

OWNER'S MANUAL

MODEL
NUMBER
M1

PRECISION EMBALMING MACHINE



Should a need ever exist for repair parts, and/or service, simply contact the dealer you purchased your unit from and be sure to provide all the pertinent facts when you call.

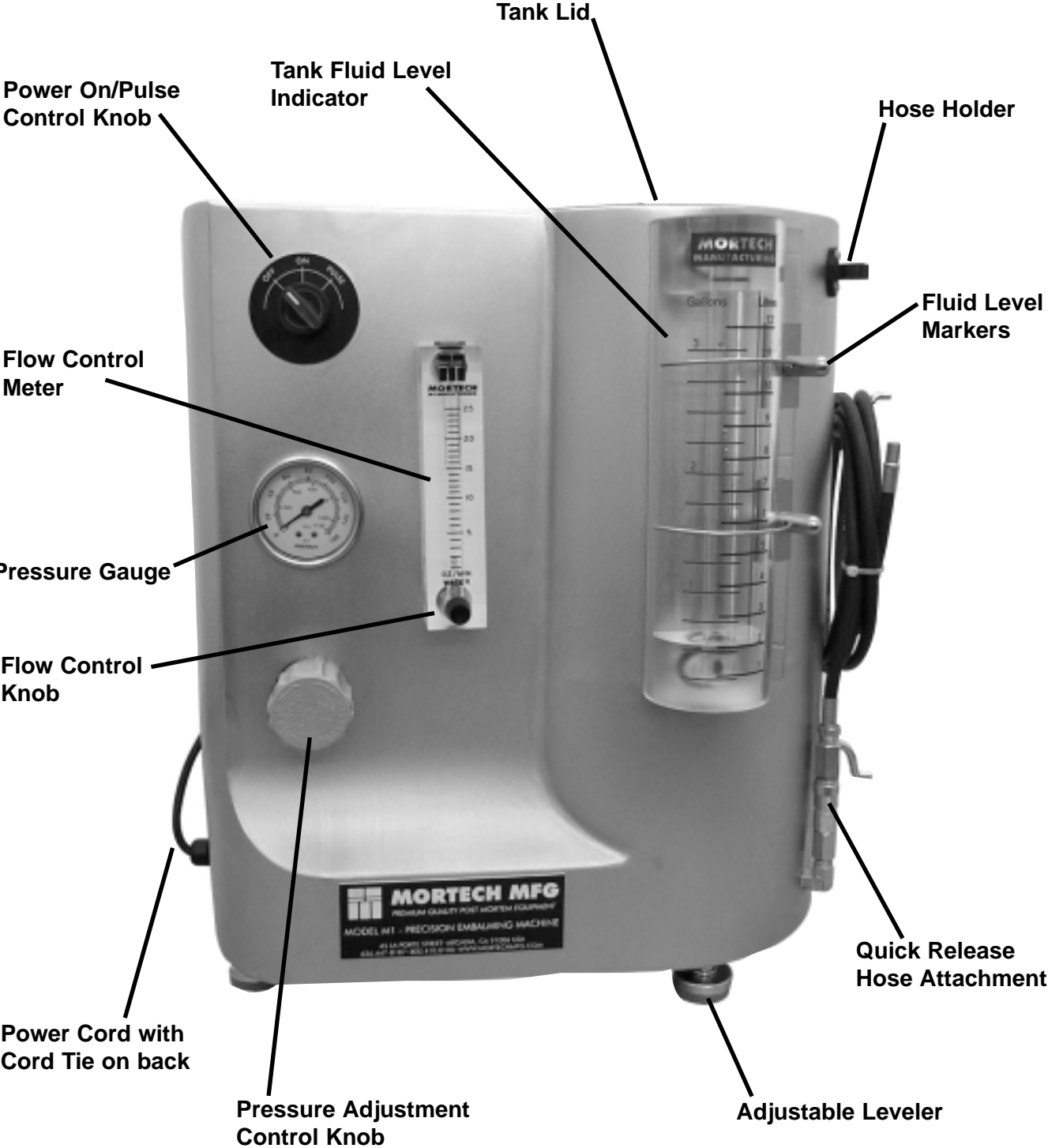
WHEN ORDERING REPLACEMENT PARTS ALWAYS GIVE THE FOLLOWING INFORMATION:

- PART NUMBER
- PART DESCRIPTION
- MODEL NUMBER
- NAME OF ITEM

MANUAL INDEX

1. **General description of fixture description**
2. **Using the Model M1 Embalming Machine for the first time (quick reference)**
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4. **Instructions for cleaning the internal filter**
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GENERAL DESCRIPTION OF FIXTURES



**QUICK REFERENCE GUIDE
USING THE M1 EMBALMING STATION FOR THE FIRST TIME**

**IMPORTANT MESSAGE
USING THE M1 PRECISION EMBALMING MACHINE FOR THE FIRST TIME**

When using the machine for the first time or when the fluid system has been completely emptied for maintenance purposes, it is necessary to prime the pump to remove any air locks from within the fluid system.

1. Plug the machine into the power source.
2. Make sure that the selector switch is in the OFF position.
3. Add the arterial fluid to the tank.
4. Place the outlet hose into the top of the tank.
5. Open the flow meter by turning the flow control knob counter-clockwise five half turns.
Note: Be sure not to turn knob completely out of meter.
6. Close the pressure control knob completely.
7. Turn the selector switch to the ON position.
8. This procedure could take approximately 1-5 –10 minutes to allow the fluid to circulate through the system and totally remove any air.
9. During this operation it will be noted that the pressure reading will fluctuate considerably and it is only after all the air is removed that it will stabilize.
10. Once the pressure has stabilized the machine is ready for use.
11. Providing the machine is not emptied below the fluid cut off level this procedure should not require repeating.

The supplied cannula holder accepts the Dodge Luer Loc fitting code #701045 and any arterial tube with a threaded hub.

GENERAL OPERATING INSTRUCTIONS

The Management of Mortech Manufacturing would like congratulate you on choosing this embalming machine. We know that you will not regret this decision. Embalmers using this machine will be impressed with the results and well rewarded by the favorable comments received from the families the firm is serving.

IMPORTANT PLEASE READ BEFORE OPERATING THIS MACHINE

To achieve optimum arterial embalming results we recommend that the following procedures be used as a guideline.

USING THE MACHINE FOR THE FIRST TIME

When using the machine for the very first time or when the fluid system has been completely emptied for maintenance purposes, it is necessary to prime the pump to remove any air locks from within the fluid system. Make sure that the selector switch is in the OFF position. Add the arterial fluid to the tank and place the outlet hose into the top of the tank. To evacuate any air within the system, Fully open the flow meter and turn the machine on at the power source and the selector switch. Close the pressure control knob and wait until the pressure has built up to 100psi. This procedure could take approximately 1-5 – 10 minutes to allow the fluid to continuously circulate through the system and totally remove any air. During this operation it will be noted that the pressure will fluctuate considerably and it is only after all the air is removed that it will stabilize.

FLUID SELECTION

The choice of arterial fluid mixture is personal preference and selected to suit the particular case. Although it is not necessary to pre-inject in normal circumstances, it is recommended that co-injection fluids be used in conjunction with the appropriate arterial fluid. Co-injection fluids will increase the penetrating and distribution qualities of the arterial fluid and help to modify and control the action of the preservatives.

ADDING THE ARTERIAL FLUID

The arterial fluid should be added to water already in the machine tank to reduce chemical exposure. Keep the lid on the tank to reduce exposure to chemical fumes.

MIXING THE ARTERAIL FLUID

After fluid is added, to mix turn flow meter knob clockwise till flow is shut off or closed and turn pressure regulator counter clockwise till pressure gauge reads 0 PSI. This procedure starts the mixing process and embalming machine ready for use after mixture is achieved.

GENERAL OPERATING INSTRUCTIONS

FLUID SELECTION

The choice of arterial fluid mixture is personal preference and selected to suit the particular case. Although it is not necessary to preinject in normal circumstances, it is recommended that coinjection fluids be used in conjunction with the appropriate arterial fluid. Coinjection fluids will increase the penetrating and distribution qualities of the arterial fluid and help to modify and control the action of the preservatives.

SELECTOR SWITCH

“OFF” position cuts the power supply to the motor. The switch is illuminated in the “ON” and “PULSE” positions.

POWER SUPPLY

110V/60Hz (220-240V/50Hz available). Disconnect the machine from the power source before removing the back of the machine for maintenance or repairs.

PULSATION MODE

Although this machine may be operated in a continuous flow mode, its optimum performance is achieved in the pulsation mode. The pulsation cycle of this machine is based on the peristaltic motion of the intestine rather than a cardiac rhythm. The pulsation cycle has been set at 6 seconds (pumping) with a 2 second interval (resting). This ratio has been determined after lengthy experimentation and has been proven to greatly assist with the removal of intravascular resistances. Results showed the removal of livor mortis and other intravascular discolorations in the face, hands, feet and pendant parts of the body, and thorough distribution of arterial fluid into the body tissues was achieved with minimal, if any, manipulation of the body. In normal circumstances, with the appropriate fluid selection, the removal of livor mortis in the fingertips was generally achieved after injecting 1.5 – 2 litres of arterial fluid. The removal of postmortem coagulation and clotting in the drainage can be seen throughout the entire arterial injection process.

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PRESSURE REGULATOR KNOB

The pressure level is indicated by the pressure gauge situated above the regulator knob. Turn clockwise to increase pressure. Turn counter anti-clockwise to decrease pressure.

GENERAL OPERATING INSTRUCTIONS

PRESSURE GAUGE

The machine is a high-pressure machine with a maximum 130-psi pressure. To overcome resistance within the vascular system, it is recommended that a pressure of 80 – 110 psi be used throughout the procedure. The pressure gauge will indicate the highest reading when the pulsation cycle is pulsing (closed) and decrease to the selected pressure level when the pulsation cycle is pausing (open). Like the flow meter, the fluctuation in pressure also indicates extravascular resistance, and the presence or absence of intravascular resistance.

The pressure gauge will indicate the highest reading when the pulsation cycle is pulsing (closed) and decrease to the selected pressure level when the pulsation cycle is pausing (open).

FLOW METER

The flow meter is invaluable as it enables a quick indication of vascular resistances, or alternatively, where there is no resistance. The rate of flow setting is determined by various factors such as the condition of the tissue and mode of death. The objective is to inject arterial fluid into the entire body tissues for preservation without causing any intracellular damage or artefacts such as swelling or shell embalming. A general guideline for the rate of flow would be between 10–16 ounces per minute when injecting fluid down the body and 3–5 ounces per minute when injecting the face. The flow level will drop considerably during the pause period of the pulsation cycle and increase to the maximum selected setting during the pulse period of the pulsation cycle. To inject 3 gallons of fluid into the body at a rate of flow of 16 ounces per minute should take between 24–30 minutes regardless of the pressure setting.

VASCULAR DRAINAGE

Generally, it is recommended that open drainage be used in the initial stages of injection and once the removal of the livor mortis is evident, other types of drainage such as intermittent or alternate drainage can be used to assist with the deeper distribution and diffusion of arterial fluid into the tissue. If there is any back flush of discoloration evident revert to open drainage.

The flow meter enables quick indication of vascular resistance, or alternatively, where there is no resistance. The flow level will drop considerably during the pause period of the pulsation cycle and increase to the maximum level selected during the pulse period of the pulsation cycle.

STAINLESS STEEL TANK FILTER

To avoid damage to the pump seals, it is important that the filter be removed regularly, washed thoroughly under running water and replaced. This should be done routinely following an embalming procedure when using a high viscosity fluid. has been used. Removable filter located at the bottom of tank.

GENERAL OPERATING INSTRUCTIONS

PUMP

The pump relief valve is factory set at 130psi. Caution – do not tamper with the relief valve on your pump. If you think it needs to be reset, contact the supplier. The pressure regulator setting is automatically below that of the pump, therefore the excess fluid pumped is returned back to the fluid tank. Power supply to the pump motor is automatically cut when the fluid reaches the minimum operating level, at which point the selector switch must be turned to the OFF position. To prolong the life of the pump and seals, it is important that the fluid system be rinsed thoroughly with 3 gallons of cold water at the end of each embalming session. Avoid using hot water at all times. The minimum operating fluid level remains in the tank until the machine is next used. Do not completely empty the tank below the minimum fluid level.

FLUID LEVEL

The fluid level is observed through the acrylic sight glass. The fluid levels are calibrated in both US quarts and full gallon increments, and in litres. These measurements are in addition to the minimum operating fluid level and create an additional chemical dilution that is insignificant to the overall mixture of chemicals.

FLUID LEVEL SWITCH

The fluid level switch is located at the bottom of the fluid tank and shuts the pump off when the fluid level is low. **Always make sure the embalming machine is OFF before filling the tank with fluid.** If the machine is left in the ON position, the pump will begin to operate as soon as the fluid is added to the tank and discharge fluid from the hose.

ADJUSTABLE FEET

The machine has been set level however if it requires adjustment to suit the workbench, use a spanner to loosen the lock nut, wind the foot in or out to the required level and retighten the lock nut.

CLEANING

To maintain the stainless steel exterior of the machine, simply wipe over with a soft, soapy damp sponge. Wipe dry with a soft cloth in the same direction as the grain. The fluid level cover is removable for easy cleaning. Fingerprints can be removed by wiping the stainless steel surface with furniture polish.

SEE CARRING FOR YOUR STAINLESS STEEL FOR ADDITIONAL INFORMATION

INSTRUCTIONS FOR CLEANING THE INTERNAL FILTER

PROCEDURE:

1. Completely empty the fluid out of the tank by draining it through the hose with the machine going until the in tank fluid level switch cuts off.
2. Remove the remaining fluid by either aspiration or tipping the fluid out of the machine.
3. Do not empty the remaining fluid by depressing the lever of the in tank fluid level switch. This will result in air entering the fluid system and causing damage to the pump seals. Only a very little quantity of air is required to cause damage to the pump seals.
4. To avoid debris entering the fluid system, use a clean cloth to wipe dry the inside of the tank and remove all debris.
5. Carefully unscrew the filter from the bottom of the tank and rinse under clean running water to remove any debris.
6. Refit the filter
7. Immediately fill the tank with water to a level above the fluid level switch.
8. Turn the machine on to continuous flow and run until there is no air bubbles seen in the flow meter sight glass. Do not leave the fluid system empty of fluid, as it will allow any arterial fluid that could have remained in the pump to dry out and likely to crystallize which will cause damage to the pump seals.
9. The machine is now ready for use

VIEW INSIDE EMBALMING MACHINE TANK



Fluid Level
Switch

Internal
Filter



Internal Filter
Shown Removed

TROUBLESHOOTING TIPS

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Pump not working	<p>Cut in power to motor</p> <p>Problem with Relay</p> <p>No fluid in tank</p>	<p>Check power source to machine</p> <p>Contact Mortech for proper replacement relay</p> <p>Fill tank above fluid float level switch</p>
Pump is working below capacity	Filter restriction	See filter cleaning instructions
Pump is leaking	Mechanical shaft seal or O-ring is failing	Turn off machine and contact Mortech. We will supply proper replacement parts. DO NOT USE MACHINE UNTIL REPAIRED.
Pump motor sounds noisy	Foreign or abrasive materials getting into the pump	Turn off the machine and contact Mortech for service procedure.
Loss of or too much fluid pressure	Relief valve requires adjustment	Turn off the machine and contact Mortech for service procedure.
Drop in pressure indicated on pressure gauge or drop in flow rate indicated on flowmeter	<p>Leak within the vascular system eg aneurysm or arterial cannula fallen out of artery</p> <p>Leak within the fluid lines of the machine</p> <p>Blockage of the fluid system due to build up of residue after using high viscosity fluids i.e. Humectant fluids</p>	<p>Inject from a different location or reinsert arterial cannula</p> <p>Disconnect from power supply and remove back from the machine and check for obvious fluid leaks. Contact Mortech.</p> <p>Flush machine with water conditioner after use with high viscosity fluids</p>
Increase in pressure on pressure gauge or increase flowrate	Obstruction in vascular system or arterial cannula improperly inserted	Inject from a different location or reinsert arterial cannula
Machine will not pulsate	Faulty solenoid valve	Contact Mortech for proper replacement solenoid

CARING FOR YOUR STAINLESS STEEL

Stainless steel is a timeless material that not only looks great, it has strength, durability and the flexibility to be applied to all manner of products. Outlasting any other material in performance and aesthetics, a stainless steel product is an investment which, by following a few simple steps can maintain its luster for a lifetime.

Regular Cleaning

- Wash down the surface regularly using water containing soap or mild detergents
- Always rinse the surface with fresh water after cleaning
- Polishing the surface with a soft dry cloth can complete a thorough cleaning operation
- When wiping or polishing stainless steel, always follow the direction of the original grain or “brush” finish

Cleaning Aids

- Never use abrasive materials such as scouring pads or wire wool
- Use a soft brush or soft damp cloth to remove loose deposits
- Use a cream cleanser and soft cloth for stubborn deposits

Cleaning Commercial Stainless

- Stainless steel sanitaryware should be regularly cleaned with a Sulphamic acid based mild detergent. Sulphamic acid chemically removes scale and deposits that form on the surface of stainless steel. This cleaning agent also kills bacteria and deodorizes the surface.

All grades of stainless steel can stain and discolor as a result of long term surface deposits and can never be accepted as completely maintenance free. In order to achieve maximum corrosion resistance, the surface of the stainless steel must be kept clean. Surface contamination and the formation of deposits must be prevented. These deposits may be minute particles of iron or rust from other sources used on the building of new premises and not removed until after the stainless steel items have been fixed. Industrial and even naturally occurring atmospheric conditions can produce deposits which can be equally corrosive, such as salt deposits from marine conditions. Strong acid solutions should never be used to clean stainless steel.

WARRANTY

Mortech Manufacturing Model M1 ~ Precision Embalming Tool

12 MONTH LIMITED REPLACEMENT WARRANTY
IMPORTANT: PLEASE RETAIN THIS WARRANTY

This product has been inspected and tested, and is guaranteed subject to the following criteria for a period of twelve months from the date of purchase. This warranty covers defects in workmanship and materials. During this period any such defect will be rectified free of charge. The company accepts no liability for the costs of transportation of the product or parts to and from the service dealer or agent. The manufacturer reserves the right to either repair or replace the machine.

This guarantee becomes invalid if in the manufacturer's opinion, the product has been incorrectly installed, tampered with or repair attempted by an unauthorised person, connected to an electrical supply not corresponding with that stated in the operating instructions, or subjected to power surges.

To obtain service under guarantee, satisfactory evidence of date of purchase will be required. In the event that the manufacturer agrees to replace the product, replacement will be of the faulty product, excluding packing, instruction cards etc. The replacement product is then covered by the balance of the original warranty period. A model to a value and with such features will replace any model that is no longer available, as the manufacturer considers appropriate in the circumstances.

PLEASE KEEP YOUR EMBALMING MACHINE PACKAGING MATERIALS AND BOX FOR USE IF WARRANTY REPAIR OR SERVICE IS REQUIRED.

Warranty Contact Information:

Mortech Manufacturing Company
411 North Aerojet Avenue
Azusa, CA 91702
TEL (626) 334-1471
FAX (626) 334-1704
EMAIL: info@mortechmfg.com

If service is required after the warranty period has expired, the product should be returned to the supplier. Service outside of the warranty will be at the owner's expense.