

TEMPEST[™] ***SHADOW***

OPERATIONS MANUAL

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TEMPEST SHADOW

Operation Manual

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INTRODUCTION

This manual offers a detailed explanation of the operation of the TEMPEST SHADOW Smoke Simulation Machine. To assure efficient and safe operation, please take a few minutes to read this material.

The TEMPEST SHADOW is a thermal aerosol generator designed for intermittent production of simulated smoke. It is part of a system, the other basic component being Rosco Smoke Simulation Fluid, and they should always be used together. This unique fluid formulation is safe when used according to instructions. It is water-based and contains no petroleum distillate. The operating temperature, pump pressure, and output nozzle orifice of the machine have been specifically set to maximize aerosolization of the Rosco Smoke Simulation Fluid. Used properly, the system should operate for many years.

IMPORTANT SAFEGUARDS

READ AND UNDERSTAND THESE SAFETY PRECAUTIONS BEFORE OPERATING THE MACHINE. FAILURE TO PROPERLY FOLLOW THESE PRECAUTIONS MAY LEAD TO A FIRE, EXPLOSION, OR ELECTRICAL SHOCK.

FOG FLUID HEALTH CAUTION: VAPOR FROM THIS FLUID, LIKE ANY OTHER COMMON MATERIAL IN A VAPORIZED STATE, MAY BE IRRITATING TO OR CAUSE ALLERGIC SYMPTOMS IN SOME PERSONS WITH ALLERGENIC SENSITIVITY. DO NOT EXPOSE AT CLOSE RANGE TO KNOWN ASTHMATICS.

1. This machine uses electrical power at common commercially available voltages. When directly contacted, such voltages are hazardous to human life. All precautions commonly applicable to the use of electric power generally are applicable to the use of this machine. This machine is designed to operate from three-wire power systems where one of the wires is a safety ground. DO NOT disconnect the safety ground or use extension cords or "cheater" plugs to connect this machine to a two-wire system. Operation without a safety ground may result in a hazardous electrical shock.
2. Check the current and voltage rating of your machine. Extension cords must be properly sized and rated for voltage, current and length. Check your local electrical code for the correct gauge extension cord. If an extension cord shows signs of wear or gets warm to the touch, discontinue its use and obtain a cord with a higher current rating. Improper extension cords are not only hazardous, but may result in poor machine performance due to excessive voltage drop.
3. Never use any machine that shows signs of improper use. Even slight damage may be an indication of a major problem. If the machine looks questionable, use it only under strict observation. If the machine shows any unusual behavior, disconnect machine immediately from power and send machine to a Service Center for repair.
4. Do not operate the machine in a tightly confined space where the ambient temperature might exceed 135 °F (57 °C). A continuous flow of air is required to maintain temperature within the machine housing. Sensitive electronic components deteriorate rapidly under high heat conditions. Operation of the machine in an enclosure of less than ten cubic feet (one cubic meter) is dangerous, and automatically voids the warranty.

Enclosing any heating device so it is invisible to the operator creates a potential fire hazard, no matter what the ambient temperature of the enclosure. To do so with any high-amperage device is to assume substantial risk. Tempest Technology recommends against it.

5. In any facility, the simulated smoke concentration should be controlled. The simulated smoke should never mask emergency exits, safety signs, staircases or other safety constructions.

6. After long use, or if the machine is not properly set, some liquid droplets or wet area may appear in front of the machine's outlet. This liquid should be wiped up to prevent a condition where someone might slip and fall.
7. Machines are designed for continuous use over an 8-hour day, but to protect components, it is wise to turn off the machine when it is not in use. In permanent installations, it is advisable to equip the circuit with a night cut-off device.
8. During the warm-up phase and during operations, people should not stand within three feet (one meter) of the front of the machine. Flammable material like paper, fabric, etc., should never be placed directly on or around this equipment, or any other electrical device with a heating element.
9. The simulated smoke should be blown into an open space and should not be directed at people or objects. Never blow simulated smoke on hot surfaces, into glowing heating elements or into open flames. The normally non-flammable and non-toxic haze could react on very hot surfaces and be burnt or decomposed.
10. Unauthorized repair or alteration of any safety devices can lead to improper operation and accidents. Repairs should be performed only by an authorized Service Center.

WARNING: USE OF ANY FLUID OTHER THAN ROSCO SMOKE SIMULATION FLUID OR MODIFICATION OR ATTEMPTED UNAUTHORIZED REPAIR OF THE TEMPEST SHADOW WILL IMMEDIATELY INVALIDATE THE WARRANTY.

HOW THE MACHINE WORKS

When the heat exchangers reached proper operating temperature, the operator switches power to the siphoning pump, which draws Rosco Smoke Simulation Fluid from an external reservoir into the heat exchanger. The fluid is rapidly heated and vaporized. The vaporized fluid is then discharged through the nozzles into the atmosphere where, upon mixing with the cooler air, it turns into an aerosol consisting of millions of fine particles.

NOTE: The terms "smoke simulation" and "smoke" are used interchangeable. However the TEMPEST SHADOW does not produce smoke, but a mist or aerosol.

OPERATING INSTRUCTIONS

1. POWER HOOK-UP

Plug the power cord into a socket rated at the proper voltage and amperage. The machine requires a dedicated power circuit. Turn on the main power switch located at the rear of the machine. The indicator light in the switch will light.

2. REMOTE CONTROL

Plug the remote control into the socket on the back of the machine marked "Remote Control". **The TEMPEST SHADOW Smoke Simulation Machine will only operate from its remote control.** All indicator lights (except the power light) are located on the remote control. NOTE: The remote control for the TEMPEST SHADOW is unique to this machine and is not compatible with other Tempest machines.

3. WARM UP

Let the machine warm up for about 5 minutes until the green "Ready" indicator light turns on. The green "Ready" indicator light will come on before the first heating cycle is over, so wait one minute longer before initial use. The machine is now ready to use, as long as the "Ready" light remains on and the fluid reservoir contains fluid.

4. FLUID DELIVERY

Place the tube with the filter coming out of the top of the machine into a bottle of Rosco Smoke Simulation Fluid. A liter size bottle of Rosco Smoke Simulation Fluid will fit in the cavity located at the rear of the machine. A cap is provided to fit on the liter bottle.

NOTE: The machine only works with uncontaminated Rosco Smoke Simulation Fluid. Other fluids may cause spitting and serious clogging problems and could result in the production of an unhealthful aerosol. **The use of other fluids voids the warranty of the TEMPEST SHADOW Smoke Simulation Machine.**

5. PRODUCING SIMULATED SMOKE

To produce simulated smoke, move the "Fog" switch on the remote to the "On" position for steady operation. For bursts of simulated smoke, push the switch to the "Momentary" position as needed. **NOTE:** The TEMPEST SHADOW is designed for intermittent output. After 30 seconds of continuous output, the machine will reheat in about one minute to proper operating temperature.

CAUTION: If the fluid bottle is empty, DO NOT run the pump. Running the machine without fog fluid can seriously damage the pump.

DO'S & DON'TS

- DO Read the entire manual before operating the machine and pay particular attention to all CAUTIONS AND WARNINGS.
- DO Use ONLY Rosco Smoke Simulation Fluid.
- DO Use an extension cord which is properly rated for voltage, current and length and which is free from nicks or other signs of wear.
- DO Before each operating period, check to see that the machine is clean and free of foreign objects.
- DO Test first for dry simulated smoke. Turn the “Fog” switch on. Place a piece of cardboard or paper 18” (50 cm) in front of the machine. If the surface is at all wet return the machine to your dealer for servicing.
- DO Ensure that the machine is adequately ventilated.
- DO Use proper caution when handling hot surfaces
- DO Use the **minimum** amount of smoke required to achieve the desired effect.
- DO NOT Use the machine near a person who has asthma or similar inhalation disorder.
- DO NOT Use any foreign substances in the machine.
- DO NOT Use a machine that is damaged or operating improperly in any way.
- DO NOT Use a machine that leaks fluid from the housing.
- DO NOT Leave the machine switched on for prolonged periods without producing simulated smoke.
- DO NOT Enclose the machine.
- DO NOT Install the machine in such a fashion that the operator cannot see the whole machine including indicator lights.
- DO NOT Touch the shielded nozzle of the machine. Allow sufficient cooling time after operation before attempting to perform maintenance.
- DO NOT Direct the simulated smoke continuously against the same spot. This may eventually cause fluid to recondense on walls, furniture, sets, etc.

READ THE COMPLETE MANUAL TO INSURE SAFE OPERATION.

MAINTENANCE

1. The main fuse of the TEMPEST SHADOW is located on the rear of the machine next to the power switch. Remove the fuse holder with a screwdriver or similar object. **NOTE:** Be sure to check the specifications when replacing any fuses.

WARNING: DISCONNECT THE TEMPEST SHADOW FROM POWER BEFORE CHECKING OR REPLACING THE FUSE. FAILURE TO DO SO COULD BE HAZARDOUS AND RESULT IN AN ELECTRICAL SHOCK.

2. After every operation, the siphon hose should be removed from the external reservoir. The machine should be turned on and simulated smoke produced. When there is no more simulated smoke coming out of the machine, the machine should be **immediately** turned off.

3. After every operation, **only after the machine has cooled**, it should be wiped with a clean damp cloth or paper towel. This practice prevents the build up of dirt and dust which may enter the machine and damage sensitive internal components. Do not use solvents for cleaning. Soap and water are effective.

4. Before and after the machine is stored for an extended period, the machine should be properly cleaned. The best method for cleaning is using distilled or de-ionized water. To flush the machine, turn it on and, when ready to use, put the fluid pick-up tube into a container of distilled or de-ionized water. Run the water through the machine and flush for three minutes. The tube should be removed from the water and the machine run until nothing comes out of the nozzle. The machine should be **immediately** turned off.

5. During use, operation of all switches and indicator lights should be monitored. Lights that blink or flicker when they should be on or off, for example, are an indication of problems in the machine's circuitry.

SMOKE DISTRIBUTION

The simulated smoke distribution in an enclosed area depends on air flow and temperature. Natural air movement, air conditioning and other ventilation systems will affect movement of simulated smoke. Test under realistic conditions before using. If a space must be filled very quickly, move the machine up and down and side to side. To conduct simulated smoke to particular areas, use a hose adaptor and ducting hose (see OPTIONAL ACCESSORIES). Make sure that there is an air space of 2-3 inches (5-7.5 cm) between the nozzle and any ducting hose. Do not use ducting hose smaller than 4 inch (10 cm) diameter. The TEMPEST SHADOW works properly only in a horizontal position. Do not tilt the machine during operation.

REPAIRS

If the machine fails and repairs are required, call or write TEMPEST TECHNOLOGY or your local Tempest dealer.

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RETURNS

1. Call TEMPEST TECHNOLOGY for shipping instructions.
2. Pack carefully and ship (in the U.S.) via UPS or parcel post prepaid. Insurance is suggested.
3. Attach a letter to the top of the machine explaining the problem in detail.
4. Enclose a copy of invoice or other proof of purchase.
5. If the machine is out of warranty, an estimate of repair cost will be provided on request. Otherwise, repairs will be accomplished and billed.
6. When ready, the machine will be returned (in the U.S.) via UPS.

STORAGE AND SHIPMENT

If you do not anticipate using your machine for an extended period, prepare your machine for storage as follows:

1. Perform maintenance as outlined in "Maintenance" section.
2. Wipe the outside of the machine clean.
3. Store in a sealed cardboard box.
4. Whenever the unit is shipped, considerable care should be taken in packing to avoid damage in transit.

LIMITED WARRANTY

TEMPEST TECHNOLOGY CORPORATION warrants to the original purchaser that the TEMPEST SHADOW will be free from original defects in workmanship and material for a period of six months from the date of purchase. During the warranty period, machines will be repaired or replaced at the option of Tempest.

If the purchaser returns a completed registration card within 30 days of purchase, TEMPEST will extend the limited warranty to a FULL YEAR from the date of purchase. If the warranty card is not received, the warranty will remain effective for six months.

The warranty does not extend to any parts of the TEMPEST SHADOW that have been subject to misuse or accident. Neither does the warranty cover any machine that has been opened, modified or repaired other than by TEMPEST or its designated repair station.

The warranty will not apply if procedures described in the Instruction Manual are not followed. It is the user's obligation to clean and maintain the TEMPEST SHADOW according to these instructions, and to follow acceptable practices for handling electrical devices.

NOTE: USE OF ANY FLUID OTHER THAN A ROSCO BRAND FLUID WILL VOID WARRANTY.

**TEMPEST SHADOW
TECHNICAL SPECIFICATIONS**

POWER REQUIREMENTS

120V, 50/60 Hz, 10Amps

MAX. CONSUMPTION

1 liter/hour

PARTICLE SIZE

0.25-60 microns

WEIGHT

11.4 lb., 5.2 kg

DIMENSIONS

14.3 in x 5.6 in x 7.5 in

36.4 cm x 14.4 cm x 19 cm

FUSE TYPE

120 volt-10A

OPTIONAL ACCESSORIES

HOSE ADAPTOR

Metal frame that connects ducting hose to machine

Dimensions: 4 in. x 6.75 in. (10.2 cm x 17.14 cm)

DUCTING HOSE

Flexible, plastic hose, connects to hose adaptor for ducting of fog

Dimensions: 4 in. x 25 ft. (10.2 cm x 7.62 m)