

TurboJet 2012V-B Manual

OPERATING INSTRUCTIONS & PARTS MANUAL

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Part# M2012V-B Revised 09/01/11

Unpacking Instructions

Remove the outer box and inspect for damage. Report all damage immediately to your carrier. If special set-up instructions are required, they will be taped to the outside of the Equipment or in the "Operating" section of this manual.

Inspect all of the packing material for small parts before discarding packaging material. Report all damage to Air-Care immediately. Any attempt at repairing damages may void warranty.

Check that all parts are present (See Page 8)

- 1. TurboJet 2012V-B Main Assembly, with Wheels, Motor and Blower. Open the front door to check for filters. (The handle is shipped in the down position)
- 2. First stage, 18" x 24" x 10" Disposable Pleated Filter
- 3. Second stage, 18" x 24" x 1" 94% Electrostatic Air Filter
- 4. Third stage, 18" x 24" x 6" Certified HEPA Filter
- 5. 50' Extension Power Cord

Safety Precautions

Always use safe and common sense precautions when working with Air-Care equipment. Do not block walkways with equipment, and remove delicate and breakable articles from the immediate work area. The following are precautions that should be reviewed by all persons who will be involved in the cleaning activity:

- Other than the 3 filters, there are no user serviceable components in Air-Care TurboJets. Only trained technicians should attempt to make internal repairs on this equipment.
- Always turn off the main power switch at the rear of the TurboJet, or disconnect the power before opening or removing the doors or filters.
- Inspect AC power plug to be sure the ground pin is in place. DO NOT USE AN EXTENSION CORD. Plug directly into power outlet.
- Never connect power to Air-Care equipment unless all covers and safety shields are in place. Mechanical and electrical parts could activate and cause injury.
- Never allow anyone but a properly trained technician to use the equipment or cleaning products.
- All Air-Care equipment is designed for US standard 115 volt, 60 Hz AC. Most Air-Care equipment can be special ordered to meet other worldwide standards for a reasonable price and delivery schedule. Always check the specifications on the equipment before connecting electrical power to Air-Care equipment.

If you have questions about the safe use of any Air-Care product, call 702-454-5515

Equipment specifications and part numbers are subject to change without notice.

Operating Instructions

Set-Up and Testing

Air-Care TurboJet Negative air machines are designed to "Pull" loose debris out of the air system to which they are connected and filter out harmful debris such as pollen, dust, mold spores and other debris with its 3 stage HEPA filter system. An agitating device to "Push" debris is required to properly clean an air system. The Cobra Brush System or the Air Whisk and Sidewinder air tools are designed to loosen and agitate debris so the TurboJet can pull it out. See the "Duct Cleaning" section on page 4 of this manual for a summary of proper duct cleaning procedures.

To test the TurboJet, be sure all filters are in place and the door closed. Attach the 12 gauge x 50-foot power cord to a dedicated outlet (one that has no other devices currently connected). Turn on the circuit breaker on the lower back panel. Select "Low" (13 Amp) or "Hi" (17 AMP) speed then turn on the "Start" switch. The soft start feature will slowly climb to full speed within 20 seconds and you should see the pressure gauge reading 1.8 to 4 inches of w.g. with nothing attached to the inlet. If you observe other readings, see the trouble-shooting guide in this manual.

Attaching the TurboJet Hose to the Air System

Effective duct cleaning can be accomplished with the TurboJet connected to one of the following positions in the duct system. The "best" location is determined by the specific configuration of the particular air system. To obtain maximum "pull", always keep the attaching hose as short and as straight as possible. If you have 25-foot hose, it is often useful to purchase an extra set of twist lock collars. Cut the hose into a 7 foot and an 18 foot length pieces to prevent "bunching up" when the TurboJet is near the connecting point of the air system.

- With a basement or crawlspace air conditioner/furnace, cutting an access hole in the side of the supply side main trunk line is very effective. Be sure that no airflows through the furnace. To stop air from coming through the furnace, block the duct openings with foam register plugs or cardboard and duct tape. An alternate way to block the airflow would be to slip the customers existing furnace filter in a plastic trash bag and reinstall. If there are returns in each room, you will also need to connect to the return trunk line at the furnace and block it off while cleaning the return ducts. Some Air-Care dealers use 2 TurboJets at the same time, one on the supply and one on the return.
- With a garage, interior closet or roof mounted up-flow air conditioner/furnace, just remove the diffuser grill from a large ceiling or wall mounted supply duct and use the Pogo Pole hose adapter to connect the TurboJet inlet hose to the system. Connecting to a large supply duct is very effective. Gravity will help "pull" dust and debris into the Turbojet.

In some cases, it may be best to attach the TurboJet to each Supply or return duct and insert the agitation device into that same duct opening to disturb debris as far up stream and down stream as possible. The optional dual 8" inlet adapter will allow attachment to the supply and return so they can be cleaned at the same time.

Handle Installation



Handle shown in shipping position, held with just 2 bolts on each side.

Includes a plastic bag holding additional bolts for installation. (shown attached to handle bar)



Handle shown installed with 4 bolts per side and upper casters for loading into vehicle.

The casters are mounted on top of the handle-mounting bracket and held with the same bolts used to secure the handle.

Duct Cleaning Procedures

- 1. Bring TurboJet into close proximity to the planned connection.
- 2. Connect 12 gauge electrical power cord directly to a suitable electrical outlet (110V, 15AMP or more)
- 3. Connect a 12" hose (sold separately) to the 12" TurboJet inlet; then connect the other end to the most effective supply duct location using the optional Pogo Pole hose adapter with adapter plate.
- 4. Close off the return side of air handler by putting a filter in a plastic bag and reinstalling it into its holder.
- 5. Turn on the power switch located on the control panel then turn on the start switch and the power light will go on and the blower motor will start providing strong suction.
- 6. Follow recommended procedure to clean each supply, beginning at the most distant one, using the Cobra Brush System, Sidewinder or Air Whisk (sold separately).
- 7. Before fogging the supplies, turn off the power switch. (fogger and fogging supplies sold separately)
- 8. Remove hose from the top of the TurboJet.
- 9. Place a piece of pellon, 20" X 22" over the 12" inlet.
- 10. Re-install hose, and turn on the power switch.
- 11. Fog the supplies, beginning with the most distant supply.
- 12. When the fogging is complete, turn off the power; remove the hose from the TurboJet and the supply duct.
- 13. Remove and discard pellon.
- 14. Inspect first stage filter, if loaded with debris, clean and reinstall.
- 15. Inspect electrostatic filters and wash if soiled.
- 16. Unplug power cord, put TurboJet back into the vehicle, and complete the job.

Maintenance

The TurboJet requires a minimum amount of maintenance, normally limited to cleaning or replacing filters as they become filled with dirt and debris. Cleaning the 1st and 2nd stage filters daily will extend the life of the 3rd stage HEPA canister filter.

1st and 2nd Stage Filter Replacement

- 1. The 1st stage disposable Pleated filter and 2nd stage Electrostatic air filter should be cleaned when visibly dirty and at the end of each workday. Simply dump out the loose debris and vacuum the surface. Follow all local regulations on disposing of material removed from the ducts. In critical areas, such as hospitals, it is required to cover the inlet with 6-mil plastic when the job is completed to prevent the collected debris from escaping and contaminating the area between the work area and the service vehicle.
- 2. When necessary, wash the 2nd stage filters with a garden hose and nozzle at full force. First rinse in the opposite direction of the airflow, then rinse both sides. Occasionally, a degreaser such as Air-Care Zap filter cleaner may be required to restore this filter to its' peak performance. Let the filter air dry before reinstalling into the unit.

Note: When there is not sufficient time to allow filters to dry before using the TurboJet, simply vacuum the loose debris off of the filters' surfaces or use compressed air in an appropriate outdoor area.

3. When the control panel pressure gauge reads 4 1/4" or more and the 1st and 2nd stage filters are clean, the 3rd stage HEPA filter should be replaced (approximately once or twice per year, if other filters are cleaned regularly).

HEPA Replacement

1. Open the front door on the TurboJet to gain access to the filters. Remove the 1st stage pleated filter. Then, remove the 2nd stage Electrostatic air filter and the 3rd stage HEPA filter and replace.

NOTE: Never wash the Pleated or HEPA filter with water.

2. Use care when removing the 3rd stage HEPA filter. When the airflow through the inlet is noticeably reduced and the 1st & 2nd stage filters are clean, it is time to replace the 3rd stage HEPA filter. The life of this filter can be prolonged by removing the filter from the TurboJet, then tapping it on the ground to knock off the "filter cake" on the outside surface. Using moderate compressed air with a suitable nozzle, apply air to the inside of the filter pushing the "filter cake" debris out of the filter. **NOTE: Applying too much air pressure or holding the nozzle too close to the filter surface can damage the filter.**

If you have any questions, please call Air-Care at 800-322-9919

Parts and Accessories

Ref#	Description	Part#
	CE2012V-B COMPLETE ASSEMBLY	CE2012V-B
1	TurboJet 2012V Main Assembly, with Wheels, Motor and Blower in tact	Call
2	First stage, 18" x 24" x 10" Disposable Pleated Filter	F1961A
3	Second stage, 18" x 24" x 1" 94% Electrostatic Air Filter	F1824
4	Third stage, 18" x 24" x 6" HEPA Filter	F1952
5	25' Extension Power Cord	1306
6	Lift/Turn Latch	1348
7	Steel Handle	4233
8	12" Non-Marking Wheels (Modifed for 2012 ONLY)	AC1578M
9	Front Swivel Casters	1352
Not Shown	Carrying Handle, Spring Loaded	1310
10	Gauge, W.C.	1317
11	Power Receptacle	1251
12	Light, Panel	3062
13	Switch, DPST Start	1913A
14	Switch, Hi/Low Speed	3064
15	Circuit Breaker/Power Switch, Dual 20 amp.	3058
16	Pogo Pole Hose Adapter 12"	CE1630E
17	Cap Plug, 4" Red (for Pogo Pole Assembly)	4267
Not Shown	12" x 12.5' Heavy Duty Hose with Velcro Straps	CE1946A
18	12" x 12.5' Light Duty Mylar Hose with Velcro Straps	CE1341A
Not Shown	12" x 12.5' Light Duty Mylar Hose Assembly	CE1339A
Not Shown	Includes: (2) 12" x 12.5' Hoses, (4) Velcro Straps (1) Hose Coupler	CEISSA
Not Shown	12" x 25' Light Duty Mylar Hose with Velcro Straps	CE1340A
19	12" x 12". 26 gauge, galvanized steel duct patches, 10/pkg.	AC3002
20	Foam Register Plugs, 14pc./pkg.	CE1695
21	Pre-Filter, Pellon Moisture Barrier Sheets, 12/pkg.	F1682
23	12" Adapter Plate	CE1513C
24	Air-Care Fogger 1.2M Hose	CE1242
25	BrushMaster Power Brush System	CE3050A
26	Forward and Reverse Air Whisk System	CE1448A
27	Sidewinder Hose Assembly	CE1542A
28	HEPA Back Pack Vacuum	CE2297C
Not Shown	"Snap In" Finish Plug (Only on Early Models)	1250
Not Shown	Motor, 230 Volt, 3 Phase	3066
Not Shown	Inlet Cone	1917
Not Shown	Blower Wheel, Backward Inclined	1916

Included Parts and Accessories

(Ref#7) Steel Handle

12" Dia. Inlet

(Ref#6) Lift/Turn Latch

(Ref#2) 1st Stage 18" x 24" x 10" Disposable Pleated Filter

(Ref#3) 2nd Stage 18" x 24" x 1" 94% Electrostatic Air Filter

> (Ref#4) 3rd Stage 18" x 24" x 6" HEPA Filter

Exhaust Grills

(Ref#8) 12" Non-Marking Wheels

(Ref#9) Front Swivel Casters



SOFT CONTROL OF CONTRO

(Ref#5) 50' Extension Cord

(Ref#10) Gauge, W.C.

(Ref#11) Power Receptacle

(Ref#15) Circuit Breaker/Power Switch, Dual 20 amp.



(Ref#12) Light, Panel

(Ref#14) Switch, Hi/Low Speed

(Ref#13) Switch, DPST Start

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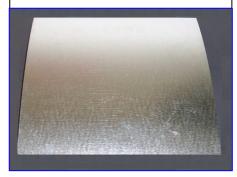
Optional Parts and Accessories



(Ref#16) 12" Pogo Pole Hose Adapter (Complete Assembly comes with Pole, Fork, 20 X 20 X 2 Foam attached to 12" Steel Pogo Plate & (Ref#18) 4" Red Cap Plug)



(Ref#19) 12" x 12", 26 gauge, Galvanized Steel Duct Patches



(Ref#21) Pre-Filter, Pellon Moisture Barrier Sheets (12/pkg)



(Ref#20) Foam Register Plugs (14/pkg)



Optional Parts and Accessories (Continued)

(Ref#25) BrushMaster Power Brush System



(Ref#27) Sidewinder Hose Assembly



(Ref#28) HEPA Back Pack Vacuum



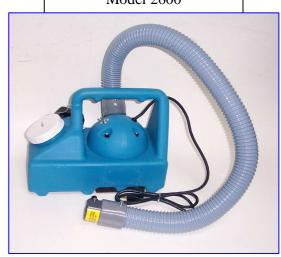
(Ref#18) 12" x 12.5" Light Duty Mylar Hose with Velcro Straps



(Ref#26) Forward and Reverse Air Whisk System



(Ref#24) Air Care Fogger Model 2600



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Troubleshooting Guide

The TurboJet 2012V-B has an internal inverter which displays diagnostic codes for 30 seconds after a failure. Please note this code (visible through the exhaust grill on one side) or have the 2012V-B near you when you call Air-Care so we can diagnose the problem and correct it quickly.

Symptom	Check	If	Corrective Action
Motor does not start when power switch is turned on.	"Power" light on?	Yes	Check connections to motor and control panel.
		Yes	Test motor and replace if bad.
		Yes	Check for manual reset button on motor.
		No	Check and reset circuit breaker and verify electrical outlet has power. If inverter has 2 dashes call Air-Care. (The inverter is located behind the control panel inside the TurboJet machine).
No vacuum with motor running.	Is blower turning?	Yes	Tighten shaft adapter bolts and align wheel & inlet cone. (Call Air-Care)
		No	Replace blower wheel and inlet cone.
W.G. 4.0" vacuum, with motor running	Is 1 st stage pleated filter and 2 nd stage	Yes	Replace HEPA filters as required.
motor running	Electrostatic filters clean?	No	Clean 1 st and 2 nd stage air filters.
Insufficient "pull" at duct.	Is the W.G. gauge meter reading 2.0" or more?	Yes	Clean or replace filters as required.
	reading 2.0° of more.	No	Check for disconnected, collapsed or broken system ducts.
		No	Inspect 12" hose for cracks or holes.
Circuit breaker trips when TurboJet is turned on.	Is the TurboJet connected to a dedicated 115-volt, 15 or 20-amp line?	Yes	Be sure TurboJet is connected directly to the power outlet. DO NOT use an extension cord.
		Yes	Be sure that only the original 12 gauge (or heavier) 50 ft. power cord is used on the TurboJet 2012V.
		Yes	Call Air-Care
		No	Find an outlet on a line that does not have other devices connected to it.

Inverter Troubleshooting Guide

Fault	Description and Possible Causes
	Low DC Voltage Fault:
LF	Check for loose connection for faulty wires between the power receptacle and inverter.
	Check extension cord to make sure it is the correct gauge. Should be 12 gauges, 15 to 20 amps.
	Check to make sure your getting enough voltage from the residential or commercial outlet being used. Try using another outlet.
	Start Fault:
UF	Motor start switch was "on" when the main power/circuit breaker switch was turned on. When turning on the main power switch, you must wait 5 seconds before turning on motor start switch.
	EPM Fault:
F1	Check EMP chip to make sure it is not loose or dirty by removing it from inverter and air blow clean then reinsert. It is recommended that non-conductive silicone be used above the EPM chip after reinserting back into inverter to keep it in place and to prevent dust from getting inside.
	Any other Fault Code: Please contact Air Care Technical Support at 800-322-9919

For the "K-B" Model 26D Inverter, there are no number codes, just LED's that Blink a code.

12 DIAGNOSTIC LEDS

The drive contains two diagnostic LEDs to display the drive's operational status. See Figure 4, on page 20, for the location of the "PWR" and "ST" LEDs.

- 12.1 Power On (PWR) The "PWR" LED will illuminate green when the AC line is applied to the drive
- 12.2 Status LED (ST) The "ST" LED is a tricolor LED which provides indication of a fault or abnormal condition. The information provided can be used to diagnose an installation problem such as incorrect input voltage, overload condition, and drive output miswiring. It also provides a signal which informs the user that all drive and microcontroller operating parameters are normal. Table 4, on page 38, summarizes the "ST" LED functions.

TABLE 4 - DRIVE OPERATING CONDITION & STATUS LED INDICATOR

Drive Operating Condition	Flash Rate ¹ and LED Color
Normal Operation	Slow Flash Green
Overload (120% - 160% Full Load)	Steady Red ²
I ² t (Drive Timed Out)	Quick Flash Red
Short Circuit	Slow Flash Red
Undervoltage	Quick Flash Red / Yellow ³
Overvoltage	Slow Flash Red / Yellow ³
Stop	Steady Yellow

Specifications

Specification	Description
Size	19.5" W x 29" D x 55 ½" H
Weight	140 lbs.
Power required	120 V, 60 Hz, 13 to 17 amps.
Power Cord	50' Extension Cord
Filtration	4 stages when pre-filter used
Pre-Filter	Pellon Moisture Barrier
1st Stage	18" x 24" x 10" Disposable Pleated Filter
2 nd Stage	18" x 24" x 1" 94% Electrostatic Air Filter
3 rd Stage	18" x 24" x 6" Certified HEPA Filter
Attachment	12" Dia. Inlet
Operating Environment	25 to 125 Deg. F (-4 to 50 Deg. C)
Construction	Aluminum Reinforced with Steel
Operating Controls	Single Plug-able Panel with all Gauges, Indicators, Switches, & Meters
Air Flow	3000 CFM Free Air/ 2700 CFM Filtered
Static Pressure	5.0" W.G.
Motor	One – 1.5 HP 3 Phase Motor and One – Single Phase Inverter with Soft Start and Dual Speeds
Blower	One - Backward Inclined
Wheels	Two - 12" Fixed Rear and Two - 3" Front Swivel Non-Marking Wheels

^{*}All specifications and prices are subject to change without notice.

Glossary & Acronyms

- 1. ACGIH—American Conference of Government Industrial Hygienists
- 2. ASHRAE—American Society of Heating, Refrigerating, and Air Conditioning Engineers
- 3. Air Handler/ AHU—The Furnace or air conditioner that heats, cools and moves the air.
- 4. Antimicrobial—Agent that kills Bacteria, Molds and viruses. See "Sanitizer
- 5. Arrestance An ASHRAE standard procedure to measure air filter efficiency (52.1)
- 6. Bioaerosols— Molds and bacteria that are found floating in the air.
- 7. Biological Contaminants—Bacterial, Mold/Fungus, viruses and their waste, byproducts and decomposition materials that can be inhaled and cause many types of health effects.
- 8. Building Related Illness—Diagnosable illness whose symptoms can be identified and whose cause can be directly attributed to airborne building pollutants (e.g., Legionnaire's disease, and hypersensitivity Pneumonitis).
- 9. CFM—Cubic Feet per Minute, a measure of how much air is flowing in an air system.
- 10. CO—Carbon Monoxide, an odorless, toxic gas produced during combustion.
- 11. CO₂—Carbon Dioxide an odorless, non-toxic gas produced during combustion and exhaled by people.
- 12. Ceiling Plenum The area above a suspended ceiling that may be used as a return path to the Air Handler.
- 13. Conditioned Air The air that has been filtered, heated or cooled by the air handler.
- 14. Dampers Flaps or valves in the air duct that control the amount of airflow in the duct.
- 15. Diffusers & Grilles & Registers The covers at the end of supply and return ducts that control the amount and direction of the air-conditioned air entering or leaving a room.
- 16. Electrostatic Filter A High Efficiency (95% Arrestance) Air filter that generate static electricity from the air movement through the air handler and captures dust from the air while the clean air move freely through it.
- 17. EPA—Environmental Protection Agency
- 18. Duct A metal, plastic or fiberglass tube that transports air to and from the Air Handler. They can be round, square or rectangular.
- 19. Duct Board Compressed fiberglass material used to make air ducts, particularly in the southern U.S.
- 20. Fiberglass Filter A disposable, very low efficiency filter (approx. 10% arrestance).
- 21. Flex duct Plastic fabric duct with a spiral wire support. It us used extensively in the Western U.S.
- 22. HEPA—High Efficiency Particulate Air
- 23. HVAC—Heating, ventilation and air-conditioning
- 24. IAQ—Indoor Air Quality
- 25. MSDS—Material Safety Data Sheet
- 26. Make-up Air Fresh "outside" air that is brought into a Commercial building.
- 27. NADCA-- National Air Duct Cleaners Association
- 28. NAFA National Air Filter Association
- 29. NIOSH—National Institute for Occupational Safety and Health
- 30. Negative building pressure A condition that allows air to flow into a building when a door is opened.
- 31. NSC -- Nevada Safety Counsel
- 32. NSF International An independent testing laboratory for Air filters
- 33. OSHA—Occupational Safety and Health Administration
- 34. Positive building Pressure A condition when air will come out of a building when a door is opened.
- 35. Re-entrainment The flow of dust and debris removed from an air system back into the same building
- 36. Return/Return Duct
- 37. Sanitizer A material designed to kill mold, bacteria, and viruses.
- 38. Sick Building Syndrome A group of symptoms such as headache and watery eyes that disappear after the sufferer leaves the building for a few hours.
- 39. Supply/ Supply Duct—The opening and related ductwork that delivers conditioned air to a room.
- 40. VAV—Variable air volume system A system that varies the amount of flow of air to regulate temperature.
- 41. VOC's—See "Volatile Organic Compounds"
- 42. Volatile Organic Compounds (VOC's)—Chemicals that release gasses into the air such as solvents.

Limited Warranty

Air-Care warrants it products free from defects in materials and workmanship to the original purchaser for a period designated below from the date of purchase. Individual components, such as motors, blowers and electronic devices carry the warranty from the original manufacturer.

Report any suspected warranty failure of an Air-Care product to Air-Care immediately for a Return Authorization Code. Upon examination by Air-Care, if the product is found defective in workmanship or material, it will be repaired or exchanged, at Air-Care's discretion. Failure of components not manufactured by Air-Care will be handled on an individual basis.

General Conditions

This warranty shall be held void on any Air-Care equipment which has been modified or altered in any way or which has been subject to improper maintenance, improper usage or abuse.

Air Care warrants its equipment to the original purchaser only.

The Purchaser is responsible for the cost of shipping the equipment to Air-Care for evaluation. If found defective, Air-Care will pay FedEx ground shipping charges on the repaired or replaced item back to purchaser's location. Any additional expedited service charges shall be born by the purchaser.

Warranty Periods

- 1 Year Limited Warranty on Duct Leakage Testers
- 2 Year Limited Warranty on VIS Models, Truckmaster
- 3 Year Limited Warranty on all Turbojet Models, Cobra Models and Air Care DuctMaster Models
- 90 days on all other products



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