

10
COMET
SMOKE MACHINE
MODELS 2 & 3

OPERATING INSTRUCTIONS

CONCEPT

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CONCEPT COMET SMOKE MACHINES

SMOKE WITH A DIFFERENCE:—

The COMET does not use a built in pressure vessel or CO₂ cylinder as with conventional smoke machines. The COMET uses disposable AEROSOL CANNISTERS and the smoke produced has special features which make it particularly suitable for a number of uses for which ordinary smoke is unacceptable.

- (1) It is non-toxic and non-irritant.
- (2) It is non-contaminating.
- (3) It is ductable — that is, it can be passed through long lengths of hose without losing its density (with catchpot fitted).
- (4) It is flame proof.
- (5) It can be passed through dry ice to give a low lying mist effect (with dry ice container fitted).
- (6) The smoke is dense and white in appearance.
- (7) Continuous smoke production can be maintained for many hours by fitting new aerosols as required.
- (8) The smoke disperses rapidly after the machine is switched off.

THE COMET:—

- (1) Is fully portable and easy to operate.
- (2) The heat exchanger is thermostatically controlled.
- (3) Has low running costs.
- (4) Is robust and reliable.
- (5) Is attractively styled.

These machines are used in Television, Film Studios, Theatre, Exhibitions, Discotheques, and Industry throughout the world.

Design, technical advice and installation facilities are available to meet your requirement.

OPERATING INSTRUCTIONS: COMET MODELS 2 & 3

Please read these instructions fully before operating your smoke machine. If the correct operation and maintenance procedures are followed unnecessary repairs will be avoided.

GENERAL INFORMATION

- (1) CONCEPT 'COMET' smoke machines are designed for use only with CONCEPT 'COMET' smoke aerosols. **DAMAGE WILL OCCUR IF ANY OTHER AEROSOL IS USED.**
- (2) Always keep machine upright and allow adequate ventilation to machine. **DO NOT COVER OR OBSTRUCT LOUVRES IN ANY WAY.** Consult CONCEPT for special applications. Use machine only in well ventilated areas.
- (3) When smoke is required to be hosed away from machine, a Catchpot (available from CONCEPT) must be used. This acts as an adaptor for 52mm bore flexible hose and also serves to remove any large droplets of fluid from the smoke that would otherwise collect in the hose. The maximum length of usable hose depends on rises, bends and falls in the run but on average approximately 10 metres may be used. Consult CONCEPT for special installations and applications. At regular intervals the catchpot must be detached from the machine and emptied of fluid. Failure to do so could cause contamination by fluid within the machine, which could result in damage occurring.
- (4) When machine is to be wired into a customers control panel or system, separate instructions and wiring diagrams should be obtained from CONCEPT.
- (5) When low lying smoke is required a 'Dry-Ice' attachment should be used. This is a container which is packed with crushed or pelleted 'Dry-Ice' (solid CO₂) and fitted to the outlet of the smoke machine. The smoke passes through the container and is chilled, causing it to stay close to the ground (see Distillers safety data book REF: Solid Carbon Dioxide).
- (6) Normal precautions should be observed regarding the storage and use of aerosols i.e. Protect from sunlight and do not expose to temperatures exceeding 50°C.
Do not pierce or burn even after use.
Do not spray on a naked flame or any incandescent material.
Store aerosols with valve downwards.
- (7) A safety Thermal 'cut-out' is fitted to the heat exchangers of the new 'COMET' smoke machines. This prevents overheating and damage to the machine, if there should be a component failure (see Fault Finding).

COMET MODELS 2 & 3

GENERAL DESCRIPTION

Size: 400mm x 250mm x 190mm

Weight: (inc. 2 Aerosols) 10kg (approximately)

Duration at maximum output: (approximately) 25 minutes / Aerosol

Electrical supply: 230V A.C. 50/60Hz (110V A.C. optional)

Power consumption: 850 watts

Output control (where fitted): Variable from ZERO to MAXIMUM

Maximum output rate: 7M³ / minute at 1½M visibility (approximately)

The 'COMET' is available in 3 basic forms:-

COMET 2: No output rate control

COMET 3: No output rate control

COMET 3: With output rate control

The difference between a 'COMET' 2 and 'COMET' 3 can be seen on page 7 of these instructions.

Any of the above are available with Remote Control.

2 forms of Remote Control are available for 'COMET' models 2 & 3:

- (a) Full Remote Control — This allows machine to be operated from a location away from machine. It gives full indication of the state of the machine and is a complete duplication of the controls on the machine i.e. mains ON/OFF, smoke ON/OFF, temperature indicator.

N.B. Supply cable enters Remote Control box NOT machine.

- (b) Remote smoke ON/OFF operation — This allows smoke only to be operated from a location away from machine. Connection of this control is by plug and socket.

PREPARATION ALL MODELS:

- (1) Fit suitable fused plug to mains lead (5 amp fuse).

N.B. Supply cable enters Remote Control box where fitted!

- (2) Check that Aerosols contain fluid by shaking.
- (3) Remove protective caps from top of machine.
- (4) Below hole in top of machine can be seen a threaded aerosol adaptor. This aerosol adaptor should be checked and cleared of any foreign materials. Also check that 'O'-ring seal is in position and in good condition. Carefully align valve on aerosol with this adaptor and fix into position by turning clockwise.

Aerosol should be screwed firmly into position to affect a seal but care should be taken not to over tighten as damage to the 'O'-ring seal may occur.

Either one or two aerosols may be used at a time, as required.

OPERATION ALL MODELS

- (1) Check mains ON/OFF switch in machine (and remote control box where fitted) is in the OFF (0) position.
- (2) Plug mains lead into supply.
- (3) Check smoke output switch in machine (and remote control box where fitted) is in the OFF (0) position. On output rate control models check control is set to minimum (turned fully clockwise), unless previous setting is required to be retained.
- (4) Switch mains ON/OFF switch in machine (and remote control box where fitted) to the ON (1) position. The built in RED indicator light will come on with the GREEN temperature indicator light. The machine is now warming up and should be left until the GREEN temperature indicator light goes out (approximately 10 minutes). Once the GREEN temperature indicator light goes out, the unit is ready for operation.

N.B. The 'COMET' is kept at a steady working temperature by an integral thermostat. Therefore, once the temperature indicator light has initially gone out the 'COMET' may be used with the temperature indicator light ON or OFF, providing the mains supply has not been interrupted and the mains lamp is ON.

DO NOT OPERATE SMOKE SWITCH UNTIL GREEN TEMPERATURE INDICATOR LIGHT HAS INITIALLY GONE OUT OR DAMAGE WILL OCCUR TO THE MACHINE.

- (5) To make smoke:- Smoke switch in machine (or remote control box where fitted) should be switched to the ON (1) position. On output rate control models output control should be turned Anti-clockwise to give the required setting. Machine may be turned ON and OFF without affecting this setting.
A new aerosol may be fitted while smoke machine is in use. Replacing a spent aerosol with a new one, may cause a temporary increase in the output rate.
- (6) When smoke is no longer required, smoke switch in the machine (or remote control box where fitted) should be switched OFF (0 position) then smoke production ceases.
- (7) SHUT DOWN — When machine is no longer required unscrew and remove aerosols, replace protective caps in top of machine. Turn mains ON/OFF switch in machine (and remote control box where fitted) to the OFF (0) position, removing plug from mains supply, allow machine to cool before storing in warm dry conditions.

MAINTENANCE / FAULT FINDING

Very little routine maintenance is required for your smoke machine. If this maintenance is regularly carried out, unnecessary and expensive repair bills will be avoided.

N.B. Remove plug from mains supply before undertaking any maintenance operations.

- (1) After each use follow instructions as in (OPERATION) (6) and (SHUT DOWN) (7).
- (2) Removal of cover:
 - (a) Remove aerosols
 - (b) Remove 2 screws from top of switch panel
 - (c) Slide cover towards rear of the machine until it stops
 - (d) Lift vertically off

N.B. SERIOUS DAMAGE WILL OCCUR IF THE COVER IS REMOVED WITH AEROSOLS IN POSITION.

To re-fit cover reverse removal procedure, making sure cover is carefully located on upstands.

- (3) After each 20 hours (approx) smoke production.
 - (a) Remove cover
 - (b) Using the 1mm drill in the pin chuck supplied, carefully insert the drill into the nozzle of the heat exchanger and gently drill out, by hand, any deposit, to a maximum depth of 25mm.
 - (c) Replace cover.
- (4) Felt absorbent overspill pad around aerosol adaptors will periodically need to be changed when saturated. At the same time the machine should be cleaned of any fluid spillage.
- (5) If leakage occurs — Check 'O'-rings in aerosol adaptors for damage and replace if any sign of damage is present.

REMOVAL OF HEAT SHIELD / DRIP TRAY

(6) **A) NON OUTPUT RATE CONTROL.**

- (a) Remove aerosol adaptor inserts, taking care not to lose copper washers.
- (b) Lift out heat shield.
- (c) To re-fit heat shield: clean all visible surfaces and replace heat shield in position, ensuring that copper washers are fitted above and below tray; screw in and tighten adaptor inserts. (A good seal must be obtained or fluid leakage will occur.)
- (d) Remove overspill pad, fit aerosol into each adaptor and inspect for leaks of fluid, and tighten insert as necessary.
- (e) Remove aerosols, replace overspill pad, re-fit cover.

(6) **B) WITH OUTPUT RATE CONTROL**

- (a) Remove spindle and tube fittings from both sides of control valve.
- (b) Proceed as for (6) A) a to d.
- (c) Remove aerosols, replace overspill pad; reconnect tube fittings and spindle to control valve; re-fit cover.

(7) REMOVAL OF HEAT EXCHANGER COMPLETE

- (a) Remove transfer tube from heat exchanger, taking care not to kink or damage the tube.
- (b) Disconnect the wires, at insulated bullet connectors.
- (c) Remove mounting screws and lift out unit from machine base.
- (d) To re-fit the unit, reverse removal procedure, making sure nozzle is in line with the machine outlet, and the identification numbers on the wires are correctly matched.

(8) THERMAL 'CUT-OUT'

In the event of a fault occurring causing overheating the thermal 'cut-out' trips before any further damage is done. When the thermal 'cut-out' trips, all lights on the machine i.e. temperature indicator and mains indicator will go out. To check if 'cut-out' has operated, leave mains supply connected and mains ON/OFF switch in the ON (1) position. Remove lid and carefully depress red button on 'cut-out'. If it clicks and the lights come ON, the 'cut-out' has operated — consult CONCEPT. If 'cut-out' has not operated check supply is live and that the fuse in plug is intact.

(9) CATCHPOT AND HOSE

When a Catchpot is used in conjunction with flexible tubing, the Catchpot should be periodically emptied. For permanent installations, the Catchpot may be fitted with a drain tap. Where possible, hose runs should have a slight fall back to the Catchpot. This ensures any deposits collecting in the hose will run back and collect in Catchpot. The length of hose runs which may be used depends upon rises, bends and falls in the system. If smoke collects in the machine and Catchpot area, the hose run is too long, consult CONCEPT for advice.

SERVICE AND REPAIR KIT INCLUDED

- 2 x spare 'O'-rings for Aerosol adaptor.
- 4 x copper washers for Aerosol adaptor fixing.
- 1 x 1mm twist drill for nozzle cleaning.
- 1 x pin chuck for twist drill.
- 1 x spare overspill felt pad.
- 2 x spare cover retaining screws.
- 2 x heat exchanger mounting screws.

FAULT FINDING

If smoke is poor or is not produced at all:-

- (a) On output rate control models, check that control knob is not fully closed.
- (b) Check that mains supply is live and fuse is intact. If power is live, but not shown at machine, check all wiring is intact on machine, and remote control is fitted.
- (c) Check aerosol(s) pressure by removing from machine. Check that aerosol adaptors are clear of any contamination and that pins and

'O'-rings are in position and undamaged. Fit a new aerosol and go through operation procedure. If smoke is produced discard the old aerosol(s).

- (d) If no smoke is produced, check heat exchanger nozzle is clear of contamination by carefully drilling with 1mm drill provided to a depth of 25mm. Go through operating procedure.
- (e) If smoke is still not produced. Remove transfer tube and blow through both ways, with air or CO₂ to remove any contamination. Where output rate control valve is fitted, remove valve and blow through with air or CO₂ to remove any contamination, re-fit valve. Re-fit transfer tube leaving heat exchanger end disconnected. Screw in aerosol one side, operate smoke ON/OFF switch with mains supply connected and machine mains switch ON.

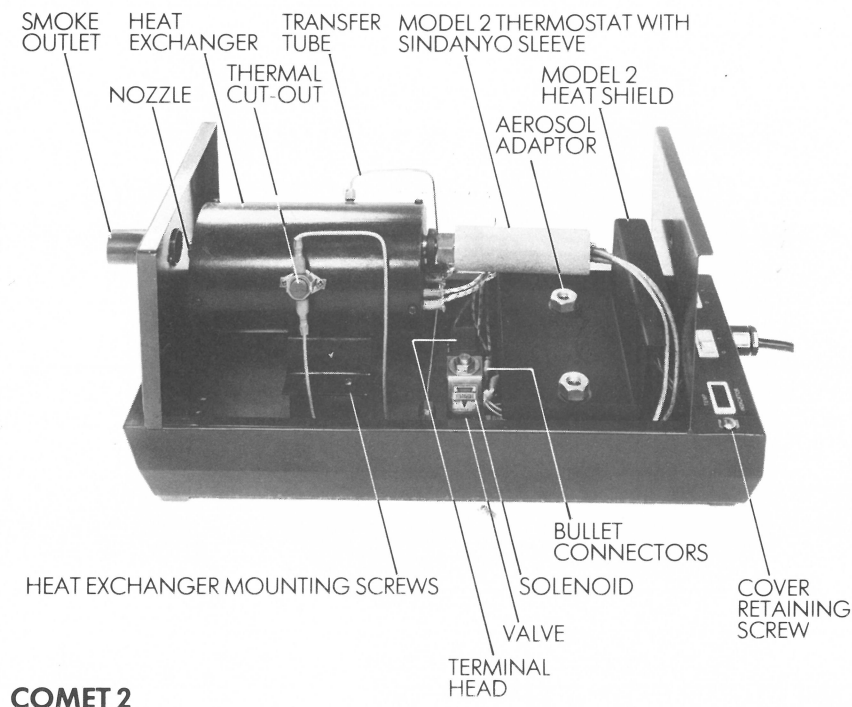
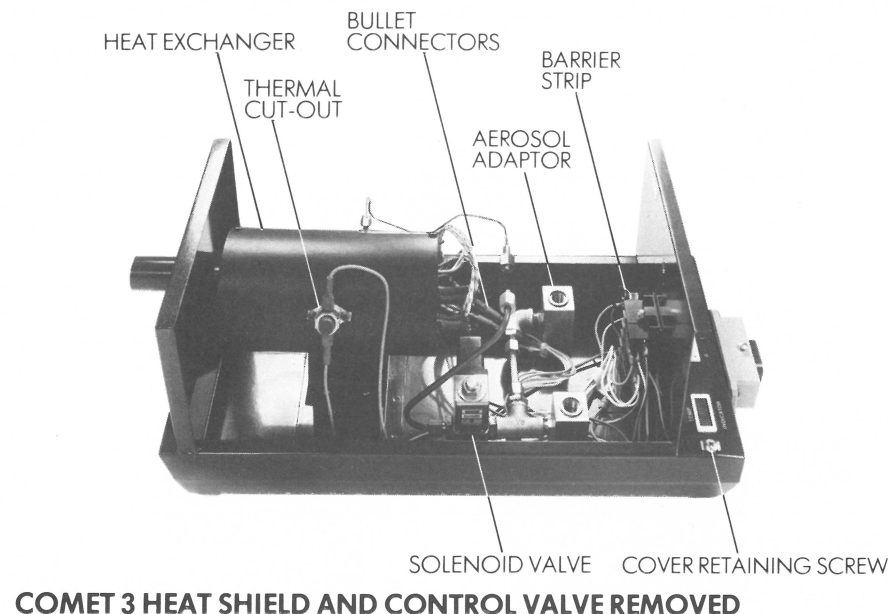
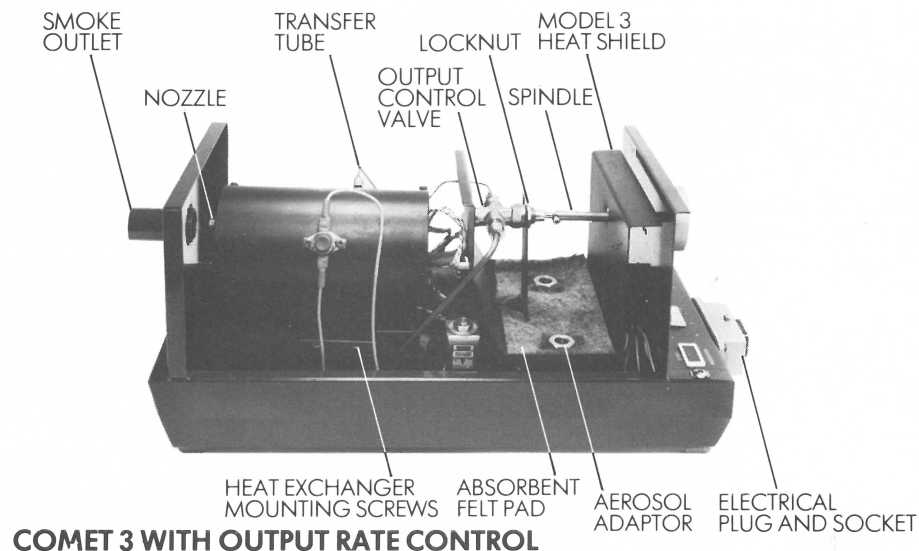
Check for flow of fluid from open end of transfer tube, repeat for other side, and check all pipe fittings are tight with no leaks. If flow is produced, re-connect transfer tube to heat exchanger and go through operating procedure.

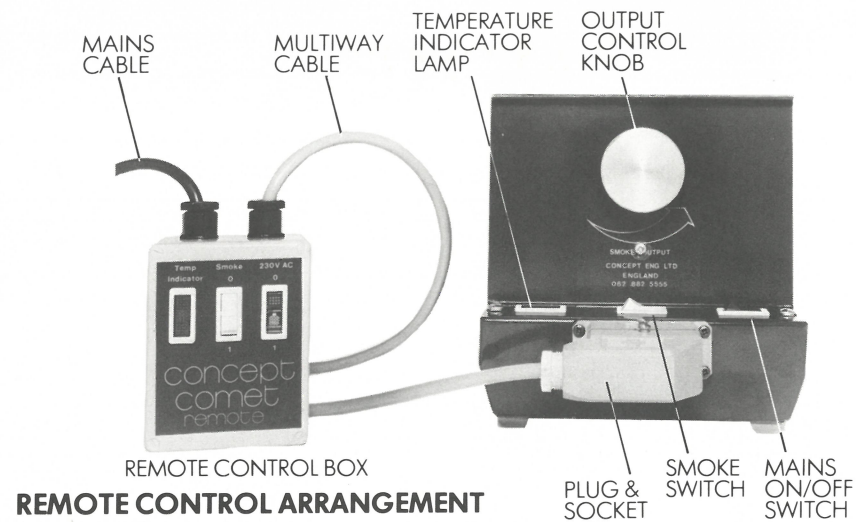
If smoke is still not produced satisfactorily consult your supplier or CONCEPT ENGINEERING LIMITED.

INSTALLATION WARNING:

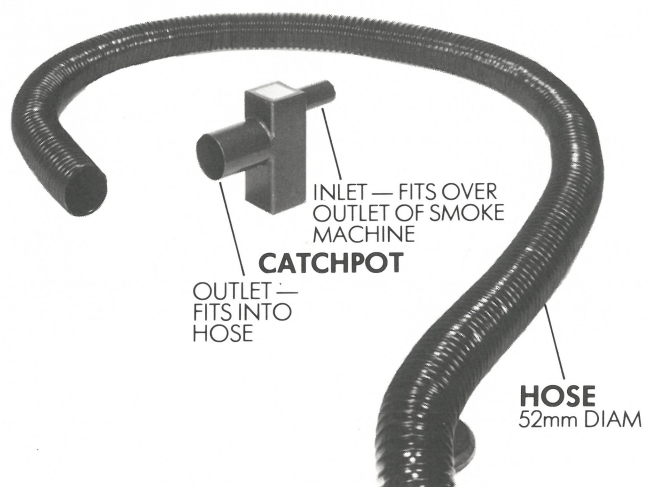
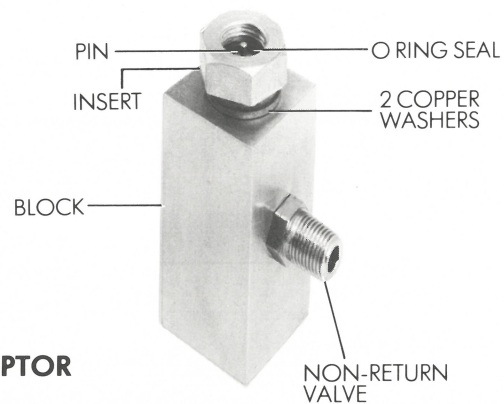
Design and installation facilities are available to meet any special requirements, from advice about simple hosing of smoke to complete automatic systems.

CONCEPT cannot accept responsibility for any damage or malfunction caused to or by, Concept smoke machines, or any consequential damage, where ducting of smoke or electrical switching or any other deviation from the standard machine supplied, is carried out by any other than CONCEPT ENGINEERING LIMITED.





AEROSOL ADAPTOR



NOTES

CONCEPT COMET SMOKE MACHINES



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