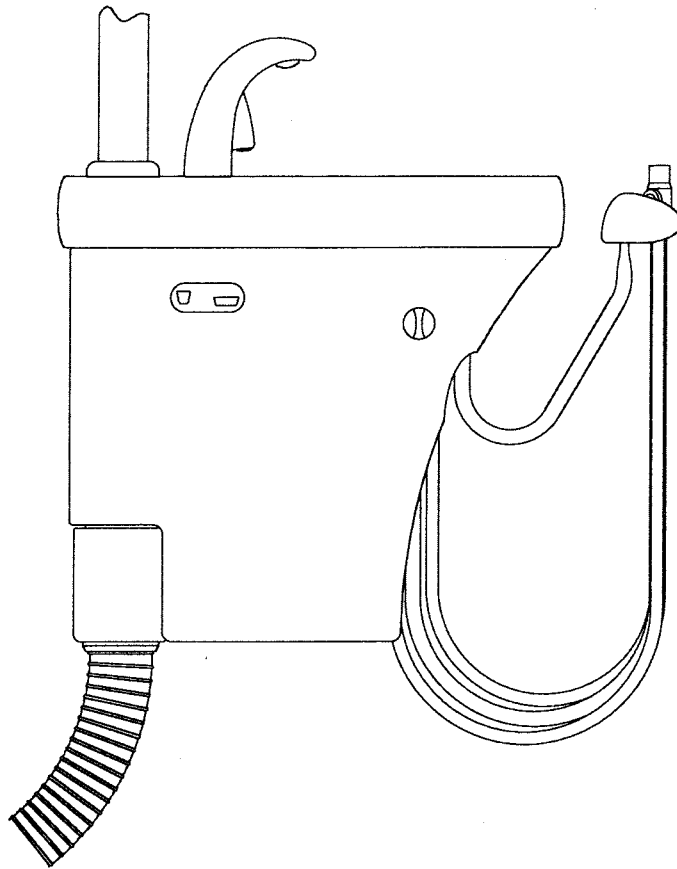


CS-Me SPITTOON

Part No. 23-1116

CE

OPERATING MANUAL



 **TRIDAC Ltd**

~~Unit 13 Factory Farm, Gade Valley Close, Kings Langley, WD4 8HG.~~
Unit 13, The Wenta Business Centre, Colne Way, Watford, WD24 7ND

IMPORTANT SAFETY NOTE

As this spittoon is usually attached to a dental chair, please take note of the following.

CHAIR MOVEMENTS

Before any chair movements are undertaken, make sure that the surrounding area is clear of obstructions, such as stools and cabinets, that may come into contact with the chair or any equipment attached to it and cause damage.

Whenever chair movements are instigated, whether **MANUAL** or **AUTO**, the operator must remain vigilant and in control until all chair movements have ceased.

NOTE: The following is applicable to Tridac chairs but may apply to others.

At anytime the chair is performing a **AUTO** movement, pressing **ANY** chair function button will **STOP** all movements **INSTANTLY**.

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THE CSM DENTAL SPITTOON

1.) GENERAL NOTES

These operating instructions form an integral part of the unit. They must be kept close to the unit at all times. Precise observance of these instructions is a precondition for use of the unit for the intended purpose and for its correct operation.

New personnel must be made aware of the contents, and they should be passed on to future operating staff.

1.1) GENERAL SAFETY NOTES

The Tridac CSM Spittoon units are dental treatment centres and intended for use only in the practice of dentistry and for use only by trained dental personnel.

The suction tips/tip connectors are 'APPLIED PARTS' i.e they necessarily come into contact with the patient during normal use. The suction hoses could also come into contact with the patient during normal use, but are not considered as applied parts.

ALTERATION OR MODIFICATION OF THIS UNIT MAY IMPACT UPON IT'S SAFETY AND AFFECT ITS CONFORMITY TO THE STANDARDS TO WHICH IT IS BUILT.

WARNING: If this equipment is modified, appropriate inspection and testing must be conducted to ensure continued safe use of the equipment.

If any part of the enclosure(s) is dented or cracked following an impact, servicing is required before continued use.

DO NOT stand, sit or climb on this equipment

Check all cables and connectors for damage before use and arrange repair of any defects before proceeding.

Do not touch accessible electrical contacts or parts when the patient is present e.g. contacts of connectors, lampholders.

WARNING : to avoid the risk of electric shock, this equipment must only be connected to a supply mains with protective earth.

1.2) INTENDED ENVIRONMENT OF USE

The units are intended to be installed in dental surgeries in domestic, commercial, and light industrial premises, clinics and hospital dental departments. These premises must be able to maintain an ambient temperature not exceeding 35C and relative humidity of 30% to 70%.

It must be confirmed that the floor of the installation site is capable of safely supporting the weight of the unit and any other dental equipment in the area.

1.3) ELECTROMAGNETIC ENVIRONMENT

The CSM Spittoon has been designed to satisfy the electromagnetic compatibility (EMC) requirements of international standard EN 60601-1-2. This means that it should operate within its intended environment of use without causing unacceptable deterioration in the performance of other electrical apparatus or appliances and also that it should operate without unacceptable deterioration in its own performance as a result of the operation of such apparatus or appliances.

Should adverse effects be noted in the operation of the CSM Spittoon or should it be suspected that operation of the unit is causing adverse effects in other electrical equipment as a result of EMC performance, users should contact Tridac for guidance and advice.

Examples of adverse effects in the operation of the unit are uninvoked starting/stopping of the suction, bowl flush or tumbler filler. Examples of adverse effects caused by electromagnetic emissions might be sound interference on radio reception or visible disturbances to picture quality of T.V., or video monitors. If such interference is suspected, it may be investigated by alternately stopping and restarting use of the CSM and noting whether there is a direct relationship between the interference and operation of the unit.

Do not stack other electronic equipment on top of the CSM Spittoon, for example, electro-surgery units, computer peripherals, as there is a risk of reciprocal interference. Similarly, avoid using the unit adjacent to other equipment.

Portable and mobile high frequency communications equipment (e.g mobile phones) may interfere with electro-medical equipment. To reduce the possibility, avoid using mobile devices in the vicinity of the CSM Spittoon unit. Ideally, do not use mobile devices in the dental treatment room.

The CSM spittoon does not have electrical operating hoses, so these do not effect EMC performance. However, do not lengthen any umbilical or internal cables. Failure to observe this advice could result in an increase in electromagnetic emissions or a decrease in immunity.

1.3.1) Suction switching.

Versions M4, M8, MCS and MCAS of the spittoon provide switches in the hose hangers of the assistants arm. These are intended for use on Safety Extra Low Voltage only, but may be used by your installer to switch on and off a mains operated suction pump via an intervening relay or contactor with a low voltage coil. This is likely to be an existing device when the spittoon is being installed as an addition to a central suction system. The installed EMC performance will depend on the characteristics of the contactor and is thus outside the control of Tridac. However, problems (e.g. switch clicks) in the coil side of the circuit are unlikely to occur if the recommendations in the ratings are adhered to and good engineering practice is followed. Performance of the mains side of the circuit will not be influenced by the suction manifold switches.

1.4) DISPOSAL

Waste amalgam from the use of the Spittoon unit must be separated from waste water by an amalgam separator conforming to the current edition of BS EN ISO 11143. Collected waste must be disposed of via a registered hazardous waste collection service.

Also the hazardous waste service must be used for disposal of detritus from the spittoon bowl filter ("gold trap") and the suction solids filter. Similarly, waste cleaning cloths/wipes must be disposed of with clinical waste..

At the end of this product's life it will be classified as **Waste Electrical and Electronic Equipment** and should be disposed of separately from normal waste. You should contact your dealer in the first instance, who will normally take away the old product when installing new. Where this is not the case please contact Tridac for details and costs of direct take back arrangements. Tel 01923 242398, Fax 01923 250864, www.tridac.co.uk

1.6) SYMBOLS and WARNINGS

The operating instructions use the following symbol.



CE mark according to EU Directive 93/42/EEC for medical devices.



Equipment: Class 1 Type B



Safety symbol used for CAUTION, WARNING or DANGER



Important information. MUST read user manual



Protective Earth



Waste Electrical and Electronic Equipment



2) SPECIFICATIONS AND RATINGS

Manufacturer	Unit 13, The Wenta Business Centre, Colne Way, Watford, WD24 7ND Tridac Ltd. Unit 1A Rectory Farm, Gade Valley Close, Kings Langley, Herts. WD4 8HG, England
Model Reference	CS M Spittoon
Part Number	23 1116
Weight	Gross 29kg. Net 24kg
Transport and Storage	Unit and packaging may be transported and stored at 0 to 50 deg.C and relative humidity 30% to 95% and pressure of 500hPa to 1060hPa
Installation Type	Permanently installed
Classification (EN 60601-1)	Class 1. To avoid risk of electric shock this equipment must only be connected to a mains supply with protective earth.
Equipment type (EN 60601-1)	Type B
Anaesthetic Category	Not intended for use in an oxygen rich atmosphere. Not intended for use with flammable anaesthetics
Classification under Directive 93/42/EEC (Medical Devices):	
Model MO, M9, MCA	Not a medical device under Directive rules
Model MCS, MCAS, M4, M8.	Class I (passive suction device)
Any, with 3in1 syringe	Class IIa
Electricity Supply :	230 Volts
Phase	Single Phase
Frequency	50 Hz.
Electrical Ratings:-	
Mains	5 Amps. Max. (total)
Low voltage transformer (All models)	12 VA Max.(120 VA on MCA, MCS and MCAS models). Note: the transformer is internally thermally protected and separately fused.
Low voltage switching :	Safety Extra Low Voltage to EN 60601-1 must be ensured.
Suction manifolds	24 volts ac/dc @ 2 Amps max., resistive load. Note : Derate for inductive loads e.g. contactor/relay coils. Suppress D.C. coils e.g. use a catch diode across the coil. If possible, use coils with ratings not exceeding 10VA ac/dc
Fuses :	
Mains input fuse(floor box)	5 Amps. 250 V 1" x 1/4" HBC to BS 1362. Part No. 10-1067
Transformer primary fuse	T 125 mA L 250 V 20 x 5 mm to IEC 60127-2 Part No. 10-1182 (T 1A L 250 V 20 x 5mm to IEC 60127-2sht3 for 120VA Transformer, part No. 10-1309)
Mode of operation :	Continuous with intermittent loading.
Water Supply :	Minimum 2.1 bar (30 PSI) Maximum 6.9 bar (100 PSI) Note : Water Bye Laws may require an anti siphon valve between the unit and supply.
Bowl flush air gap	Type A, >20 mm, within 15 deg. of vertical.
Regulator pressure	Factory set to 2.1 bar (30 PSI)
Air Supply	Only required for models M8 and M9 and if Syringe or Curing Light is fitted. Minimum 2.5 bar (35 PSI) Maximum 6.9 bar (100 PSI)

Vacuum :

MCS, MCAS:-

Intended for connection to existing suction sources. Final performance is determined by pump characteristics and thus outside the control of Tridac.

Maximum vacuum should not exceed -250 hPa

M4, M8, M9, MCA:-

As above. Note: units for wet-line suction will withstand higher vacuum. However International Standard ISO 10637 suggest safe vacuum levels should not exceed -250 hPa.

Max. Vacuum

-250 hPa.

Vacuum connection

To 32 mm plastic pipe, to BS 5255.

Waste connection

To 32 mm plastic pipe, to BS 5255.

Note: ABS material is NOT suitable for vacuum/waste pipes.

ACCESSORIES

Suction tips

C S M versions incorporating suction are designed to accept suction tips of 16 mm and 11 mm diameter.

3in1 Syringe :

If fitted, the D C I autoclavable type is used, replacing one of the small suction hoses.

Air supply

Minimum 2.5 bar (35 PSI)

Maximum 6.9 bar (100 PSI)

3) DESCRIPTION

3.1) Base model. The CSM' is a dental spittoon unit intended for attachment to the dental chair. It provides a rinsed spittoon bowl and a tumbler holder and filler, this provides convenient facilities for the patient to rinse out during and after treatment. The spittoon and tumbler filler are operated by membrane switches on either side of the spittoon body, pressing these will initiate the electronic timers that control the solenoid water valves. Water input is regulated so that splashing is reduced, and to help provide a consistent volume of water from the timers.

The spittoon bowl and tumbler facility of the unit are incorporated in a one piece ceramic top with both the tumbler filler and the bowl flush nozzles combined into the ceramic spout, this together with the innovative means of flushing the bowl, provides a very easy to clean piece of equipment. The ceramic top is attached to the main body of the spittoon which also has very smooth lines with facilities for various options. This assembly is free to pivot around its mounting point allowing the whole spittoon to swing away and provide improved side access to the patient from the nurses side of the chair.

Dependent on the model of chair the spittoon is attached to, it may be fitted with either internal services running through the chair and terminating in it, or the more usual, service hose and floor box.

3.2) Versions. The CSM' provides a convenient location for positioning suction hoses for use by the D.S.A. An assistant's arm assembly can be added in order to provide this facility. Various versions have been configured for use with differing suction systems and are listed below.

Model

Description

- | | |
|------------|--|
| M0 | Base model, supplied without suction as described above. |
| M4 | CSM' spittoon fitted with assistants arm. Suitable for connection to existing suction systems. Available for Wet-Line or Dry-Line suction systems. |
| M8 | CSM' spittoon fitted with assistants arm, as M4 and additionally fitted with a Dürr Spittoon Valve. Suitable for connection to suction systems where gravity drainage is not available, or when amalgam separator is provided at suction source. |
| M8P | CSM' spittoon as M8 above and additionally fitted with a Dürr place selection valve. Use when the suction source is supplying more than one surgery. |

- M9** CSM' spittoon as MO and fitted with a Dürr Spittoon Valve. Suitable for connection to suction systems where gravity drainage is not available or when amalgam separator is provided at suction source.
- MCA** CSM' spittoon as MO and fitted with a Dürr Amalgam separator. Separates amalgam waste from the spittoon water when there is no suction to the spittoon,
- MCS** CSM' spittoon fitted with assistants arm and a Dürr CS1 Air/Water separator in the body of the spittoon, complete with cut-off solenoid. For connection to existing dry pumps.
- MCAS** CSM' spittoon fitted with assistants arm and a Dürr Combi CAS1 providing Air/Water and integral amalgam separation. For hook up to dry-line suction systems and includes vacuum cut-off valve.

4.) FUNCTIONAL DESCRIPTIONS

4.1) Functional Description - MODEL MO

Model MO Water is brought to the spittoon through the service hose or via the internal services through the chair. It is then regulated by means of a adjustable pressure regulator before passing to solenoid valves. These valves are controlled by two adjustable timers that pre determine the amount of water directed to the tumbler and the bowl. The instigation of the bowl flush and tumbler filler are by membrane switches on either side of the spittoon body, pressing these will initiate the electronic timers that control the solenoid water valves. The whole spittoon assembly is free to pivot around its mounting point allowing the spittoon to swing away and provide improved side access to the patient from the nurses side of the chair. If a dental operating light is fitted to the spittoon it has no effect on the operation or function of the spittoon.

4.2) Functional Description- MODEL MCS

This model is fitted with a suction manifold and air/water separator. It is intended for use with an existing dry line suction pump, which may be an individual one or a central one serving a number of surgeries.

The assistants arm/suction manifold provides 3 operating hoses, one large one small and a saliva ejector, intended for use with 16 mm and 11 mm suction tips. An adaptor converting the large hose to the 11 mm size can be used to maximise air flow through medium sized tips (8 mm bore). The tip connectors incorporate manual control valves, which use a rotary motion, in order to vary the suction flow rate by restricting the orifice.

The set of three hoses are individually detachable from the suction manifold for cleaning. A removable filter is incorporated into the manifold to separate solid particles from the air and liquid flow and prevent them from entering the system.

Microswitches are fitted in each of the hose holders, intended to operate on Safety Extra Low Voltage and to give automatic start up of suction. When a hose is lifted a switch operates causing the separator to start and the cut off valve to open allowing suction through to the tips. At the same time a relay is operated that signals the suction pump to start. In the case of a pump serving several surgeries, it will usually be arranged to have a parallel effect, often via a relay, so that the motor will run provided there is demand from at least one surgery.

Control wires and the suction supply line are fed through the spittoon body and umbilical to the floor connection box, where they will connect up with under floor pipelines and extension wiring.

The Dürr air/water separator fitted inside the spittoon is a type CS1. The air and liquid mixture is fed into a cyclonic separator driven by an electric motor. The centrifugal force spins the particals to the outside thus separating liquid and fine solids from the suction air. Therefore only dry air enters the vacuum supply line to the pump.

For further details of the CS1 separator please refer to the individual Dürr manual.

4.3) Functional Description- MODEL MCA

This model is a basic spittoon without suction but fitted with the Dürr CA1 amalgam separator. The waste water and particals from the spittoon bowl are continuously fed to a motor driven centrifuge where the amalgam particals are separated and collected in a replaceable container. The level of particals are monitored and a signal given when the container needs replacing, after further continuous use the system will shut down completely for safety reasons.

A wet suction line is all that is required for this model.

Refer to the Dürr instruction manual for full operating details on the CA1.

4.4) Functional Description- MODEL MCAS

This model is the same as the MCS and functions in the same way but with the addition of amalgam separation by means of the Dürr CAS1 Combi separator. The waste from the Air/Water separator and from the spittoon, additionally pass into a motor driven centrifuge where the amalgam particals are separated and collected in a replaceable container. The level of particals are monitored and a signal given when the container needs replacing, after further continuous use the system will shut down completely for safety reasons.

Refer to the Dürr instruction manual for full operating details on the CAS1.

4.5) Functional Description- MODEL M4

This model is provided with a assistants arm and suction manifold only. It does not have an air/water separator built in. It is available in two variations, intended for use with either

- a) Wet-line suction systems, or
- b) Dry-line & semi dry-line systems.

For variations a) and b), the assistants arm incorporates single microswitches in each of the hose holders, designed to operate on Safety Extra Low Voltage of 24 volts a.c. The switches may be used to 'signal' demand for the suction pump (typically operating a motor start relay) or to operate a magnetic valve in systems with a continuously running pump. In the latter case, the switches need not be used, each surgery shutting off vacuum by means of the tip rotary valve instead.

The suction supply line running through the spittoon and umbilical is a smaller diameter and less flexible than that used for dry-line systems, because of the higher vacuum levels associated with wet-line pumps.

For variations b), The suction supply line running through the spittoon and umbilical is a larger diameter and more flexible than that used for wet-line systems, in order to maintain high flow rates at the lower vacuum levels associated with dry-line pumps.

Either variant on request, can be supplied with a small relay assembly, part number 22-1521. This will allow the hanger switch to operate a cut-off valve, and the relay to 'signal' demand for the suction pump, in exactly the same way as in the MCS described above.

Control wires and the suction supply line are fed through the spittoon body to the floor connection box, /where they are intended to connect up with under floor pipelines and extension wiring.

4.6) Functional Description- MODEL M8

The model M8 is basically a model M4 but with the addition of a Dürr Spittoon Valve. The function of the valve is to allow the waste from the spittoon bowl to be disposed of via the suction line instead of separate waste.

Waste water from the spittoon bowl flows into the device causing it to open by means of a solenoid and air operated valve, the water drains away without any suction noises at the spittoon bowl.

When waste water stops flowing, the valve closes, and the rundown time for the suction pump, when switched, is then approximately 20 seconds.

When the suction system is in operation, the bowl will still drain away without any suction noises at the spittoon bowl. Otherwise the model functions the same as model M4.

Refer to the Dürr instruction manual for full operating details.

4.7) Functional Description- MODEL M9

Model M9 functions in the same way as model M8 but without suction available to the assistant. Refer to the Dürr instruction manual for full operating details.

5.) INSTALLATION

Installation must be carried out by the supplier of the equipment who will have the necessary qualified and trained staff.

When the equipment is being installed in a surgery that may produce waste amalgam, an amalgam separator conforming to the current edition of BS EN ISO 11143 must be incorporated within the equipment or the waste water/suction line from it.


Collected waste must be disposed of via a registered hazardous waste collection service.

5.1) Floor Box / Chair Services

Ensure that the required services are available in accordance with the model chosen and the specifications above.

Refer to the installation plan 86-1158 for internal services connection or the floor box plan 85-1030 for recommendations on siting the services and for the positions and sizes of supply pipes. When choosing a suitable site for the services box, ascertain that the spittoon service hose is of sufficient length, so that no undue strain is put upon it with the chair in its maximum extended position/height.

The electrical supply to the service box must conform to the standards required by the local electricity supply authority. Although the spittoon is rated at 5 Amps, the supply wiring must be rated at 13 Amps 230 V 50 Hz.

Electrical connection of the live and neutral wires of the supply cable must be made to the vacant 'Load' terminals of the switched connection unit in the services box, the live to the terminal marked 'L' and the neutral to the terminal marked 'N'. Connect the earth wiring to the terminal marked with the symbol 

Suction lines should enter the floor services box where indicated on floor plan 85 1030. Any necessary switch wiring should also enter the floor box, where a terminal block is available to facilitate connection with the spittoon. Where provided, the switch wires from the suction manifold, available in the floor box, are intended for Safety Extra Low Voltage (see section 4, specifications) : **Avoid the use of connecting cables which could be mistaken for mains wiring.** Observe the ratings and recommendations on low voltage switching. Ensure that the low voltage circuit of the host system is fused at the lowest appropriate rating and that motor control gear of the host system does comply. Also note the comments on EMC in section 1.3).

Tie wires together where they enter the terminal block to ensure that if a wire comes free, it is held in place by the adjacent wires and cannot contact other wires or parts.

CAUTION Clear any debris from supply pipes before connecting the spittoon: Flush water supply pipes at the service box.

5.2) Installing the Spittoon.

The relevant spittoon mounting bracket should now be fitted to the chair. Each bracket kit comes complete with suitable bolts. The mounting holes in the bracket will line up with the corresponding fixing points intended to be used for the mounting of accessories by the chair manufacturer. If in doubt, contact Tridac for advice.

If there is suction to the spittoon, you may wish to fit the assistants arm before mounting it to the chair. Lay the spittoon on a flat surface and lightly unscrew the two retainers located down the front edge of the panel until a resistance is met (approx. 6mm) DO NOT FORCE any further. The side panel will now hinge open along it's back edge.

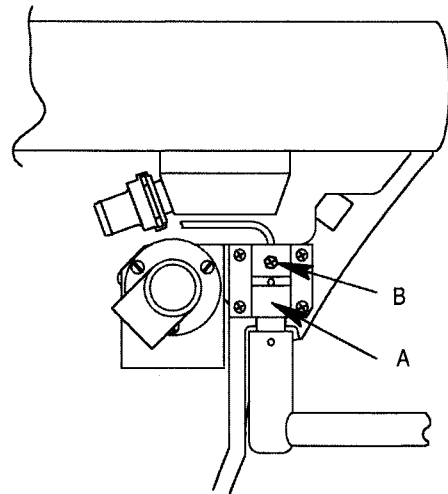
Remove the assistants arm fixing bracket if it has already been fitted and offer the rear arm pivot up to the spittoon body, locating the pivot bearings in the cut-outs on the fixed half of the spittoon body and fit the bracket in place with the stop pin through the slot, secure with the four screws and spring washers.

The friction of the rear arm pivot is adjustable by means of the screw and lock nut on the retaining bracket, other adjusting screws are located at the middle pivot and under the small bung on the right hand side of the assistants hanger moulding.

Connect the wires from the assistants arm to the terminal block in the spittoon, and secure with a cable tie through an adjacent slot in the insulator. The location of the wires will depend on which model type you are installing, see wiring diagrams later in the manual. Make sure that the wires can not be trapped between the two body halves when closed.

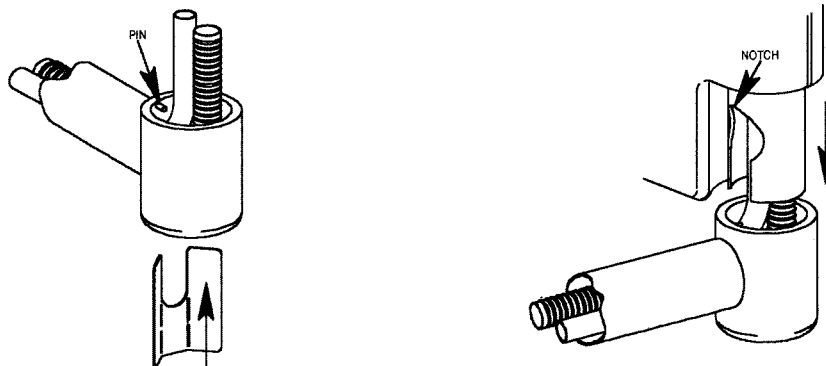
5.2.1) With internal services.

When attaching the spittoon to an ECO 19 or ECO.Next chair with internal services, it may be easier to feed the services through the bracket first before fitting the bracket to the chair. Make sure you have all the services required, air and water lines, waste and suction hoses, remote operating and switching wires. Leave 600 mm (2 feet) protruding from the bracket where the spittoon fits. Also, don't forget to include the cable for the operating light if one is being fitted. You will need to be leave this longer, something in the region of 1500mm.



On fixed top chairs, the bracket is fitted on the side, on swivel top chairs, it is fitted in the middle towards the front. With the seat removed and the chair raised to a high position, lift off the top section of moulding on the pantograph. You will also need to tilt the seat back if you are fitting a bracket to a swivel top chair. Offer the bracket up to the chair and feed the services through the top section (swivel top only) and down the internal ducting to the base. This can be made easier if you use something suitable as a pull through. Continue fixing the bracket to the chair following any instructions supplied with it.

Before offering up the spittoon to the bracket, arrange the tubing as shown below and use the locator supplied with the bracket to hold them in position whilst fitting. Feed the services up through the spittoon pivot tube, exit the waste tube through the upper aperture and the other services through the lower aperture. Lower the spittoon down into the mounting boss making sure that the pin locates in the small notch in the tube, the tube locator will have been pushed out of the boss in doing so.



Fit the TRANSFORMER/DISTRIBUTION CHASSIS to the chairs cross member and secure with screw.

Fit the VALVE CHASSIS from the connection kit to the front righthand side of the chair base . Connect up the services in the base of the chair using the fittings supplied, do not use the small grey waste elbow to connect Dry-line suction hose as this will restrict the air flow.

The GREEN nylon tube connects to the water isolating valve by means of a Push-in fitting, the YELLOW tube likewise to the air valve, if required. It is a good idea to leave a neat loop of tubing rather than cutting them very short, as this can make future servicing difficult.

Low voltage wires (RED, WHITE, G/Y, ORANGE and BLACK) should be connected to the terminal block marked SPITTOON, on the transformer/distribution chassis. Refer to instruction sheet 86-1141. Cable tie the wires to the chassis using the adjacent hole.

Fit the 'Mains Input Terminal Block' to the left hand side of the chair and connect wiring as per label.
Cable Tie wires together where they enter the terminal block to ensure that if a wire comes free, it is held in place by adjacent wires and cannot contact other wires or parts.

5.2.2) External services.

Lower the spittoon down into the mounting boss making sure that the pin locates in the small notch in the tube. With the service hose held below the mounting boss, making sure you have the larger end with an 'O' ring already fitted, feed the services up through the spittoon pivot tube, exit the waste tube through the upper aperture and the other services through the lower aperture.

Push the hose connector into the lower end of the mounting boss until it locates in the groove, a little lubrication on the 'O' ring may be required.

The other end of the service hose should be fed into the service box through the large hole, the 'O' ring supplied can then be fitted to the groove in the connector in order to hold the hose in place.

Connect up the services using the fittings supplied, do not use the small grey waste elbow to connect Dry-line suction hose as this will restrict the air flow.

The GREEN nylon tube connects to the water valve by means of a Push-in fitting, the YELLOW tube likewise to the air valve, if required. It is a good idea to leave a neat loop of tubing rather than cutting them very short, as this can make future servicing difficult.

Low voltage and switch wires should be connected to the terminal block provided. Tie wires together where they enter the terminal block to ensure that if a wire comes free, it is held in place by adjacent wires and cannot contact other wires or parts.

5.2.3) General Connections.

Inside the spittoon, the waste hose needs cutting back to a suitable length and pushed onto the bowl outlet connector, use silicone sealer to prevent leakage.

Cut back the water supply line (GREEN nylon) and fit to the input fitting on the regulator, Note that the nylon tube fittings are of the push-in self sealing type, make sure that the tube end is cut cleanly and unmarked, it must be inserted a full ten millimetre to seal affectively. If an air supply is required, cut back the YELLOW nylon tube and fit to appropriate connection, where this is will depend on model type.

Connect the five wires in the sleeving to the terminal block in the following order.

GREEN/YELLOW	No. 1
RED	No. 2
WHITE	No. 3
BLACK	No. 4
ORANGE	No. 5

Remove the plugable terminal block from the circuit board on the opening panel of the spittoon and connect the four core cable for the remote bowl flush and cup filler. Only applicable when used with a 'TIONIC 5' drill unit.

Starting at the top and working down,
connect the RED - Tumbler then YELLOW - Common, GREEN - Common and BLUE - Bowl.

Refit the connector to the circuit board and secure the cable to it with a cable tie through the slot in the board to prevent it becoming accidentally disconnected.

5.3) Suction Systems.

Model M4. Cut back the suction hose to a suitable length and use P.V.C. solvent cement to secure the tubing to the manifold adaptor. Plug the hose/adaptor into the tee fitting of the manifold.

Install the assistants arm as previously described, connecting the wiring as required, see wiring diagram at the rear of this manual.

Model MCA. The Dürr Amalgam separator together with the electronic controls have been fully installed into the spittoon by Tridac. Cut back the suction hose to a suitable length and use silicone sealer to make a secure and leak proof seal of the tubing to the fitting on the Dürr separator. No separate waste line is required.

Model MCS. The Dürr Combi separator together with the electronic controls have been fully installed into the spittoon by Tridac. Cut back the suction hose to a suitable length and use silicone sealer to make a secure and leak proof seal of the tubing to the fitting on the Dürr separator. Install the assistants arm as previously described, connecting the wiring as required, see wiring diagram at the rear of this manual.

Model MCAS. The Dürr Combi amalgam separator together with the electronic controls have been fully installed into the spittoon by Tridac. Cut back the suction hose to a suitable length and use silicone sealer to make a secure and leak proof seal of the tubing to the fitting on the Dürr separator. Cut back the waste tube to a suitable length and use silicone sealer to make a secure and leak proof seal to the waste fitting on the Dürr separator. Install the assistants arm as previously described, connecting the wiring as required, see wiring diagram at the rear of this manual.

Model M8. The Dürr spittoon valve has already been installed into the spittoon by Tridac. Cut back the suction hose to a suitable length and use silicone sealer to make a secure and leak proof seal of the tubing to the fitting on the Dürr spittoon valve.
Install the assistants arm as previously described, connecting the wiring as required, see wiring diagram at the rear of this manual.

Model M9. The spittoon valve has already been installed into the spittoon by Tridac. Cut back the suction hose to a suitable length and use silicone sealer to make a secure and leak proof seal of the tubing to the fitting on the Dürr spittoon valve.
Connect the wiring as required, see wiring diagram at the rear of this manual.

5.3.1) Final Installation.

When a chair attached light is being fitted, lower the light post into the socket through the top of the spittoon. Tighten the set screw in the socket to secure the post in position and drop the collar over the post. Feed the supply lead down through the light post and locate light into the bush fitted to the post, continue the installation of the light according to it's instructions. If the light is one supplied by Tridac, it's transformer will have been supplied or fitted in the most appropriate location for the model of spittoon being fitted.

Now the light post has been fitted, it will be easier to set the spittoon vertical by means of the adjusting screws in the mounting boss. If the spittoon is part of an ambidextrous set-up, check that it is still vertical when swung round to the other side of the chair. Note that the chair must be level to start with otherwise it will be impossible to set the spittoon vertical on both sides.

Check also that the service tubes move freely when the spittoon is swung round otherwise problems could occur in the future. It is best not to tie the services together at any point through the chair as this makes it less flexible.

Fit the operating hoses to the manifold by simply pushing onto the tubes protruding from the side panel and insert the sleeve filter and holder into the hole on the other side, if supplied.

Place the bowl trap and deflector in the spittoon bowl,

5.4) INITIAL OPERATION

AFTER INSTALLATION, follow the procedure below to avoid problems. Refer to the section on 'Operation' for information on the position and action of controls.

Turn on the water supply at the service box or chair base and check for any leaks.

Turn on the electric's at the service box or chair base, operate the bowl flush by pressing the appropriate pad on the control panel. This should run for several seconds before turning it's self off.

Place a tumbler under the filler spout, then operate the tumbler filler until a smooth stream of water is emitted. Operate again to check that the timer only allows approximately half a tumbler.

Check the unit over for water leaks and rectify, if necessary.

6) OPERATION

6.1) Basic Spittoon. Refer to the diagram below for the position of controls.

Bowl flush. The bowl flush is started by pressing the touch pad on either side of the spittoon.

Tumbler filler. The tumbler filler is started by pressing the touch pad on either side of the spittoon.

6.2) Spittoons with suction

Brief details of the operation of the various suction facilities are given below and additional information describing the outline function of the various suction options is included in section 11 of this booklet.

For fuller details concerning the use, care and maintenance of the suction systems as a whole, please refer to the separate booklets supplied.

6.2.1) Attachment of accessories

All of the suction options include at least one operating hose of each size :

- a) Large : to accept suction cannula (tips) of 16 mm diameter.
- b) Small : to accept suction cannula (tips) of 11 mm diameter.

The suction cannulas are simply a push fit into the cannula connectors.

An adaptor, part number 22 1231, is available from Tridac, to allow 11 mm cannulas to fit the 16 mm hose. This can usefully increase flow rate through medium sized cannulas. Furthermore, the larger suction hose is less prone to obstruction by solids particles e.g. lumps of amalgam. The adaptor is a push fit into the hose cannula connector and the cannula a push fit into it. The adaptor is intended for use with cannulas of minimum 8.0 mm bore.

6.2.2) Suction operation

Model MCS, MCAS.

The assistants arm provides 1 large and 2 small hoses. The solids filter is extracted by pulling out from the side of the spittoon body.

Lifting one of the hoses from its holder will result in automatic start up of suction.

The degree of suction is varied by rotary action valves incorporated in the cannula connectors, as shown.

Moving the valve anti-clockwise, as indicated by the the arrow, results in a reduction of suction. When the nodule is at its lowest position, suction is virtually shut-off.

Since the control of vacuum is by occluding the suction bores, so the equipment is suitable only for use with motors/suction pumps which are safe to run 'shut-off' or which incorporate vacuum relief devices.

The Dürr separator is designed for continuous suction, and unless the input flow is too great, or the waste outlet restricted or blocked, the suction will not stop in general use.

Please read the Dürr booklets supplied with the unit for detailed information.

Model M4 The model M4 includes only a assistants arm and suction manifold with no separator. The assistants arm provides 1 large hose, 2 small hoses, there is also a solids filter. Its' operation is as described for the MCS model above.

The assistants arm includes switches in the operating hose holders, which allow installation with automatic start up of suction. However, whether or not this facility has been used will depend on the particular installation. Users should consult the supplier of the 'host' vacuum system for further details.

As with the MCS model, the control of vacuum is by occluding the suction bores, so the equipment is suitable only for use with motors/suction pumps which are safe to run 'shut-off' or which incorporate vacuum relief devices.

Model M8 This model is fitted with a assistants arm, manifold and a Dürr Spittoon Valve. The operation of the assistants arm and manifold is as previously described for the MCS model. Suction automatically starts on lifting any one hose from its holder. The spittoon valve comes into operation automatically on flushing the spittoon bowl.

Model M9 This model is fitted with a Dürr Spittoon Valve only. The spittoon valve comes into operation automatically on flushing the spittoon bowl.

7) ROUTINE CLEANING AND MAINTENANCE

7.1) General.

Always switch off the electrical supply to the unit when cleaning is undertaken.

When cleaning dental equipment, it is recommended to wear suitable protective clothing. This would include a face mask, eye protection and strong rubber gloves, household rather than surgical, as there is a danger that the latter could be easily split or punctured.

If cleaning items by brush, do so, wherever possible, in a bowl or sink filled with the chosen cleaning solution. Keep items submerged while brushing, to eliminate splashing.

Where this is not possible, polythene bags can be used to contain spatter. Inexpensive quality, domestic food bags are quite suitable.

The bag may be pierced to allow the handle of the brush through, then wrapped tightly around it. Alternatively, the brush may be placed inside and the handle gripped through the bag.

Soiled brushes may be cleaned in a bowl of detergent or soaked in disinfectants suitable for use with metal. We suggest using a little of the aspirator cleaner made up for the treatment of units with suction.

Use disposable cloths or wipes for cleaning. Dispose of used items with the clinical waste.

Use of the approved cleaners below will avoid damage to the unit's surfaces provided they are used in accordance with their manufacturers directions. An important one for surface disinfection is drying surfaces after treatment.

Apply cleaning and disinfectant products to the cloth, then to the surfaces. Do not spray solutions directly onto the spittoon, particularly painted surfaces.

- 1) Mild detergent: "Fairy" liquid washing up liquid.
- 2) Sensitive disinfectant/cleaner: Durr FD 366 (preferred disinfectant)
- 3) Disinfectant/cleaner: Schulke Mikrozid AF liquid
- 4) Suction cleaner: Durr Oratol Plus

7.2) Access.

If there is suction to the spittoon, you will need to gain access to the inside of the spittoon in order to clean the suction manifold as described later in this section. **Remember to isolate the electrical supply before attempting access.**

Remove the solids filter on the side of the spittoon, lightly unscrew the two retainers located down the front edge of the panel until a resistance is met (approx. 6mm) DO NOT FORCE any further. The side panel will now hinge open along it's back edge.

When reclosing, only lightly screw in the two retainers, do not tighten.

7.3) Basic spittoon

Cleaning of the unit's surfaces may safely be accomplished by wiping with a soft cloth, dampened with a detergent solution (1). Ensure that the cloth is squeezed out. DO NOT soak the unit. Dry the cleaned surfaces after cleaning.

Aggressive detergent based products, such as proprietary/domestic floor cleaners, should be avoided. Also avoid abrasive cleaners, which will dull, and eventually thin, the surface coating. Avoid bleach also, as it can be very detrimental to painted surfaces and metal.

Disinfection may be carried out, after cleaning, with suitable surface disinfectants (2. 3). Wipe on with a cloth.

7.4) Spittoon Bowl Filter.

The filter should be emptied at least once a day. Lift the deflector dome and filter from the bowl, tip the contents into your contaminated waste receptacle.

The filter and deflector should be washed in detergent. Trapped debris can be shifted from the mesh part by brushing from the outside.

7.5) Spittoon Bowl.

The spittoon top is manufactured from ceramic and therefore has a highly durable surface which may be cleaned using common domestic detergents. However, foaming or corrosive chemicals must not be allowed to enter the spittoon waste because they may be harmful to internal components or connected suction systems. Also, drips may run off onto painted parts. We therefore recommend cleaning the bowl with a solution of the aspirator cleaner (4) which will be used for end of session cleaning of the suction system.

Some patients may touch the bowl rim and it is therefore important to pay particular attention to this section of the ceramic. Wipe the exterior surface and bowl rim of the spittoon top dry after rinsing to achieve a lustrous finish.

7.6) Nozzles.

Lime scale can be treated with descaler, used sparingly and prevented from flowing to drain. However, take care not to allow descaler to enter inside the nozzles. Pay particular attention to this with the tumbler nozzle. Rinse very thoroughly and flush water through the nozzle to ensure all residues are removed.

7.7) Suction.

IMPORTANT : For information regarding the overall maintenance of the suction system used with your spittoon, please refer to the appropriate manufacturer's separate booklets. **DO NOT NEGLECT** to do so : Instructions regarding routine attention **MUST** be observed to ensure safe and reliable operation.

Instructions and notes regarding maintenance of the operating part of the suction equipment, i.e. suction manifold and operating hoses, are given below :

7.7.1) General.

In normal use, it is frequently the case that only small quantities of secretions, such as spray and saliva, are aspirated. These secretions tend to be sticky and often contain fine particles of solids from drilling operations. When fanned by the high air flow rates occurring inside the suction tubing, the secretions tend to dry out, leaving stubborn deposits.

The internal condition of hoses and other parts contacted by aspirated secretions can be improved by keeping the internal bores rinsed. To do this, we recommend flushing used operating hoses after each patient, by aspirating a tumbler of water. See section below for hints on flushing.

7.7.2) Flushing.

Aspiration equipment should be flushed at least once a day with a specialist **NON FOAMING** disinfectant cleaner(4).

BEWARE: Not all non foaming cleaners live up to that claim!

Also avoid bleach and cleaners based on aldehydes.

Since freshly deposited secretions are easier to shift and disinfectants are less effective, or ineffective, on heavily soiled parts, we recommend carrying out a first flush with plain water. This is also much cheaper than specialist aspirator cleaners! Follow up with with the disinfectant product.

Make up 1.0 litre of the aspirator cleaner to the manufacturer's recommended dilution. Remove, empty and replace the solids filter. (see section 7.7.3).

Suck the solution in equal quantity through each of the operating hoses that has been used. Do so by holding the suction tip only partially submerged, as indicated in the diagram. This allows a turbulent mixture of liquid and air to enter the tube, which gives a greater cleaning effect and longer exposure time.

Lift the hose occasionally to position B. This helps heavy sediments, like amalgam, to be flushed through. These might otherwise fail to be lifted from deep droops in the hose such as A.

Stop the suction as soon as the flushing solution has been used up, so that internal parts are wetted for 10 minutes or so to allow disinfectant action, without the drying effect of air flow. Then restart suction and briefly lift the hoses, as at B, to dispose of any remaining sediments. Now leave the suction on for a minute or so, to reduce any remaining liquid inside the manifold.

7.7.3) Solids filter.

Solids filters should be checked regularly. The frequency of emptying will depend on the type of use the suction has been put to. We suggest checking the filter in the middle of and at the end of the working day. A full or clogged filter will reduce suction flow rates and put additional strain on the suction pump and should not be neglected.

On units fitted with suction, the filter is a stainless steel sleeve of 0.8 mm mesh and is carried by a plastic holder, which avoids direct handling. Pull the filter from the side of the spittoon and empty it by tipping the accumulated contents into your contaminated waste receptacle.

Ensure that the the 'O' ring seal, filter holder and bore of the manifold (see section 7.7.5) are clear of deposits to ensure a seal when the filter is replaced. Clean the filter in a bowl (see section 7.1) if the mesh pores become clogged.

Note that air flow is in to the end and out through the surface as indicated by the arrows. Thus brushing the mesh from the outside will displace trapped debris. After cleaning, the 'O' ring seal should be lubricated with a little silicone grease.

Remove the sleeve by tilting gently to the side and pulling. Only use moderate force to avoid damaging the holder

The filter mesh, but **NOT the holder**, may be autoclaved after cleaning, if required.

Replacement parts available :	'O' Ring	P/No. 30-1123
	Filter Holder	P/No. 35-1418
	Sleeve Filter	P/No. 70-1137

7.7.4) Operating hoses.

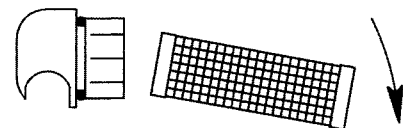
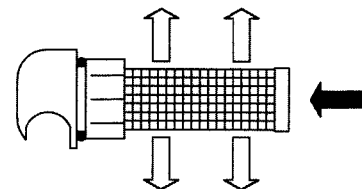
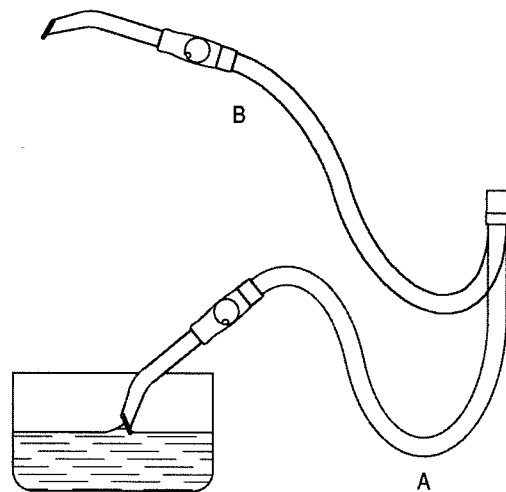
Outer surfaces should be cleaned by wiping with mild detergent solution (1) after each patient. Thorough daily cleaning must be carried out to maintain clean external and internal surface and free bores.

The operating hoses on the suction manifolds are supplied as individual hoses which are easily detached from the manifold. The connector is fitted with an 'O' ring seal inside that grips the manifold tube. The hose is detached by a straight downward pull on the connector. Do not pull on the hose.

The hose connector and the manifold tube must be kept clean to ensure a seal when the hose is refitted.

Hoses should be cleaned after the flushing operation described in section 7.7.2. They may be immersed in dilute aspirator cleaner/disinfectant (4) and should be cleared of debris at the tip connectors and manifold connector by using the brushes provided. Subsequently they should be rinsed, drained and the outer surfaces wiped dry.

After cleaning, the manifold tube should be smeared with a little silicone grease on the surface which enters the hose connector, this will lubricate the 'O' ring that is in the connector. Do not over lubricate or the 'O' ring may lose its grip, wipe off excess from both parts if this occurs.



The other end of the hoses are fitted with rotary shut-off tip connectors. These incorporate 'O' ring seals that grip attached suction tips and prevent leakage. Ensure that the bores are kept clear of deposits. If the 'O' rings become worn and lose their grip they should be replaced.

The rotary valves and their sealing 'O' rings must also be maintained regularly. Silted valves will soon become stiff and difficult to rotate. The valves are a snap fit into the body parts, see diagram, and are simply pulled from the body.

The valves are a close fit in the body and both parts must be kept thoroughly clean to assist reassembly and smooth operation. Lubricate the 'O' rings before reassembly. Introduce the valve to the body as squarely as possible to allow entry. To complete assembly, align the recess over the stop screw and press the centre of the valve with the thumb until it is felt to 'snap' back into place.

7.7.5) Manifold air ways.

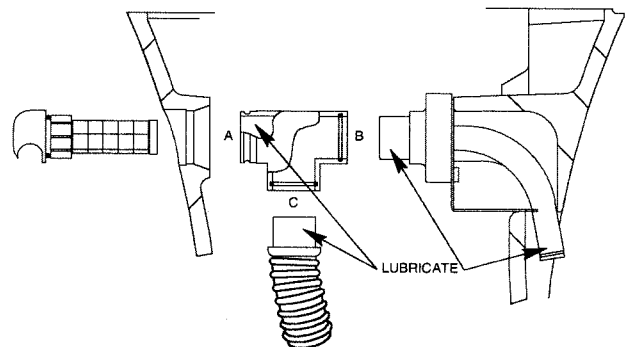
The manifold air ways should be kept clean and clear of blockages. Blocked air ways will reduce suction performance and place extra strain on the suction pump. This could lead to the pump over heating.

The manifold has been designed to provide easy access to the air ways. A high degree of access is created when the hoses and solids filter are removed for daily cleaning and it is recommended that the opportunity is taken to clear the manifold bores at these times. Use the cleaning brushes provided to clean bores A and B daily. Wipe clean and lubricate as described above before refitting hoses and filter.

The suction connection inside the spittoon (bore C) should be cleaned at least once a week.

To gain access to the inside of the spittoon, see section 7.2

Pull the plastic hose coupling from the tee fitting and use the large cleaning brush to clear debris. Ensure that the internal surface and 'O' ring inside the tee are clean before refitting. Smearing the coupling with silicone grease before reinsertion will ensure that the 'O' ring gets lubricated.



7.7.6) Aspirator tips (cannulas).

Reusable tips should be cleaned and sterilised after each patient.

Tridac metal tips, if supplied, are chromium plated and may be sterilised many times without deterioration. The plastic spray interceptor (16 mm fitting) P/No. 60 1101 is also autoclavable but must be expected to deteriorate after fewer cycles.

Tips should be washed in a bowl of detergent and the bores brushed (see section 7.1). Use the size of brush, 70 1005 or 70 1006, appropriate to the bore of the tip. Reserve these brushes for tip cleaning only: do not use them for other jobs. Rinse the tips thoroughly after cleaning.

Once cleaned the tips can be autoclaved at temperatures up to 135C.

8) ROUTINE SERVICING

Provided the maintenance instructions described in section 7 are followed by the user, there is little need for third party routine servicing of the C.S.M.

The water pressure regulator should be checked annually and if it is not holding pressure your technician should replace the diaphragm and seating, using the appropriate repair kit. Tubing and fittings should be visually inspected for condition and leaks. Any faults should be rectified.

If a suction manifold is fitted : Replacement of the following 'O' rings annually will prevent problems arising from loss of seal :

Manifold 'O' rings (at B & C, 7.7.5)

Filter holder 'O' ring

Tip connector 'O' rings

Rotary valve 'O' rings, if applicable.

Electrical safety should also be checked annually. It is often possible to include this as part of the normal Health and Safety checks which are required to be carried out on all the practice electrical equipment. Earth integrity should be confirmed and wiring inspected for physical condition, particularly where the umbilical leaves the floor box and where it enters the spittoon body.

If your spittoon was purchased with a suction system, check the requirements for servicing in the relevant instruction booklet.

9.) SERVICING AND REPAIRS

Repairs and servicing should be entrusted to the supplier of the equipment or appropriately qualified personnel to carry out such tasks. Should any difficulty be experienced in obtaining satisfactory service, users should contact Tridac for advice.

Circuit diagrams and component part identification can be found in the rear of this manual for use by suitably qualified personnel. Repairers requiring assistance or guidance and advice on the repair of those parts deemed repairable may contact Tridac by telephone on +44 (0)1923 242398, or write to the address given in the specifications section.

10) TROUBLESHOOTING

Reminder: Servicing should be entrusted to suitably qualified personnel.

Base Spittoon

The spittoon is a simple product with few problems arising. The cause of any that do is usually evident.

Symptom: Continuous trickle or drip of water from the bowl flush or tumbler filler nozzle.

Cause: Solenoid valve seating obstructed or damaged.

Rectification: Isolate the water supply at the floor box or chair base. Relieve pressure by operating the tumbler filler or bowl flush button, the pressure gauge in the spittoon should now read zero. Turn off the electrical supply.

Remove the solenoid retaining plate to gain access to the solenoids. If you wish, you can remove the whole solenoid / terminal block assembly as the bracket is held on with keyhole slots, slacken the two screws to remove it. Remove the three screws holding the solenoid coil to the body, and lift off the coil. Pull out the plunger housing taking care not to lose the spring and plunger.

Lift out the black rubber diaphragm and examine the seating face on the underside, this is the area around the central white plastic part. Remove any debris that is lodged there, reassemble and test. If the water still drips, the seating may be too damaged and you will need to replace the solenoid. The solenoid part number is 50-1093.

Symptom: Bowl flush water is no longer a smooth stream and is hitting the side of the flush tube.

Cause: This could be due to a build up of lime scale on the nozzle jet.

Rectification:

Descale the nozzle, you should then have a smooth flow of water.

If it still does not flow down the flush tube cleanly, it can be adjusted as follows:

Insert a suitable implement (a 3mm Allen key would do), no more than 8mm into the nozzle jet and rotate it in its socket until you obtain the required direction.

Other versions:

If your spittoon is fitted with suction, please refer to details in the relevant instruction booklet for the type of suction fitted.

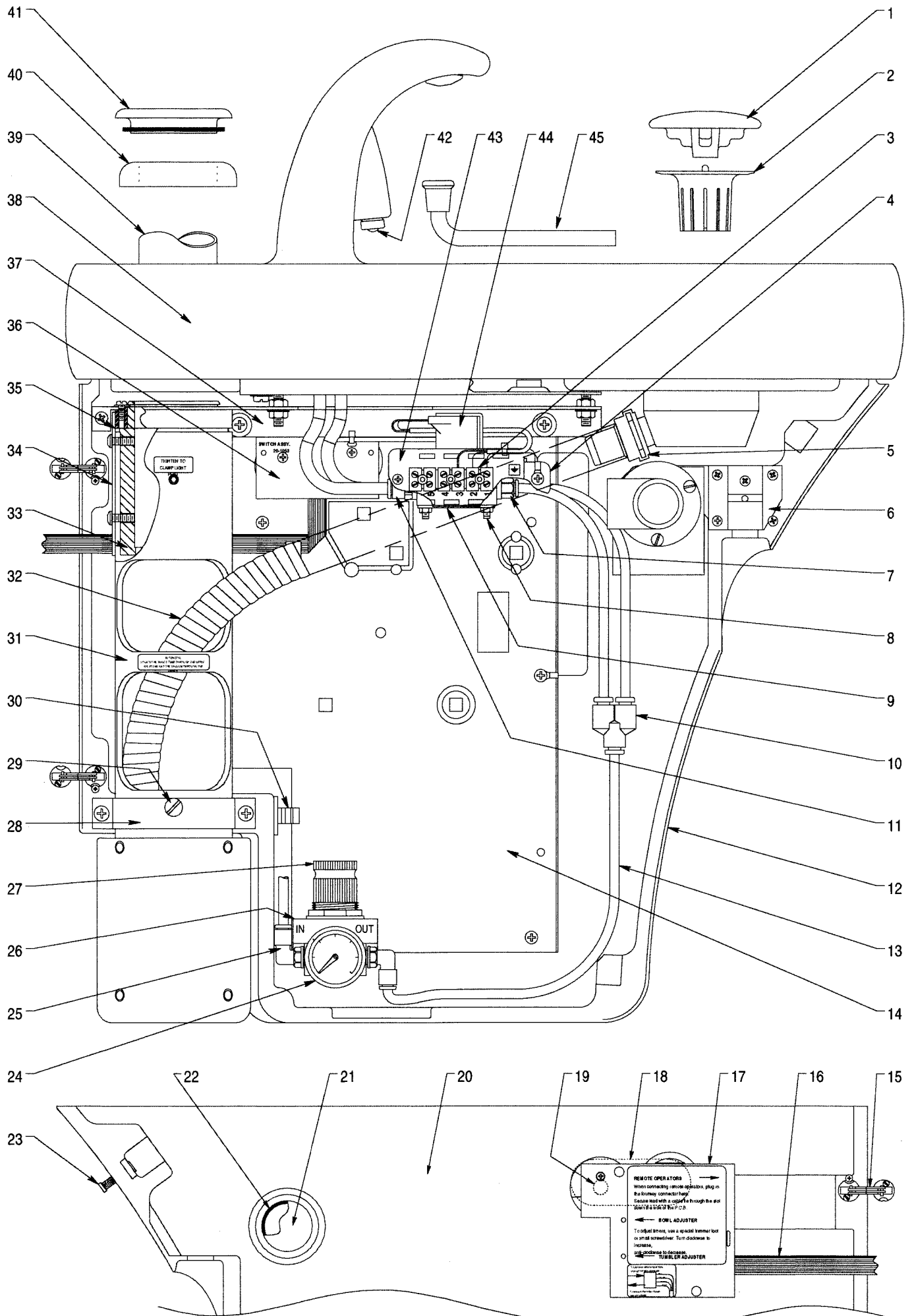
11) SPARE PARTS REFERENCES

The following list of parts provide a quick reference to common spares that may be required when servicing. These parts are for a model **Me** spittoon with or without an assistants arm / suction manifold. For a more detailed list, see drawings on the following pages.

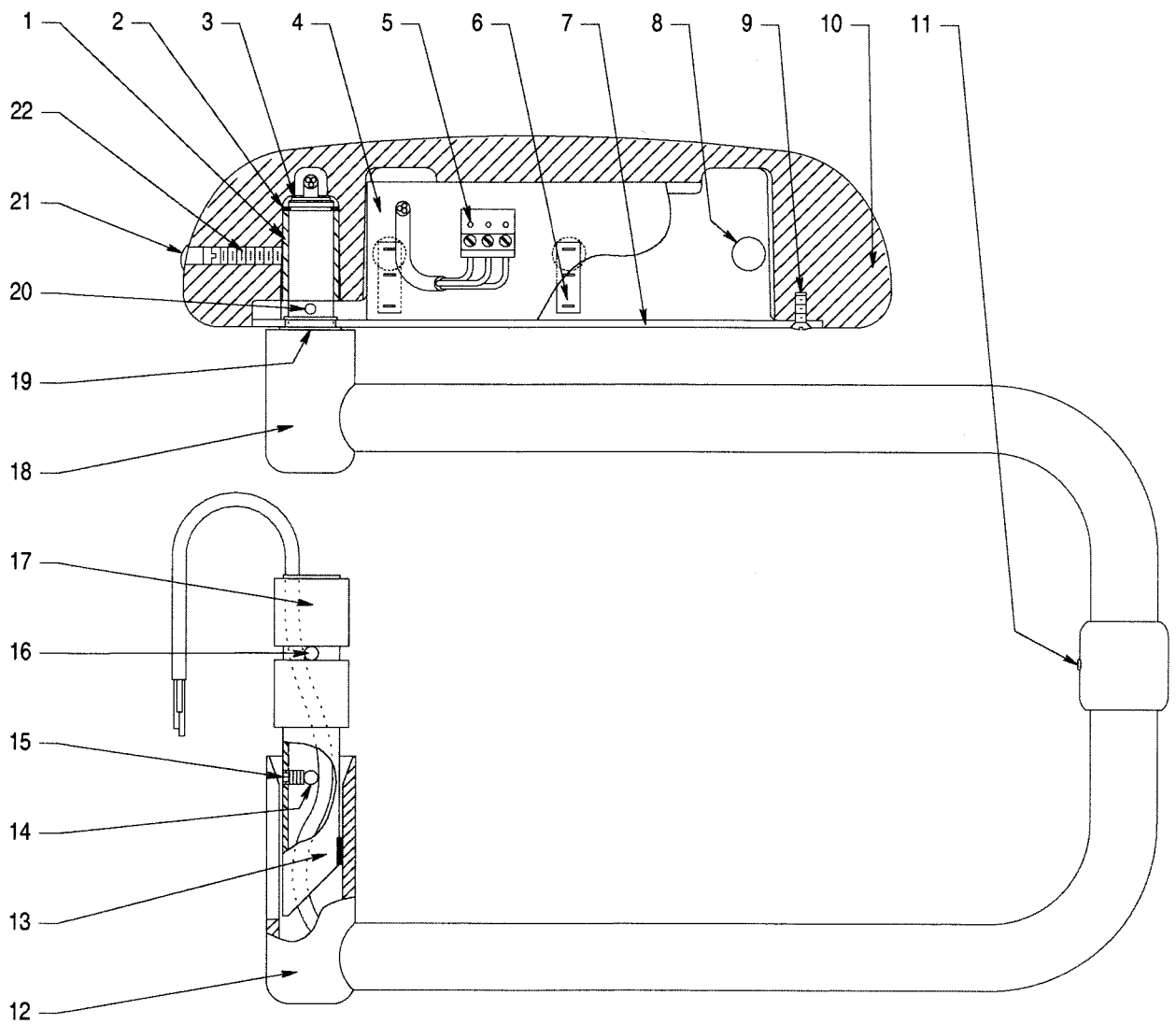
Part No.	Description/Comment
10 1067	Mains input fuse. 5 amp. 250 volt 1" x 1/4"HBC to BS 1362
10 1182	Transformer primary fuse. T125mA L 250 V 20 x 5mm to IEC 60127-2 (Used on models MO, M4, M8 and M9)
10 1309	Transformer primary fuse. T1A L 250V 20 x 5mm to IEC 60127-2sht3 (Used on models MCA, MCS and MCAS)
22 1231	Tip connector reducer, from 16 mm to 11 mm
22 1477	Complete rotary tip connector assembly, to fit 14mm I.D. hose.
22 1285	Complete rotary tip connector assembly, to fit 9mm I.D.hose.
22 1474	Operating hose assembly, Saliva Ejector.
22 1475	Operating hose assembly, small.
22 1476	Operating hose assembly, large.
30 1007	Tip seal 'O' ring, large tip connectors. 15.5 mm I.D. x 2.6 section
30 1008	Tip seal 'O' ring, small tip connectors. 11 mm I.D. x 2.6 section
30 1110	Manifold Tee 'O' ring. 27 mm I.D. x 1.8 section
30 1113	Rotary valve 'O' ring, large. 14 mm I.D. x 1.8 section
30 1114	Rotary valve 'O' ring, small. 8.7 mm I.D. x 1.8 section
30 1123	Filter holder 'O' ring. 22 I.D. mm x 2.6 section
35 1250	Filter holder
35 1460	Spittoon Bowl filter
60 1013	Small surgical tip, 5 mm O.D.
60 1014	Large surgical tip, 8 mm O.D.
60 1016	Saliva ejector/Tongue guard
60 1038	Tip connector reducer, from 11mm to 6mm
60 1101	Spray interceptor tip, plastic (for large hose)
70 1005	5/8"Ø Cleaning brush
70 1006	1/4"Ø Cleaning brush
70 1137	Sleeve filter for suction manifold
70 1138	1"Ø Cleaning brush
70 1176	Regulator repair kit
70 1184	Bowl deflector, ceramic
70 1200	Aspiration cleaner, 'TriDDAClens Super'

LEGEND FOR PARTS DIAGRAM see opposite

Item	Part No.	Description	Item	Part No.	Description
1	70 1184	Bowl deflector	21	35 1432	Body plug
2	35 1460	Bowl trap	22	30 1131	'O' ring (retains plug)
3	10 1167	Terminal block	23	45 1623	Door retaining screw
4	40 2044	solenoid support brkt.		100 8003	M5 insert
5	55 1177	Waste connector	24	50 1003	Gauge
	30 1152	'O' ring	25	55 1136	6mm elbow
6	40 1910	Arm fixing bracket	26	40 2045	Regulator brkt.
	65 1272	M4 screw	27	22 1485	Regulator assy. includes
	65 2710	M4 shakeproof		50 1077	Regulator+items 24&25
7	55 1135	6mm str. connector	28	40 1917	Body clamp
8	45 1638	Threaded pillar	29	65 1361	M6 plastic screw
	65 2710	M4 shakeproof	30	15 1113	Cable clamp
	65 3710	M4 nut	31	45 1613	Mounting tube
9	40 1999	Solenoid retaining plate	32	32 1064	Waste tube
10	55 1182	6mm 'Y' connector	33	45 1614	Light post socket
11	55 1181	8mm str. connector	34	40 1914	Stop plate
12	35 1404	Body panel, fixed	35	35 1412	Body pivot
13	32 1068	6mm nylon tube, green	36	see 17	Timer switches assy.
14	40 1987	Body support panel	37	40 1912	Fixing plate
15	70 1171	Hinge	38	22 1480	Spittoon top assy.
	65 1903	No.4 x 5/8" screw			includes items 5 & 42
16	see 17	Ribbon cable, 10way	39	40 1090	Light post
17	22 1489	Timer assy. includes items 16 & 36	40	35 1414	Post collar
			41	35 1415	Post cap
18	75 1131	Controls label	42	35 1431	Nozzle jet
19	35 1477	Switch actuator		30 1022	O' ring
20	35 1405	body panel, hinged	43	35 1489	Terminal block carrier
			44	50 1093	Solenoid 24v a.c.
			45	22 1439	Flush tube (bowl)

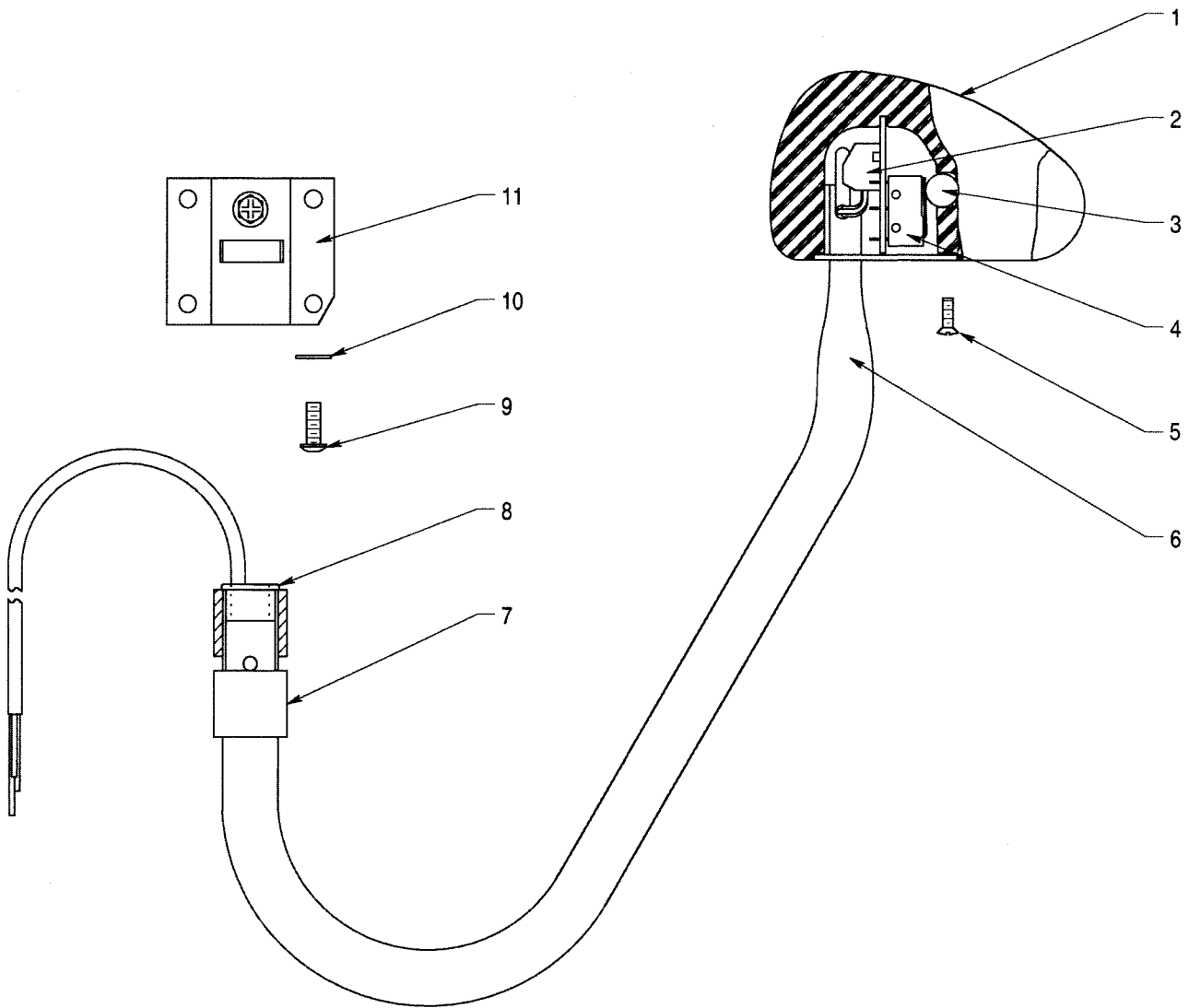


LAYOUT AND PARTS FOR HANGER ARM ASSEMBLY 22-1434



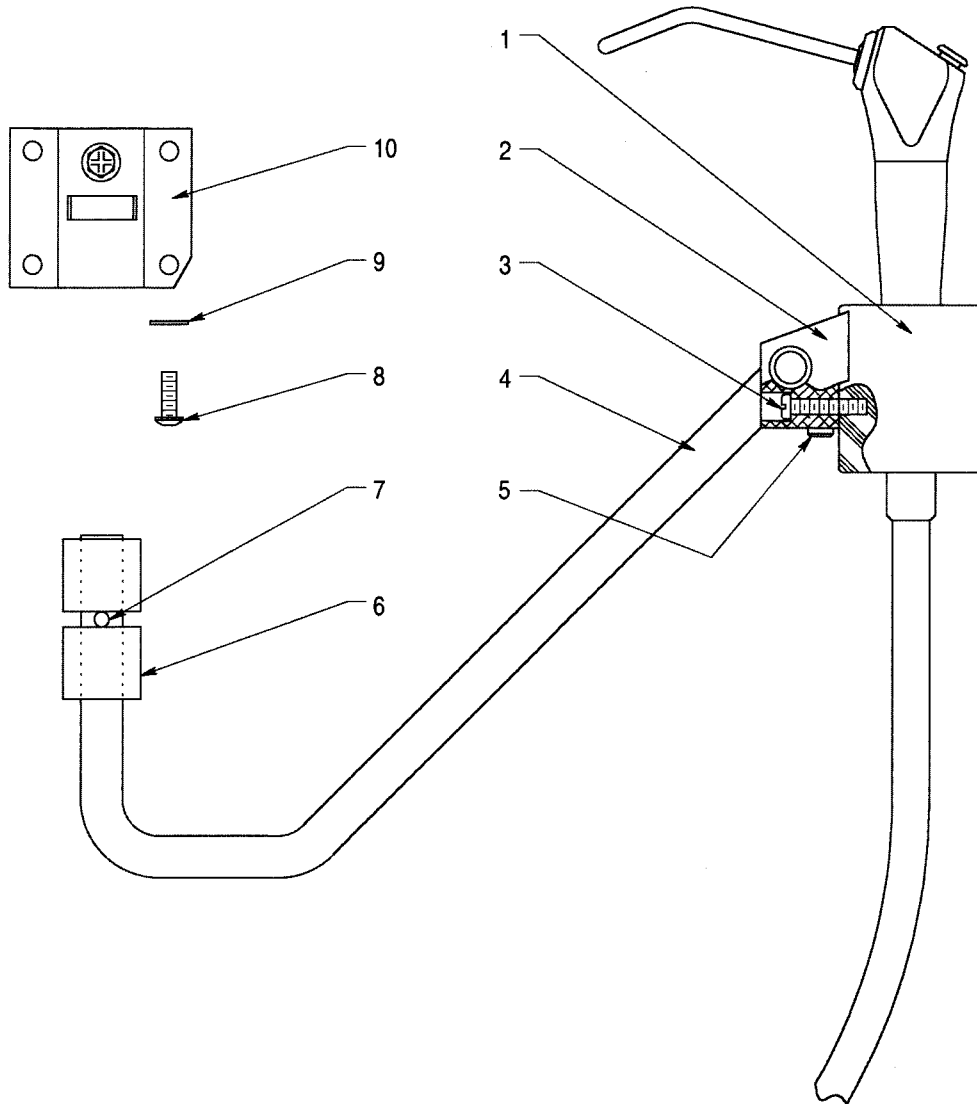
ITEM	PART No.	DESCRIPTION	ITEM	PART No.	DESCRIPTION
1	35-1408	BEARING	13	22-1528	PIVOT KIT includes
2	65-1019	CIRCLIP		45-1611	PIVOT TUBE + 14 to 17
3	35-1482	SNAP BUSH	14	45-1680	PIVOT PIN
4	20-1032	P.C.B. ASSY. S/POLE		65-1171	SCREW x 2
5	10-1256	CONNECTOR, 3 WAY	15	65-1256	SET SCREW
6	10-1258	MICROSWITCH X 3	16	70-1173	STOP PIN
7	40-1909	COVER PLATE	17	35-1409	BEARINGS x 2
8	35-1074	BALL x 3	18	45-1609	UPPER ARM ASSY
9	65-1153	M3 SLOTTED SCREWS X 4	19	35-1398	CLIP BEARING
10	35-1406	HANGER MOULDING	20	70-1172	STOP PIN
11	65-1256	SET SCREW	21	35-1210	PLUG
12	45-1610	LOWER ARM ASSY	22	65-1325	SLOTTED SCREW

LAYOUT AND PARTS FOR SHORT HANGER ARM ASSEMBLY 22-1552



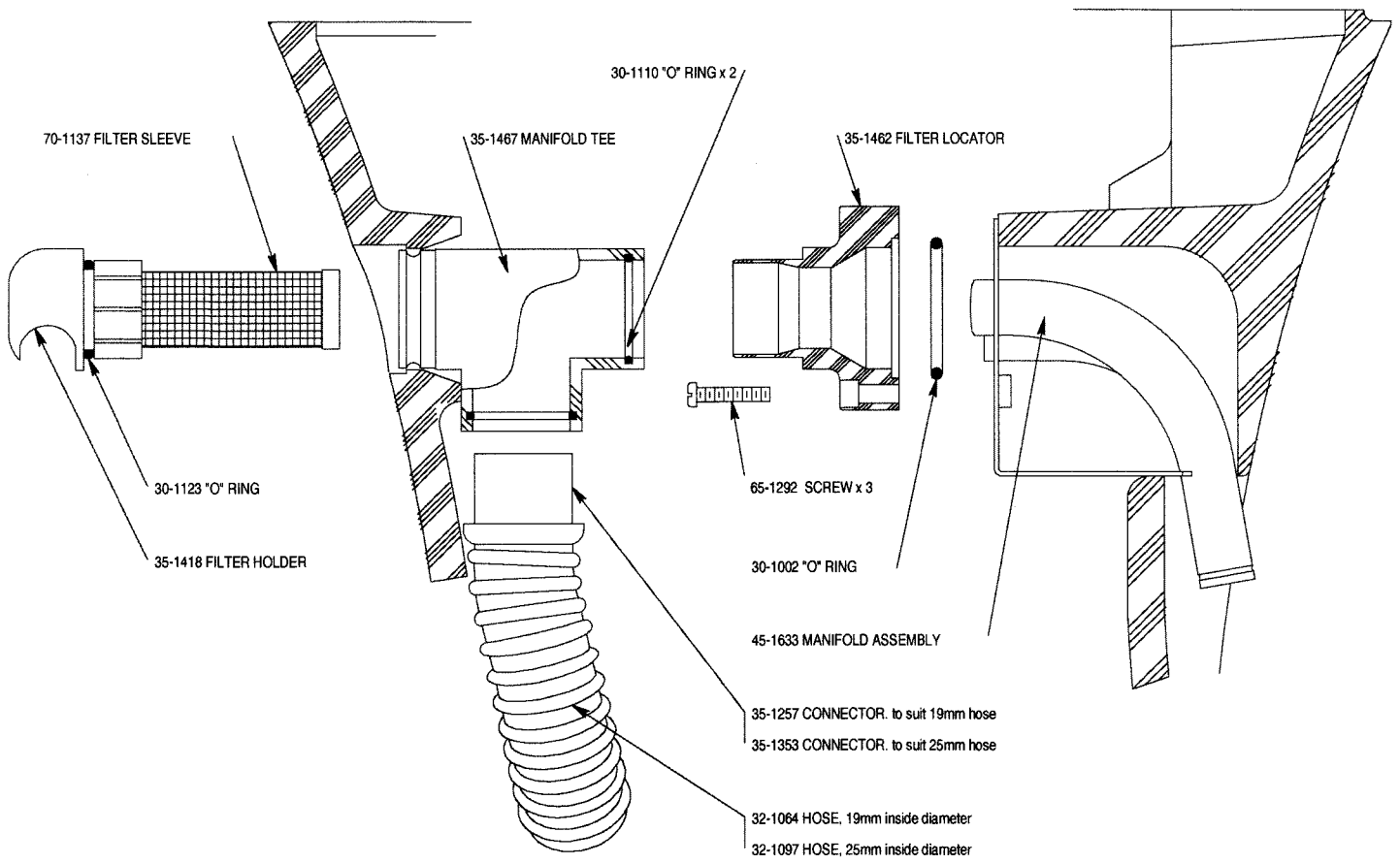
ITEM	PART No.	DESCRIPTION	ITEM	PART No.	DESCRIPTION
1	35-1406	HANGER MOULDING	6	40-2091	ARM TUBE
2	10-1256	CONNECTOR, 3 way	7	35-1409	BEARING x 2
3	35-1074	ACTUATOR BALL x 3	8	35-1537	BUSH (Cable protector)
	35-1481	SWITCH DE-ACTIVATOR (Opt)	9	65-1272	M4 SCREW X 5
4	20-1032	P.C.B. ASSY (incl switches)	10	65-2710	M4 SHAKEPROOF x 5
	10-1258	MICROSWITCHES x 3	11	40-2092	ARM PIVOT CLAMP
5	65-1153	M3 Csk SCREWS x 4			

LAYOUT AND PARTS FOR SYRINGE HANGER ARM ASSEMBLY 22-1553

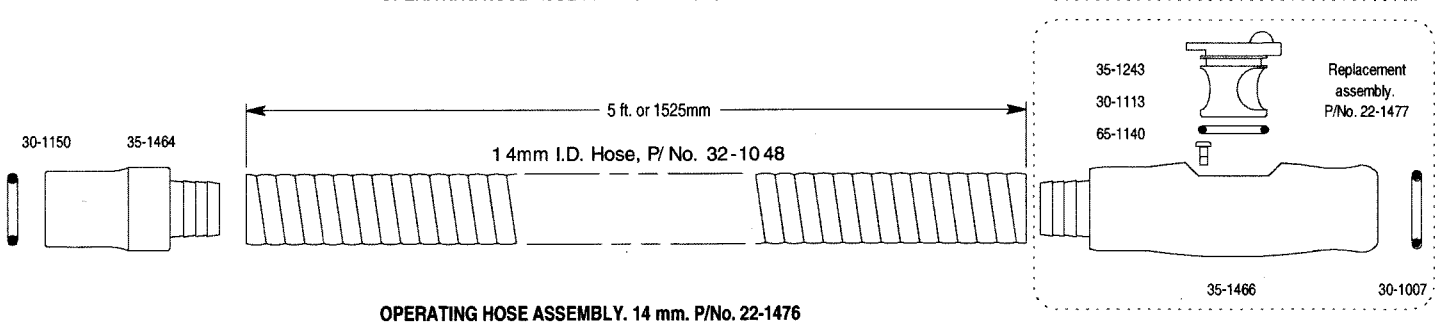
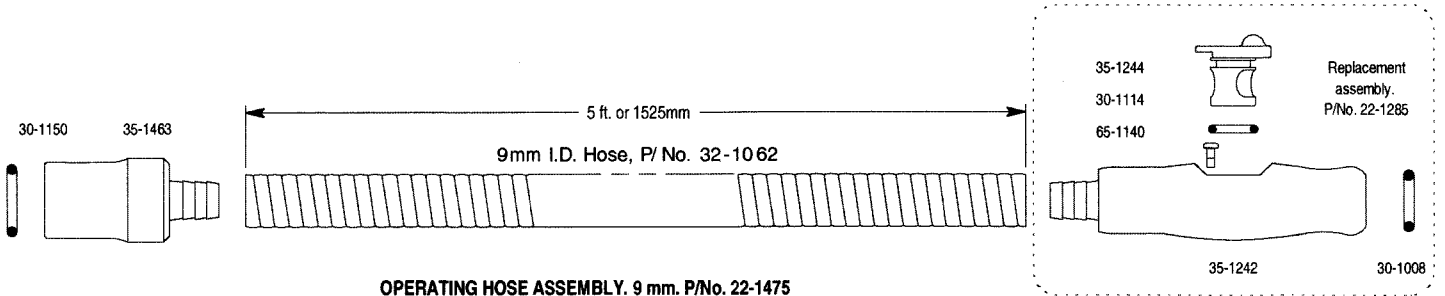
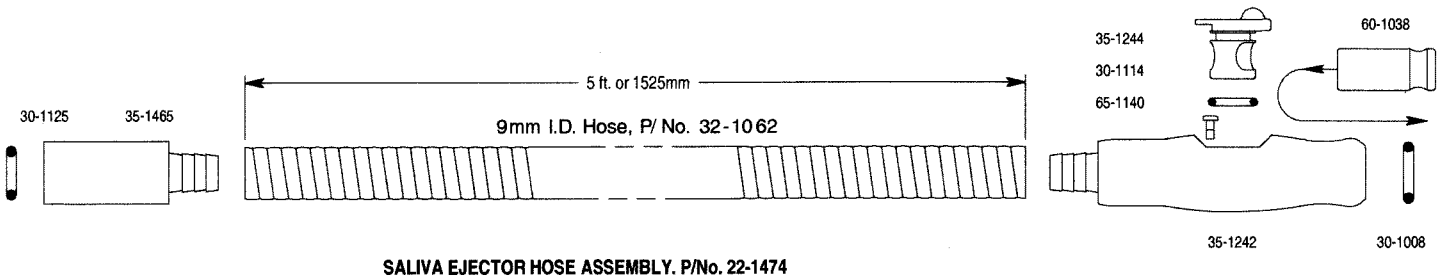


ITEM	PART No.	DESCRIPTION	ITEM	PART No.	DESCRIPTION
1	35-1186	SYRINGE HOLDER	6	35-1409	BEARING x 2
2	45-1394	CLAMP BLOCK	7	70-1173	STOP PIN
3	65-1292	M4 x 20 s/s SCREW	8	65-1272	M4 SCREW X 5
4	45-1682	HOLDER BAR	9	65-2710	M4 SHAKEPROOF x 5
5	65-1291	M4 x 20 cap hd. SCREWS)	10	40-2092	ARM PIVOT CLAMP

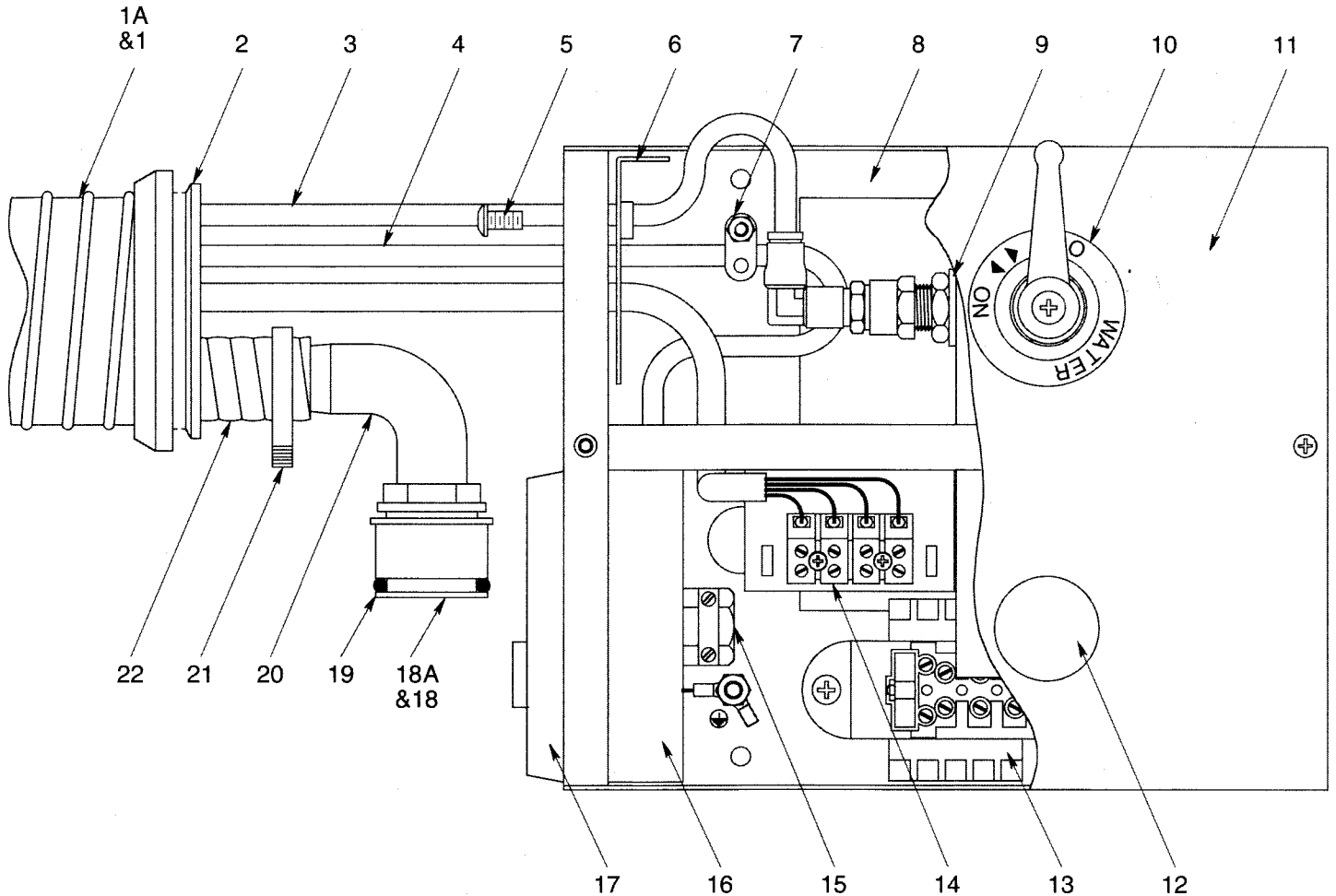
SUCTION MANIFOLD PARTS



OPERATING HOSE ASSEMBLIES



PARTS DIAGRAM for CSM standard FLOOR BOX. 22-1413

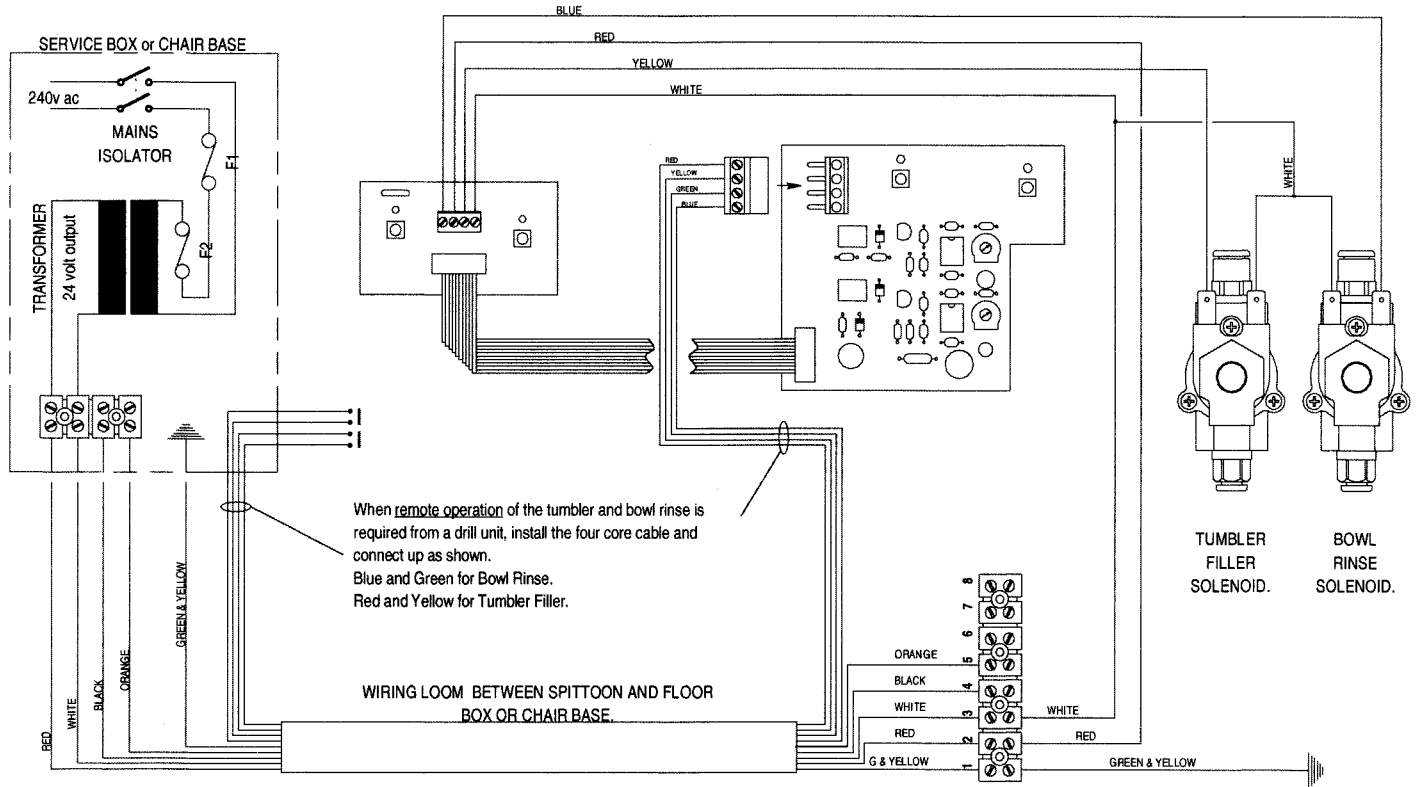


Item	Part No.	Description	Item	Part No.	Description
1A	22 1437	Service hose assy	11	40 1701	Service box cover
1	32 1102	2.5" Ø hose x 4ft	12	35 1101	Blanking plug
2	35 1425+	Hose cuff	13	22 1337	Transformer assy
	35 1422	Hose retainer	14	10 1167	Terminal block. 4way
3	32 1068	6mm Ø Nylon tube x 7ft	15	10 1275	Cord grip
4	15 1151	Mains cable x 7ft		10 1276	Retaining nut
5	65-1310	S/hose retainer screw x 2	16	10 1007	Surface box
6	40-2121	Service hose retainer	17	10 1009	Switched connection unit
7	15 1058	Cable clamp		10 1065	Fuse. 5amp ceramic
8	40 1700	Service box base	18A	22 1293	Waste elbow assy
9	22 1213	Ball valve assy			(Comprised of items 18, 19, 20 & 21)
		(Includes, but not only, the following items)	18	35 1304	Waste adaptor
	50 1036	Ball valve	19	30 1107	'O' Ring
	55 1136	Elbow fitting. 6mm	20	55 1140	Elbow. 19/32mm
10	75 1096	Water ON/OFF label	21	35 1288	Hose clamp
	75 1097	Air ON/OFF label	22	32 1064	Waste hose x 7ft

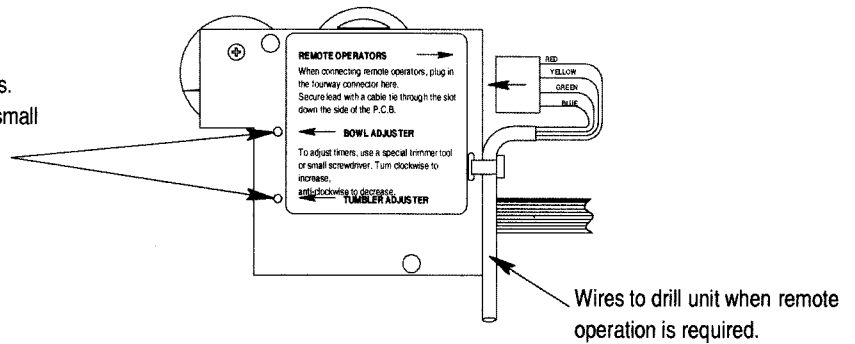
WIRING DIAGRAM FOR 'CSM' SPITTOON, model M0

This diagram is the basic wiring for all models of 'CSMe' Spittoons, i.e. those that have electric timer/operators as opposed to pneumatic ones.

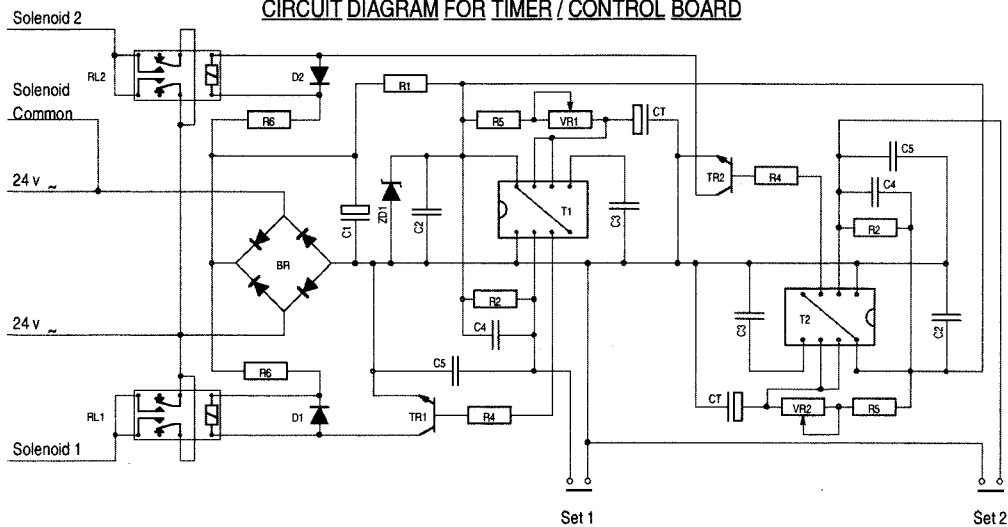
Where other wiring diagrams are shown for specific models, this basic wiring has been excluded for the sake of clarity.



View of timer board showing adjustable controls.
To adjust timers, use a special trimmer tool or small screwdriver. Turn clockwise to increase, anti-clockwise to decrease.



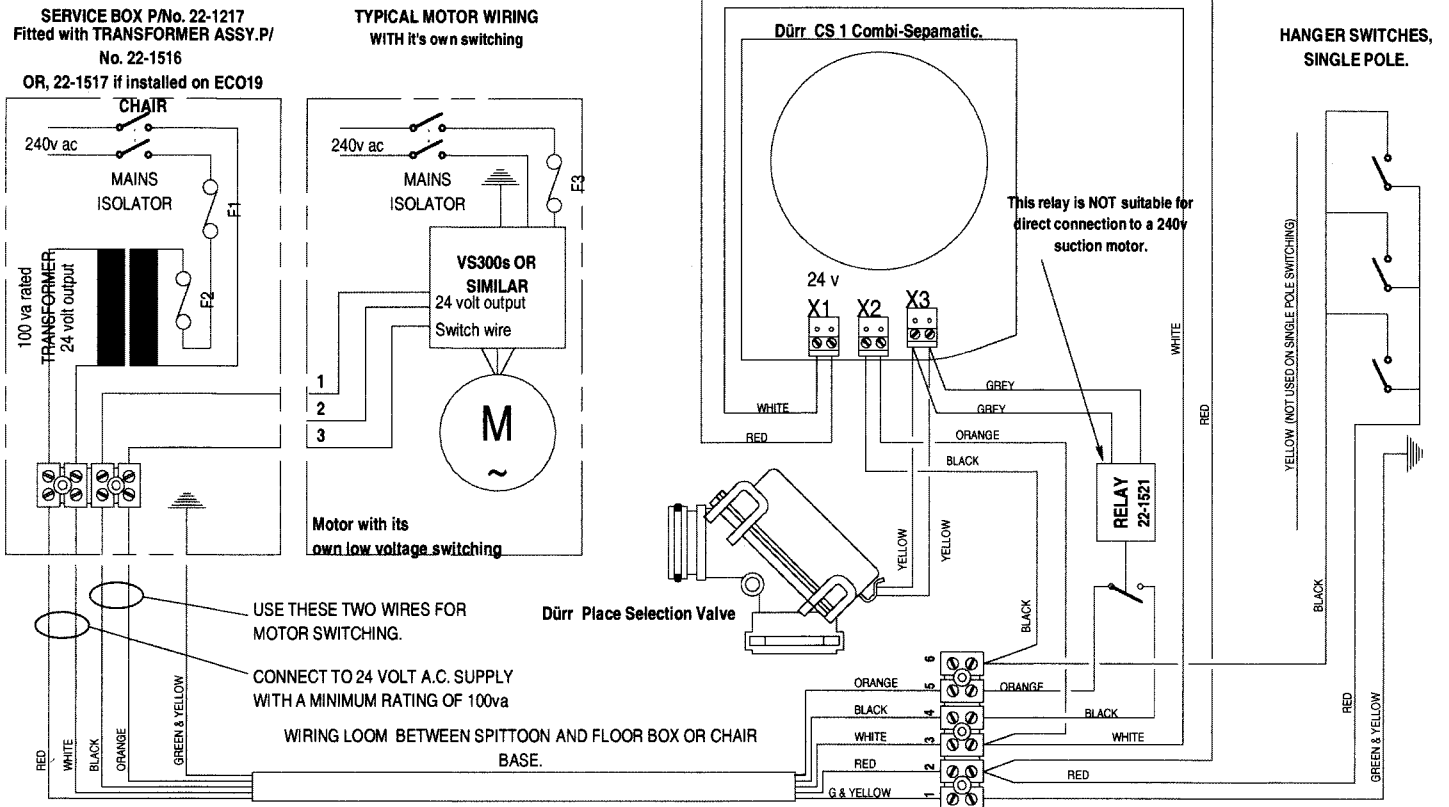
CIRCUIT DIAGRAM FOR TIMER / CONTROL BOARD



WIRING CONNECTIONS FOR CS'M' SPITTOON, model MCS Fitted with

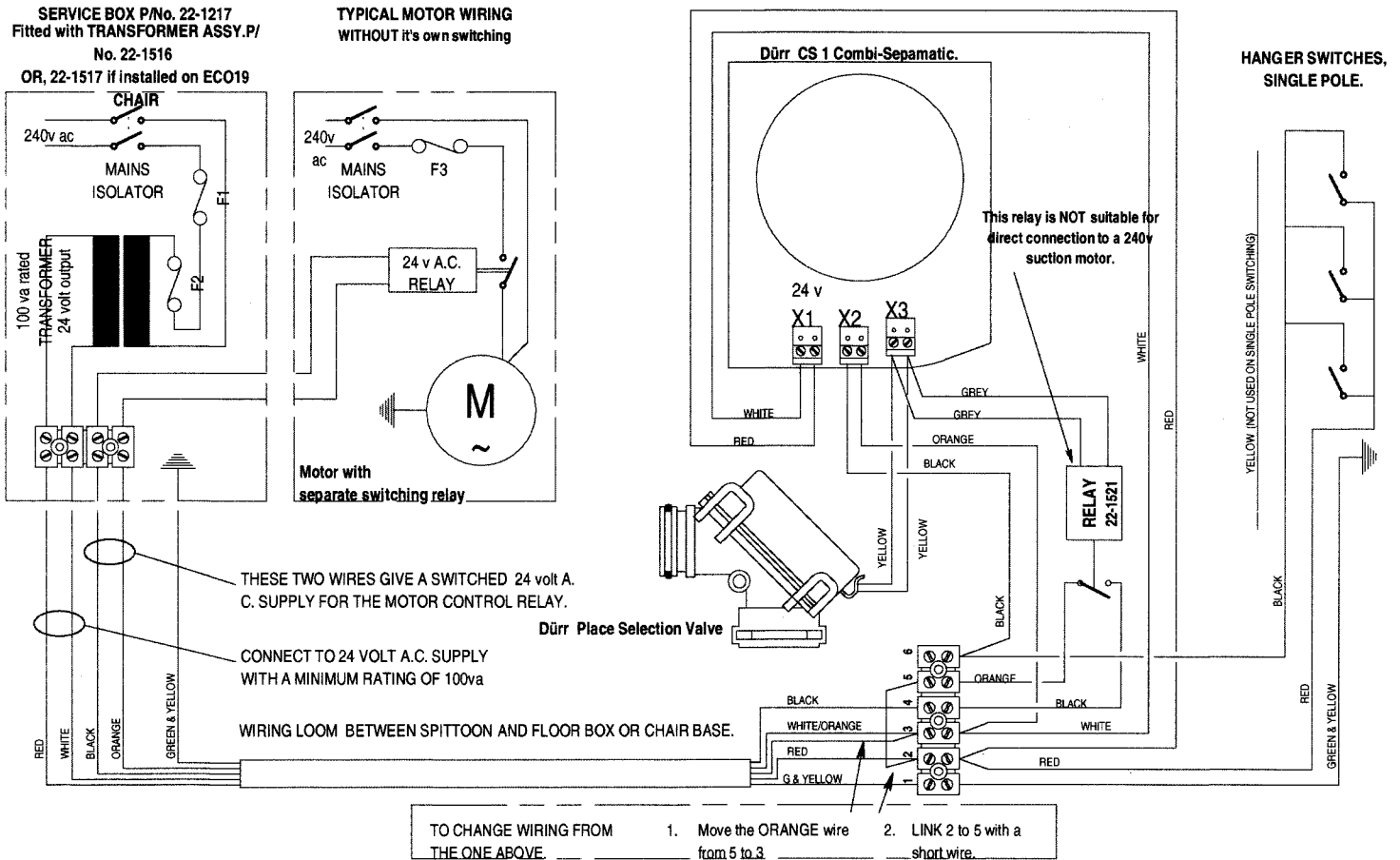
COMBI CS 1 Sepamatic Separator and Place Selection Valve.

The COMBI Separator provides a 24 volt dc switched output at X3.2 that is used to operate a relay that switches on the motor. Use this wiring layout when the suction source has its own low voltage switching wires, such as a Dürr VS300. Tridac spittoons fitted with Dürr Combi's at the factory, are normally wired in this manner.



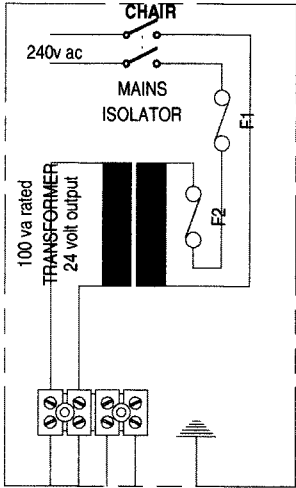
ALTERNATIVE WIRING LAYOUT

Use this motor wiring layout when the suction source does not have its own low voltage switching. Note, a separate 24 v A.C. relay rated to suit the motor will be required, it is NOT supplied by Tridac.

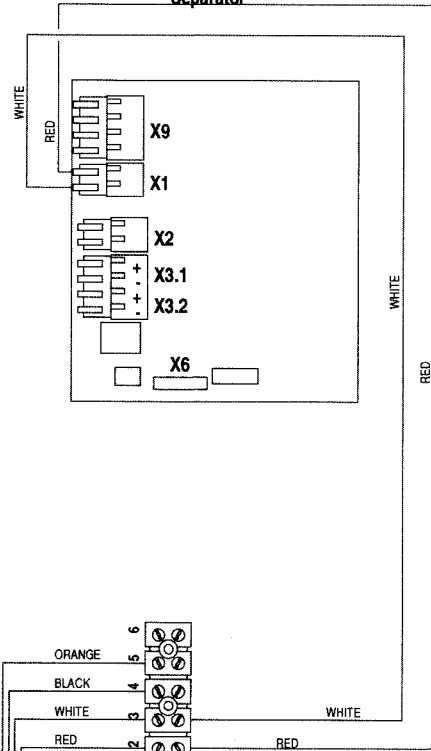


WIRING CONNECTIONS FOR CS'M' SPITTOON, model MCA Fitted with a Dürr Amalgam Separator.

SERVICE BOX P/No. 22-1217
Fitted with TRANSFORMER ASSY./
No. 22-1516
OR, 22-1517 if installed on ECO19



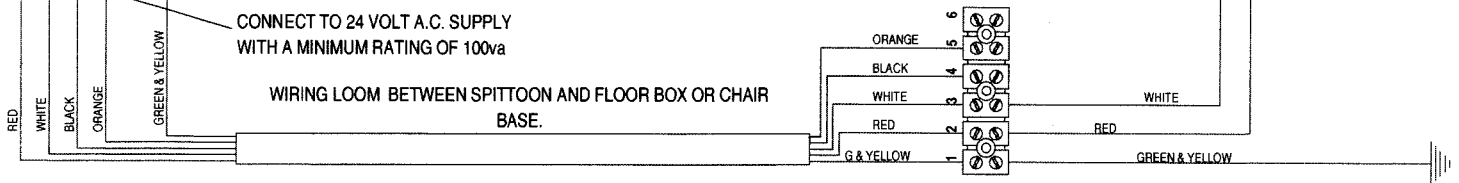
Dürr CA 1 AMALGAM
Separator



THESE TWO WIRES ARE NOT USED.

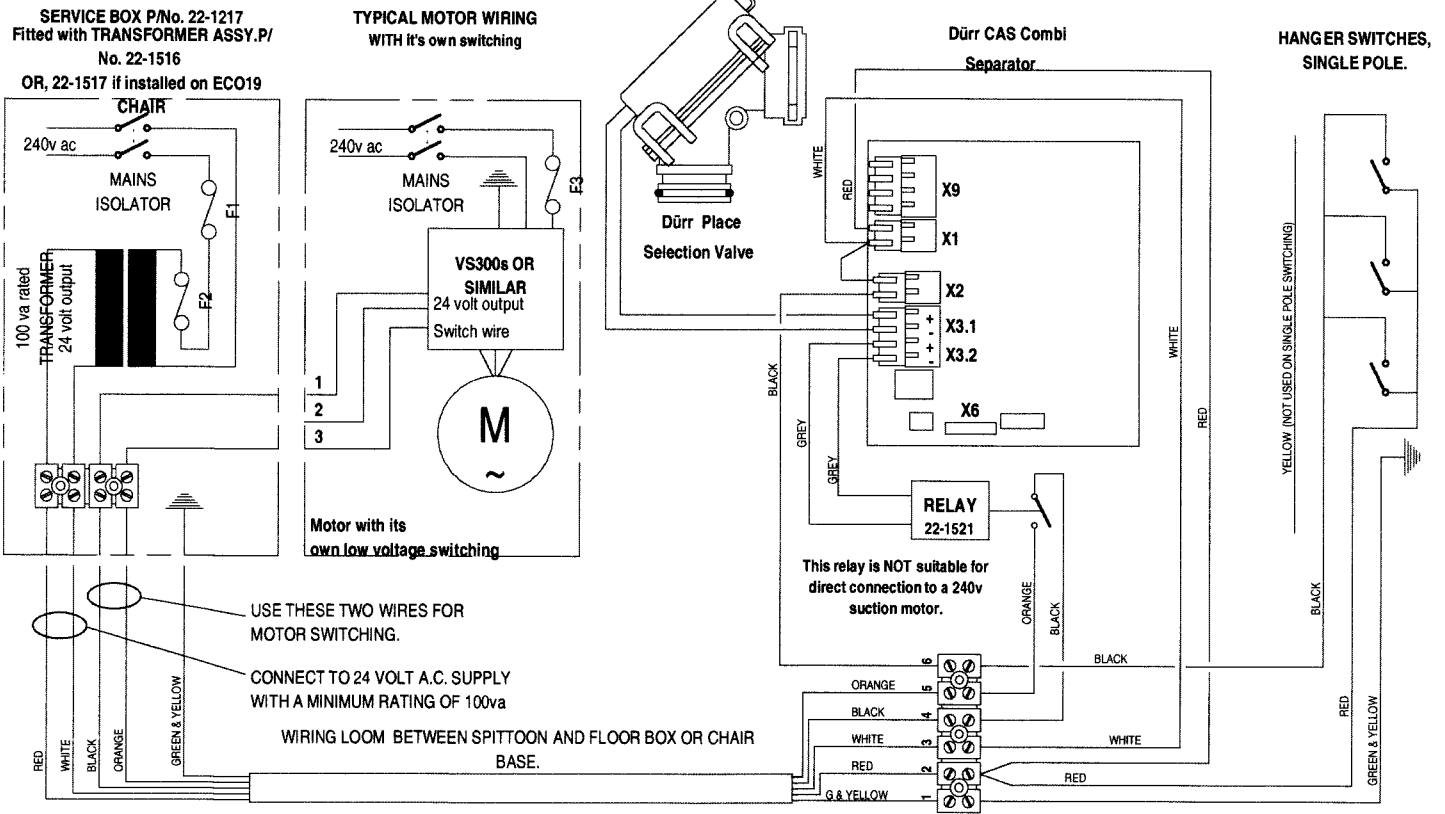
CONNECT TO 24 VOLT A.C. SUPPLY
 WITH A MINIMUM RATING OF 100va

WIRING LOOM BETWEEN SPITTOON AND FLOOR BOX OR CHAIR
 BASE.



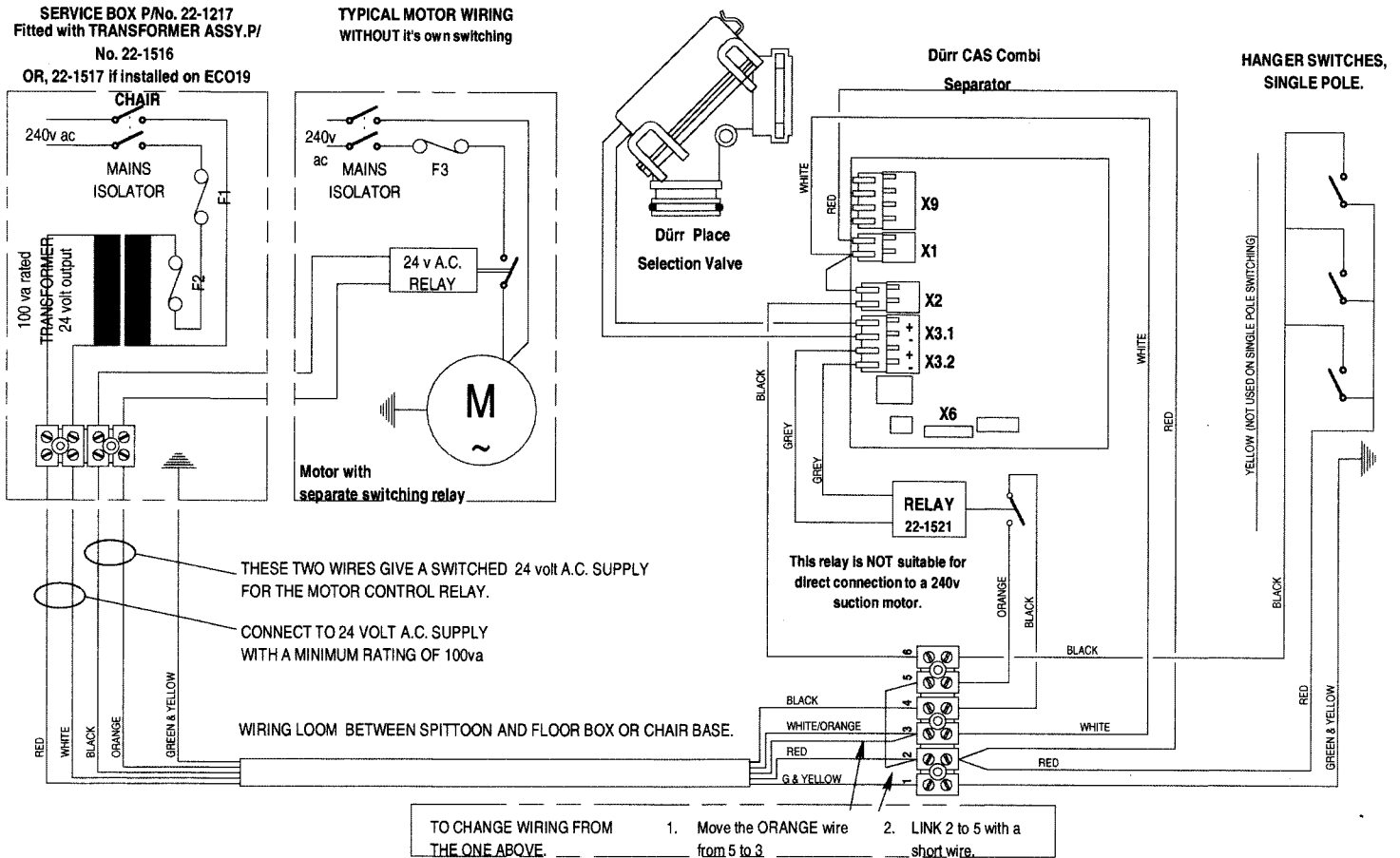
WIRING CONNECTIONS FOR CS'M' SPITTOON, model MCAS Fitted with COMBI Separator and Place Selection Valve. OPTION 1

The COMBI Separator provides a 24 volt dc switched output at X3.2 that is used to operate a relay that switches on the motor. Use this wiring layout when the suction source has its own low voltage switching wires, such as a Dürr VS300. Tridac spittoons fitted with Dürr Combi's at the factory, are normally wired in this manner.



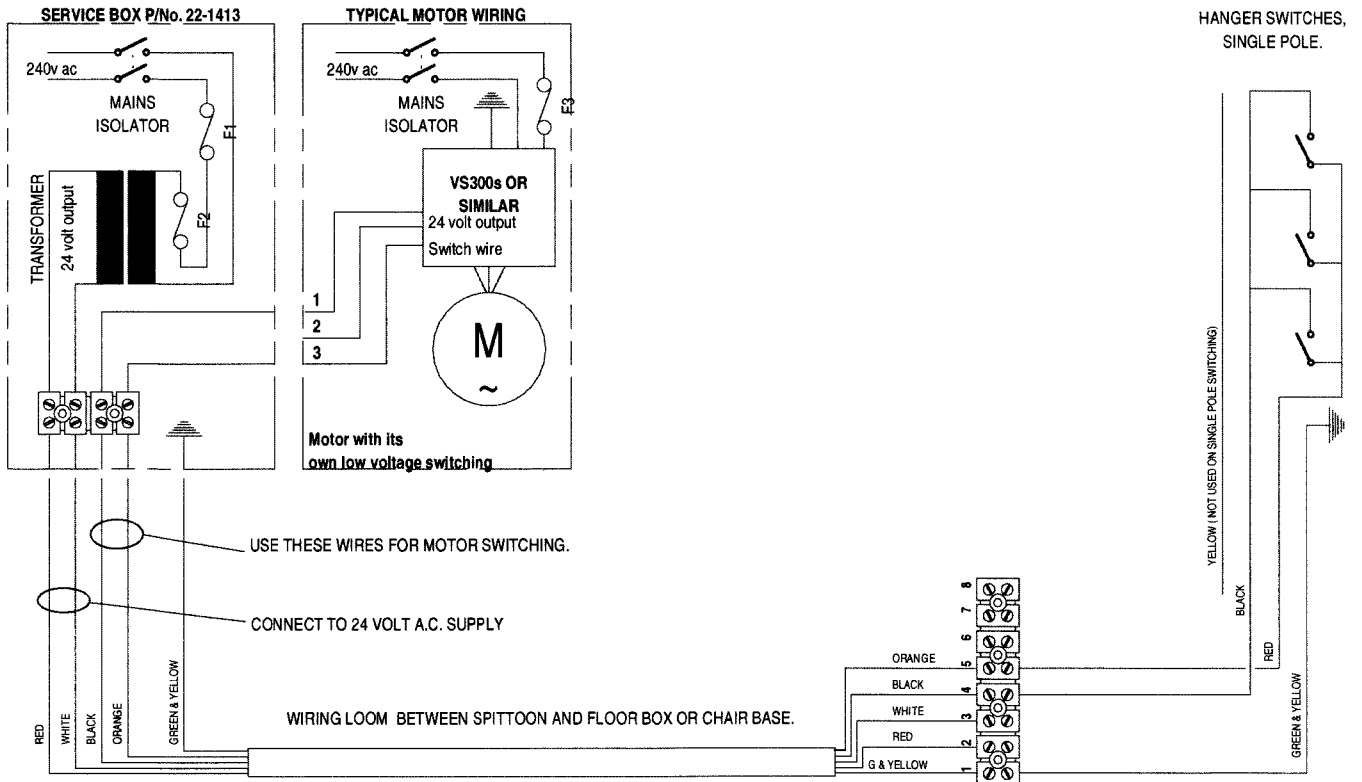
ALTERNATIVE WIRING LAYOUT

Use this motor wiring layout when the suction source does not have its own low voltage switching. Note, a separate 24 v A.C. relay rated to suit the motor will be required, it is NOT supplied by Tridac.



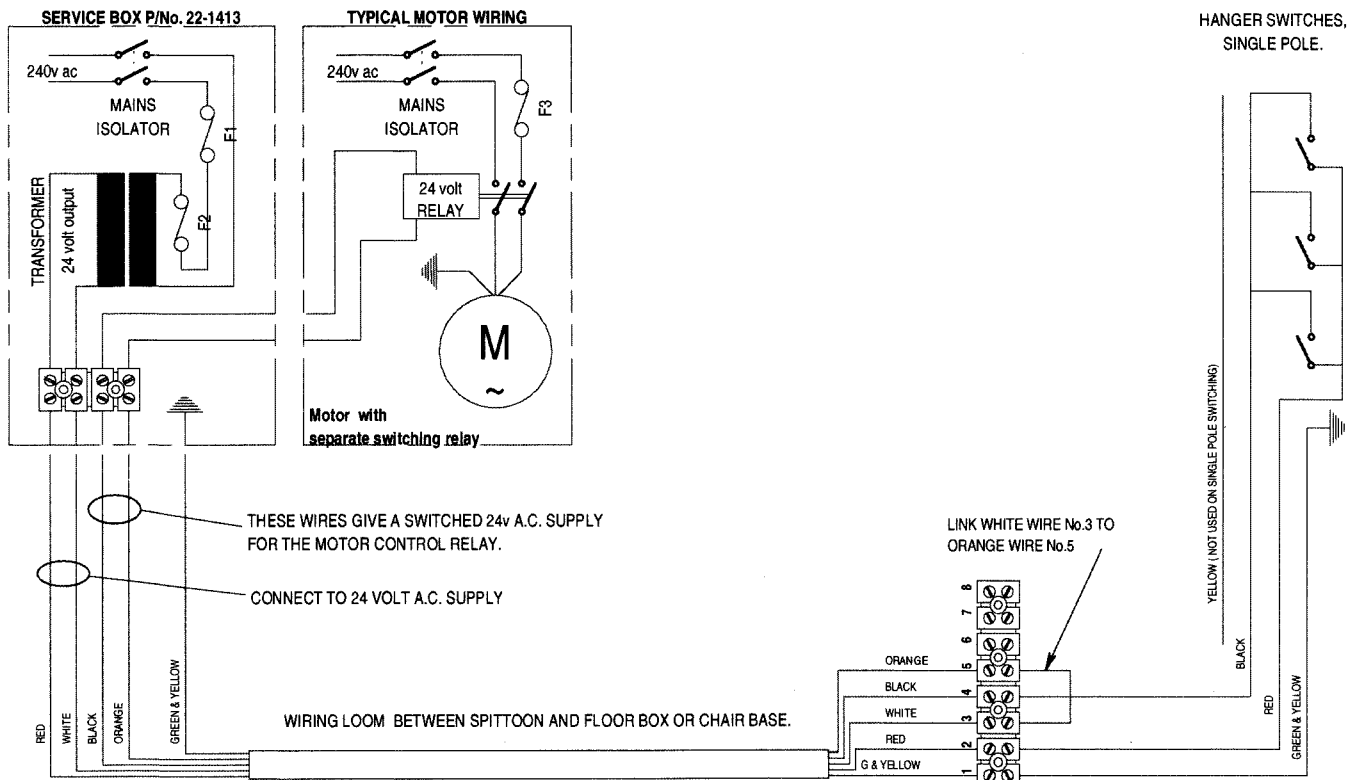
WIRING CONNECTIONS FOR CS'M' SPITTOON, model M4 fitted with single pole switches, wetline or dryline.

Use this wiring layout when the suction source has its own low voltage switching wires, such as a Dürr VS300. Tridac spittoons are normally wired at the factory in this manner.



ALTERNATIVE WIRING LAYOUT

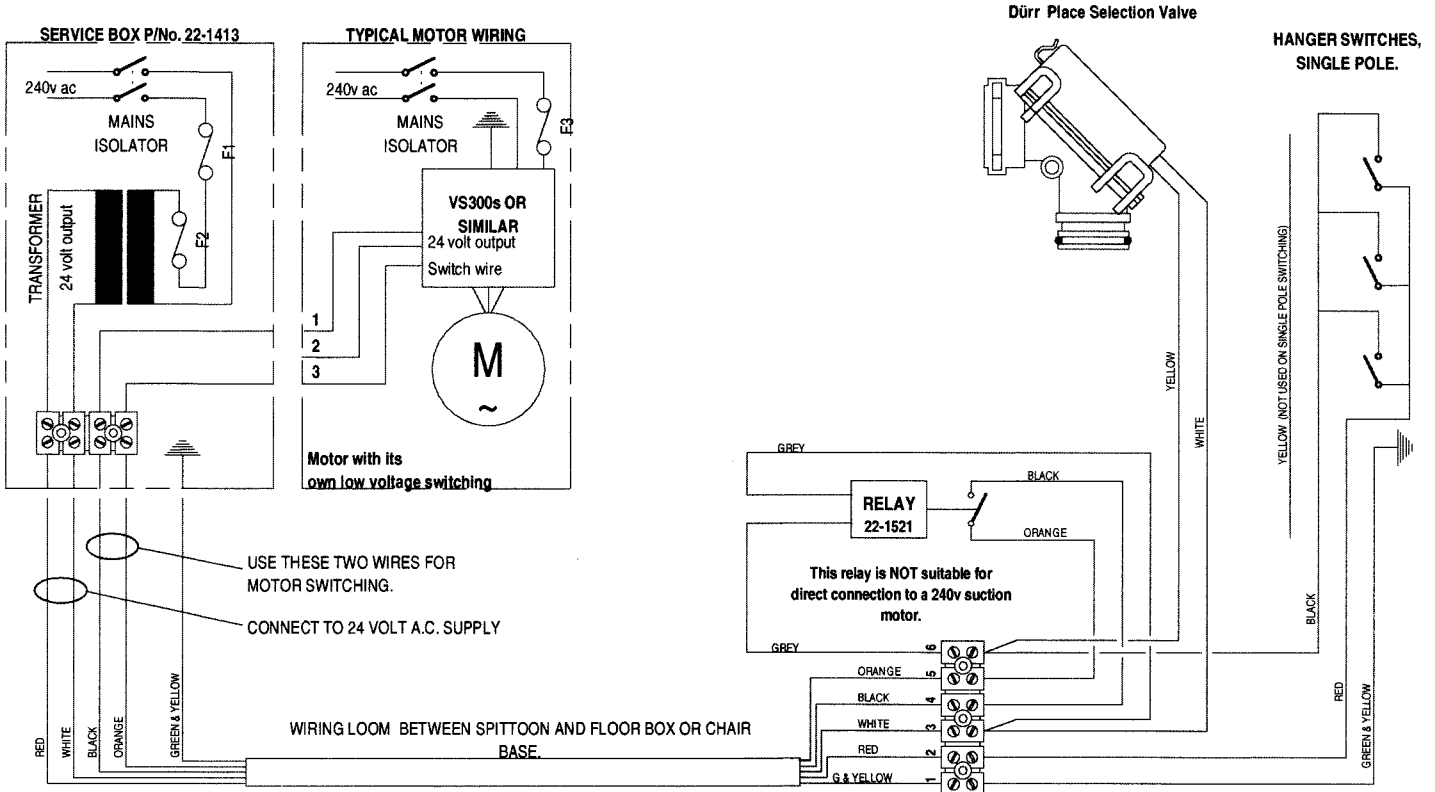
Use this motor wiring layout when the suction source does not have its own low voltage switching. Note, a separate 24 v A.C. relay rated to suit the motor will be required, it is NOT supplied by Tridac.



WIRING CONNECTIONS FOR CS'M' SPITTOON, model M4P Fitted with Place Selection Valve, Suitable for wet or dryline.

Use this wiring layout when the suction source has its own low voltage switching wires, such as a Dürr VS300.

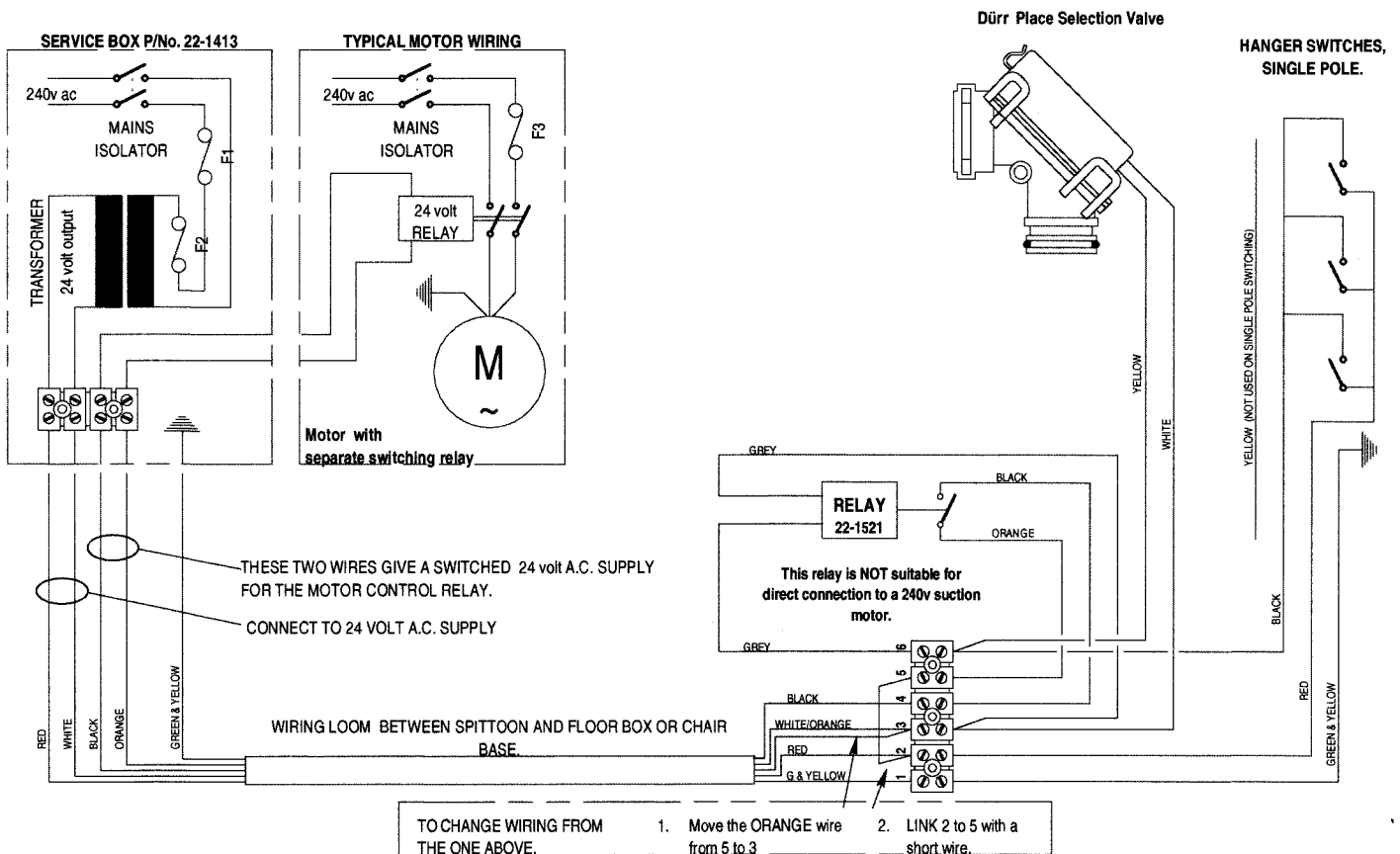
Tridac spittoons fitted with Dürr valves at the factory, are normally wired in this manner.



ALTERNATIVE WIRING LAYOUT

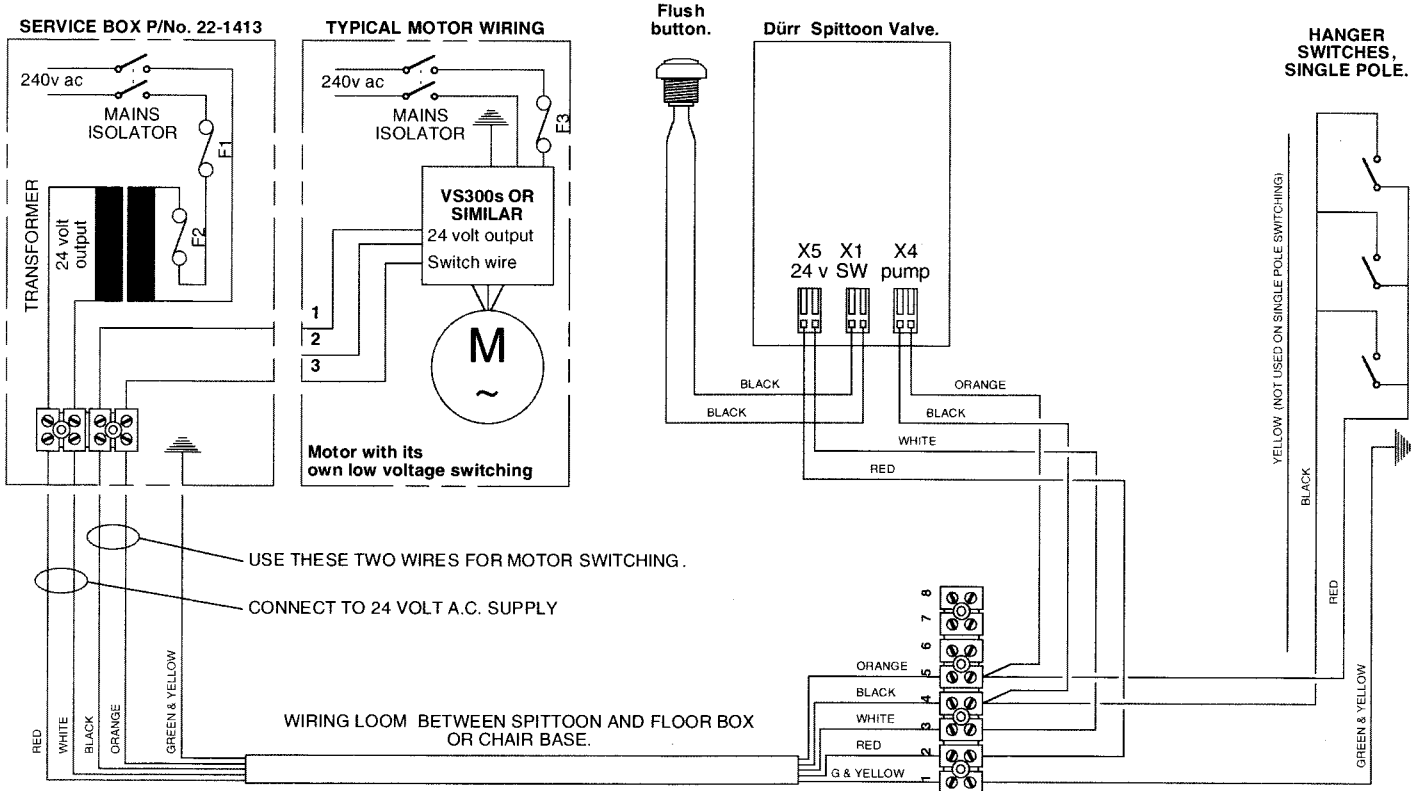
Use this motor wiring layout when the suction source does not have its own low voltage switching.

Note, a separate 24 v A.C. relay rated to suit the motor will be required, it is NOT supplied by Tridac.



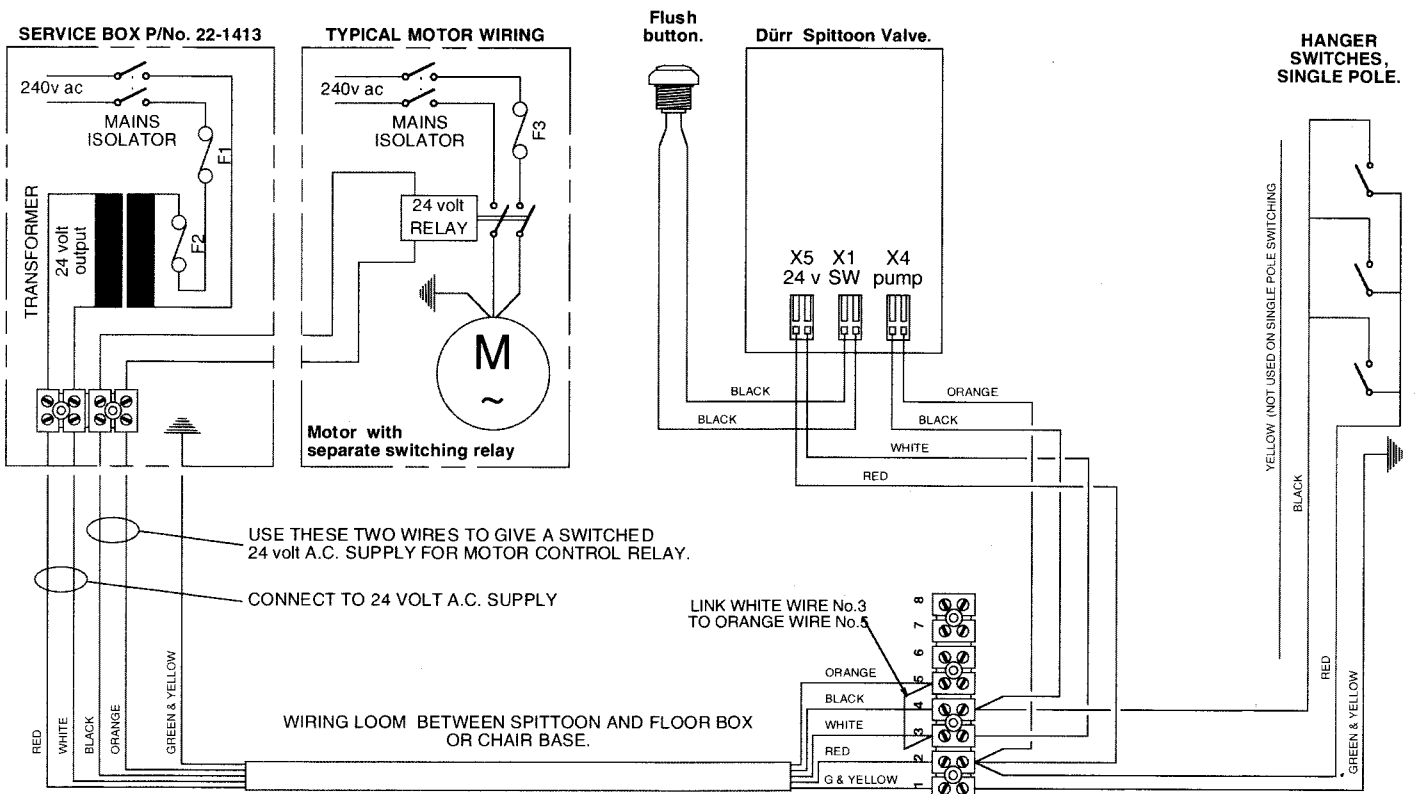
WIRING CONNECTIONS FOR CS'M' SPITTOON, model Me8 Fitted with Dürr Spittoon Valve. Suitable for wet or dryline.

Use this wiring layout when the suction source has its own low voltage switching wires, such as a Dürr VS300. Tridac spittoons fitted with Dürr Spittoon valves at the factory, are normally wired in this manner.



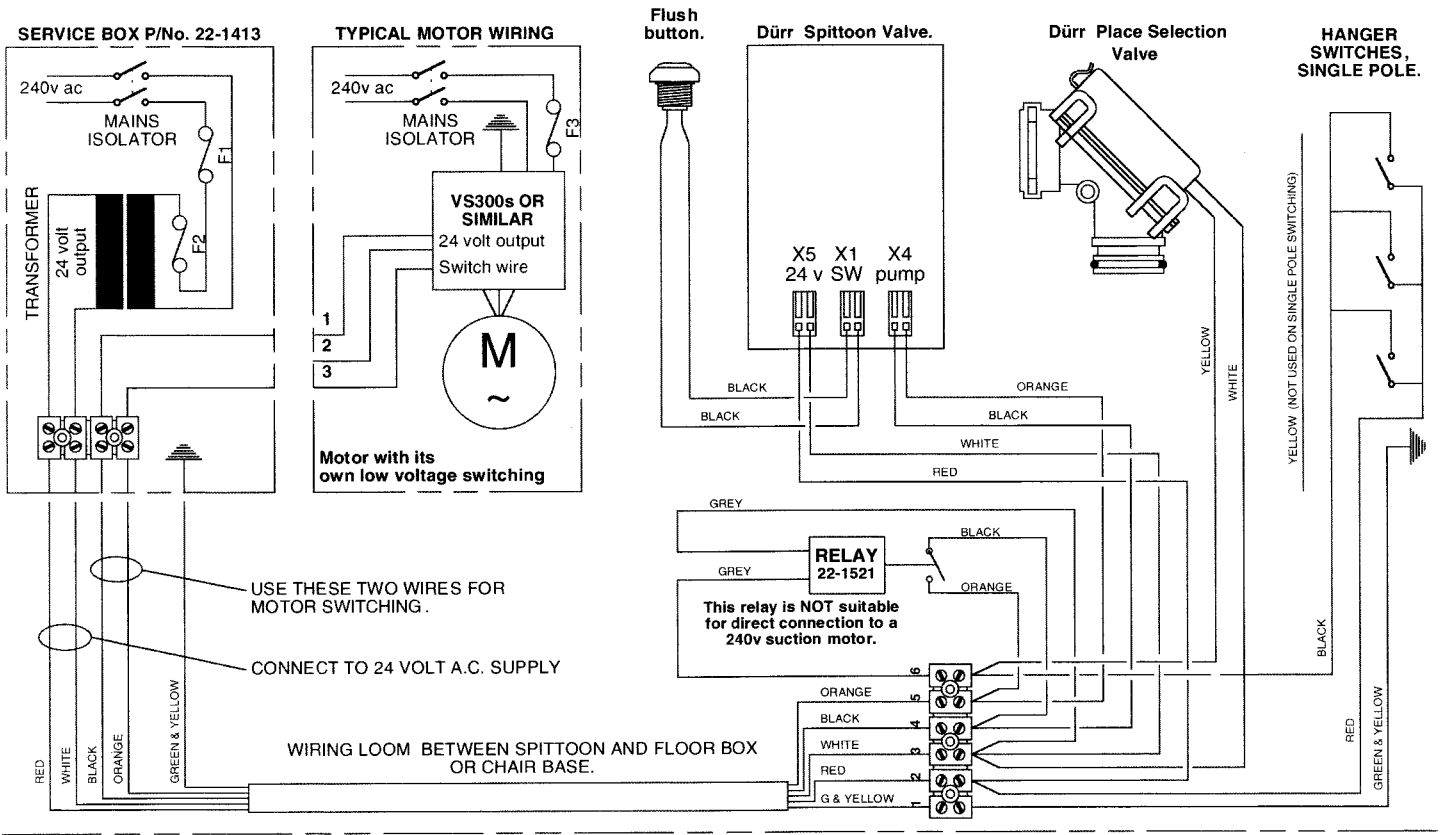
ALTERNATIVE WIRING LAYOUT

Use this motor wiring layout when the suction source does not have its own low voltage switching. Note, a separate 24 v A.C. relay rated to suit the motor will be required, it is NOT supplied by Tridac.



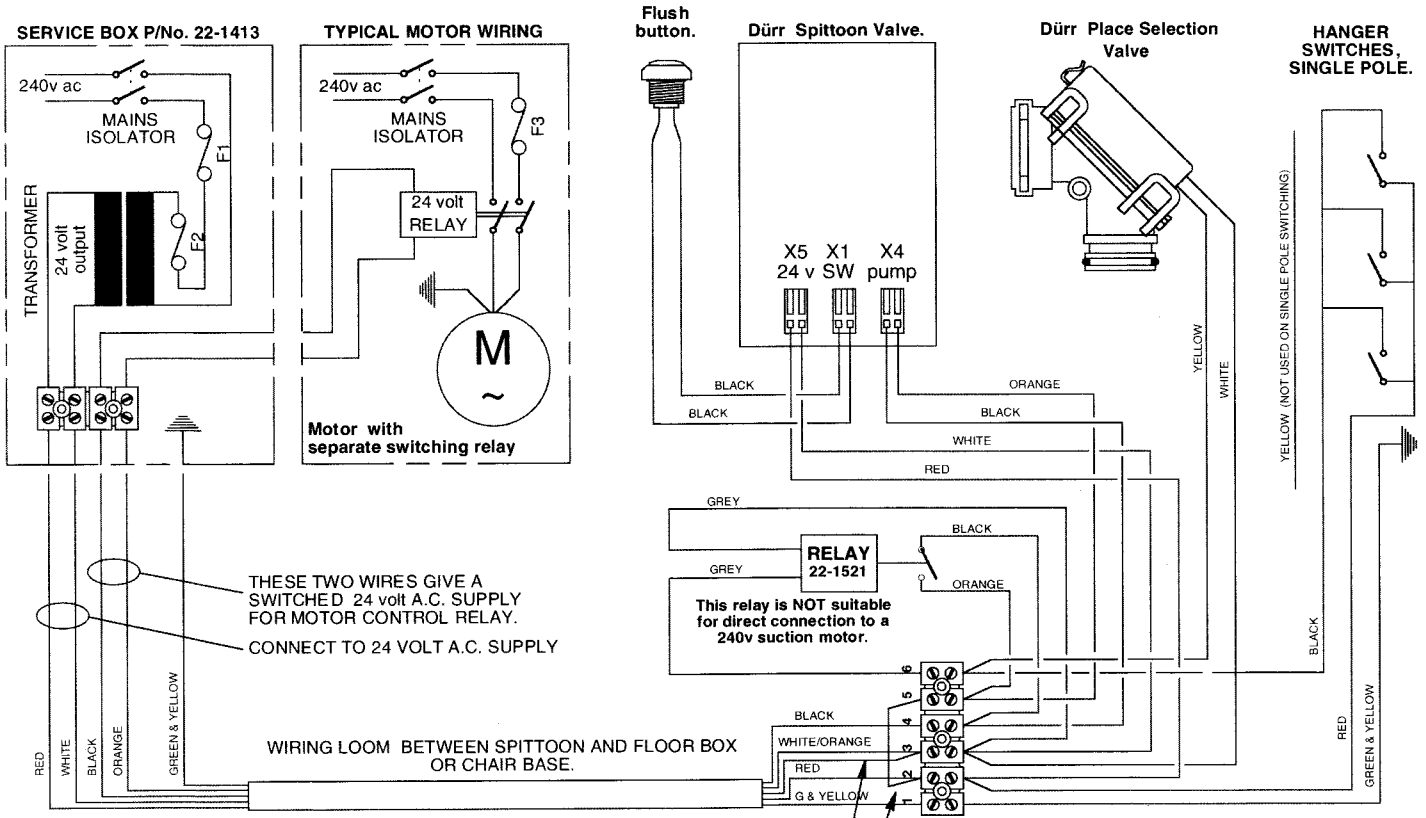
WIRING CONNECTIONS FOR CS'M' SPITTOON, model Me8P Fitted with Dürr Spittoon Valve, and Place Selection Valve, Suitable for wet or dryline.

Use this wiring layout when the suction source has its own low voltage switching wires, such as a Dürr VS300. Tridac spittoons fitted with Dürr Spittoon valves at the factory, are normally wired in this manner.



ALTERNATIVE WIRING LAYOUT

Use this motor wiring layout when the suction source does not have its own low voltage switching. Note, a separate 24 v A.C. relay rated to suit the motor will be required, it is NOT supplied by Tridac.

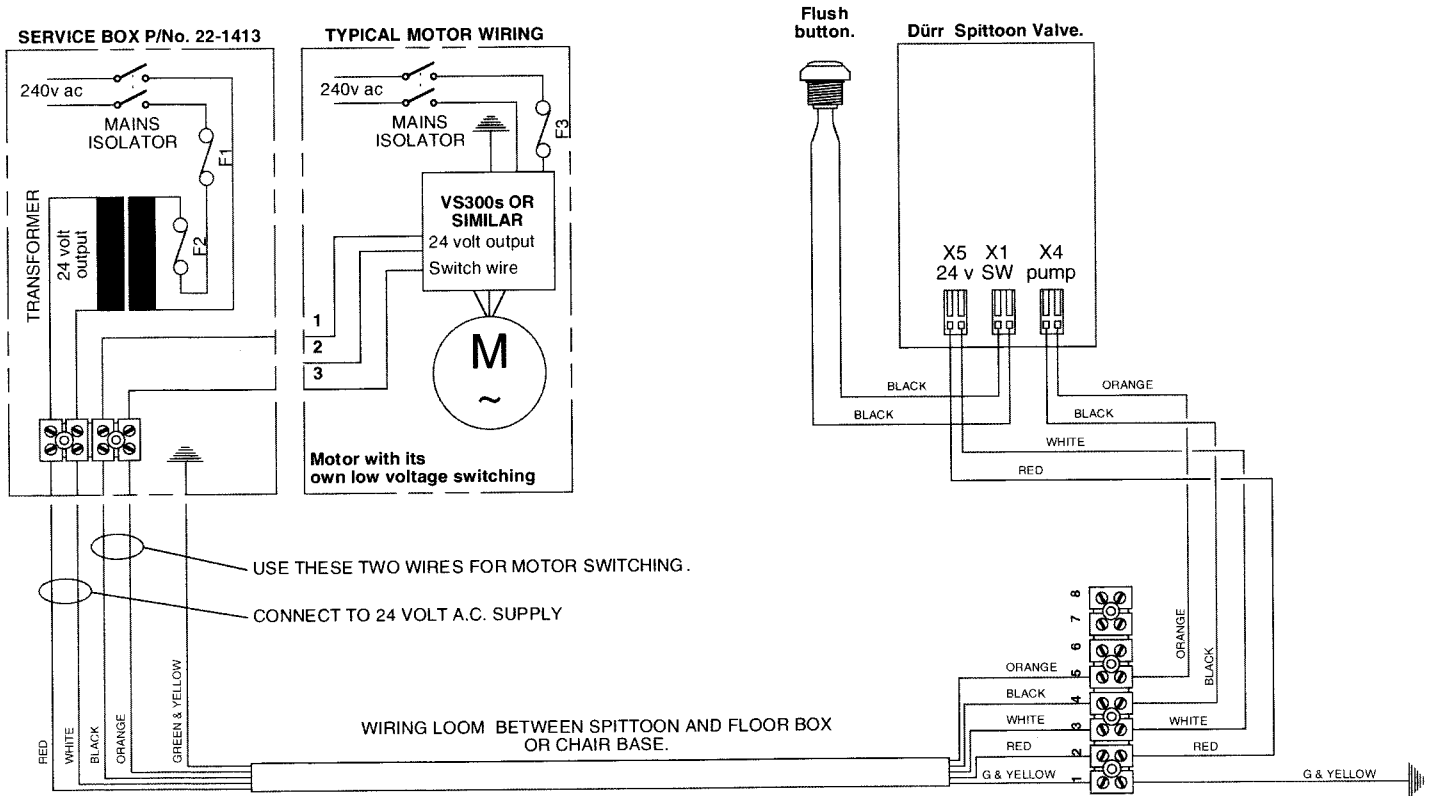


TO CHANGE WIRING FROM THE ONE ABOVE.

1. Move the ORANGE wire from 5 to 3
2. LINK 2 to 5 with a short wire.

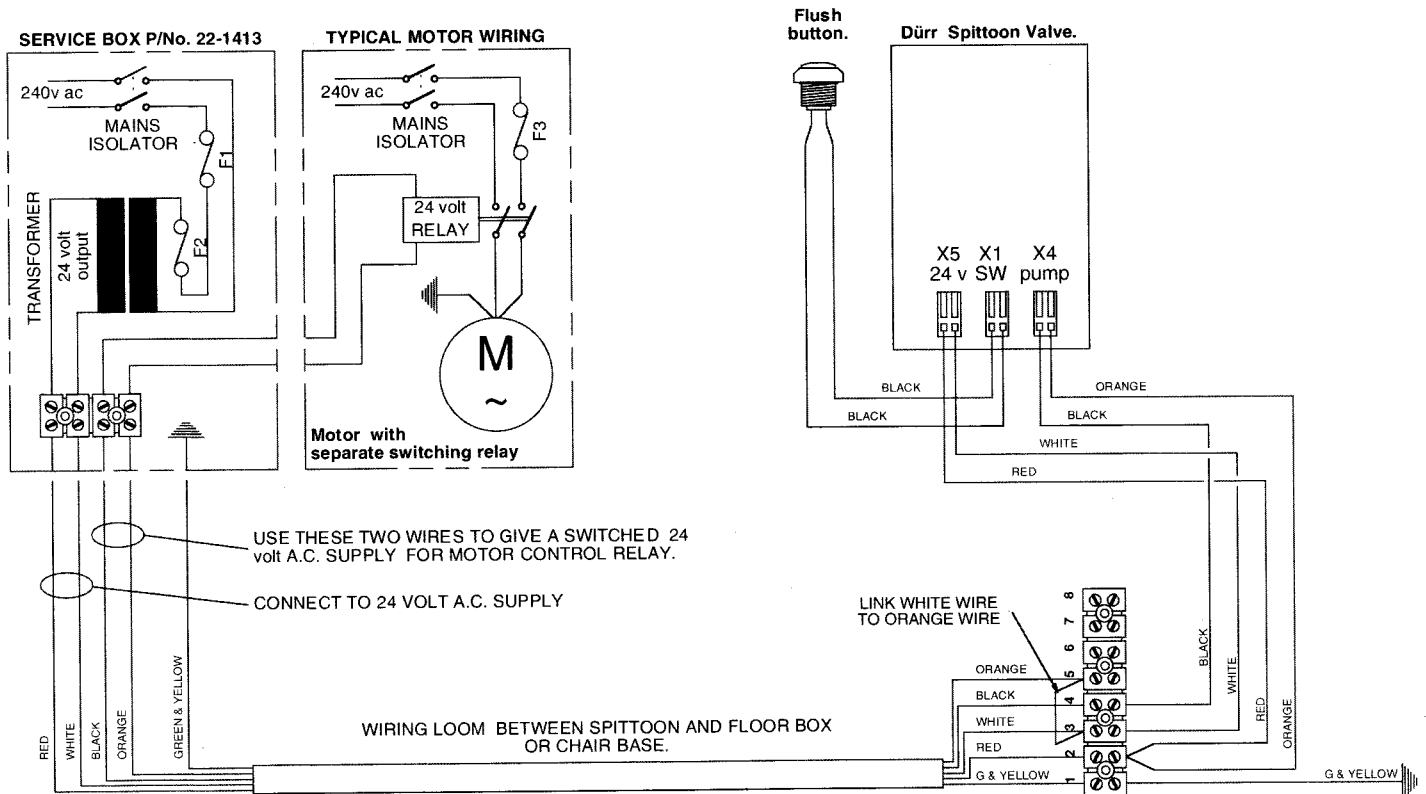
WIRING CONNECTIONS FOR CS'M' SPITTOON, model Me9 Fitted with Dürr Spittoon Valve. Suitable for wet or dryline.

Use this wiring layout when the suction source has its own low voltage switching wires, such as a Dürr VS300. Tridac spittoons fitted with Dürr Spittoon valves at the factory, are normally wired in this manner.



ALTERNATIVE WIRING LAYOUT

Use this motor wiring layout when the suction source does not have its own low voltage switching. Note, a separate 24 v A.C. relay rated to suit the motor will be required, it is NOT supplied by Tridac.



Annex 1: CSM Spittoon Electromagnetic environment

Emissions


The CSM Spittoon is intended for use in the electromagnetic environment specified below. The customer or the user of the CSM Spittoon should ensure that it is used in such an environment.		
RF emissions CISPR 11	Group 1	The CSM Spittoon uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment
RF emissions CISPR 11	Class B	The CSM Spittoon is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

Immunity

The CSM Spittoon does not have Essential Performance, nevertheless it has been tested for immunity to electromagnetic disturbances:-

The CSM Spittoon is intended for use in the electromagnetic environment specified below. The customer or the user of the CSM Spittoon should assure that it is used in such an environment.			
IMMUNITY test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5 % U_T (>95 % dip in U_T) for 0,5 cycle 40 % U_T (60 % dip in U_T) for 5 cycles 70 % U_T (30 % dip in U_T) for 25 cycles <5 % U_T (>95 % dip in U_T) for 5 s	<5 % U_T (>95 % dip in U_T) for 0,5 cycle 40 % U_T (60 % dip in U_T) for 5 cycles 70 % U_T (30 % dip in U_T) for 25 cycles <5 % U_T (>95 % dip in U_T) for 5 s	Mains power quality should be that of a typical commercial or hospital environment. If the user of the CSM Spittoon requires continued operation during power mains interruptions, it is recommended that the CSM Spittoon be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE U_T is the a.c. mains voltage prior to application of the test level.			

The CSM Spittoon is intended for use in the electromagnetic environment specified below. The customer or the user of the CSM Spittoon should assure that it is used in such an environment.

IMMUNITY test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
<p>Conducted RF IEC 61000-4-6</p> <p>Radiated RF IEC 61000-4-3</p>	<p>3 Vrms 150 kHz to 80 MHz</p> <p>3 V/m 80 MHz to 2,5 GHz</p>	<p>3 Vrms</p> <p>3 V/m</p>	<p>Portable and mobile RF communications equipment should be used no closer to any part of the CSM Spittoon, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance</p> <p>$d = 1.2\sqrt{P}$</p> <p>$d = 1.2\sqrt{P}$ 80 MHz to 800 MHz</p> <p>$d = 2.3\sqrt{P}$ 800 MHz to 2,5 GHz</p> <p>where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey^a should be less than the compliance level in each frequency range.^b</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 

NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

^a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the CSM Spittoon is used exceeds the applicable RF compliance level above, the CSM Spittoon should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the CSM Spittoon

^b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.