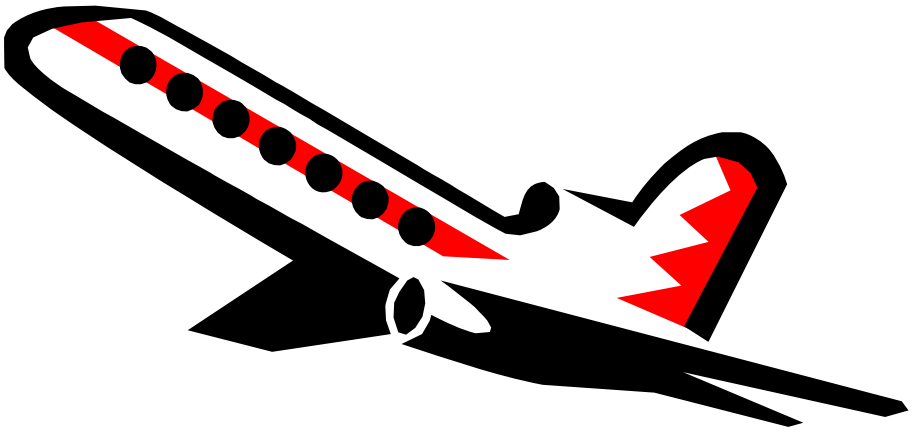
Flying with a ventilator in the USA



International Pompe Association (IPA) **www.worldpompe.org**

August 2005

Content

By: Maryze Schoneveld van der Linde, M.A., International Pompe Association (IPA)

Traveling with ventilation, especially when you travel by plane, requires a lot of preparation in advance in order to prevent problems at the airport, to travel safely and to have a good stay at your destination. To support you with your travel preparations this booklet is written and compiled from information provided by several sources.[1]

Preparation

Ventilator users who need to use their ventilators in-flight must prepare for air travel well in advance. First you should contact the airline company and explain that you need ventilation in-flight and make sure this is written in your passenger record. It depends on the airline company if you need to fill out a 'medical information sheet' or need to obtain a letter from your treating physician stating your medical diagnosis and ability or fitness to travel. With this information the airline company is fully informed about: the medical equipment you use; if you are bringing a wheelchair with you on board; what your medical situation is and what kind of support you require from them. Often the 'medical information sheet' needs to be signed by your treating physician or respiratory specialist. To ensure that the arrangements are correct, you should contact a customer service representative and make sure everything is taken care for and approved. You should be aware that flying with respiratory support needs good preparation well in advance of the flight and that you are the coordinator and manager of this support system. You can apply for extra support called 'meet and assist' at the airport when you book the flight. This service is established for people who need some extra help because they are in a wheelchair, can't walk well etc.

We recommend you to take always a letter from your treating physician stating your medical diagnosis, ability to travel, the need to use ventilation in-flight and that the medical equipment must stay with you. With strict new security regulations and screening, these documents can help to ease the passage through security checkpoints when they ask for more information.

Getting approval for in-flight use of ventilation

The airline's medical and engineering departments may need to approve ventilator use in-flight. You should prepare a list including the ventilator's name, model number, specifications, the manufacturer's name, address, phone and website. You should also need to determine if the ventilator will fit under the seat. This is a safety requirement that is asked by the U.S. Federal Aviation Administration (FAA) and airline companies. Many airline personnel aren't aware of the FAA regulations relating to technical specifications of portable ventilators, and some require the ventilator to be turned off during takeoffs and landings. The FAA has approved some ventilators for in-flight use such as the LTV™ series of Pulmonetics[2] and the PLV®-100, PLV®-102, PVV (33-001) of Respironics[3] and certified that they do not interfere with radio and other transmissions.
When airline companies deny you the use of respiratory support during the flight it's often because of unawareness. It is up to you to get in contact with the airline company in time and to supply them with clear and complete information regarding ventilation. A common problem is that airline companies assume that ventilation is similar to using oxygen. Therefore it is very important that you can explain clearly to others what ventilation is all about and that you **don't** use or need oxygen.

[1] See under 'References'.
[2] Documentation on approval is attached and can also be found at http://www.pulmonetic.com/Approval%20for%20Air%20Travel.html
[3] Documentation on approval is attached.

Extra time before boarding

Security personnel at airports often don't have experience with ventilators, batteries, suction machines etc. You will probably need to explain what kind of equipment it is, that it is a life support system and why you need it. Allow enough time for security officials to check the equipment. Ventilators, suction machines and dry or gel cell batteries can go through the X-ray scanner at the airport without any problem.

Transfer from one airline to another

When you need to transfer to another plane on another airport or continue your flight with another airline company you need to inform this company too and make sure that this company also is aware of your needs and that the new airline company also has approved the in-flight use of a ventilator.

Protect your equipment

In many planes you can store the ventilator under the seat. According to FAA regulations, airline companies also require this. Under the seat the ventilator does not hinder anyone and cannot slide when the plane enters turbulence during flight. When there is too much space between the ventilator and the seat and it is possible for the ventilator to slide during take off and landing, you can tie the ventilator to the seat with bungee cords. This avoids problematic situations for you and your fellow passengers.

You should **always** take your ventilator, dry or gel cell battery, ambubag (for manual ventilation when necessary), suction machine and bag with spare materials as hand luggage onboard into the passenger cabin. Then your necessary medical equipment will always be close by and your equipment is stored safely. Climate control in the baggage hold (the room is under pressure) can be dangerous for your ventilator, and during loading and unloading your equipment can be damaged. When you don't need your ventilator in-flight or when you take your spare ventilator with you, it is possible to store your equipment in the in the overhead baggage compartments for hand luggage or the store room for blankets.

Ventilators and other medical equipment and supplies do not count toward the limit on carry-on items.

Power supply

Some airline companies allow you to use onboard electricity (sometimes on payment) through a medical electrical outlet. If you want to use such a medical electrical outlet you should ask the airline company in advance if the use of such a medical outlet is possible and what the conditions are. The FAA does not require airlines to provide this service, and it's not a universal practice.

Another possibility is to use a dry or gel cell battery. Most airlines will allow dry or gel cell batteries onboard if they fit under the seat. Be aware that even when you use a ventilator with an internal battery that claims to provide power for a certain length of time, you should test the battery far in advance to ensure its performance.

The use of oxygen during the flight

When you do need oxygen, you should tell the airline company well in advance that you need it. The FAA permits passengers to use certain portable oxygen concentrator (POC) devices on aircraft, provided certain conditions in the Special Federal Aviation Regulations (SFAR)

are satisfied[4]. When you don't have a portable oxygen concentrator that complies to the SFAR it is sometimes possible to use the oxygen supply of the plane during flight. In such a case you should inform the airline company how much oxygen you need, so they can be prepared. The airline company needs to give you official permission for using oxygen onboard. Fees for using oxygen of the airline company vary from airline to airline. The websites of each individual airline offer related information about oxygen in-flight. For safety reasons it is not allowed to take your own, not by the FAA approved, oxygen cylinder with you onboard because of the danger of explosion.
It is advisable to confirm the oxygen request with the agent at the check-in desk so she/he can phone ahead to the gate agent to verify that the oxygen request has been filled and is on the plane or in case you bring your own FAA approved POC one is informed about it.
It is recommended to take care for your oxygen supply at your destination. Contact your oxygen supplier for this.

Technical problems

Ask your respiratory specialist or pulmonologist what you need to do in case of failure of your ventilator when you are far from your home and check with the supplier of the ventilator where your ventilator can be serviced or repaired[5]. It's also recommended to ask the supplier of your ventilator how much time it will take before the ventilator is repaired and if you will get a spare ventilator when a technical problem occurs. There are respiratory specialists in medical centers and in home health care agencies that can support and refer you at a local level if you need help with your ventilator. They can be found in the International Ventilator Users Network (IVUN) Resource Directory for Ventilator Assisted Living[6]. It is advisable to establish contact with these respiratory health professionals **before** you arrive so that they may be prepared to offer assistance if the need arises.

Practical advice

A luggage trolley with bungee cords is useful for carrying heavy equipment through airports and over long distances. To protect the ventilator while traveling one can buy a special designed bag (only available for several types of ventilators) or one can design and make a special bag oneself.

Apart from the extra accessories like tubes, dry or gel cell battery, ambubag, spare mask and/or mouthpiece, it might also be handy to take an extension cord and an auto-adapter power cord with you when you travel.

[4] The SFAR includes a POC preparation requirement for carry-on baggage transport, and a battery-packaging standard necessary for safe carriage of extra POC-batteries in carry-on baggage. The document is entitled *'Use of Certain Portable Oxygen Concentrator Devices Onboard Aircraft'* [Docket No.: FAA 2004-18596; SFAR No. 106], RIN 2120-A130
You can get an electronic copy of the document at the Department of Transportation at: http://dms.dot.gov/search/document.cfm?documentid=339107&docketid=18596 and the Federal Register of the National Archives and Records Administrations at: http://www.gpoaccess.gov/fr/index.html
[5] For addresses look at the website of the International Ventilator Users Network (IVUN) at: http://www.post-polio.org/ivun/d-ve.html
[6] For addresses look at the website of the International Ventilator Users Network (IVUN) at: http://www.post-polio.org/ivun/d.html

List of addresses

Airlines

American Airlines[7] :

Does have a list of ventilators approved for use in the aircraft. If the ventilator is not on their list, you must try to obtain approval at the engineering department. The customer is required to provide the name of the ventilator, model number, manufacturer's address and phone number in advance of the flight.

Website:
http://www.aa.com

Northwest Airlines:

Customers dependent on life support equipment may bring such items into the cabin for use during the flight provided the equipment can fit under the seat, or can be strapped into an adjoining seat. Should it be necessary to use a seat for this equipment, the seat needs to be purchased at the applicable fare. Examples of life support equipment are: incubators, nebulizers and ventilators. A medical statement from the treating physician is required.

Wet cell batteries are not permitted in the cabin of the aircraft for safety reasons. Dry or gel cell batteries are acceptable for operation of life support systems/equipment on the aircraft. Many of Northwest's aircraft have the capability to hook-up personal life support systems to aircraft power for operation. Advance arrangements are necessary to determine accessibility of aircraft and to assign specific seats to accommodate the electrical power hook-up. Where onboard electrical connections are available, a passenger's life support equipment must be compatible with 115 volt 400 Hz power. A dry or gel cell battery should be brought along as backup since aircraft electrical power is not available at all times dependent on operational needs to maintain aircraft safety.

Websites:
http://www.nwa.com
http://www.nwa.com/services/onboard/special/
http://www.nwa.com/services/onboard/special/spec.shtml#life

Continental Airlines:

Ventilators are accepted for use in-flight provided they are operated by a dry/gel cell battery. Wet cell and machines which require the use of on electrical outlet will not be accepted. They cannot generate or operate with any type of radio transmission. These units must be secured under the seat or you may purchase an additional seat for use during flight. Continental Airlines requests customers to book reservations through the Oxygen Desk to ensure all safety and personal health requirements.

Phone Oxygen Desk: 800-228-2744

Websites:
http://www.continental.com
http://www.continental.com/travel/specialneeds/disabilities/default.asp
http://www.continental.com/travel/specialneeds/disabilities/other.asp

[7] A document of approval of the PLV-series from Respironics by American Airlines is attached

United Airlines[8] *:*

Customers who need to use medical devices while onboard must obtain prior approval from United at least 48 hours before departure. United Airlines may need special information including the name and telephone number of your physician. A customer should provide the name of the ventilator, battery, model number and manufacturer's address and phone. Equipment must be put under the seat. All electrical devices have the potential to interfere with important aircraft systems. The use of personal electronic equipment is governed by FAA regulations.

Oxygen is available for a reasonable service charge per flight segment. You must use equipment provided by United Airlines, but we can transport your personal oxygen equipment, provided it meets certain packaging and labeling requirements. You can make arrangements through United Reservations 48 hours in advance. Note that oxygen service is not available on United Express flights.

Websites:
http://www.united.com
http://www.united.com/page/middlepage/0,6823,1038,00.html

Delta Airlines:

If you are dependent on an assistive device or non-oxygen generating life support equipment, you may bring it into the cabin for use during the flight provided it fits in an FAA approved storage location. You must purchase an extra seat at the applicable fare if you need it for your equipment. Examples of life support equipment are nebulizers and ventilators.
We can not permit wet-cell batteries in the aircraft cabin for safety reasons. We recommend you use dry-or gel cell battery for the operation of this equipment since aircraft electrical power hook-ups are not available on our aircraft.

Websites:
http://www.delta.com
http://www.delta.com/travel/special_services/special_needs/special_concerns/index.jsp

Southwest Airlines:

The airplanes of Southwest Airlines are not equipped to transport customers who require stretchers, incubators, respirators or other devices that may rely on the aircraft power supply. Ventilator and dry or gel cell battery are accepted on board. Battery operation is permitted in-flight except during take off and landing. The airplanes are also not equipped to transport or provide medical oxygen – either in the passenger cabin or as cargo or baggage.

Website:
http://www.southwest.com/about_swa/customer_service_commitment/customer_service_commitment.html

[8] A document on approval of the PLV-series from Respironics by United Airlines is attached

Authorities

Federal Aviation Administration (FAA):
You can find the complete rules and regulations of the Air Carrier Access Act for people with disabilities at the following websites:
http://www1.faa.gov/acr/dat.htm
http://www.faa.gov/passengers/passengers_disabilities/

Address: US Department of Transportation
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

Phone: FAA Consumer Hotline: 800-322-7873

Transportation Security Administration (TSA):
You can find more information at Travelers and Consumers on Persons with Disabilities and Medical Conditions at the following websites:
http://www.tsa.gov/public/display?theme=156
http://www.tsa.gov/public/display?theme=181

Phone: 866-289-9673

The US Department of Transportation (DOT):
Established a toll-free hotline to assist travelers with disabilities. The hotline will provide general information to consumers about the rights of air travelers with disabilities. The line is staffed from 7 a.m. to 11 p.m. Eastern time, seven days a week. Air travelers who experience disability-related air travel service problems may call the hotline at 1-800-778-4838 (voice) or 1-800-455-9880 (TTY) to obtain assistance.

In assisting individuals with disabilities who may have air travel complaints that require immediate intervention, the role of the DOT employees would be one of facilitating compliance with DOT 's rules and suggesting possible customer-service solutions to the airline involved. Since compliance with the Air Carrier Access Act and DOT's implementing regulations remains the obligation of the carrier, airline employees would continue to decide what action will be taken in any given situation.

Address: Office of Aviation Enforcement and Proceedings
400 Seventh Street, SW, Room 4107
Washington, DC 20590

Websites: http://airconsumer.ost.dot.gov
http://airconsumer.ost.dot.gov/hotline.htm (This website also provides a list of US and Foreign carriers participating in the hotline).

Other ways of transport within US

Train : www.Amtrak.com (General information)
http://www.amtrak.com/servlet/ContentServer?pagename=Amtrak/Page/Collection_Page&c=Page&cid=1080080554568&ssid=139 (Services for people with disabilities and special needs)

Bus : www.greyhound.com (General information)
http://www.greyhound.com/travel_information/disabilities.shtml (For customers with disabilities)

Patient Organizations and Associations

International Pompe Association (IPA)
Luitenant Generaal van Heutszlaan 6
3743 JN Baarn
The Netherlands

Phone: +31 35-5480461
Fax: +31 35-5480499
Website: http://www.worldpompe.org

International Ventilator Users Network (IVUN)
An Affiliate of Post-Polio Health International (PHI)
4207 Lindell Boulevard, # 110
Saint Louis, Missouri: 63108-2915 USA

Phone: 314-534-0475
Fax: 314-534-5070
Website: http://www.post-polio.org

References:

The information in this booklet is derived from:

'Reizen met Beademing' (*Traveling with Ventilation*) published by the VSCA in the Netherlands, May 2005

'Air Travel and Ventilator Users', published in *Ventilator-Assisted Living*, 2003, Vol. 17, No. 3. http://www.post-polio.org/ivun/val_17-3e.html#air.
International Ventilator Users Network (IVUN), www.post-polio.org/ivun.

'Traveling with a Ventilator' published in *IVUN News*, spring 1997, Vol. 11, No. 1.
International Ventilator Users Network (IVUN), www.post-polio.org/ivun.

Attachments

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AERONAUTICAL SYSTEMS DIVISION (AFSC)
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433-6503

REPLY TO ATTN OF: ENACE

28 April 1992

SUBJECT: Lifecare PLV 102 Ventilator (Your Ltr, 22 Apr 92)

TO: AL/CFTS
ATTN: Lt Rebecca Schultz

1. We have reviewed the data provided in the subject letter and recommend that a waiver be granted for the conducted broadband emissions (220 KHz - 350 KHz). The only concerns are interference to sensitive aircraft receivers and degradation of power quality. The only aircraft receiver in this frequency band is the Automatic Direction Finding (ADF) receiver. The emissions from the ventilator are not of sufficient amplitude nor type of modulation that would cause interference to ADF receivers or causes power quality problems.

2. For additional information, please contact Mr Coffman, DSN 785-7276.

Steven C. Coffman

STEVEN C. COFFMAN
Acting Chief, EME & Electrical Branch
Offensive Avionics Division
Directorate of Avionics Engineering

DEPARTMENT OF THE AIR FORCE
ARMSTRONG LABORATORY (AFSC)
BROOKS AIR FORCE BASE, TEXAS 78235-5000

18 June 92

From: CFTS/Aeromedical Research Function

Subj: Interim Final Report PLV 102

To: LIFECARE
ATTN: Robert Garcia
8042 El Rio
Houston, TX 77054

1. The Aeromedical Research Function has determined that the PLV-102 is acceptable for use on USAF aeromedical evacuation aircraft with modifications identified while undergoing testing at this lab. The following is the results of the tests we performed.

a. Environmental Testing
Passed all phases of testing.

b. Electromagnetic Testing
The unit passed testing on 115 VAC/60 Hz, and battery power. With modifications and a waiver from Aeronautical Systems Division, Wright-Patterson AFB, Ohio (ASD/ENACE) it passes testing on 115 VAC/400 Hz power.

c. Vibration Testing
Passed all phases of testing.

d. Altitude Testing
Passed all phases of testing.

e Inflight Feasibility Testing
(1) The PLV 102 was flown on the C-9 and C-141 aircraft. We operated the unit on all three power sources and found no problems. We accomplished form and fit on all planes. Initial flights with the PLV 100 unit brought about a change in securing of the unit. With the changes you made to the securing mechanism, the unit was easily secured on all aircraft.
(2) The alarm indicator (red light) and increased volume of alarm enables aircrew to visualize an alarm condition.

2. RECOMMENDATIONS
With all modifications made by Lifecare during testing, the PLV 102 is approved for use in the USAF aeromedical evacuation environment. A special identifier must be given to the model according to the Technology Exchange Agreement, this identifies the unit as the USAF approved version.

3. Any questions should be directed to 2Lt Preen or TSgt Thomas at (512) 536-2937. A more detailed report will follow.

Richard J. Knecht

RICHARD J. KNECHT, Lt Col, USAF NC
Chief, Aeromedical Research Function

DEPARTMENT OF THE AIR FORCE
ARMSTRONG LABORATORY (AFMC)
BROOKS AIR FORCE BASE TEXAS

28 AUG 1997

From: CFTS/Aeromedical Research Function

Subj: Testing of the PLV 102 Ventilator

To: LIFECARE
Attn: Geoffrey C. Waters
Senior Vice President
655 Aspen Ridge Dr.
Lafayette, CO 80026-9341

1. We have completed testing of the Lifecare PLV 102 ventilator under a Technology Exchange Agreement.

2. The modified unit passed all of our testing and is considered safe and acceptable for use on aeromedical evacuation aircraft. This is provided that all modifications necessary to pass our tests are made. A complete explanation of our test results and recommendations, as well as a detailed description of the test procedures are included in the attached test report.

3. We are pleased to have had this opportunity to work with your company in support of the Technology Exchange Agreement and hope that our test results will be of help to you. Enclosed is a copy of the waiver granted by Wright-Patterson Air Force Base for the PLV 102. If you have any questions, please contact TSgt Mary Thomas or 2Lt Philip Preen at (512) 536-2937.

Richard J. Knecht

RICHARD J. KNECHT, Lt Col, USAF, NC
Chief, Aeromedical Research Function

Atch
Test Report
Waiver

cc: HQ AMC/SGXR-
HSC/YAWM

AmericanAirlines

MAINTENANCE & ENGINEERING CENTER

July 8, 1992

Ms. Sarah E. Walters
Product Coordinator
Portable Volume Ventilators
655 Aspen Ridge Drive
Lafayette, Co. 80026-93451

Dear Ms. Walters,

This is in reply to your letter dated June 25, 1992 to Dennis Zvacek, on the subject of Portable Volume Ventilators.

The Lifecare PLV-102 was tested and approved in April 1991 for passenger use aboard AA flights. Additionally the PLV-100 was also approved based on the fact that it was a similar, less complex model than the PLV-102.

Subsequently a request was made to approve a model, PVV ventilator. After discussions with the engineers at Lifecare, the unit, PVV(33-001) was approved.

The following units are therefore approved aboard all American Airlines flights:

PLV-102
PLV-100
PVV(33-001)

If any other questions arise do not hesitate to call. My telephone number is (918)292-2232.

Sincerely,

Jack Beer
Avionics Engineering

UNITED AIRLINES

March 20, 1991

Ms. Jan Cornwell
LIFECARE
655 Aspen Ridge Drive
Lafayette, CO 80026

Dear Ms. Cornwell:

I have sent the specifications on your PLV 100 and PLV 102 to our engineering department in San Francisco. Mr. Harold Beal of that department informs me that the PLV-100 device has been approved for use aboard our aircraft in the past and the PLV-102 would also be approved. Any of your patients who require use of these devices aboard our aircraft should simply make their need known to our Reservations Sales Representative so that the information can be forwarded to our medical desk in Detroit.

United Airlines' policy prohibits the use of passenger-owned oxygen equipment aboard our aircraft. We are prepared, however, to provide an oxygen cylinder for passenger use on request. I believe the current charge for this oxygen service is $54.00 per flight segment.

Electrical current available on our airplanes is 28 volts alternating current at 400HZ. Passenger owned electrical equipment can be battery powered and should present no problems for use aboard our aircraft. Wet cell batteries cannot be used.

I hope this information is useful to you and your patients. Please call me if I can be of further assistance.

Sincerely,

Robert A. McGuffin Jr., M.D.
Regional Flight Surgeon
United Airlines

RAM/pf