
S U P P L Y I N G C L E A N A I R T O I N D U S T R Y

New! **MODEL XJ-2**
Isolation Room Air Cleaner
Installation and Operation Manual



Affordable and portable, compact and quiet, the new XJ-2 assists you in complying with the CDC guidelines for converting ordinary patient care rooms into negative-pressure TB isolation rooms.



Further information:
BERRIMAN ASSOCIATES
1-800-480-3630
www.berriman.com

Manufacturer has a policy of continuing product improvement and reserves the right to make changes in design and specification without notice.

Before you get started please review the following:

Purchase Date: _____

Serial Number: _____

Motor Spec: _____

Type of filter and P/N: _____

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Disclaimer

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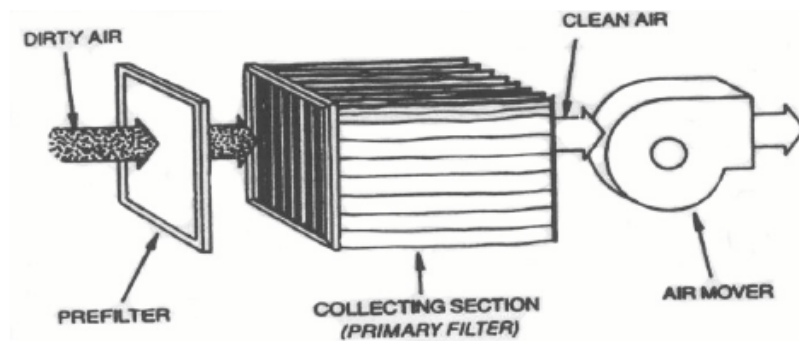
Specifications are subject to change without notice.

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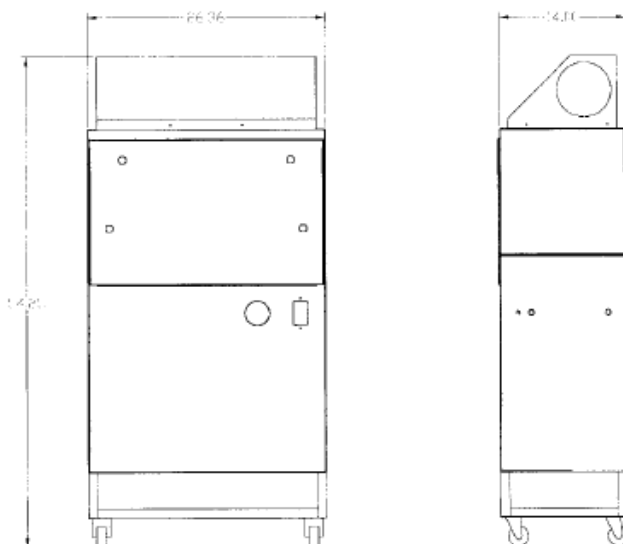
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HOW AIRBORNE CONTAMINATION IS REMOVED

Dirty air passes through the prefilter. The prefilter removes large particulate, such as lint. The primary filter then captures the remaining smaller particulate. As the contaminant load on the filters increases, the filters become more efficient in capturing the smaller particles. At the same time, however, the dirty filter allows less particle collection and a decrease in the overall effectiveness of the air cleaner.



DIMENSIONS



SPECIFICATIONS

- IMPORTANT -

THE SPECIFICATIONS GIVEN IN THIS PUBLICATION DO NOT INCLUDE NORMAL MANUFACTURING TOLERANCES. THEREFORE, THIS UNIT MAY NOT MATCH THE LISTED SPECIFICATIONS EXACTLY. ALSO, THIS PRODUCT IS TESTED AND CALIBRATED UNDER CLOSELY CONTROLLED CONDITIONS AND SOME MINOR DIFFERENCES IN PERFORMANCE CAN BE EXPECTED IF THOSE CONDITIONS ARE CHANGED.

SPECIFICATIONS

- Dimensions & Weight: 52" H x 26.5" W x 14" D x 140 lbs.
- Air Flow Capability: Adjustable from 115 CFM to 1000 CFM
- Pre-filter: **3M Filtrete™** (80-85% ASHRAE efficient)
- Microbial filter: HEPA (99.97% DOP efficient at 0.3 microns)
- Filter Pressure Gauge: Mini-Helic® 0" to 3" range
- Power Requirements: 115Vac, 60 Hz, 4 Amps, 400 Watts
- Sound Levels: 35 dBA @ 115 CFM and 66 dBA @ 775 dBA (tested 4' from unit)
- Cabinet: Heavy-gauge, welded steel cabinet with Ivory finish.
- Base: Standard base includes four swivel casters.

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PLANNING THE INSTALLATION

- WARNING -

The XJ-2 ambient media air cleaner is not explosion-proof. It must not be installed where there is danger of vapor, gas or dust explosion.

INTRODUCTION

Clean air is the subject of numerous laws and regulations. Typical requirements in the United States are those put out by the Occupational Safety and Health Administration (OSHA). Private groups, such as the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), have also published numerous recommendations.

The health care industry is regulated by the Center for Disease Control (CDC). The CDC has many regulations regarding air cleaning, some of which are covered next.

Normally, clean air is defined in regulations and recommendations as air having a limited amount of contaminant, commonly expressed as parts per million milligrams per cubic meter. Approved counteractions are intended to lower or eliminate the amount of contaminants in the air. One of the more common methods of achieving this goal is through the use of media air cleaners.

CDC Guidelines

The air change rate shall be not less than 12 ACH. The purpose is to reduce the concentration of contaminants in the air by removing contaminated air and replacing it with contamination-free air. The amount of contamination-free air is an air-change rate expressed in ACH (air changes per hour.)

Air shall generally flow from the supply to the Health Care Worker to the patient (or other infectious source) to the exhaust.

The objectives are to avoid short-circuiting of fresh air from supply to exhaust, to avoid stagnation of air and consequent build-up of contaminant concentration, and to avoid the Health Care

Worker being positioned between the infectious source and the exhaust.

Room pressurization shall be negative for Infectious Isolation Rooms. Provision shall be made for daily monitoring of the pressurization. (Optional) An audible alarm to indicate loss of room pressure control shall be provided.

Manufacturer offers as an accessory the Room Pressure Monitor.

Air flows from areas of higher pressure to areas of lower pressure. Thus negative pressurization of isolation rooms is desired so that air flows into the room from adjacent rooms and not from the potentially contaminated isolation room into adjacent rooms.

CDC Guidelines specify negative, monitored pressure, but do not specify well what the pressure should be. A minimum of 0.25 Pa (0.001 IN WG) is stated as the requirement for control of airflow direction. However such low pressures are very difficult to monitor conveniently.

Exhaust air shall be recirculated or discharged via HEPA filters. Or exhaust air shall be exhausted directly to outside via negatively pressurized ducting, away from air-intake vents, persons and animals or recirculated or discharged via HEPA filters.

Provision shall be made for monitoring (pressure differential), testing (integrity) and safe change of HEPA filters. Provision shall be made to automatically or manually adjust airflow to compensate for HEPA filter loading.

The purpose of HEPA filtration is to remove contaminants from the air. HEPA filters remove at least 99.97% of all particles greater than 0.3 microns in diameter. CDC Guidelines state that Mycobacterium tuberculosis droplet nuclei probably range from 1 micron to 5 microns in diameter, therefore HEPA filters can be expected to remove infectious droplet nuclei from contaminated air.

CDC Guidelines recommend that openings including windows and electrical and plumbing entries shall be sealed as much as possible. Water supplied to isolation rooms shall be fitted with back flow prevention.

ROOM PREPERATION:

There are many rules to follow for the installation of the XJ-2 into a hospital setting. Information on these rules can be found at www.cdc.gov, local building regulations, hospital rules.

What needs to happen for the installation of the XJ-2 and room pressure monitor are the following:

For the XJ-2: find a good location for the unit so air circulates in the following fashion. From the air cleaner to hospital personnel to infected patients to the air cleaner. The XJ-2 operates off 115Vac 60 Hz.

For the room pressure monitor: a hole will have to be cut through the wall measuring 2.25" in diameter. This is for the pressure sensors. The monitor will have to be mounted to an outside wall and wire run to the pressure sensors. The room pressure monitor runs off 115 Vac, 60 Hz.

ASSEMBLY

- CAUTION -

Do NOT connect the power source until after the air cleaner is completely assembled.

If the air cleaner must be turned on for an electrical check, be extremely careful in avoiding electrical shock. Also, take care to avoid the air cleaner's moving parts.

WHEN ASSEMBLING THIS PRODUCT

Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.

Check the electrical ratings given on the air cleaner schematic to the power source to insure compatibility.

UNPACKING

The carton should be positioned on the floor with the "up" arrows properly orientated. Remove all shipping cardboard and banding. Be sure to inspect the packaging material before discarding it. After unpacking is complete, check out the product operation as provided in these instructions.

WIRING

The XJ-2 has no special wiring requirements. It comes equipped with a 10-foot power cord and plug. The power source must be compatible with the voltage and frequency of the XJ-2. Route the power cord so that it is out of the way of the building's occupants. Do not use an extension cord.

CONNECTING DUCTING

Connect any applicable ductwork to the unit and check and double check that there are no leaks throughout the system.

CHECKOUT AND OPERATION

CHECKOUT

Before operating the XJ-2, check out the installation using the following procedures:

1. Make sure the air cleaner is oriented for good air circulation where it will not interfere with personnel traffic. Make sure the unit will be able to create an airflow as described by the CDC guidelines.

2. Make sure the prefilter and the primary filter are properly oriented and the airflow arrows are pointing away from the blower.
3. Make sure quarter turn fasteners on filter access cover are secure.
4. Make sure the minihelic[®] installed on unit is at zero inches of water. If not, reference calibration of the minihelic. The needle should move when the unit is turned on.

OPERATION

Turn on the air cleaner control switch. Make sure the blower is providing a strong air discharge.

2. The filter gauge should be level and should read zero when the XJ-2 is turned off.



CALIBRATION OF THE MINIHELIC

Step 1

Remove the plastic cover by turning it counter-clockwise. One may have to press on the cover as one is turning it.

Step 2

With the supplied hex wrench, one can adjust the needle by turning the hex screw at the bottom of the gauge.

MAINTENANCE

- CAUTION -

Always disconnect the power to the XJ-2 before working on or near the air cleaner.

Dirty air passes through the prefilter. The prefilter removes large particulate. The primary filter then captures the remaining particulate.

As the contaminant load on the filters increases, the filters become more efficient in capturing the smaller particles. At the same time, however, the dirty filter allows less air to pass through resulting in less particle collection and a decrease in the overall effectiveness of the air cleaner.

The XJ-2 air cleaner is equipped with a pressure gauge which indicates the restriction to airflow caused by the filters loading with particulate. When the air filter gauge reaches the red arrow or a noticeable reduction in airflow occurs, it is time to clean or replace the prefilter and possibly the primary filter. The CDC guidelines specify that the HEPA filter shall be replaced every six months.

NOTE: An increase of one inch on the gauge would be approximately a 25% decrease in airflow. If the reduction in airflow is not a problem, the air cleaner can be operated

beyond this point. The red arrow can be moved to the point at which the decrease in airflow becomes a problem.

FILTER MAINTENANCE/REPLACEMENT

The CDC has set up guidelines for the proper replacement of a filter exposed to harmful contaminants. Follow those guidelines as you replace the filters.

Step 1

Turn off the air cleaner. Open up the filter access door and slide out the prefilter.

Step 2

Replace the prefilter and turn on the air cleaner. The reading on the air filter gauge should be lower than previous. If no performance improvement is evident after cleaning or replacing the prefilter, the primary filter will have to be replaced. In most cases, the prefilter can be replaced several times before the primary filter will need to be replaced.

Step 3

Release the tension screws holding in the HEPA filter. The filter then can be removed by sliding it out along the tracks. A new primary filter can be replaced with the process reversed.

Dispose of the filter following local, state and Federal regulations.

PARTS IMAGES



PARTS LIST

NO.	DESCRIPTION	PART NO.
1	Speed controller	07129
2	MiniHelic® 5"	10219
3	Impeller	07128
4	Prefilter 3m Filtrete	41144
5	HEPA Filter	41142
6	Wall mounting kit (not shown)	07130
7	Monitor Pressure Differential (not shown)	07132
8	Security Cover (not shown)	07131

TROUBLE SHOOTING

WARNING!

The following instructions are intended for qualified service personnel only. Dangerous line voltage circuits are exposed during this procedure. Disconnect the power before servicing the unit.

Make sure to follow all CDC guidelines for cleaning the unit whenever you open any access panel on the XJ-2

Check the Fan Motor and Power Source

If the fan does not run when the switch is on check the voltage supplied to the motor.

If the correct line voltage is not measured, check back through the wiring to the power source.

If the motor does not turn with the correct voltage applied, check to see that the shaft is free to turn.
Replace the motor, if necessary.

If the fan is noisy when the unit is in operation check the fan.

WARNING: Disconnect power before continuing! Manually turn the fan to make sure there is no rubbing or grinding

THREE-YEAR LIMITED WARRANTY

Further information:
BERRIMAN ASSOCIATES
1-800-480-3630
www.berriman.com

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