OPERATING & MAINTENANCE MANUAL

SELECTA 28

EXSM 350

471 1562-97/02
97.43

WARNING: ALL OPERATING AND MAINTENANCE PROCEDURES SHOWN ON THE NEXT PAGE OF THIS MANUAL MUST BE FOLLOWED DAILY FOR PROPER OPERATION OF YOUR WASCOMAT MACHINE.

PLEASE ENTER THE FOLLOWING INFORMATION AS IT APPEARS ON THE MACHINE(S) DATA PLATE(S).

MACHINE TYPE OR MODEL	
MACHINE SERIAL NUMBER(S)	
ELECTRICAL CHARACTERISTICS: _____ VOLTS, _____ PHASE, _____ HZ.	

MAKE CERTAIN TO KEEP THIS MANUAL IN A SECURE PLACE FOR FUTURE REFERENCE.

NOTICE TO: OWNERS, OPERATORS AND DEALERS OF WASCOMAT MACHINES

IMPROPER INSTALLATION AND INADEQUATE MAINTENANCE, POOR HOUSEKEEPING AND WILLFUL NEGLECT OR BYPASSING OF SAFETY DEVICES MAY RESULT IN SERIOUS ACCIDENTS OR INJURY. TO ASSURE THE SAFETY OF CUSTOMERS AND/OR OPERATORS OF YOUR MACHINE, THE FOLLOWING MAINTENANCE CHECKS MUST BE PERFORMED ON A DAILY BASIS.

1. Prior to operation of the machine, check to make certain that all operating instructions and warning signs are affixed to the machine and legible. (See the following page of this manual for description and location of the signs.) Missing or illegible ones must be replaced immediately. Be sure you have spare signs and labels available at all times. These can be obtained from your dealer or Wascomat.

2. Check the door safety interlock, as follows:

   (a) OPEN THE DOOR of the machine and attempt to start in the normal manner:

   For FL and EX models, insert a program card, turn the starter knob to the Start position and place the ON-OFF switch in the ON position.

   For HI-TEK microprocessor models, turn the key switch to the RUN position, choose a program and press the START button.

   For SELECTA 28 models, select a wash program and press the Start button.

   THE MACHINE(S) SHOULD NOT START !

   (b) CLOSE THE DOOR to start machine operation and, while it is operating, attempt to open the door without exerting extreme force on the door handle. The door should remain locked!

   If the machine can start with the door open, or can continue to operate with the door unlocked, the door interlock is no longer operating properly. The machine must be placed out of order and the interlock immediately repaired or replaced. (See the door interlock section of the manual.)

3. DO NOT UNDER ANY CIRCUMSTANCES ATTEMPT TO BYPASS OR REWIRE ANY OF THE MACHINE SAFETY DEVICES AS THIS CAN RESULT IN SERIOUS ACCIDENTS.

4. **Be sure to keep the machine(s) in proper working order**: Follow **all** maintenance and safety procedures. Further information regarding machine safety, service and parts can be obtained from your dealer or from Wascomat through its Teletech Service Telephone - 516/371-0700.

All requests for assistance must include the model, serial number and electrical characteristics as they appear on the machine identification plate. Insert this information in the space provided on the previous page of this manual.

5. **WARNING**: DO NOT OPERATE MACHINE(S) WITH SAFETY DEVICES BYPASSED, REWIRED OR INOPERATIVE! DO NOT OPEN MACHINE DOOR UNTIL DRUM HAS STOPPED ROTATING!

SAFETY AND WARNINGS SIGNS

Replace If Missing Or Illegible

One or more of these signs must be affixed on each machine as indicated, when not included as part of the front instruction panel.

LOCATED ON THE OPERATING INSTRUCTION SIGN OF THE MACHINE:

CAUTION

1. Do not open washer door until cycle is completed, operating light is off, and wash cylinder has stopped rotating.
2. Do not tamper with the door safety switch or door lock.
3. Do not attempt to open door or place hands into washer to remove or add clothes during operation. This can cause serious injury.

MACHINE SHOULD NOT BE USED BY CHILDREN

PRECAUCION

1. No abra la puerta de la máquina lavadora sino hasta que la máquina haya terminado su ciclo, la luz operativa esté apaga da y el cilindro de lavado haya completamento terminado de girar.
2. No interferia o manipule el switch o la cerradura de la puerta.
3. No trate de abrir la puerta o meta las manos dentro de la máquina para meter o sacar ropa mientras la máquina está en operación, pues puede resultar seriamento herido.

LAS MÁQUINAS NO DEBEN SER USADAS POR NIÑOS

LOCATED AT THE REAR OF THE MACHINE:

INSTALLATION AND MAINTENANCE WARNINGS

1. **This washing machine MUST be securely bolted to an uncovered concret floor according to the installation instructions to reduce the risk of fire and to prevent serious injury, or damage to the machine.**
2. **If installed on a floor of combustible material the floor area below this machine must be covered by a metal sheet extending to the outer edges of the machine.**
3. **This washing machine MUST be connected to a dedicated electrical circuit to which no other lighting unit or general purpose receptacle is connected. Use copper conductor only.**
4. **This washing machine MUST be serviced and operated in compliance with manufacturer's instructions. CHECK DOOR LOCKS EVERY DAY FOR PROPER OPERATION TO PREVENT INJURY OR DAMAGE. IF THE DOOR LOCK FAIL TO OPERATE PROPERLY, PLACE THE MACHINE OUT OF ORDER UNTIL THE PROBLEM IS CORRECTED.**
5. **Disconnect power prior to any servicing of machine.**
6. **To remove the top panel for service on those models on which it is secured by screws at the rear, first remove the screws. Be certain to reinstall them when remounting the top panel. To remove the top panel for service on those models on which it is secured by one or two keylocks, use the keys originally shipped in the drum package. Be certain to relock after remounting the top panel.**

MANUFACTURED BY WASCATOR
DISTRIBUTED BY WASCOMAT INWOOD, NEW YORK, USA
471 76 62 02-02

LOCATED ON THE DOOR:

If you need to order more safety or warning signs, call Wascomat's parts department at 516-371-2000, or call your local dealer.

WARNING !

NEVER USE FORCE ON HANDLE. FOR SAFETY REASON THE DOOR IS LOCKED A WHILE AFTER THE DRUM HAS STOPPED ROTATING.

471 7668 02

EXSM 350 Selecta 28

Contents

The manufacturer reservs the right to make changes to design and material specifications.

Safety instructions

- **The machine is designed for water washing only.**
- **The machine must not be used by children.**
- **All installation operations are to be carried out by qualified personnel. Licensed personnel are necessary for all electric power wiring.**
- **The interlock of the door must be checked daily for proper operation and must not be bypased.**
- **All seepage in the system, due to faulty gaskets etc., must be repaired immediately.**
- **All service personnel must be fully familiar with the operating manual before attempting any repair or maintenance of the machine.**
- **The machine must not be sprayed with water, otherwise short circuiting may occur.**
- **Fabrics softener with volatile or inflammable fluids are not to be used in the machine.**

Introduction

Fig. 1 The Selecta-28 model washer/extractor has been developed to cover the heavy duty requirements of hotels, motels, nursing homes, hospitals, professional laundries, restaurants, airlines, ships, schools, colleges and all on-premises laundries where flexibility and quick formula variation, coupled with high quality automatic washing, are required.

The Selecta-28 offers 28 pre-set wash programs which can be selected by means of push buttons. These programs are designed to suit a variety of fabrics and offer different water temperatures, water levels, wash periods and supply injection. The machine is designed for connection to hot and cold water supplies and to be used with free-standing liquid supply injectors which can be activated by signals from the machine.

All parts of the machine which come into contact with the items being washed are made of heavy gauge surgical stainless steel, ensuring long life and lasting beauty, as well as full protection for no-iron fabrics. All electrical components are made accessible for servicing by simply removing the top panel.

This manual contains a technical description of the machine and instructions for its installation, operation and maintenance. Together with the wiring diagram which accompanies each individual machine it should be kept in a safe place for easy reference.

When ordering spare parts or contacting the manufacturer for any purpose always give the machine serial number, model, voltage and other electrical characteristics appearing on the nameplate at the rear of the machine.

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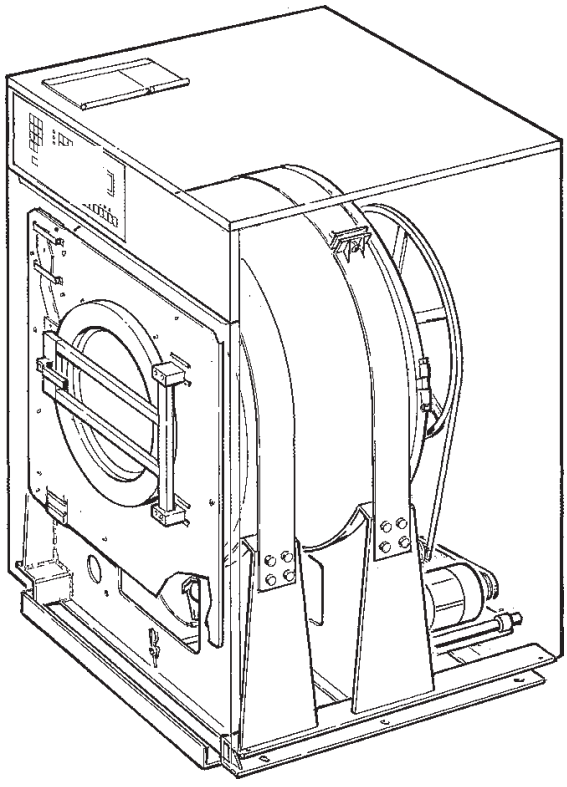

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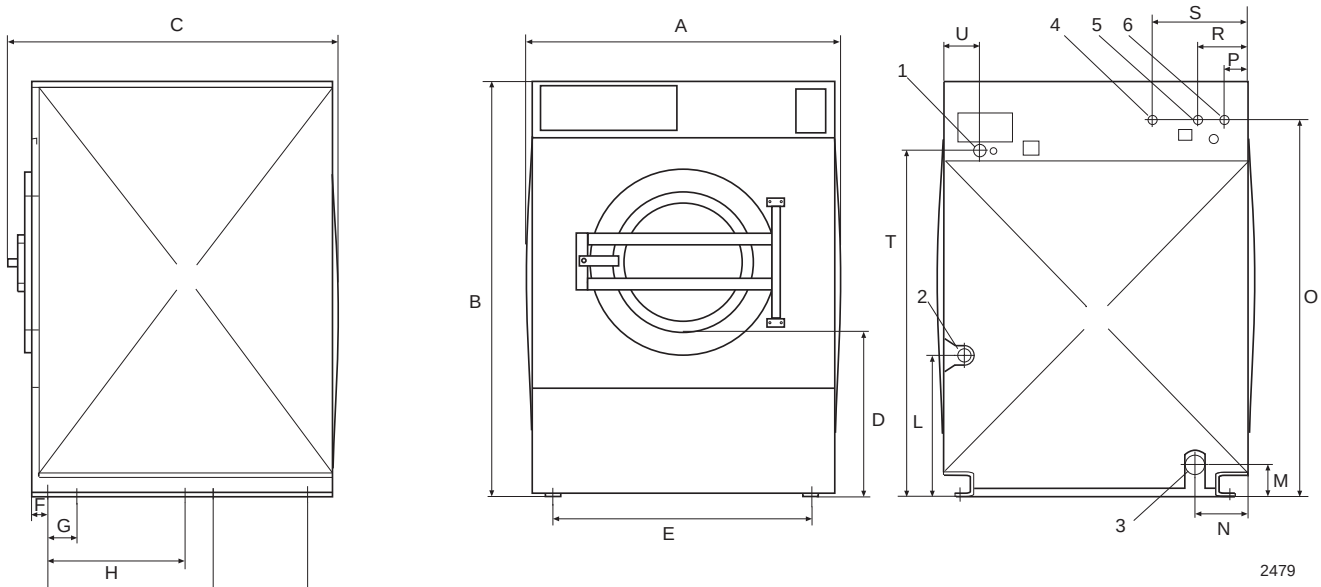
Technical data

Selecta 28 EXSM 350

Dry load capacity	up to		80 lbs
Overall dimensions	Width	1114 mm	43 7/8"
	Depth (at the top)	1121 mm	44 1/8"
	Height	1520 mm	59 7/8"
	Net weight	645 kg	1422 lbs
Max. floor load at extraction		±14 kN	±3147 lbs.force
Frequency (dynamic force)		10,8 Hz	
Crated Dimensions	Volume	2.4 m^3	85 cu.ft
	Weight	662 kg	1460 lbs
Inner drum	Diameter	920 mm	36 1/4"
	Depth	520 mm	20 1/2"
	Volume	350 litre	12.6 cu.ft.
Speed of rotation	Wash		40 r.p.m.
	Distribution		60 r.p.m.
	Extraction, low	325 r.p.m.	
	Extraction, high	650 r.p.m.	
G-factor	During wash		0.8
	During extrac., low		55
	During extrac., high		220
Motor speed	During wash		360 r.p.m.
	During distrib.		570 r.p.m.
	During extrac., low		1660 r.p.m.
	During extrac., high		3380 r.p.m.
Voltage requirements	208-240 V 3-Phase 60 Hz		
Rated power	Motor, wash		0.9 kW 1.2 HP
	Motor, distrib.		0.95 kW 1.3 HP
	Motor, extrac., low/high		4.5/4.8 kW 6.0/6.4 HP
Overcurrent protection, motor	Three-phase		25 A
Water connections			
Recommended water pressure	2-6 kp/cm^2		25-85 psi
Hose connection, water	DN 25 mm		1"
Hose connection, steam			1/2"
Hose connection, drain	75 mm		3"

Outline and dimensions



1 Electrical cable connection
2 Steam connection
3 Drain connection
4 Hot water connection
5 Hot water connection
6 Cold water connection

EXSM 350		
	mm	inches
A	1114	43 7/8"
B	1520	59 7/8
C	1206	47 15/32"
D	597	23 1/2"
E	935	36 13/16"
F	66	2 5/8"
G	100	3 15/16"
H	490	19 19/64"
I	590	23 1/4"
K	930	36 5/8"
L	527	20 3/4"
M	120	4 3/4"
N	206	8 1/8"
O	1380	54 11/32"
P	89	3 1/2"
R	184	7 3/16"
S	354	13 15/16"
T	1270	50
U	125	4 15/16"

Installation

Machine foundation

For making the foundation, check with a professional engineer in order to calculate the foundation regarding dynamic and static forces.

The machines are designed to be bolted in position to a concrete floor or specially prepared concrete foundation. A template showing the size of the foundation and positioning of the foundation bolts is delivered with each machine.

For installation on an existing concrete floor, the floor must be at least 8'' thick and of good quality. If the floor does not meet these requirements, then a 6-8'' high concrete foundation should be made.

Follow the instructions below when making a concrete foundation:

Fig. (2) 1 Decide where to place the machine and consider maintenance requirements, i.e. determine a suitable distance from the rear of the foundation to the wall, and the distance from the foundation to the nearest side wall. The distance should be at least 16 and 2 inches, respectively.

Fig. (3) 2. Break up the floor to a depth of at least 3 inches, making sure that the sides of the hole slope inwards - the bottom of the hole should be 5 inches longer than the upper length.

3. Wet the hole well. Brush the bottom and sides with cement grout.

4. Prepare a casing and fill with concrete to form foundation. Make sure the foundation is level.

Fig. (4) 5. Use the template to position the foundation bolts correctly - bolts are to extend 1 1/2'' above concrete.

Reinforcing ironrods A shall be used around the base. The ironrods shall be placed between the bolts and the edge of the foundation.

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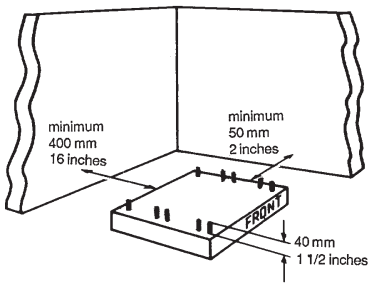

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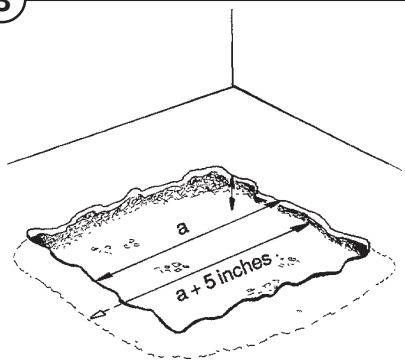

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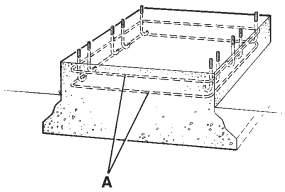

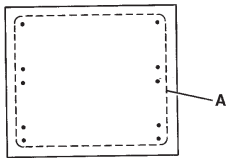

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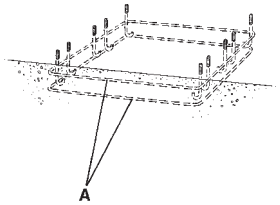

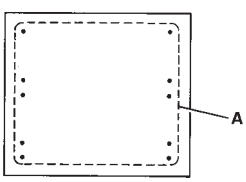

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Fig. Measurements for foundation in inches and (mm).
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A 42 29/32" (1090)
B 43 15/64"
C 3" (75)
D 3 15/16" (100)
E 15 23/64" (390)
F 3 15/16" (100)
G 13 25/64" (340)
H 3" (77)
K 36 13/16" (935)
L 37 1/64" (940)
M 41 9/16" (1056)
N 43 17/32" (1106)
O 51 59/64" (1319)
P 7/8" (22)

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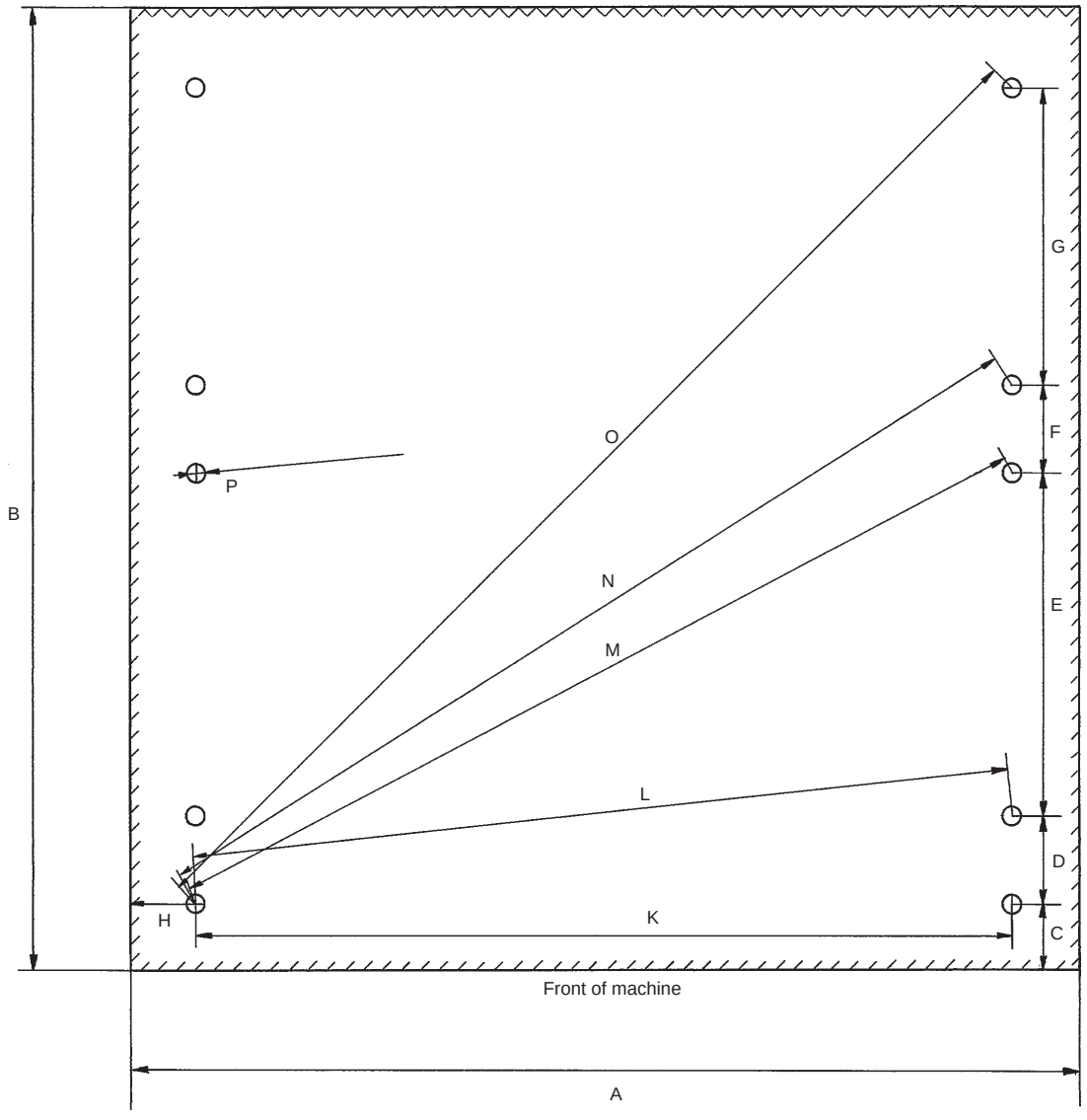

Mechanical installation

Fig. 6

- Place wide steel shims on the concrete foundation over the bolts.
- Lift the machine and lower it in position. Never use the door or the door handle to lift or lower the machine.
- Check that the machine is level front-to-rear and side-to-side and standing firmly on the ten supporting points. Spacing washers must be mounted if one or more of these points is not resting against the floor/foundation.

Fig. 7

Fig. 8

- Place flat washers over the foundation bolts and secure the machine in position by tightening the self-locking nuts, with a torque of 145 ft lbs.

  Torque for the nuts (M16) should be 145 ft lbs.

Fig. 9

- Tighten the nuts in sequence as shown.
- Check and tighten the nuts every week for the first month.

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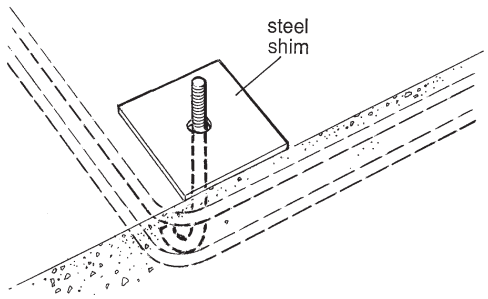

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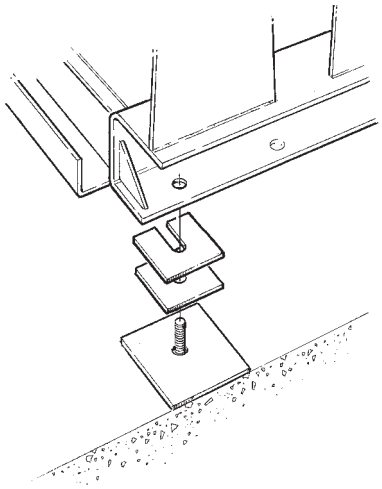

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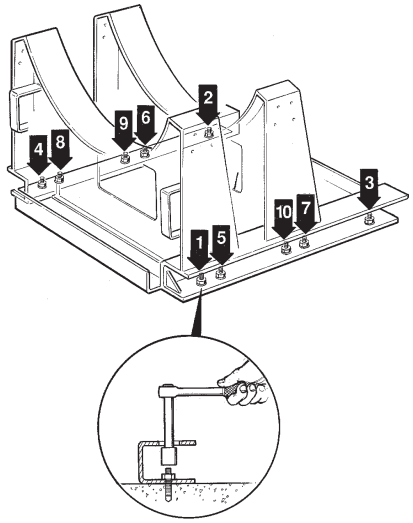

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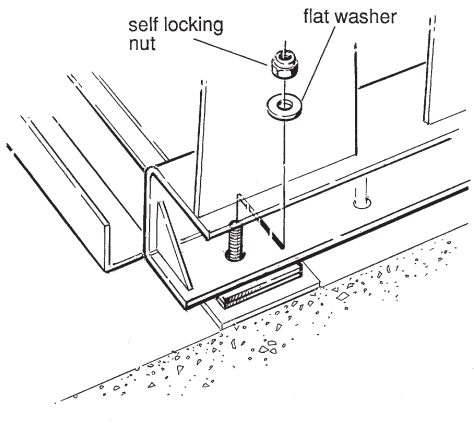

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Electrical installation

Fig. (10) Although the machines are fitted with thermal overloads in the motor windings and separate fuses for the control circuit, a separate three-phase common-trip circuit breaker must be installed for all three-phase machines.

For proper overcurrent protection, check the data plate at the rear of the machine. Also consult local electrical code for special requirements.

Fig. (11) The machine is equipped with a control circuit transformer, mounted on the control unit and connected for 220 volt operation. If your incoming voltage is below 210 volts move the wire connection to the 208 volt tab on the transformer. If it is above 230 volts move the wire to the 240 volt tab on the transformer.

Check the incoming power for a high voltage leg. If present, connect that line to L2 on the terminal block, a high voltage leg can be found by measuring the voltage between each leg and ground.

Fig. (11) Connect L1, L2, L3 and ground wires according to the markings of the terminal block. The cable is to hang in a large loose loop, supported by the clip of the terminal block.

The smaller terminal block at the right is for connection of wires from external liquid supply injector.

Fig. (12) Start the machine and check that the drum rotates in the proper direction during extraction, i.e. counter-clockwise when seen from the front. If the drum rotates in the wrong direction interchange line L1 and L3 at the power connection terminal.

Connection for signals to external liquid supply injector

Fig. (13) On the right side of the terminal connection is the connection for signals. Depending on the number of pumps to be connected, they shall be connected from 1–5 and C (Common) on resp. connection. The signal wires can take max. 0,5 A total output load.

Remember that it is only a signal which is obtained from the machine to the pumps and not time controlling.

From the smaller connection block a power feed of 220V at max 6A output load can be obtained.

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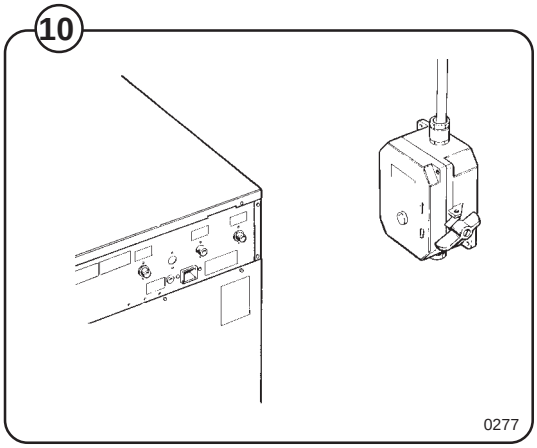

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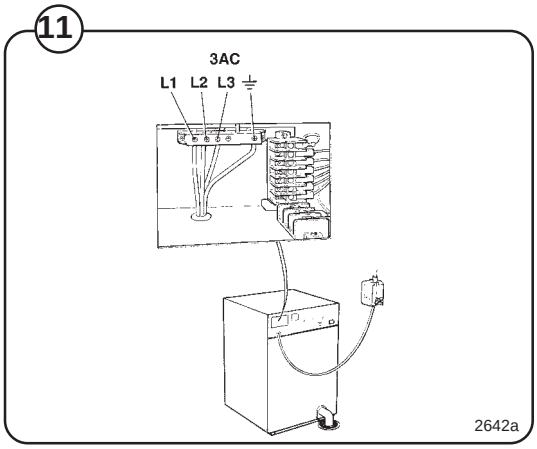

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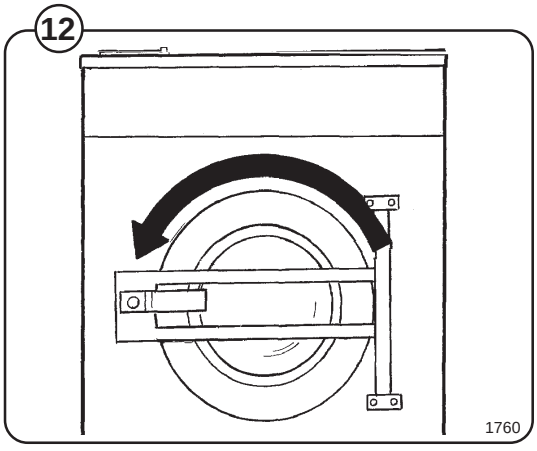

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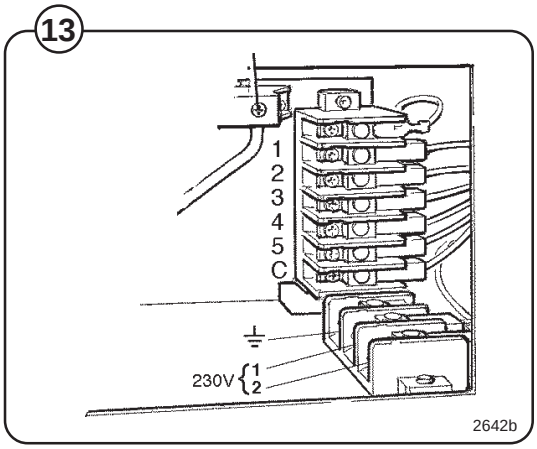

Water connection

> **NOTE**
>
> **All plumbing must conform to national and local plumbing codes.**

Fig. (14) Incoming water lines do not require non-return or back-suction valves, as the machine is already fitted with a siphon breaker. However, all incoming lines must be fitted with shut-off valves.

Fig. (15)
- Water inlets are labelled for connection of hot and cold water hoses.
- Flush the water system thoroughly and check that the filter at the machine inlet is fitted correctly.

Fig. (16)
- Connect the machine to the water mains with 1" reinforced rubber hosing not to exceed 6 ft in length. Hang the hosing in a large loop. Do not use rigid piping.

Drain connection

Fig. (17) Connect a 3" (75 mm) flexible hose to the drain outlet of the machine.

The drain hose must not have any sharp bends and must slope from the machine to assure proper drainage. The outlet must open freely to the main drains.

Do not reduce the size of the drain connection from the machine to the waste line.

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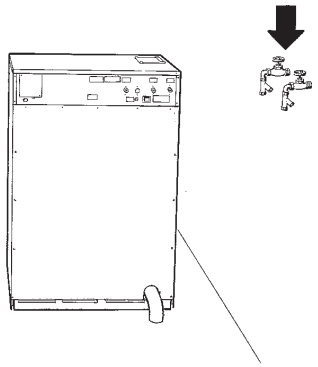

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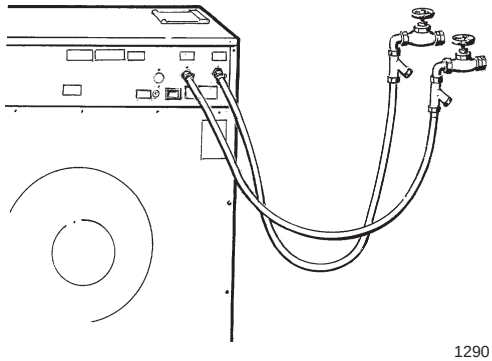

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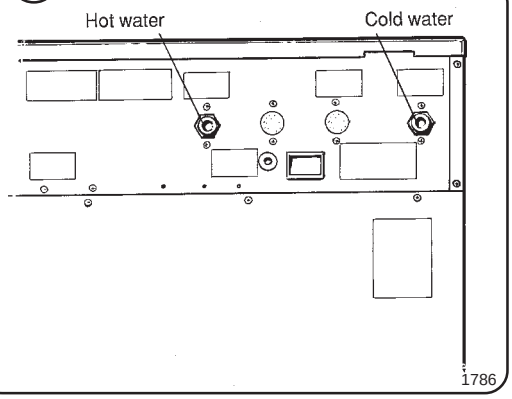

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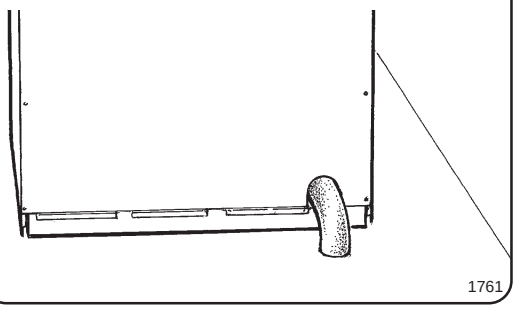

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Steam connection

Fig. (18) The steam inlet pipe must be fitted with a manual cut-off valve in order to facilitate installation and service operations.

Attach the filter supplied with the machine to the manual cut-off valve.

Conncection hoses should be of the quality required according to regulations in the country of use.

Connections size at filter: DN 15 (1/2").

Steam pressure required:

- minimum: 50 kPa (0.5 kp/cm^2) (7 psi)
- maximum: 800 kPa (8 kp/cm^2) (113 psi)

Check there are no sharp angles or bends in the connection hose.

Connection of top-mount manifold for connection of external liquid supplies

Remove the cover and cover support from over the soap box.

Bend all the way back the metal plate in compartment 3.

Pull the manifold knobs up and forward.

Fig. (19) 1. Loosen both knobs so that one side of the metal fingers underneath can slide under the top lid of the machine, within the supply box.

Fig. (20) 2. Fit the supply manifold into the supply box so that both sides are held securely in places by the metal fingers.

Fig. (21)

Note:
If the supply manifold does not fit, turn it around. You have it in backwards.

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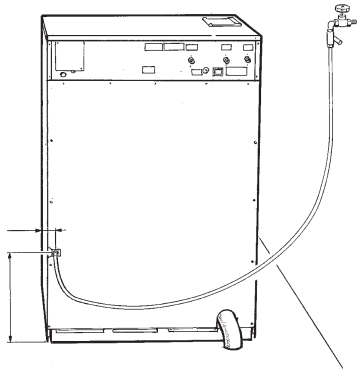

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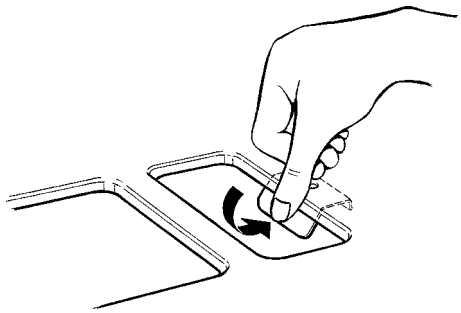

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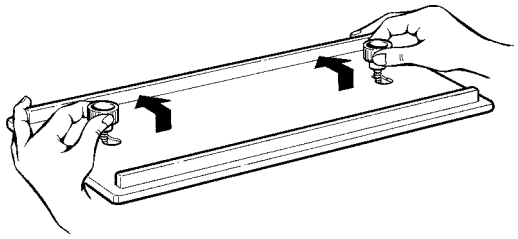

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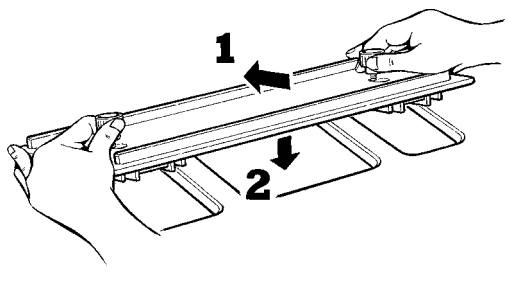

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Fig. 22

1. Drop the knob into the larger opening in the supply manifold lid.
2. Tighten securely. Do not overtighten! Do not use pliers or other tools to tighten the knobs!

Fig. 23

1. Stretch the multi-rubber ring B and select the correct size ring which will fit snugly on the chemical tube you are using. Ring A is used for tubes with 5/16" diam.
2. Use scissors or a razor to carefully cut out the proper size rubber ring. Wrap the rubber ring around each tube after threading each tube through the plastic nipple. Run the tube through the compression nut to the bottom of the compartment. Cut the end of the tube at an angle. Hand tighten the plastic nipple on to the compression nut.

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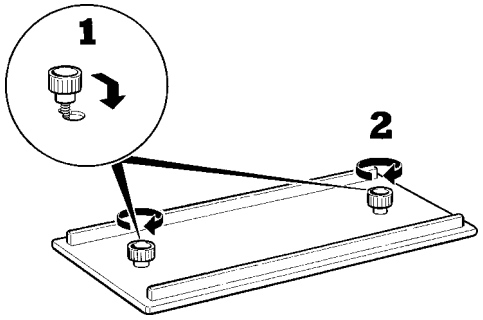

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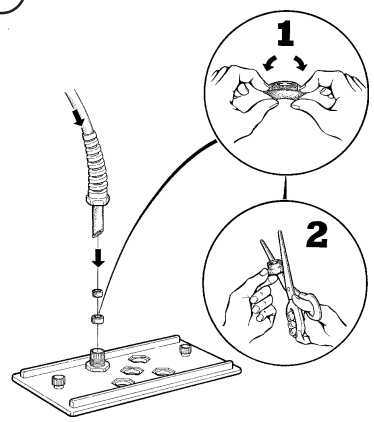

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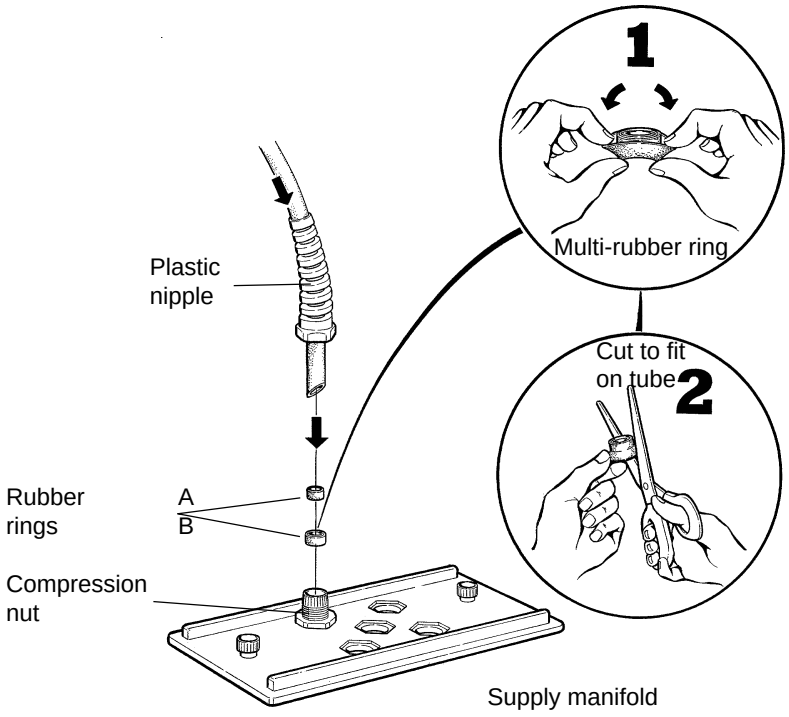

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Start-up and safety checklist

Before initial start-up of a Wascomat washer-extractor, the following safety checks must be performed:

Fig. 24
- Make sure the machine is properly bolted to the floor.

Fig. 25
- Make sure that all electrical and plumbing connections have been made in accordance with applicable local codes.
- Use only flexible water fill and drain hoses of the proper length to avoid sags and kinks.
- Make sure the machine is properly grounded electrically.

Before the machine is operated, the door safety interlock must be checked for proper operation as follows:

Fig. 26
- When washer loading door is open, the machine must not start. Verify this by attempting to start washer with door open.

Fig. 27
- When washer is in operation, the loading door is locked and cannot be opened. Verify this by attempting to open the loading door when the machine is operating. If necessary, consult this manual for proper operation of the door lock and door safety interlock or call a qualified serviceman.

IMPORTANT:

Door safety interlock must be checked <u>daily</u> in accordance with above procedure.
WARNING:
Before servicing Wascomat equipment, disconnect electrical power.

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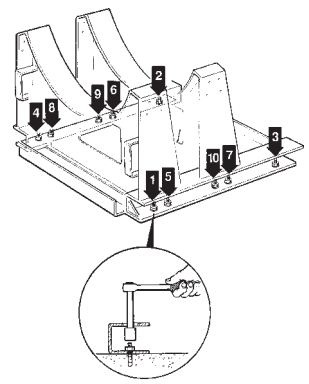

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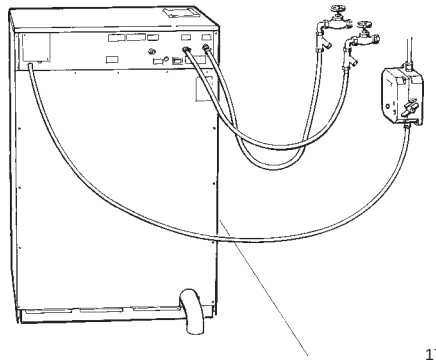

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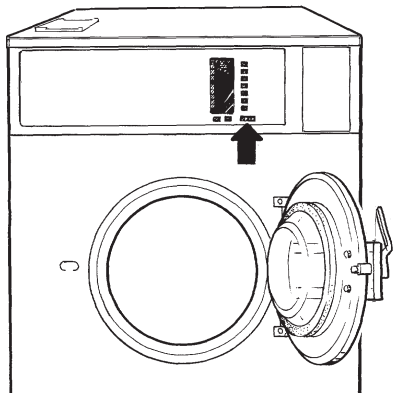

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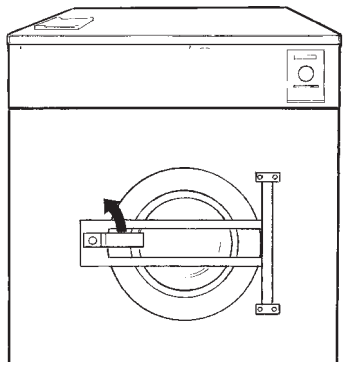

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Function control check-out list

In the machine cylinder, you will find the warranty registration card, a copy of the warranty policy, the bolt hole template and other pertinent material. The warranty card should be completed and sent to Wascomat. All other items should be placed in a safe place for future reference.

The machine should be cleaned when the installation is completed, and checked out as detailed below without loading the machine with fabrics:

1. Check the incoming power for proper voltage, phase and cycles.
2. Open manual shut-off valves to the machine.
3. Turn on electric power.
4. Check the door safety interlock as detailed on page 11 of this manual.

Fig. 28

5. Run through the complete test cycle 7AB, checking for water temperature, drain operation and extract direction. To advance the timer, press the **START** button and hold down until the indicator arrow reaches the desired part of the cycle.

Fig. 29

6. When the program is in the Warm cycle, hot and cold water should be entering the machine.

Fig. 30

7. Machine must spin in a counter-clockwise direction, as seen from the front, during extraction. If it does not, reverse lines L1 and L3.

NOTE

All machines are factory tested prior to shipment. Occasionally, some residual water may be found when the machine is installed.

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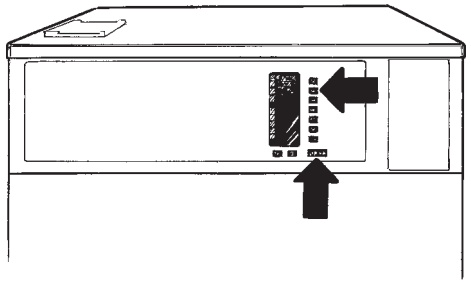

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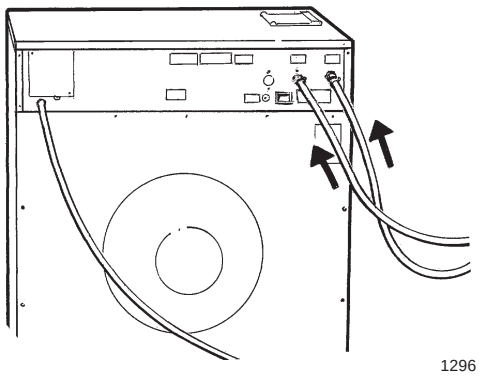

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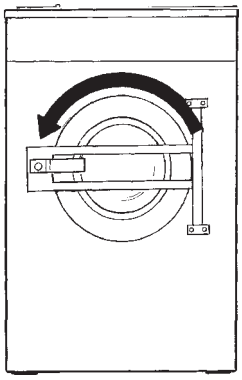

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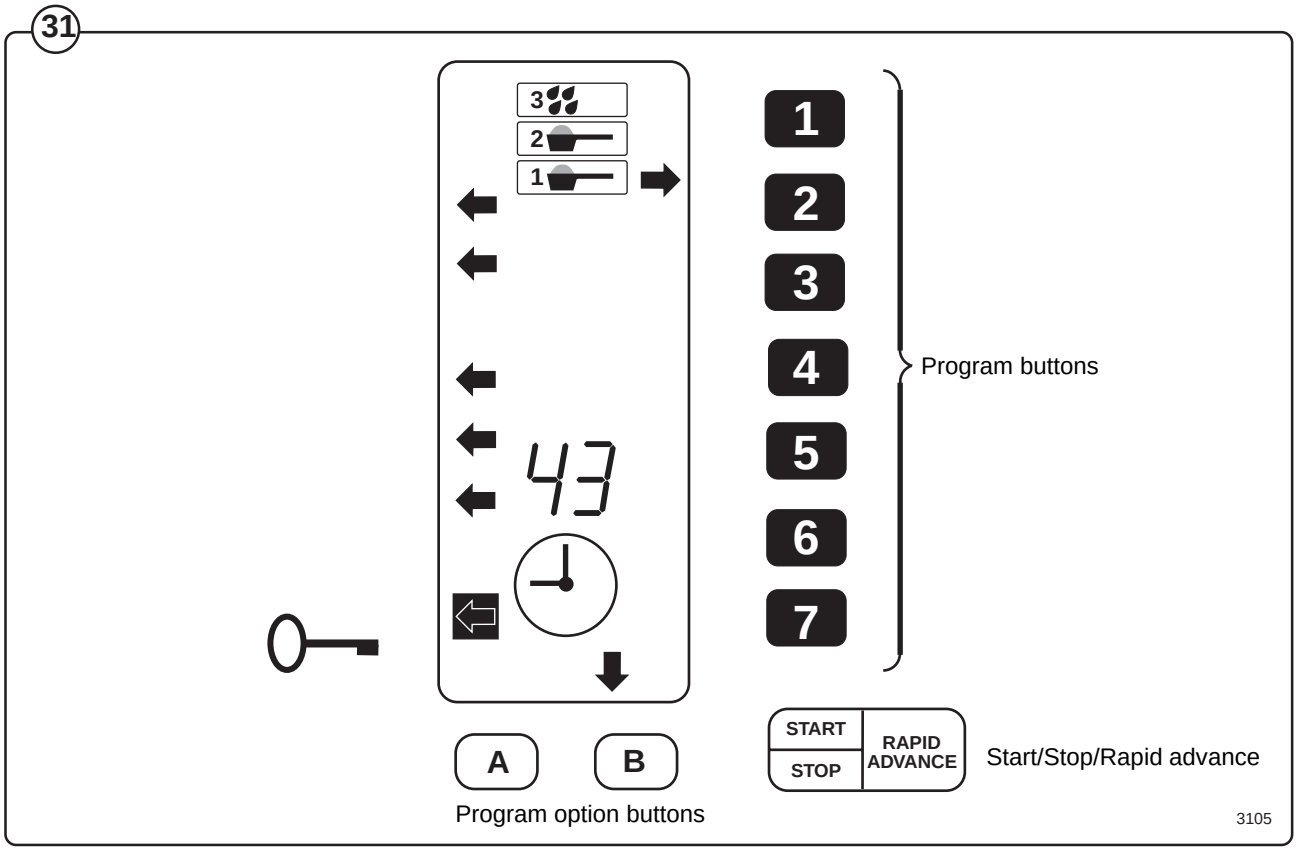
Safety rules

- **The machine is designed for water washing only.**
- **Machines must not be used by children.**
- **All installation operations are to be carried out by qualified personnel. Licensed personnel are necessary for all electric power wiring.**
- **The interlock of the door must be checked daily for proper operation and must not be bypassed.**
- **All seepage in the system, due to faulty gaskets etc., must be repaired immediately.**
- **All service personnel must be fully familiar with the operating manual before attempting any repair or maintenance of the machine.**
- **The machine must not be sprayed with water, otherwise short circuiting may occur.**
- **Fabric softener with volatile or inflammable fluids are not to be used in the machine.**

Fig. 31 The control panel consists of seven program buttons, two programs option buttons and a combined start, pause and rapid advance button. A display panel with illuminated symbols shows the chosen program, the functions that have already occured, those still to occur, and the remaining wash time.

If a fault occurs then indicators will refer the user to the fault list found under Service Information in this handbook.



Preparations

Sort the wash according to the choices shown on the control panel. Check washing tips on garment labels.

Make sure all pockets are empty and zippers are closed.

Open drum door, load articles and close door.

Washing

Fig. 32

- Set the program selector to the desired program.

  An arrow to the right will light up to show selection. The five lowest arrows to the left will light to show the stages that will be passed during the program.

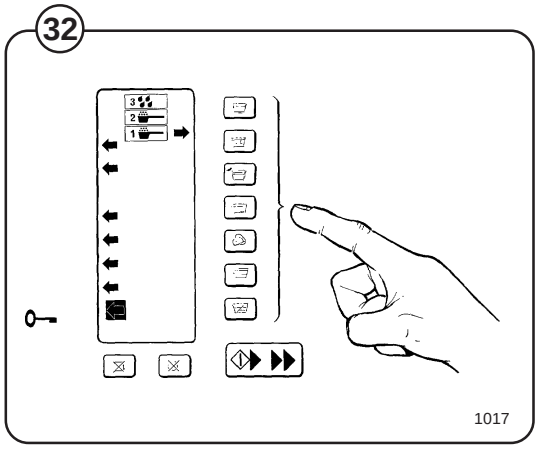
Fig. 33

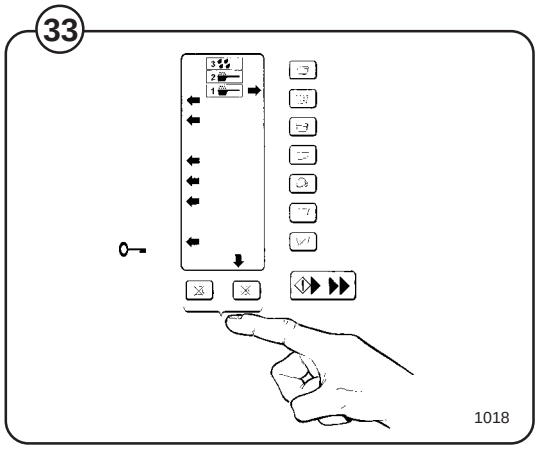
- Select other programs if desired by pushing program option buttons.

  Arrows will show selected programs.

Fig. 34

- The five top arrows to the left will indicate which of the supply signals will be activated during operation. One window in the display will also indicate that detergent will be used during the wash program.





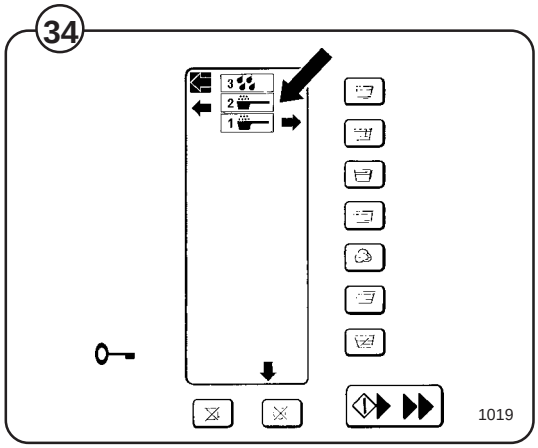


Fig. 35

- Press **START**.

  A clock dial will now appear in the display panel and two figures will show remaining wash time in minutes.

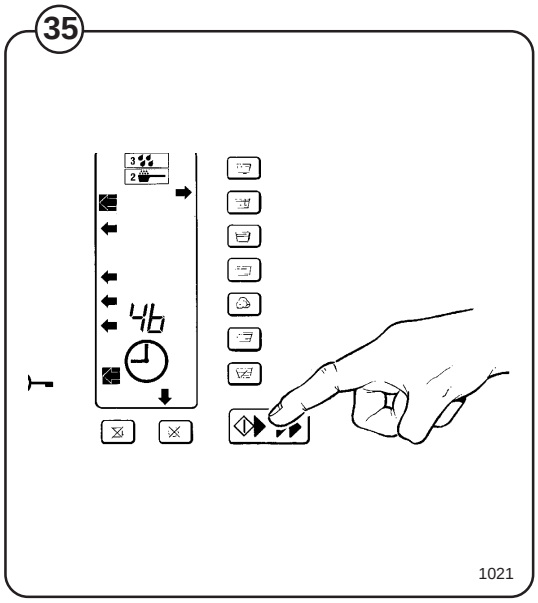
  A colon will flash for five minutes. The machine can be restarted during this time with no loss of detergent. This allows you to rectify a possible mistake (eg: wrong program or wrongly sorted wash). (See **RESTARTING**)

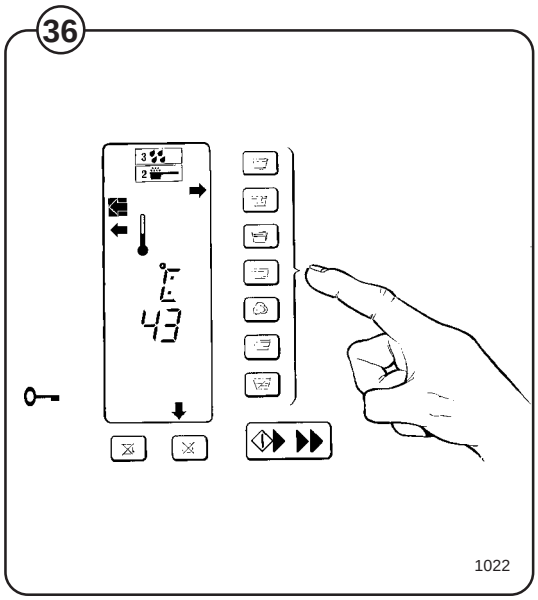
  Boxes around arrows will light up as each successive wash stage or supply signal is passed or used.

Fig. 36

After the machine has started you can check the wash temperature by pushing the program button. A thermometer will now light up and the temperature in °Cwill be shown as a number..

If the machine is not started and no buttons are pushed the program choice will disappear after five minutes and only the arrow next to the open door symbol will remain lit (resting position).





Pause

Fig. 35

If for any reason a pause is desired during the wash then the **START** button should be briefly pressed. The machine will now stop, the arrow showing the current programstep will start to flash and the water outlet will remain closed.

The program may be restarted by a brief push on the **START** button.

Rapid Advance

Portions of the program can be bypassed by using Rapid advance.

Fig. 37

- Hold the **START** button depressed until the indicators have gone past the unwanted stages.

Restarting

If you discover, within five minutes of starting, that a wrong program has been selected, or that, for example a wrong garment has been put in with the wash, then the machine can be restarted without the wash water emptying out.

A flashing colon in the display panel will indicate that restarting may proceed.

Change of program

- Push **PAUSE.**
- Choose a new program.

  Push **START.**

Restarting of same program

Fig. 38

- Push **RAPID ADVANCE** through the whole program until the key symbol is reached. Wait until the box around the arrow lights up (about 30 secs.)
- Open the door and remove the incorrect garment. Shut the door once more.
- Push **START.**

Remaining wash time will not be shown after Rapid Advance has been used.

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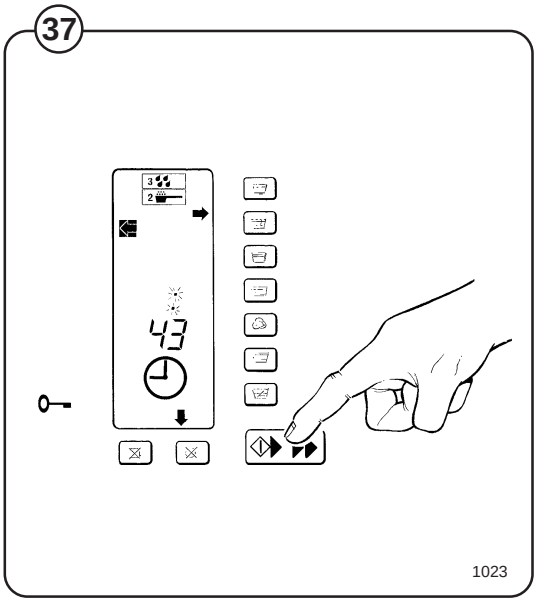

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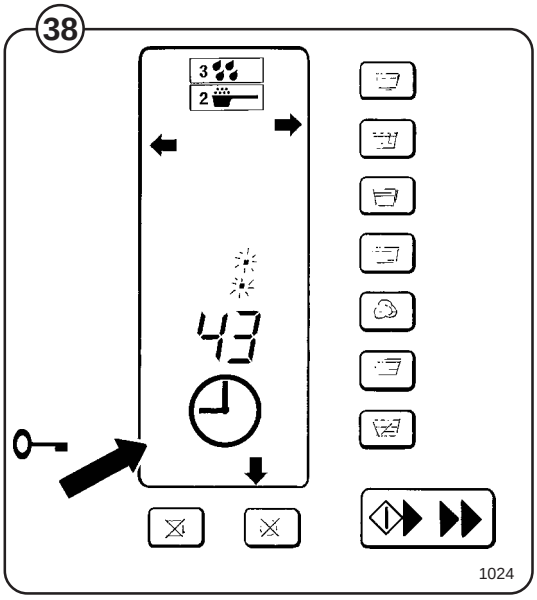

General

The door, display, start button and program selection buttons are fitted at the front of the machine.

The PC-Board and all control and indicating components, i.i. relays, level control, etc are assembled under a locked cover, easily accessible from the top of the machine for simplified servicing.

Main units

Fig. 39

1 Start button - to start the machine.

2 Program selection - push buttons for choice of different wash programs.

3 Display - for visual information regarding the status of the program.

4 Door - with automatic locking device which remains locked throughout the different wash processes.

5 Inner cylinder - of stainless steel supported at the rear by two ballraces.

6 Outer drum - of stainless steel (18/8) securely attached to the frame.

7 Wash motor - for reversing wash action and distribution. Extraction motor - for low and high speed spin action.

8 Hot and cold water valves - program and level controlled solenoid valves for filling with water, and for flushdown of detergent supply box.

9 Drain valve - timer controlled valve for draining the machine of water.

10 Siphon breaker - to prevent water in the machine from re-entering the water supply system.

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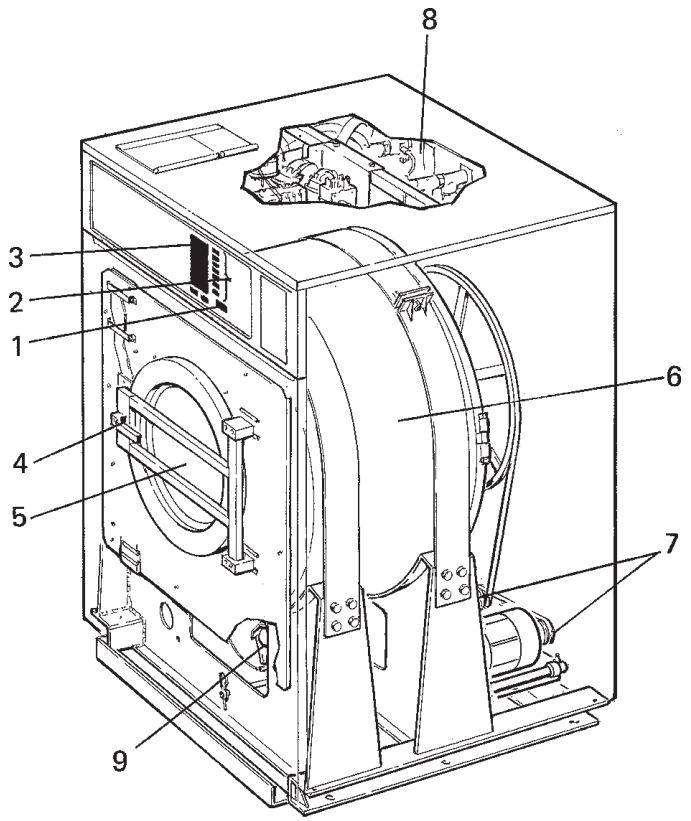

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Machine construction

Panels

The machines are equipped with a top panel made of stainless steel. The front panel is available in different colours or in stainless steel. The coloured panels are made of phosphatized steel plate. For servicing purposes, the panels can easily be removed.

Outer shell

The outer shell is made of heavy gauge surgical steel and is attached to a heavy duty, rigid head casting (back gable).

The whole assembly is mounted on a heavy gauge fabricated steel base, hot-dip galvanized for long life and corrosion resistance.

Inner cylinder

The inner cylinder is made of perforated surgical stainless steel. It is equipped with three lifting ribs and has highly-polished side sheets and back with maximum embossed perforated area to assure high flow of water and supplies through fabrics.

Scientifically correct ratio of cylinder diameter and depth assures maximum washing action.

The shaft is electrically welded to the reinforced back of the cylinder. A specially designed chromeplated sleeve bushing protects the seals from wear.

Back gable and bearing

Fig. 40 The back gable and the bearing trunnion housing are constructed of a webbed heavy casting for extra rigidity. The bearings are protected against infiltration of water by three seals. An intermediate safety outlet provides an escape for any possible condensation.

The seals are mounted on a chrome-plated, noncorrosive, specially hardened sleeve bushing that is mounted on the drive shaft to prevent wear of the seals and shaft. The main bearing is fitted tight into the bearing trunnion housing. A nut is tightened on the shaft to prevent the cylinder from moving in and out.

The extension of the bearing trunnion housing supports the rear bearing holding the shaft. A grease seals is mounted to prevent escape of grease. The bearings are permanently lubricated and need no maintenance.

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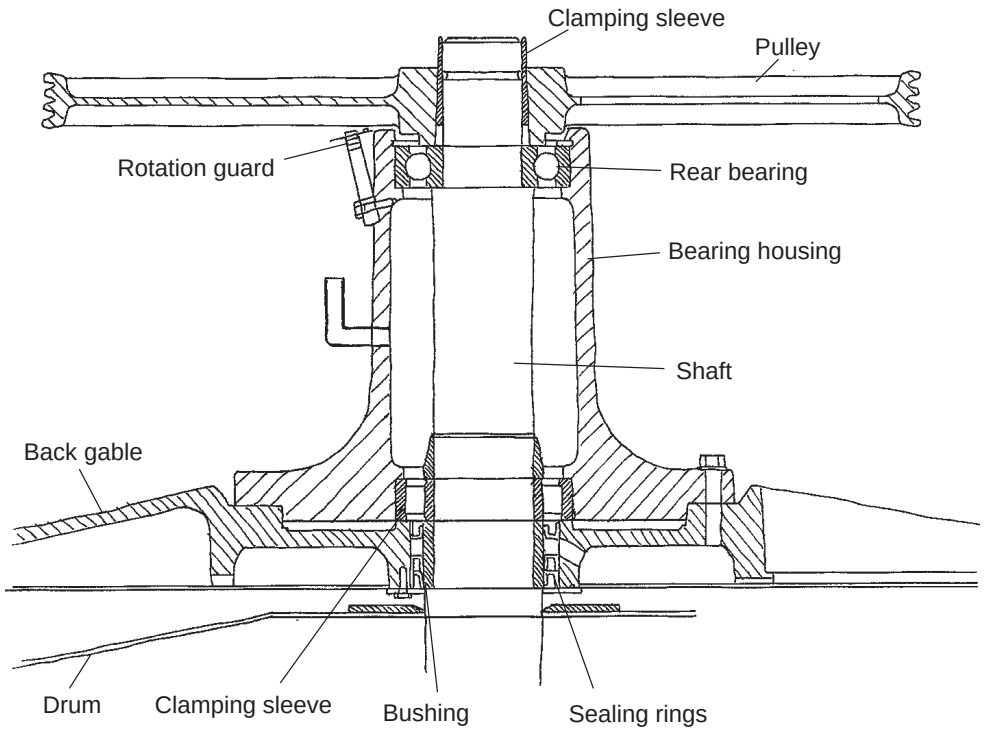

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Control unit

Fig. 41 The control panel (1), mounted at the front, includes all components necessary for operating the machine, such as display window and push-button switches.

The printed circuit board (2) with the microprocessor electronic timer is mounted just behind the control panel.

Relays (3) and delay unit (4) are located at the top of the machine, easily accessible for service.

Electrical connections to the machine are made by quick-disconnect plugs.

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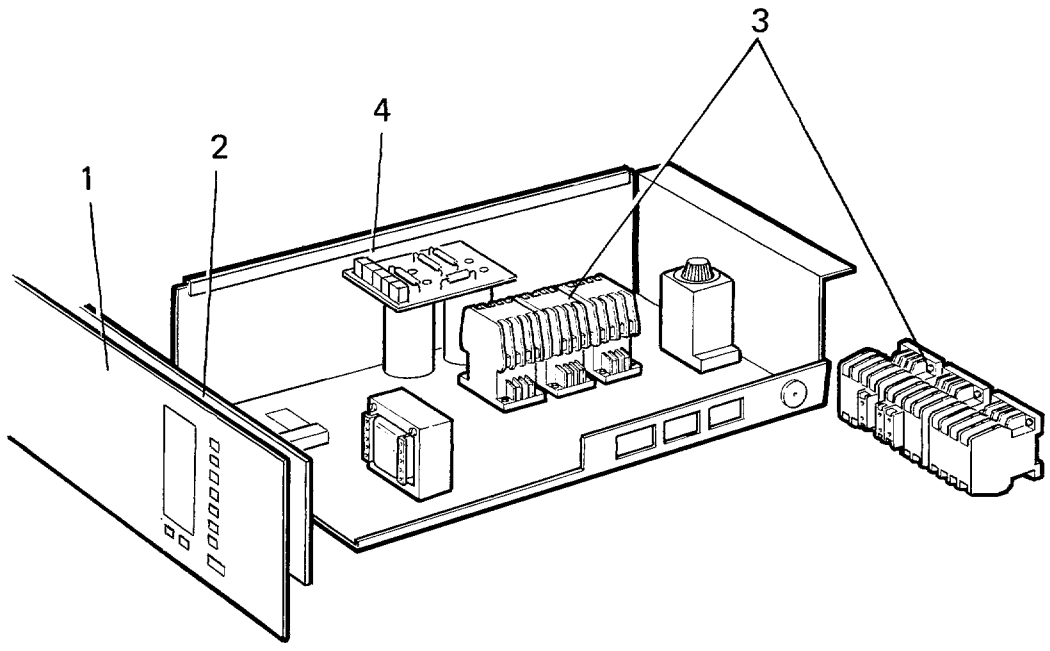

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Relays

The Selecta-28 model employs seven relays. The relays control:

- the wash windings of the wash motor
- the distribution windings of the wash motor
- the extraction motor
- the switching back to low speed extraction if too high unbalance is indicated.

Construction

Fig. (42) The body of the relay holding the stationary contacts is made of non conducting plastic. A solenoid and a contact bank hold the moving contacts. The contacts are spring-loaded to assure the correct contact pressure.

The relay is constructed for continuous operation, whether mounted horizontally or vertically.

Screw-type terminals provide perfect connections even when one or two wires have different diameters.

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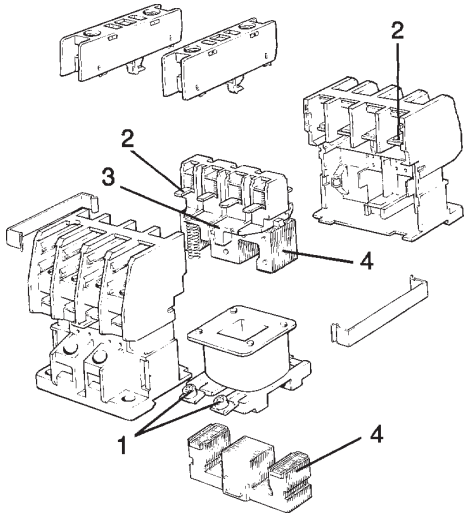

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Operation

When the solenoid is energized, the two halves of the magnet core are drawn together, pulling down the moving contacts, thus making or breaking the circuit. When the current cuts out, springs force the contact bank into its original position, thus closing or opening the circuits.

Trouble shooting

If the relay fails to operate despite power to the coil, turn off the power and check the solenoid by measuring the resistance across the terminals (1).

If the relay hums when power is applied, this indicates either a break in the insulator holding the moving contacts at the axle where it holds the top half of core (3) or a rusty core (4), which can be cleaned.

Make sure that the moving contact assembly moves freely. Always replace burnt or pitted contacts (2) ... do not reuse contacts.

Drive motors

Drive motor description

Fig. (43) The four-speed operation of the wash cylinder is achieved by two motors. One 2-speed motor for wash speed (12-pole drive) and distribution speed (8-pole drive) and one 2-speed motor for extraction speeds (4-pole drive, low speed and 2-pole, high speed). The motors are mounted on a motor bracket with the extract motor fixed to the bracket and the wash and distribution motor in slots which allow adjusting the distance between the two motors for proper belt tension by adjusting screws. For silent operation the motor bracket is mounted to the base of the machine by rubber bushings. Correct tension to the main belt, between the cylinder and the extract motor, is obtained by the weight of the motors and the motor bracket and by the spring loaded set screw.

Drive motor construction

The motor consists of stator, rotor and end-shields with ball-bearings. The stator and the rotor consists of plates, insulated from each other and welded together. The stator is provided with slots in which the 8-pole and 12-pole resp. 4-pole windings are wound. The windings are impregnated with a temperature-resistant sound-insulating resin varnish according to class B. The end-shields are die-cast. The ball bearings are permanently lubricated.

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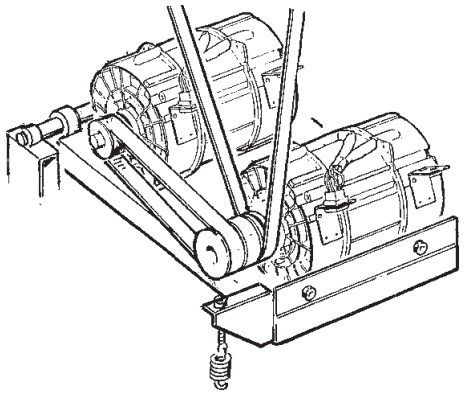

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Drive motor function

When the stator winding is charged, a magnetic field will occur, which in turn will rotate the motor at a fixed RPM depending upon the number of poles in the winding. The 12-pole winding gives the wash speed and the 8-pole winding in the same motor gives the distribution speed. The separate 4/2-pole motor gives the extraction speed. When operating with load, the speed deviates slightly from the synchronous (no-load) speed. This difference is called the slip and is usually expressed as a percentage of the synchronous speed. The motors will word satisfactory at nominal voltage +10% – -15%.

How to remove motors

Fig. (44) Loosen the spring loaded set screw. Lift the motor unit and detach the V-belts. Dismount the bracket holding the motor hinge shaft. Lift out the motor bracket with motors mounted. Loosen the mounting screws of the extract motor and the set screws. Lift off the V-belts. Now remove the mounting screws for each motor.

How to mount motors

Place the motors on the table or bench with the mounting holes upwards. Mount the mounting bracket to the wash/distribution motor. Position the other motor and fasting the mounting screws. Mount the V-belts. Tighten the belts. Mount the bracket with motors in the machine in the opposite way as outlined above in ''How to remove motors''.

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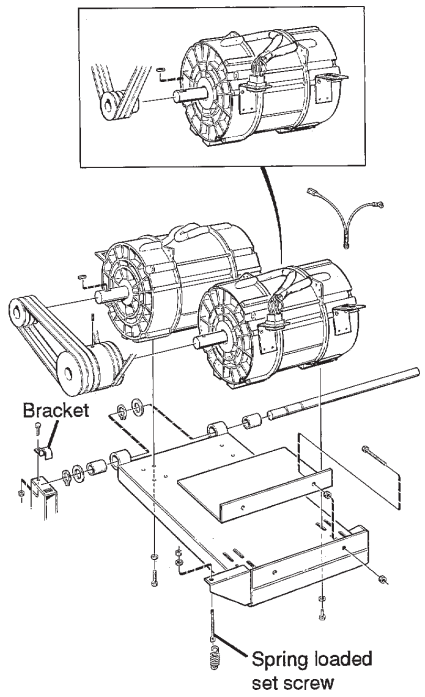

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Motor connections

Fig. (45) **Wash/distribution motor**

Fig. (46) **Extract motor**

Motor overload protector

Each motor is equipped with self-resetting, thermal overload protectors, situated one in each winding of the stator. The protectors are connected in series and will trip at a temperature of 120°C (248°F). In the event the protectors fail but the motor remains otherwise undamaged, an overload protector may be mounted in the control unit of the machine. Before making such installation check to ascertain that the windings are not damaged.

NOTE
Before connecting a separate overload protector consult the Wascomat Teletech Service.

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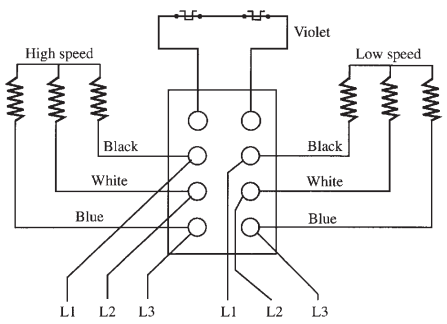

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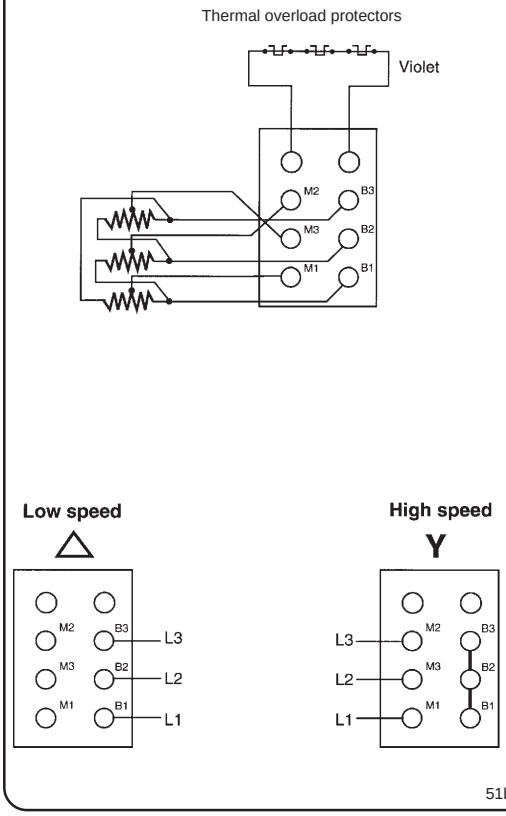

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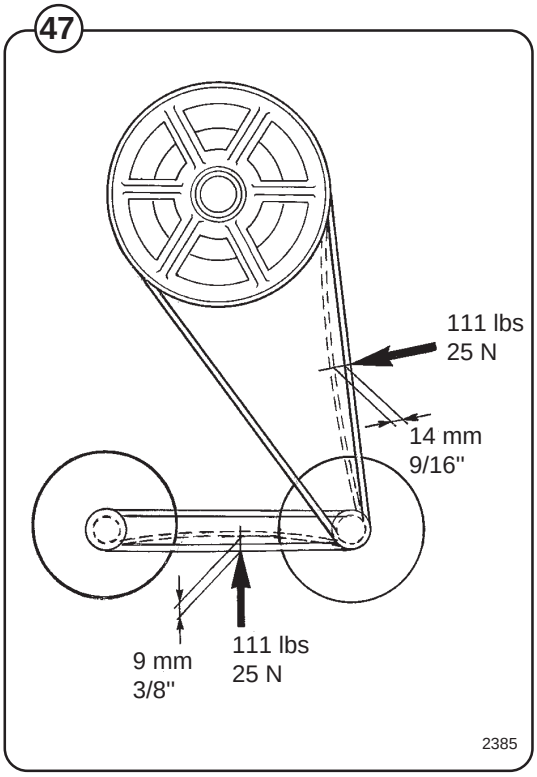
Repair instructions



Motor not running due to overheating

- Wait till motor has cooled down. Motor thermal protectors are automatically reset after appr. 30 minutes. Restart.
- Possible cause of motor protector releasing repeatedly, could be oversensitivity of thermal protector.

Very noisy motor

- Breakdown of bearings – replace bearings or motor.

Motor running slowly

- The motor is probably running on two phases – measure voltage at output of relay and at connection block.

Wash motor only runs at one of the speeds

- Check that the quick connection is correctly connected.
- Check that correct relay is being energized.

Motor locks

- Breakdown of bearings – replace bearing or motor.

Motor does not turn

- Check electrical power to motor.

Drum does not turn

- Check belt tension.

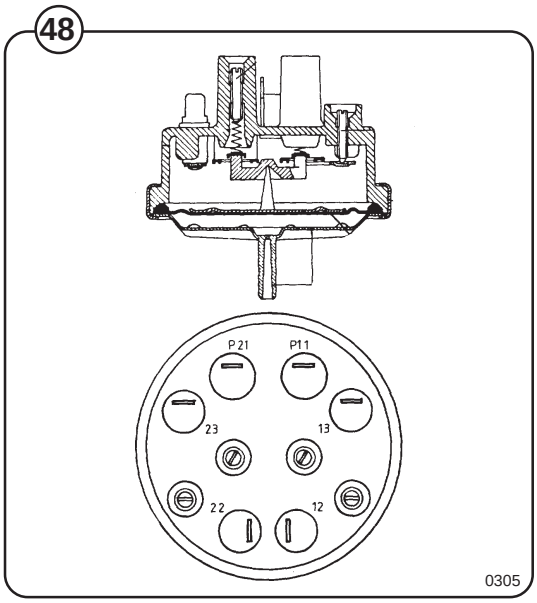
Tensioning of the V-belt

Fig. (47)

- Belt between the wash motor and extract motor
  - release and adjust backing plate to correct belt tension according to illustration. Fasten plate.
- Belt between extract motor and drum
  - remove screws for the attachment of motor bridge at extract motor side, lower motor bridge to correct belt tension according to illustration and fasten bridge.

Water level controls

Fig. 48 One double-level pressure switch is used to control the correct water levels during various cycles of the washing program.



Adjustment

All pressure switches are factory-calibrated to meet specific requirements. The trip level for any one pressure switch can be changed only within narrow limits because each trip range requires a different set of springs.

Water level

As a guide for checking the level control for proper functioning, the low level should be at the bottom of the door glass, and the high level approximately three inches above it.

Soap supply box

Fig. 49 The three-compartment soap supply box is located at the top of the machine. Viewed from the front, the compartments are marked with figures 1, 2 and 3.

Powder supplies

Compartment 1 and 2 are used for adding detergent to the wash. Compartment 3 is used for adding fabric softener.

Liquid supplies

Use wascomat top mount supply injector connections.
Compartment 2 only is flushed down.

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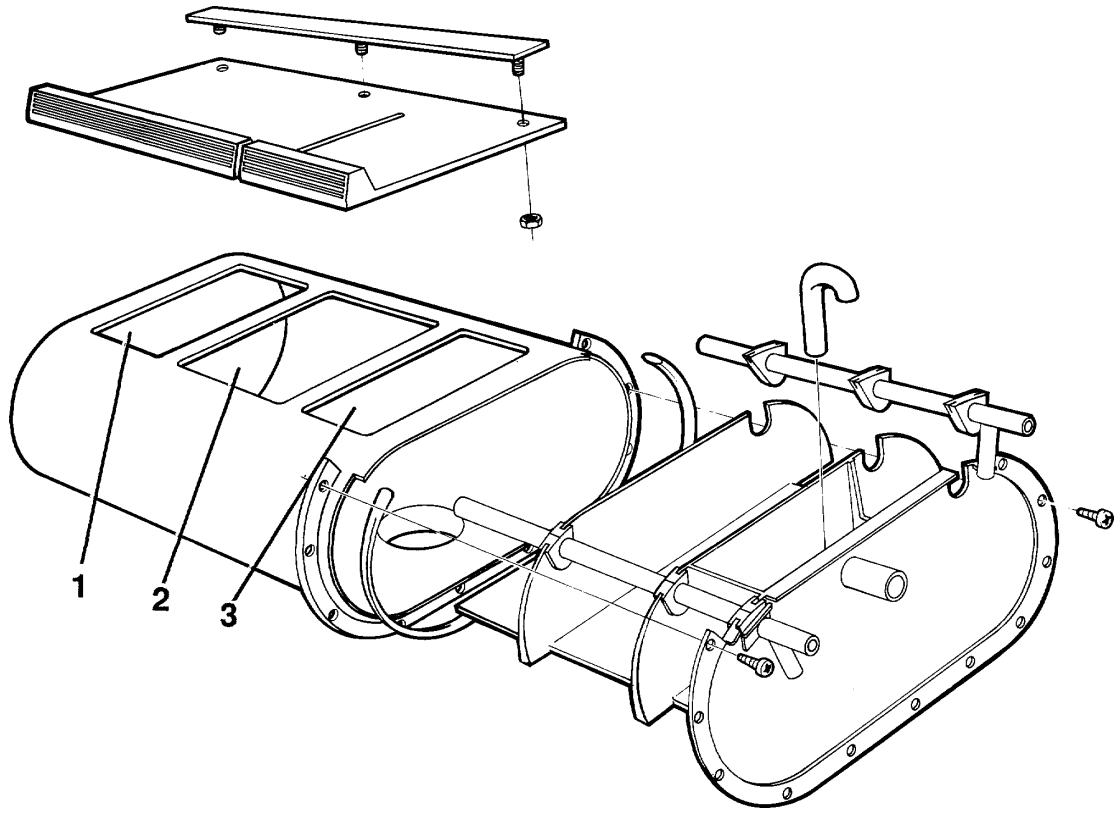


Supply injection valve

Construction

Fig. (50) The valve has a single-inlet with either one, two or three outlets, each with its own solenoid coil.

The body is made of heat-resistant polyamid plastic and the solenoids encased in water-tight plastic. The electrical connector terminals are spade lugs.

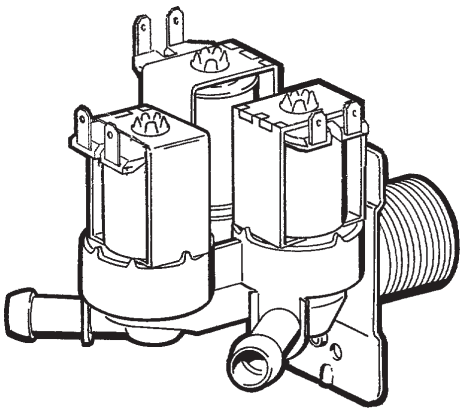
A filter screen on the inlet side prevents dirt from entering the valve. Flow restrictors can be placed at either the inlet or any of the outlets.

Operation

Fig. (51) When the solenoid is energized, the spring-loaded plunger is drawn up and the pilot valve in the centre of the diaphragm open. Because of the difference in diameter between the pilot valve opening and the ventilating hole in the diaphragm, the pressure above the diaphragm drops to a point where the admission pressure below the diaphragm can lift the diaphragm, thus opening the valve.

When the current to the solenoid is cut off, the plunger spring will press the plunger against the pilot opening of the diaphragm. The pressure above the diaphragm then rises to correspond to the water inlet pressure and the pressure of the spring will close the valve.

50



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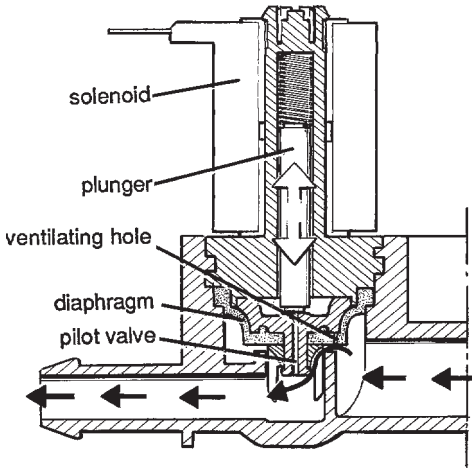

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Repair instructions

Limescale can block the hole in the valve diaphragm and interfere with the function of the valve.

Fig. 52 It is therefore advisable to dismantle and clean the valve at certain regular intervals. The frequency depends on operating conditions and the level of contamination in the water.

If the valve does not open

- Check that power is supplied to the coil.
- Check the coil with an instrument to determine whether there is a break or a short circuit.
- Dismantle the valve (see below) and check the openings in the valve diaphragm.
- Check the inlet strainer and clean as required.
- Undo the coil and clean the surfaces of the magnetic core.

If the valve does not close

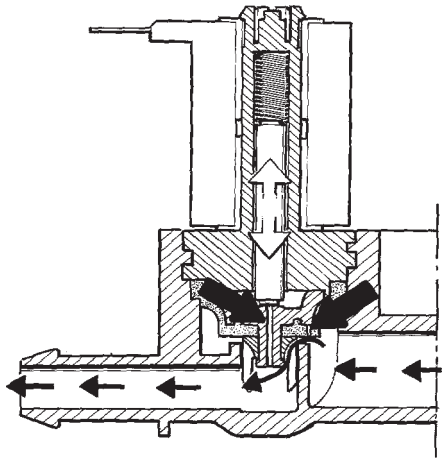
- Check that the coil is not live. The valve is normally closed when the magnet is not energised.
- Check the return spring.
- Check the diaphragm (pilot pressure opening).

Dismantling the valve.

Fig. 53
- Pull the coil straight upwards. Use a screwdriver if necessary to carefully undo the coil.

Fig. 54
- Use the tool supplied (attached to one of the hoses when the machine is delivered) to open the valve housing. Slide the tool over the protruding plastic sleeve to that the pegs on the tool engage the corresponding sockets in the valve housing.
- Use a spanner or a pair of pliers and unscrew the upper part of the valve housing.

52



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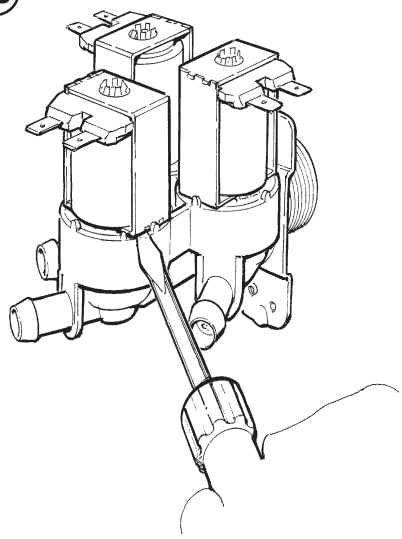

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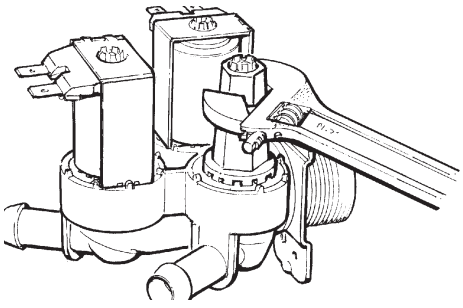


0310

Inlet valve for SELECTA 28 EXSM 350

Fig. 55 The water inlets have brass bodies with larger cross section of the outlet in order to achieve a shorter filling time for the machine.

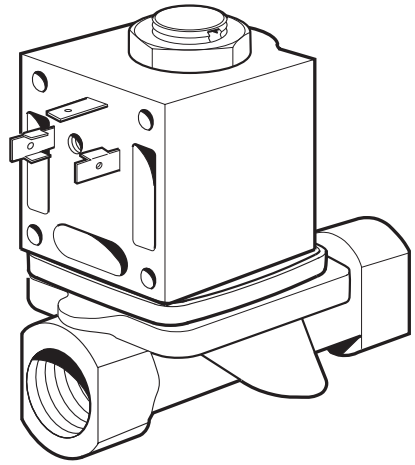
Construction

Fig. 56 The valve housing is made of pressed brass. The spring-loaded plunger is made of stainless steel and located at its lower end.

Operation

The valve is automatically operated by means of a rubber diaphragm and a pilot valve in exactly the same way as the supply injector valve.
NOTE: To strip, clean, re-assemble and troubleshoot the inlet valve, follow the instructions outlined for the supply injector valve.

55



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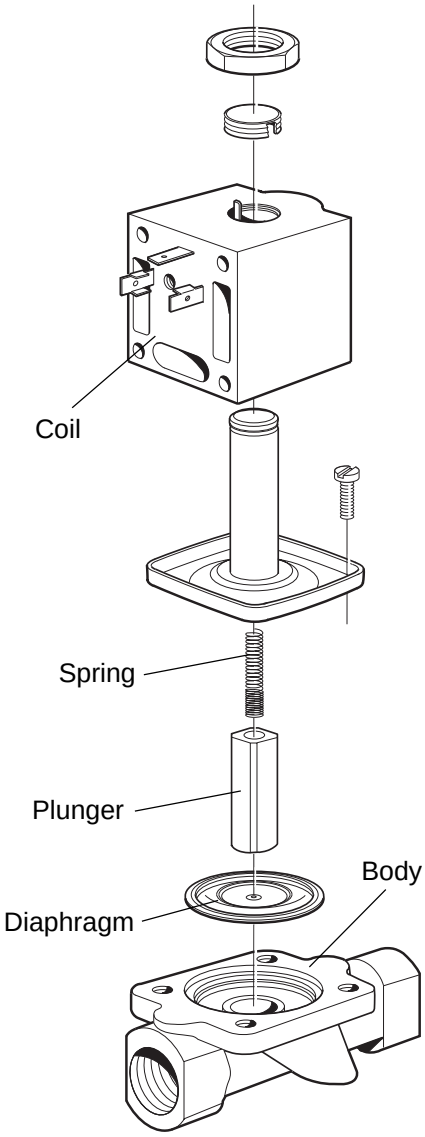

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Drain valve

Description

Fig. (57) The drain valve is operated by using the pressure in the cold water inlet. A tube (1) is connected between the cold water inlet and a solenoid valve (2). When the solenoid valve is activated, it opens and allows water to flow into the feeder tube (3). The water presses up a piston (4), which uses the pressure lid (5) to close the drain valve rubber membrane. When the solenoid valve cuts out, the water pressure and the springs (7) on the lid push the piston back, allowing the water to pass the solenoid valve and drain out via the return tube (8).

Trouble shooting

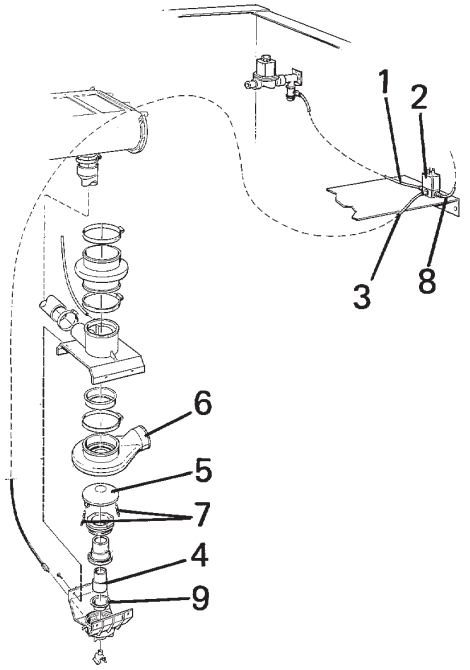
If the drain valve doesn't close:

- Check that the solenoid valve (2) receives electricity.
- Check that the solenoid valve and the tubes are clear by:
  - removing the drain hose (3).
  - Check that water exits the hose when the valve is activated.
- Check that the diaphragm (9) is undamaged.

If the drain valve doesn't open:

- Check that the return tube (8) is open.
- Check that the piston (4) doesn't seize.

57



2404

Maintenance

Preventive maintenance has been reduced to a minimum by the careful design of reliable components and material.

However, the following measures should be taken at regular intervals and in proportion to the hours of service.

IMPORTANT!
Make certain that all electrical power to the machine is shut off before removing top or rear panels.

Daily

- Check the door lock and interlock before starting operations.
- The soap supply box should be cleaned at the end of each working day as follows:
  - Use a spatula to scrape loose any detergent which may have stuck on the inside of the dispenser.
  - Flush the loosened detergent with warm water.
  - Wipe dry and leave lid open.

Fig. 58

- Check that the drain valve does not leak and that it opens properly.
- Check that the door does not leak. Clean residual detergent and foreign matter from the door gasket.
- Wipe the outside of the machine.
- When the machine is not in use, leave door slightly open to allow moisture to evaporate.

Weekly

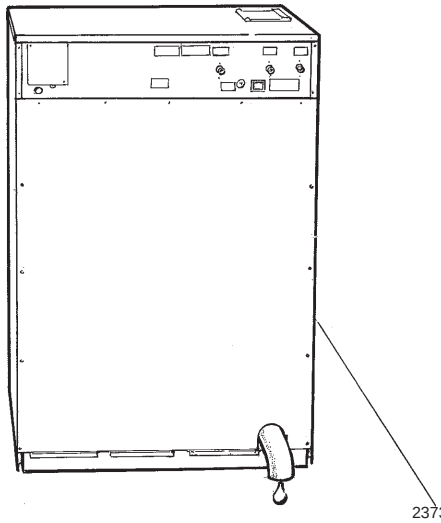
- Remove hose from drain connection and clean inside drain valve.

Every three months

Fig. 59

- Remove the cover plates of the machine and check that the V-belt of the wash motor is undamaged and correctly tensioned.
- Check that all tubing, piping and connections are free from leaks.
- Wipe and clean the inside of the machine, making sure that the control components are protected from moisture and dirt during the cleaning operation.

58



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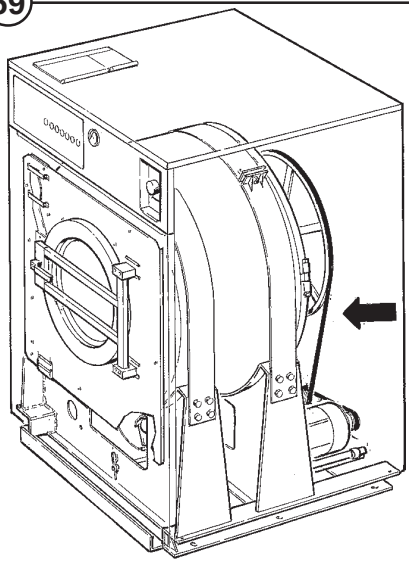


Conclusion

Service Information

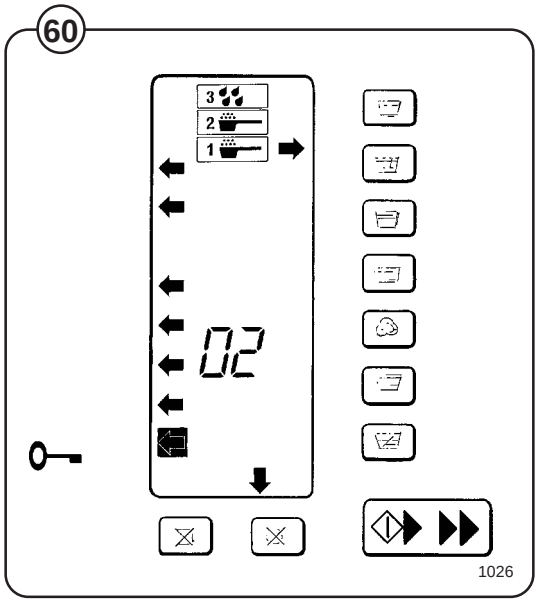


Fig. (60) If there is a mains power failure the machines' memory will remember the selected program for about 8 - 10 minutes. The machines will restart automatically when power is restored.

Program error is indicated by a number code in the display panel.

For codes 01 and 02 a new start may be attempted directly after the fault has been rectified. In the case of other codes the mains switch must be turned off and on again before the machines can be restarted.

If codes 03 - 09 appear, contact authorised personnel.

Fault Code	Cause of fault
01	Water level low. Open shut off valve. Try again.
02	Door lock defective. Open dooor and shut again. If fault remains, replace door lock.
03	Short circuit in or to the temperatur sensor
04	Too high temperature, check temperature sensor and cable
05	Drainage defective. Check drain valve and drain line.
06	Program defect.
07	Heating defective.
08	Drainage defective.
09	Out of balance switch defective

Built in service program

In order to facilitate function checks or possible fault finding, a service program has been built into the machine. This program should only be used by qualified service personnel.

Setting of service position

- Remove the machine's top cover.

Remember that the machine is under power when price programming is made.

Fig. 61

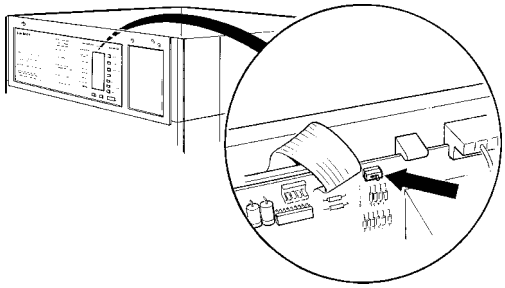
- Set the service switch to service mode. (The switch located on the circuit board behind the control panel display window).

Fig. 62

This transforms the various program selection buttons into a numerical pad. Numbers 1 7 are on the program choice buttons, 8 and 9 on the A-B buttons. The START button serves as an ON/OFF switch.

When in service mode the number 0 does not exist. That's why only figures 11–19, 21–29 etc are used.

61



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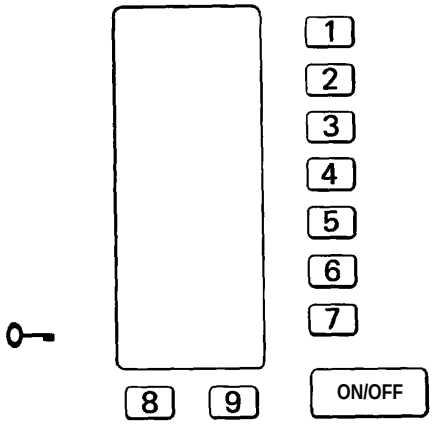

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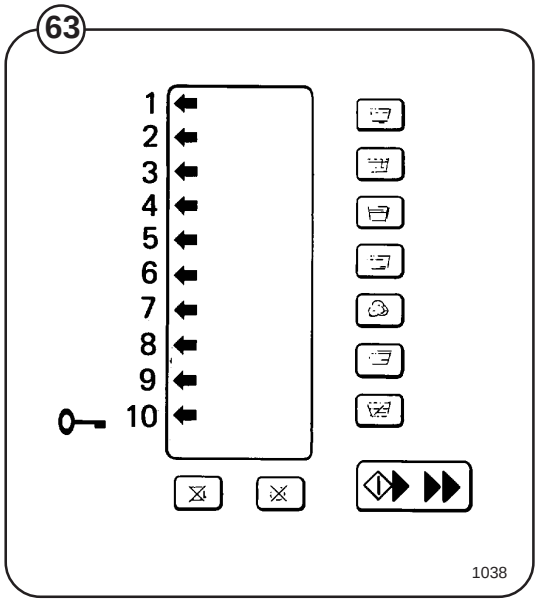
Function checks

Fig. (63) The program indicator on the display window indicates certain 31 inputs by lighting arrows. For example, arrow number 5 is lit when the door closes. This shows that the door's micro switch is operating correctly.

The table below shows the inputs displayed by the program indicator.

Indicator	Function
1	-
2	-
3	-
4	-
5	Door lock
6	Price reduction
7	-
8	-
9	-
10	ON/OFF (function entered using the various buttons - see below).



It is also possible to simulate certain functions by using the various program selection buttons on the control panel. The chosen function can then be turned on and off using the START button. Number 10 on the program indicator shows if the function is on or off.

The table on the next page shows which functions can be simulated, along with the number code for each.

Code	Function
11	Detergent supply 1
12	Detergent supply 2
13	Detergent supply 3
14	Detergent supply 4
15	Detergent supply 5
16	Connection valve, hot water
17	Connection valve, cold water
18	Connection valve, hard water
19	Heating (The temperature itself is shown in the display window, not the 19 code).
21	Motor, wash (clockwise)
22	Motor, wash (counter-clockwise)
23	Distribution (counter-clockwise)
24	Extraction (counter-clockwise)
25	Not used
26	Drain valve
27	Door lock.
28	Not used

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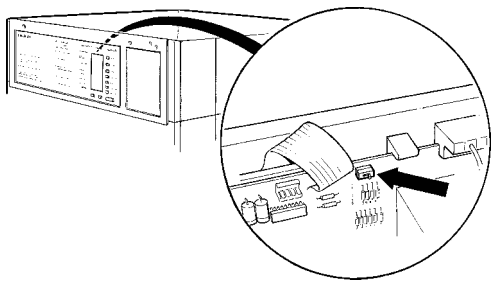

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The actual temperature reading is shown in the display window - NOT CODE 19.

Leaving service mode

Fig. 64

- Flip the service switch on the circuit board back to OFF.
- Replace the machine’s top cover.
- Select desired washing program.

Trouble-shooting

If machine does not start

Fig. 65

A Check circuit breaker in the power feed line to the machine.

B Check door safety switches.

C Check glass cartridge fuses.

D Check for fault indication on display (see under the heading "Service information").

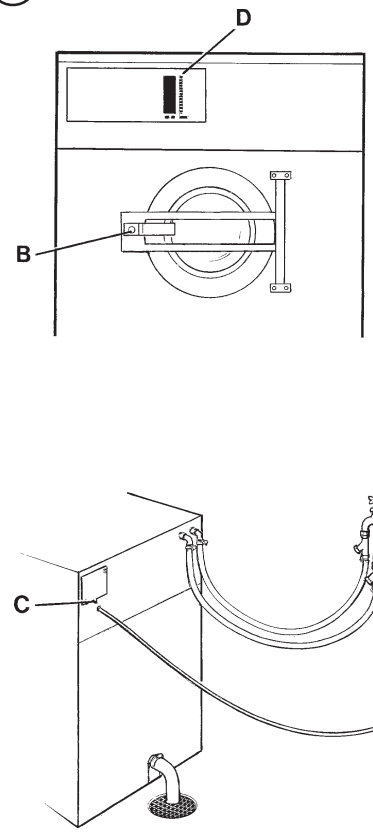
If water does not drain

Fig. 66

A Check for fault indication on display (see under the heading "Service information").

B Disconnect drain hose connected to drain line. If full flow of water comes out, the problem is in the main waste line. If water flow is slow, the problem is accumulation of foreign materials between drain valve and shell outlet of machine. Clean valve body of any foreign objects found.

65



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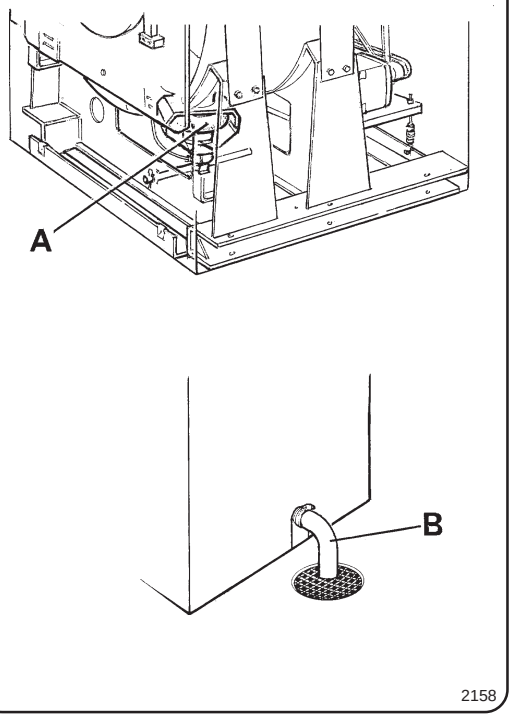


If machine does not extract

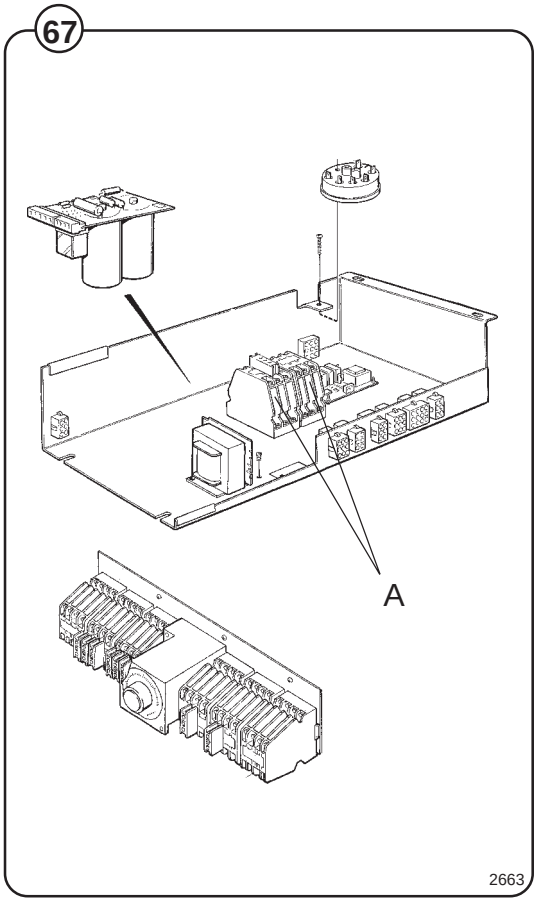
Fig. 67 A Check extract relays and relay coils for proper operation.

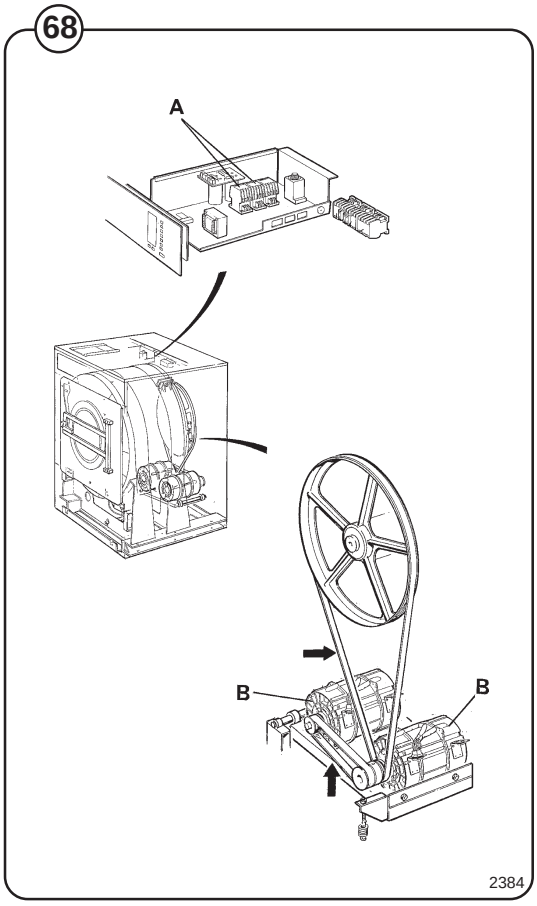
If motor does not operate at wash speed.

A Check wash relays.

B Check motors and V-belts.

Fig. 68 C Review procedures outlined under section "If machine does not start" above.





If machine runs slowly on wash speed or there is a slapping or thumping noise.

Fig. 69 A Replace V-belts

If a metallic noise can be heard at rear of machine.

Fig. 70 A Tighten lock screw on pulley on motor shaft.

If the door is leaking.

Fig. 71 A Check door gasket. If gasket is in good condition, check the tension between door gasket and door frame and adjust.

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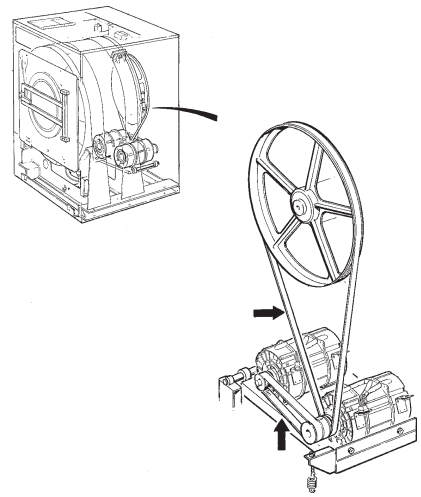

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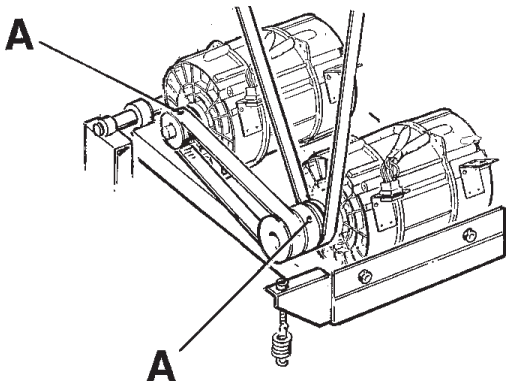

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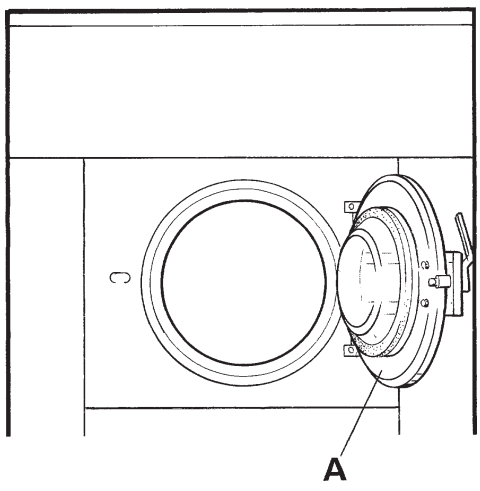

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If there is leaking around the glass.

Fig. 72

A Re-cement glass in door gasket, if worn.
Replace door gasket if worn.

If water does not enter the machine.

Fig. 73

A Check the coils on inlet valves.

B Check wires leading to electric coils.

C Be sure manual shut-off valves are in open position.

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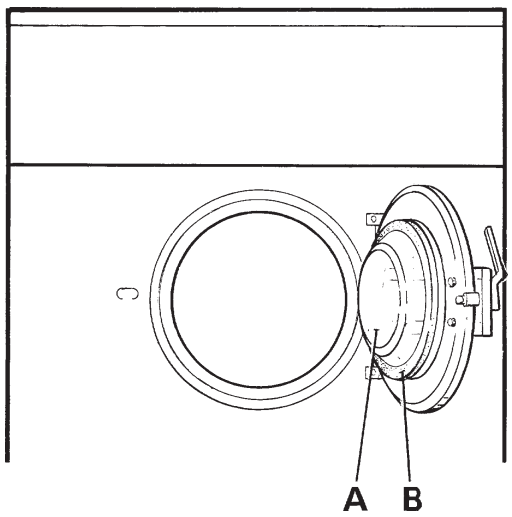

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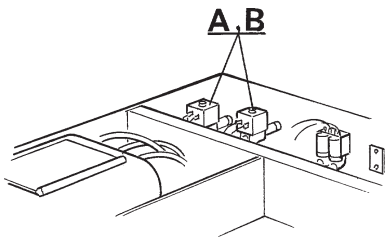

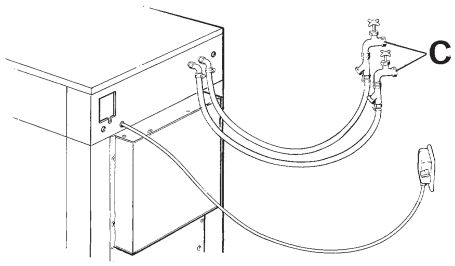

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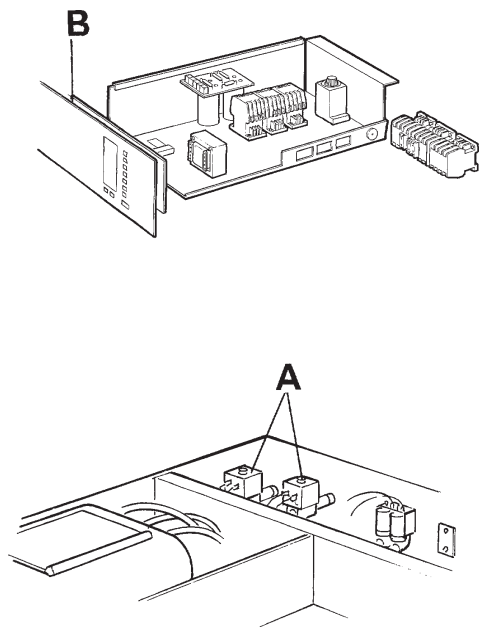
If water continues to fill without stopping.

Fig. 74 A Check inlet valves for dirt underneath the valve diaphragm. To localize, shut off power. If water continues to flow, inlet valves have foreign material in them and should be thoroughly cleaned.

If water continues to flow without filling machine.

Fig. 75 A Check seating of drain valve.

74



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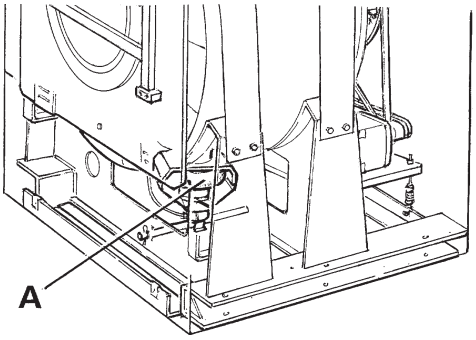

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If machine vibrates excessively.

Fig. 76

A Check the unbalance detector switch.

If either safety fuse blows at the beginning of the cycle.

Fig. 77

A Replace fuse.

B Disconnect wires leading to the delay circuit of the door lock. Replace fuse and start. If the machine now works, replace delay circuit.

The electronic timer has a built in service program that can be useful when troubleshooting. Contact service personnel for further information.