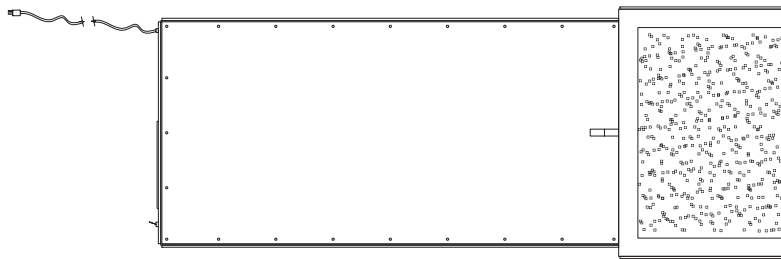


OWNERS MANUAL

FOR

Penn State Industries Model AC2500V2 INDUSTRIAL AIR CLEANER



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SAFETY

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY BEFORE INSTALLING, OPERATING OR SERVICING YOUR AIR CLEANER.

Follow all building and safety codes when installing this equipment. Pertaining but not limited to , the Occupational Safety and Health Act (OSHA), National Electric Code (NEC), Uniform Building Code (UBC), National Fire Prevention Act (NFPA) & all state and local codes.

All electrical connections should be performed by a qualified electrician.

Keep flammable objects away from the air cleaner and under no condition should a burning object be allowed into the air cleaning system.

Do not mix materials collected in your air cleaner. Materials collected could create a hazardous environment or a condition of operation for which the equipment was not intended. The manufacturer is relieved of any liability if this unit is not used according to this manual.

Do not use the air cleaner for an application other than for which it was intended. Consult your distributor, applicable codes, or call Penn State Industries for application assistance.

Fire protection is not included, please consult your local fire protection specialist for any required extinguishing equipment.

Consult with your insurance underwriter about any other protection from fire damages.

The manufacturer reserves the right to make design changes which may improve the air cleaner.

This unit is intended for use to collect ambient smoke, airborne pollutants, and fume in industrial and manufacturing facilities . Do not use for the collection of flammable or explosive metals, dusts, fumes, or other potentially hazardous materials.

INSPECTION

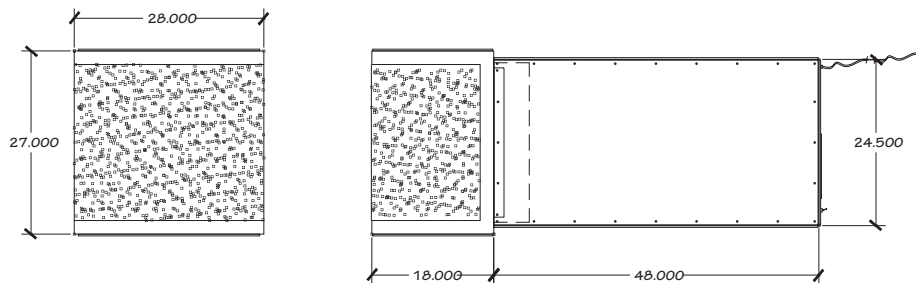
Upon receiving your Penn State Industries air cleaner, please inspect for any damage incurred during shipment. Inspect carefully, some damage may not be noticeable until the unit is installed. Notify your shipper of any damage immediately. Claims must be filed with the shipper within 15 days. Freight damage claims are the responsibility of the purchaser.

SPECIFICATIONS

Penn State Industries Model AC2500V2

Cabinet	14 ga powder coated steel frame. 3/16 polyethylene panels (14 ga steel panels, optional)	
Size	27”H x 66”L x 28”D	
Weight	170 lbs.	
Power	115 /1/60	10.2amps high
Air Volume	2,500 CFM High, 1,660 CFM Low	
Motor	3/4 HP PSC Type, Overload Protected, 3 speed	
Blower	10 x 10 Direct Drive DWDI Forward Curve	
Exhaust	Four Way adjustable louver	
Filters(2 ea.)	Prefilter - 2” Poly Pad Secondary - 24x24x4 pleated prefilter Main Filter – 24 x 24 x 21, 95%, 8 Pocket Fiberglass Bag	
Warranty	3 year limited warranty	

Figure 1.



INSTALLATION

The system's weight must be taken into account when choosing the proper installation method (see specification). Follow all applicable building and electrical codes.

There are two main ways of installing your Model AC2500V2 air cleaner, chain hanging (eye bolts factory installed as option), or angle braces. Figure 2 illustrates these methods.

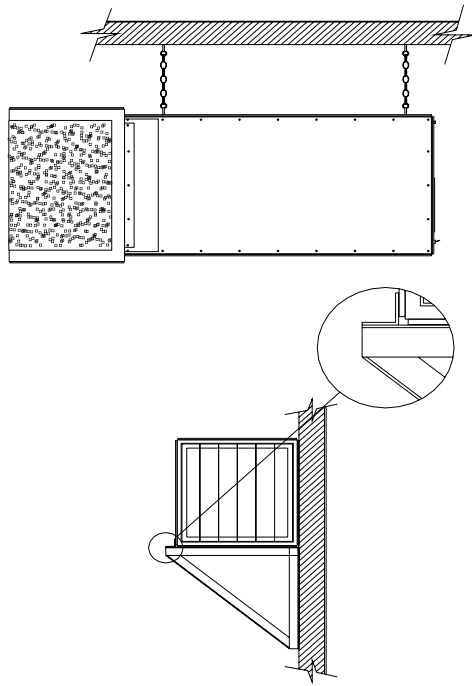


Figure 2

Mounting materials must be able to support the weight of the air cleaner plus the additional weight of the material collected. Consult your local building code for proper installation methods and materials. Failure to use the proper materials could result in injury or damage equipment and will void the warranty.

REPLACEMENT PARTS

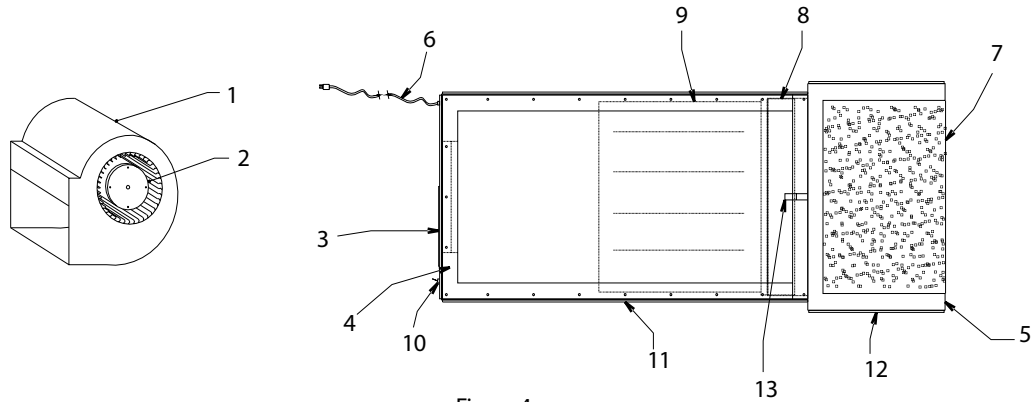


Figure 4

TABLE 1 MODEL 2500 REPLACEMENT PARTS

ITEM	PART NUMBER	QTY	DESCRIPTION
1	BW10-DD10	1	BLOWER ASSEMBLY
2	MT41-1013	1	3/4 HP MOTOR, 115V, 4 SPEED
3	GR07-0013	1	EXHAUST GRILLE
4	FR25-ASSY	1	14 GA FRAME ASSY
5	FR25-OWWA	1	WRAP AROUND ASSEMBLY, W/HINGE
6	ELPC-1438	1	14/3 POWER CORD, 8 FT
7	FD02-2760	1	2" POLY PAD PREFILTER
8	FP44-2424	1	45% PLEATED PREFILTER*
9	FB98-2424	1	95% FIBERGLASS BAG FILTER*
10	ELSW-1012	1	SPEED SWITCH, 15 AMP ON/OFF/ON
11A	PNPE-2448A	4	POLYETHYLENE PANELS, ALL 4 SIDES
11B	PNPE-2448B	1	POLYETHYLENE PANEL, EXHAUST END
12	PNPE-1824	1	POLYETHYLENE PANEL, WA TOP & BOTTOM
13	HW25-0001	1	RUBBER LATCH ASSEMBLY

* FILTER EFFICIENCIES BASED ON ASHRAE TEST METHODS

ELECTRICAL WIRING DIAGRAM

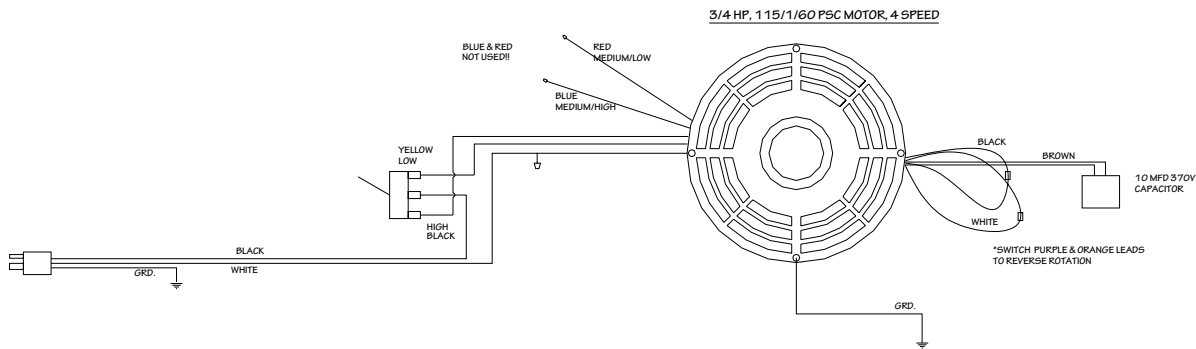


FIGURE A, TYPICAL WIRING DIAGRAM

Unit comes complete with switch and cord wire for 115/1/60 service. Additional wiring maybe required to get power to unit, which is not supplied with this product. All field wiring should be performed by a qualified electrician and must meet all local and NEC codes. Failure to install the proper electrical wiring and controls will void the warranty.

ROTATION - Rotation is set at the factory. To reverse rotation on the standard psc motor, switch the black and white leads on the rotation plug directly on the motor as shown in Figure A above. If the optional TEAO motor is used, switch the purple and yellow leads shown below in Figure B.

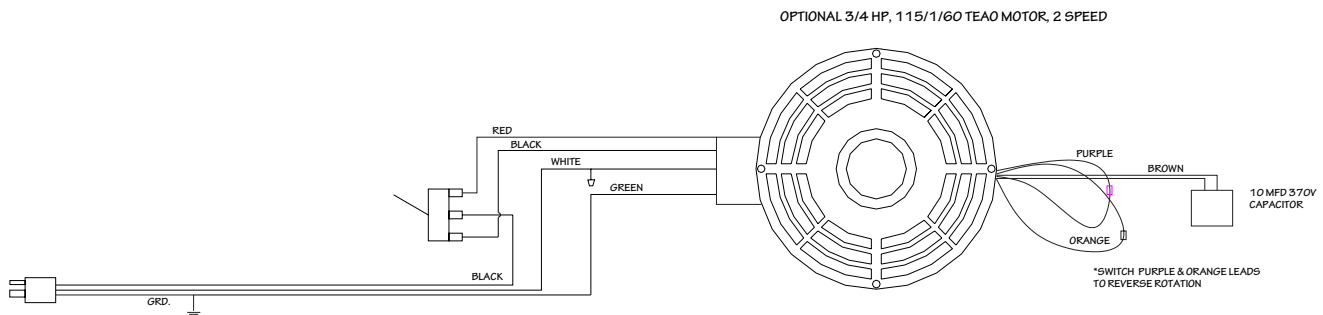


FIGURE B, TYPICAL WIRING DIAGRAM

Connecting Power to Motor

To connect motor for proper voltage and rotation, refer to the connection diagram on the nameplate or inside the terminal/conduit box.

Minimum Wire Sizes for Shaded Pole and PSC Motors

Motor HP	---25 Feet---		---50 Feet---		---100 Feet---		---150 Feet---		---200 Feet---	
	115V	230V	115V	230V	115V	230V	115V	230V	115V	230V
1/12	14(18)*	14(18)*	14(18)*	14(18)*	14	14(18)*	14	14(18)*	12	14(18)*
1/10	14(18)*	14(18)*	14(18)*	14(18)*	14	14(18)*	12	14(18)*	12	14(18)*
1/8	14(18)*	14(18)*	14(16)*	14(18)*	14	14(18)*	12	14(18)*	10	14(16)*
1/6	14(18)*	14(18)*	14(16)*	14(18)*	14	14(18)*	12	14(18)*	10	14(16)*
1/5	14(18)*	14(18)*	14(16)*	14(18)*	12	14(18)*	12	14(18)*	10	14(16)*
1/4	14(18)*	14(18)*	14	14(18)*	12	14(18)*	10	14(16)*	8	14
1/3	14(16)*	14(18)*	14	14(18)*	10	14(16)*	10	14(16)*	8	14
1/2	14(16)*	14(18)*	14	14(18)*	10	14(10)*	8	14	8	14
3/4	14	14(18)*	12	14(18)*	8	14	6	12	6	12
1	14	14(18)*	10	14(16)*	8	14	6	12	4	10
1 1/2	12	14(18)*	10	14(16)*	6	14	4	10	4	10

NOTE:

NEC Article 310-5 --- Minimum conductor size for general wiring at 115-440VAC is No. 14AWG.

Above wire sizes based on approximate 5% voltage drop during starting; copper conductors; and 75° C type THHW, THW, THWN, RH, RHW insulation, etc. For aluminum wire, increase two wire size steps minimum. See NEC Article 310 for ampacities of aluminum conductors.

Type S, SO, SJ, SJO, etc. Flexible cable wire sizes. See NEC Article 400 for ampacity.



Before performing any maintenance, disconnect power and allow motor to come to a complete stop. Discharge capacitors, if any, for safety.

Recommended Maintenance

Remove dirt accumulations in and around vent openings by vacuuming. **Dirt accumulations can cause motor overheating and a fire hazard.** Enclosed motors can be cleaned with an air jet; wear eye protection.

Periodically inspect the installation. Check for dirt accumulations; unusual noises or vibration; overheating; worn or loose couplings, sheaves and belts; high motor current; poor wiring or overheated connections; loose mounting bolts or guards; and worn motor starter contacts.

Exercise caution with solvents; some solvents may attack motor insulation, finish or bearing lubricants; some are highly flammable. If solvents are used, make sure area is well ventilated.

Sleeve bearing motors require periodic re-oiling. Follow re-oiling instructions on the motor (see nameplate or terminal box cover). If instructions are not included, re-oil continuous duty units once a year, intermittent duty units every two years and occasional duty units every five years with 30 to 35 drops of SAE No. 20 non-detergent or electric motor oil. Do not over lubricate.

MOTOR TROUBLESHOOTING

This chart suggests common answers to electric motor problems. The information is not all-inclusive and does not necessarily apply in all cases. When unusual operating conditions, repetitive failures, or other problems occur, consult an electric motor service firm for assistance.

Symptom	Possible Cause(s)	Corrective Action
Motor fails to start	<ol style="list-style-type: none"> 1. Blown fuses 2. Tight shaft 3. Voltage too low at motor terminals due to the line drop 4. If permanent split capacitor motor, capacitor may be defective 5. Overload (internal thermal protector) tripped 6. Improper line connections 7. Motor may be overloaded. Defective motor or starter. 	<ol style="list-style-type: none"> 1. Replace with time delay fuses. Check for grounded winding. 2. Occasionally during shipment a sleeve bearing motor may be received with a shaft which does not rotate freely. It may be necessary to strike the motor at the shell/endshield rabbet with a rawhide or plastic mallet to align the bearings 3. Consult local power company. Increase wire size (refer to Minimum Wire Size Table). Check for poor connections 4. Indicated by humming sound. Replace run capacitor. See nameplate for correct value. 5. Check motor load. If motor has an automatic reset thermal protector, turn off power, allow motor to cool 6. Check connections against diagram supplied with motor 7. Repair or replace
Motor does not come up to speed or takes too long to accelerate	<ol style="list-style-type: none"> 1. Not applied properly 2. Voltage too low at motor terminals 3. Starting load too high 4. Excess loading; tight belts 5. Defective motor 6. Inadequate starting torque. High inertia load 	<ol style="list-style-type: none"> 1. Consult motor service firm for proper type. Use larger motor 2. Increase wire size (refer to Minimum Wire Size Table). Check for poor connections 3. Check load motor is carrying at start 4. Reduce load; increase motor size. Adjust belts 5. Replace or repair 6. Replace with larger motor
Insufficient speed change	<ol style="list-style-type: none"> 1. Insufficient motor load 	<ol style="list-style-type: none"> 1. Use a lower horsepower motor. Reduce system restrictions (blower). Increase system restrictions (propeller fan)
Motor stalls during operation	<ol style="list-style-type: none"> 1. Overloaded motor 2. Low motor voltage 	<ol style="list-style-type: none"> 1. Reduce load or increase motor size 2. Verify that nameplate voltage is maintained
Motor vibrates or is excessively noisy	<ol style="list-style-type: none"> 1. Motor shaft is misaligned 2. Loose or defective or out-of-balance fan blade or blower wheel 3. Worn, damaged, dirty or overloaded bearings 4. Defective winding. Bent or bowed shaft 	<ol style="list-style-type: none"> 1. Realign 2. Tighten set screw(s); repair or replace fan blade or blower wheel 3. Repair or replace motor; check loading and alignment 4. Replace motor

MOTOR TROUBLE-SHOOTING	(Continued)	
Motor overheats while running under load	1. Overloaded	1. Reduce load; increase motor size; belts may be too tight
	2. Dirt blocking ventilation openings	2. Clean motor
	3. Faulty connection	3. Clean, tighten, or replace
	4. High or low voltage	4. Check voltage at motor, should not be more than 10% above or below rated
	5. Defective motor	5. Repair or replace
SERVICE RECORD		
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Blower Maintenance

At least once per year, clean and inspect the blower assembly.

1. Remove dirt from blower wheel and housing
2. Check tightness of wheel set screw.
3. After disconnecting the power source, check the wiring to see if it is secure and well insulated.
4. Relubricate motor per manufacturer's instructions. Remove any excess lubricants.

BLOWER TROUBLESHOOTING CHART

Symptom	Possible Cause(s)	Corrective Action
Excessive noise	<ol style="list-style-type: none">1. Blower wheel in contact with housing2. Foreign material inside housing3. Leak in duct work4. Loose duct work	<ol style="list-style-type: none">1. Realign or replace2. Clean3. Repair4. Secure properly
Insufficient air flow	<ol style="list-style-type: none">1. Motor speed too low (multi-speed units only)2. Leaks in duct work3. Dampers and/or registers closed4. Obstruction in system5. Clogged filters	<ol style="list-style-type: none">1. Make speed adjustment2. Repair3. Open4. Remove5. Clean or replace
Too much air flow	<ol style="list-style-type: none">1. Filters not in place2. Motor speed too fast (multi-speed units only)3. Registers or grilles not installed4. Insufficient static pressure (SP)	<ol style="list-style-type: none">1. Install filters2. Lower speed3. Install to match system requirement4. Check your static pressure (SP) calculations and correct system accordingly
Unit fails to operate	<ol style="list-style-type: none">1. Blown fuse or open circuit breaker2. Defective motor capacitor3. Defective motor4. Motor improperly wired	<ol style="list-style-type: none">1. Replace fuse or reset circuit breaker2. Replace capacitor3. Replace motor4. Rewire motor
Motor overloaded	<ol style="list-style-type: none">1. System static pressure too low	<ol style="list-style-type: none">1. Check and correct system

WARRANTY STATEMENT

3 Year Limited Warranty

ITEMS NOT COVERED WITHIN THIS WARRANTY ARE THE FILTERS AND DUCTWORK, WIRING AND INSTALLATION NOT SUPPLIED BY INDUSTRIAL MAID LLC.

PENN STATE INDUSTRIES WARRANTS THAT ALL NEW AIR CLEANERS AND AIR FILTRATION EQUIPMENT ARE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP UNDER NORMAL USE AND SERVICE. PENN STATE INDUSTRIES WILL REMEDY ANY SUCH DEFECTS IF THEY APPEAR 36 MONTHS FROM THE DATE OF PURCHASE, SUBJECT TO THE TERMS AND CONDITIONS OF THIS LIMITED 3 YEAR WARRANTY LISTED BELOW.

1. THIS LIMITED WARRANTY IS GRANTED BY PENN STATE INDUSTRIES, 9900 GLOBAL RD., PHILADELPHIA, PENNSYLVANIA 19115
2. THIS WARRANTY SHALL EXTEND TO ANY OWNER WHO HAS PURCHASED THE EQUIPMENT OTHER THAN FOR THE PURPOSE OF RESALE.
3. ALL COMPONENTS MANUFACTURED BY PENN STATE INDUSTRIES ARE COVERED BY THIS WARRANTY.
4. IF WITHIN THE WARRANTY PERIOD ANY PENN STATE INDUSTRIES UNIT OR COMPONENT REQUIRES SERVICE, IT MUST BE PERFORMED BY PENN STATE INDUSTRIES OR AN AUTHORIZED PENN STATE INDUSTRIES DISTRIBUTOR. PENN STATE INDUSTRIES WILL NOT PAY SHIPPING CHARGES OR LABOR CHARGES TO REMOVE OR REPLACE SUCH DEFECTIVE PARTS OR COMPONENTS IF THE PART OR COMPONENT IS FOUND BY INSPECTION TO CONTAIN SUCH DEFECTS IN MATERIAL AND WORKMANSHIP, IT WILL BE REPAIRED OR REPLACED FREE OF CHARGE AND RETURNED FREIGHT COLLECT.
5. IN ORDER TO OBTAIN THE BENEFITS OF THIS WARRANTY, THE OWNER MUST NOTIFY THE DISTRIBUTOR OR PENN STATE INDUSTRIES OF THE DEFECT WITHIN 30 DAYS OF ITS DISCOVERY.
6. THIS LIMITED WARRANTY DOES NOT APPLY TO ANY PART OR COMPONENT THAT IS DAMAGED IN TRANSIT OR WHEN HANDLING; HAS BEEN SUBJECT TO MISUSE, NEGLECT OR ACCIDENT; HAS NOT BEEN INSTALLED, OPERATED OR SERVICED ACCORDING TO PENN STATE INDUSTRIES' INSTRUCTIONS; HAS BEEN OPERATED BEYOND THE FACTORY RATED CAPACITY; OR ALTERED IN ANY WAY THAT WOULD AFFECT ITS PERFORMANCE. THERE IS NO WARRANTY DUE TO NEGLECT, ALTERATION OR ORDINARY WEAR AND TEAR. PENN STATE INDUSTRIES' LIABILITY IS LIMITED TO REPLACEMENT OF DEFECTIVE COMPONENTS AND DOES NOT INCLUDE THE PAYMENT OF THE COST OF LABOR CHARGES TO REMOVE THE PART OR REPLACE SUCH PARTS OR COMPONENTS.
7. PENN STATE INDUSTRIES WILL NOT BE RESPONSIBLE FOR LOSS OF USE OF ANY PRODUCT; LOSS OF TIME, INCONVENIENCE, OR ANY OTHER INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES WITH RESPECT TO PERSONAL PROPERTY, WHETHER AS A RESULT OF BREACH OF WARRANTY, NEGLECT OR OTHERWISE. **SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE EXCLUSION OR LIMITATION IN THE PRECEDING SENTENCE MAY NOT APPLY TO YOU.**
8. THIS WARRANTY GIVES YOU SPECIFIC RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE.
9. ANY WARRANTY WORK WILL BE PERFORMED IN A REASONABLE AMOUNT OF TIME, USUALLY WITHIN 60 DAYS AFTER THE NOTE OF DEFECT, SUBJECT TO DELAY BEYOND PENN STATE INDUSTRIES' CONTROL.
10. ANY WARRANTY BY PENN STATE INDUSTRIES OF MERCHANT ABILITY, FITNESS FOR USE OR ANY OTHER WARRANTY (EXPRESS, IMPLIED OR STATUTORY), REPRESENTATION OR GUARANTEE OTHER THAN THOSE SET FORTH HEREIN, SHALL EXPIRE AT THE EXPIRATION DATE OF THIS EXPRESS LIMITED WARRANTY. **SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE LIMITATIONS IN THE PRECEDING SENTENCE MAY NOT APPLY TO YOU.**