

OWNER'S MANUAL

Power Blowers™

Cone Air Flow (CAF) - Electric Driven

VSM Series



INTRODUCTION

Thank you for choosing Tempest Technology Corporation for your ventilation needs. With this manual we hope to help you operate your Tempest product safely and to its full potential. Maintained according to the specifications set in this manual it is not uncommon to receive decades of use and operation out of your Tempest equipment.

This manual is produced solely for the use of purchasers and operators of Tempest Technology Corporation equipment. Any reproduction, retransmission, or other use of the contents of this manual without written consent of Tempest Technology Corporation is strictly prohibited.

It is the intent of this manual to provide the owner/operator of Tempest Technology Corporation products with both general and specific information regarding the safe and proper operation and maintenance of the equipment described within.

CONTACT

If after careful review, any questions arise concerning any portion of this manual, please contact Tempest Technology Corporation for assistance:

TEMPEST TECHNOLOGY CORP.
4708 N. BLYTHE AVENUE
FRESNO, CA 93722

Toll Free: 800.346.2143
t: 559.277.7577
f: 559.277.7579

response@tempest.us.com
www.tempest.us.com

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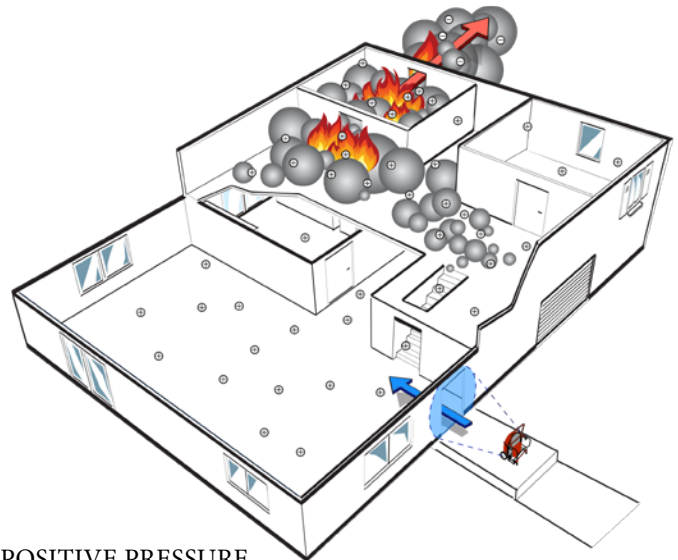
ABOUT TEMPEST

Tempest Technology Corporation is the leading manufacturer of products and accessories for environmental management in firefighting and industrial applications.

Tempest began as a manufacturer of gasoline and electric powered blowers for the fire service. Fire departments use the **Tempest Power Blower™** to provide “Positive Pressure Ventilation / Attack” (PPV/PPA) to remove heat, gases and smoke from the interior of a burning structure.

Tempest has expanded into other industries and found new applications for its products. The **Tempest Power Blower™** and PPV/PPA are used by industrial applications to control dust, fumes and unhealthy gases like carbon monoxide, greatly improving safety in confined spaces.

Tempest Technology Corporation has earned a reputation as a leader and innovator in the air movement industry and continues in that role today.



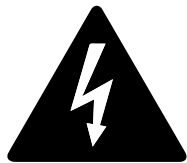
POSITIVE PRESSURE
VENTILATION/ATTACK

SAFETY GUIDE

Failure to follow the operating, maintenance and lubrication requirements set forth in this manual may result in serious personal injury or death and/or damage to equipment or property.

The following WARNING statements indicate potentially hazardous conditions for operators and equipment. Make certain that anyone who works on or around the blower has read and fully understands the safety precautions listed.

1. Carefully read this owner's manual before attempting to operate, service or disassemble any part of your *Tempest Power Blower™*.
2. **DO NOT** operate the unit when mentally or physically fatigued or impaired.
3. Stay away from rotating parts; avoid wearing loose jackets, shirts, and ties. Keep hands and feet away from moving parts.
4. Keep all unauthorized personnel at a safe distance from the blower.
5. Keep all guards in place. **DO NOT** make repairs while the unit is running. **DO NOT** operate if any guard or grille is not in place.
6. Always wear eye protection. Loose debris can be picked up in the air stream and flown in the air.
7. Hearing protection is required. Engine and air noise may exceed safe dB levels.
8. Always ensure proper voltage and amperage is delivered to your *Tempest Power Blower™*.
9. Only a qualified technician should perform repairs or maintenance on electric components.
10. Never operate your *Tempest Power Blower™* with electric components exposed.
11. Never operate your *Tempest Power Blower™* with damaged, exposed or frayed wiring.
12. It is the sole responsibility of the owner/operator to develop procedures for proper use of the *Tempest Power Blower™* in accordance with generally accepted ventilation techniques as well as the organization's own operating procedures, before placing the unit into service.



GENERAL INFORMATION

BLOWER IDENTIFICATION

Each *Tempest Power Blower™* has a part number as well as a serial number. The part number identifies the type of unit (size, drive, etc.) while the serial number relates to information referencing the date of manufacture. This information is useful should it become necessary to contact the factory regarding your *Power Blower™*.

SERIAL NUMBER LOCATIONS

The serial number is typically located on the frame just right of the engine mount (when viewed from behind).

Please write the Serial Number of your *Tempest Power Blower™* in the spaces below. This will aid us in identifying which model you have when assisting you.

Model (Part No.) _____

Date _____

Serial No. _____

WARRANTY

Warranty information on your unit can be found on the back page of this manual. For further information, please contact Tempest Technology Corp.

POWER BLOWER™ DATA

TYPE:	Positive Pressure Ventilation Fan, Cone Air Flow (CAF)
DRIVE:	Direct-Drive Variable Speed 110-120V, 60Hz Electric Motor, GFCI Compatible
BLADE:	AirFlex Fiberglass Reinforced Polyamide Blades
BUSHING:	Keyed Shaft and Set or Cap Screws
SHROUD:	Turbo 2000 Tapered Aluminum w/ Durable Powder-Coat Finish
FRAME:	Rugged, Lightweight, Square-Steel Tubing with Powder-Coat Finish
TILT MECHANISM:	Foot-Operated Tilt Mechanism 16" Models: Four Position Tilt, +10°, +5°, 0°, -5° 18", 21" Models: Five Position Tilt, +15°, +10°, +5°, 0°, -5° 18", 21" BASIC Models: Three Position Tilt, +15°, +10°, 0° (Hand-Operated)
GRILLE:	Continuous Circular-Wound, External-Weld Steel Wire with 8 Tie Points for Additional Safety Meets UL & European CE Safety Standards
VIBRATION DAMPENERS:	Steel-Reinforced Rubber and Welded Steel Spring Feet
WHEELS: (NON BASIC)	16" Models: 6" Non-Pneumatic w/ Steel Hubs 18", 21" Models: 8" Non-Pneumatic w/ Steel Hubs

VSM SPECIFICATIONS:	Model No.	Part No.	Size	HP	CFM	Dimensions (WxDxH)	Weight
	VS-16-M-0.5	910-1500	16"	0.5	10,650	21.00" x 19.75" x 21.75"	68 lbs.
	VS-18-M-0.8	910-1520	18"	0.8	8,465	23.00" x 21.00" x 24.25"	82 lbs.
	VS-21-M-0.8	910-1540	21"	0.8	11,475	26.00" x 21.00" x 26.25"	86 lbs.

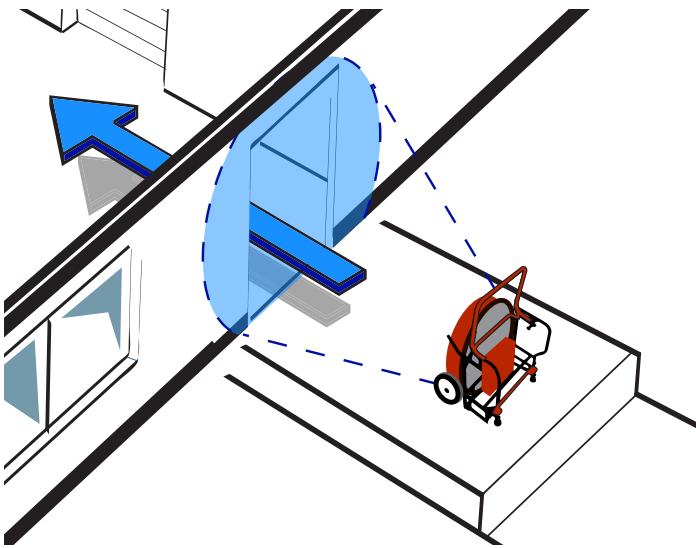
VSM BASIC SPECIFICATIONS:	Model No.	Part No.	Size	HP	CFM	Dimensions (WxDxH)	Weight
	VS-18-M-0.8 BASIC	910-1521	18"	0.8	8,465	22.00" x 18.50" x 24.00"	58 lbs.
	VS-21-M-0.8 BASIC	910-1541	21"	0.8	11,475	25.00" x 18.50" x 25.50"	61 lbs.

POWER BLOWER™ INFORMATION

The *Tempest Power Blower™* is a high powered, portable fan used for Positive Pressure Ventilation and Attack (PPV/PPA), ventilation techniques that quickly and efficiently replace hazardous interior environments with clean, cool air.

PPV and PPA were pioneered in the firefighting industry where firefighters use the *Tempest Power Blower™* to ventilate smoke, heat, and harmful gases from buildings. This creates a safer environment for them to work in and makes it easier for them to find victims and extinguish the fire.

PPV and PPA rely on two principles, (1) an air pattern capable of creating an effective door seal, and (2) pressure. To accomplish Positive Pressure Ventilation or Attack, the blower is placed on the outside of the structure. It is positioned so that the air pattern created by the blower completely seals the entrance opening, or at least 2/3 of it. When this seal is achieved, the air pressure is increased equally at all points inside the structure. When an exhaust opening is created, all of the interior air moves in one mass towards it. The result is fast, efficient ventilation of the entire structure.



NOTE: The *Tempest Power Blower™* is the most efficient tool for PPV and PPA for two reasons. First, the exclusive Tempest Turbo 2000 aluminum shroud design creates a broad, cone shaped air pattern. Second, the airflex impeller used on all Tempest blowers is designed to create high pressure. These two features working together make the *Tempest Power Blower™* a highly effective and efficient ventilation tool.

As with any new technique, Positive Pressure Ventilation requires training and education in order to be implemented properly and safely. Tempest offers access to a complete line of training materials, which cover many applications for this powerful ventilation technique. For more information visit www.tempest.us.com, www.positivepressuretraining.com or contact us at 800.346.2143 or response@tempest.us.com.

OPERATING PROCEDURES

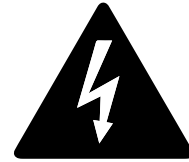
PRE-OPERATION

After receiving and unpacking your blower, be sure to carefully inspect it for any damage that might have occurred during shipping. Should you find any damage: PLEASE NOTIFY TEMPEST TECHNOLOGY CORP. IMMEDIATELY AT 800.346.2143 OR RESPONSE@TEMPEST.US.COM.

OPERATION

SET-UP, STARTING AND STOPPING

Assuming the previous Pre-Operation and safety instructions have been followed the blower is now ready to run.



WHEN USING A GENERATOR, IT IS IMPERATIVE THAT THE GENERATOR BE RUNNING AT FULL CAPACITY BEFORE PLUGGING IN ANY ELECTRIC BLOWER. ALWAYS VERIFY SUFFICIENT GENERATOR OUTPUT BEFORE USE. IMPROPER VOLTAGE SUPPLY MAY DAMAGE UNIT AND VOID WARRANTY.

CAUTION: DO NOT MOVE THE BLOWER WHILE IT IS IN OPERATION. SEVERE PERSONAL INJURY IS POSSIBLE AS WELL AS DAMAGE TO THE BLOWER.

ALWAYS SHUT-DOWN THE BLOWER PRIOR TO MOVING.

SET-UP

Position the blower in the desired location, making sure it is placed on a flat, hard and debris free surface.

STARTING

1. Set speed control knob to OFF.
2. Plug blower into power source.
3. Adjust speed control knob to desired load/speed.

STOPPING

1. Stop unit before unplugging from power source. Make sure toggle is set to OFF.

VSM DRIVE



MAINTENANCE PROCEDURES

Although Tempest Variable Speed *Power Blowers™* are designed to eliminate most maintenance issues, it is imperative that the blowers be inspected before startup on each use. Please review the following list before using this product.

MAINTENANCE SCHEDULE

EVERY USE

- INSPECT BLOWER FOR DAMAGE AND FIX IF ANY
- TIGHTEN/REPLACE ANY LOOSE OR MISSING PARTS

EVERY MONTH OR 10 HOURS

- INSPECT & CLEAN SHROUD & GRILLES

IMPORTANT: Always operate the blower in an area free of debris which may be pulled into the unit's blades. If you suspect the fan's blade may have contacted a hard object, thorough inspection of the blade assembly should be conducted immediately to ensure safety. You may contact Tempest Technology Corp. in order to find out how to properly inspect the blade assembly.

POWER BLOWER™ TROUBLESHOOTING

Various factors can contribute to or be the sole cause of problems for electric power blowers. This section will identify some of these problems and provide solutions to correct them.

BLOWER WILL NOT START WHEN RHEOSTAT TURNED

- Confirm that adequate power is being supplied to blower. If power supply is adequate, **DISCONNECT BLOWER FROM POWER SOURCE** and check for loose or faulty wiring on blower electrical system and repair if needed.
- Connect blower to power source and attempt restarting. If blower does not run, **DISCONNECT BLOWER FROM POWER SOURCE**, remove the drive cover and check the internal wiring connections.
- Check the internal fuse located on the circuit board of the drive.
- If the blower will not start and all electrical connections have been checked, the **VSM** drive may need to be replaced. Contact Tempest at 800.346.2143 or response@tempest.us.com for assistance.

BLOWER MOVEMENT OR "WALKING"

- Adjust the rubber footpads on the back of the blower by turning them either in or out.
- Adjust the side that is walking. This will help to evenly distribute the weight of the blower to all four points of the frame.
- Most blowers will walk if not running at full speed, make sure the blower is running at full speed.
- Ensure the blower is sitting flat and not on small rocks or other objects.
- If blower is still walking, contact Tempest at 800.346.2143 or response@tempest.us.com.

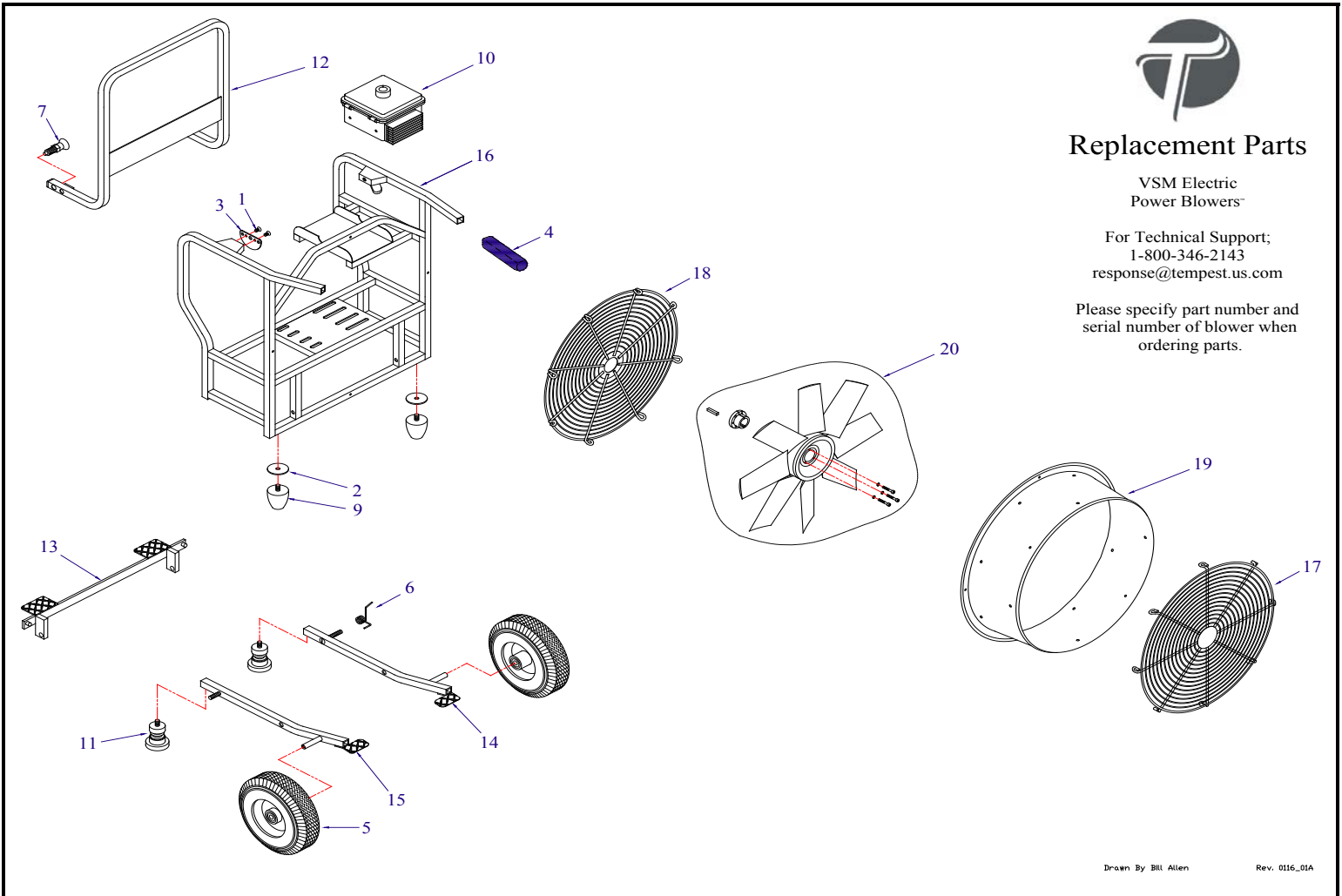


Replacement Parts

VSM Electric
Power Blowers™

For Technical Support;
1-800-346-2143
response@tempest.us.com

Please specify part number and
serial number of blower when
ordering parts.



Drawn By Bill Allen

Rev. 0116_01A

Item #	Description	VS-16-M-0.5	VS-18-M-0.8	VS-21-M-0.8
		910-1500	910-1520	910-1540
		Part No.	Part No.	Part No.
1	1/4 X 1/2 FLAT SOC C/S ZINC	100-079	100-079	100-079
2	WASHER 3/8 X 2 FENDER HVY Z	120-037	120-037	120-037
3	HANDLE BRACKET	220-069	220-069	220-069
4	GRIP BASIC BLOWER HANDLE	220-248	220-248	220-248
5	WHEEL FLAT FREE	240-008	240-012G	240-012G
6	SPRING TORSION	300-019	300-018	300-018
7	SPRING PLUNGER W/HANDLE	300-170	300-170	300-170
NI*	ELECTRIC MOTOR ASSEMBLY STD	360-041	360-042	360-042
9	FOOT TAPERED	580-006	580-006	580-006
10*	VSM DRIVE ASSEMBLY	581-098K	581-098K	581-098K
11	SPRING ASSEMBLY	600-001	600-001	600-001
12*	HANDLE YELLOW	600-715K	600-716K	600-717K
13*	WIN STEP YELLOW	600-719K	600-720K	600-721K
14*	LEG ASSEMBLY LEFT DARK GREY	610-1001K	610-1020K	610-1020K
15*	LEG ASSEMBLY RIGHT DARK GREY	610-1002K	610-1021K	610-1021K
16*	FRAME DARK GREY	610-1302K	610-1322K	610-1342K
17	FRONT GRILLE DARK GREY	610-1400K	610-1420K	610-1440K
18	REAR GRILLE DARK GREY	610-1401	610-1421	610-1441
19*	SHROUD, YELLOW	705-102	705-107	705-112
20*	BLADE ASSEMBLY	260-074	705-285	705-266

* Item includes necessary hardware for installation.

NI Not Illustrated

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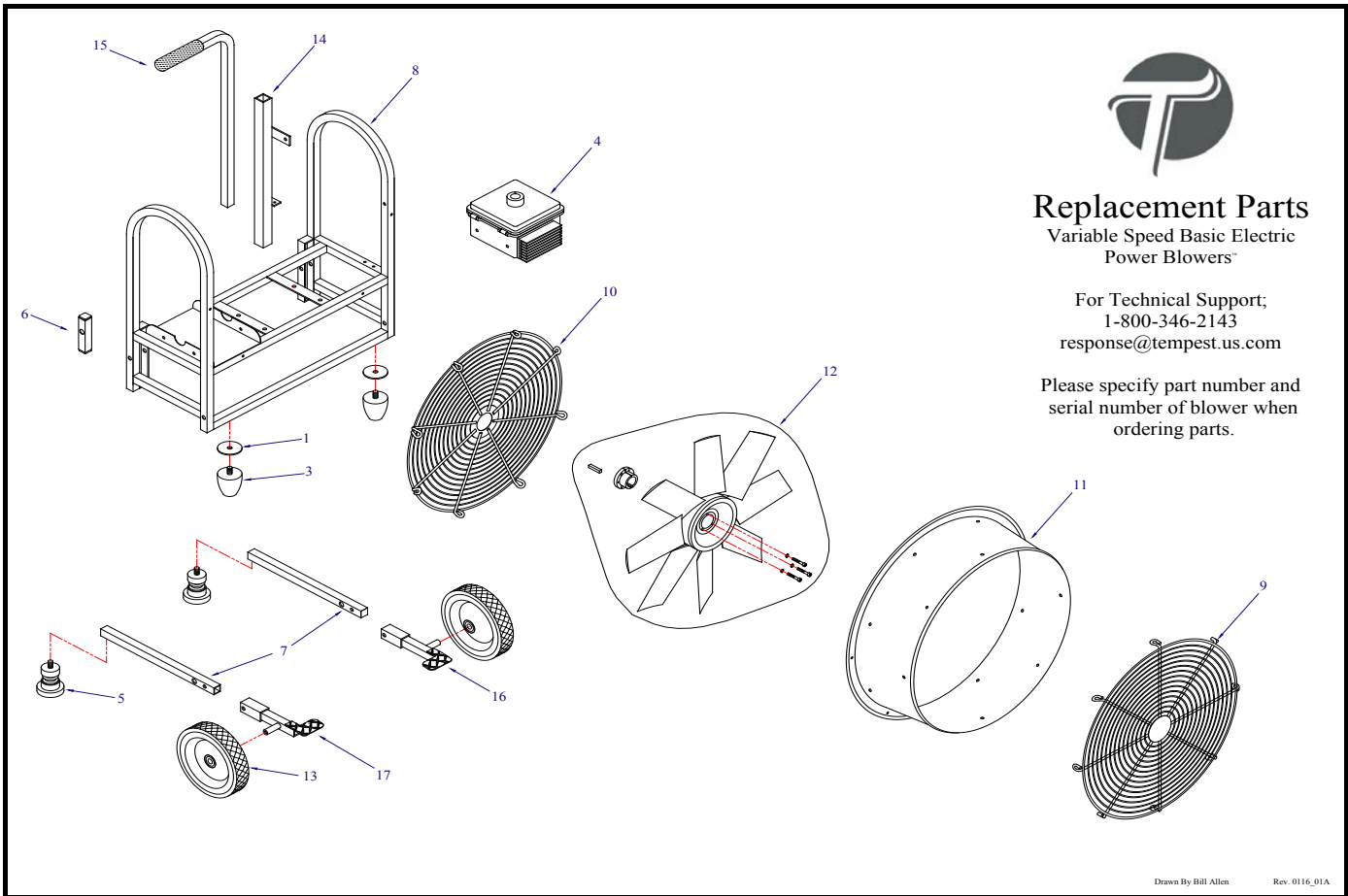


Replacement Parts

Variable Speed Basic Electric Power Blowers™

For Technical Support;
1-800-346-2143
response@tempest.us.com

Please specify part number and serial number of blower when ordering parts.



Drawn By Bill Allen Rev. 0116_01A

Item #	Description	VS-18-M-0.8 BASIC	VS-21-M-0.8 BASIC
		Part No.	Part No.
1	WASHER 3/8 X 2 FENDER HVY Z	120-037	120-037
NI	ELECTRIC MOTOR ASSEMBLY	360-042	600-131
3	FOOT TAPERED	580-006	580-006
4	VS-M DRIVE ASSEMBLY	581-098K	581-098K
5	SPRING & FOOT ASSY, COMPLETE	600-001	600-001
6	BASIC TILT CAM ASSEMBLY	600-345K	600-345K
7*	LEG KIT LEFT/RIGHT DARK GREY	610-1027K	610-1027K
8*	FRAME DARK GREY	610-1304K	610-1344K
9	FRONT GRILLE DARK GREY	610-1420K	610-1440K
10	REAR GRILLE DARK GREY	610-1421	610-1441
11*	SHROUD, RED	705-105	705-110
12*	BLADE ASSEMBLY	705-285	705-266

Item #	Description	Handle/Wheel Kit
		Part No.
13	WHEEL 715-OF 7X1.50 OFFSET	240-001
14	HANDLE RECEIEVER ASSY 18 & 21 BASIC	610-1659
15	PULL UP HANDLE FOR BASIC	600-286K
16	BASIC WHEEL MOUNT LEFT	610-1657
17	BASIC WHEEL MOUNT RIGHT	610-1658

* denotes item includes necessary hardware for installation

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NOTES

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WARRANTY INFORMATION

Except as otherwise set forth below, any claim by Customer with reference to the Goods sold shall be deemed waived by the Customer unless submitted in writing to Tempest within the earlier of (i) five (5) business days following the date Customer discovered, or by reasonable inspection should have discovered, any claimed breach of the foregoing warranty, or (ii) thirty (30) calendar days following the date of shipment. Any cause of action for breach of the foregoing warranty shall be brought within one (1) year from the date the alleged breach was discovered or should have been discovered, whichever occurs first.

Limited Power Blower Warranty

Tempest warrants to the original purchaser that all Tempest gasoline and electric powered blowers (except the engine or motor and drive) will be free from original defects in workmanship and material, under normal-use conditions, and Tempest will replace any defective power blower part (except the engine or motor and drive) if returned during the applicable warranty period, for the time frame indicated below:

Firefighting Industry:

Five (5) years from date of shipment

Industrial/Rental Industry:

One (1) year from date of shipment

Blower Engine / Motor & Drive Warranty

The engines manufactured by Honda® and Briggs & Stratton® are covered by a separate manufacturer's warranty for a period of two (2) years. Electric motors manufactured by Magnetek, Marathon, Baldor, Franklin Electric and Multi-Fan are covered by a separate manufacturer's warranty for a period of one (1) year.

Note: Unauthorized repair or modification of the factory assembly or parts voids the warranty.

All information provided in this operations manual is subject to change without notice. Please refer to our website for the most recent sales terms and conditions.



Tempest Technology Corporation

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