          - Problem resolved

Page 2 of 6
**WIC / WOC MISMATCH**

B

Check WOC mixing chamber

Check solenoids 1-7, 2-3, 2-4
Massage and reseat tubing

Does chamber drain/fill and bubble mix properly?

No

Yes

Replace WOC peristaltic pump tubing

Problem resolved

Does problem recur?

Yes

No

Problem resolved

Does problem recur?

Yes

No

Problem resolved

Does problem recur?

Yes

Reasoning:

- **Check WOC mixing chamber**: Ensure the chamber functions correctly.
- **Check solenoids**: Verify the functionality of specific solenoids.
- **Massage and reseat tubing**: Adjust tubing if necessary.
- **Problem resolved/Does problem recur?**: Evaluate if the issue persists.

The flowchart guides through troubleshooting steps, ensuring the user can identify and resolve WIC/WOC mismatches effectively.
**WIC / WOC MISMATCH**

Check channel offsets

Are channel offsets less than 2.00?  
No → Dispatch service or refer to HS  
Yes

Verify WOC calibration  
Recalibrate if indicated

Problem resolved  
No → Does problem recur?  
Yes → Dispatch Service
WIC / WOC MISMATCH

D

Run Precision

- Troubleshoot imprecision
  - Precision within specs?

  Yes

  - Check reagent cube and inlet lines:
    - cube empty?
    - reagent correct?
    - inlet line reaches to bottom?
    - vent hole in cap is open?
    - foam seal removed from under cap?
    - lines not crimped?
    - ports not plugged?
    - check fluid level in syringe

Yes

- Does problem recur?

  Yes

  - Check WIC/HGB diluent and lyse syringes:
    - filled/seated/moving properly?

  Clean/replace if needed

Problem resolved

- Does problem recur?

  Yes

  - Clean WIC Aperture Plate

Problem resolved

- Does problem recur?

  Yes

  Go to E
**WIC / WOC MISMATCH**

- **Check WIC transducer**
  - Is left chamber of WIC transducer draining/filling properly?
    - Yes
      - **Check tubing between top of transducer and vent accumulator for crimps**
        - Massage and reseat tubing
      - **Does problem recur?**
        - Yes
          - **Check sample aspiration/shear valve**
            - Go to Incomplete Aspiration tree
    - No
      - **Problem resolved**

- **Problem resolved**

- **Problem resolved**

- **Problem resolved**

- **Problem resolved**

- **Problem resolved**

- **Dispatch Service**
**H & H MISMATCH**

1. Run controls to determine affected parameters
2. Run precision
3. Is precision within specs?
   - Yes: Affected parameter
   - No: Troubleshoot imprecision
4. Affected parameter:
   - MCV: Go to A
   - RBC: Go to B
   - HGB: Go to C

Page 1 of 5
H & H MISMATCH

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- lines not crimped?
- ports not plugged?
- check fluid level in syringe

Problem resolved

Does problem recur?

Yes

Run autoclean

Problem resolved

Does problem recur?

Yes

Clean RBC/PLT aperture plate
(CELL-DYN 3000/3500/3700 only)

Problem resolved

Does problem recur?

Yes

Clean fan filters

Problem resolved

Does problem recur?

Yes

Perform Calibration verification
Calibrate if indicated

Problem resolved

Does problem recur?

Yes

Dispatch Service

Problem resolved

Does problem recur?

Yes

Page 2 of 5
**H & H MISMATCH**

B

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- lines not crimped?
- ports not plugged?
- check fluid level in syringe

Problem resolved

Does problem recur?

Yes

Run autoclean

Problem resolved

Does problem recur?

Yes

Check Diluent syringe:
- Moving/filling OK?
- Bubble free?

Clean/replace syringe

Problem resolved

Does problem recur?

Yes

Perform Calibration verification
Calibrate if indicated

Problem resolved

Does problem recur?

Yes

Clean RBC/PLT aperture plate (CELL-DYN 3000/3500/3700 only)

Yes

Dispatch Service

Problem resolved

Does problem recur?

No
**H & H MISMATCH**

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- lines not crimped?
- ports not plugged?
- check fluid level in syringe

<table>
<thead>
<tr>
<th>Does problem recur?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
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Problem resolved

Run autoclean

<table>
<thead>
<tr>
<th>Does problem recur?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

Problem resolved

Check HGB Reference

<table>
<thead>
<tr>
<th>Within specs?</th>
</tr>
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<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

Clean HGB flow cell

<table>
<thead>
<tr>
<th>HGB Reference within specs?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

Refer to HS or Dispatch Service

<table>
<thead>
<tr>
<th>HGB Reference within specs?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

Problem resolved

Check HGB lyse syringe:
- Moving/filling OK?
- Bubble free?
Clean/replace if needed

<table>
<thead>
<tr>
<th>Does problem recur?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

Does problem recur?

| Yes |
| No |

Problem resolved

Go to D

---

**NOTE:**

HGB References:
- CELL-DYN 3000 1850-2250
- CELL-DYN 3500 1850-2250
- CELL-DYN 3700 1800-2300
- CELL-DYN 3200 1800-2300
**H & H MISMATCH**

**Exercise solenoids:**
- **CELL-DYN 3000/3500/3700:** V 1-3
- **CELL-DYN 3200:** V2-4
- Massage/reseat tubing

**Does problem recur?**

- **CELL-DYN 3500/3700:**
  - Exercise WIC transducer drain solenoids V8-2 and V8-3
  - Massage and reseat tubing

**Does problem recur?**

**Perform calibration verification**
- Calibrate if indicated

**Does problem recur?**

**Dispatch Service**
INCOMPLETE ASPIRATION

Incomplete Aspiration (multiple samples)

Does error occur in both modes?

Yes

CELL-DYN 3000/3500/3700

Inspect/change sample peristaltic pump tubing

Issue resolved No

Yes

Check sample sensor

LED on/off appropriately?

Yes

Inspect/clean shear valve and flush Y-fitting with 10% bleach

Problem resolved

No

Does error recur?

Yes

Problem resolved

No

Does error recur?

Yes

Refer to HS or Dispatch Service

Go to A

CELL-DYN 3200

Check vacuum #2

Vac #2 within specs?

Yes

Flush Y-valve

Does error recur?

No

Problem resolved

No

Refer to HS or Dispatch Service
**INCOMPLETE ASPIRATION**

A

**Closed Mode only**

- Perform Sample path cleaning and include:
  - CELL-DYN 3000/3500/3700: clean Y-fitting
  - CELL-DYN 3200: clean Y-valve

  **Does error recur?**

- **Problem resolved**

  - **Yes**
    - Check/clean sample/vent needles
    - **Does error recur?**
      - **No**
      - **Problem resolved**
      - **Yes**
        - Check SL LED
        - Sensor LED on/off appropriately? (except CELL-DYN 3200)
        - **Yes**
          - Exercise
          - CELL-DYN 3000/3500/3700: solenoid 9-6
          - CELL-DYN 3200: Exercise V1-7 and verify no restrictions between Y-valve and V1-7
          - Massage/reseat tubing
          - **Does error recur?**
            - **No**
              - Problem resolved
            - **Yes**
              - Replace aspiration peripump tubing (for CELL-DYN 3000/3500/3700 only)
              - **Run a Sample**
              - **Does error occur?**
                - **No**
                  - Issue resolved
                - **Yes**
                  - **Run another Sample**
                  - **Does LED sensor to right of shear valve turns on/off?**
                    - **Yes**
                      - **Refer to HS or dispatch service**
                    - **No**
                      - **Does error recur?**
                        - **Yes**
                          - **Refer to HS or dispatch service**
                        - **No**
                          - Issue resolved
**INCREASED RRBC FLAGS**

- **Increased RRBC Flags**
  - Check reagent cube and inlet lines:
    - cube empty?
    - reagent correct?
    - inlet line reaches to bottom?
    - vent hole in cap is open?
    - foam seal removed from under cap?
    - lines not crimped?
    - ports not plugged?
    - check fluid level in syringe
  - Does problem recur?

- **Problem resolved**
- **Clean Shear Valve**
  - Does problem recur?
  - Yes

- **Problem resolved**
- **Replace WOC peristaltic pump tubing**
  - Does problem recur?
  - Yes

- **Check WOC sheath and metering syringes**
  - (on CELL-DYN 3200, it is the sample injection syringe):
    - seated and moving properly?
    - bubble free?
  - Clean/replace if needed

- **Problem resolved**
- **Does problem recur?**
  - Yes
  - Go to A

Page 1 of 3
INCREASED RRBC FLAGS

A

Check WOC mixing chamber (on CELL-DYN 3500 and 3700 only) or clean it if indicated - see WOC Chamber Cleaning Procedure page 60 (on CELL-DYN 3200: check WBC mixing chamber)

Does chamber drain/fill and bubble mix properly? (on CELL-DYN 3200: does it swirl mix and drain properly?)

Yes

Check staging path from WOC mixing chamber to flow cell:
Massage and reseat tubing in staging solenoids

Problem resolved

No

Does problem recur?

Yes

Check channel offsets (CELL-DYN 3000/3500/3700 only)

Are channel offsets less than 2.00?

Yes

Check 0°/10° scattergram

Are lymph/neut populations - correctly positioned? - well defined?

No

Dispatch Service

Yes

Go to B

For CELL-DYN 3000/3500/3700: Check solenoids 1-7, 2-3, 2-4 and massage and reseat tubing For CELL-DYN 3200: Exercise solenoids 53, 55, 92 and massage and reseat tubing
**INCREASED RRBC FLAGS**

1. Verify WOC calibration
   - Recalibrate if indicated

2. Does problem recur?
   - Yes → Dispatch Service
   - No → Problem resolved

Page 3 of 3
BACKGROUND DATA UNACCEPTABLE

Background Data Unacceptable

Check that ground wire is attached, front covers on. Repeat background

Repeat background OK?

Yes

Problem resolved

No

Check that ground wire is attached, front covers on. Repeat background

Run electrical background

Is it a CELL-DYN 3200?

Yes

Empty/rewell flow cell

No

Does problem recur?

Yes

Problem resolved

No

Check for electrical interference*

Is electrical background OK?

Yes

Clean Aperture Plates

No

Does problem recur?

Yes

Clean Transducers

NOTE: See Elevated PLT Backgrounds/LRI flow chart for Transducer cleaning instructions

No

Problem resolved

Does problem recur?

Yes

Dispatch Service

No

Problem resolved

Go to A

*Examples of electrical interference:
- reagent lines near electrical wires
- printer on top of CELL-DYN
- electrical appliances near CELL-DYN
- flickering fluorescent lights
BACKGROUND DATA UNACCEPTABLE

Check reagent cube and inlet lines:
- cube empty?
- reagent correct?
- inlet line reaches to bottom?
- vent hole in cap is open?
- foam seal removed from under cap?
- lines not crimped?
- ports not plugged?
- check fluid level in syringe

A

Replace reagent and prime twice

Repeat background OK?

Yes

Problem resolved

No

Clean vacuum accumulator
Clean fan filters

Repeat background OK?

Yes

Problem resolved

No

Perform prepare for ship

Repeat background OK?

Yes

Problem resolved

No

Cycle power

Repeat background OK?

Yes

Dispatch Service

No
DATA NOT TRANSMITTING

Start

Has it worked before?

Yes

First time to be hooked-up to an LIS?

No

Using current rev of interface spec?

Yes

Send current interface spec

No

Send current interface spec

Yes

Does problem recur?

No

Problem resolved

Yes

Check computer set-up (see NOTE)

Cable connected to proper port

Is set-up correct?

No

Correct set-up

Yes

Perform serial loop back test

Go to A

Does problem recur?

Yes

Problem resolved

No

Problem resolved

NOTE:
Refer to Operator's Manual for computer setup
DATA NOT TRANSMITTING

A

Pass?

Yes

Cycle power and reseat LIS cable

No

Does problem recur?

Yes

Refer to LIS vendor

Failed?

Yes

Dispatch Service

No

Problem resolved

Page 2 of 2
Verify that stain has been stored in the dark at room temperature, that Reticulocyte Backgrounds <100 and exact dilution and incubation instructions have been followed.

Are calibrated pipettes used?

Go to A

Both

Problems with patients or QC out of range or both?

Patients Only

Rerun QC

QC Only

Is it sample specific?

No

Go to A

Yes

Rerun

Is issue recurring?

No

Issue resolved

Yes

Prepare a new dilution of QC and rerun

Still out of range?

Yes

Prepare a new dilution of same sample and rerun

Is issue recurring?

No

Issue resolved

Yes

Try new vials of QC, prepare a new dilution and rerun

Still out of range?

Yes

Redraw sample or verify by alternate method

Is issue recurring?

No

Issue resolved

Yes

Verify pipette is calibrated and proper technique followed

Issue resolved

Go to A

No

Is issue recurring?

Yes

Issue resolved

No
**RETICULOCYTE TROUBLESHOOTING FOR CELL-DYN 3200, 3500 AND 3700**

A

Is background on the stain <100?  
Yes  
Check maintenance  
- extended autoclean - weekly  
- clean metering syringe  
- clean sheath syringe  
- drain and fill flow cell  
No  
Rerun background

Maintenance up to date?  
Yes  
Redo maintenance and rerun controls  
No  
Rerun background

Do WOC gains and reticulocyte gains match?  
Yes  
Follow procedure below:  
1. For WOC gains: go to Main menu, Diagnostics, F12, F1, Set point entry (0, 10, 90), and print screen  
2. For reticulocyte gains: go to Reticulocyte mode, Diagnostics, F12, F1, WOC (0, 10, 90)  
3. Compare WOC gains and reticulocyte gains (0, 10, 90)  
No  
Rerun QC

Controls within range?  
Yes  
Issue resolved  
No  
Controls within range?  
Yes  
Issue resolved  
No  
Go to B

Do WOC and reticulocyte gains match?  
Yes  
Go to C  
No  
Go to B
Is neutrophil population at 0/10 scattergram at the 2.5 by 2.5 hash marks?

No

Verify by alternate method

Issue resolved

Yes

Patient samples OK?

No

Dispatch Service

Rerun patient samples

QC within range?

Yes

Rerun patient samples

No

Go to D

Check channel offsets are <2.0 (only for CELL-DYN 3500 and 3700)

Yes

Rerun QC

No

Controls within range?

Yes

Issue resolved

No

Run 3 – 5 normal patient samples in regular patient mode

Yes

Rerun QC

No

Copy WOC gains as follows: Enter WOC values (0, 10, 90) into reticulocyte gains screen and press Set analyzer to save entry

Rerun QC

Yes

Controls within range?

Issue resolved

No

QC within range?

Rerun patient samples

Yes

Patient samples OK?
RETICULOCYTE TROUBLESHOOTING FOR CELL-DYN 3200, 3500 AND 3700

References:
1. CELL-DYN 3500 Operator's Manual, June 1999: Chapter 14, 14-1 to 14-8
2. CELL-DYN 3700 Operator's Manual, November 2000: Chapter 14, 14-1 to 14-87
# WOC FLOW CELL CLEANING PROCEDURE (CELL-DYN 3000/3500/3700)

**Materials/Tools Needed:**
- 25% Bleach solution
- 10 mL syringe

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fill syringe with 25% bleach solution.</td>
</tr>
</tbody>
</table>
| 2    | From the Main Menu, press  
• SPECIAL PROTOCOLS  
• DISABLE/ENABLE ANALYZER |
| 3    | Insert bleach into WBC/WOC mixing chamber.  
✓ **NOTE:** Follow the steps below to avoid damaging the plastic port of mixing chamber on CELL-DYN 3500/3700.  
  a. Follow tubing from mixing chamber to Overflow Chamber.  
     CELL-DYN 3000: top port of WBC mixing chamber  
     CELL-DYN 3500/3700: left top port of WOC mixing chamber  
  b. Disconnect tubing from overflow chamber.  
  c. Connect syringe to tubing.  
  d. Inject bleach solution and fill WBC/WOC mixing chamber 2/3 full.  
  e. Pull back on syringe slightly to remove any excess pressure and liquid trapped in tubing.  
  f. Remove syringe and reconnect tubing to overflow chamber. |
| 4    | For Special Protocols Menu, press  
• ENABLE ANALYZER |
| 5    | Perform 2 autocleans with water to allow bleach to enter and clean flow cell. |
| 6    | Run 3 background counts. |
| 7    | Verify background counts are within specifications. |
**WOC FLOW CELL CLEANING PROCEDURE (CELL-DYN 3200)**

**Materials/Tools Needed:**
- 25% Bleach solution
- 10 mL syringe with tubing attached

<table>
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</tbody>
</table>
| 2    | From the Main Menu, press  
    • SPECIAL PROTOCOLS  
    • DISABLE/ENABLE ANALYZER |
| 3    | Insert bleach into WBC/WOC mixing chamber.  
    a. Remove tubing from mixing chamber (WBC or RBC/PLT).  
    b. Connect syringe and attach tubing to mixing chamber.  
    c. Inject bleach solution and fill WBC mixing chamber 2/3 full.  
    d. Pull back on syringe slightly to remove any excess pressure and liquid trapped in tubing.  
    e. Remove syringe and reconnect tubing to overflow chamber. |
| 4    | For Special Protocols Menu, press  
    • ENABLE ANALYZER |
| 5    | Perform 2 autocleans with water to allow bleach to enter and clean flow cell. |
| 6    | Run 3 background counts. |
| 7    | Verify background counts are within specifications. |