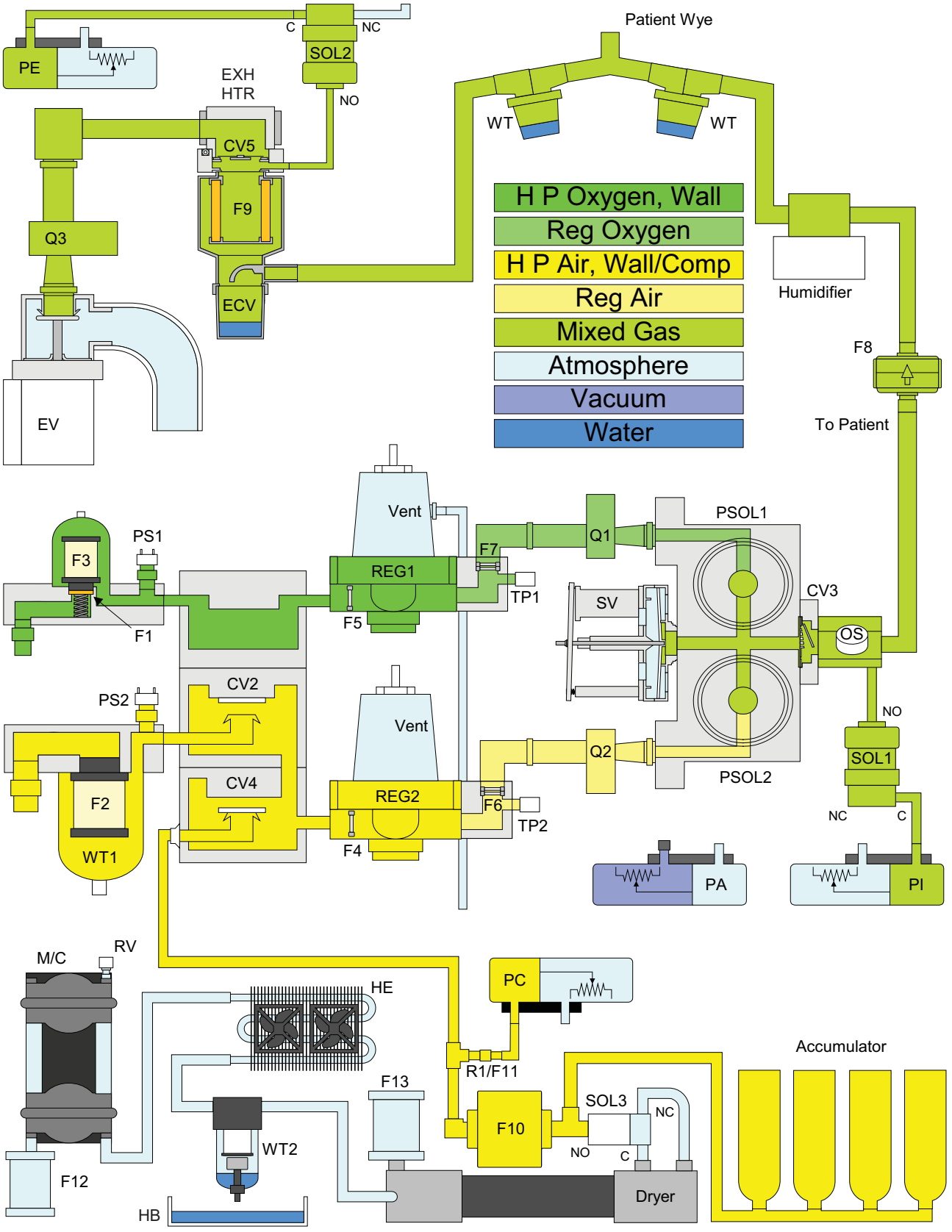

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Figure 2-11. Pneumatic system diagram

Table 2-1: Pneumatic component descriptions

Reference designator	Component	Description
Inspiratory module		
--	Fitting, inlet	Connects external oxygen and air sources to ventilator via hoses. Fittings include diameter index system standard (DISS) (male or female), noninterchangeable screw thread (NIST), Air Liquide, and Sleeved Index System (SIS).
	Manifold, flow sensor	Holds bases of flow sensors Q1 and Q2, and houses pressure valves TP1 and TP2 and pneumatic noise filters F6 and F7.
--	Manifold, PSOL/SV	Houses proportional solenoid valves (PSOL1 AND PSOL2) and safety valve (SV).
--	Orifice, inspiratory pressure relief	Bypasses inspiratory check valve to relieve pressure when an occlusion is present in exhalation circuit while safety valve is open. Minimizes rebreathing of exhaled gas during SVO.
CV2 **CV4**	Check valve, air/compressor	CV2 opens to admit external compressed air and CV4 closes to isolate compressor unit. When CV4 opens to allow compressor-supplied compressed air, CV2 closes to prevent compressed air (compressor source) from venting out the air (external source) inlet fitting.
CV3	Check valve, inspiratory	Opens to supply inspiratory gas and restricts exhalation flow in reverse direction.
F1	Filter, oxygen impact	Traps particles larger than 65 to 110 μm (microns).
F3 **F2**	Filter, inlet, oxygen/air	Filters matter greater than 0.3 μm (micron).
F5 **F4**	Filter, screen, oxygen/air impact	Filters large debris from REG1 and REG2. These filters are part of the regulator assemblies (one in each regulator).
F7 **F6**	Filter, pneumatic noise, oxygen/air	Conditions gas flow by eliminating swirling of gas induced by elbows and restrictions. These filters are part of the flow sensor manifold (two in each manifold).
OS	Sensor, oxygen (percentage)	Measures partial pressure of oxygen in inspired gas. Range is 21 to 100% O_2.
PA	Pressure transducer, absolute	Measures atmospheric pressure (psia). Located on inspiratory electronics PCB.
PI	Pressure transducer, inspiratory	Measures pressure (psig) at outlet manifold. Located on inspiratory electronics PCB.
PS1 **PS2**	Pressure switch, oxygen/air	Opens when pressure is less than 20.0 psig nominal. Closes when pressure is greater than 31.5 psig nominal.
PSOL1 **PSOL2**	Proportional solenoid valve, oxygen/air	0 to 200 L/min BTPS output (intermittent) or 0 to 180 L/min BTPS output (steady state).
Q1 **Q2**	Sensor, flow, oxygen/air	Measures oxygen or air flow before PSOL.
REG1 **REG2**	Regulator, oxygen/air	Reduces input supply pressure (35 to 100 psig, flow up to 200 L/min BTPS) to output pressure (9 psig minimum to 12 psig maximum).

Table 2-1: Pneumatic component descriptions (continued)

Reference designator	Component	Description
SOL1	Solenoid, autozero, inspiratory pressure transducer	+6 V, three-way solenoid. Energized (common to normally closed) when transducer is autozeroed. De-energized (common to normally open) all other times.
SV	Safety valve	+12 V actuator. Commanded open (de-energized) at 100 cmH_2O, during power on self test (POST), loss of both source gases, or due to ventilator inoperative condition. Energized (closed) all other times.
TP1 **TP2**	Pressure valve, oxygen/air	Allows measurement of REG1 and REG2 output.
WT1	Water trap, air	Houses air inlet filter (F2) and includes a manual drain.
Patient system		
--	Humidification device (optional)	Humidifies inspired gas.
--	Wye	Connects inspiration and expiration tubing forming a closed circuit.
ECV	Collector vial, exhalation	Collects water (up to 250 mL with the full line at 200 mL) resulting from condensation in patient circuit. Neonatal collector vial collects up to 25 mL water (with the full line at 15 mL) .
F8	Filter, inspiratory (main flow)	Filters matter greater than 0.3 µm (micron) (nominal) at 100 L/min flow.
F9	Filter, expiratory	Filters matter greater than 0.3 µm (micron) (nominal) at 100 L/min flow.
WT	Trap, water	Collects excessive water. Present only on certain patient circuits.
--	Mounting plate (neonatal only)	Allows neonatal expiratory filter to be installed in place of adult filter.
Exhalation module		
CV5	Check valve, exhalation	Opens during exhalation to let exhaled gas into exhalation system. Prevents rebreathing when safety valve is open.
EV	Exhalation valve	Electronically controlled, electrically operated valve that opens during exhalation (as required to maintain positive end expiratory pressure (PEEP)/continuous positive airway pressure (CPAP). Closed during inspiration.
EXH HTR	Heater, exhalation	16 W heater that maintains gas temperature above condensation level.
PE	Pressure transducer, expiratory	Measures pressure (psig) at a port on exhalation transducer PCB.
Q3	Sensor, exhalation flow	Measures exhalation flow.
SOL2	Solenoid, autozero, expiratory pressure transducer	+6 V, three-way solenoid valve. Energized (common to normally closed) when transducer is autozeroed. De-energized (common to normally open) all other times.

Table 2-1: Pneumatic component descriptions (continued)

Reference designator	Component	Description
806 Compressor Unit (optional)		
Accumulator	Accumulator	Four 1-L cylinders store compressed air generated by the compressor.
Dryer	Air dryer	Removes water vapor from the compressed air to lower the dew point below ambient temperature.
F10	Filter	0.3 micron filter that filters gas going to the ventilator.
F11	Filter	Filters air to the pressure transducer on the PCBA.
F12	Filter, intake silencer	Filters and silences the compressor intake.
F13	Silencer	Reduces noise from the air dryer.
HB	Housing base	Collects water emptied from the water trap where it evaporates using heat from the compressor motor and air flow from the fans.
HE	Heat exchanger	Cools the compressed air allowing water vapor to condense.
M/C	Motor/compressor assembly	Supplies compressed air to the ventilator. Includes starting capacitor, shock mounts, inlet filter, and relief valve.
PC	Compressor pressure transducer	Differential pressure transducer that measures accumulator pressure.
R1	Restrictor	Reduces pressure pulsations to the pressure transducer on the PCBA.
RV	Relief valve	Prevents over-pressurization of the compressor system. Opens when pressure reaches 36 psig.
SOL 3	Unloading solenoid	Opens to atmosphere upon compressor start-up to reduce start-up load on the compressor. During continuous use, vents excess accumulator pressure to the air dryer to assist in drying compressed air.
WT2	Water trap	Collects condensate as the compressed air cools in the heat exchanger. Automatically drains collected water to the housing base where it evaporates.