HALLOWELL EMC

Veterinary Anesthesia WorkStation Operating Manual

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USER/OWNER RESPONSIBILITY

PLEASE READ THIS MANUAL BEFORE OPERATING THE WORKSTATION.

This **Hallowell EMC** equipment is designed to function, as specified in this manual, when operated and maintained in accordance with supplied instructions. This equipment must be periodically checked, maintained and components repaired and replaced when necessary for equipment to operate reliably. Parts that have failed, in whole or in part, exhibit excessive wear, are contaminated, or are otherwise at the end of their useful life, should not be used and should be replaced immediately with parts supplied by **Hallowell EMC** or parts which are approved by **Hallowell EMC**. Equipment that is not functioning correctly should not be used. This equipment and any of its accessories or component parts should not be modified.

The user/owner of this equipment shall have the sole responsibility and liability for any damage or injury to patients or property (including the equipment itself) resulting from operation not in accordance with the authorized maintenance instructions, unauthorized repair or modification of the equipment or accessories, or from the use of components or accessories that have either been damaged or not authorized for use with this equipment by **Hallowell EMC**.

WARNINGS AND CAUTIONS

Personnel operating the workstation must become thoroughly familiar with the instruction manual prior to using the **Hallowell EMC Model AWS™ Anesthesia WorkStation** with patients.

- **ELECTRIC SHOCK HAZARD - DO NOT** remove any of the WorkStation covers or panels. Refer all servicing to an authorized service technician.

- **DANGER** - Possible explosion hazard if the unit is used in the presence of flammable anesthetics.

- Before using the WorkStation, check that all connections are correct, verify that there is no leak in the system and that the unit is functioning properly.

- Any problems arising from an improperly functioning scavenging system is solely the user's responsibility.

- **OPENING THE UNIT BY UNAUTHORIZED PERSONNEL AUTOMATICALLY VOIDS ALL WARRANTIES AND SPECIFICATIONS. THE PREVENTION OF TAMPERING WITH THE UNIT IS EXCLUSIVELY THE USER'S RESPONSIBILITY: THE MANUFACTURER ASSUMES NO LIABILITY FOR ANY MALFUNCTION OR FAILURE OF THE WORKSTATION IF THE UNIT'S SEAL IS BROKEN.**

WARRANTY

The **Hallowell EMC Model AWS™ Veterinary Anesthesia Workstation** is covered under the warranty expressed on the warranty card attached to the unit at the time of sale to the end user, which reads as follows:

HALLOWELL EMC

ONE YEAR LIMITED WARRANTY

This unit is warranted by **HALLOWELL EMC** to be free of defects in material and workmanship for a period of 1 (one) full year from invoice date of original purchase.

This warranty does not cover unit damaged by abuse or where unit is operated outside the normal operating conditions. The defective part will be repaired or replaced at our option when sent postage prepaid, insured to **HALLOWELL EMC** accompanied by a copy of original invoice. **HALLOWELL EMC** shall not be responsible for any other incidental, contingent or consequential charges or damages.

All conditions of this warranty become null and void should the **VOID** seal (located under the side plate) be broken.

*THE WARRANTY STATED HEREIN (INCLUDING ITS LIMITATIONS) IS THE ONLY WARRANTY MADE BY **HALLOWELL EMC** AND IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. **HALLOWELL EMC** SHALL NOT BE LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES OF ANY KIND.*

Prices, terms, and product specifications are subject to change without notice.

RECEIVING PROCEDURES

1. Remove all components from the shipping carton. Retain and store both original shipping cartons for use in the event that the unit has to be shipped. (See "Returning For Service").

2. Inspect the WorkStation and accessories for any signs of damage that may have occurred during shipping. If damage has occurred, immediately file a damage claim with the carrier.

Packed by _____ Date ____/____/____ Workstation SN_____

Recv'd by _____ Date ____/____/____ SN verified _____

3. Check the items against the packing slip and report discrepancies immediately.

All WorkStations include and are shipped with the following:

- **Hallowell EMC Model AWS™**
- AWS accessory kit (PN 000A2777)
  Containing;
  1. PN 000A3401: AWS Breathing System Assembly, 24" that includes:
     a. PN 152A1261: Endotraceal Tube Adapter, 2.5mm w/side port
     b. PN 220A3264: Wye, AWS
     c. PN 201A3364: Tube, Clear AWS BS 10mm x 24"
     d. PN 152A1265: Endotraceal Tube Adapter, 8.5mm (two)
  2. PN 200A2692: Valve Disc, AWS (two)
  3. PN 152A1264: Endotraceal Tube Adapter, 6mm (two)
  4. PN 210A2845: Hex Key, 5/32"
  5. PN 210A2846: Cotton Tipped Applicator, 6"
- Power Cord (not included for export) (PN 110A1118)
- Warranty Card (DOCB0202)
- Operating Manual (DOCA3122)

Numerous other optional parts may have been shipped with your order also. Please refer to the packing slip for details.

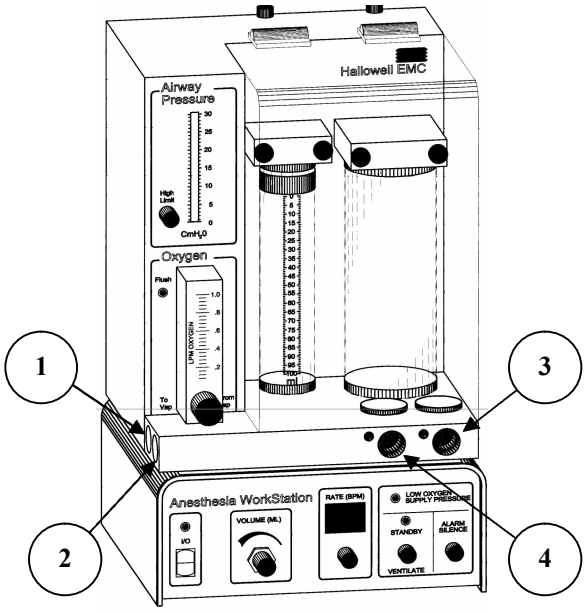
4. Please complete and return the enclosed Warranty Registration card.

Preparation and Setup

Set the AWS on your work surface. Place the vaporizer of your choice on the surface to the left of the WorkStation.

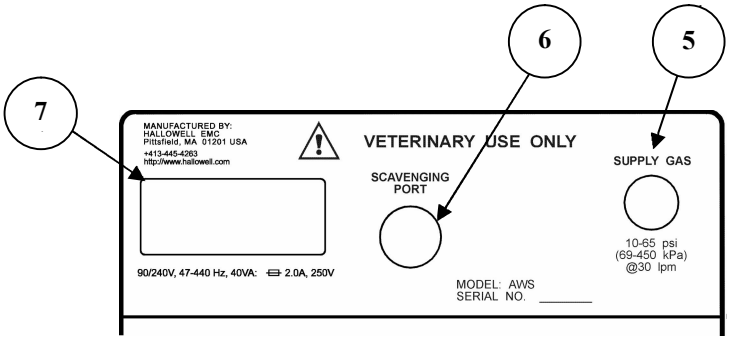
The connections to be made are:

- ✓ On the left side:
1. **TO** the **VAP**orizer.
2. **FROM** the **VAP**orizer.
- ✓ On the front:
3. To the patient
4. From the patient.



The four connections in the front and in the left are 15mm tapered ports that will accept standard 15mm endotracheal tube adapters. Two 6.0mm ET adapters are supplied with the AWS to be used with ¼" ID tubing (not supplied) to and from the vaporizer. Two 8.5mm endotracheal tube adapters are supplied to connect the 10mm breathing system tubes to and from the patient wye.

- ✓ In the rear:
5. **SUPPLY GAS.**
6. **SCAVANGING PORT.**
7. Electrical power.



The supply gas connection in the rear is a standard male DISS O_2 connector. The scavenging port will accept either the 19mm scavenger tubing or a 15mm ET adapter. The electrical power inlet is the standard IEC320 connector. The power supply in the AWS is a universal supply that will accept any standard power source as noted on the rear panel.

Filling the Absorber Canister:

Open the AWS cover. Remove the two thumbscrews that hold the absorber top to the top mount on the chassis. Lift the canister from the unit and remove the top. Fill the canister with 300cc of CO_2 absorbent, replace the cover and return the canister to the unit. Secure the retaining screws and close the cover.

Functionality test:

- Turn the VENTILATE/STANDBY switch to standby.
- Turn the AWS on.
- After a short pause a lamp test will run for 2 seconds, verify that all indicators, all display segments and decimal points illuminate. Also verify that the audio alarm sounds with the lamp test.
- Set the HIGH LIMIT safety, next to the airway pressure bar graph, to 25.
- Set the respiratory RATE in breaths-pre-minute (BPM) to 40.
- Turn the VOLUME control all the way down, fully clockwise.
- With the Vap and Patient connections occluded, use the FLUSH button to fill the breathing system until the floating puck in the ventilator tube reaches the top of the ventilator tube.
- Switch the VENITLATE/STANDBY switch to ventilate.
- Verify that the Low Breathing System Pressure (LO BSP) alarm sounds.
- Slowly, increase the VOLUME control until the peak inspiratory pressure (PIP) reaches about 15 cmH_2O.
- Verify the system is leak free confirming that, with no fresh gas flow (FGF), the ventilator puck returns to the same position at the top for several cycles.

If the AWS does not perform as described above, DO NOT use the unit. Resolve the discrepancy or remove the unit for service.

Warm Up Period

The breathing system chamber inside the hinged cover is heated to help keep the humidity of breathing gases at saturation near body temperature and to reduce condensation within the ventilator tube. It requires about 5 minutes for this chamber to come up to temperature. This will occur with the unit on and in the standby mode. Care should be taken to avoid opening the chamber during operation.

Alarms

The AWS is equipped with the following alarms:

All alarms may be silenced for a maximum period of 3 minutes by pressing the **ALARM SILENCE** pushbutton. During that time, every 20 seconds a short reminder beep will sound indicating that an alarm condition still exists. If an alarm condition clears that had previously been silenced the "alarm silence" itself will also clear. Thus if the alarm condition goes away when it happens again the alarm will sound.

Low Supply Pressure Alarm- Although the AWS will operate to it's declared specifications with an inlet pressure as low as 10 psig (69 kPa) the system will alarm when the supply pressure drops to 35 psig (241 kPa). The recommended input pressure is 50psi (345 kPa) and at NO time should exceed 65 psig (448 kPa)

Low Breathing System Pressure Alarm- This alarm sounds and the bargraph flashes on the very first breath in which the PIP does not rise 5 cmH_2O from the baseline of the previous breath. This alarm auto resets when the condition clears.

High Breathing System Pressure Alarm- This alarm sounds should the airway pressure sensed equal the HIGH LIMIT setting. This causes the inspiratory cycle to be terminated and the expiratory phase to be entered along with a short audio indication and a flashing bargraph display.

Cleaning and Maintenance

Use no alcohol on or near any plastic parts. Clean only with a damp cloth and mild detergent. All passages of the lower manifold block may be cleaned as needed with a 6" cotton tipped applicator. Access to some of the passages may be gained by removing the threaded plugs, two on the front and one on the right side. Both a sample of 4 applicators and the required Allen key are included.

Both the valve discs and valve seats of the inspiratory and expiratory valves located under the 2 domes in front of the CO_2 absorber tube should be cleaned as needed to prevent them from sticking due to dried condensation.

Talc may be used on all O-Rings for a smooth fit. A replacement O-Ring kit is available. HEMC Part # 180A3406.

NO O-ring lube should be used on the ventilator tube. Caution should be taken when handling the ventilator tube and puck to avoid touching the inside of the tube or the OD of the puck. Cleaning both with alcohol is recommended should the puck begin to drag within the tube. NOTE: the puck and ventilator tube is a matched set of parts and must remain together as a set. Do not interchange one or the other from other WorkStations.

Caution should also be taken when removing and handling the ventilator tube. This tube is made of **GLASS** not plastic; tilting it to far during removal **will** cause the tube to break. This type of breakage will **not** be covered by our warranty.

Miscellaneous

Note that two spare unidirectional valve discs have been included. These are the very small round plastic disks. We've marked them with an "X" on each for better visibility.

In the event that shipping the AWS is necessary, be sure to **REMOVE** all CO_2 absorbent and seal the AWS in a plastic bag. Double boxing the unit with plenty of packing material is requested.

RETURNING FOR SERVICE

If the WorkStation has a problem, which cannot be resolved using the trouble shooting procedures, please call your dealer or **Hallowell EMC** immediately for assistance.

If **Hallowell EMC** determines that it is necessary to have the WorkStation returned to us for service, we will provide a RETURN AUTHORIZATION NUMBER to you.

In the event that shipping the AWS is necessary, be sure to **REMOVE** all CO_2 absorbent.

Please seal the unit in a plastic bag to prevent contamination from packing materials.

Use a box of sufficient size to allow for at least 3" of cushioning material such as bubble wrap or foam around the unit. Careful packing is essential. See Warranty.

Specifications:

OPERATIONAL CHARACTERISTICS	
Rate	4-80 bpm
Tidal Volume	0-100 ml, option 0-200 ml (PN 000A3393)
I:E Ratio	1:2 (preset)
Supply Gas	Oxygen
Supply Gas Pressure	40-65 psig [275 – 448 kPa]
Controls	
Rate	Linear, 4-80 bpm
Volume	10-turn metering valve
Adjustable Pressure Limit	Linearly Adjustable, 10 - 30 cm H_2O
Indicators	
Power On	Front Panel-mounted green LED
Standby Mode	Front Panel-mounted yellow LED
Alarm, Visual	Front Panel-mounted yellow LED
Alarm, Audio	Internal audio transducer
PHYSICAL	
Unit Weight	16 lbs [7.3 kg]
Dimensions	9"W x 10"D x14.5”H [228mm W x 254mm D x 368mm H]
Power Requirements	90-240 Vac, 47-440 Hz