COVIDIEN™

Puritan Bennett™

980 Series Ventilator

Software Update Addendum

Operator's Manual Addendum

CE
0123

Symbols

CE 0123	CE Mark—Signifies compliance with Medical Device Directive 93/42/EEC
EC REP	European Community (EC) authorized representative
	Manufacturer—Ventilator manufacturer

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1. Software Enhancements

1.1. Overview

This addendum describes enhancements to the 980 Ventilator System and changes to the 980 Ventilator System Operator's Manual.

1.2. Update to Table 11-9 Ventilator Settings Range and Resolution

Setting	Description	Range and resolution
Apnea interval (T_A)	The time after which the ventilator transitions to apnea ventilation $T_A \geq 60/fA$	**Range**: 3 s to 60 s or OFF in CPAP **Resolution**: 1 s

1.3. Update to Table 11-10 Alarm Settings Range and Resolution

Setting	Description	Range and resolution
Apnea interval (T_A)	The apnea alarm condition indicates that neither the ventilator nor the patient has triggered a breath for the operator-selected apnea interval (T_A). When the apnea alarm condition is true, the ventilator invokes mandatory ventilation as specified by the operator.	**Range**: 3 s to 60 s or OFF in CPAP **Resolution**: 1 s

1.4. Update to Section 10.15.1 Apnea ventilation

Because the minimum value for T_A is 3 seconds, apnea ventilation cannot take place when non-apnea f is greater than or equal to 18/min. The ventilator does not enter apnea ventilation if T_A is equal to the breath period interval. Set T_A to a value less than the expected or current breath period interval as a way of allowing the patient to initiate breaths while protecting the patient from the consequences of apnea.

1.5. Update to Table 11-9 Ventilator Settings Range and Resolution

Setting	Description	Range and resolution
mL/kg ratio	The default tidal volume/ PBW ratio (only adjustable in Service Mode)	**Range**: 4.0 mL/kg to 10 mL/kg **Resolution**: 0.5 mL/kg

1.6. Update to Section 3.7.3 Stand-By State

Stand-By state can be used when the clinician needs to disconnect the patient for any reason (prior to transporting a patient, for example). The ventilator enters Stand-By state if a request is made by the clinician, a patient is disconnected within a fixed time period determined by the ventilator software, and the clinician confirms the patient has been disconnected intentionally. If a patient becomes disconnected from the patient circuit after the time period elapses, an alarm sounds and the patient-disconnect sequence is initiated. In Stand-By state, gas output is reduced to 10 L/min to limit gas consumption and to allow for detection of patient reconnection. Stand-By state is available in all ventilation modes except during inspiratory and expiratory **BUV, occlusion status cycling (OSC), safety valve open (SVO), or ventilator inoperative (vent inop)** conditions.

Note: Do not block patient circuit wye while in Stand-By state. If the wye is blocked, the ventilator detects a patient connection and will attempt to resume normal ventilation.

To enter Stand-By state

1. Touch the Menu tab on the left side of the GUI. The menu appears.
2. Touch Stand-By. A Stand-By state pending dialog appears instructing the clinician to disconnect the patient circuit. A timer starts allowing 30 seconds to disconnect the patient.
3. Disconnect the patient circuit and confirm the disconnection by touching Confirm. A timer starts allowing 30 seconds for confirmation of disconnect.

To exit Stand-By state

Reconnect the patient circuit. The ventilator resumes ventilation at the settings in use before the disconnection.

The following ventilator setting becomes active during Stand-By state:

• Base flow is set to 10 L/min

1.7. Update to Section 10.13.2 Disconnect

Once the ventilator detects a patient circuit disconnect, the ventilator declares a high-priority alarm and discontinues breath delivery, regardless of what mode (including apnea) was active when the disconnect was detected. If there is an active audio paused interval when the disconnect occurs, the audio paused interval is not canceled. The ventilator displays the length of time the patient has been without ventilatory support. During the disconnect, the exhalation valve closes, idle flow (10 L/min flow with Leak Sync disabled and 20 L/min with Leak Sync enabled) begins, and breath triggering is disabled. A message appears identifying how long the patient has gone without ventilatory support.

1.8. Update to Section D.8.3 Elevate O_2

In NeoMode 2.0, the elevate O_2 control works as described in Chapter 3.

1.9. Update to Table 6-5. Non-technical Alarm Summary

Base message	Priority	Analysis message	Remedy message	Comments
INOPERATIVE BATTERY	Low	Inadequate charge or non-functional ventilator battery system.	Service/replace ventilator battery.	Battery installed but not functioning or charging for ≥ 6 hours. Resets when battery is functional.
INOPERATIVE BATTERY	Low	Inadequate charge or non-functional compressor battery system.	Service/replace compressor battery.	
INOPERATIVE BATTERY	Low	Inadequate charge or non-functional ventilator battery system. Inadequate charge or non-functional compressor battery system.	Service/replace ventilator battery. Service/replace compressor battery.	
INOPERATIVE BATTERY	Medium	Inadequate charge or non-functional ventilator battery system.	Service/replace ventilator battery.	Defective battery detected. Corrective action-Replace battery as soon as possible.
INOPERATIVE BATTERY	Medium	Inadequate charge or non-functional compressor battery system.	Service/replace compressor battery.	
INOPERATIVE BATTERY	Medium	Inadequate charge or non-functional ventilator battery system. Inadequate charge or non-functional compressor battery system.	Service/replace ventilator battery. Service/replace compressor battery.	

1.10. Update to Table 6-6. Non-technical Alarms and Suggested Responses

Alarm Message	Meaning	Response
INOPERATIVE BATTERY	Alarm indicates unable to charge battery or the battery system is nonfunctional.	Replace inoperative battery.

COVIDIEN™

Covidien llc,
15 Hampshire Street, Mansfield, MA 02048 USA
www.covidien.com
+1 800 255 8522 [T]

EC REP Covidien Ireland Limited,
IDA Business and Technology Park, Tullamore, Ireland.

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