OPERATING & MAINTENANCE MANUAL
WASCOMAT SELECTA
S28/125
S28/185

471 1562-69/03
00.23

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.

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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 machine MUST be securely bolted according to the installation instruction to reduce the risk of fire and to prevent serious injury, or damage to the machine.**
   Pour reduire les risques d'incendie, fixer cet appareil sur un plancher beton sans revetement.
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 machine MUST be connected to a dedicated electrical circuit to which no other lightning unit or general purpose receptacle is connected. Use copper conductor only.**
   Utiliser seulement des conducteurs en cuivre.
4. **This 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 FAILS TO OPERATE PROPERLY, PLACE THE MACHINE OUT OF ORDER UNTIL THE PROBLEM IS CORRECTED.**
5. **Disconnect power prior to servicing of machine.**
   Deconnecter cet appareil del'alimentation avant de proceder a l'entretien.
6. **To remove top panel, first remove screws at the rear. When remounting the top, reinstall them. To remove the top panel on 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

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LOCATED ON THE DOOR:

WARNING !

DO NOT ATTEMPT TO OPEN DOOR
UNTIL PROGRAM HAS FINISHED AND
DRUM HAS STOPPED ROTATING.

471 7651-17

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

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

   THE MACHINE(S) MUST 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 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 Hotline - 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!

Contents

The manufacturer reserves the right to make changes to design and material specifications, without notifications.

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.**
- **Fabric softeners with volatile or inflammable fluids are not to be used in the machine.**

Consignes de sécurité

- **La machine est conçue pour le lavage à l'eau exclusivement.**
- **La machine ne peut être utilisée par des enfants.**
- **Tous les travaux d'installation doivent être effectués par une personne qualifiée. Tous les câblages électriques doivent être réalisés par un électricien diplômé.**
- **Le verrouillage du hublot doit être vérifié chaque jour et ne peut être neutralisé.**
- **Tout fuite du système, due à des joints défectueux etc., doit être réparée sans délai.**
- **Tous les membres du personnel d'entretien doivent être parfaitement familiarisés avec le manuel d'entretien avant d'entreprendre une réparation ou un entretien de la machine.**
- **Ne jamais asperger d'eau la machine sous peine de risquer un court-circuit.**
- **Ne pas utiliser dans la machine des adoucissants textiles contenant des liquides volatils ou inflammables.**

Introduction

Fig. 1

The Selecta 28 model washer/extractor has been developed to meet 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.

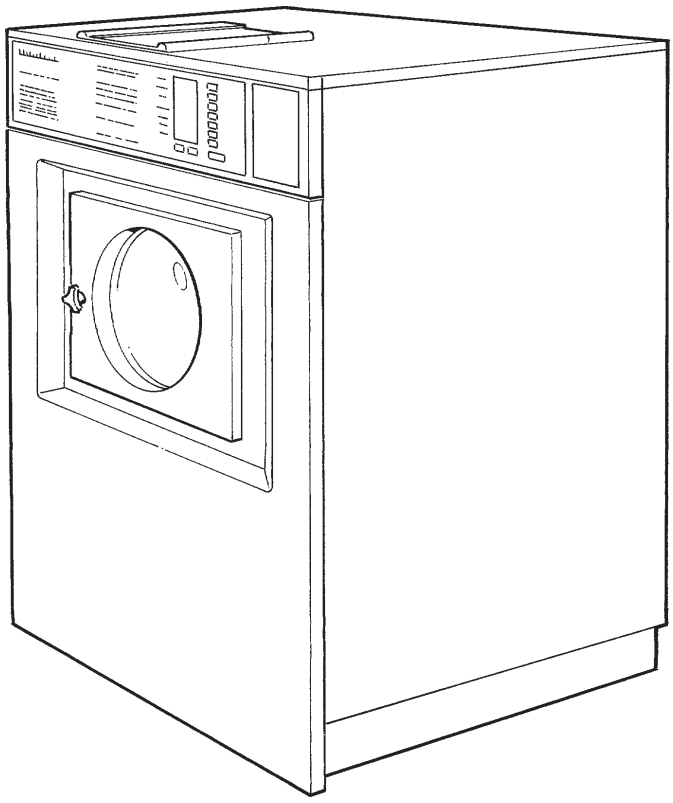
The Selecta offers 28 pre-set wash programs which can be selected by means of push buttons. These programs are designed to suit a variety of fabrics and offer different water temperatures, water levels, wash periods and supply injection. The machine is designed for connection to hot and cold water supplies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

1



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Technical data

Technical data Wascomat Selecta S28/125

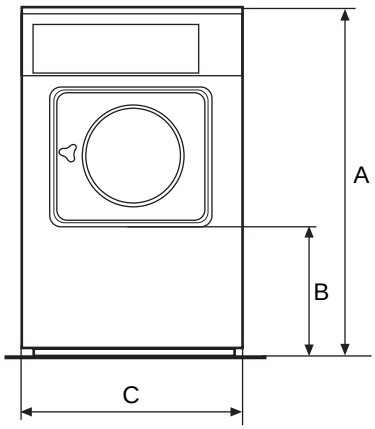
Dry load capacity	up to		35 lbs
Overall dimensions	Width	745 mm	29 5/16 in
	Depth (at the top)	915 mm	36 in
	Height	1196 mm	47 4/6 in
	Net weight	210 kg	462 lbs
Inner drum	Diameter	620 mm	24 1/2 in
	Depth	520 mm	20 1/2 in
	Volume	157 litre	5.65 cu.ft
Speed	Wash		52 r.p.m.
	Extraction		500 r.p.m.
G-factor	During wash		0.9
	During extraction		87
Floor loading	Dyn force	2.4±4.8	576±1152 lbs. force
Motor speed	During wash		360 r.p.m.
	During extraction		3450 r.p.m.
Rated power	Motor, wash 3-phase		300 W
			0.4 HP
	Motor, extract. 3-phase		1300 W
			1.8 HP
	Motor, wash 1-phase		280 W
			0.4 HP
	Motor, extract. 1-phase		1300 W
Voltage requirements	Choice:		
	208-240 V 1-phase 60 Hz or		
	208-240 V 3-Phase 60 Hz		
			1.8 HP
Overcurrent protection	Three-phase		15 A
	Single-phase		20 A
Water connections			
Recommended water pressure	2-6 kp/cm^2	25-85 psi	
Hose connection, water	20 mm	3/4"	
Hose connection, drain	74 mm	3"	

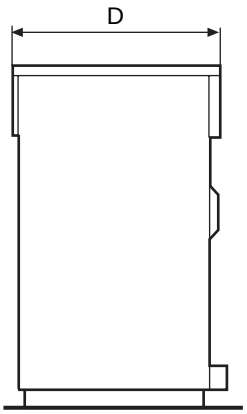
Technical data Wascomat Selecta S28/185

Dry load capacity	up to		50 lbs
Overall dimensions	Width	827 mm	32 9/16 in
	Depth (at the top)	960 mm	37 13/16 in
	Height	1315 mm	51 3/4 in
	Net weight	264 kg	582 lbs
Inner drum	Diameter	700 mm	27 9/16 in
	Depth	600 mm	23 5/8 in
	Volume	230 litre	8.1 cu.ft
Speed of rotation	Wash		45 r.p.m.
	Extraction		455 r.p.m.
G-factor	During wash		0.8
	During extraction		81
Floor loading	Dyn force	3.1±5.2 kN	744±1248 lbs. force
Motor speed	During wash		360 r.p.m
	During extraction		3480 r.p.m
Rated output power	Motor, wash 3-phase		400 W
			0.55 HP
	Motor, extract. 3-phase		2000 W
			2.7 HP
	Motor, wash 1-phase		400 W
			0.55 HP
	Motor, extract. 1-phase		1800 W
			2.4 HP
Voltage requirements	Choice:		
	208-240 V 1-phase 60 Hz		
	or		
	208-240 V 3-Phase 60 Hz		
Overcurrent protection	Three-phase		15 A
	Single-phase		20 A
Water connections			
Recommended water pressure	2-6 kp/cm^2		25-85 psi
Hose connection, water	20 DN		3/4"
Hose connection, drain	74 mm		3"

Technical data

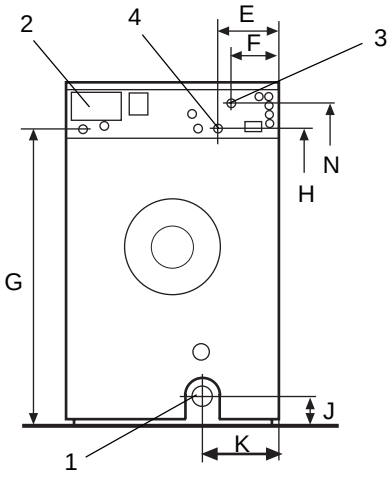
Outline and dimensions





	S28/125		S28/185	
	mm	inches	mm	inches
A	1196	47 1/16	1315	51 3/4
B	465	18 5/16	540	21 1/4
C	745	29 5/16	829	32 9/16
D	915	36	960	37 13/16
E	205	8 1/16	205	8 1/16
F	160	6 5/16	160	6 5/16
G	1040	40 15/16	1160	45 5/8
H	1035	40 3/4	1155	45 1/2
J	100	3 15/16	100	3 15/16
K	270	10 5/8	260	10 1/4
L	-	-	295	11 9/16
M	-	-	1215	47 13/16
N	1135	44 11/16	1255	49 7/16

1. Drain outlet
2. Electrical connections
3. Cold water inlet
4. Hot water inlet



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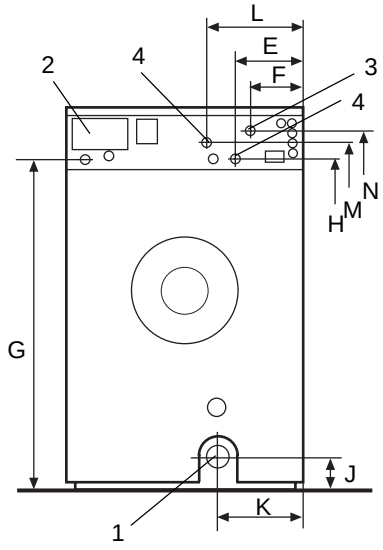

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Installation

Machine foundation

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 can be provided by Wascomat.

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. A prefabricated steel base is available for mounting of machines without an additional foundation.

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 12 inches, respectively.

Fig. (3)

2. Break up the floor to a depth of 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 3,000 PSI min. concrete to form foundation. Make sure the foundation is level.

Fig. (4)

5. <u>Use the template</u> to position the foundation bolts correctly - bolts are to extend 1 1/2" above concrete.

   NOTE: A prefabricated steel frame, designed to be placed in the concrete instead of the individual mounting bolts, is available.

	SE125		SE185	
	mm	inches	mm	inches
A	508	20	600	23 5/8
B	915	36	960	37 13/16
C	965	38	1010	39 3/4
D	115	4 1/2	115	4 1/2
E	600	23 5/8	700	27 9/16
F	815	32 1/16	900	35 9/16
G	786	30 15/16	922	36 1/8
H	991	39	1090	42 7/8
I	281	11	236	9 5/16

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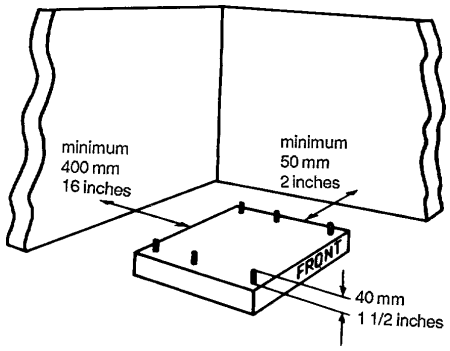

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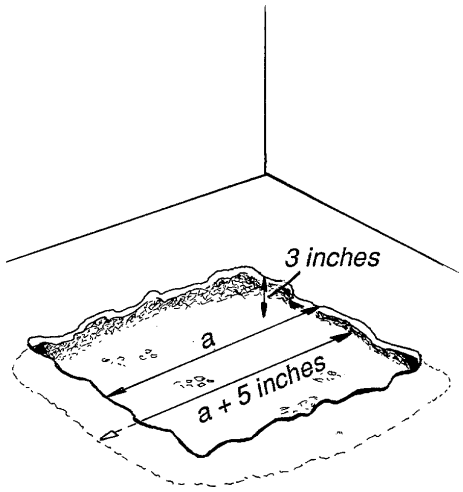

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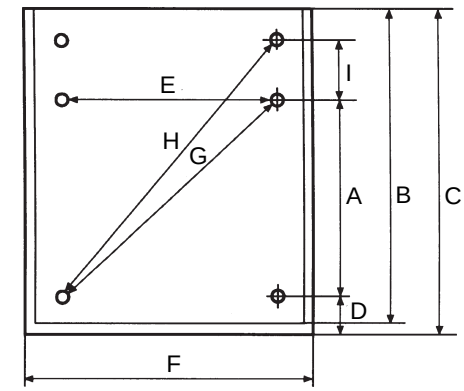

B = machine outline to edge of front panel
C, F = minimum foundation pad for one machine

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Mechanical installation

Fig. 5

- Before mounting the machine 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 since this can damage the door and door interlock.
- Check that the machine is level front-to-rear and side-to-side and standing firmly on the six supporting points. Spacing washers must be mounted if one or more of these points is not resting against the floor/foundation.

Fig. 6

Fig. 7

- Place flat washers over the foundation bolts and secure the machine in position by tightening the self-locking nuts. See illustration 7 below.
- Check and tighten the nuts every week for the first month to compensate for any setting of the foundation.

NOTE

If the side panels of the washer vibrate during extraction remove the shipping security which connects the top of the cylinder to the upper section of the back panel. This is used to prevent shipping damage but has no function after the machine is installed.

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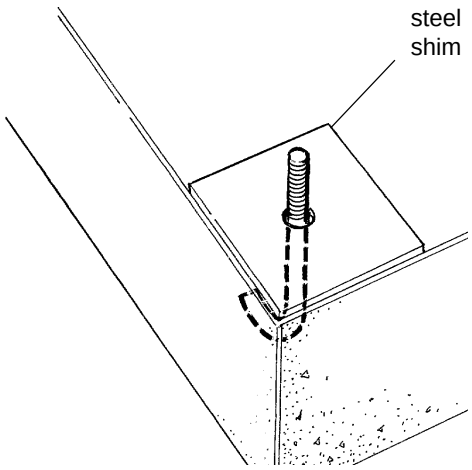

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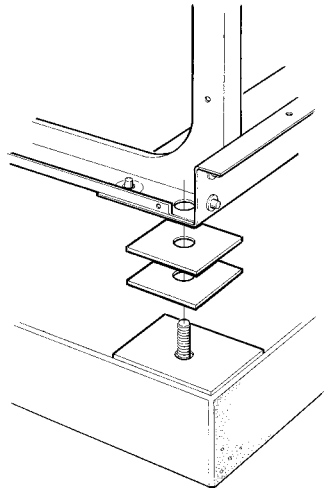

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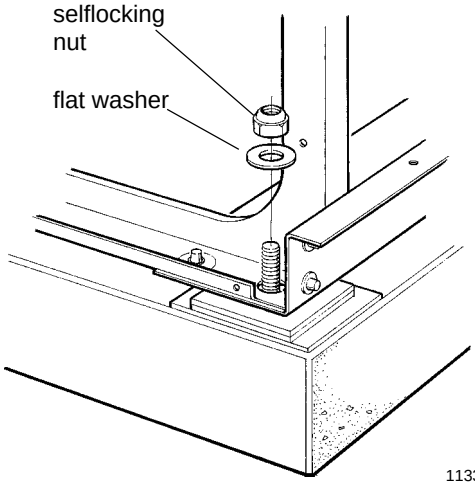

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Electrical installation

All electrical installations are to be carried out by licensed personnel.

Fig. (8) Although the machines are fitted with a thermal overload in the motor windings 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. Use inverse-time circuit breaker only.

Fig. (9) 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.

After installation, do the following for 3-phase machines:

Check the incoming power for a high voltage or "stinger" leg. If present, connect that line to L2 on the terminal block.

Fig. (10) 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 inter-charge line L1 and L3 at the power connection terminal.

Fig. (11) Check that the jumper clips on the transformer on the control unit are correctly connected in relation to the incoming voltage. The different alternatives are printed on the transformer circuit board.

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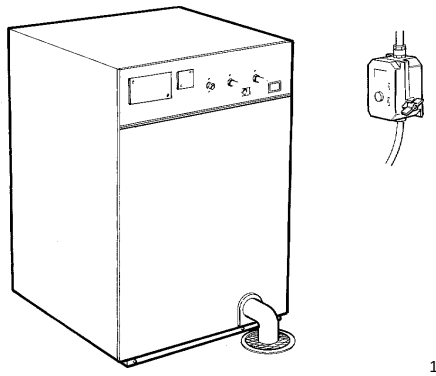

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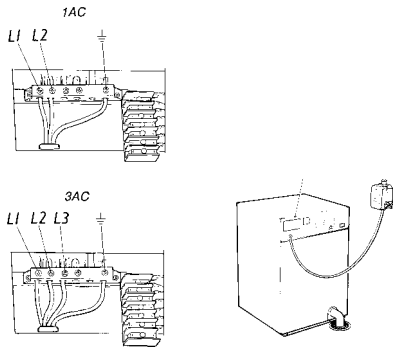

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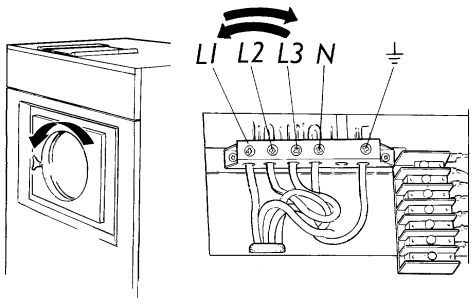

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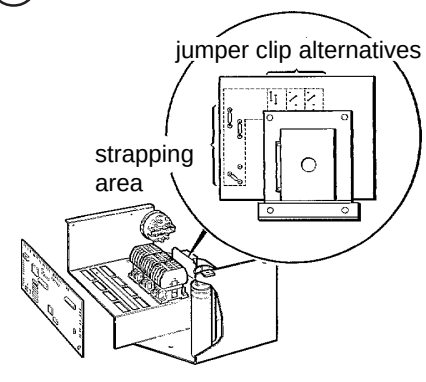

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Water connection

NOTE

All plumbing must conform to national and local plumbing codes.

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. 12

Fig. 13

- Water inlets are labelled for hot and cold water connection.
- Before connecting the water hoses flush the water system thoroughly and check that the filter at the machine inlet is fitted correctly. This is essential since dirt and grit in the water lines may clog the inlet valve filter screens and/or the drain pilot valve. This could cause the machine to fill very slowly or the drain valve not operate properly.

Fig. 14

- Connect the machine to the water mains with 3/4" reinforced rubber hosing not to exceed 6 ft in length. Hang the hosing in a large loop. Do not use rigid piping.

Never force a hose onto the threads or you may cause cross-threading and leaks. If this occurs, place the threaded portion of the hose over the valve threads and push forward firmly, to catch the next thread. Then tighten.

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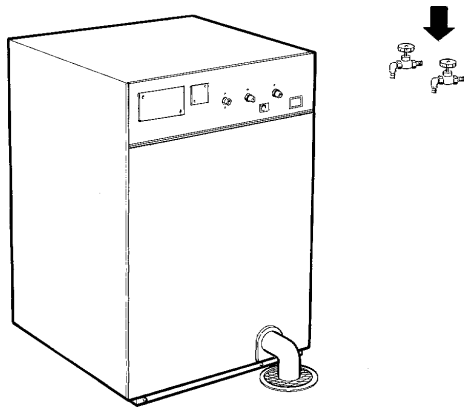

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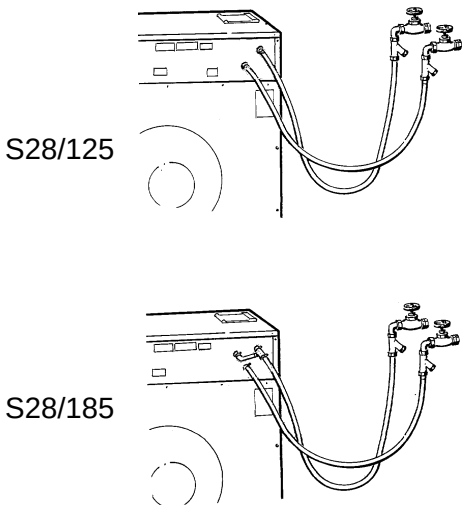

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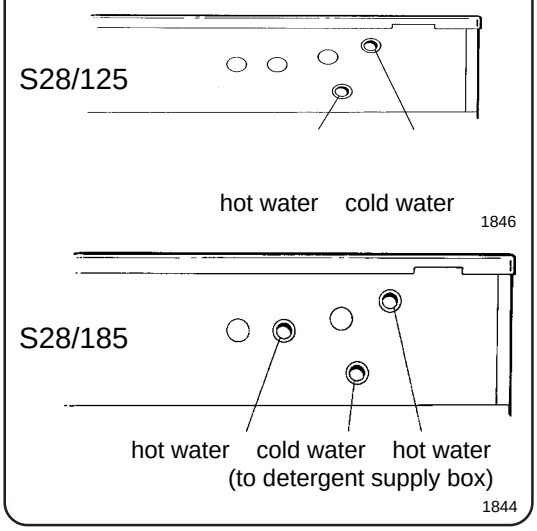

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Drain connection

Fig. 15 Connect a 3" (75 mm) flexible hose to the drain outlet of the machine.

The drain hose must not have sharp bends and must slope from the machine to assure proper drainage.

If the machine drains into an open trough, the trough should have a minimum slope of 1/8-inch to 1/4-inch per foot towards the main drain.

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

> **NOTE**
>
> **To simplify installation, Wascomat has made available the following hose kits:**
> **For S28/125 – part. No. 002008**
> **For S28/185 – part. No. 002009**
> **These kits contain inlet hoses, drain hose, hose clamps and washers.**

Start-up and safety checklist

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

Fig. 16

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

Fig. 17

- 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.

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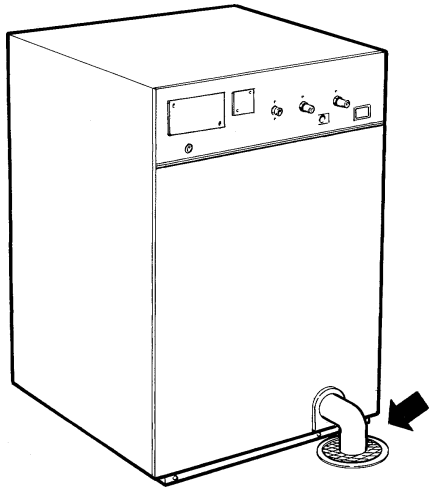

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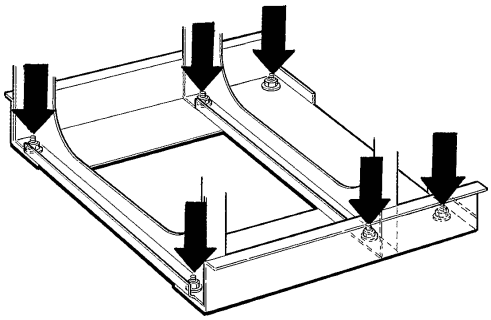

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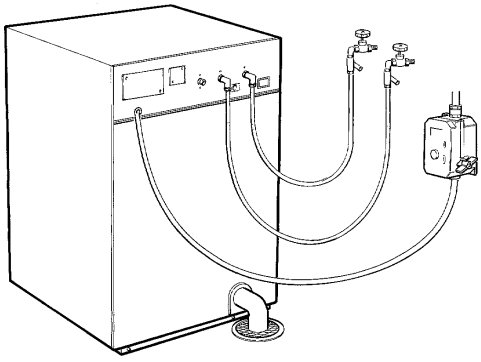

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Installing top-mount manifold for connection of liquid supplies

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

Fig. 18 Pull the manifold knobs up and forward. The small hinged lid shall be mounted towards the front.

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.

2. Fit the supply injector manifold into the supply box so that both sides are held securely in place by the metal fingers, and the small hinged lid is at the front.

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

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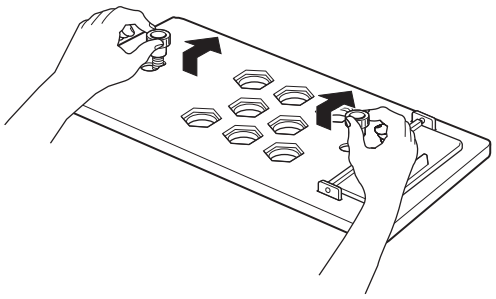

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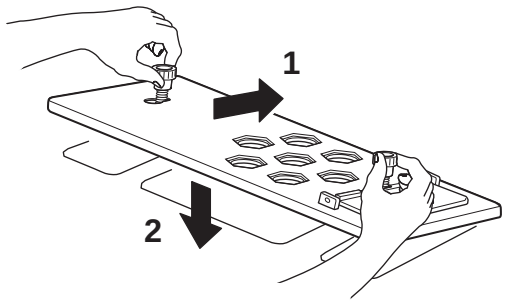

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Fig. 20

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

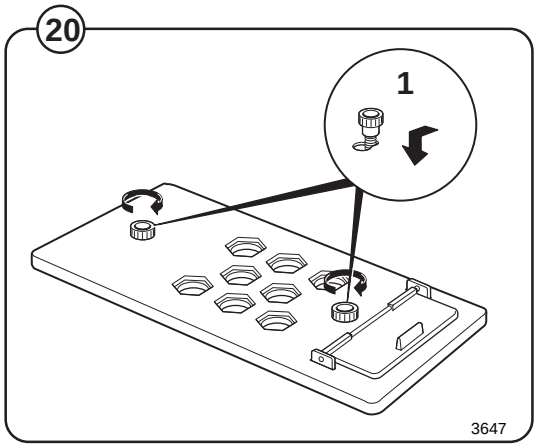
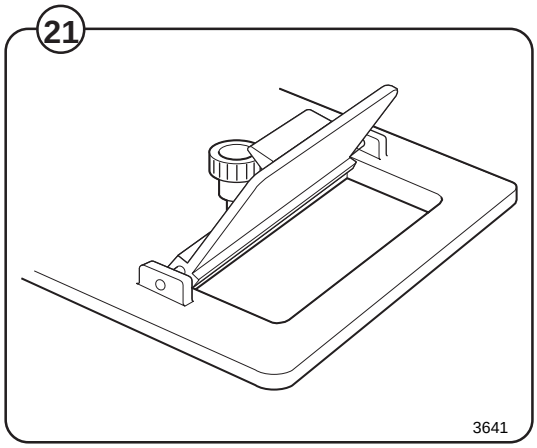
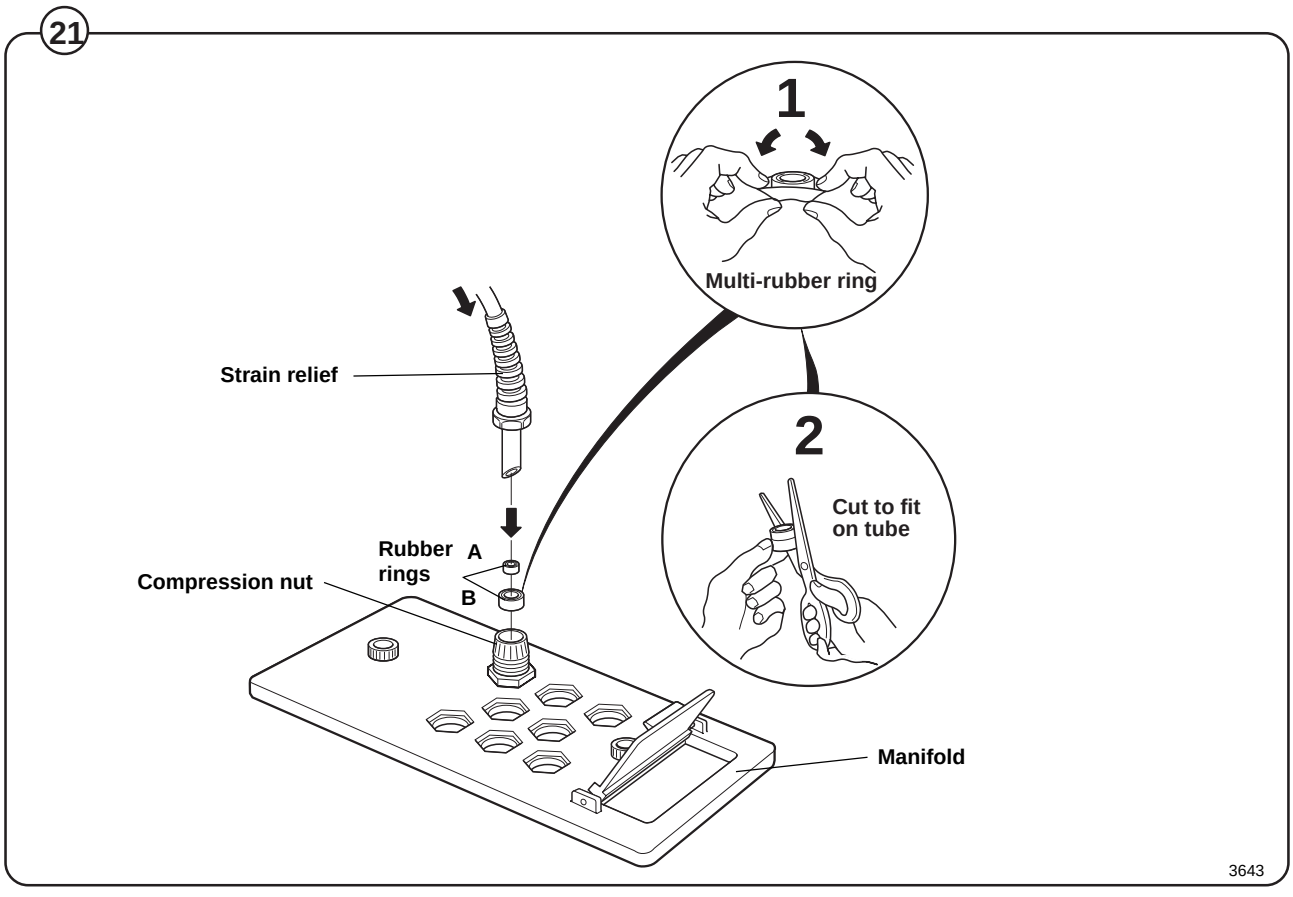


Fig. 21

1. Select the correct size rubber ring which will fit snugly on the chemical tube you are using. Ring A is used for tubes with Ø 5/16" (8mm).
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 strain relief. Run the tube through the compression nut to the bottom of the soap box compartment. Cut the end of the tube at an angle. Hand tighten the strain relief on to the compression nut.

This separate lid allows the addition of powder detergent in compartment 1.





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

Fig. 22
- When washer loading door is open, the machine must not start. Verify this by attempting to start washer with door open.

Fig. 23
- 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.

IMPORTANT:

Le verrouillage de sûreté de la porte doit être vérifié <u>tous les jours</u> selon la procédure ci-dessus.

AVERTISSEMENT:

Couper l'alimentation électrique avant tous travaux d'entretien sur un appareil Wascomat.

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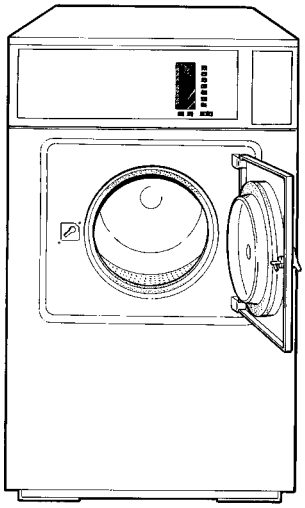

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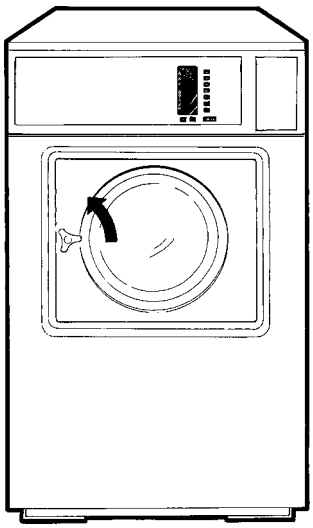

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Function control check-out list

Fig. 24 In the machine cylinder, you will find the warranty registration card, a copy of the warranty policy 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:

Fig. 25

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 II of this manual.
5. Select the HEAVY SOIL program and then press the "ON" button for power to the machine.

Fig. 26

6. Run through a complete cycle, 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. 27

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

   Turn the program selector to MEDIUM SOIL. The program will rapid advance to the Suds position and hot water should now enter.

   If cold water comes in, the hoses are improperly connected. Reverse hot and cold water hoses.

8. Machine must spin in a counter-clockwise direction, as seen from the front, during extraction. If it does not, reverse lines L1 and L3 on 3-phase machines.

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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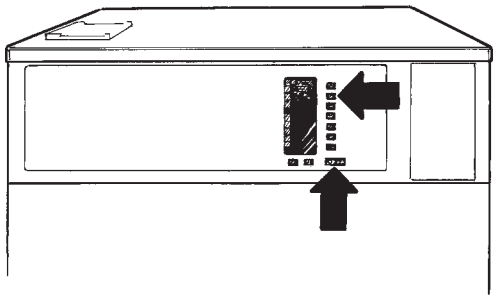

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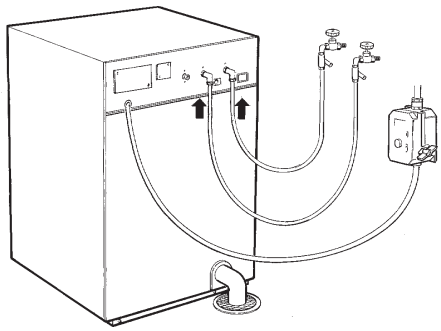

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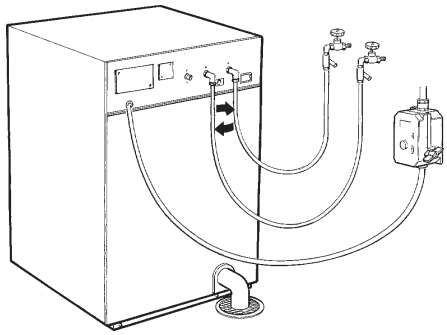

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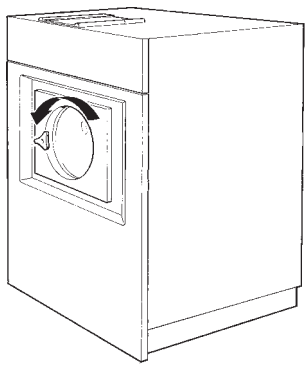

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Safetyinstructions

- **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.**
- **Fabric softeners with volatile or inflammable fluids are not to be used in the machine.**

Consignes de sécurité

- **La machine est conçue pour le lavage à l'eau exclusivement.**
- **La machine ne peut être utilisée par des enfants.**
- **Tous les travaux d'installation doivent être effectués par une personne qualifiée. Tous les câblages électriques doivent être réalisés par un électricien diplômé.**
- **Le verrouillage du hublot doit être vérifié chaque jour et ne peut être neutralisé.**
- **Toute fuite du système, due à des joints défectueux etc., doit être réparée sans délai.**
- **Tous les membres du personnel d'entretien doivent être parfaitement familiarisés avec le manuel d'entretien avant d'entreprendre une réparation ou un entretien de la machine.**
- **Ne jamais asperger d'eau la machine sous peine de risquer un court-circuit.**
- **Ne pas utiliser dans la machine des adoucissants textiles contenant des liquides volatils ou inflammables.**

Fig. 28 The keypad has 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.

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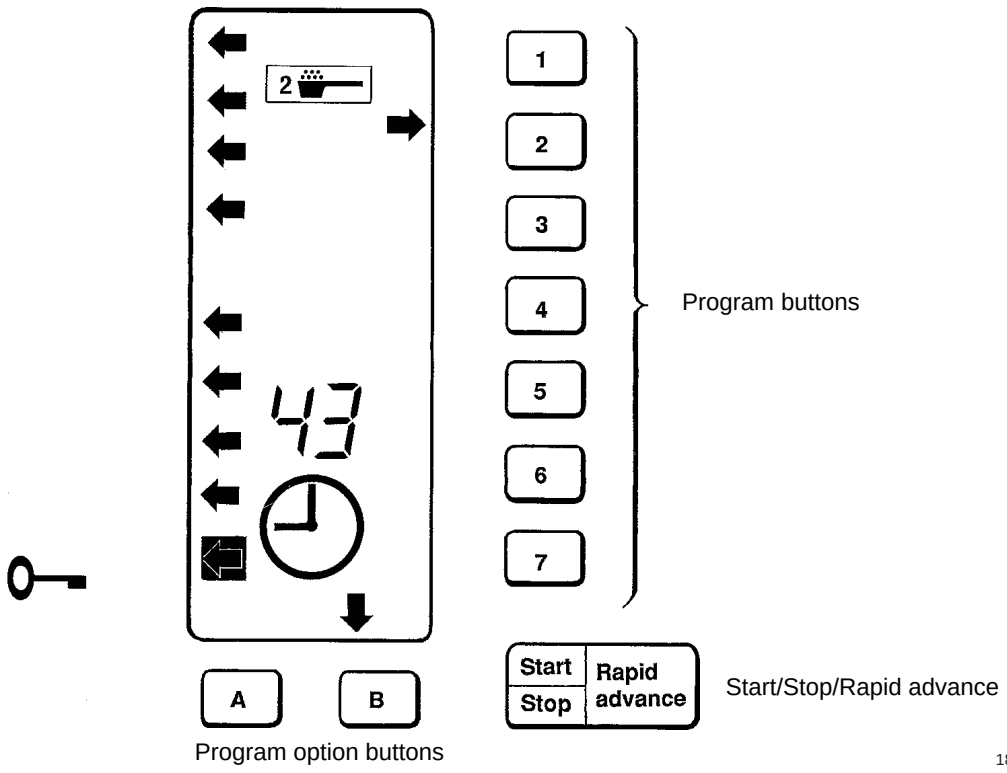


Preparation

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 zips are closed.

Open drum door, load articles and close door.

Wash-program start

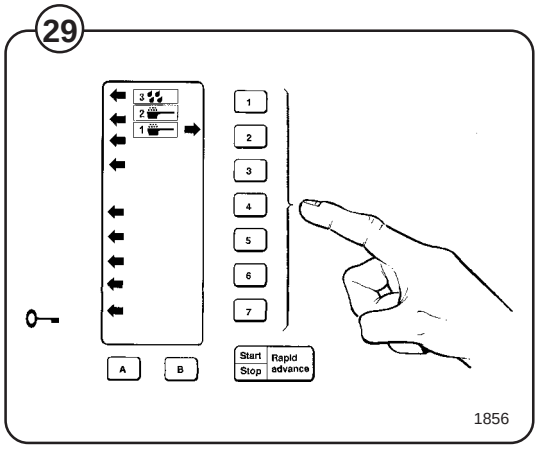
Fig. 29

- Select wash program. Press correct number button [1] →[7] and letter button [A] alt. [B] or [A] + [B].

  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. 30

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



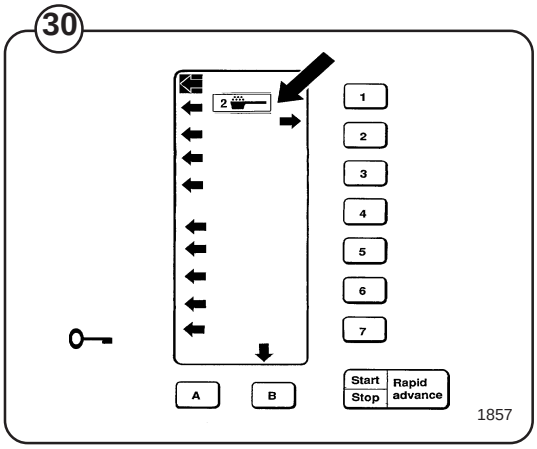


Fig. 31

- Press **START**.

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

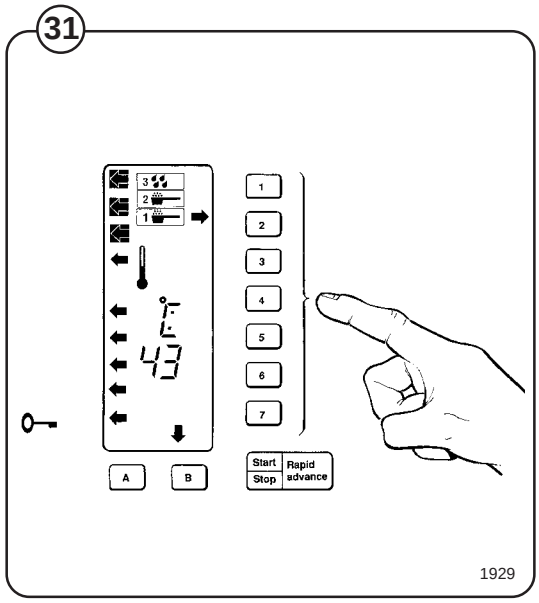
  A colon will flash for five minutes. The machine can be restarted during this time with no loss of detergent. This allows you to rectify a possible mistake (eg: wrong program or wrongly sorted wash). (See **RESTARTING**)

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

Fig. 32

After the machine has started you can check the wash temperature by pushing a program button. A thermometer will now light up showing the temperature in °C, with digits.

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 key symbol will remain lit (resting position).

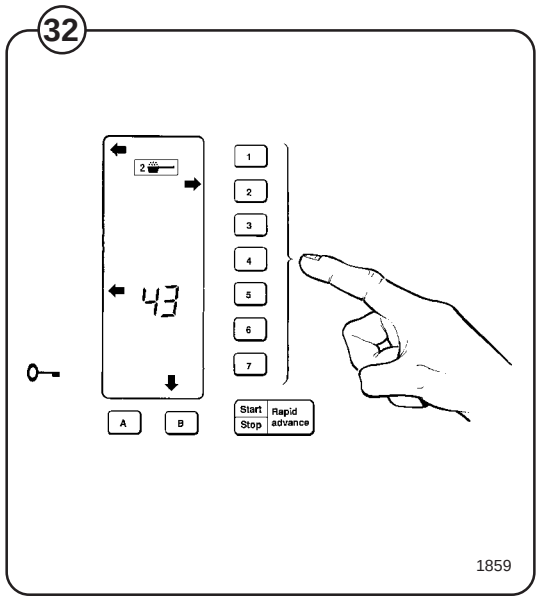


Pause

Fig. 31

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

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

Fig. 33

- Hold the **RAPID ADVANCE** 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 **STOP** in order to stop the program in pause mode.
- Choose a new program.

  Push **START.**

Restarting of same program

Fig. 34

- Push **RAPID ADVANCE** through the whole program until the key symbol is reached. Wait until the box around the arrow lights up (about 1 min. after final extraction).
- Open the door and remove the offending garment. Shut the door once more.
- Push **START.**

WARNING

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

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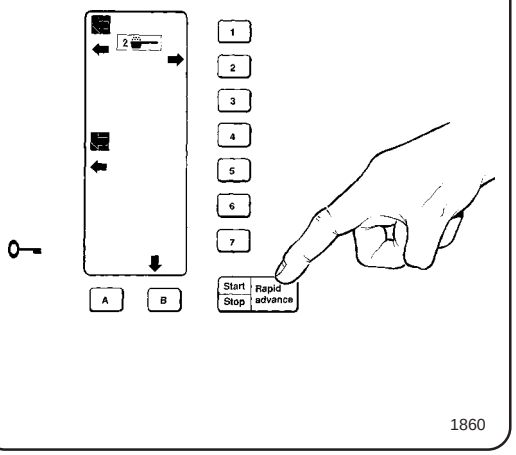

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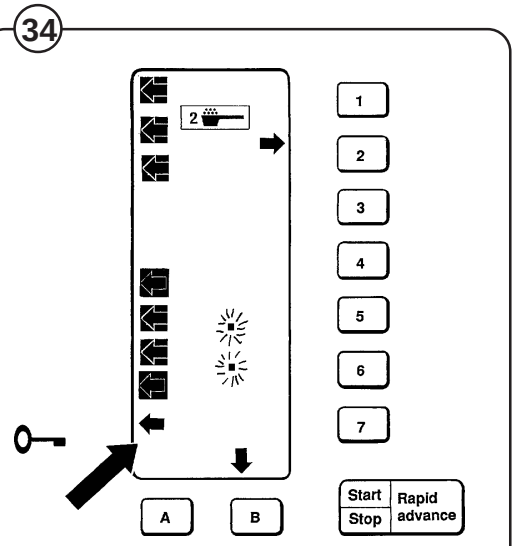

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General

The door and the electronic timer with display and program-selection buttons are fitted at the front of the machine.

All control and indicating components, i.e. relays, level control, etc are assembled under the top cover, easily accessible at the top of the machine for simplified servicing.

Main units

Fig. (35)

1 Keypad with display and wash program-selection buttons for operating the machine.

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

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

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

5 Wash and extraction motor - for reversing wash action and high speed extraction.

6 Hot and cold water valves - program and level controlled solenoid valves for filling with water, and for flushdown of automatic detergent dispenser.

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

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

9 Relays - for wash and extraction.

10 Detergent supply box - three compartments for automatic injection of powdered detergents and liquid fabric softener.

Machine construction

Outer shell

Fig. 35 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, 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 stainless steel sleeve bushing protects the seals from wear.

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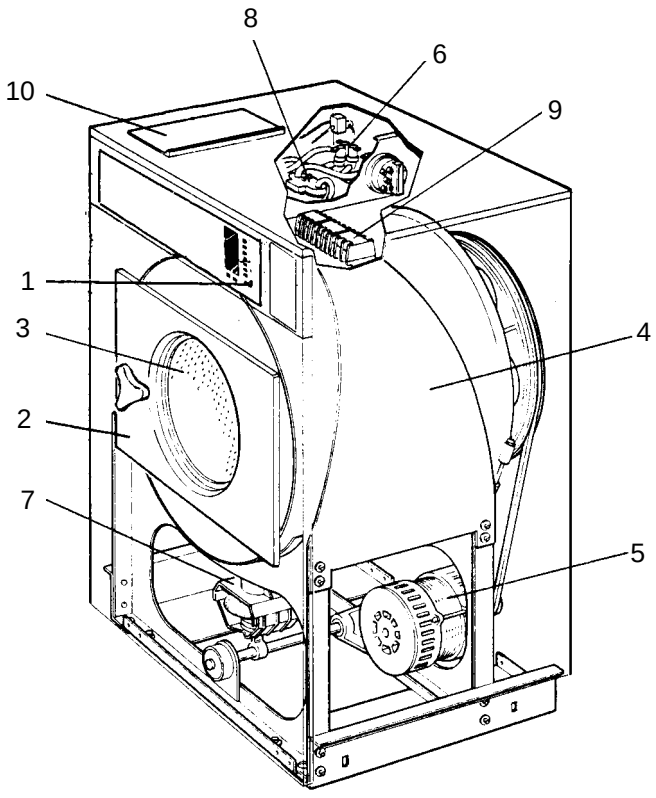

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Panels

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.

Back gable and bearing

Fig. 36 The back gable and the bearing trunnion housing are constructed of a webbed heavy casting for extra rigidity. The bearings are protected against filtration of water by three neoprene seals. An intermediate safety outlet provides an escapement for any possible condensation.

The seals are mounted on a stainless steel sleeve bushing that is mounted on the drive shaft to prevent wear of the seals and shaft. The main bearing is fitted machinetight 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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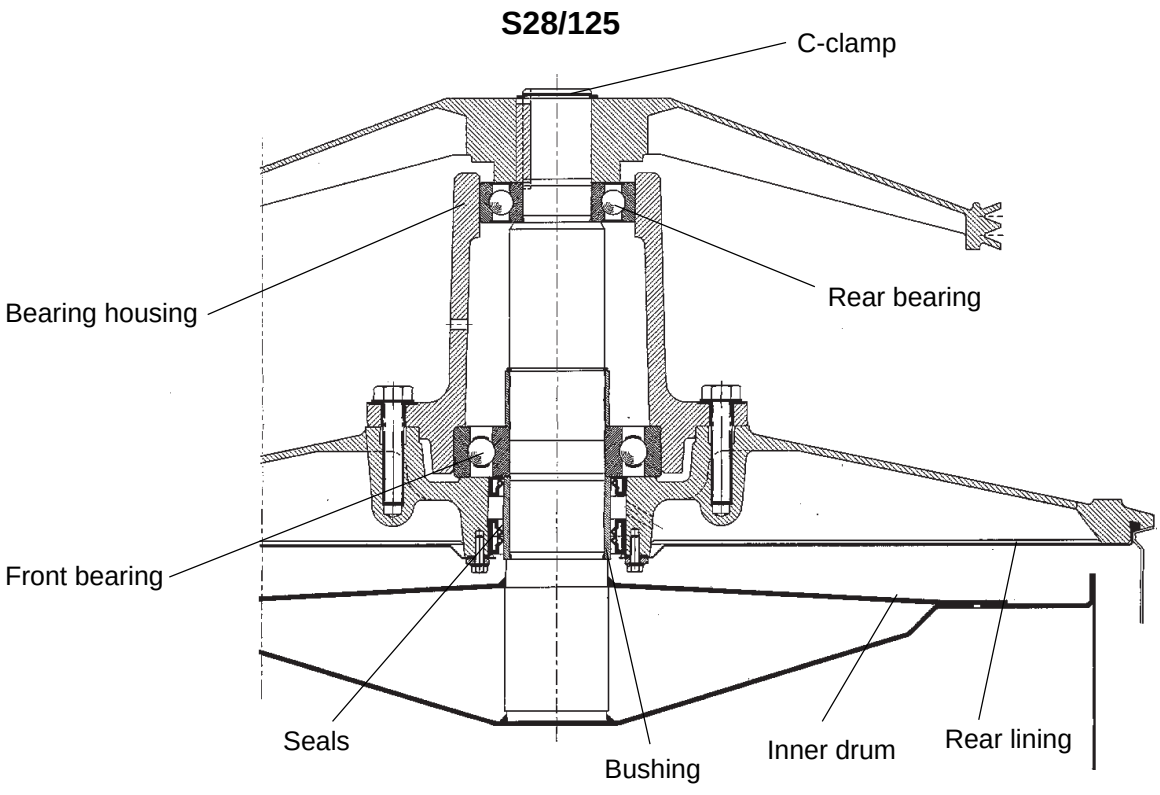

Door

Fig. 37 The door consists of: a door skirt (1), door frame (2), glass (3) and gasket (4). The skirt and door frame are both made of enameled aluminium. The skirt is bolted directly to the outer shell of the washing machine.The door hinges are fastened on the outside of the skirt and the door lock (5) is attached to the inside. The heat-hardened glass is mounted in the door using a special rubber seal which also acts as a gasket between the door and the washing machine's outer shell when the door is closed.

Door lock

Fig. 38 The door lock consists of a circuit board (1) with a connector. The following parts are mounted on the board: the lock plate (2) against which the locking bolt turns to lock the door and a micros-witch (3) which closes when the locking bolt has locked the door.

There is also a locking device on the circuit card which acts to lock the locking bolt in place when the machine starts up. The device consists of a double-acting solenoid (4), a delay unit (5) and the locking device itself (6) which operates sideways in blocking the locking bolt with a stud. The locking device can be affected by both the solenoid and the delay unit.

The lock operates as follows:

- When the door is shut and the locking bolt moved to the lock position, the micro switch will indicate that the door is closed.
- When the machine is started, the solenoid actuates the locking device, blocking the door lock. The locking device signals the delay unit, closing a switch in the unit. The washing machine motor will start and water enter the machine only after the delay unit receives the information that the door is locked. The bi-metallic spring in the delay unit is warmed up at the beginning of the program.
- Once the washing machine stops at the end of a cycle, the solenoid pulls back the locking stud and allows the door to open. The delay unit is spring-mounted in the locking device and is also pulled back by the solenoid which operates for about two minutes to allow the bi-metallic spring to cool down enough not to lock the door again.
- If current should disappear during a cycle, the delay unit will keep the door locked for about two minutes, ensuring that the wash water can drain out (The drain valve opens automatically when current is lost).

NOTE

Do <u>not</u> attempt repair to a faulty door lock. The individual components are <u>not</u> available. Always replace the old unit with a new one, to assure proper operation of the door safety interlock.

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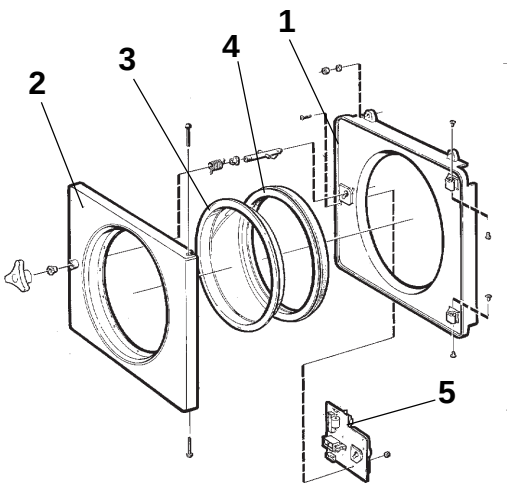

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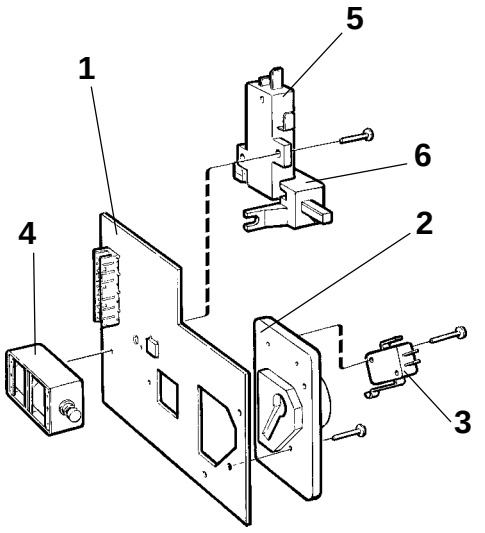

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Control unit

Fig. 39 The keypad (1), includes all items necessary to operate the machine. These include an information display and wash cycle display window, control lights and selection buttons.

The electronic timer is mounted just behind the control panel.

Relays (2), transformer (3) and level control (4) are located at the top of the machine, easily accessible for service, as are the motor capacitors (5) on 1-phase models.

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

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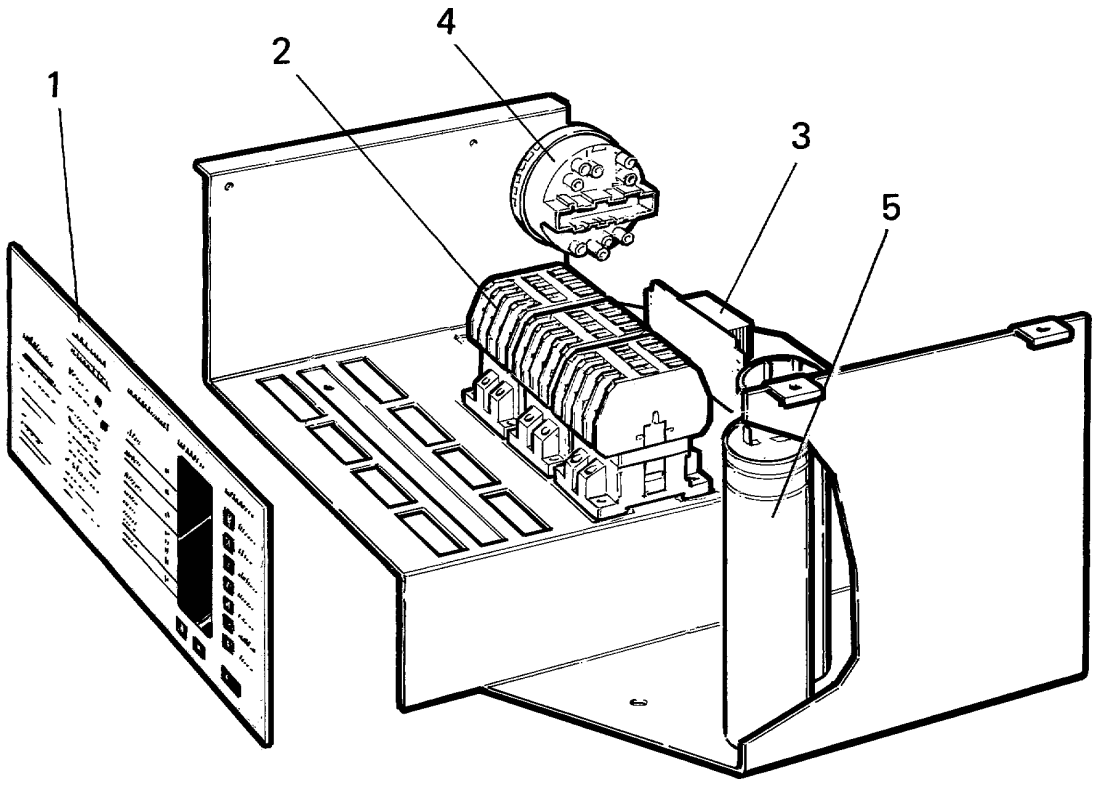

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Relays

Fig. 40 The S28 Selecta models employ three relays to energize the windings of the wash/extract motor. The relays control:

- the reversing action of the motor at wash speed (1 and 2).
- the action of the motor at extraction speed (3).

Construction

Fig. 41 The body of the relay holding the stationary contacts is made of current-resistant 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 continous operation, whether mounted horizontally or vertically.

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

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.

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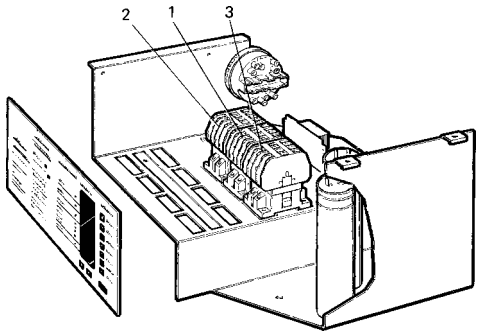

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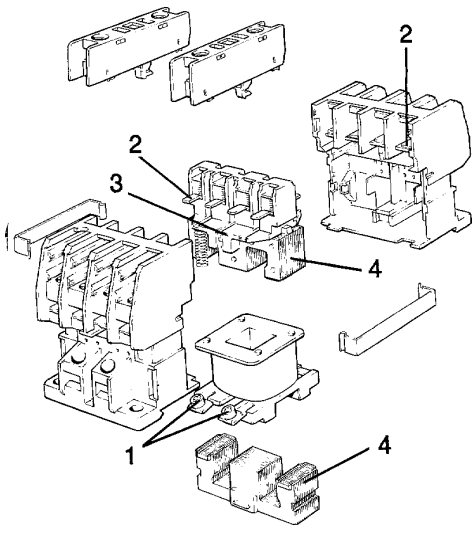

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Water level controls

Fig. 42 One 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 normal level should be at the bottom of the door glass.

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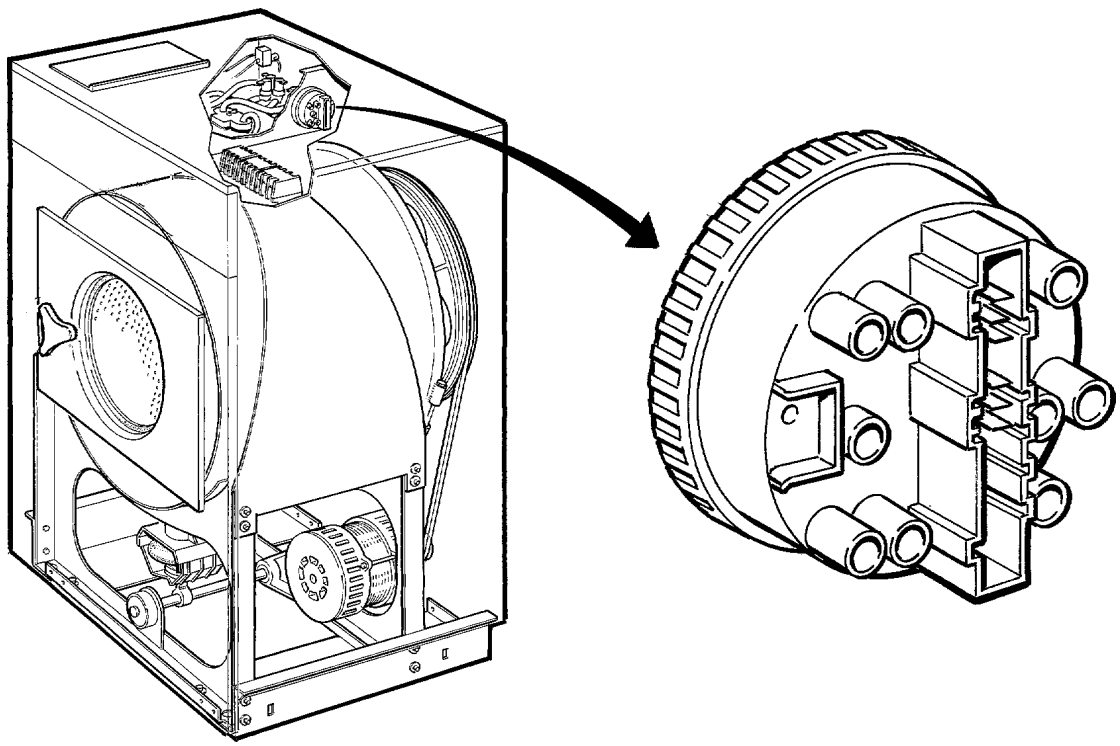

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Drive motor

Description in general

Fig. 43 The motor is mounted on an axle with rubber dampeners.

Fig. 44 The V-belt is tightened by turning the motor on the axle and locking it in place using the tightener on the rear side of the motor. The motor and tightener unit have vibration and noise dampening rubber suspensions.

Construction in general

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 2-pole and 18-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.

Construction of single-phase motor

Single-phase motors have an 18-pole winding (wash-speed) the same as three-phase motors, using a continous connected capacitor, while the 2-pole winding (extract-speed) is a specially designed winding with both continous connected capacitor and starting capacitor.

Function of 3-phase motor

When the stator winding is charged, a magnetic field will occur, which in turn will rotate the rotor at a fixed RPM depending upon the number of poles in the winding. The 18-pole winding gives the wash speed and the 2-pole winding the extract-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 syncronous speed. The motors will work satisfactorily at nominal voltage +10%-15%.

Function of single-phase motor

When the stator winding is charged without a capacitor, two counteracting magnetic fields are created. When a capacitor is connected, it will displace one of the two magnetic fields adding it to the other, creating a torque turning the rotor in a specific direction. The RPM is the same as for the 3-phase motor.

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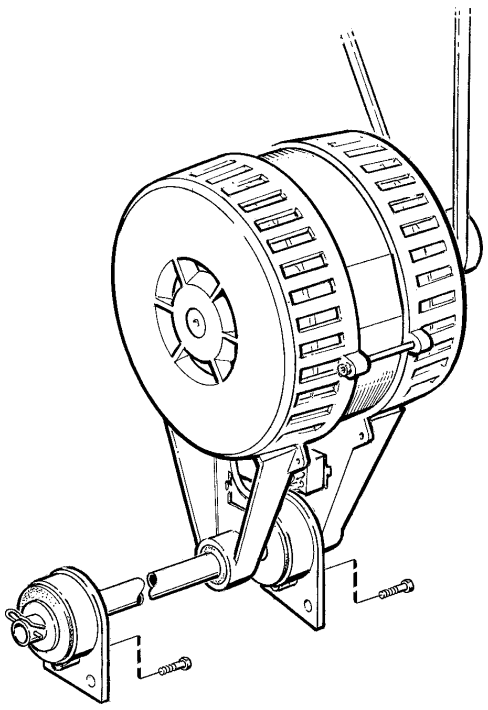

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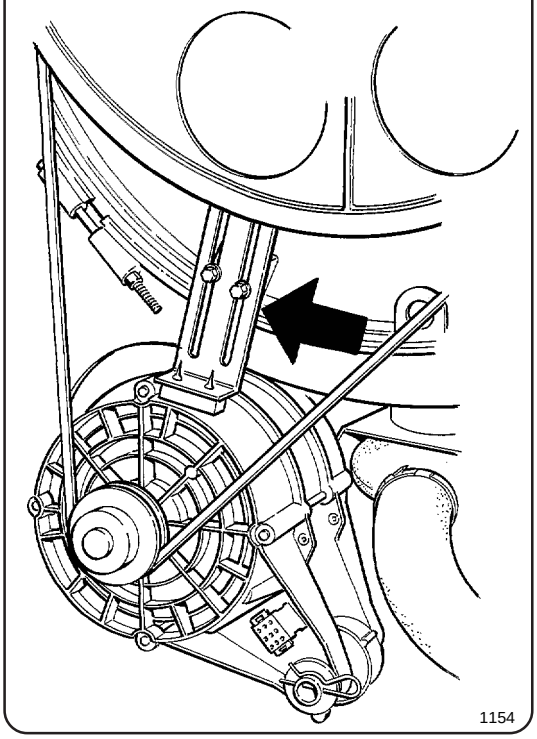

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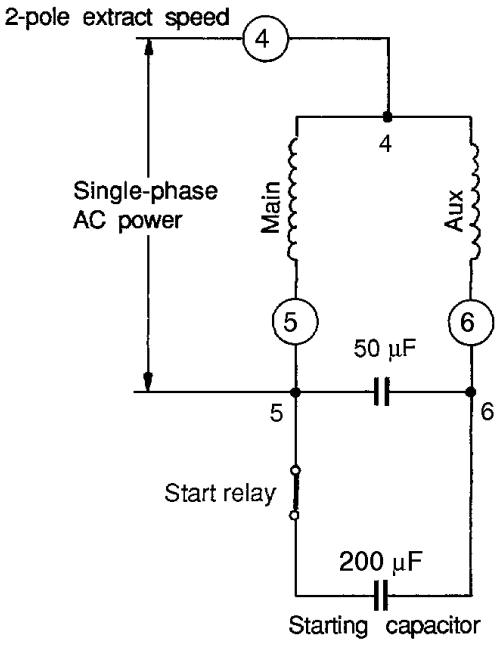
Principal wiring and points of measuring on single-phase motors.

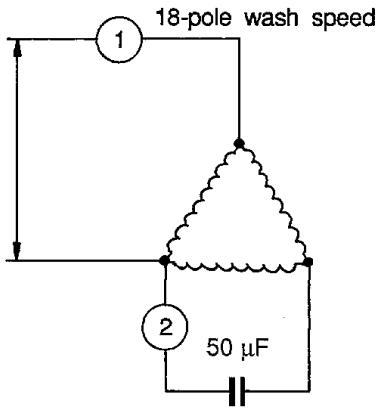
Fig. (45) The numbers at the connection points refer to the terminal numbers at the motor connector plug.

Fig. (46) The numbers in circles indicate points of ampere measurements.

(45)

S28/125 208-240 V 60 Hz single-phase





EXTRACT WINDINGS

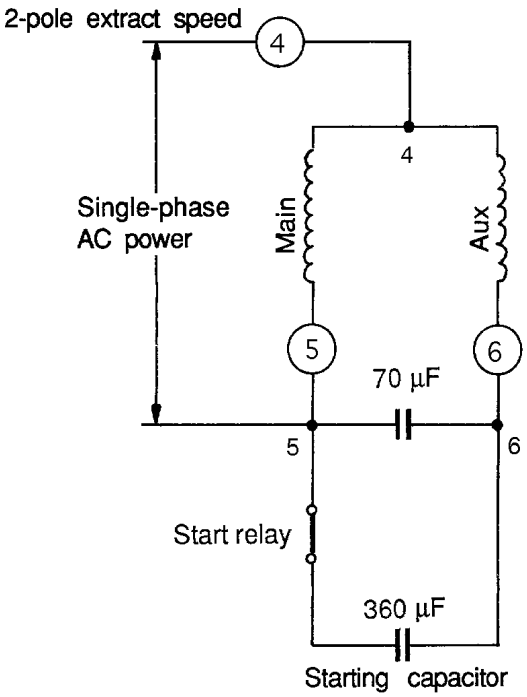
Measuring point	att full speed 208 V	240 V
(4)	3 A	4 A
(5)	3 A	6 A
(6)	6 A	7 A

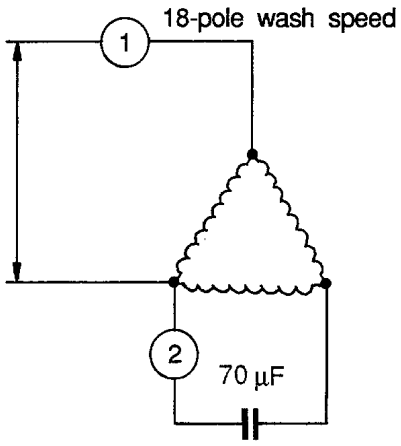
WASH WINDINGS

Measuring point	unloaded 208 V	240 V
(1)	2.9 A	3.9 A
(2)	4.6 A	4.8 A

46

S28/185 208-240 V 60 Hz single-phase





EXTRACT WINDINGS

Measuring point	att full speed	
	208 V	240 V
①	5 A	8 A
②	5 A	12 A
③	7 A	9 A

WASH WINDINGS

Measuring point	unloaded	
	208 V	240 V
①	3,3 A	4,2 A
②	6,8 A	7,2 A

1791

Motor connections

Fig. (47) 1, 2 and 3: wash speed (18-pole winding).

4, 5 and 6: extract speed (2-pole winding)

7 and 9: motor overload protector.

Motor overload protector

The motor is equipped with two self-resetting, thermal overload protectors, situated one in the each winding of the stator. The protectors are connected in series and will trip at a temperature of 120°C (248°F) (3-phase) or 130°C (266°F) (single phase). 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. A burned out motor can be re-wound.

> **NOTE**
>
> **Before connecting a separate overload protector consult the local code.**

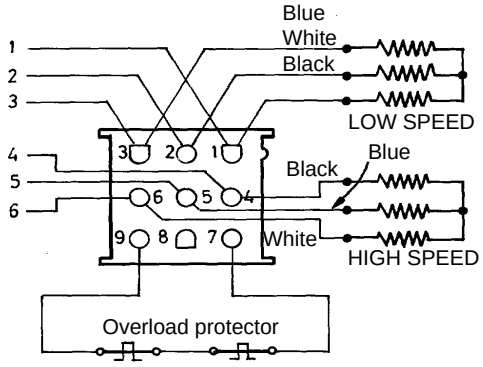
Single-phase S28/125 and S28/185 machines are also equipped with a manually resettable overload protector mounted on the extract relay in the control unit. This overload protector protects the motor during the start-up of the extraction.

Removing the motor

Fig. (48)

- Remove the drain valve (1) from the axle by pulling it straight up.
- Remove the tightening unit (2) on the rear of the motor.
- Disconnect the connector (3) placed diagonally under the rear edge of the motor.
- Remove the t wo screws (4). Pull the axle forward slightly until the guide pins pull out of the axle brackets. Remove the motor unit.

47



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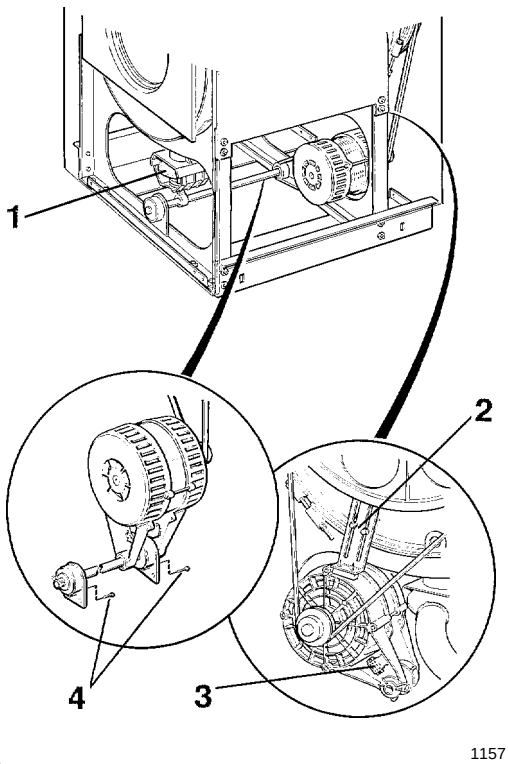

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Inlet valves for S28/125 and detergent valve for S28/185

Construction

Fig. 49

Each 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.

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.

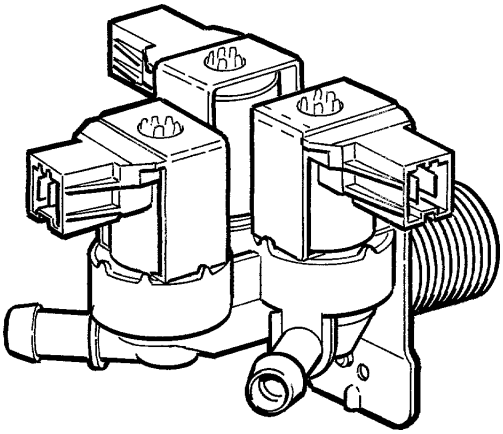
Operation

Fig. 50

When the solenoid is energized, the spring-loaded plunger is drawn up and the pilot valve in the center 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.

49



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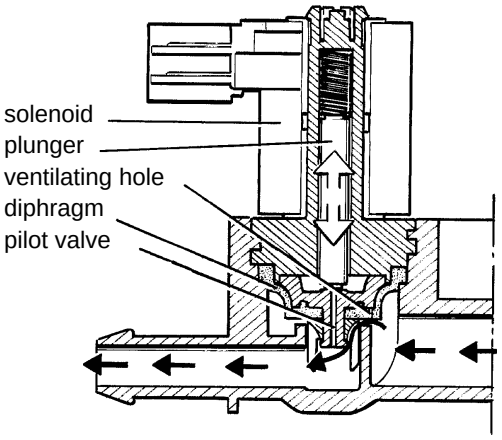

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Repair instructions

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

Fig. (51) 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

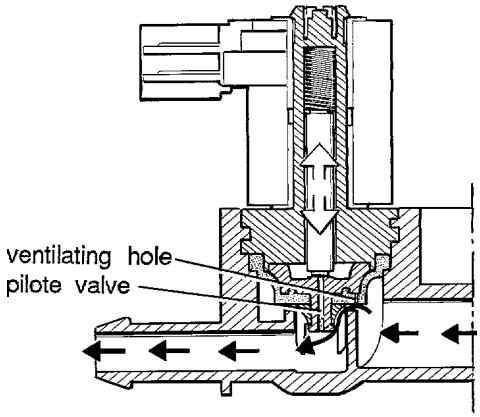
Fig. (52)

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

Fig. (53)

- 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.

51



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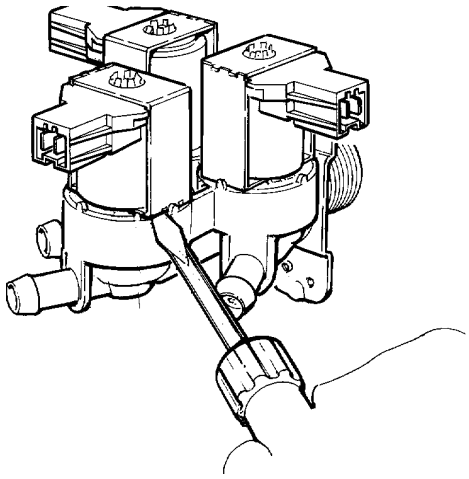

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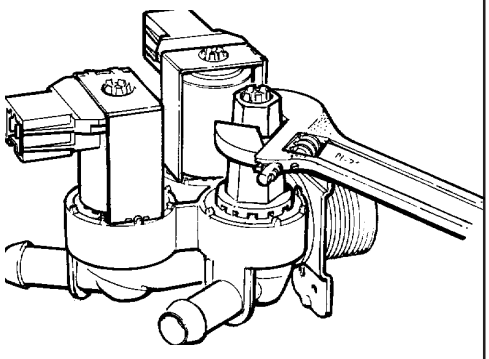

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Inlet valve for S28/185 (from S/N 9508/011935)

Fig. 54 The water inlets have brass bodies with larger cross section of the outlet in order to achieve a shorter filling time for the machine.

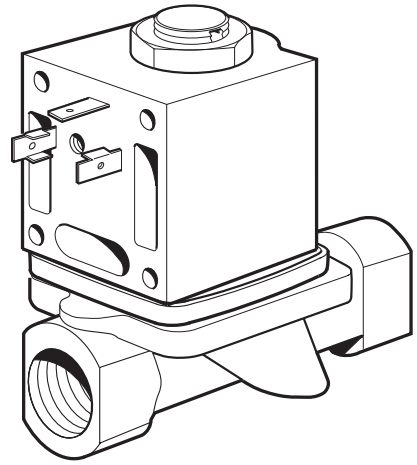
Construction

Fig. 55 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.

54



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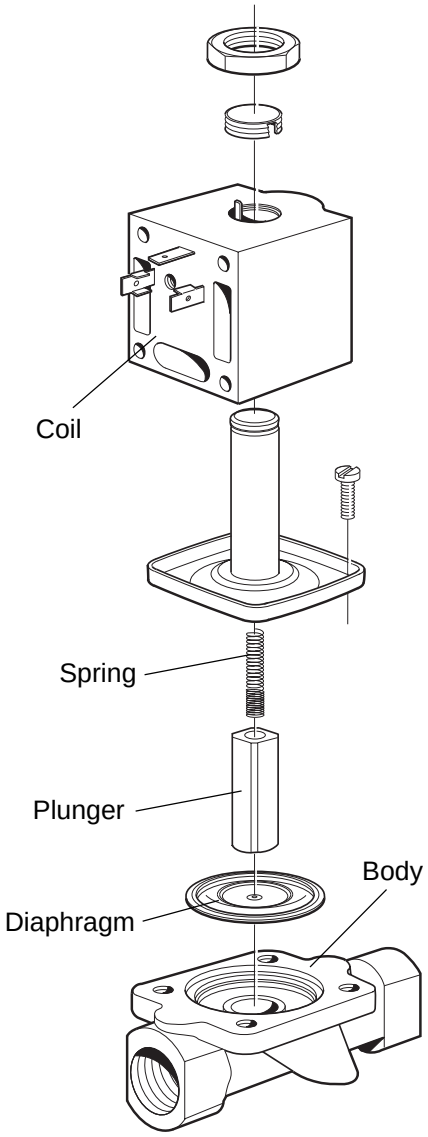

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Inlet valve for S28/185 (up to S/N 9508/011934)

Fig. 56 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

The valve housing is made of pressed brass. The spring-loaded plunger is made of stainless steel and located at its lower end is a rubber gasket for the pilot valve.

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.

Clean out

At water temperatures of more than 60°C/140°F, the lime deposits are heavily increased. This can cause function problems due to blocking up the equalizing orifice of the valve.

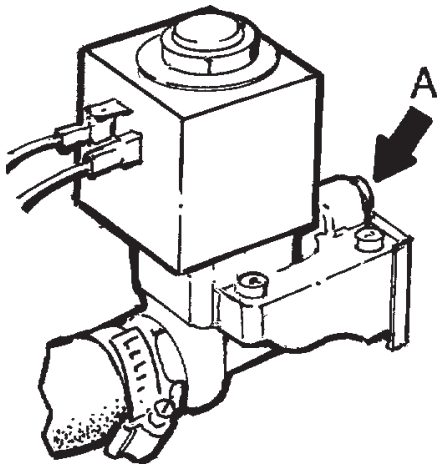
Fig. 56 The fault can be eliminated by cleaning the equalizing orifice (marked A).

Fig. 57 If there are much deposits the orifice can be changed from 0.5 mm to 0.8 mm. The screwhead of the orifice is marked with 1 ring for the size of 0.5 mm and 2 rings for the size of 0.8 mm.

Clean the orifice as follows:

1. Shut off the main supply.
2. Unscrew the orifice.
3. Clean the hole in the orifice carefully with a pin or similar not thicker than 0.5 resp. 0.8 mm. (Fig. 58)
4. Mount the orifice, be careful with sealing and tighten.
5. Open the main supply.

56



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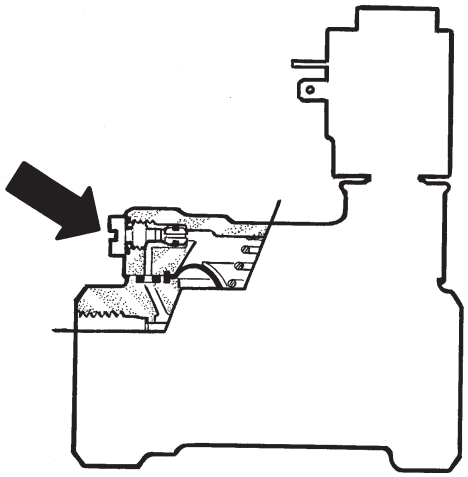

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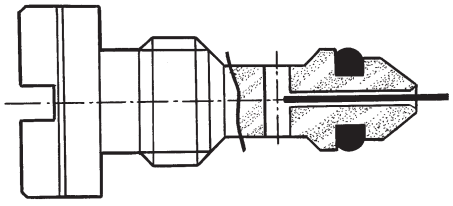

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Drain valve

Description

Fig. (59) The drain valve is steered using the pressure in the cold water intake. A hose (1) is connected between the cold water intake and a solenoid valve (2). When the solenoid valve is activated, it opens and allows water to flow into the feeder hose (3). The water presses up a piston (4), which uses the pressure lid (5) to close the drain valve rubber membrane. (6) When the solenoid valve cuts out, the water pressure the lid push the piston back, allowing the water to pass the solenoid valve and drain out via the return hose (7).

Trouble shooting

If the drain valve doesn't close:

- Check that the solenoid valve (2) receives electricity. The drain operation can be checked using the washing machine's built-in service program (see section titled "Service Program").
- Check that the solenoid valve and the hoses are clear by:
  - removing the drain hose (3).
  - activate the machine's service program (see section titled "Service Program") and change the program to allow direct control over the drain valve.
  - check that water exits the hose when the valve is activated.
- Check that the diaphragm (8) is undamaged.

If the drain valve doesn't open:

- Check that the return hose (7) is open.
- Check that the piston (4) doesn't seize.

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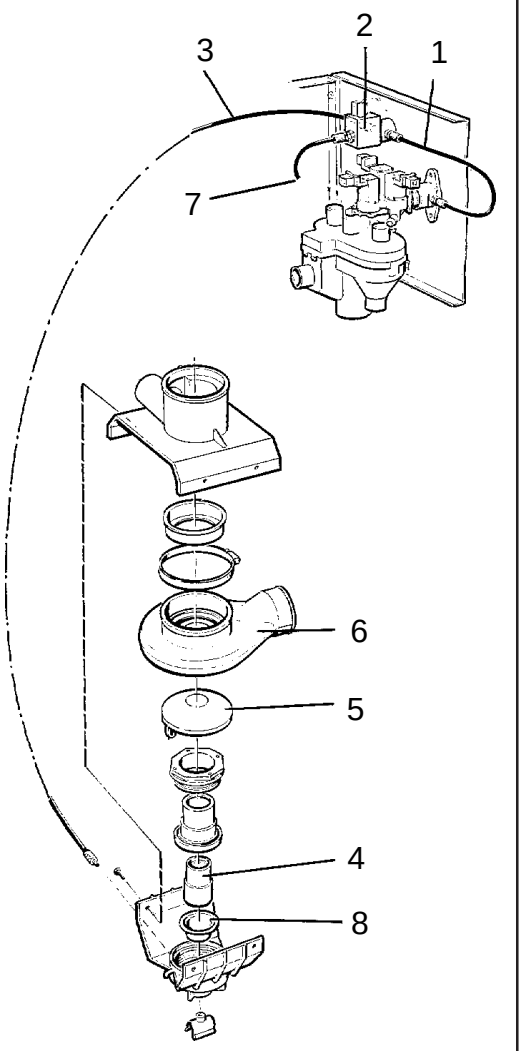

1159

Soap supply box

Fig. (60) The three-compartment soap supply box is located at the top of the machine. Viewed from the front, the compartments marked with figures 1, 2 and 3 are used as follows:

For liquid Supplies:

Compartment 2 only is used in conjunction with a top mount supply manifold. See page 10 and 11 for installation instructions.

Compartment 1

This compartment is used for adding detergent to the wash and is flushed down when supply 1 is shown.

Compartment 2

This compartment is used for adding supplies to the wash and is flushed down when supply 2 is shown.

Compartment 3

The small compartment is used for adding fabric softener to the wash and is flushed down when supply 3 is shown.

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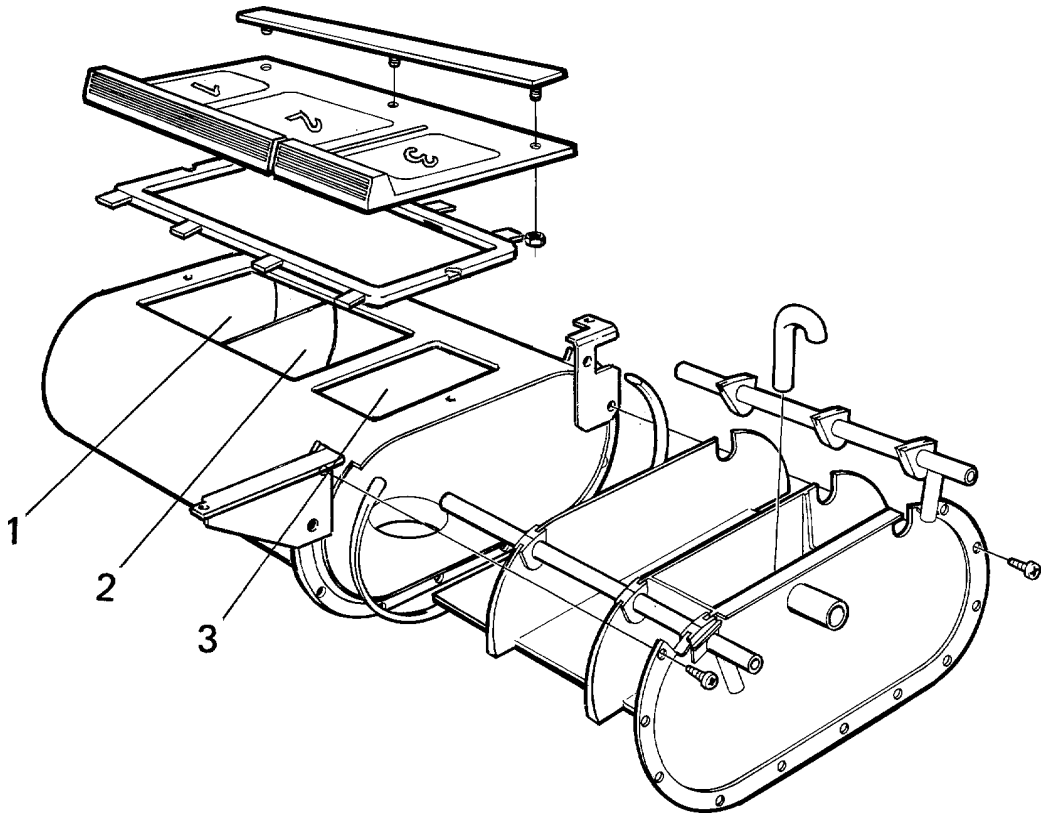

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Maintenance

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. (61)

- 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 the hose from the drain connection and clean the inside of the drain valve.

Every three months

Fig. (62)

- Remove the rear panel 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...

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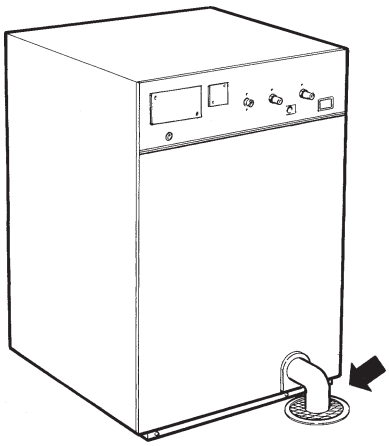

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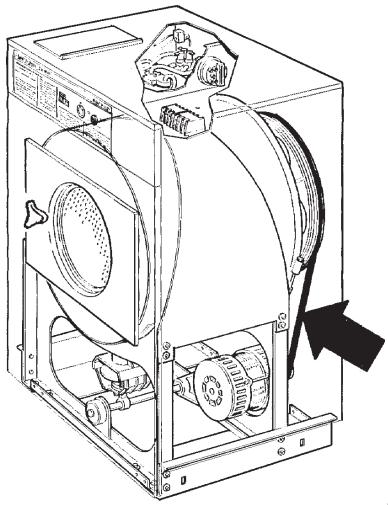

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The purpose of the trouble-shooting guide is to facilitate the location and correction of the most common machine problems.

Before the top panel is removed, power to the machine must be switched off at the main source or at the separate circuit breaker.

At each trouble-shooting attempt, the plug in connectors on the control panel should be moved in and out in order to eliminate improper contact due to faulty connection.

Please note that this guide does not include all possibilities, but only those most likely to cause the symptoms listed.

In trouble-shooting electrical problems, always make certain to have the proper electrical schematic or wiring diagram at hand. Test for power using a V-O-M or similiar meter on the AC voltage scale. Test for continuity with all electrical power off.

Trouble shooting

If the machine does not start

Fig. 63

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

B Check the door safety switches.

C Check the glass cartridge fuses.

D Check electrical auxiliary contact on extract relay.

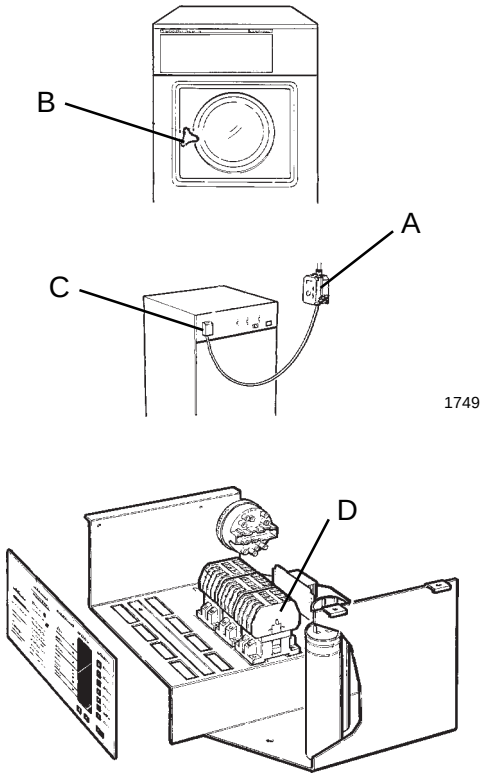
If water does not drain

Fig. 64

A Check the drain valve and drain solenoid for proper operation.

B Disconnect the 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 the accumulation of foreign materials between the drain valve and shell outlet of machine. Clean valve body of any foreign objects found.

63



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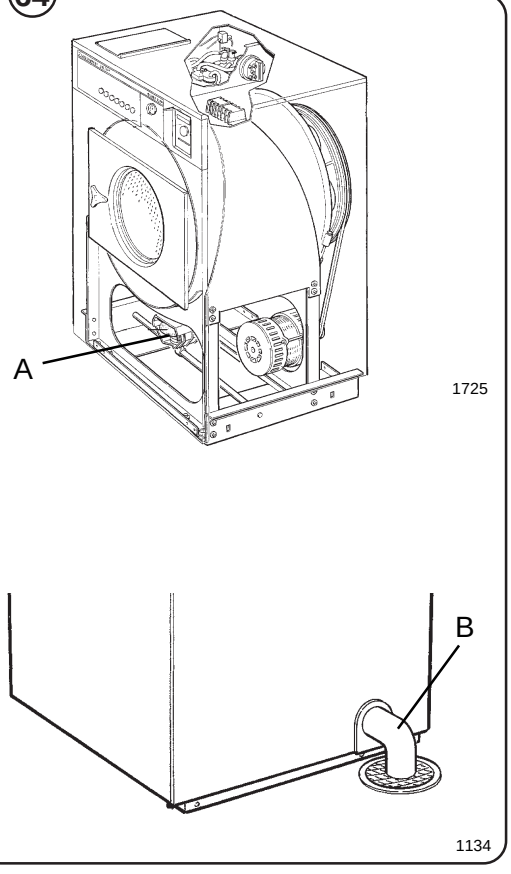

If machine does not extract

Fig. 65

A Check extract relay and relay coil for proper operation.

If the motor does not operate at wash speed

Fig. 66

A Check wash relays.

B Check motor and V-belt.

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

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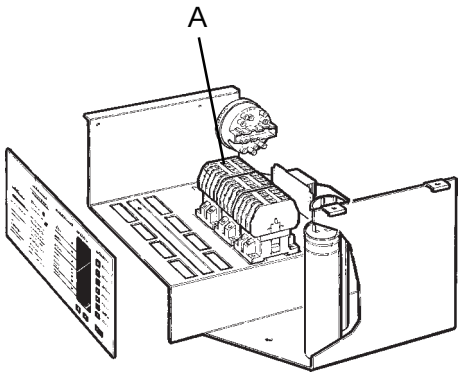

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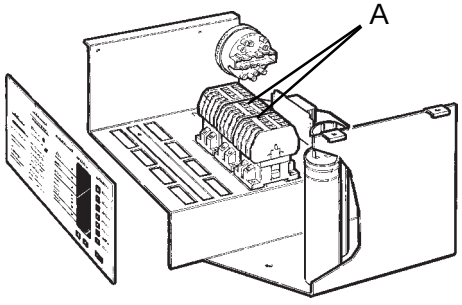

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If machine runs slowly on wash speed or there is a slapping or thumping noise

Fig. 67

A Replace the V-belts.

If a metallic noise can be heard at rear of machine

Fig. 68

A Tighten the pulley on the motor shaft.

If the door is leaking

Fig. 69

A Check the door gasket. If the gasket is in good condition, install a 4-7 mm rubber O-ring around the entire gasket, using the slits provided.

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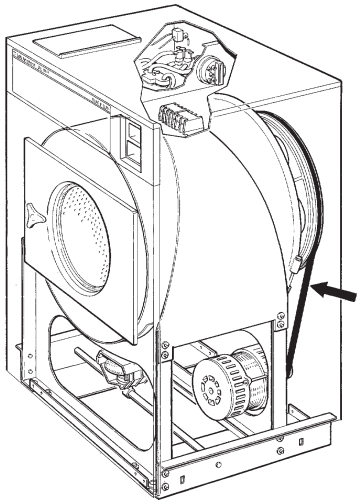

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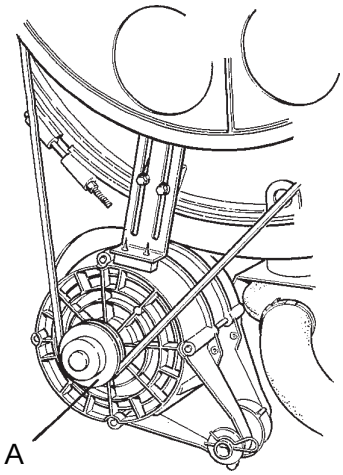

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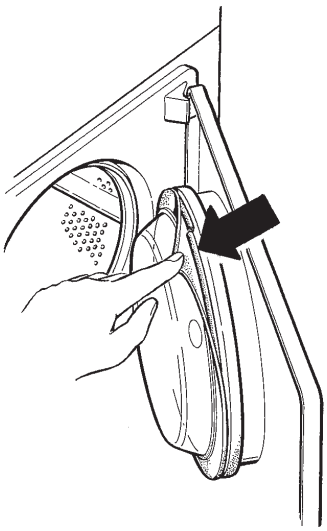

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If there is a leaking around the glass

Fig. 70

A Replace door gasket if worn.

If water does not enter the machine

A Check the valve coils on inlet valves.

Fig. 71

B Check wires leading to valve coils.

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

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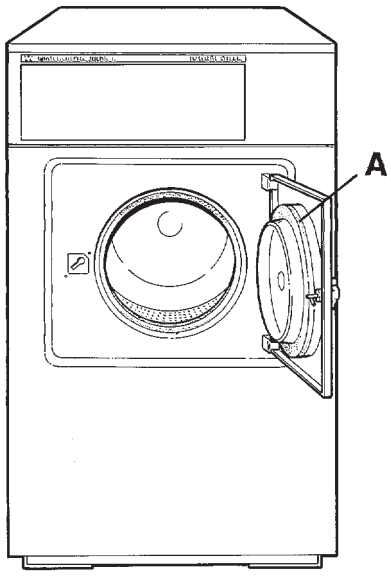

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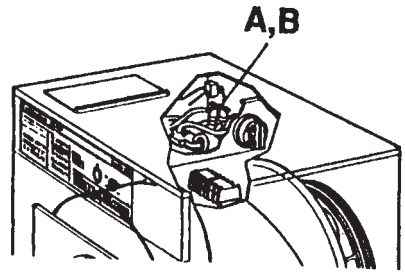

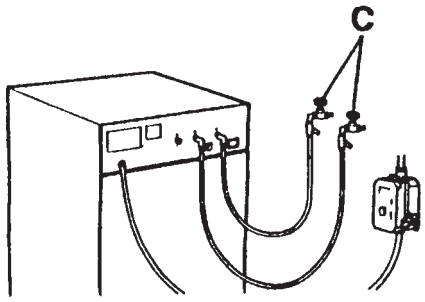

If water continues to fill without stopping

Fig. (72)

A Check hose attached to level control unit.

B 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. (73)

A Check seating of drain valve.

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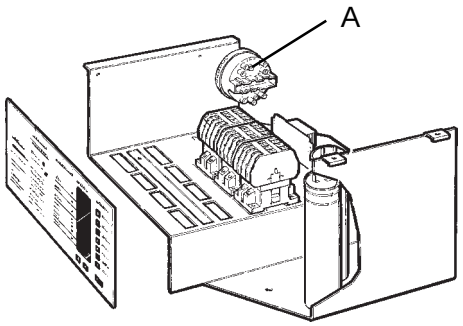

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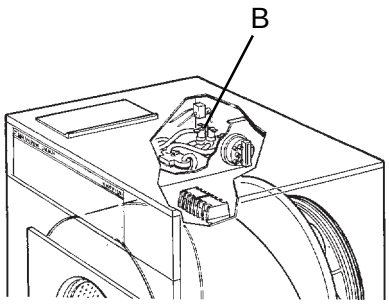

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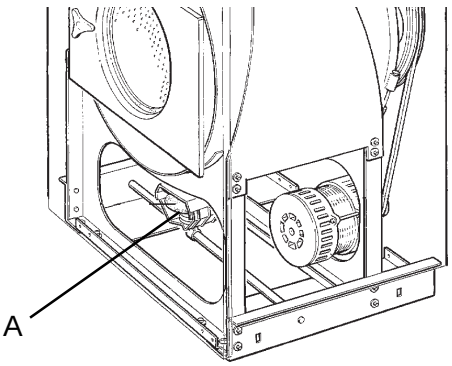

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If machine vibrates excessively

Fig.
(74) Tighten mounting bolts.

Check that the shipping security has been removed. Refer to mechanical installation, page 6.

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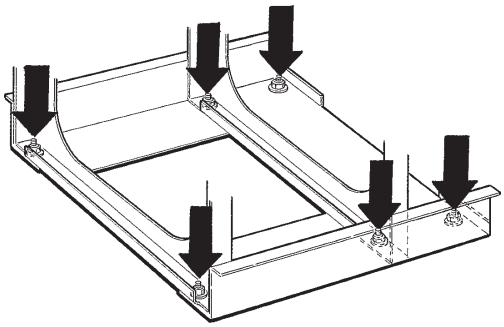

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Service Information

Fig. 75

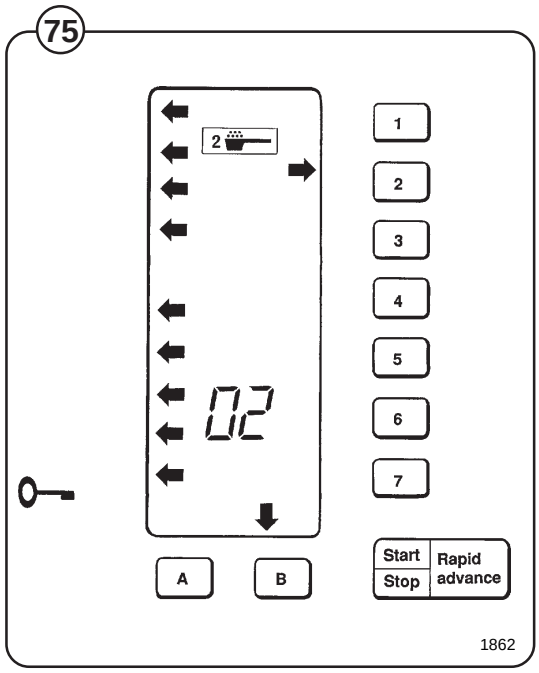
If there is a mains power failure the machines' memory will remember the selected program for about 8-10 minutes. The machine will restart automatically when power is restored.

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 and shut. Try again.
03	Short circuit in or to the temperatue sensor.
04	Too high temperature, check temperature sensor and cable.
05	Water in the machine at program start.
06	Program defect.
07	Heating defective. (Steam or electric heated machines only).
08	Machine not empty after drain period.



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.

> **Warning**
>
> **Remember that the machine is under power when setting service switch.**

Fig. 76

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

Fig. 77

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

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

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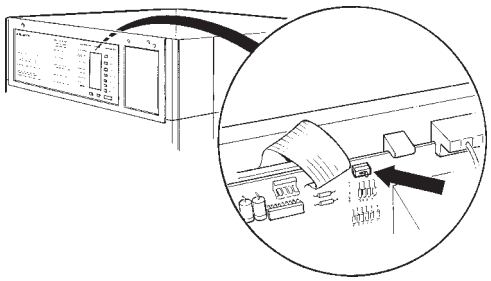

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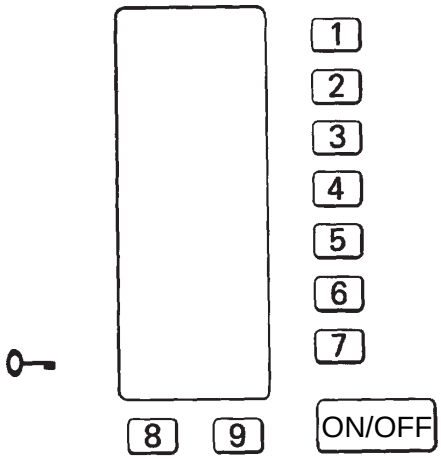

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Function checks

Fig. 78

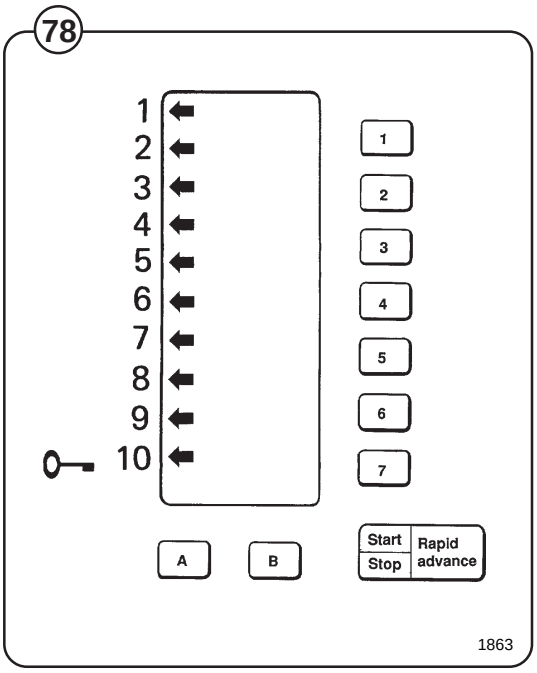
The program indicator on the display window indicates certain inputs by lighting arrows. For example, arrow number 5 is lit when the door closes. This shows that the door's micro switch is operating correctly.

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

Indicator	Function
1	–
2	–
3	–
4	
5	Door lock
6	–
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 (clock-wise)
22	Motor, wash (counter-clock-wise)
23	Not used
24	Extraction (counter-clock-wise)
25	Clutch
26	Drain valve
27	Door lock
28	Not used

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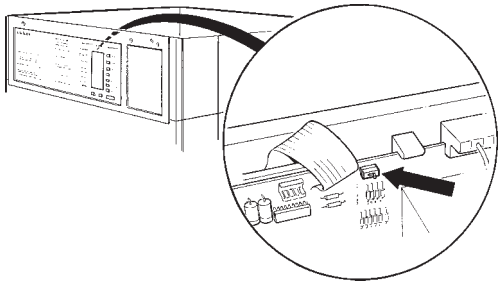


1476

Caution

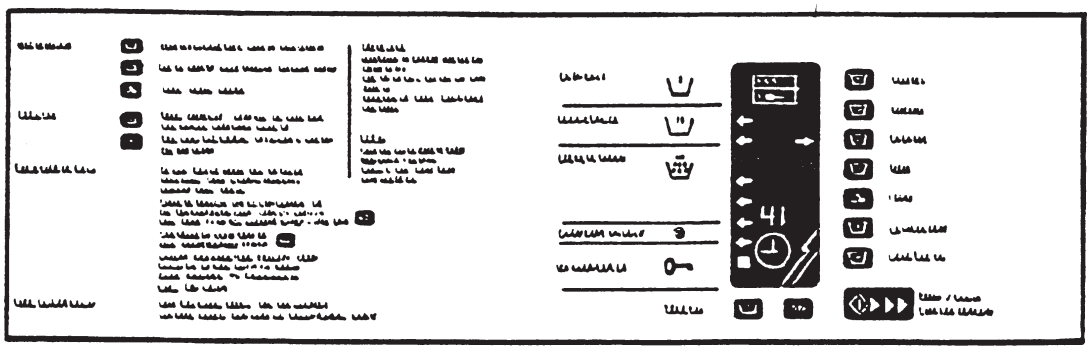
When code 19 is selected the actual temperature reading is shown in the display window – NOT CODE 19.

Leaving service mode

Fig. 79

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

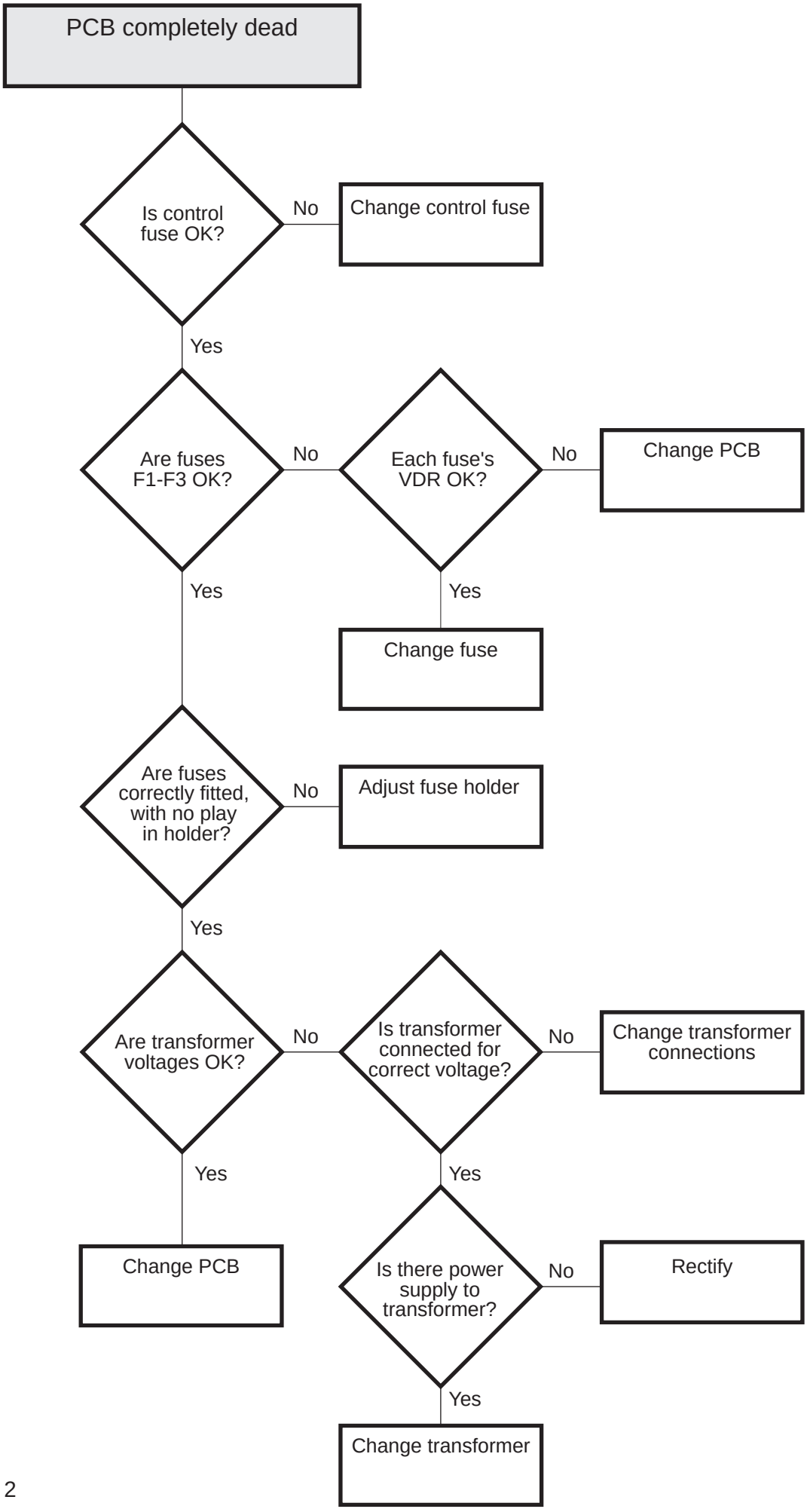
Fault-finding Circuit Board

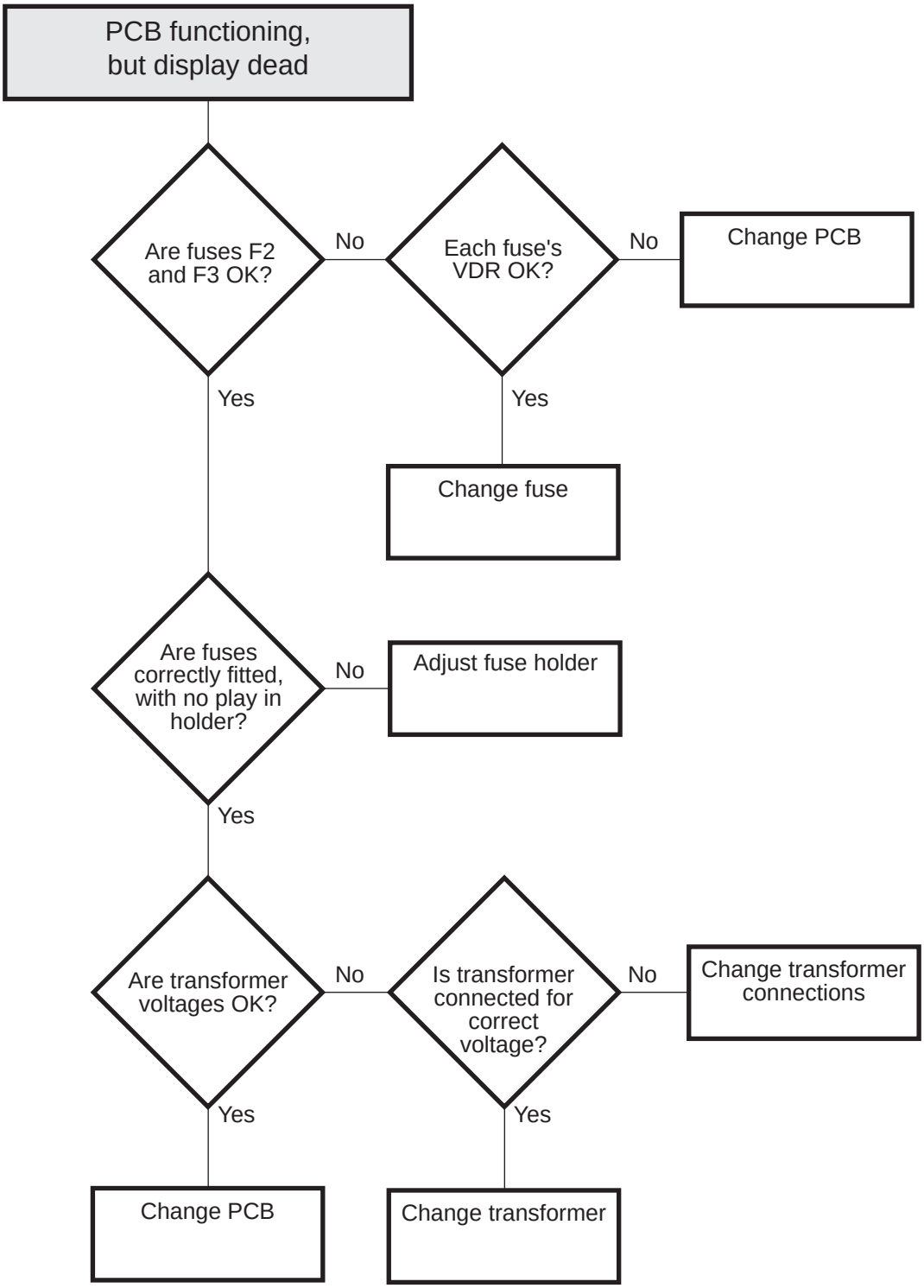


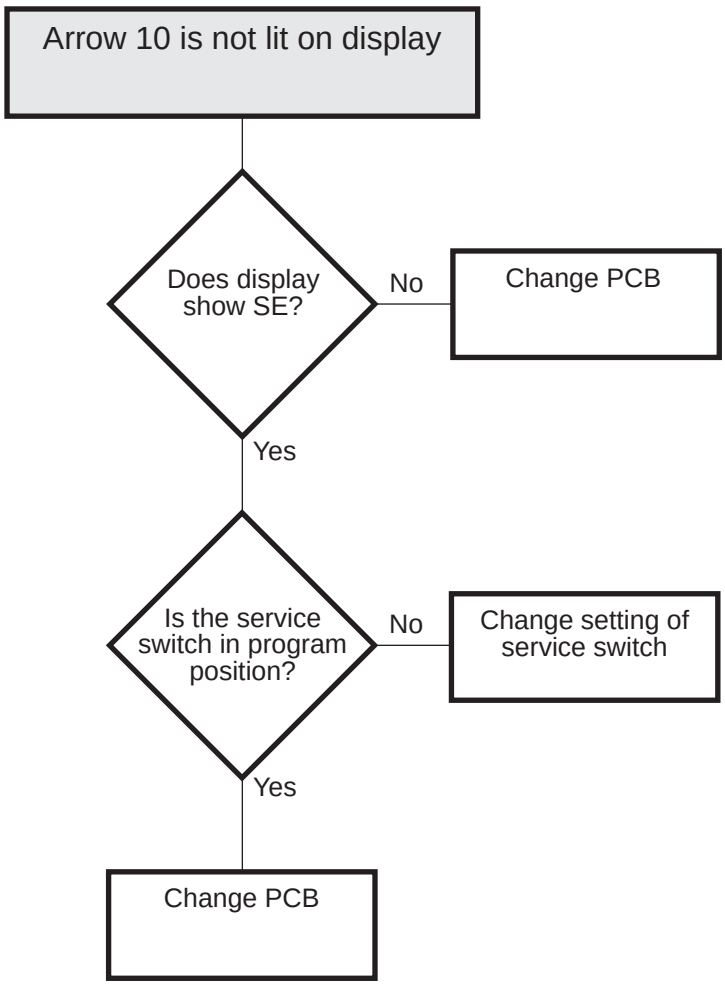
Fault-finding

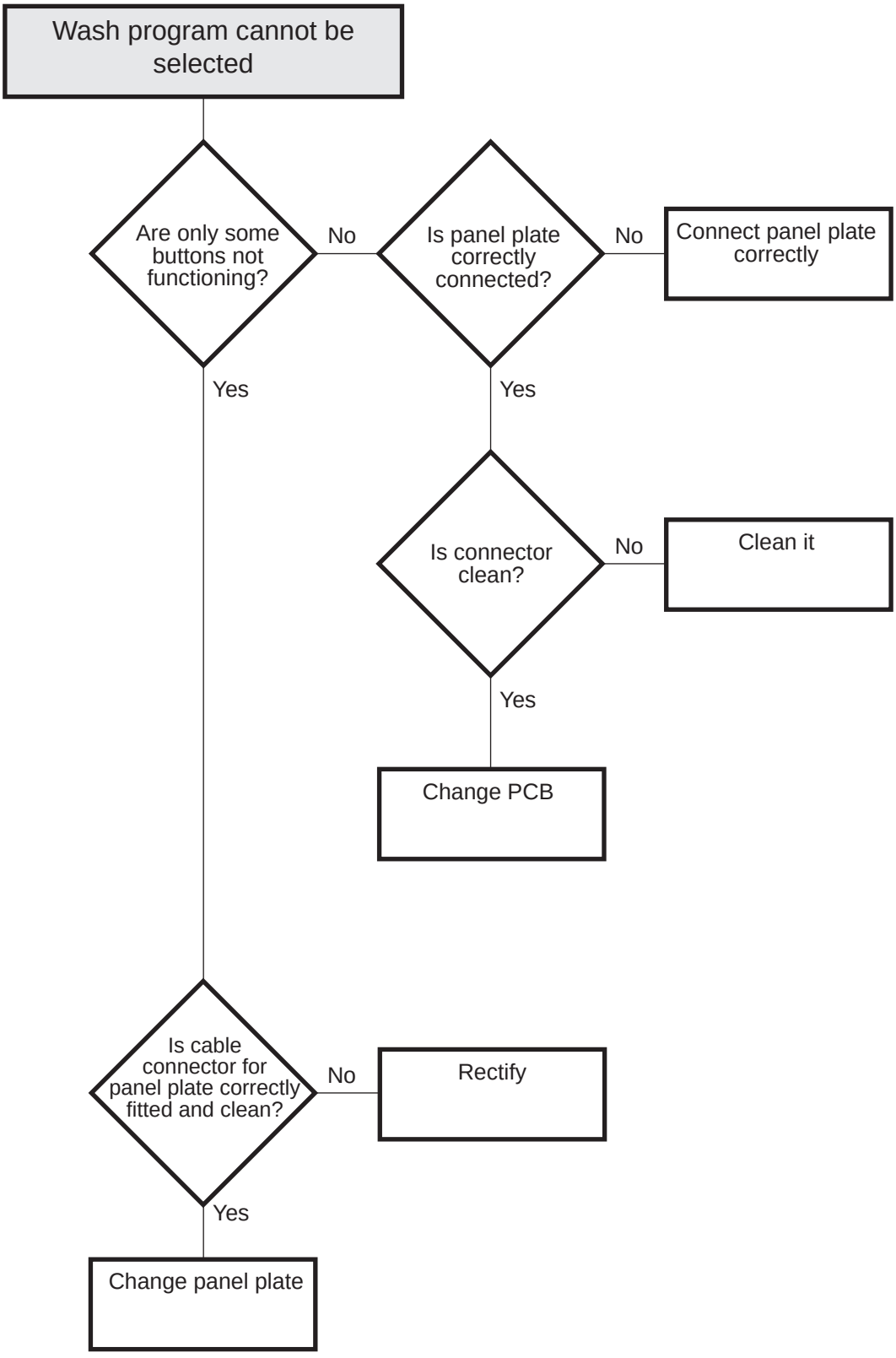
Contents

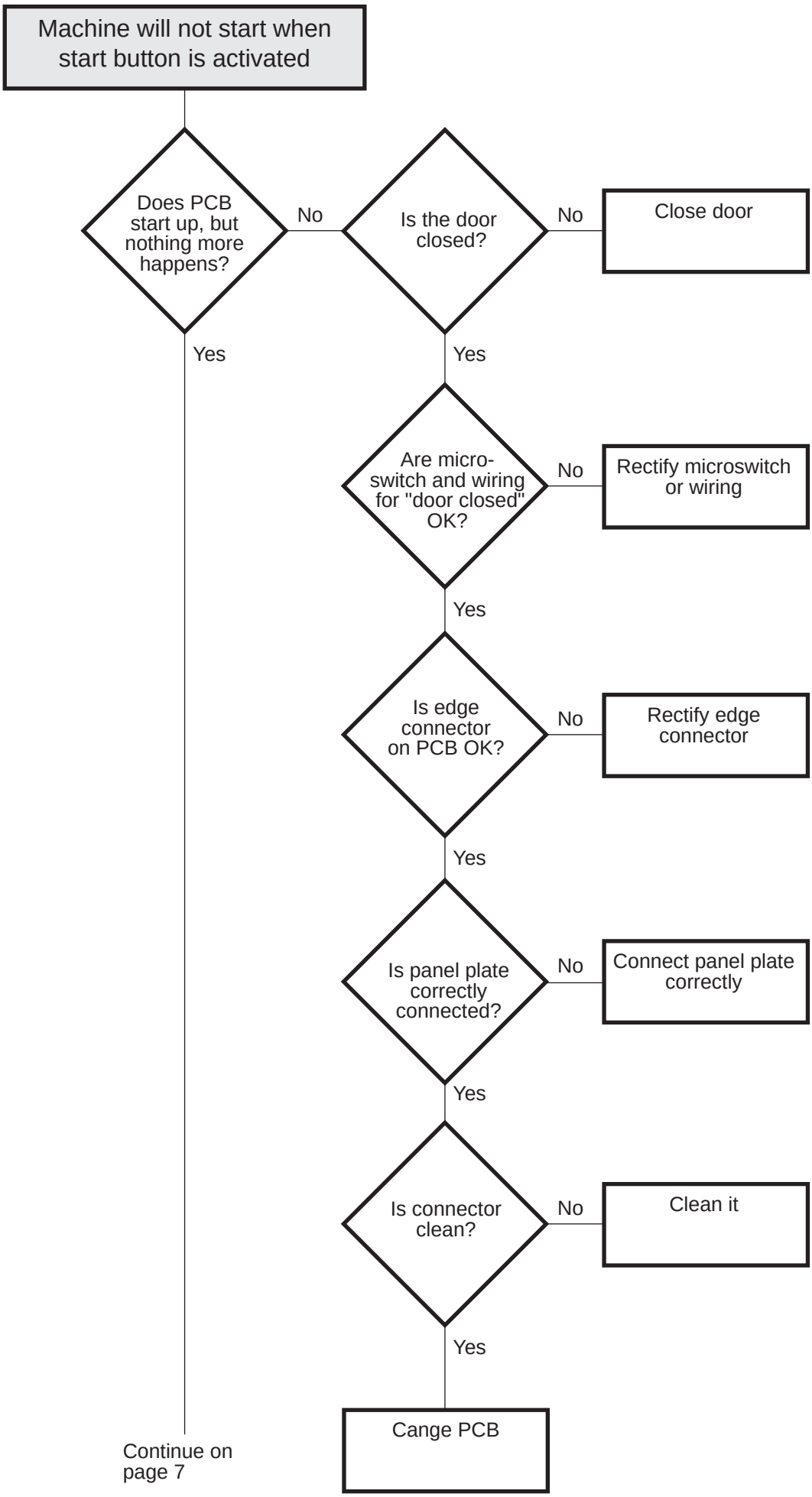
If there is a machine function which is not working, although no error code is displayed, the machine's functions should be checked using SE.

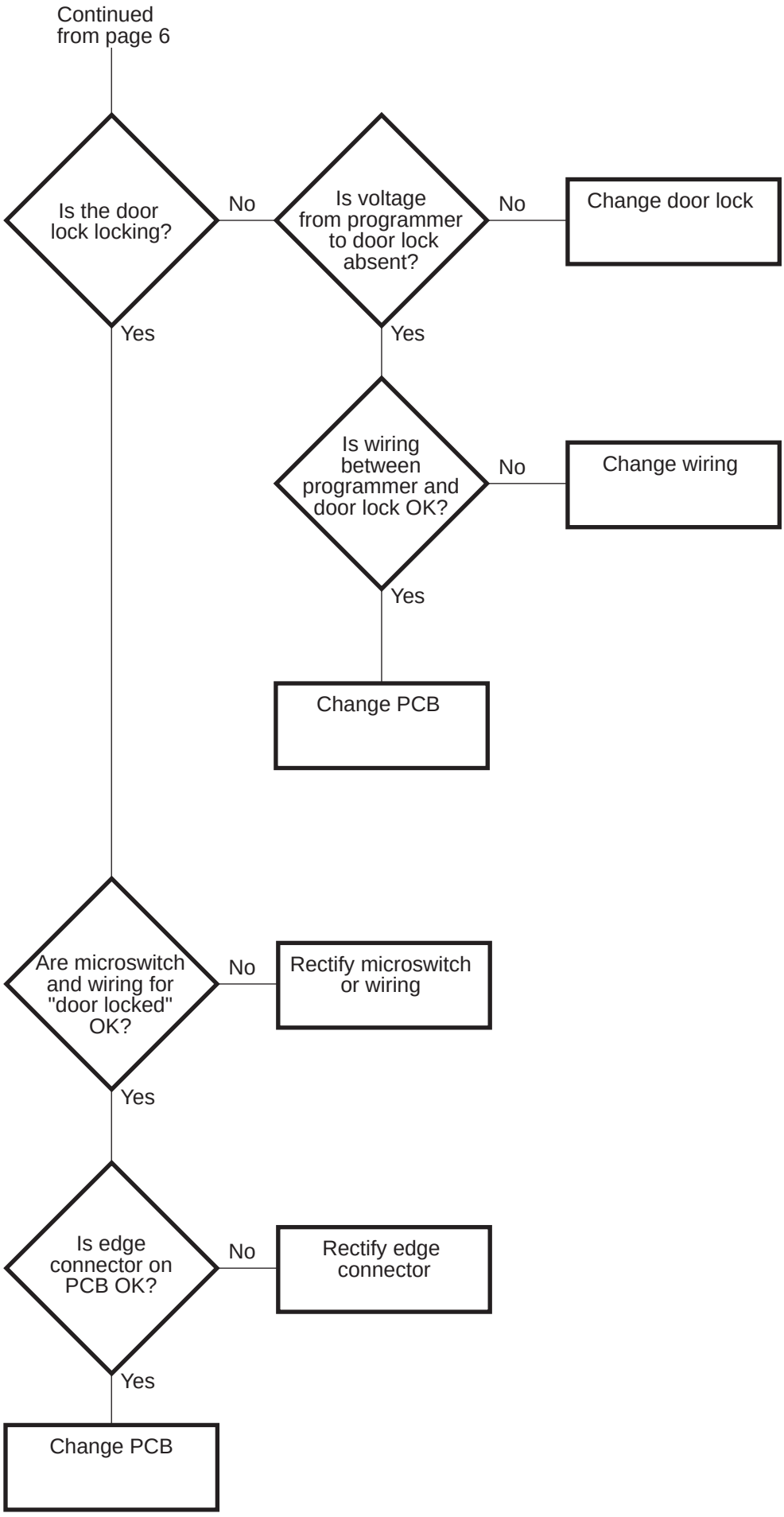

PCB completely dead
Is control fuse OK?
No
Change control fuse
Yes
Are fuses F1-F3 OK?
No
Each fuse's VDR OK?
No
Change PCB
Yes
Yes
Change fuse
Are fuses correctly fitted, with no play in holder?
No
Adjust fuse holder
Yes
Are transformer voltages OK?
No
Is transformer connected for correct voltage?
No
Change transformer connections
Yes
Yes
Change PCB
Is there power supply to transformer?
No
Rectify
Yes
Change transformer

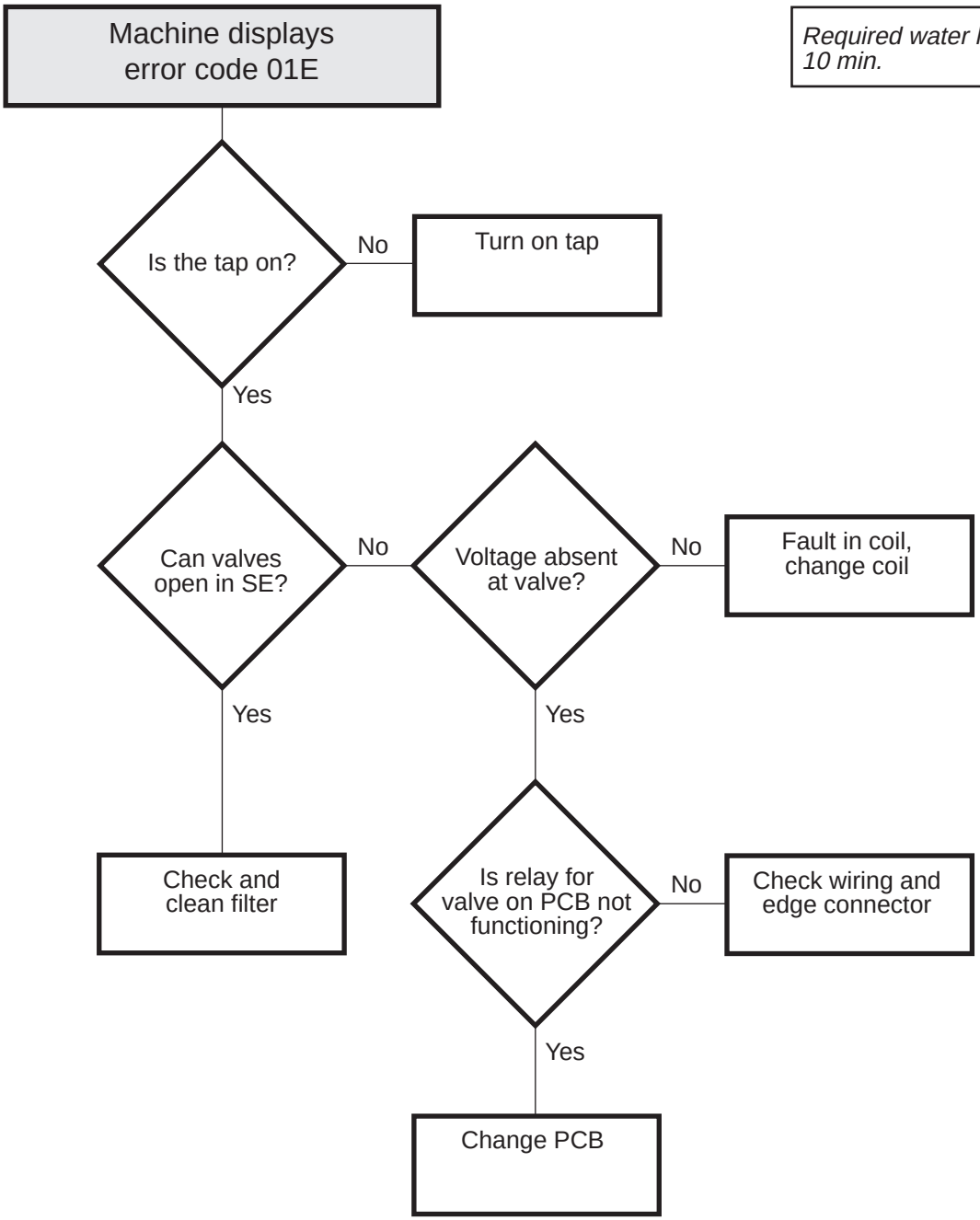

PCB functioning, but display dead
Are fuses F2 and F3 OK?
No
Each fuse's VDR OK?
No
Change PCB
Yes
Yes
Change fuse
Are fuses correctly fitted, with no play in holder?
No
Adjust fuse holder
Yes
Are transformer voltages OK?
No
Is transformer connected for correct voltage?
No
Change transformer connections
Yes
Yes
Change PCB
Change transformer

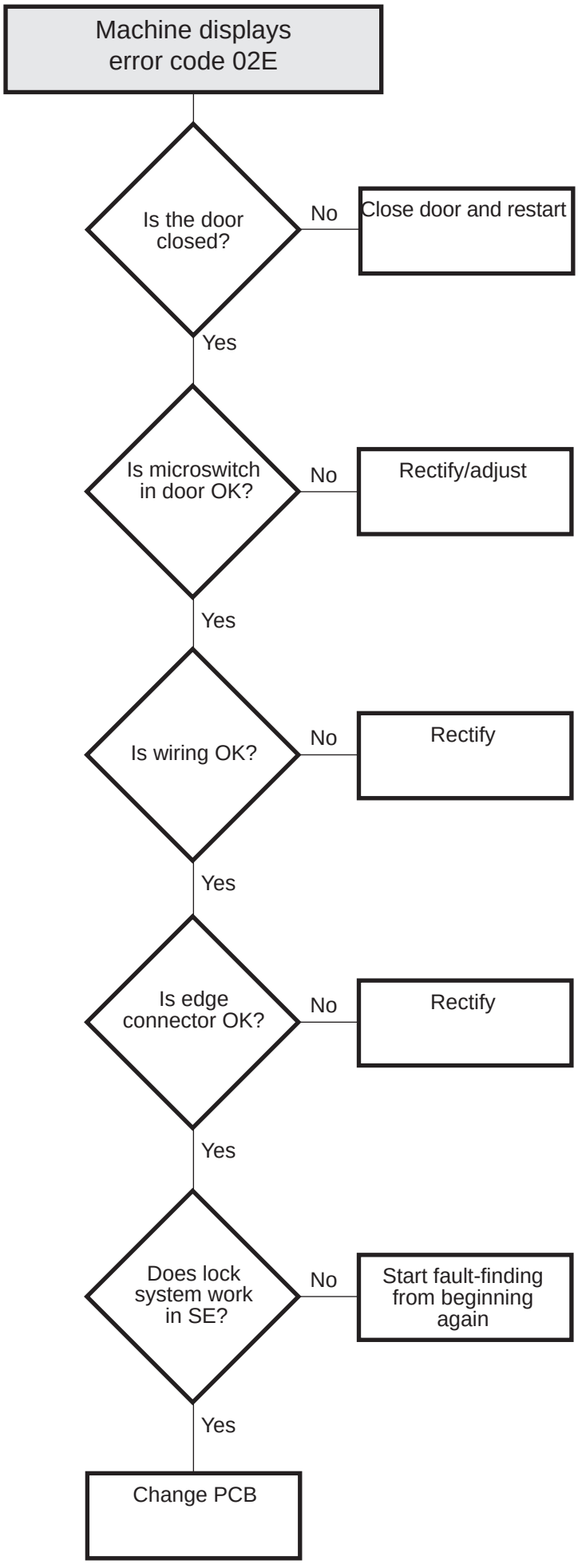

Arrow 10 is not lit on display
Does display show SE?
No
Change PCB
Yes
Is the service switch in program position?
No
Change setting of service switch
Yes
Change PCB


Wash program cannot be selected
Are only some buttons not functioning?
No
Is panel plate correctly connected?
No
Connect panel plate correctly
Yes
Yes
Is connector clean?
No
Clean it
Yes
Change PCB
Is cable connector for panel plate correctly fitted and clean?
No
Rectify
Yes
Change panel plate

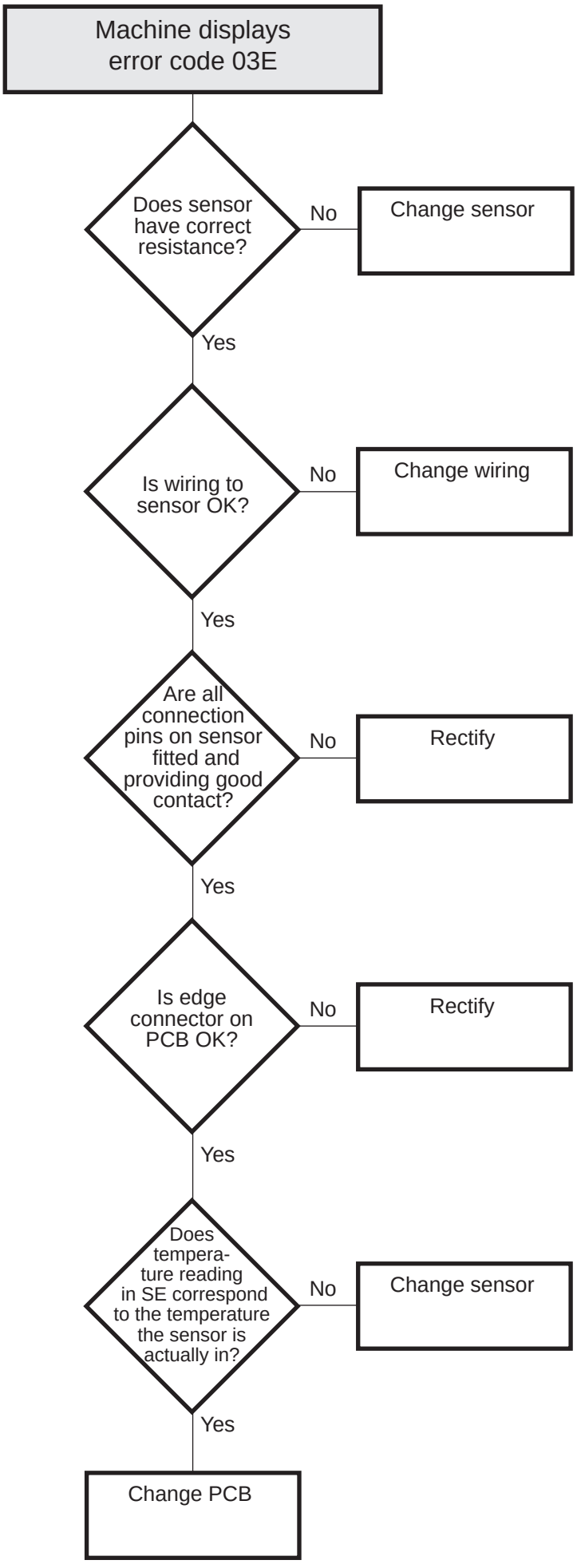

Machine will not start when start button is activated
Does PCB start up, but nothing more happens?
No
Is the door closed?
No
Close door
Yes
Yes
Are micro-switch and wiring for "door closed" OK?
No
Rectify microswitch or wiring
Yes
Is edge connector on PCB OK?
No
Rectify edge connector
Yes
Is panel plate correctly connected?
No
Connect panel plate correctly
Yes
Is connector clean?
No
Clean it
Yes
Cange PCB
Continue on page 7


Continued from page 6
Is the door lock locking?
No
Is voltage from programmer to door lock absent?
No
Change door lock
Yes
Yes
Is wiring between programmer and door lock OK?
No
Change wiring
Yes
Change PCB
Are microswitch and wiring for "door locked" OK?
No
Rectify microswitch or wiring
Yes
Is edge connector on PCB OK?
No
Rectify edge connector
Yes
Change PCB

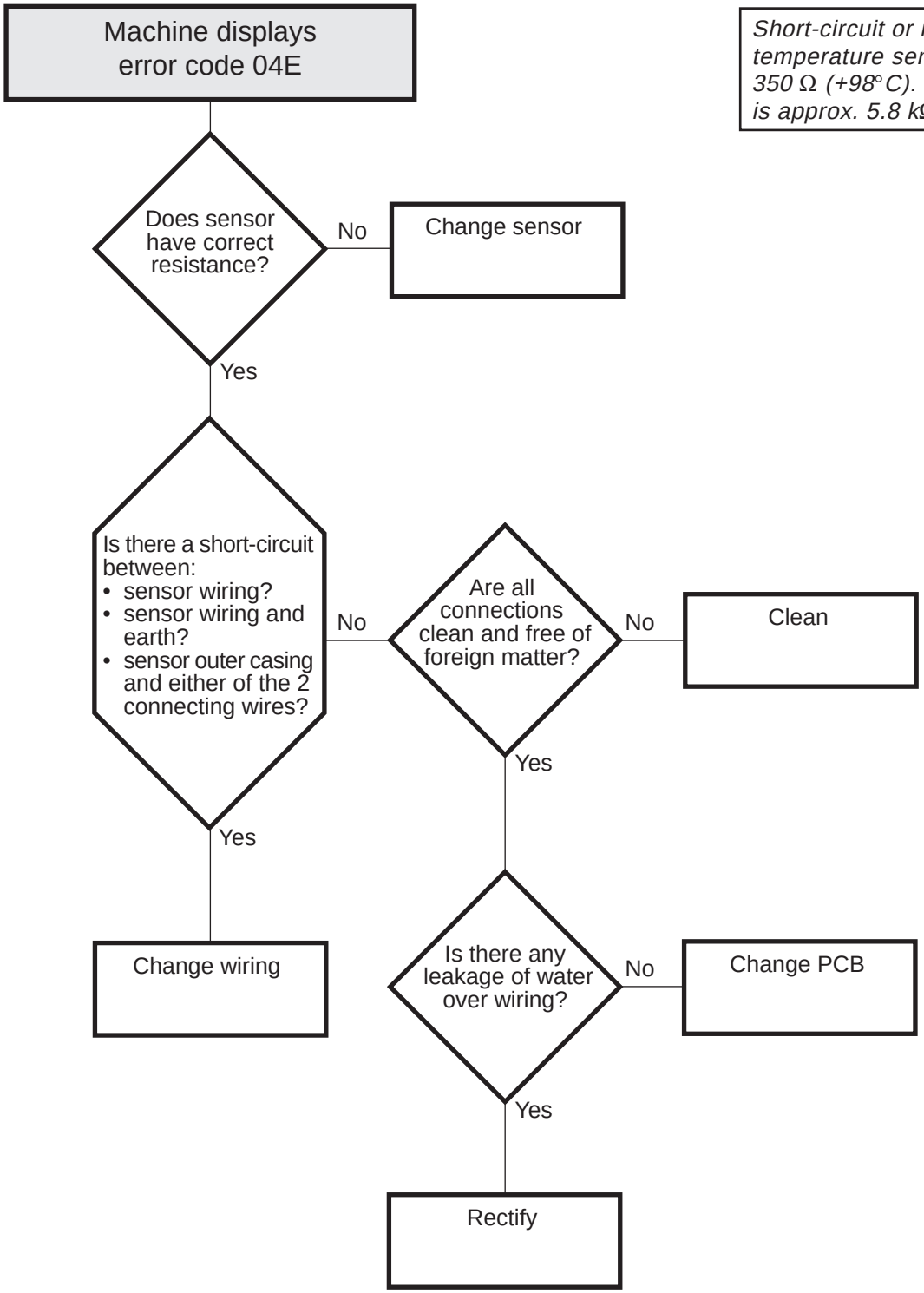

Machine displays error code 01E
Required water level not reached within 10 min.
Is the tap on?
No
Turn on tap
Yes
Can valves open in SE?
No
Voltage absent at valve?
No
Fault in coil, change coil
Yes
Yes
Check and clean filter
Is relay for valve on PCB not functioning?
No
Check wiring and edge connector
Yes
Change PCB

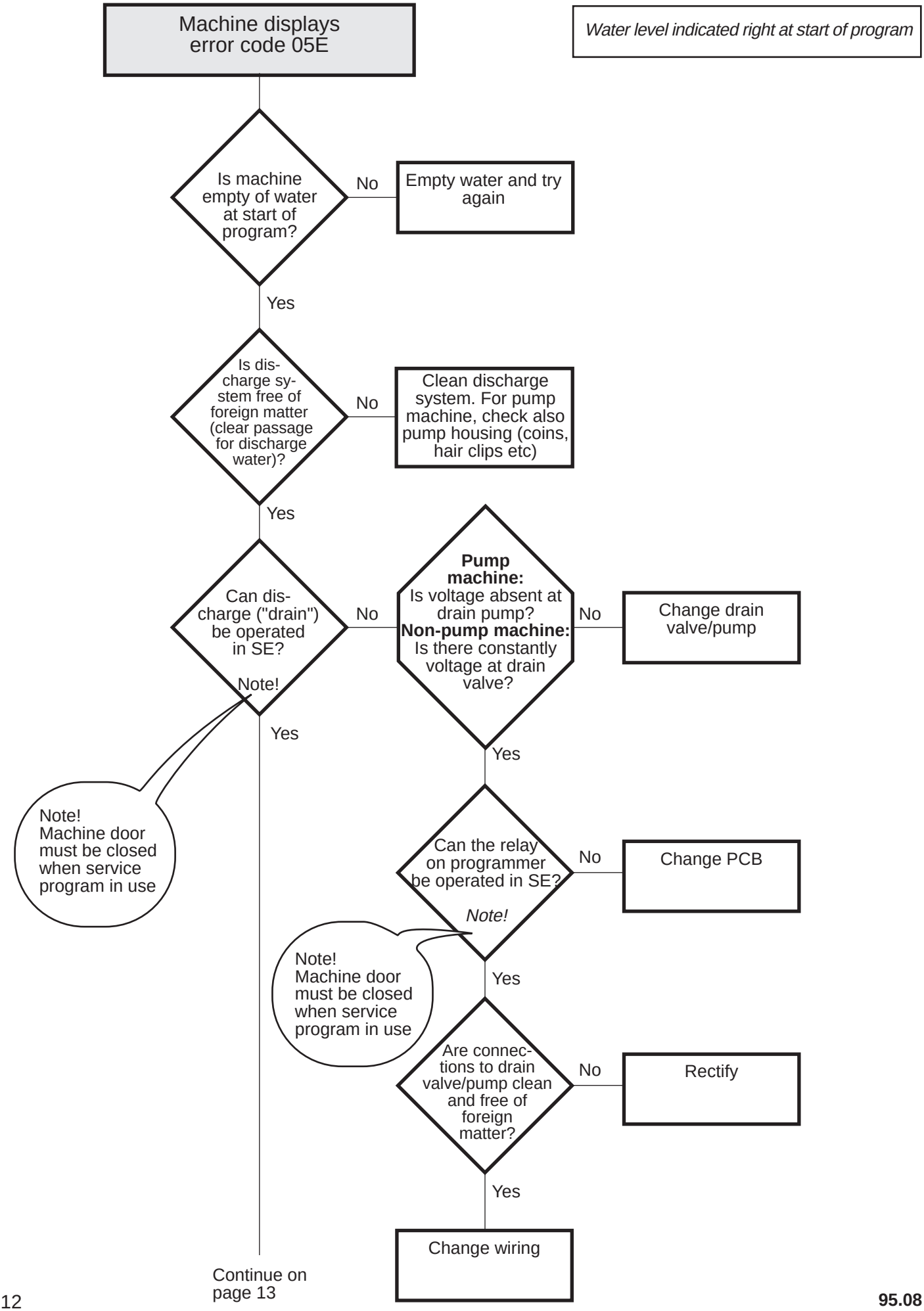


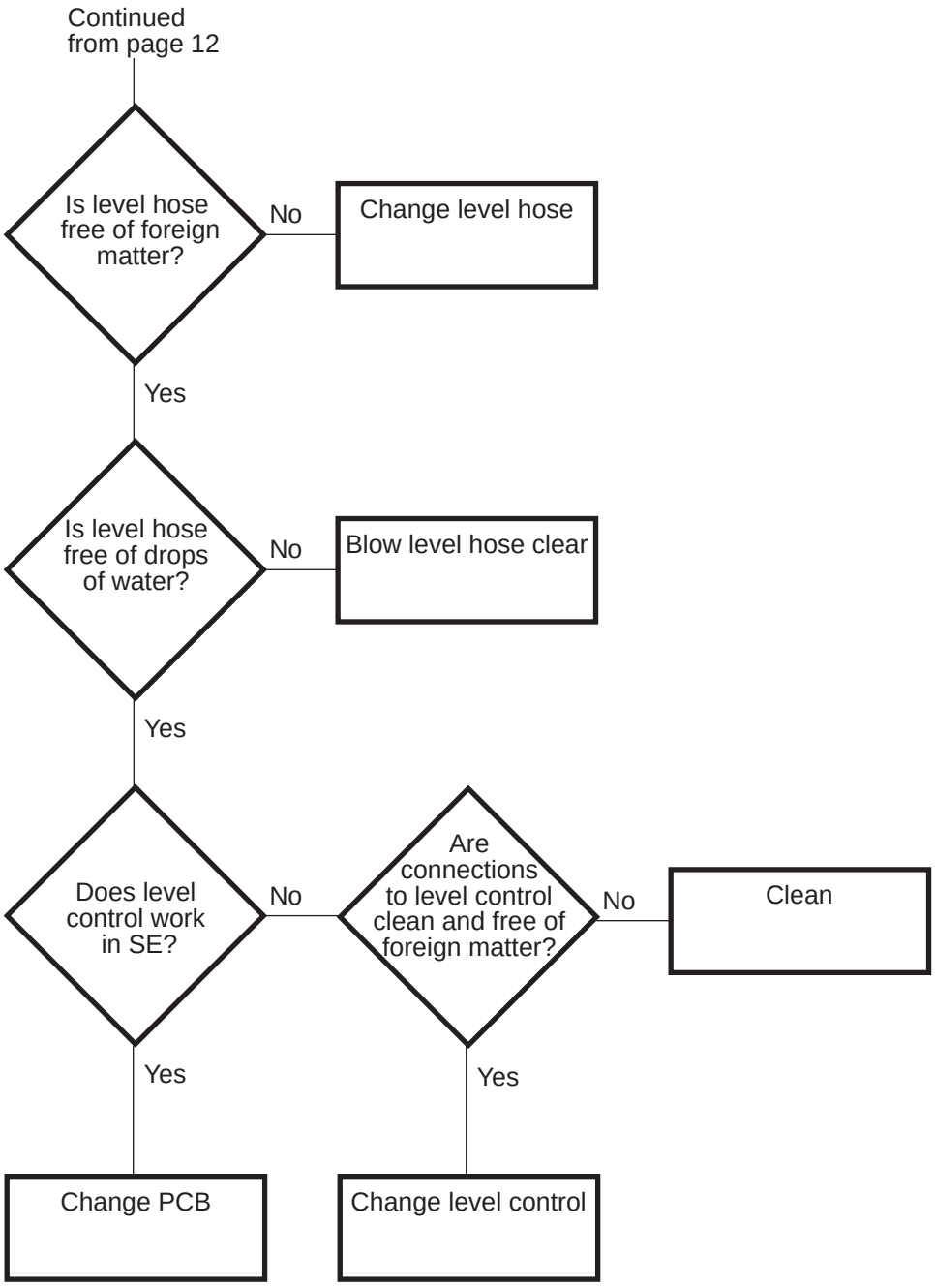
Microswitch "door closed" (S3) not closed when wash program in progress. In the service program, closed microswitch is indicated by program indicator arrow 5 being lit.

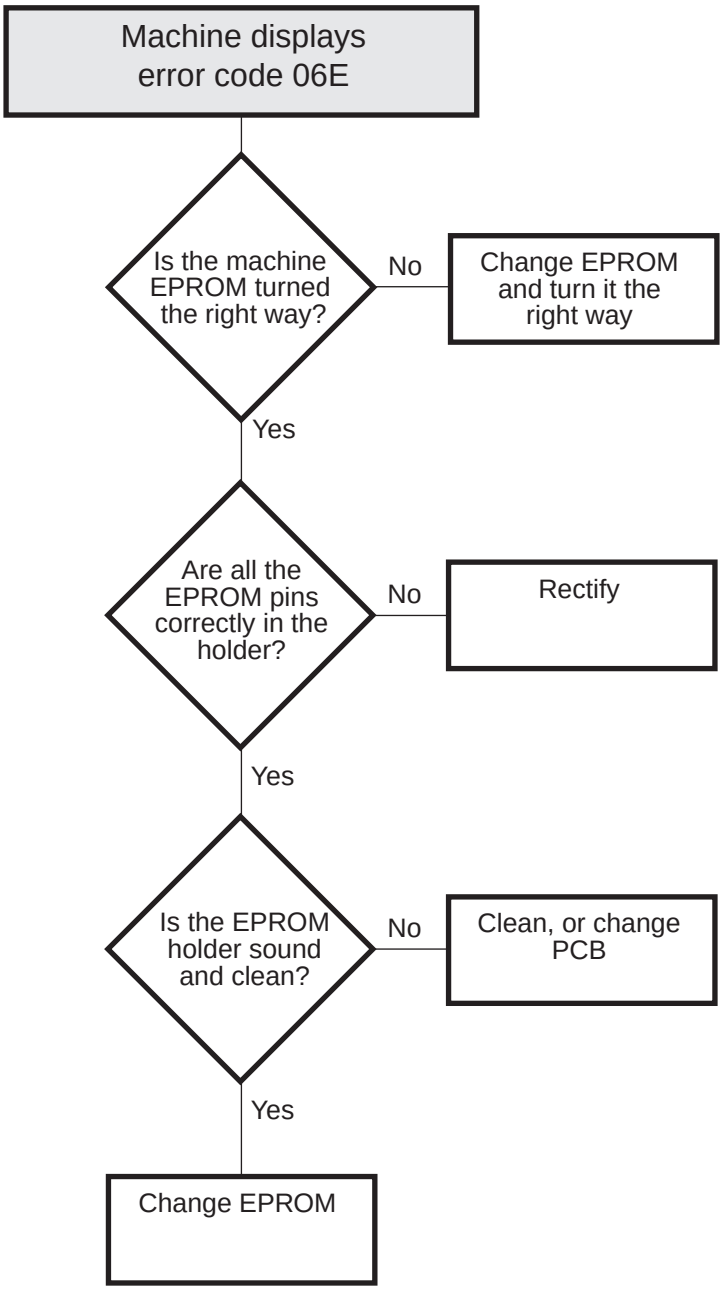


Fault or resistance too high in temperature sensor. Threshold value is approx. 17.4 kΩ (-3°C). At 20°C the sensor's resistance is approx. 5.8 kΩ.

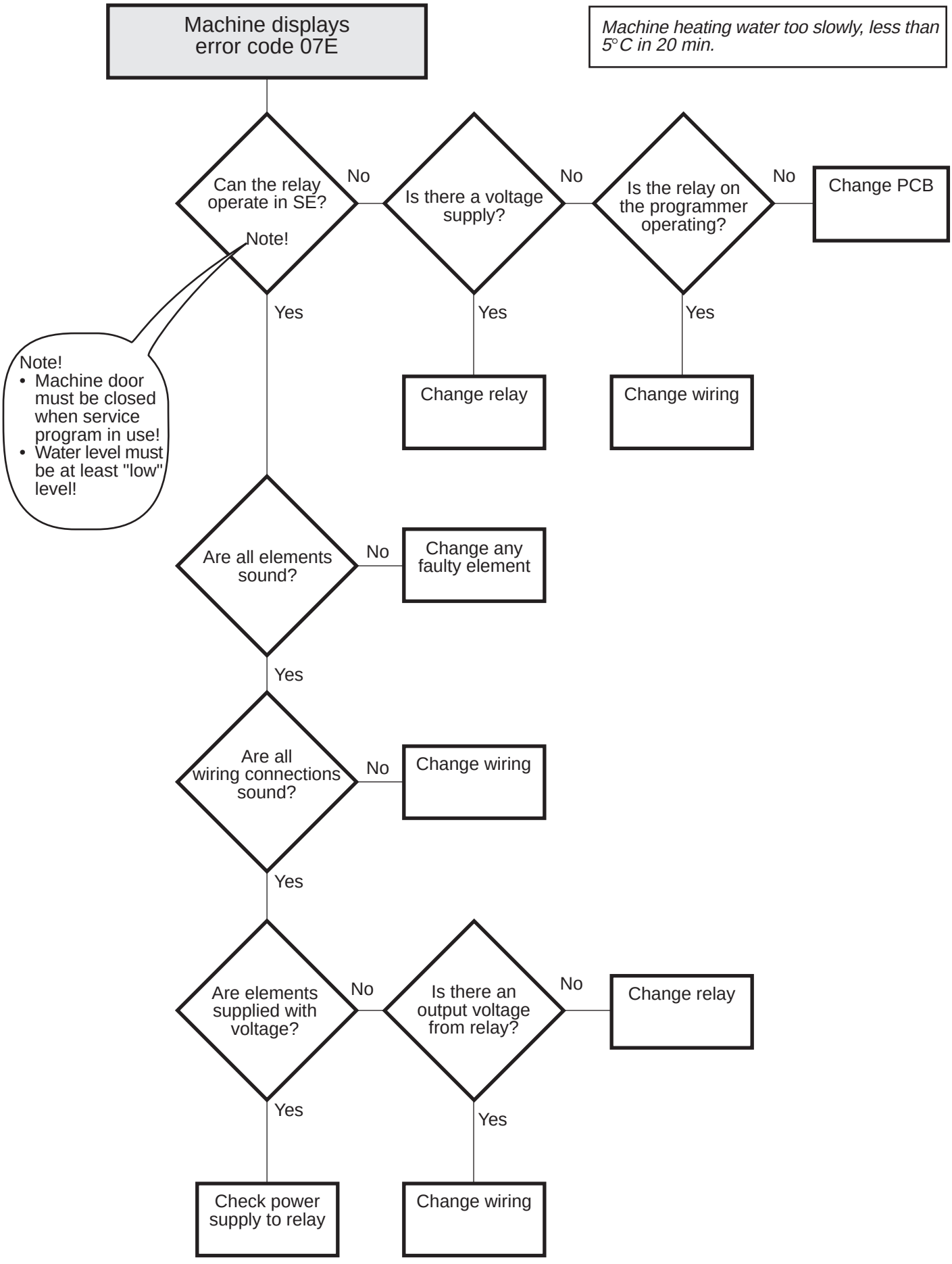

Machine displays error code 04E
Short-circuit or resistance too low in temperature sensor.Threshold at approx. 350 Ω (+98°C). Sensor resistance at 20°C is approx. 5.8 kΩ.
Does sensor have correct resistance?
No
Change sensor
Yes
Is there a short-circuit between:
• sensor wiring?
• sensor wiring and earth?
• sensor outer casing and either of the 2 connecting wires?
No
Are all connections clean and free of foreign matter?
No
Clean
Yes
Yes
Change wiring
Is there any leakage of water over wiring?
No
Change PCB
Yes
Rectify

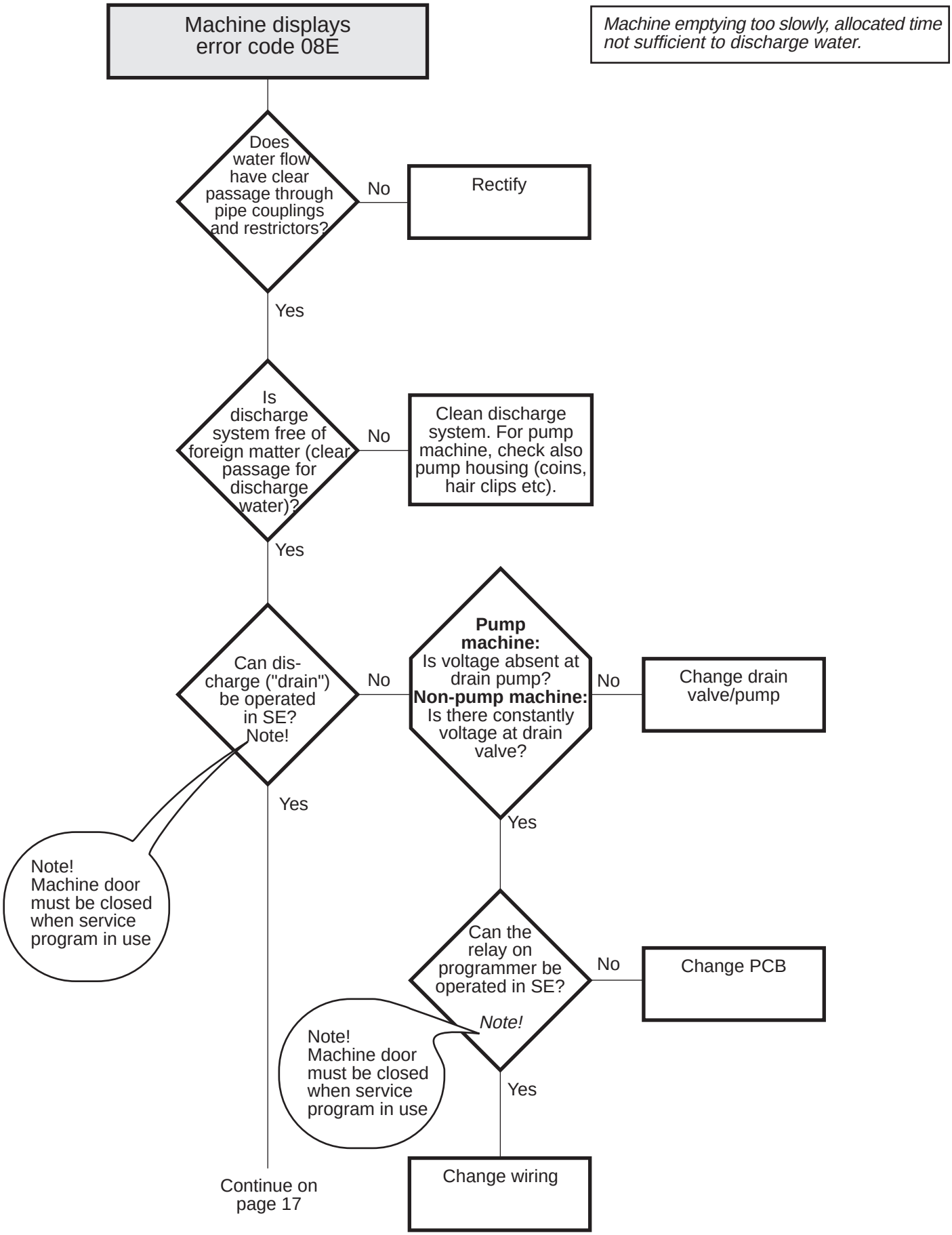

Machine displays error code 05E
Water level indicated right at start of program
Is machine empty of water at start of program?
No
Empty water and try again
Yes
Is discharge system free of foreign matter (clear passage for discharge water)?
No
Clean discharge system. For pump machine, check also pump housing (coins, hair clips etc)
Yes
Can discharge ("drain") be operated in SE?
No
Pump machine: Is voltage absent at drain pump? Non-pump machine: Is there constantly voltage at drain valve?
No
Change drain valve/pump
Note!
Yes
Note! Machine door must be closed when service program in use
Yes
Can the relay on programmer be operated in SE?
No
Change PCB
Note!
Note! Machine door must be closed when service program in use
Yes
Are connections to drain valve/pump clean and free of foreign matter?
No
Rectify
Yes
Change wiring
Continue on page 13

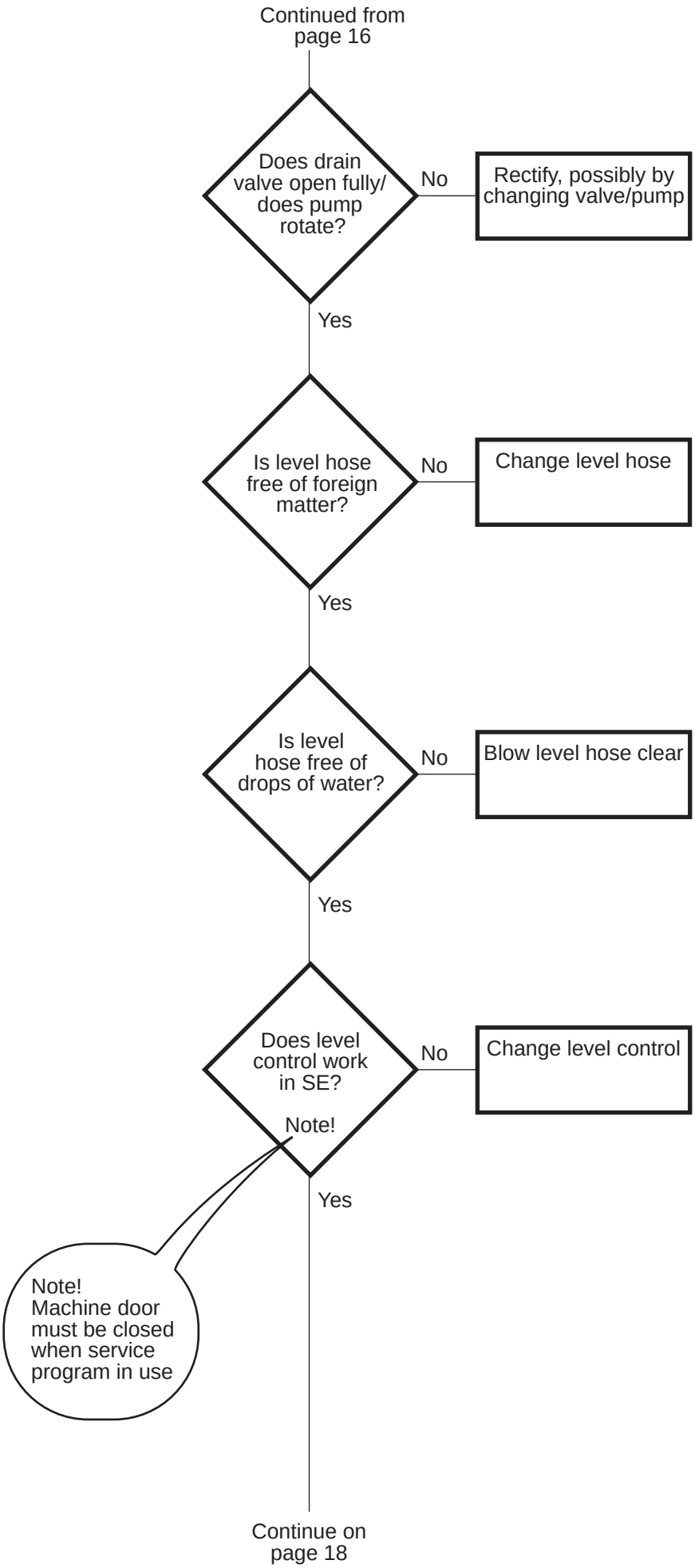

Continued from page 12
Is level hose free of foreign matter?
No
Change level hose
Yes
Is level hose free of drops of water?
No
Blow level hose clear
Yes
Does level control work in SE?
No
Are connections to level control clean and free of foreign matter?
No
Clean
Yes
Yes
Change PCB
Change level control

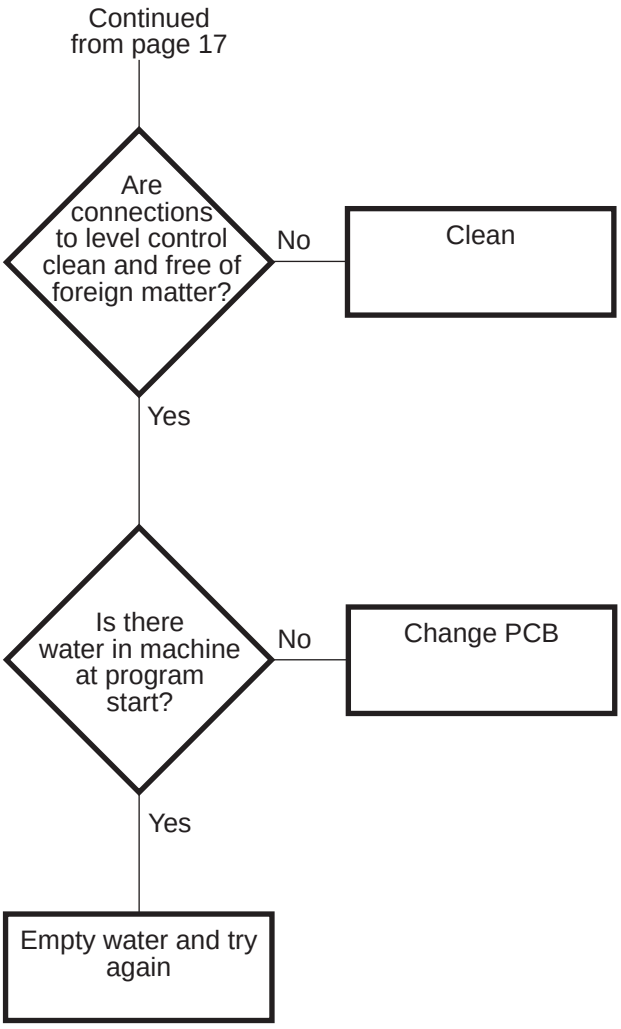


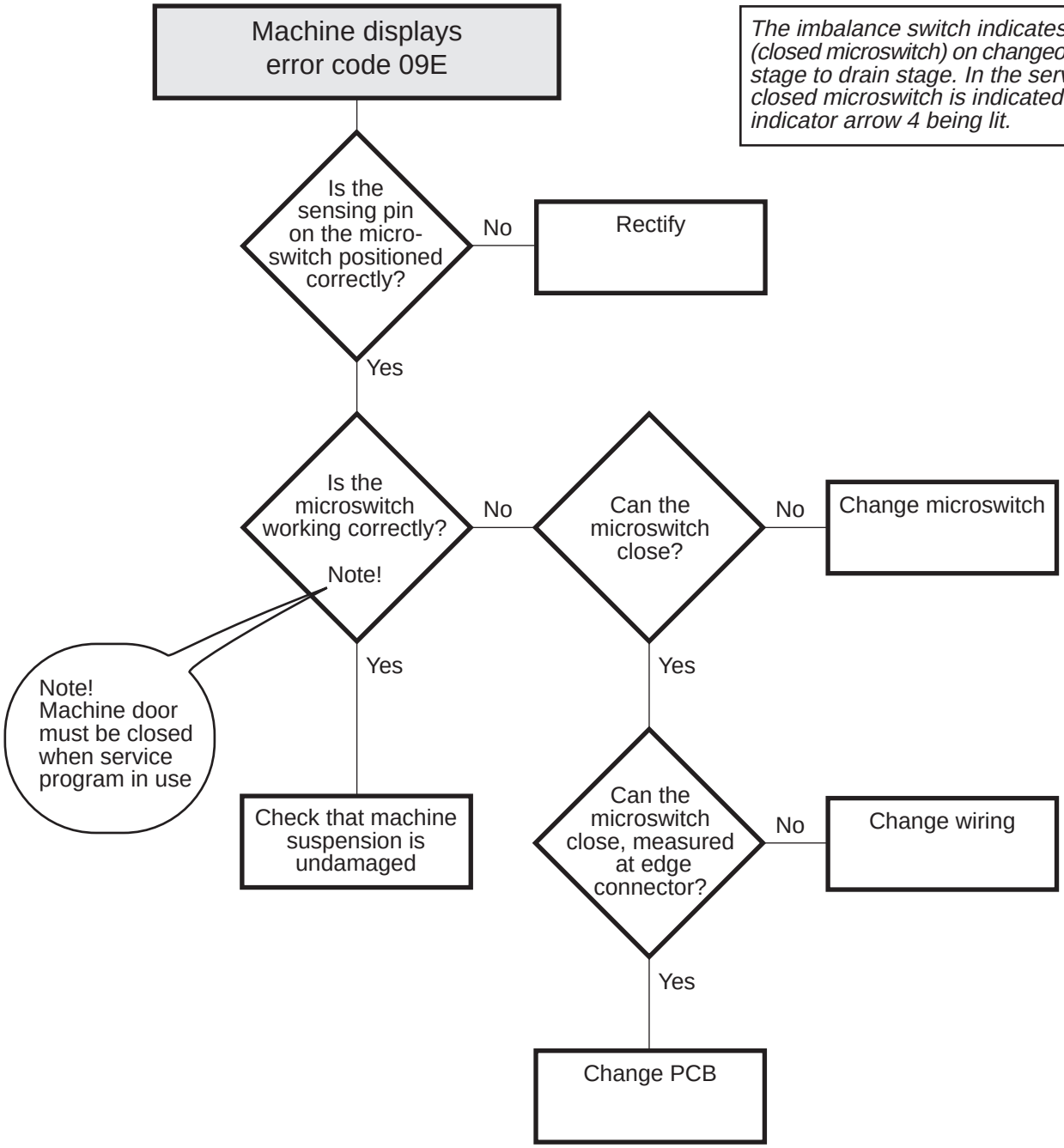
Something wrong with machine EPROM. Code read from EPROM incorrect for some reason.

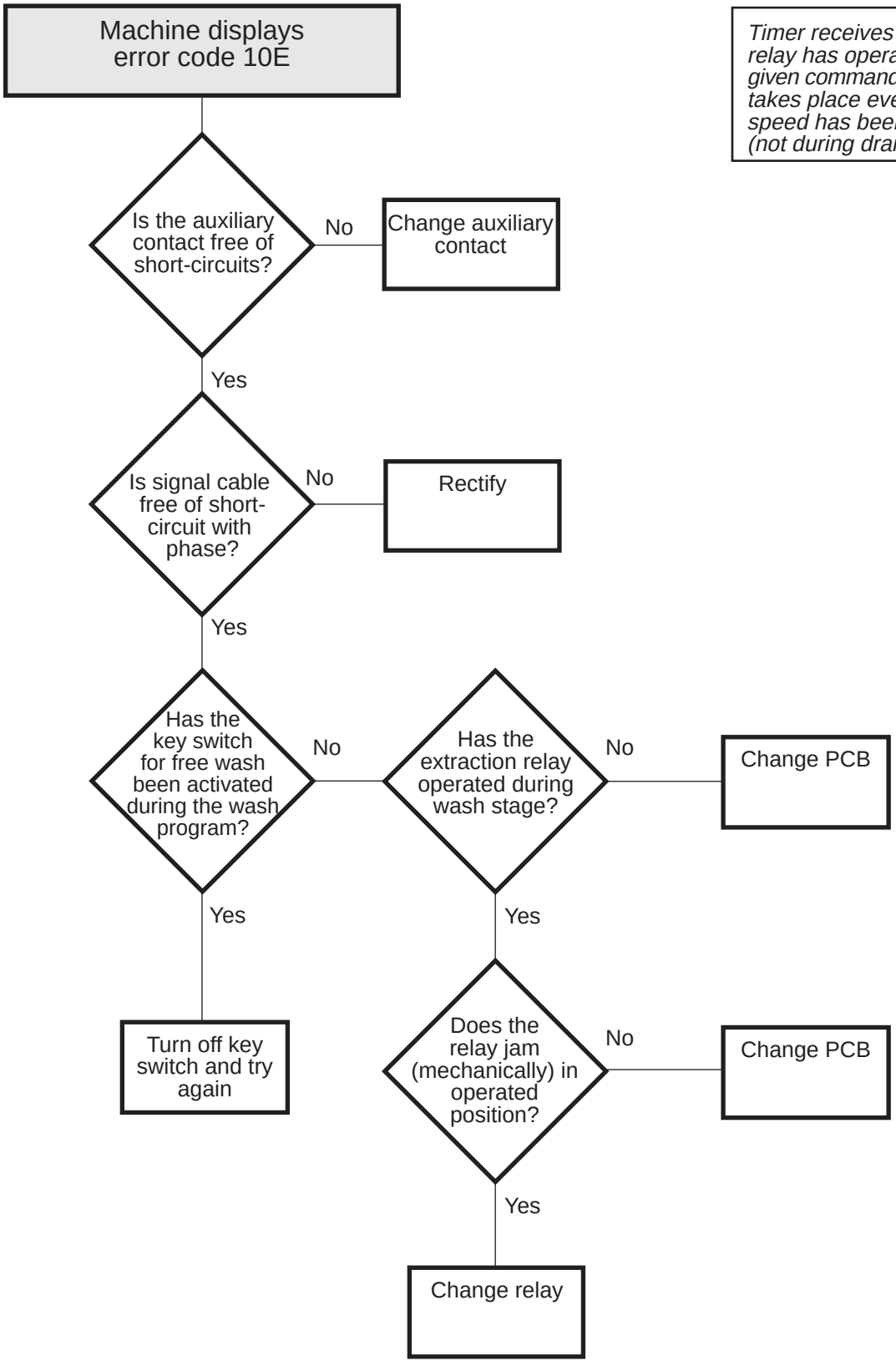

Machine displays error code 07E
Machine heating water too slowly, less than 5°C in 20 min.
Can the relay operate in SE?
No
Is there a voltage supply?
No
Is the relay on the programmer operating?
No
Change PCB
Note!
Yes
Yes
Yes
Change relay
Change wiring
Note!
• Machine door must be closed when service program in use!
• Water level must be at least "low" level!
Are all elements sound?
No
Change any faulty element
Yes
Are all wiring connections sound?
No
Change wiring
Yes
Are elements supplied with voltage?
No
Is there an output voltage from relay?
No
Change relay
Yes
Yes
Check power supply to relay
Change wiring


Machine displays error code 08E
Machine emptying too slowly, allocated time not sufficient to discharge water.
Does water flow have clear passage through pipe couplings and restrictors?
No
Rectify
Yes
Is discharge system free of foreign matter (clear passage for discharge water)?
No
Clean discharge system. For pump machine, check also pump housing (coins, hair clips etc).
Yes
Can dis-charge ("drain") be operated in SE? Note!
No
Pump machine: Is voltage absent at drain pump? Non-pump machine: Is there constantly voltage at drain valve?
No
Change drain valve/pump
Yes
Yes
Note! Machine door must be closed when service program in use
Can the relay on programmer be operated in SE? Note!
No
Change PCB
Note! Machine door must be closed when service program in use
Yes
Change wiring
Continue on page 17


Continued from page 16
Does drain valve open fully/ does pump rotate?
No
Rectify, possibly by changing valve/pump
Yes
Is level hose free of foreign matter?
No
Change level hose
Yes
Is level hose free of drops of water?
No
Blow level hose clear
Yes
Does level control work in SE?
No
Change level control
Note!
Yes
Note! Machine door must be closed when service program in use
Continue on page 18


Continued from page 17
Are connections to level control clean and free of foreign matter?
No
Clean
Yes
Is there water in machine at program start?
No
Change PCB
Yes
Empty water and try again


Machine displays error code 09E
The imbalance switch indicates imbalance (closed microswitch) on changeover from wash stage to drain stage. In the service program, closed microswitch is indicated by program indicator arrow 4 being lit.
Is the sensing pin on the micro-switch positioned correctly?
No
Rectify
Yes
Is the microswitch working correctly?
No
Can the microswitch close?
No
Change microswitch
Note!
Yes
Yes
Note! Machine door must be closed when service program in use
Check that machine suspension is undamaged
Can the microswitch close, measured at edge connector?
No
Change wiring
Yes
Change PCB


Machine displays error code 10E
Timer receives signal that the extraction relay has operated, even though timer has given command for wash speed. This check takes place every time command for wash speed has been issued during wash stage (not during drain or extraction stages).
Is the auxiliary contact free of short-circuits?
No
Change auxiliary contact
Yes
Is signal cable free of short-circuit with phase?
No
Rectify
Yes
Has the key switch for free wash been activated during the wash program?
No
Has the extraction relay operated during wash stage?
No
Change PCB
Yes
Yes
Turn off key switch and try again
Does the relay jam (mechanically) in operated position?
No
Change PCB
Yes
Change relay