Puffin®

Infant Resuscitator

Technical Manual

international BIOMEDICAL®

Infant Resuscitator

Technical Manual

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SECTION 1: GENERAL INFORMATION

INTRODUCTION

This manual describes features and operations specific to the LifeBorne® Infant Resuscitator. The resuscitation system provides the basic equipment required for pulmonary resuscitation of neonatal infants. Pulmonary resuscitation includes practices necessary to establish a clear airway and provide oxygen or air/oxygen mixtures and/or manual ventilation to the neonatal infant. These are clinical practices that represent the established standard of care according to International Liaison Committee on Resuscitation (ILCOR). Resuscitation may be required whenever an infant fails to establish effective, adequate breathing patterns necessary to meet tissue oxygen demands and/or to rid the body of carbon dioxide.

INTENDED USE

The LifeBorne® Infant Resuscitator is intended to provide the basic equipment required for pulmonary resuscitation of neonatal infants. Pulmonary resuscitation includes practices necessary to establish a clear airway and provide oxygen or air/oxygen mixtures and/or manual ventilation to the neonatal infant.

WARNING: **For medical professionals only. U.S. Federal law restricts this device to sale by, or on order of, a licensed medical practitioner.**

SAFETY SUMMARY

The LifeBorne® Infant Resuscitator is intended for use only by qualified clinicians, under the direction of a qualified physician. All personnel operating the system should be thoroughly familiar with operating instructions, warnings, and cautions contained in this manual.

The resuscitator should be verified according to the procedures in this manual before putting into operation. If the unit fails any portion of the checkout procedure it must be removed from service and repaired.

IMPORTANT SAFETY CONSIDERATIONS

Safety concerns or additional pertinent information will be displayed using warnings, cautions, and notes, having the following significance:

WARNING:	**Alerts to potential serious injury, adverse event, or safety hazard.**
CAUTION:	Alerts to the possibility of minor injury or damage to the equipment.
NOTE:	*Provides additional information to clarify a point in the manual.*

The principal **WARNING** and **CAUTION** notices to be observed in use of this device are brought together here for emphasis.

SECTION 1: GENERAL INFORMATION

WARNINGS

- MONITOR PATIENT OXYGEN LEVELS: Patient oxygen levels should be monitored during resuscitation.
- OBSERVE BEST PRACTICE: The instructions in this manual in no way supersede established medical procedures or staff preference concerning patient care.
- USE OF OXYGEN INCREASES FIRE DANGER: Spark-producing auxiliary equipment should not be placed near the resuscitator.
- Incorrect operation can be hazardous.
- Do not use on unattended patient.
- Alternate means of ventilation should be available.
- For medical professionals only: U.S. Federal law restricts this device to sale by, or on order of, a licensed medical practitioner.
- The resuscitator should only be used by clinicians trained in neonatal resuscitation.
- The resuscitator must be mounted securely prior to use.
- The T-Piece resuscitator is not intended for use of oxygen delivery other than resuscitation.
- Do not operate the resuscitator during a supply pressure alarm. The resuscitator may not supply accurate fraction of inspired oxygen (FiO_2) during this alarm.
- Do not operate the resuscitator in an MRI environment.
- The pre-use checkout procedures must be completed before putting the resuscitator into operation. If the resuscitator fails the checkout procedure, the resuscitator must be removed from service.
- The T-Piece circuit is single use only. Cleaning and reusing may damage the circuit and expose the patient to risk of infection.
- The T-piece gas outlet is not intended for use with self-inflating or flow-control manual resuscitators.
- Before use of the T-Piece System, set Flow, PIP and PEEP parameters to check circuit integrity.

- Always check that the T-piece circuit and connection is clean and unobstructed before patient use.
- Patient flow rates above 10 L/M require the operator to override the flow rate stop. Flow rates above 10 L/M may cause an increase in PEEP beyond desired levels and should be closely monitored by the operator.
- Using positive end expiratory pressure (PEEP) may present a hazard. Always use the airway pressure manometer to verify PEEP.
- When a manual resuscitator is connected to the AUX gas outlet, always use an independent manometer.
- The auxiliary flow meter is not designed for use with a Nasal Cannula, NCPAP, or Oxygen Hood.
- As with all medical equipment, carefully route tubing to reduce the possibility of patient entanglement or strangulation.
- Take caution when mounting above patient level.
- Oil or grease should not be used on the resuscitator or any parts of the resuscitator set.
- Service the suction equipment if liquids or solids are drawn into the vacuum pump.

CAUTIONS

- Oxygen concentration should be verified via an oxygen analyzer per hospital policies.
- Close the tank valves prior to disconnecting the tank input hoses from the device.
- Open tank valves slowly to avoid damaging the device.
- Turn both the vacuum and medical gas switches off when the resuscitator is not in use to avoid inadvertently draining the tanks to low or empty.
- Leaving medical gas switch in the “ON” position when not in use may unnecessarily bleed (waste) gas.
- The disposable vacuum canister supplied with the resuscitator includes a hydrophobic filter. It is the user’s responsibility to ensure overflow protection and filter is included on subsequent canister and tubing changes.
- Use only International Biomedical T-Piece Circuits with the LifeBorne® Infant Resuscitator.

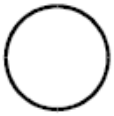
- Use only ISO 8836 compliant suction catheters.
- Clean, dry sources of medical grade oxygen and air, regulated to the input requirements, must be used or malfunction can result.

NOTES

- Air always means medical air.
- The vacuum system runs off the oxygen supply only.

SYMBOLS

The following symbols appear in the resuscitator documentation and labels.

	Consult Instructions For Use
	“ON” Power
	“OFF” Power
	Date of Manufacture
	General Warning, Caution, Risk of Danger
	Variability for Rotating Movement
VAC	Vacuum
PIP	Peak Inspiratory Pressure
	Vacuum Collection Canister
EXT	External Gas Source
	Compressed Gas Cylinder

ABBREVIATIONS

ABBREVIATION	DEFINITION
cmH_2O	Unit of pressure, centimeters of water
FiO_2	Fraction of inspired oxygen
mmHg	Unit of pressure, millimeters of mercury
NICU	Neonatal Intensive Care Unit
PEEP	Positive End Expiratory Pressure
PIP	Peak Inspiratory Pressure
L/min	Liters per minute
ILCOR	International Liaison Committee on Resuscitation
AUX	Auxiliary
NCPAP	Nasal Continuous Positive Airway Pressure

SINGLE USE ONLY

Items designated as single use are designed in a way that reuse may affect accuracy, system performance, or risk of cross-contamination.

SYSTEM DESCRIPTION

The LifeBorne® Infant Resuscitator is a gas powered emergency resuscitation system. It is designed to be used inside the hospital by trained medical professionals to provide precise FIO_2 delivery, manual ventilation, and emergency airway clearance as established by resuscitation guidelines to neonates and infants weighing less than 10 kg (22 lb).[1] The expected life of the LifeBorne® Infant Resuscitator is 8 years when properly maintained.

The resuscitation system includes:

- Venturi Vacuum system
- Vacuum Gauge
- Two Medical Gas Flow Meters
- Air/Oxygen Blender
- T-Piece Resuscitator
- Airway Pressure Manometer
- Peak Inspiratory Pressure (PIP) Control
- Positive End Expiratory Pressure (PEEP) Control

WARNING: **The Resuscitator should only be used by clinicians trained in neonatal resuscitation.**

[1] American Academy of Pediatrics/American Heart Association: Textbook of Neonatal Resuscitation (NRP) (6th ed.) Elk Grove Village, IL, 2010, American Academy of Pediatrics

RESUSCITATION SYSTEM CONTROLS AND CONNECTIONS

Figure 2 - 1 Front View

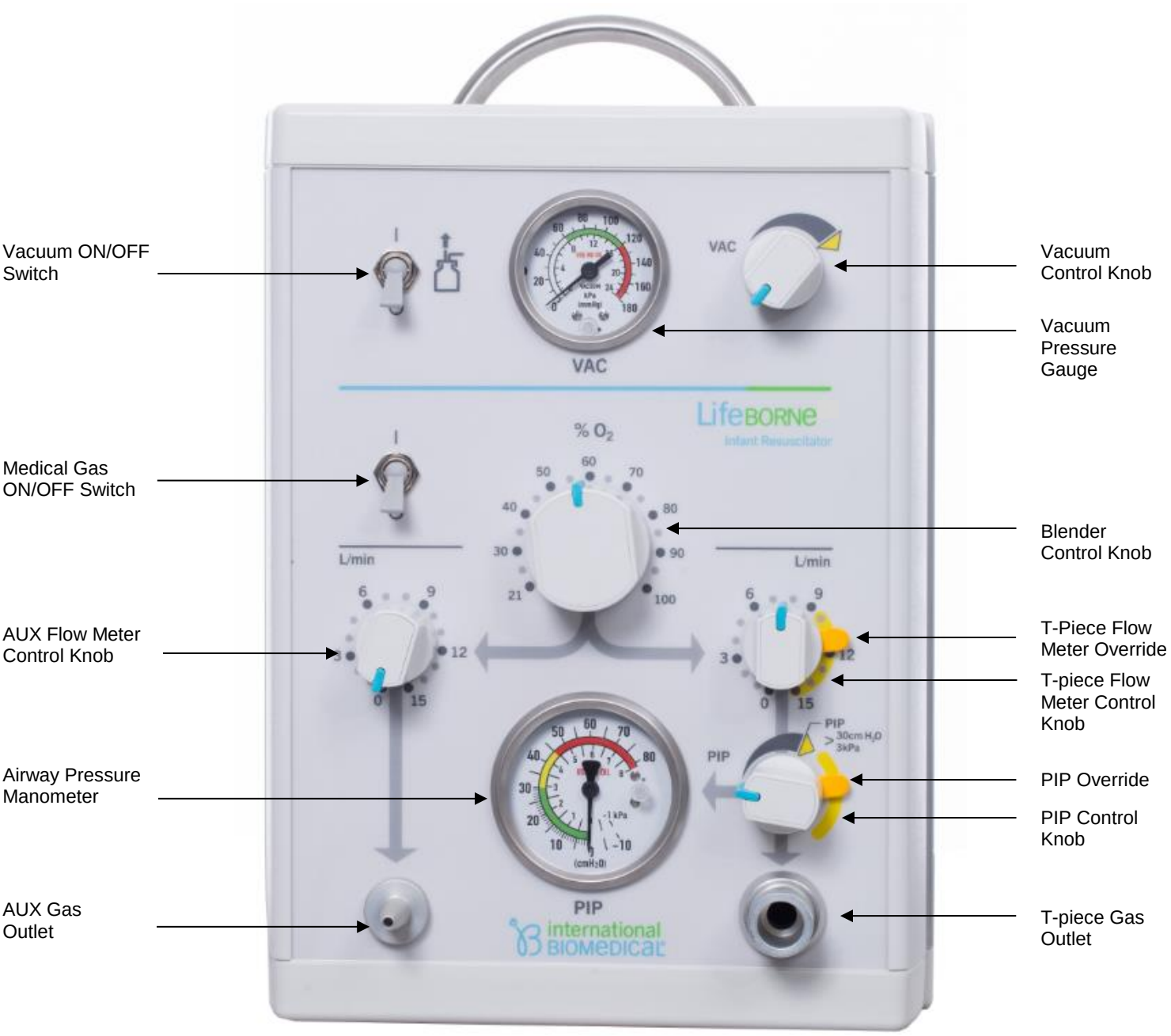
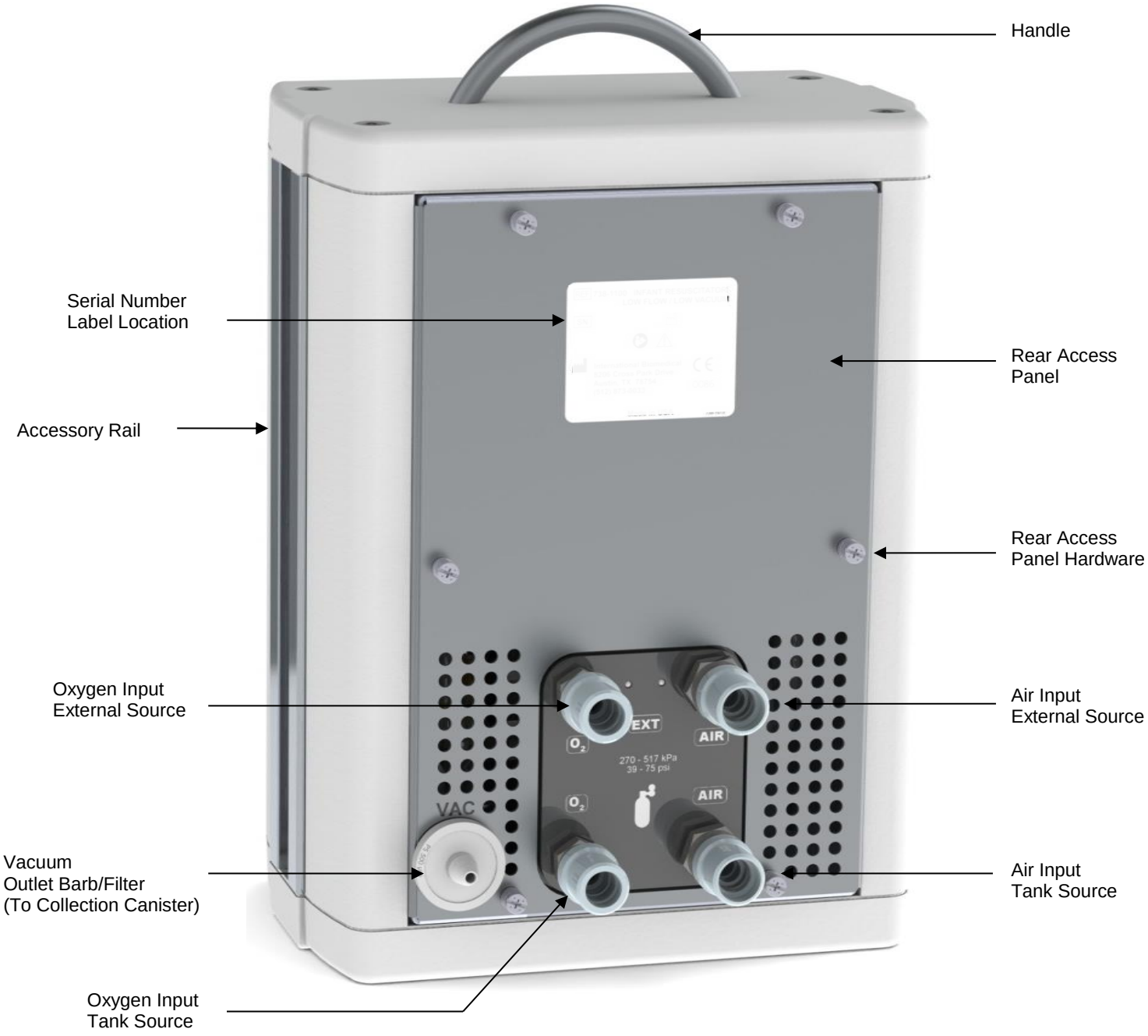
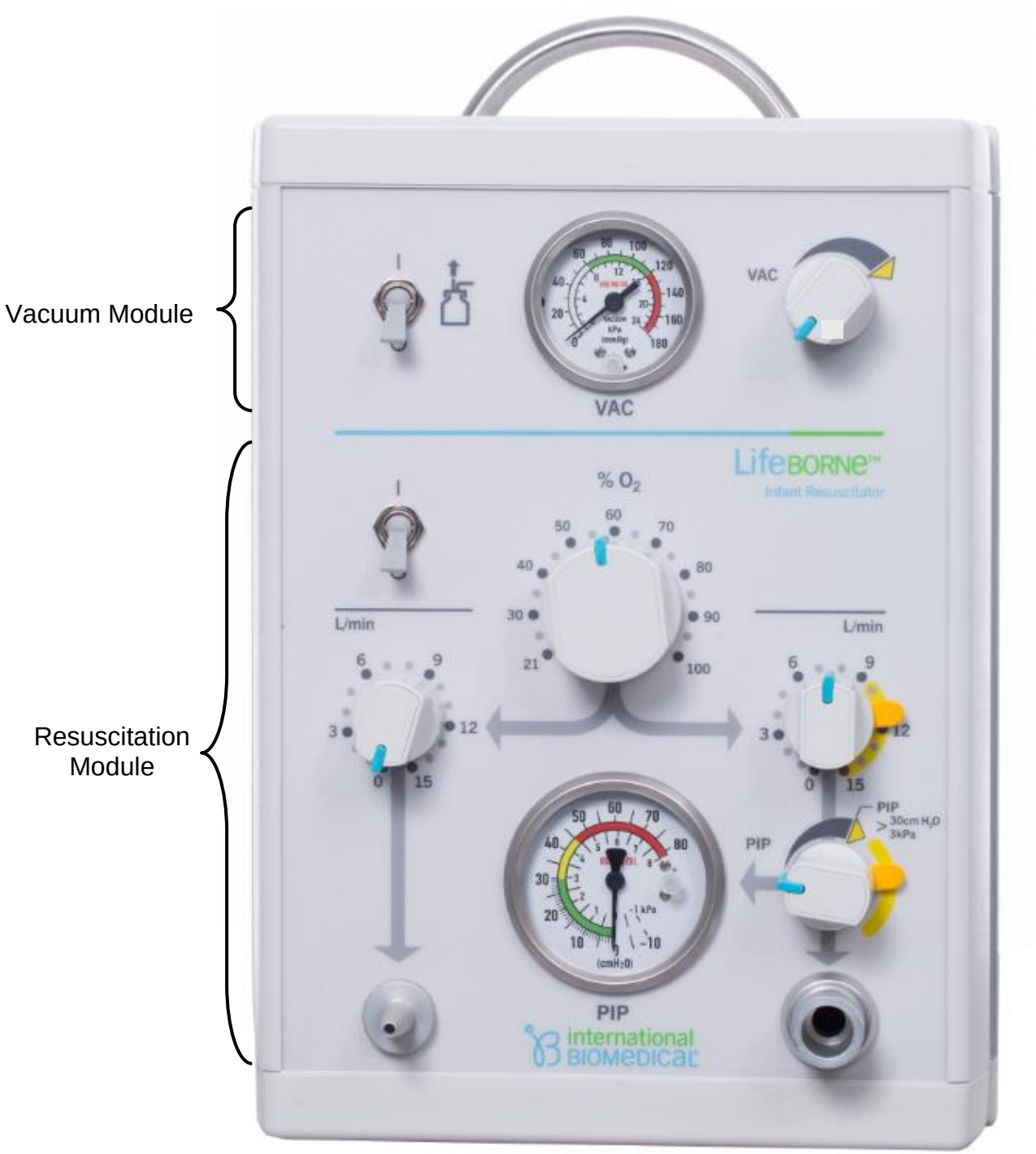


Figure 2 - 2 Rear View



SYSTEM COMPONENTS

Figure 2 - 3 Front View



VACUUM MODULE

The resuscitator vacuum system consists of a Venturi vacuum that supplies a continuous suction within a range of 0 to 150 mmHg (0-20 kPa) negative pressure. A switch turns the Vacuum Module ON, and the vacuum control knob sets the desired pressure level. A negative pressure gauge shows a visual indication of the vacuum level. Tubing attached to the vacuum outlet barb connects to a collection canister.

AIR/OXYGEN RESUSCITATION MODULE

PIP Control

The Peak Inspiratory Pressure (PIP) control knob regulates the maximum pressures that can be achieved when using the T-piece circuit.

A standard pressure range from 0 - 30 cm H_2O can be selected.

Pressures exceeding 30 cm H_2O to a maximum of 45 cm H_2O may be selected by activating the PIP Override mechanism.

T-Piece Flow Meter

The T-piece flow meter regulates blended medical gas to the T-piece circuit.

A standard flow range from 0-10 L/min can be selected.

Flows exceeding 10 L/min up to a maximum of 15 L/min can be selected by activating the T-piece flow meter override mechanism.

Auxiliary Flow Meter

The auxiliary flow meter regulates blended medical gas to the auxiliary gas outlet. Auxiliary outlet is designed for free flowing oxygen (Blow-By) or a manual resuscitator (Bag & Mask) meeting the requirements of ISO 10651-4 or ISO 5356-1.

WARNING: **When a manual resuscitator is connected to the AUX gas outlet, always use an independent manometer.**

The Auxiliary flow meter is not designed for use with a Nasal Cannula, NCPAP, or Oxygen Hood.

Take caution when mounting above patient level.

Blender

The blender regulates FIO_2 from 21% to 100% oxygen from both gas outlets.

Supply Pressure Alarm

A pneumatic alarm will sound from the air/oxygen blender when there is a loss of pressure in either the supplied air or oxygen. Adjusting the air and oxygen supply pressures to be equal will resolve the alarm.

WARNING: **Do not operate the resuscitator during a supply pressure alarm. The resuscitator may not supply accurate fraction of inspired oxygen (FIO_2) during this alarm.**

Airway Pressure Manometer

The airway pressure manometer displays the pressures during a respiratory cycle when using the T-piece resuscitator. Both PIP and PEEP can be observed on the airway pressure manometer. Pressures between -10 to 80 cm H_2O can be observed.

ACCESSORIES

Part Number	Description
738-1657	Vacuum Filter
738-1699	Patient T-Piece Circuit (10/case)
738-1700	Patient T-Piece Circuit (single)
738-1701	Vacuum Collection Canister
738-1702	18” Vacuum Tube
738-1704	Vacuum Canister Ring Mount

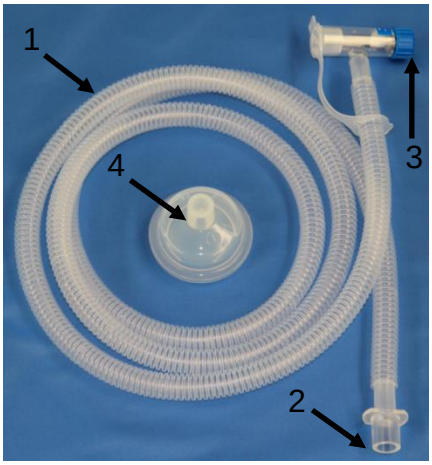


Figure 2 - 4 T-Piece Circuit

The T-piece circuit consists of (**1**) 5 ft. (1.2 m) length of tubing, (**2**) 15 mm male connector, (**3**) PEEP control knob, and (**4**) #1 mask.

SECTION 2: OPERATING INSTRUCTIONS

2.1. PRE-USE CHECK AND SET-UP OF T-PIECE RESUSCITATOR

WARNING: **The checkout procedures must be completed before putting the resuscitator into operation. If the resuscitator fails the checkout procedure, the resuscitator must be removed from service.**

USE OF OXYGEN INCREASES FIRE DANGER: Spark-producing auxiliary equipment should not be placed near the resuscitator.

The T-Piece circuit is single use only. Cleaning and reusing may damage the circuit and expose the patient to risk of infection.

The T-Piece resuscitator is not intended for use of oxygen delivery other than resuscitation.

Before use of the T-Piece System, set Flow, PIP and PEEP parameters to check circuit integrity.

Using positive end expiratory pressure (PEEP) may present a hazard. Always use the airway pressure manometer to verify PEEP.

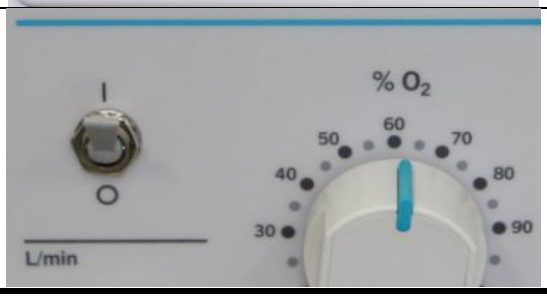
CAUTION: Use only International Biomedical T-Piece circuits with the LifeBorne® Infant Resuscitator.

Clean, dry sources of medical grade oxygen and air, regulated to the input requirements, must be used or malfunction can result.

Close the tank valves prior to disconnecting the tank input hoses from the device.

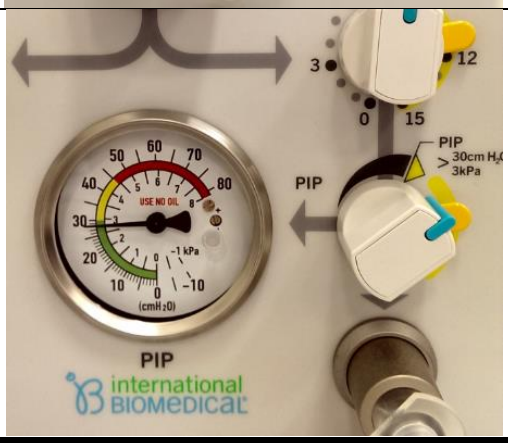
Open tank valves slowly to avoid damaging the device.

SECTION 2: OPERATING INSTRUCTIONS

Description	Step	Illustration
Connect the resuscitator to an Air/O_2 Gas source.	1	
Connect bag system or oxygen tubing to the AUX gas outlet.	2	
Rotate AUX outlet flow control knob to 10 L/min.	3	
Toggle Medical Gas Switch to the “ON” position and check to ensure the bag or oxygen tubing is receiving flow.	4	

Description	Step	Illustration
Rotate AUX outlet flow control knob to 0 L/min.	5	
Connect the T-Piece circuit to the T-Piece gas outlet.	6	

Description	Step	Illustration
Turn the T-Piece flow meter control knob for a flow of 7 L/min.	7	
Occlude the T-Piece Outlet with plug attached to the T-Piece circuit.	8	

Description	Step	Illustration
Occlude PEEP knob orifice with thumb or index finger and adjust PIP control knob to the pressure override mechanism.	9	
Verify airway pressure manometer reads 30 $cmH_2O \pm 4$ cmH_2O.	10	

SECTION 2: OPERATING INSTRUCTIONS

Description	Step	Illustration
Set PIP for desired pressure as indicated on the manometer	11	
Release thumb or index finger from PEEP knob hole and adjust variable PEEP knob for desired end expiratory pressure as indicated on the manometer.	12	
Adjust blender control knob for desired FiO_2.	13	

Description	Step	Illustration
Toggle Medical Gas Switch to the “OFF” position until ready for use.	14	

2.2. T-PIECE INSTRUCTIONS FOR USE

WARNING: **The T-Piece gas outlet is not intended for use with self-inflating or flow control manual resuscitators.**

Always check that the T-piece circuit and connection is clean and unobstructed before patient use.

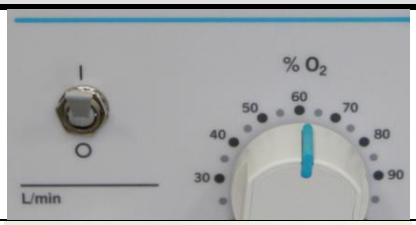
As with all medical equipment, carefully route tubing to reduce the possibility of patient entanglement or strangulation.

OBSERVE BEST PRACTICE: The instructions in this manual in no way supersede established medical procedures or staff preference concerning patient care.

CAUTION: Oxygen concentration should be verified via an oxygen analyzer per hospital policies.

Leaving medical gas switch in the “ON” position when not in use may unnecessarily bleed (waste) gas.

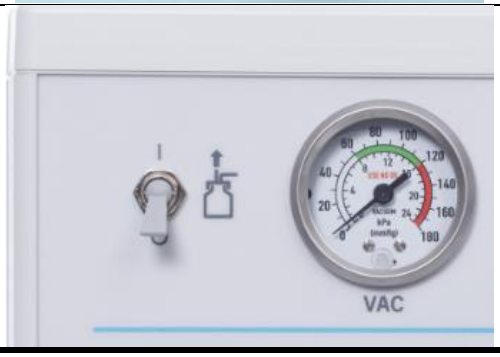
SECTION 2: OPERATING INSTRUCTIONS

Description	Step	Illustration
Toggle Medical Gas Switch to the “ON” position.	1	
Connect patient circuit to mask and place over mouth and nose, or connect patient circuit to laryngeal airway or endotracheal tube.	2	

Description	Step	Illustration
Resuscitate by alternating between occluding and releasing thumb or index finger from the orifice in PEEP knob on the circuit. This will allow for inspiration and expiration.	3	
To administer free-flow oxygen with a T-Piece circuit, set flow and FiO_2 according to hospital policy. Hold mask near patient's face.	4	

2.3. PRE-USE CHECK AND SET-UP OF VACUUM

Description	Step	Illustration
Check that a clean canister is installed properly into the bracket. Attach vacuum tubing to the canister.	1	
Toggle vacuum control switch to the “ON” position.	2	

Description	Step	Illustration
Connect ISO 8836 compliant vacuum catheter (not supplied) to the vacuum canister. Occlude tubing and check the vacuum pressure. If necessary, adjust vacuum pressure to desired vacuum as indicated on vacuum pressure gauge.[2]	3	
Toggle vacuum control switch to the “OFF” position until ready to use.	4	

[2] Endotracheal Suctioning of Mechanically Ventilated Patients with Artificial Airways. Respir Care 2010; 55 (6):759

2.4. VACUUM INSTRUCTIONS FOR USE

CAUTION: Turn both the vacuum and medical gas switch off when the resuscitator is not in use to avoid inadvertently draining the tanks to low or empty.

The disposable canister supplied with the resuscitator includes a hydrophobic filter. It is the user's responsibility to ensure overflow protection and filter is included on subsequent canister and tubing changes.

NOTE: *The vacuum system runs off the oxygen supply only.*

Description	Step	Illustration
Toggle vacuum system to the "ON" position.	1	
Adjust vacuum control knob, as needed, to desired pressure setting	2	

SECTION 3: MAINTENANCE AND CLEANING

Warranty repair and service should be performed by an International Biomedical Service Representative or at the International Biomedical manufacturing and service center. To contact an International Biomedical service representative, call International Biomedical.

Do not use malfunctioning equipment, including equipment that does not pass the checkout procedure. Non-warranty repairs may be performed by an International Biomedical service representative. After service, follow the checkout procedure prior to returning the unit to service.

WARNING: **Oil or grease should not be used on the resuscitator or any parts of the resuscitator set.**

MAINTENANCE SCHEDULE

The resuscitator should be sent to International Biomedical every two years for maintenance.

At a minimum, an annual functional check of the Infant Resuscitator is required. If any portion of the functional check does not pass, the Infant Resuscitator should be removed from service for proper maintenance and calibration. See Appendix A for the recommended annual functional check.

FREQUENCY	DETAILS
After each use:	• Clean and disinfect the resuscitator as required. • Replace the single-use canister. • Replace vacuum tubing between the canister and the patient.

CLEANING INSTRUCTIONS

After each patient use, follow the hospital's infection control procedures for surface disinfection. Wipe down the surfaces of the resuscitator with a soft cloth dampened with a disinfectant-detergent solution. Always follow the cleaning solution manufacturer's direction for use. Dry all surfaces with a soft cloth to remove any cleaner residue. Do not spray cleaner into the ports and outlets.

SECTION 4: TECHNICAL SPECIFICATIONS

Operating Specifications	
Recommended Patient Weight Range	• 22 lbs (10 kg) Maximum Weight
Gas Supply Characteristics	• Air & Oxygen • Input Pressure: 39-75 psi (270-517 kPa) • Gas Supply Minimum Flow Rating: 70 L/min
Vacuum Subsystem	• Range: 0-150 mmHg • Gauge Accuracy: ± 5% of full scale
Adjustable PIP	• Max PIP: 45 ± 5 cmH_2O • Override: > 30 ± 4 cmH_2O • Flow Capacity: 15 L/min
Adjustable PEEP Range	• @ 5 L/min to approximately 2 cmH_2O • @ 8 L/min to approximately 5 cmH_2O • @ 10 L/min to approximately 8 cmH_2O • @ 15 L/min to approximately 20 cmH_2O
Flow Meters	• Flow Range: 0-15 L/min • Flow Accuracy: < 5 L/min ± .5 L/min 6-10 L/min ± 1.5 L/min 11-15 L/min ± 2.0 L/min
Air/O_2 Blender	• Range: 21 to 100% • Accuracy: ± 5% of full scale
Airway Pressure Manometer	• Range: -10 - 80 cmH_2O • Accuracy: ± 5% of full scale
Approximate Operating Time*	• @ 5 L/min 204 min • @ 10 L/min 102 min • @ 15 L/min 68 min *E Cylinders (680 L @ 2200 psi) Vacuum off, 60% FIO_2
Environmental Specifications	
Operating Temperature	18 to 41° C
Storage Temperature Range	-25 to 60° C
Operating Humidity	5-95% (non-condensing)
Storage Humidity	5-95% (non-condensing)
Storage Pressure	70-106 kPa
Physical Characteristics	
Depth	8.5 in (22 cm)
Height	14.5 in (37 cm)
Width	9.5 in (24 cm)
Weight	19 lbs (8.6 kg)
Patient Connection	15/22 mm ID/OD, Auxiliary Barb, Vacuum Barb
Inspiratory Resistance of T-Piece Circuit	-0.3 cmH_2O at minimum PEEP setting at 6 L/min
Expiratory Resistance of T-Piece Circuit	0.3 cmH_2O at minimum PEEP setting at 6 L/min
Dead Space of T-Piece Circuit	< 5 mL
Dead Space of the resuscitator w/Accessories	43 mL

SECTION 5: WARRANTY

Unless otherwise specified, International Biomedical warrants all products of its manufacture at the time of shipment to be free from defects of material and workmanship for a period of twelve months from the date of shipment when owned by the original purchaser. Any product which is believed to be defective, if returned within twelve months after date of shipment by the Company with freight prepaid and found by the Company's inspection to be defective within the terms of this warranty, will be repaired or replaced free of charge and shipped, freight prepaid, to any point in the United States. If inspection by the Company of any such product does not disclose any defect within the terms of this warranty, the Company's regular charges for repairs or replacement and freight shall apply. All consumable and disposable products are guaranteed to be free from defects upon shipment only.

This warranty specifically excludes and replaces all other express and implied warranties. The Company shall have no liability under any warranty in any amount greater than the Company receives for the sale of the product involved. The use and manner of use of the Company's products shall be the responsibility of the purchaser and the purchaser covenants and agrees to indemnify and save harmless the Company in respect to any loss and damage that may arise through the use by the purchaser, or others, of any of the Company's products.

This warranty is rendered void and International Biomedical cannot be held liable for conditions resultant therefrom if:

1. Damage to the unit is incurred as a result of mishandling.
2. The customer fails to maintain the unit in a proper manner.
3. The customer uses any parts, accessories, or fittings not specified or sold by International Biomedical.
4. Sale or Service is performed by a non-certified service / dealer agency or any other unauthorized agency.

All shipping claims must be made within 30 days from date of shipment from International Biomedical; otherwise factory will not be liable for claims of missing items. Any item ordered in error and returned to the factory for credit, will be subject to a minimum restocking charge of 15%. Requests for returning items must be made within 30 days of factory shipment date.

International Biomedical will accept no returned goods without a Returned Goods Authorization number (RGA) obtained from Customer Service Department.

EUROPEAN REGULATORY AFFAIRS REPRESENTATIVE

The authorized regulatory affairs representative in Europe for the incubator is:

Emergo Europe
Westervoortsedijk 60
6827 AT
Arnhem, The Netherlands

PARTS AND ACCESSORIES

For general assistance or for parts and accessories, contact:

International Biomedical
8206 Cross Park Drive
Austin, TX 78754

512-873-0033

www.int-bio.com

Appendix A: LifeBorne® Infant Resuscitator Annual Functional Check

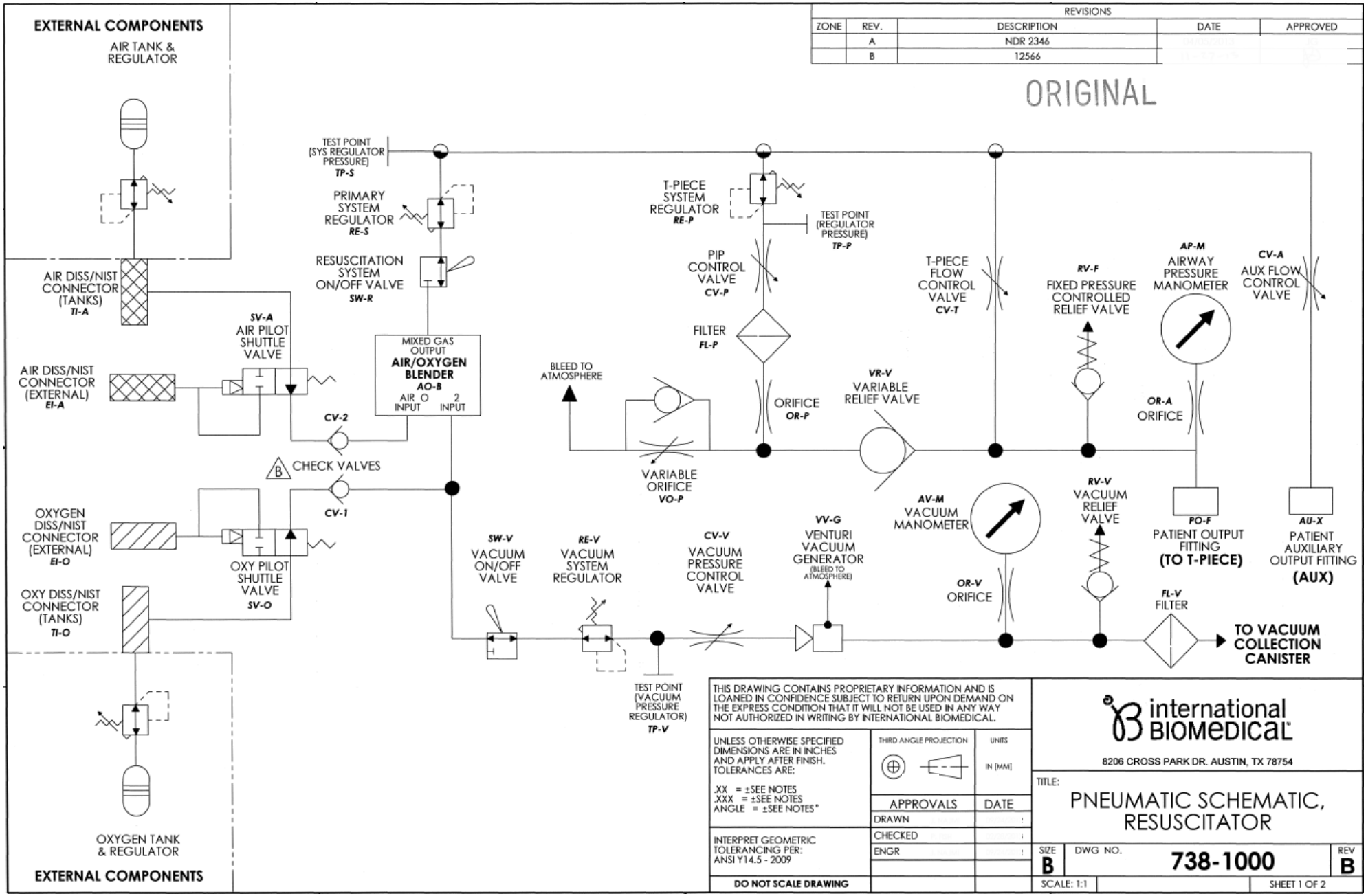
Procedure:	Check	
1. Verify the airway pressure and vacuum manometers are at 0 cmH_2O ± 2 cmH_2O	☐ Airway Pressure Manometer	☐ Vacuum Pressure Manometer
2. Connect an air and oxygen hose to the external inputs and pressurize the Resuscitator.		
Vacuum Pressure Check:		
1. Turn the Vacuum On/Off switch to the "ON" position		
2. Turn the Vacuum control knob to the MAX position.		
3. Occlude the rear vacuum port and verify the vacuum manometer reads 150 mmHg ± 10 mmHg.	☐	
4. Turn the Vacuum On/Off switch to the "OFF" position		
Auxiliary Flow Check:		
1. Turn the Medical Gas On/Off switch to the "ON" position		
2. Turn the Auxiliary flow meter control knob to 7 L/min and verify gas is flowing out of the auxiliary gas outlet.	☐	
3. Turn the Auxiliary flow meter control knob to 0 L/min and verify no gas is flowing out of the auxiliary gas outlet.	☐	
T-Piece Pressure & Flow Check:		
1. Connect a T-Piece circuit to the T-Piece gas outlet.		
2. Turn the T-Piece flow meter control knob to 7 L/min and set the PIP control knob to the stop.		
3. Occlude the Patient port and PEEP orifice on the T-Piece circuit.		
4. Verify the PIP pressure on the Airway manometer is 30 cmH_2O ± 4 cmH_2O.	☐	
5. Only occlude the PEEP orifice of the T-Piece circuit and verify gas is flowing out of the T-Piece patient port.	☐	
6. Turn the T-Piece flow meter control knob to 0 L/min and verify no gas is flowing out of the T-Piece gas outlet.	☐	
7. Turn the Medical Gas On/Off switch to the "OFF" position and disconnect the air and oxygen hoses.		

Infant Resuscitator System Functional Check: **PASS** ☐ **FAIL** ☐

Name: _____ Date: _____

Title: _____

Appendix B: LifeBorne® Infant Resuscitator Pneumatic Schematic



1. SINGLE COMPONENT PERFORMS MULTIPLE FUNCTIONS.
2. COMPONENT VARIES DEPENDING ON OUTPUT FITTING SELECTION.

SYMBOL	DESCRIPTION	PART NO	
AO-B	AIR/OXYGEN BLENDER	738-1400	
AP-M	AIRWAY PRESSURE MANOMETER	738-1601	
AU-X	PATIENT AUXILIARY OUTPUT FITTING	738-1606-1	
AV-M	AIRWAY VACUUM MANOMETER	738-1602	
CV-1	CHECK VALVE 1	738-1655	
CV-2	CHECK VALVE 2	738-1655	
CV-A	CONTROL VALVE, AUX	738-1623	
CV-P	CONTROL VALVE, PIP	738-1624	
CV-T	CONTROL VALVE, T-PIECE	738-1623	
CV-V	CONTROL VALVE, VACUUM	738-1625	
EI-A	EXTERNAL INPUT, AIR	738-1203/738-1205	2
EI-O	EXTERNAL INPUT, OXYGEN	738-1202/738-1204	2
FL-P	FILTER, PIP	738-1619 (HALF)	1
FL-V	FILTER, VACUUM	738-1407	
OR-A	ORIFICE, AIRWAY	738-1209	
OR-P	ORIFICE, PIP	738-1619 (HALF)	1
OR-V	ORIFICE, VACUUM	738-1165	
RE-P	REGULATOR, PIP	738-1125	
PO-F	PATIENT OUTPUT FITTING	738-1638	
RE-S	REGULATOR, SYSTEM	738-1302	
RE-V	REGULATOR, VACUUM	738-1124	
RV-F	RELIEF VALVE, FIXED	738-1505	
RV-V	RELIEF VALVE, VACUUM	738-1506	
SV-A	SHUTTLE VALVE, AIR	738-1630 (HALF)	1
SV-O	SHUTTLE VALVE, OXYGEN	738-1630 (HALF)	1
SW-R	ON/OFF VALVE, RESUSCITATOR	738-1611	
SW-V	ON/OFF VALVE, VACUUM	738-1611	
TI-A	TANK INPUT, AIR	738-1203/738-1205	2
TI-O	TANK INPUT, OXYGEN	738-1202/738-1204	2
TP-P	TEST POINT, PIP	738-1634	1
TP-S	TEST POINT, SYSTEM	738-1634	1
TP-V	TEST POINT, VACUUM	738-1634	1
VO-P	VARIABLE ORIFICE, PIP	738-1131	
VR-V	VARIABLE RELIEF VALVE	738-1503	
VV-G	VENTURI VACUUM GENERATOR	738-1610	

SIZE	DWG NO.	REV
B	738-1000	B
SCALE: 1:1		SHEET 2 OF 2