

STATMATIC 31

Instrument maintenance device

Technician's Manual



SciCan
A HIGHER STANDARD

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STATMATIC 31 Technician's Manual
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1 Important information

General

This technician's manual contains all details for the maintenance and repair of your *STATMATIC* device. The instructions for operation, maintenance and changing of spare parts must be complied with so that the device can operate correctly. The content of this Technician's Manual may be modified without notice in order to reflect modifications and improvements to the *STATMATIC*.

This Technician's Manual must be used in conjunction with the Operating Instructions.

The *STATMATIC* has been developed and manufactured in line with the latest quality and safety standards.

You should nevertheless take certain precautions during installation and operation.

Protect *STATMATIC* and any aerosols used from heating up to above 50° C.

SciCan original spare parts must be used for operation or repair as these have undergone extensive safety, function and specific suitability testing. SciCan also accepts product liability for these parts.

Any modifications made by third parties and any installation of parts other than SciCan original spare parts will lead to the expiry of warranty claims and authorizations.

Observe all warning notes on the device and in the Operating Instructions.

The device must be supplied only with the voltage noted in the Operating Instructions and on the device.

Users must not attempt to service the device themselves beyond the points explained in the Operating Instructions.

Instruments must be sterilized after maintenance with the *STATMATIC*. The manufacturer's specifications for the instruments maintained as well as national guidelines must be complied with during this process.

Purpose

The *STATMATIC* is intended for the internal cleaning, servicing and maintenance of handpieces, angle pieces, air motors and turbines used in dentistry.

For further information about the suitability of certain instruments for maintenance, please consult the manufacturer's instructions.

User qualification

The *STATMATIC* must only be used by specialist, practically trained and qualified personnel. During the development and design of the *STATMATIC* we worked on the assumption that dentists and their assistants were the target group.

Non-designated operation

The *STATMATIC* must only be used for the applications defined in the purpose.

The *STATMATIC* is not intended for operation in potentially explosive areas.

Disposal

Expendable materials:

The waste materials produced are harmless to humans and the environment. They must be recycled or disposed of in compliance with the applicable national regulations.

Devices and accessories at the end of service life:

We point out that this product is subject to the EC Directive (2002/96/EC) for waste in electrical and electronic equipment and that within Europe it must be disposed of in a specific manner.

1 Important information

Safety instructions for STATMATIC Spray

First aid measures



After inhalation Provide fresh air.
If complaints continue, you should consult a doctor, taking the safety data sheet/label with you.

After swallowing Do not provoke vomiting.
Consult a doctor, taking the safety data sheet/label with you.

After contact with the skin Immediately wash off with soap and water.

After contact with the eyes Rinse the eyes with flowing water for at least 5 minutes with eyelids open.
Remove contact lenses where appropriate.

Fire fighting measures

Suitable fire extinguishing agents Carbonic acid
Water spray
Foam
Dry fire extinguishing agent

Unsuitable fire extinguishing agents Full water jet

Instructions Use water or water spray for cooling.
Remove containers that have not yet caught fire from the danger zone if it is possible to do so safely.
Do not inhale vapours and fumes.
Seek fresh air.

1 Important information

Symbols used

In the margin of this Manual:



A potential danger for the user.



A situation that can lead to a mechanical defect



Important information

On the device:



LED ready for operation



Maintenance agent LED



Button and LED for collet maintenance program



Button for instrument and turbine maintenance program



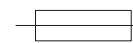
See important information, "Disposal" for disposal instructions



Manufacturer



CE marking



Fuse



Note: Comply with Operating Instructions



VDE certification mark



CSA/UL certification mark

Disclaimer

Spare parts, service and maintenance may only be provided by authorised personnel. SciCan accepts no liability whatsoever for coincidental, particular or consequential damage resulting from the servicing or maintenance of the *STATMATIC* device by third parties, or for the use of equipment or components manufactured by third parties including all losses of profit, commercial losses, economic losses or losses caused by injuries to persons.

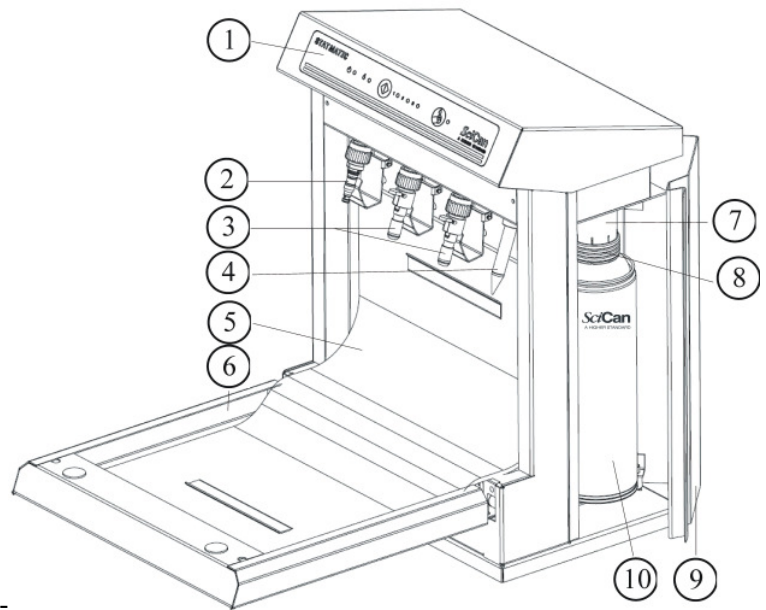
Never remove the cover of the device. Do not insert any objects into the holes or openings on the body. Contravention may lead to damage to the device and/or danger for the operator.

1 Important information

Device overview

- ① Membrane keyboard for device operation
- ② Multiflex maintenance coupling
- ③ INTRAMatic maintenance couplings
- ④ Collet maintenance nozzle
- ⑤ Absorption material
- ⑥ Front door
- ⑦ Aerosol intake
- ⑧ Securing ring
- ⑨ Aerosol chamber door
- ⑩ Aerosol

- ⑫ Type plate 1
- ⑬ Power switch
- ⑭ Mains fuse drawer
- ⑮ Mains voltage input



1 Important information

- 16 Compressed air inlet
- 17 Compressed air adjustment
- 18 Compressed air display
- 19 Type plate 2

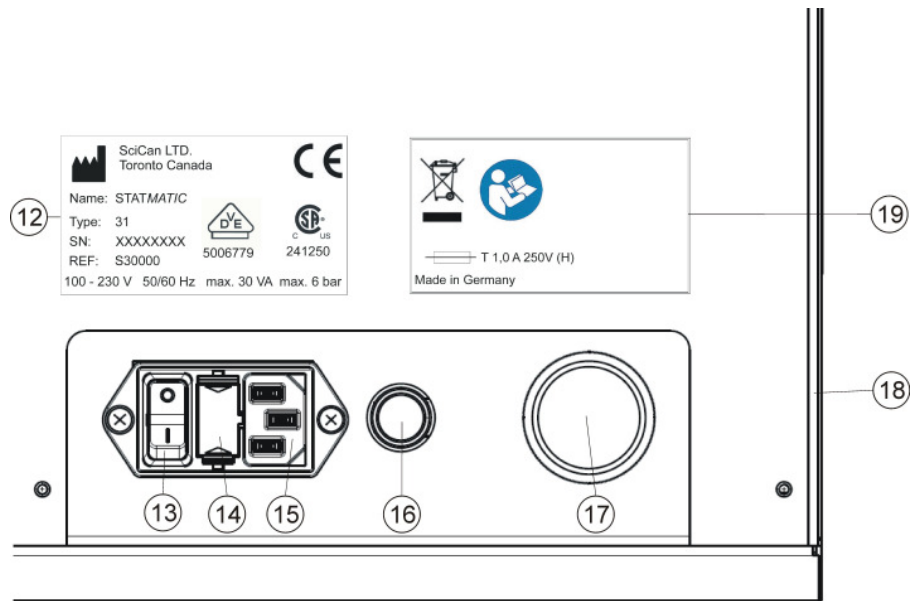
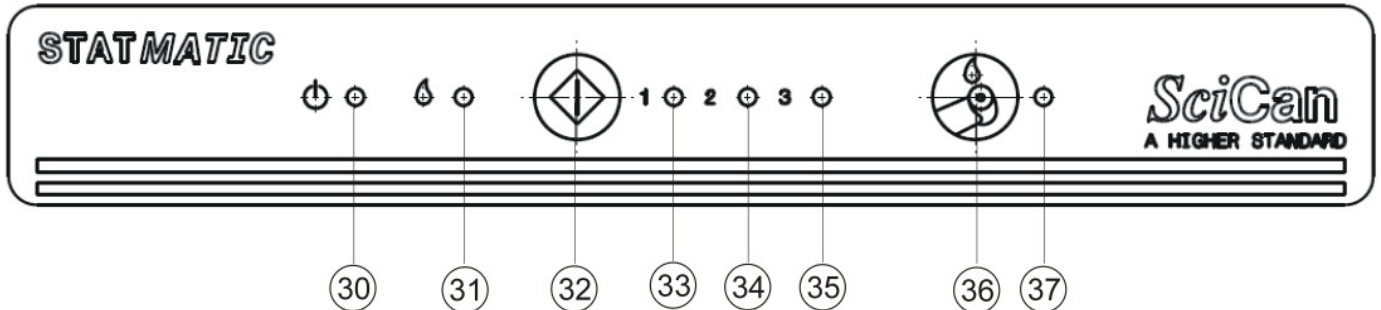


Illustration of rear

1 Important information

Membrane keyboard for device operation



- ③⑩ Standby LED
- ③① Maintenance agent LED
- ③② Button for instrument and turbine maintenance program
- ③③ LED station 1
- ③④ LED station 2
- ③⑤ LED station 3
- ③⑥ Collet maintenance program button
- ③⑦ Collet maintenance program LED

Acoustic audio signal

Each time a key is pressed; 1 times 50 milliseconds

End of program 1; 3 times 100 milliseconds

Maintenance agent empty; interval tone (2 seconds; 4 second pause) until the errors is rectified.

Maintenance agent detection function

The maintenance agent is detected by a light barrier.

The analysis of whether maintenance agent is available occurs 1 second after the first deactivation of solenoid valve MV 6 in both programs.

As soon as no preservative agent is detected the maintenance agent empty LED flashes in pulses of 0.5 seconds. Both programs lock. An acoustic signal sounds.

2 Installation)

Environmental conditions

A series of factors can influence the performance of your *STATMATIC*. Please look closely at these factors, then choose a suitable place for installing the device.

- **Temperature and relative humidity**

Do not install your *STATMATIC* in a place with exposure to direct sunlight or close to a source of heat (e.g. heaters). The recommended operating temperature is between 5 and 40 °C with a relative humidity of between 25 and 85%.

- **Environment**

The *STATMATIC* should be operated in a clean, dust-free environment.

- **Work space**

The *STATMATIC* should be installed on a flat, even, water-repellent and oil-impervious surface.

Do not install and operate the device on a sloping surface.*

- **Electromagnetic environment**

The *STATMATIC* has been tested for electromagnetic emissions and meets the applicable standards. Although the device does not emit radiation, it may nevertheless be influenced by other devices that emit radiation. We therefore recommend you to keep the device away from potential sources of interference.

- **Electrical requirements**



Use correctly earthed and fused power sources within the nominal voltage range shown on the label at the rear of your *STATMATIC*.

Avoid using multiple sockets. When using power strips with overvoltage protection, only ever connect one *STATMATIC* to the power supply. The mains input plug on the rear of the device must be used as an isolator from the mains power supply.

- **Connections to utilities**



Plug mains plug into socket.

Attach compressed air hose to coupling secure it.

The compressed air must display 4 - 4.5 bar on the manometer.


If anything other than this is displayed, pull out the handle on the pressure adjustment and turn it to the right or left until 4 - 4.5 bar is displayed.


Push the handle on the pressure adjustment back in and lock it into position.

In order to ensure safe and trouble-free functioning, use only compressed air in accordance with the specifications in Technical Data.

3 Settings



Maintenance time

To change the maintenance time, keep the  key (instrument maintenance) pressed down while switching on the mains power.

After this, the  LED continues to flash. (standby) then flashes in pulses of 0.3 seconds.

The maintenance time set is displayed as follows:

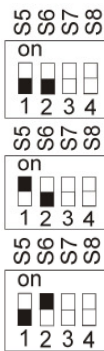
- 15 s LED station 1 glows
- 20 s LED station 2 glows
- 30 s LED station 3 glows
- 40 s LED stations 1; 2 and 3 glow

The setting can be changed using the  collet maintenance button. The last value set is stored automatically after 5 seconds. After saving, the device goes into normal operation ( LED glows).

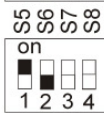
Maintenance agent injection time for instrument maintenance

Setting on the DIP switch (control circuit board).
Instrument maintenance injection time is adjustable by 100 / 150 / 200 milliseconds.

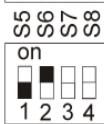
100 ms S5 and S6 open



150 ms S5 closed (on) S6 open



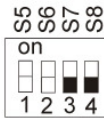
200 ms S5 open S6 closed (on)



Maintenance agent injection time for collet maintenance

Setting on the DIP switch (control circuit board).
Collet maintenance injection time is adjustable by 40 / 60 / 80 milliseconds.

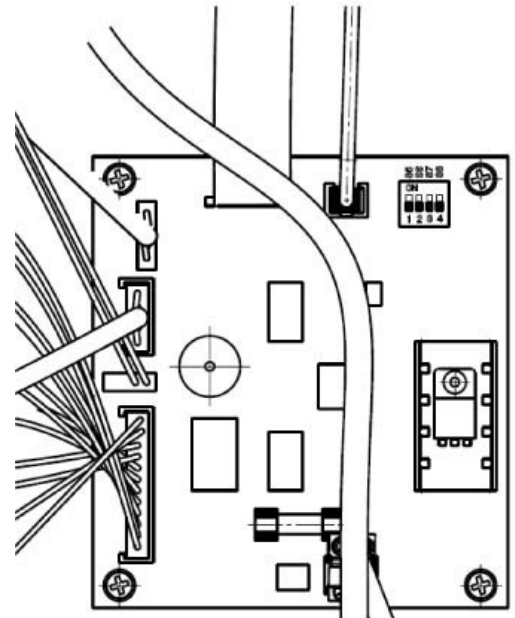
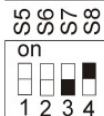
40 ms S7 and S8 open



60 ms S7 closed (on) S8 open



80 ms S7 open S8 closed (on)



4 Tests



After each operation, a simple safety and functional test must be performed.

Safety test (protective earth conductor)

Max. 0.1 ohms at 30 A


Measuring points: Protective earth conductor mains connection module and housing base.

Sealing

Sealing of the 4 adaptor positions with sealing caps (2.000.2003 and 2.000.2004).

Adaptation (if not already present) of the maintenance agent container.

Set the inlet pressure to **6 bar** via the pressure reducer.

Start the instrument maintenance program 

Observe the compressed air and maintenance agent hoses to detect whether any leaks can be seen and/or heard.

Start the collet maintenance program 

Observe the compressed air and maintenance agent hoses to detect whether any leaks can be seen and/or heard.

Set the inlet pressure to 4 bar nominal pressure.

Remove the sealing caps.

Throughflow test


Attach the test adaptor 1.000.8797.

Close front door close and bring out the test hose.

Start the instrument maintenance program 

- first compressed air, then a brief shot of "maintenance agent" must now appear (successively) at positions 1, 2, 3 (see LEDs).


Open front door, remove test adaptor.


Start collet maintenance program 2 

- first compressed air, then a brief shot of "maintenance agent" must now appear at the collet maintenance nozzle.

Device test mode


This mode is an appropriate aid to be used when searching for component malfunctions.


To change the maintenance time, keep the key 
(instrument maintenance) pressed down while switching on the mains power.

After this, the  LED continues to flash.

4 Tests

in pulses of 0.3 seconds.

Then press button 
again; the device goes into air gap test mode.

The LED  then flashes
in pulses of 0.3 seconds

The air gaps can now be tested:

Press the collection flap on station 1 to the rear.


- Air is escaping from station 1; MV 1 and 5 are activated; LED 1 glows.


Press the collection flap on station 2 to the rear.


- Air is escaping from station 2; MV 2 and 5 are activated; LED 2 glows.

Press the collection flap on station 3 to the rear.


- Air is escaping from station 3; MV 3 and 5 are activated; LED 3 glows.

Press the 
button.

- Air is escaping from the collet maintenance station; MV 4.6 and 7 are activated; LED  glows

Pressing the button 
again switches the device into maintenance agent test mode.

The LEDs 

and 
then flash in 0.3 second pulses.

The maintenance agent paths can now be checked.

Press the collection flap on station 1 to the rear.


- Air is escaping from station 1; MV 1.6 and 7 are activated; LED 1 glows.

Press the collection flap on station 2 to the rear.

- Air is escaping from station 2; MV 2.6 and 7 are activated; LED 2 glows.


Press the collection flap on station 3 to the rear.

- Air is escaping from station 3; MV 3.6 and 7 are activated; LED 3 glows.

Press the 
button.



- Air is escaping from the collet maintenance station; MV 4.6 and 7 are activated; LED  glows.


4 Tests

When the power switch is switched off, the device goes into normal operation the next time it is switched on (LED )

5 Operational data

Operational data query

To perform an operational data query, the mains power must be switched on while the buttons  (instrument maintenance) and  (collet maintenance) are pressed down.

The  LED then flashes

3 times within the 0.3 second pulse.

The operational data can now be queried.

Press the collection flap on station 1 to the rear.

Number of instrument maintenance processes on station 1

Press the collection flap on station 2 to the rear.

Number of instrument maintenance processes on station 2

Press the collection flap on station 3 to the rear.

Number of instrument maintenance processes on station 3




Press  button

Number of collet maintenance processes

Press  button

Number of 'maintenance agent empty' faults

The number is shown as follows: Each position flashes within the 1 second pulse. After each result there is a 2-pulse (2 sec.) pause. Example 3: The LED flashes 3 times, followed by 2-second pause. This is repeated until the device is switched off or until another query is made.

		1	2	3	
Hundreds of thousands	Tens of thousands	Thousands	Hundreds	Tens	Units

6 Maintenance

Cleaning

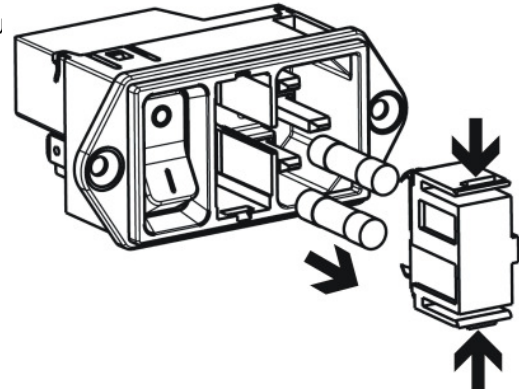
The high-grade steel surfaces can be cleaned and maintained using a microfiber cloth and a high-grade steel maintenance agent (e.g. ECOLAB Chromol). The membrane keyboard must be cleaned with a damp (water soaked) cloth.

Fuse change



Remove device plugs from the STATMATICMATIC.
Remove the fuse drawer from the network input modu
(press both lugs of the
fuse drawer inwards).
Replace fuses.
Put the fuse drawer back in place.



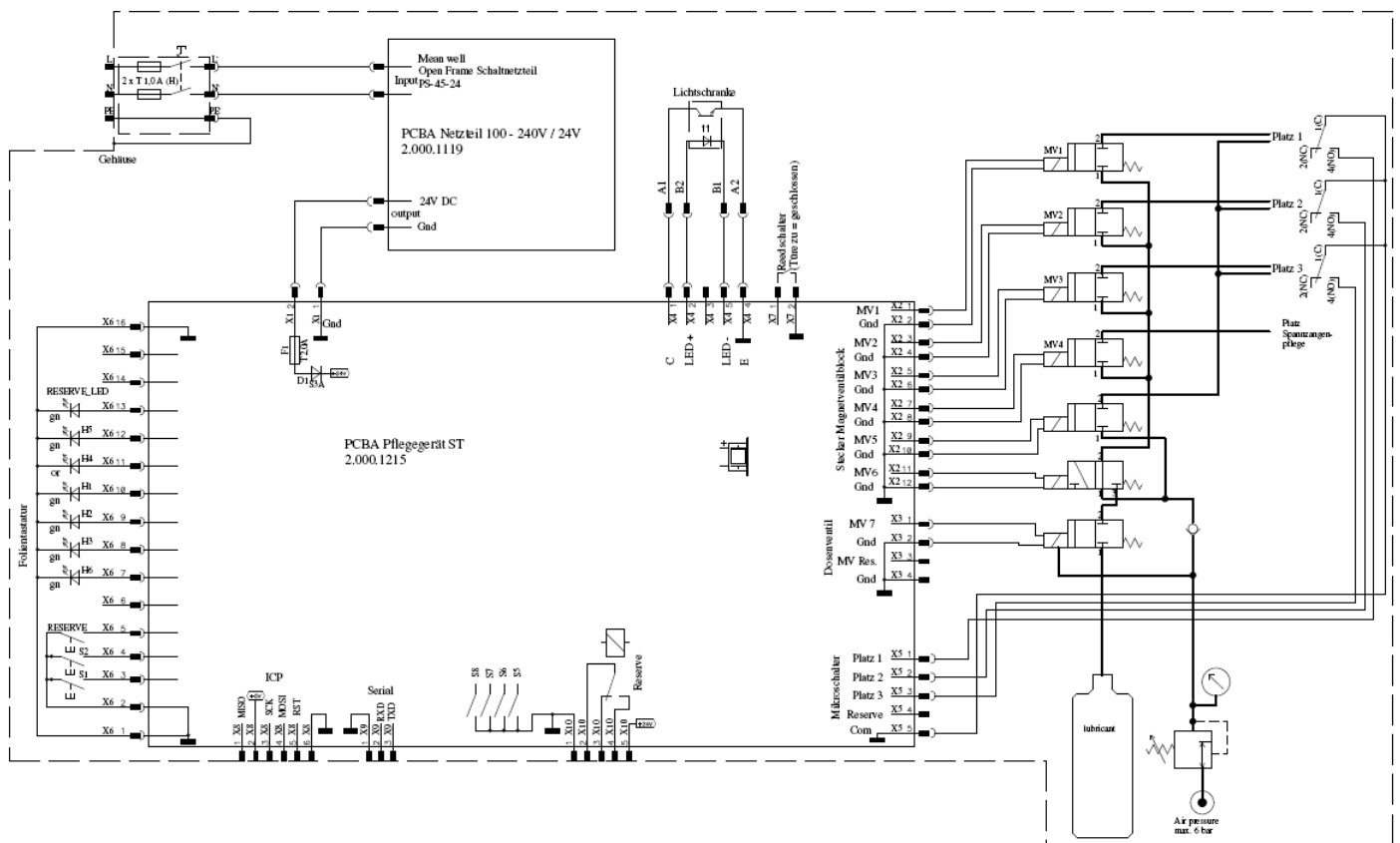
Use only the fuse types specified
in Technical Data.



7 Problembehandlung

Error	Possible cause	Remedy
LED  flashes	Maintenance agent empty	Insert or change maintenance agent container; actuate afterwards power switches.
LED  flashes	Compressed air not connected	Connect compressed air; then actuate the power switch.
Front door cannot be closed	Instruments inserted incorrectly	Turn turbines and angle pieces until the collet opening is showing to the front
No LED is glowing	No voltage supply	Switch the power switch on Plug in the power supply lead
Instrument and turbine maintenance program does not start	Front door is not closed	Close front door

Block diagram and utilities drawing:



8 Removal and re-installation of parts



The device must be isolated from the mains power supply and from the compressed air network at all points before the housing covers are opened.

Front door hinge replacement

Open the front door.
Loosen the 4 x M4 nuts on the door.
Remove hinges from the front door.
Loosen 4 x M4 hinge mounting screws on the housing.
Insert new hinges - mount in reverse order
If gap lengths do not fit, loosen the mounting screws slightly and realign the front door accordingly.

Front door gasket set replacement

Remove the damaged gasket (at least one complete side).
Clean the bonding surface with spirit or similar.
Cut to length and stick on the new adhesive tape so that it is flush with the door inner edge.

Compressed air cylinder with solenoid valve replacement

Remove the rear panel and cover.
Cut off the compressed air hose directly on the compressed air cylinder connection fitting.
Loosen both M4 mounting screws and remove compressed air cylinder.
Insert new compressed air cylinder and lock into position with 2 M4 screws.
Put compressed air hose onto the connection fitting.
Insert the 4-pin plug into the control circuit board.

Collet maintenance adaptor replacement

Cut off the maintenance agent hose directly on the mounting fitting.
Remove mounting nuts and adaptor.
Insert new adaptor, lock into place with mounting nuts.
Attach the maintenance agent hose.

Replacement of the pressure spring on the valve tappet

Loosen the 2 x M4 mounting screws on the compressed air cylinder.
Loosen the compressed air cylinder support mounting screws.
Replace the pressure spring.
Mount the compressed air cylinder support in combination with the aerosol intake – align parts.
Mount the compressed air cylinder onto supports.

Network input module replacement

Loosen the snap-on connectors on the network input module.
Loosen the 2 mounting screws.
Replace the network input module.
Mount with 2 M3 x 8 screws.
Connect the two cords using snap-on connectors.
Connect protective earth conductor.

Solenoid valve block replacement

Remove the rear panel.

8 Removal and re-installation of parts

Loosen the 12-pin connector plug on the control circuit board.

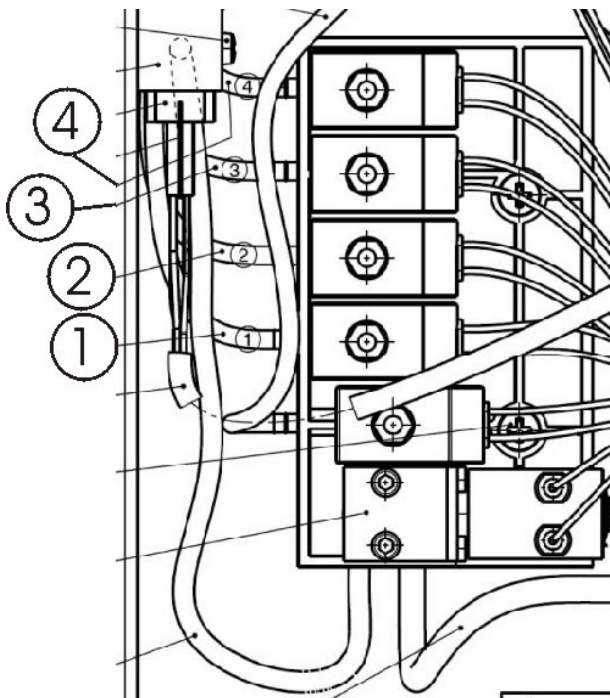
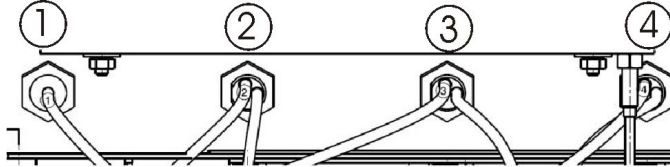
Loosen the 2 x M4 mounting screws.

Cut off all hoses directly on the solenoid valve block air fittings.

Fit hoses 1 - 7 to the fittings on the solenoid valve block (see illustrations below for correct order).

Lock the solenoid valve block into position in the device with 2 x M4 screws.

Plug the 12-pin plug into the control circuit board.



Device fuse replacement

Loosen the fuse drawer.

Replace the fuse T 1.0 A (H).

Only use the type of fuse specified.

Click the fuse drawer home in the network input module (pay attention to correct positioning).

Switching power pack replacement

Caution - do not remove the cords.

Remove the compressed air connection module - Caution - do not remove the hoses.

Remove the plug connectors from the switching power pack.

Loosen the 4 mounting screws.

Replace the switching power pack.

8 Removal and re-installation of parts

Lock the switching power pack into position in the housing with 4 x M4 screws.
Attach the plug connector.
Mount the compressed air connection module and the mains connection module.

Control circuit board replacement

Loosen the 5 plug-in connections on the control circuit board.
Loosen the 4 x M4 mounting screws.
Replace the control circuit board.
- Connector strip on the left-hand side, DIP switch at the top right-hand side.
Lock the control circuit board into position with 4 x M4 screws.
Plug in the 5 plug-in connections.
Adjust the DIP switch to the previously set values (S5 - S8, on or off)

Membrane replacement

Dismantle rear panel.
Loosen the zero insertion force (ZIF) socket.
Dismantle cover.
Loosen the membrane from the cover (via cable windows).
Remove adhesive residue and clean adhesive surface with spirit.
Stick new membrane in place.
Insert the ribbon cable into the ZIF socket and secure with bracket.
Mount cover.
Mount rear panel.

Flow sensor replacement

Loosen the securing clamp.
Loosen the 4-pin plug
Dismantle the flow sensor (SW 13).
Mount the new flow sensor (O-ring gasket).
Mount the securing clamp.
Adapt the 4-pin plug (correct position).

Microswitch set replacement

Loosen the 5-pin plug on the control circuit board.
Loosen the 3 x 2 mounting screws M2.
Remove the microswitch set.
Adapt the new microswitch set.
Adjust and attach the individual microswitches.
Insert the 5-pin plug into the control circuit board.

Rubber feet replacement

Dismantle defective rubber feet.
Insert toothed washers J 8.4 centrally.
Rotate the rubber feet on threaded bolt M8 to a complete stop.

Hose replacement

Cut off the defective hoses directly at the connection fittings.
Remove the hose residue on the fittings.
Attach the new hoses.
- comply with correct positioning (see circuit diagram or illustration).

8 Removal and re-installation of parts

Pressure-reducing unit replacement

Loosen the two compressed air hoses (quick connection coupling).

Loosen the knurled nut.

Remove the pressure-reducing unit.

Insert the new pressure-reducing unit.

Align and the pressure-reducing unit and lock into position in the housing.

Put both compressed air hoses onto the quick connection couplings.

Compressed air connection hose replacement

Separate the hose connection from the compressed air network and the device (via quick connection couplings).

Connect the new hose to the device first, then to the compressed air network connect.

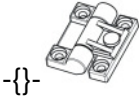

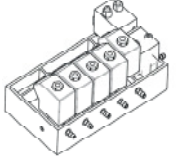
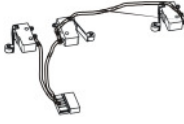
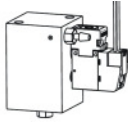




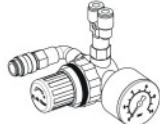
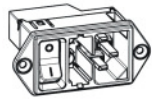







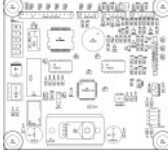


Replacement of O-rings on the multi-function and/or Intramatic adaptor

Remove the defective O-ring from the recess groove using a needle or other pointed item.

Push in the new O-ring and lock into the groove provided.

9 Spare parts list

! Please only order spare parts from specialist dealers.

	Stock no. Description		Stock no. Description
	S30103 Hinge		S30104 Complete flow sensor
	S30105 Solenoid valve block		S30106 Complete microswitch (3 items)
	S30107 Compressed air cylinder with MV		S30108 Rubber foot
	S30109 Complete collet maintenance adaptor		S30110 Hose set (interior closure)
	S30111 Tension spring		S30112 Pressure reducer with manometer
	S30113 Network input module		S30114 Compressed air hose (network)
	S30115 Fuse drawer		S30116 Multiflex O-ring set
	S30117 Fuse T 1.0 A (H)		S30118 O-ring E-type
	S30119 Switch power pack		S30120 Front door gasket set
	S30121 Control circuit board		S30122 Maintenance coupling gasket
	S30123 Membrane		

10 Aids and tools

Service set stock no.: 2.000.2496

consisting of:

Description	Stock no.:
Test adapter 2x intra , 1x multi	2.000.2403
Locking cap for I adapter 3x	2.000.2003
Locking cap for collet maintenance nozzle 1x	2.000.2004
Oil collection device	2.000.2136
Installation wrench	2.000.1908
Modified socket wrench SW 7	2.000.2497
Magnet for door contact	0.221.9116

Standard tools required

Recessed head screwdriver no. 1 and 2
Recessed head screwdriver no. 1 long
Box cutter
Side cutter small
Fork spanners SW 5,5 ; SW 7 ; SW 8 ; SW 17
Angled telephone pliers
Lubricant for tube assembling (e.g. glycerine, Vaseline)
Lubricant for hose mounting (e.g. glycerine, Vaseline)
Silicone adhesive for door magnet securing (e.g. ELASTOSIL E 41 type from Wacker-Chemie)








11 Technical data

Device dimensions:	Width:	285 mm (11.4 inches)
	Depth:	190 mm (7.6 inches)
	Height:	400 mm (16 inches)
Weight:		8.6 kg (18.9 lbs)
Electrical nominal values:	Rated voltage:	100 – 230 V ± 10 %
	Nominal frequency:	50 / 60 Hz
	Nominal power:	max. 30 VA
Safety class:		I
Safety:		covered
Installation category:		Cat. II
Contamination level:		P 2
Ambient temperature:		5 – 40 °C
Noise level:		60 (65) dB(A)
Relative humidity:		max. 80 %
Max. operating height above sea level		2000 m
Operating location:		Interior only
Air pressure:		4 - 6 bar
Air consumption:		40 NL/min
Compressed air quality:	Residual oil content:	max. 0.1 mg/m ³
	Residual dust:	max. 1 µm; max. 1 mg/m ³
	Residual water:	max. 0.1 g/m ³ at –40 °C
Mains fuses:	Nominal current	1 A
	Rated voltage	250 V
	Tripping characteristic	Delayed action (T)
	Switching capacity	H

Storage and transport conditions:

Ambient temperature:	-30 – 70 °C
Relative humidity:	5 – 95 %
Air pressure:	700 – 1060 hPa

Type plate:

 SciCan LTD. Toronto Canada			
Name: STATMATIC			
Type: 31			
SN: XXXXXXXX	 5006779	 241250	
REF: S30000			
100 - 230 V 50/60 Hz max. 30 VA max. 6 bar			
		 T 1,0 A 250V (H)	
		Made in Germany	

The explanation of symbols is given in chapter 2 "Important Information"