AutoVent 2000 & 3000® Ventilator – 30.025

INDICATION:
Intubated patients requiring prolonged ventilation or crew resources depleted.

PROCEDURE:
1. Auscultate breath sounds. Confirm absence over epigastrium. Monitor EtCO2.
2. O2 operation:
    a. Secure O_2 hose to 50 PSI source and DISS "Oxygen In."
    b. If O_2 cylinder is used, slowly open the cylinder valve.
3. Select Adult / Child setting. (AutoVent 3000 only)
4. Select desired Breaths Per Minute (BPM). See note below for starting rate.
5. Select desired Tidal Volume (VT). See note below for starting volume.
6. Test the High Pressure Alarm by occluding the output with the palm of your hand. Ensure alarm sounds.
7. Connect the ventilator circuit tubing (Gas Output, Exhalation Valve, PEEP valve or N95 Filter) to the patient valve assembly on ventilator. Do not attach ventilator to patient until control settings are made and proper operation is verified.
8. Attach ventilator circuit to patient.
9. Check hose connection for leaks.
10. Verify chest rise during ventilation. Increase Tidal Volume (VT) set point as required.
11. Auscultate breath sounds. Confirm absence over epigastrium.
12. If High Pressure Alarm activates, see notes for possible causes and solutions.
13. Adjust settings to maintain SpO2 > 90% and EtCO2 between 35-45mmHg.

NOTES & PRECAUTIONS:
1. Contraindications include active CPR, suspected pneumothorax, inability to maintain adequate oxygenation (SpO2 > 90%).
2. Common initial settings:
    a. 100% oxygen
    b. Respiratory Rate:
        i. Adult: 8-12 breaths per minute.
        ii. Pediatric: 12-20 breaths per minute.
        iii. Titrate settings for an EtCO2 between 35 – 45mmHg. Increase rate to lower EtCO2. Decrease rate if EtCO2 is too low.
    c. Tidal Volume (VT):
        i. Adult: 6-8ml/kg, based on ideal body weight.
        ii. Pediatric: 4-6ml/kg, based on ideal body weight.
    d. PEEP of 5cmH2O
        i. May increase PEEP to 15cmH2O in order to increase SpO2 saturations.
        ii. PEEP increases intra-thoracic pressure and thereby may decrease blood return to the right heart. Use caution in patients with suspected increased intracranial pressure and patients who are preload dependent.
3. If patient becomes unstable or saturations < 80% disconnect from ventilator and BVM patient with 100% FiO2.
4. Common causes of high pressure alarms and ventilation problems (DOPE):
    a. Dislodged: Check tube placement
    b. Obstruction: Confirm tube is not kinked, suction ETT.
    c. Pnuemothorax: Auscultate for bilateral breath sounds. If suspected pneumothorax see Pneumothorax procedure protocol.

d. Equipment: Check ventilator starting at the patient, moving back to the ventilator, looking for obstructions, leaks, and other problems.

5. Consult below charts on longer transports.

Oxygen Cylinder Depletion Time

Breaths Per Minute

TIDAL VOLUME	8	9	10	12	14	16	18	20	CYL.
1200	64	58	52	44	39	34	30	27	E
	39	35	32	27	23	20	18	16	D
1000	76	68	62	52	45	40	36	32	E
	46	41	38	32	28	24	22	20	D
800	92	83	76	64	56	49	44	40	E
	56	50	46	39	34	30	27	24	D
600	117	106	97	83	72	64	58	52	E
	71	65	59	50	44	39	35	32	D
500	136	124	114	97	85	76	68	62	E
	83	75	69	59	52	46	41	38	D
400	162	148	136	117	103	92	83	76	E
	99	90	83	71	63	56	50	46	D
300	200	184	170	148	131	117	106	97	E
	122	112	104	90	80	71	65	59	D
200	262	243	227	200	179	162	148	136	E
	159	148	138	122	109	99	90	82	D

*All times are in minutes. Time is measured when tanks are at 2,000psi.
RFR Main Oxygen Cylinders are "E" Size, Kit / Gurney are "D" Tanks

AutoVent 2000/3000
Altitude Conversion Chart

Altitude		Tidal Volume Settings (ml.)									
(m.)	(ft.)	200	300	400	500	600	700	800	900	1000	1200
500	1640	212	318	424	530	636	742	848	954	1060	1272
1000	3280	226	339	452	565	678	791	904	1017	1130	1356
1500	4920	240	360	480	600	720	840	960	1080	1200	1440
2000	6560	254	381	508	635	762	889	1016	1143	1270	1524
2500	8200	272	408	544	680	816	952	1088	1224	1360	1632
3000	9840	288	432	576	720	864	1008	1152	1296	1440	1728
3500	11480	308	462	616	770	924	1078	1232	1386	1540	1848
4000	13120	328	492	656	820	984	1148	1312	1476	1640	1958
4500	14760	350	525	700	875	1050	1255	1400	1575	1750	2100
5000	16400	374	561	748	935	1122	1309	1496	1683	1870	2244
5500	18040	400	600	800	1000	1200	1400	1600	1800	2000	2400
6000	19680	460	690	920	1150	1380	1610	1840	2070	2300	2760

Average elevation in Redmond is 3077 feet.