OPERATING & MAINTENANCE MANUAL
WASCOMAT FLEX-O-MATIC FL 125
WASCOMAT FLEX-O-MATIC FL 185

471 1562-68/03
97.43

Up to machine No. FL125 -96/28011
FL185 -96/13444

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

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

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

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

NOTICE TO: OWNERS, OPERATORS AND DEALERS OF WASCOMAT MACHINES

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

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

2. Check the door safety interlock, as follows:

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

   For coin-operated models, insert the proper coins to start the machine.

   For manually operated models, place the ON-OFF switch in the ON position and press the Start switch.

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

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

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

   THE MACHINE(S) SHOULD NOT START !

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

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

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

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

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

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

SAFETY AND WARNINGS SIGNS

Replace If Missing Or Illegible

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

LOCATED ON THE OPERATING INSTRUCTION SIGN OF THE MACHINE:

CAUTION

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

MACHINE SHOULD NOT BE USED BY CHILDREN

PRECAUCION

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

LAS MÁQUINAS NO DEBEN SER USADAS POR NIÑOS

LOCATED AT THE REAR OF THE MACHINE:

INSTALLATION AND MAINTENANCE WARNINGS

1. **This machine MUST be securely bolted to an uncovered concrete floor, according to the installation instructions, to reduce the risk of fire and to prevent serious injury, or damage to the machine.**
2. **If installed on a floor of combustible material, the floor area below this machine must be covered by a metal sheet extending to the outer edges of the machine.**
3. **This machine MUST be connected to a dedicated electrical circuit to which no other lighting unit or general purpose receptacle is connected. Use copper conductor only.**
4. **This machine MUST be serviced and operated in compliance with manufacturer's instructions. CHECK DOOR LOCKS EVERY DAY FOR PROPER OPERATION TO PRE VENT 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.**
6. **To remove the top panel for service on those models on which it is secured by screws at the rear, first remove the screws. Be certain to reinstall them when remounting the top panel. To remove the top panel for service on those models on which it is secured by one or two keylocks, use the keys originally shipped in the drum package. Be certain to relock after remounting the top panel.**

MANUFACTURED BY WASCATOR
DISTRIBUTED BY WASCOMAT INWOOD, NEW YORK, USA

471 76 62 03-01

LOCATED ON THE DOOR:

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

WARNING !

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

471 7651-17

FLEX-O-MATIC FL 125, FL 185

Contents

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

Safetyinstructions

- **This machine is designed for water washing only.**
- **This 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.**
- **This machine must not be sprayed with water, otherwise short circuiting may occur.**
- **Fabrics softener with volatile or inflammable fluids are not to be used in the machine.**

Introduction

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

The card-programmed FL-model allows for complete programming of water temperatures (only heated machines), water levels, wash and extraction periods and supply injections. The machine is designed for connection to hot and cold water supplies and may be used with free-standing powder or 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 dataplate at the rear of the machine.

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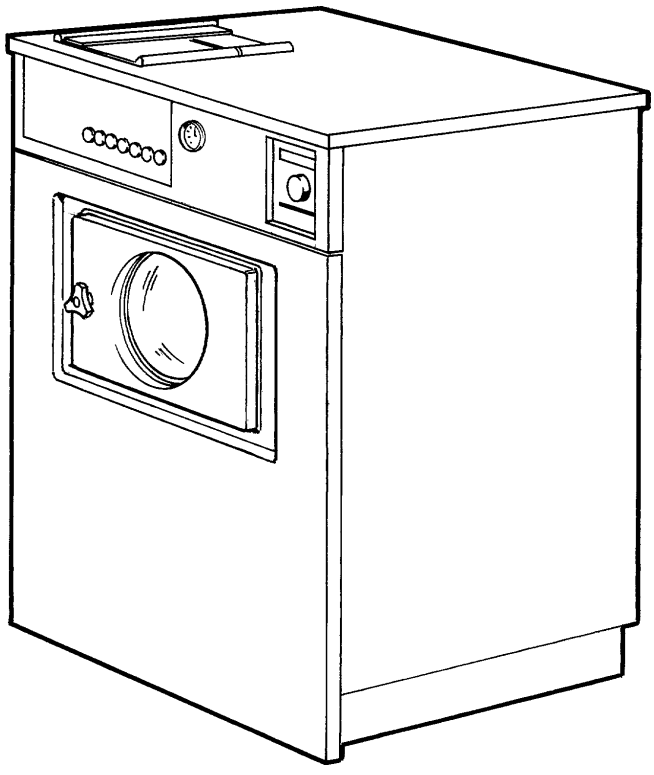

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Technical data FL 125

Dry load capacity	up to	16 kg	35 lbs
Overall dimensions	Width	745 mm	29 11/32 in
	Depth (at the top)	910 mm	35 13/16 in
	Height	1196 mm	47 3/32 in
	Net weight	210 kg	462 lbs
	Dyn force	2.4 ± 4.8 kN	576 ± 1192 lbs force
Crated dimensions	Volume	1,06 m^3	39 cu.ft
	Weight	222 kg	489 lbs
Inner drum dimensions	Diameter	620 mm	24 1/2 in
	Depth	520 mm	20 1/2 in
	Volume	157 litre	5.65 cu.ft
Speed of rotation	Wash	52 r.p.m.	
	Extraction	500 r.p.m.	
G-factor	During wash	0.9	
	During extraction	87	
Motor speed	During wash	330 r.p.m.	
	During extraction	3450 r.p.m.	
Voltage requirements	Choice: 208-240 V 1-Phase 60 Hz or 208-240 V 3-Phase 60 Hz		
Rated output power	Motor, wash,	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 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	DN 20	3/4"
Hose connection, drain	74 mm	3"
Hose connection, steam	DN15	1/2"
Recommended steam pressure	4-6 kp/cm	50-85 psi

Technical data FL 185

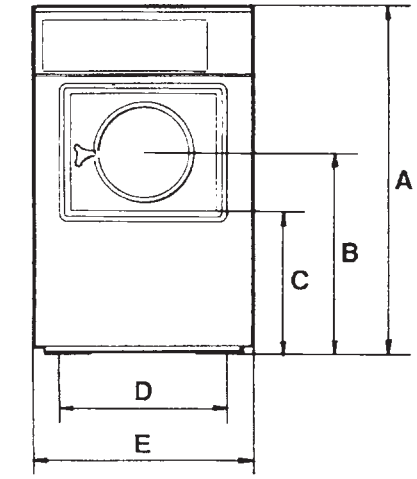
Dry load capacity	up to	23 kg	51 lbs
Overall dimensions	Width	827 mm	32 5/8 in
	Depth (at the top)	960 mm	37 13/16 ın
	Height	1315 mm	51 3/4 in
	Net weight	264kg	582 lbs
	Dyn force	3.1 ± 5.2 kN	744 ± 1248 lbs force
Crated dimensions	Volume	1,42 m^3	50.2 cu.ft.
	Weight	275 kg	606 lbs
Inner drum	Diameter	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	
Motor speed	During wash	360 r.p.m.	
	During extraction	3480 r.p.m.	
Voltage requirements	Choice: 208-240 V 3-Phase 60 Hz or 208-240 V 1 -phase 60 Hz		
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
Overcurrent protection	Three-phase	15 A	
	Single-phase	20 A	

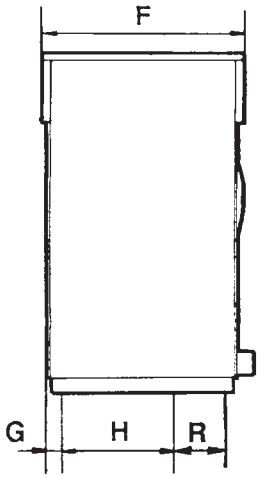
Water connections

Recommended water pressure	2-6 kp/cm^2	25-85 psi
Hose connection, water	DN 20	3/4"
Hose connection, drain	74 mm	3"
Hose connection, steam	DN15	1/2"
Recommended steam pressure	4-6 kp/cm	50-85 psi

Technical data

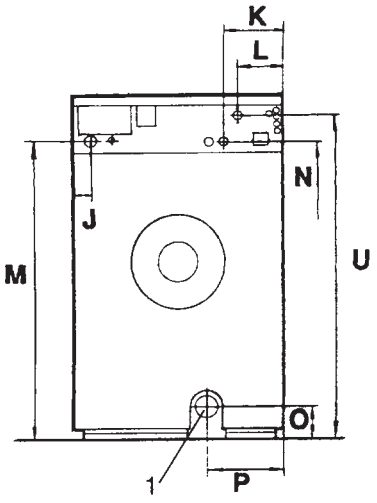
Outline and dimensions





	FL 125		FL 185	
	mm	inches	mm	inches
A	1196	47 3/32	1315	51 3/4
B	691	27 7/32	765	30 1/8
C	465	18 5/16	540	21 1/4
D	600	23 5/8	700	27 9/16
E	775	30 1/2	860	33 27/32
F	995	39 3/16	1085	42 11/16
G	60	2 3/8	60	2 3/8
H	508	20	600	23 5/8
J	58	2 9/32	58	2 9/32
K	205	8 1/16	205	8 1/16
L	160	6 9/32	160	6 9/32
M	1040	40 15/16	1160	45 5/8
N	1055	41 17/32	1177	46 5/16
O	100	3 15/16	100	3 15/16
P	270	10 5/8	260	10 3/8
R	281	11 1/16	236	9 7/16
S	-	-	295	11 9/16
T	-	-	1215	47 7/8
U	1135	44 11/16	1255	49 13/32

1 Drain outlet



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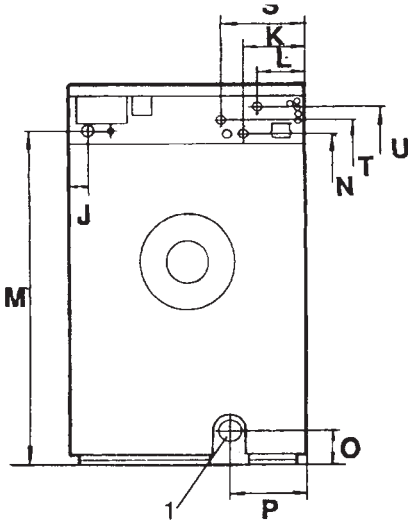

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Installation

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 is delivered with each machine.

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

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

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

	FL 125		FL 185	
	mm	inches	mm	inches
A	508	20	600	23 2/3
B	910	35 13/16	960	37 3/4
C	950	37 13/32	1000	39 3/8
D	102	4	102	4
E	600	23 5/8	700	27 9/16
F	745	29 11/32	827	32 5/8
G	800	31 1/2	880	34 2/3
H	786	30 15/16	922	36 1/8
I	991	39	1090	42 7/8
K	281	11	236	9 7/16

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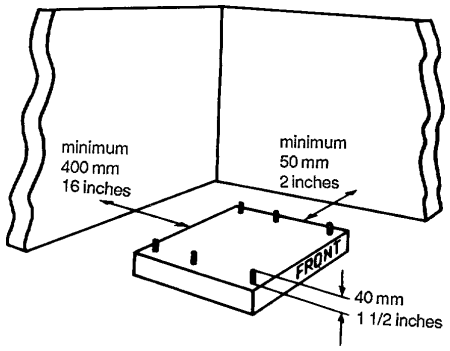

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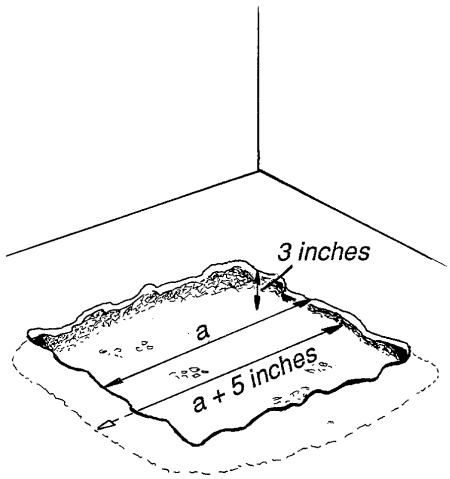

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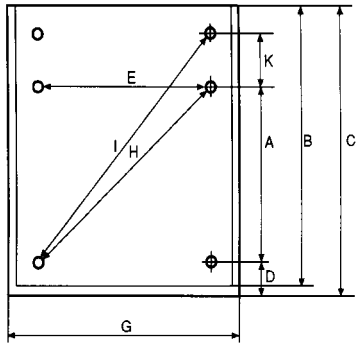

F = machine
G = foundation

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Mechanical installation

Fig. 5
- 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.

Fig. 6
- 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. 7
- Place flat washers over the foundation bolts and secure the machine in position by tightening the self-locking nuts. See illustration below.
- Check and tighten the nuts every week for the first month.

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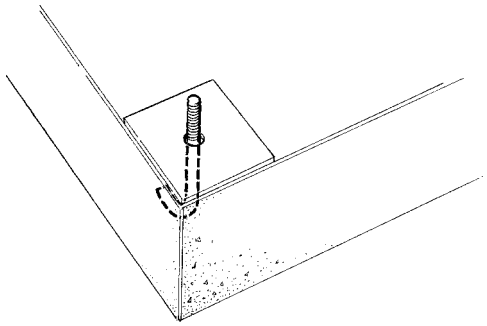

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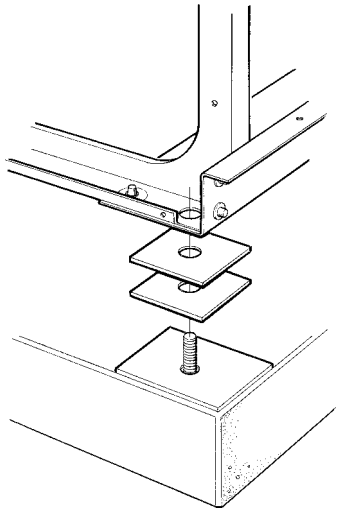

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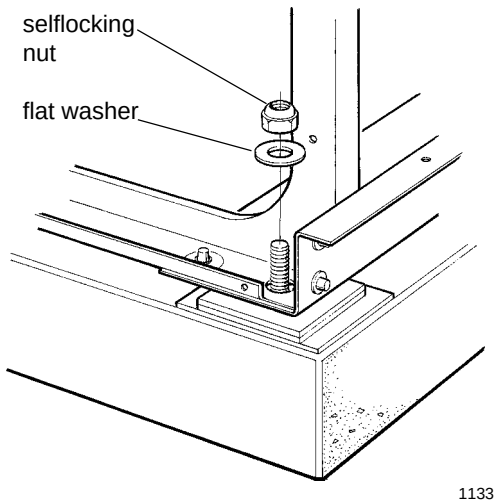

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Electrical installation

Fig. 8 Although the machines are fitted with a thermal overload in the motor windings and a separate fuse for the control circuit, a separate three-phase common-trip circuit breaker must be installed for all three-phase machines.

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

Fig. 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 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.

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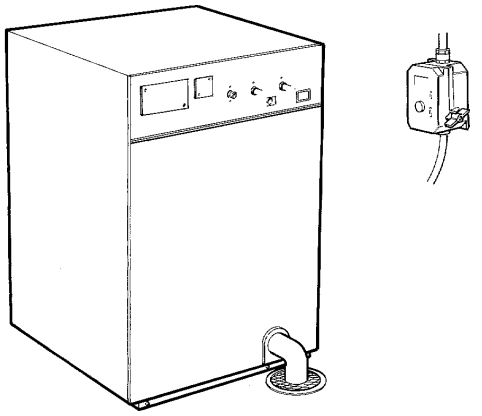

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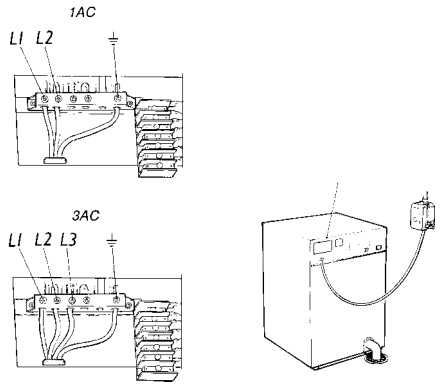

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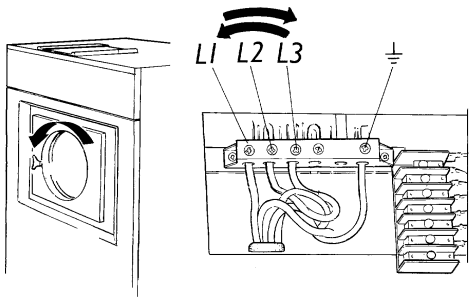

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Water connection

NOTE

All plumbing must conform to national and local plumbing codes.

Fig. 11 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
- Water inlets are labelled for hot and cold water connection.
- Flush the water system thoroughly and check that the filter at the machine inlet is fitted correctly.

Fig. 13
- 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.

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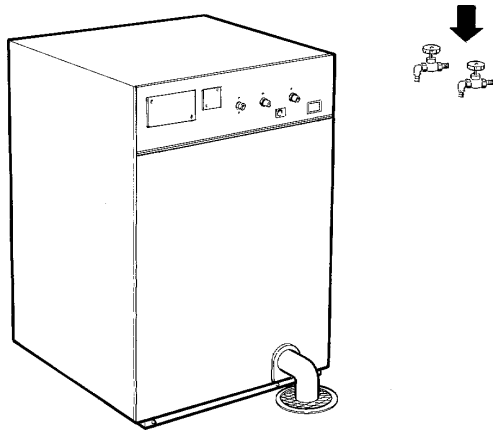

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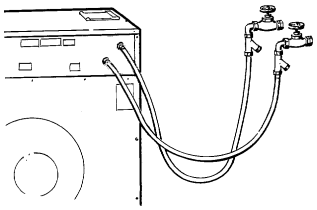
FL 125



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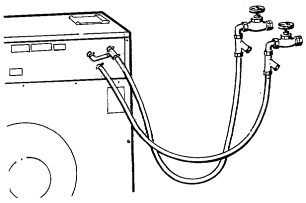

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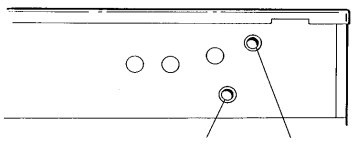
FL 125



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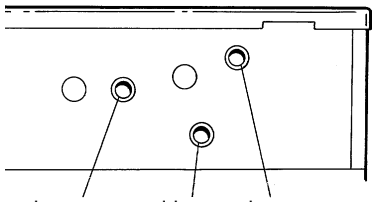

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Steam connections

The steam supply to the machine should be fitted with manual shut-off valves and filters to facilitate installation and servicing.

Fig. 14 Fit the filter supplied to the manual cut-off valve.

The connection hose must be of type ISO/1307-1983 or equivalent. Connection size at filter: DN 15 (BSP 1/2").

Steam pressure required:

- minimum: 10 psi (0.5 kp/cm^2)
- maximum: 115 psi (8 kp/cm^2)

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

Fig. 15 For steam pressures in excess of 85 psi, the nozzle supplied should be installed between the stem injector and the steam hose. The nozzle is installed inside the steam injector.

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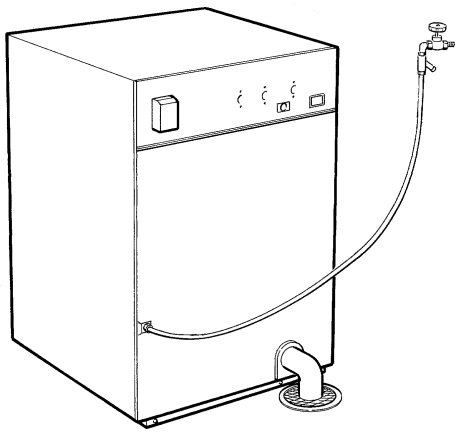

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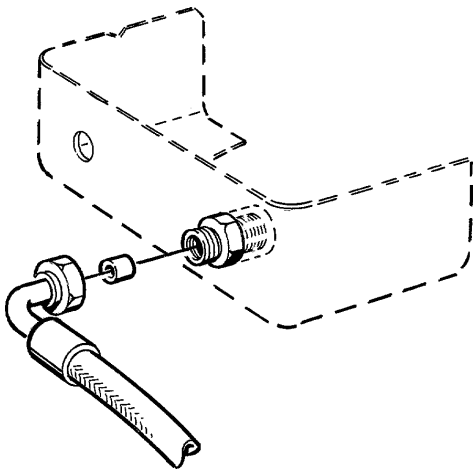

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Drain connection

Fig. 16 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. The outlet must open freely to the main drains.

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

Start-up and safety checklist

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

Fig. 17
- Make sure the machine is properly bolted to the floor.

Fig. 18
- 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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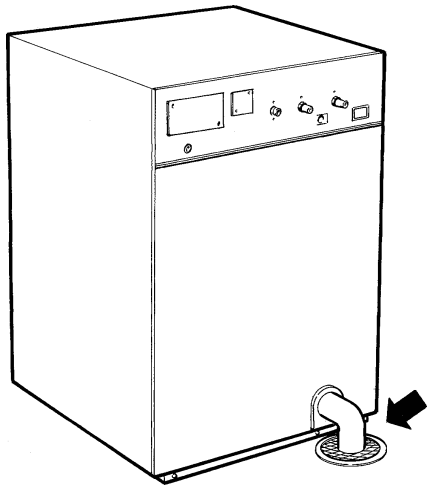

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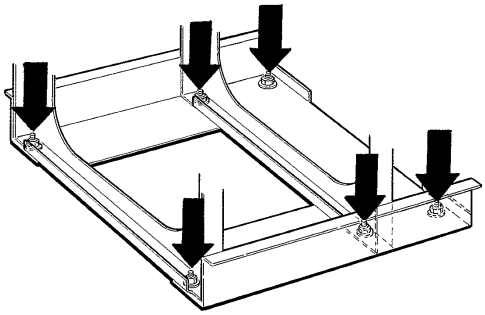

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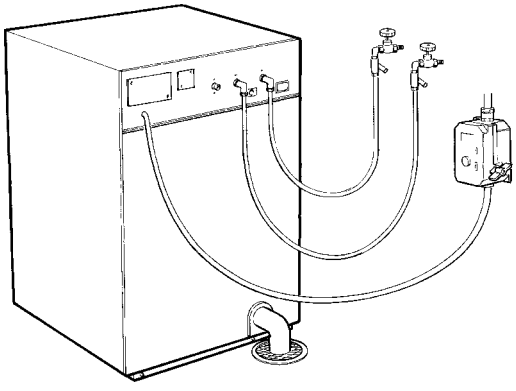

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Connection of external liquid supply

Remove cover and cover support over the soap box.

Fig. 19 Bend all the way back the metal plate in compartment 3.

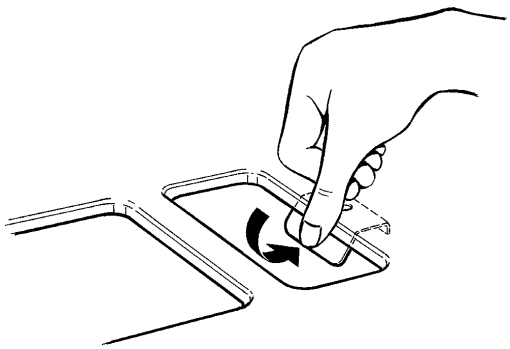
Fig. 20 Pull the knobs up and forward.

Fig. 21

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 into the supply box so that both sides are held securely in places by the metal fingers.

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

19



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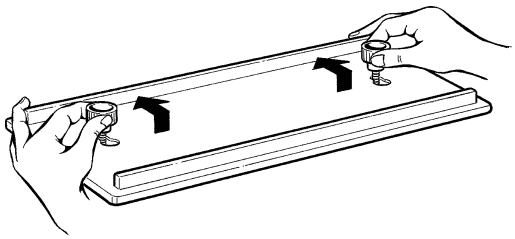

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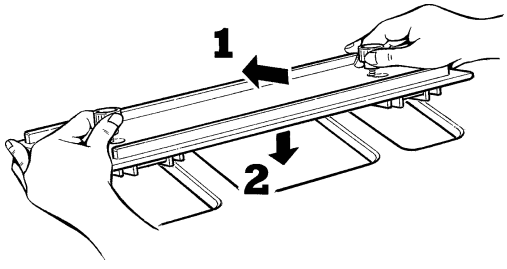

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Installation

Fig. 22

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

Fig. 23

1. Stretch the multi-rubber ring B and select the correct size ring which will fit snugly on the chemical tube you are using. Ring A is used for tubes with Ø1/3" (8 mm).
2. Use scissors or a razor to carefully cut out the proper size rubber ring. Wrap the rubber ring around each tube after threading each tube through the plastic nipple. Run the tube through the compression nut to the bottom of the compartment. Cut the end of the tube at an angle. Hand tighten the plastic nipple on to the compression nut.

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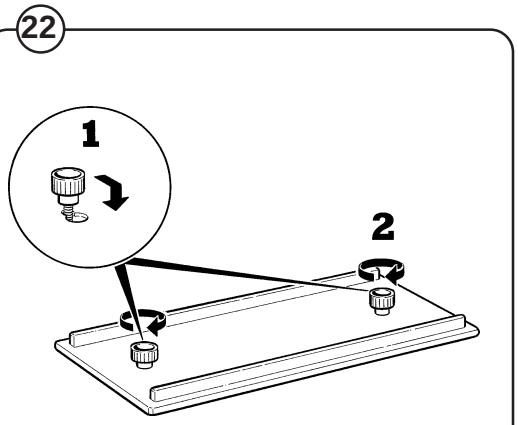

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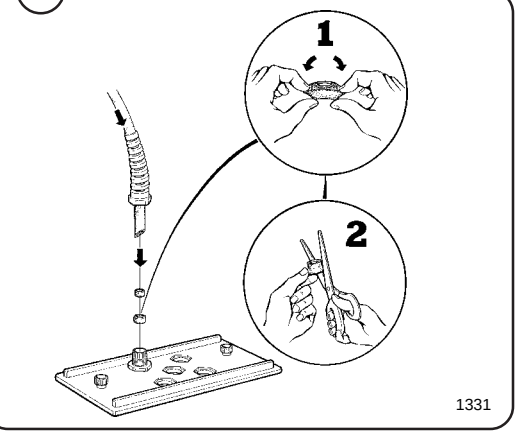

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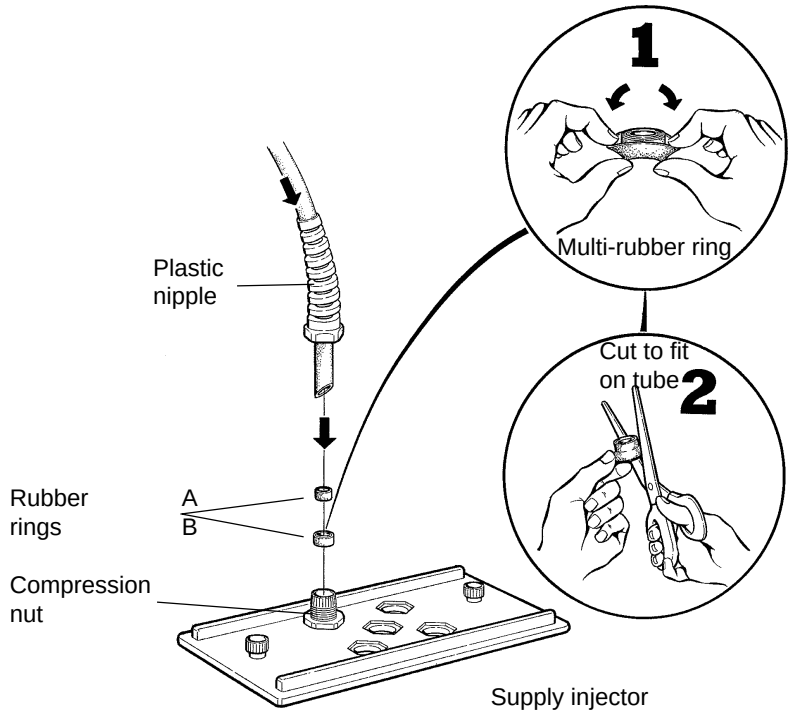

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Electrical connection

Fig. 24 At the electrical connection of the machine is one quick connector. When using external supply, disconnect.

Pump connection

Fig. 25 On the right side of the terminal connection is the connection for pumps. Depending on the number of pumps to be connected, they shall be connected from 1-5 and C (common) on resp. connection. The pumps obtain signals from the program card via the connections.

Rib A	controls connection	1
Rib F	–''–	2
Rib E	–''–	3
Rib G	–''–	4
Rib I	–''–	5

Note!

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

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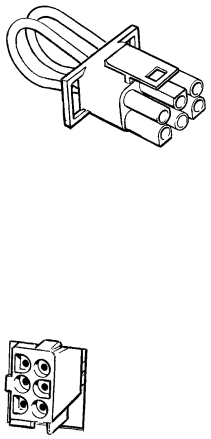

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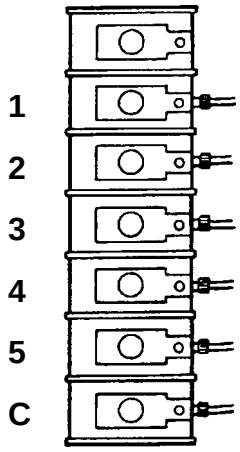

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Before the machine is operated, the door safety interlock must be checked for proper operation as follows:

Fig. 26
- When washer loading door is open, the machine must not start. Verify this by attempting to start washer with door open (see section ”Procedure”).

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

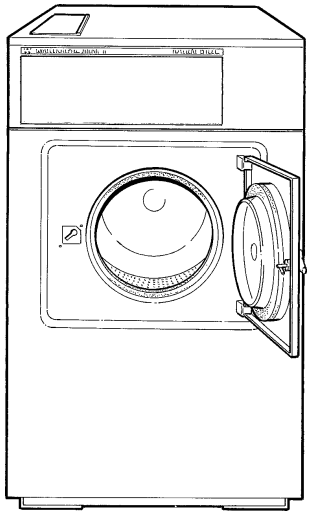
IMPORTANT:

Door safety interlock must be checked daily in accordance with above procedure.

WARNING:

Before servicing Wascomat equipment, disconnect electrical power.

26



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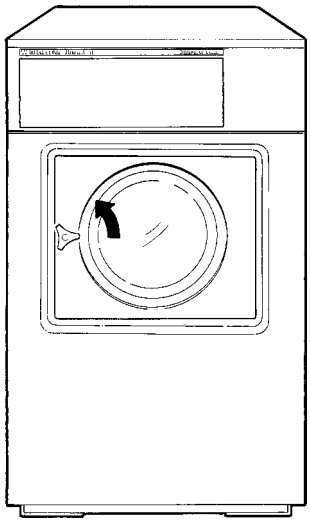

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Function control check-out list

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

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

1. Check the incoming power for proper voltage, phase and cycles.
2. Open manual shut-off valves to the machine.
3. Turn on electric power.

Fig. 28

4. Check the function of the door safety interlock as detailed on page 10 of this manual.

Fig. 29

5. Push the ON/OFF switch.
6. Turn the programmer knob clockwise to 0.

Fig. 30

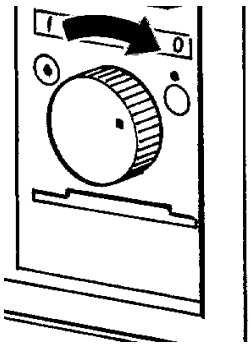
7. Insert the formula card.

Fig. 31

8. Start the machine by now turning the programmer knob counter-clockwise.
9. Run through a complete cycle, checking for water temperature, drain operation and extract direction.
10. Machine must spin in a counter-clockwise direction, as seen from the front, during extraction. If it does not, reverse lines L1 and L3.

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

28



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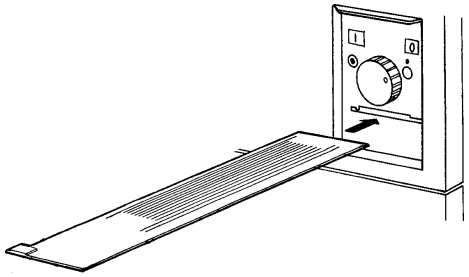

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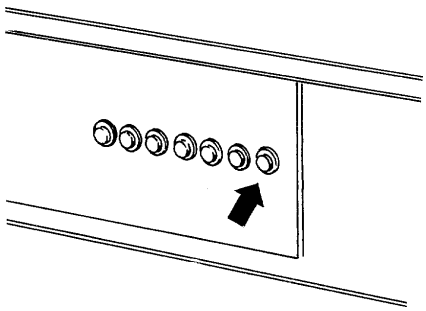

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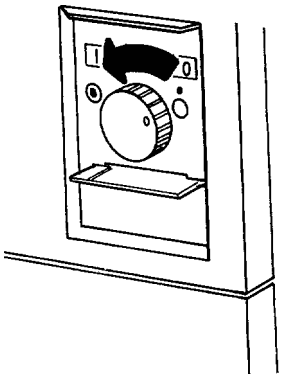

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Safety rules

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

General

The door, card programmer, thermometer, thermostates (if heated), control lights and manual switches are located 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 from the top of the machine for simplified servicing.

Main units

Fig. (32)

1. Control panel.
2. Card programmer for operating the machine through individually programmed cycles.
3. Door - with automatic locking device which remains locked until the cycle is completed and the drum has stopped rotating.
4. Detergent supply box - three compartments for automatic injection of powdered detergents and fabric softener.
5. Inner cylinder - of stainless steel supported at the rear by two ballraces.
6. Outer drum - of stainless steel (18/8) securely attached to the frame.
7. Wash and extract motor - for reversing wash action and high speed spin action.
8. Hot and cold water valves - program and level controlled solenoid valves for filling with water, and for flushdown of automatic detergent dispenser.
9. Drain valve - timer controlled for draining the machine of water.
10. Siphon breaker - to prevent water in the machine from re-entering the water supply system.
11. Control unit - plug-in type for time and temperature control of the different wash cycles.

Machine construction

Panels

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

Outer shell

Fig. 32 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.

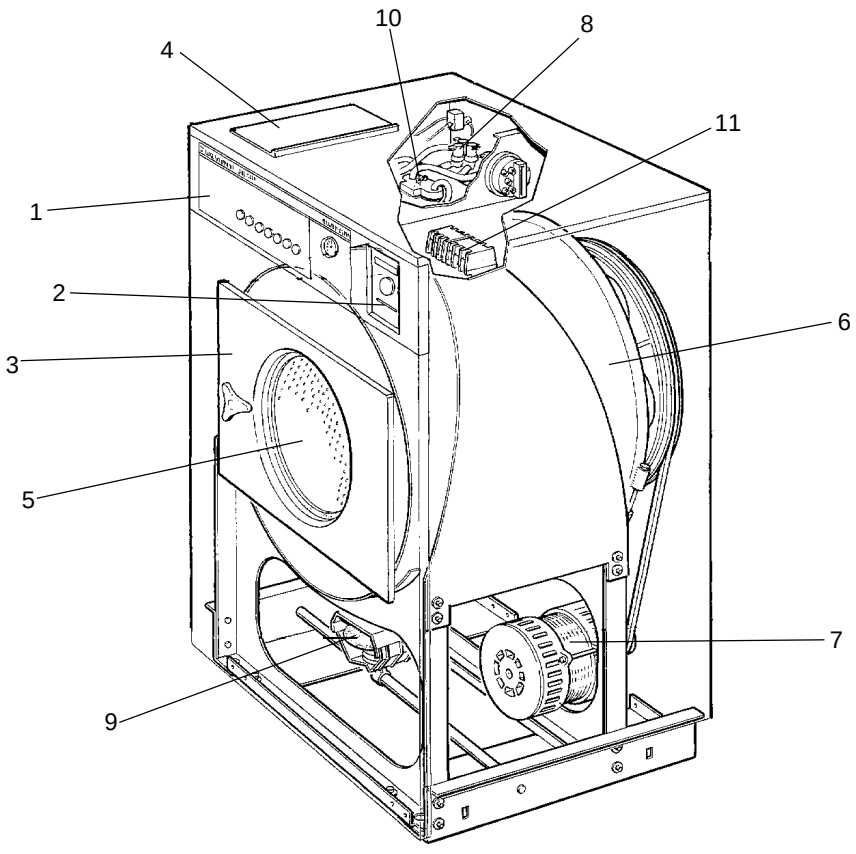
Inner cylinder

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 chrome-plated sleeve bushing protects the seals from wear.

32



1725

Rear gable and bearing

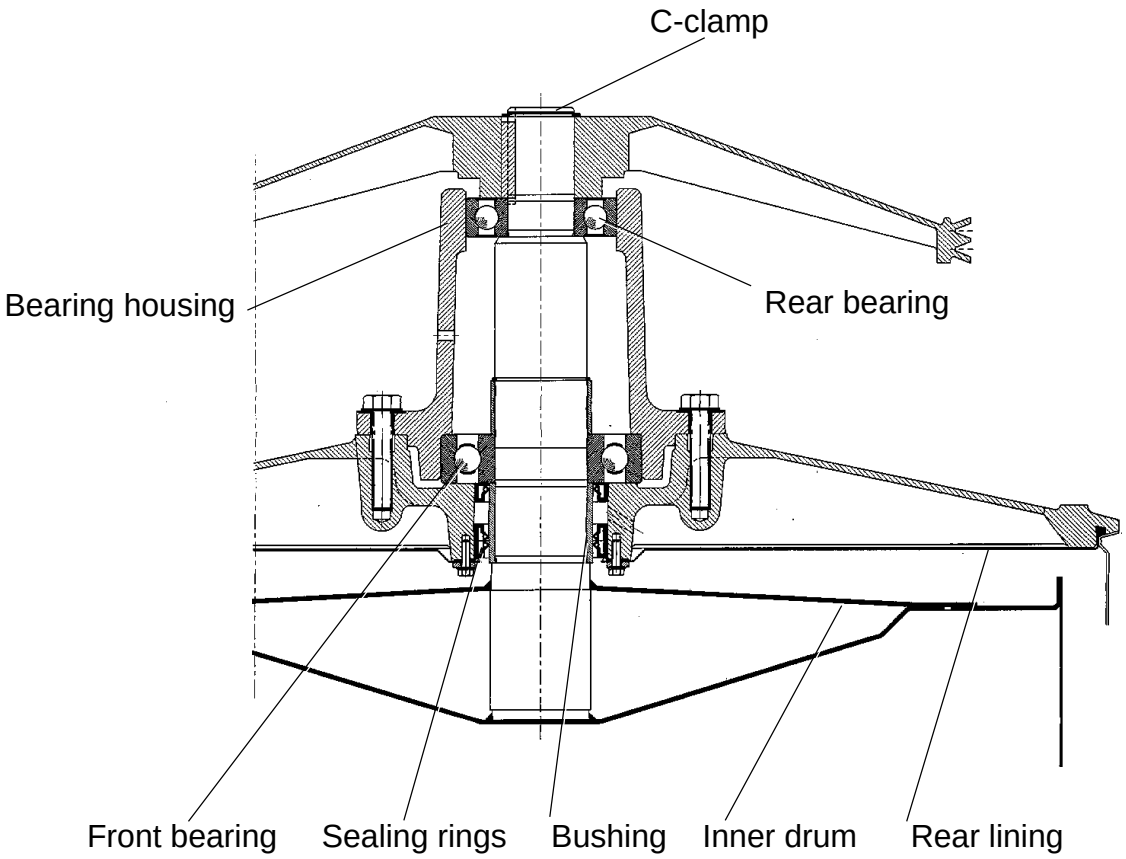
Fig. 33 The rear gable and the bearing trunnion housing are constructed of a webbed heavy casting for extra rigidity. There are two neoprene seals to protect from filtration of water. The sleeve bearings are water protected. An intermediate safety outlet provides an escapement for any possible condensation.

The seals are mounted on a chrome-plated, specially hardened sleeve bushing that is mounted on the drum shaft to prevent wear of the seals and shaft. The main bearing is fitted machine-tight into the bearing trunnion housing. A C-clamp is placed 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. The bearings are permanently lubricated and need no maintenance.

33

FL 125



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Door, description

Fig. 34 The door consists of a backing frame (1), door (2), glass (3) and door gasket (4). The backing frame and door are both made of enameled aluminium. The backing frame is bolted directly to the outer shell of the washing machine.The door hinges are fastened on the outside of the backing frame and the door lock (5) on 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, description

Fig. 35 The door lock consists of a circuit board (1) with a connector. Mounted on the board are the lock plate (2), against which the locking bolt turns to lock the door, and a microswitch (3) which closes when the locking bolt has locked the door.

There is also a locking device on the circuit board which acts to lock the locking bolt in place when the machine starts up.

The locking 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 closed and the door handle is turned to move the locking bolt to the locking position, the micro switch is activated indicating that the door is properly shut.
- When the machine is started by turning the programmer knob to the ON position. Power is removed from the locking device solenoid, allowing the locking device to come forward and engage the locking bolt in the locking position. 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. The solenoid operates for about two minutes to allow the bi-metallic spring to cool 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> repair a faulty door lock. Allways replace the old unit with a new one, to assure proper operation of the door safety interlock.

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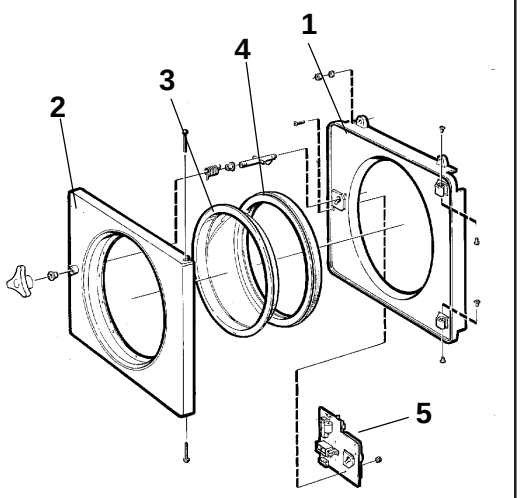

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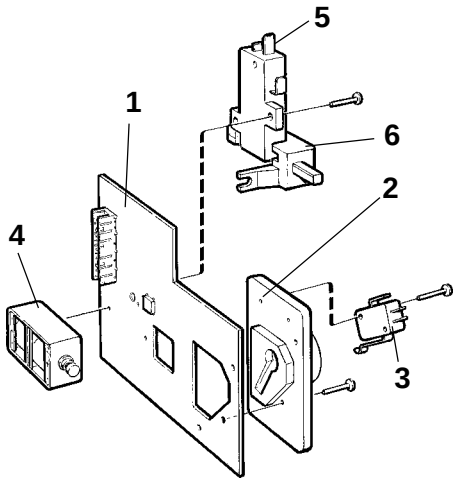

1149

Control unit

Fig. 36

The printed circuit board (1) with push-buttons (2) and control relays (3) are mounted just behind the control panel.

The motor relays (4), level controls (5) and the reverser (6) are located at the top of the machine, easily accessible for service.

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

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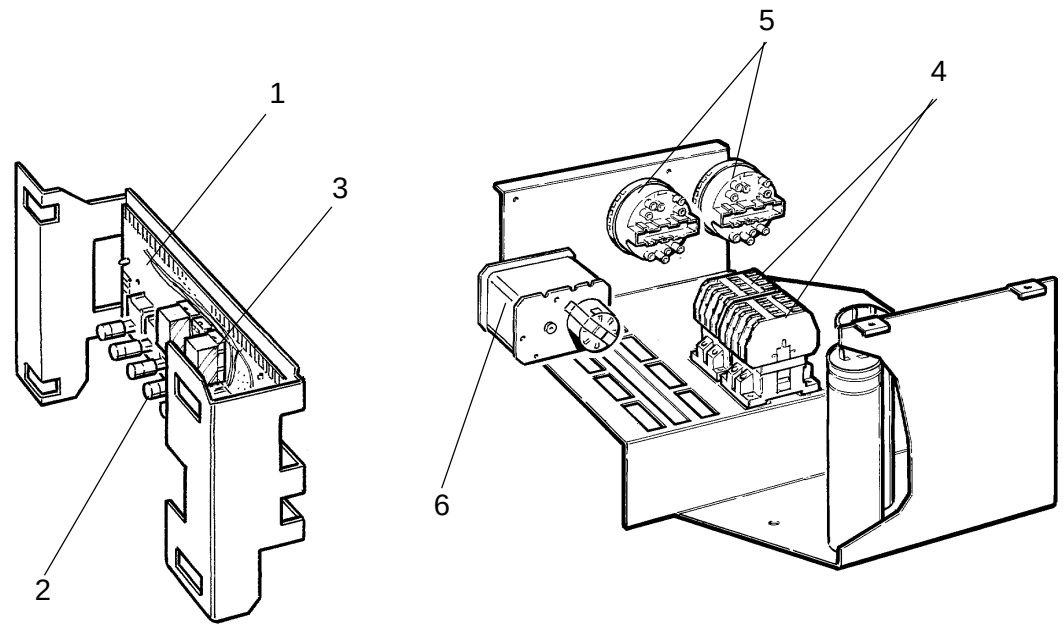

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Relays

Fig. 37 The Flex-O-Matic models employ four relays. The relays control:

- the wash speed (1)
- the extract speed (2
- the drain
- the re-start

Construction

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.

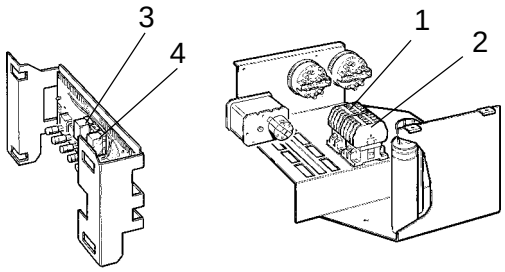
Trouble shooting

Fig. 38 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.

37



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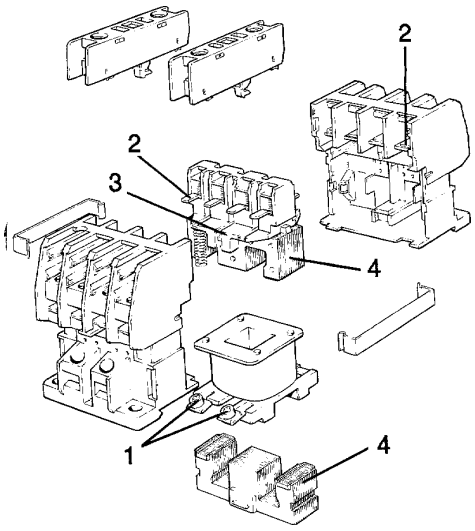

0301

Drive motor

Description in general

Fig. 39 The motor is mounted on an axle with rubber dampeners.

Fig. 40 The V-belt is tightened by turning the motor on the axle and locking it in place using the tensioner on the rear side of the motor. The motor and tensioner 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 consist 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 continuously connected capacitor, while the 2-pole winding (extract-speed) is a specially designed winding with both a continuously connected capacitor and a 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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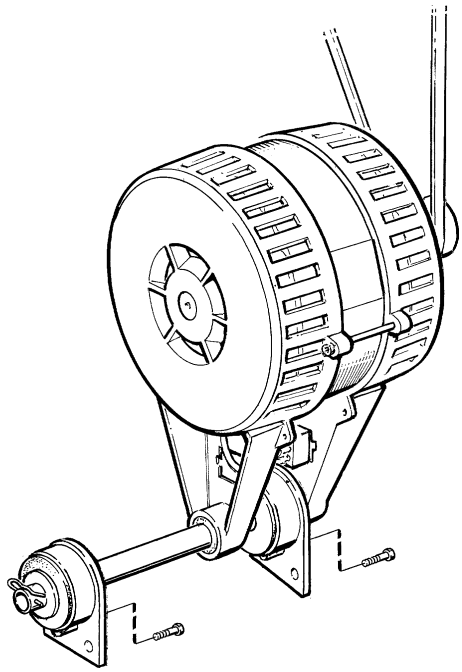

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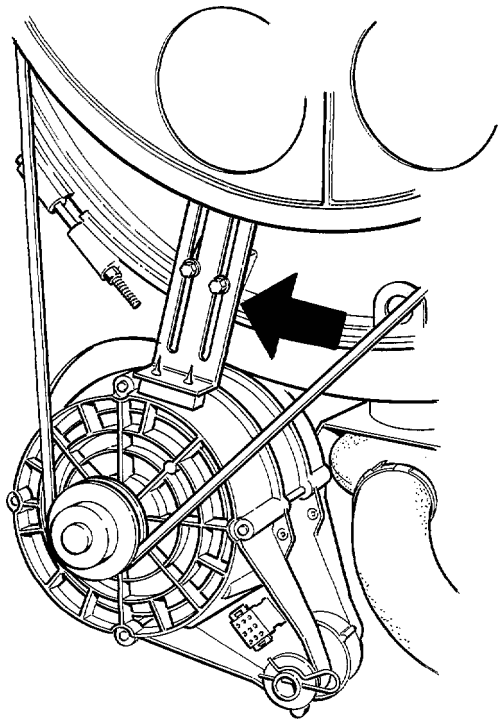

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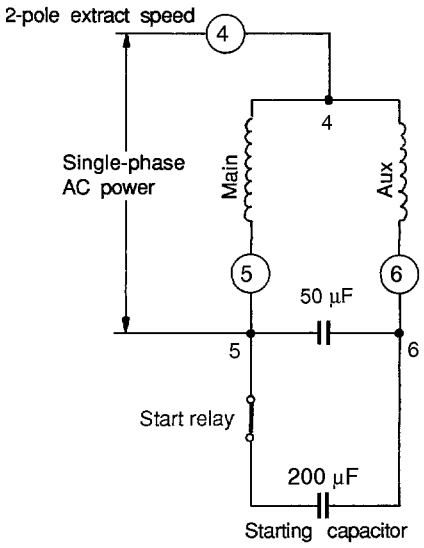
Principal wiring and points of measuring on single-phase motors.

Fig. 41 The numbers at the connection points refer to the terminal numbers at the motor connector plug.

The numbers in circles indicate points of ampere measurements.

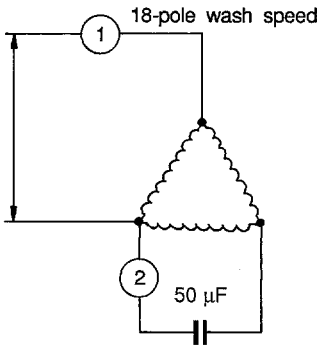
41

FL125 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

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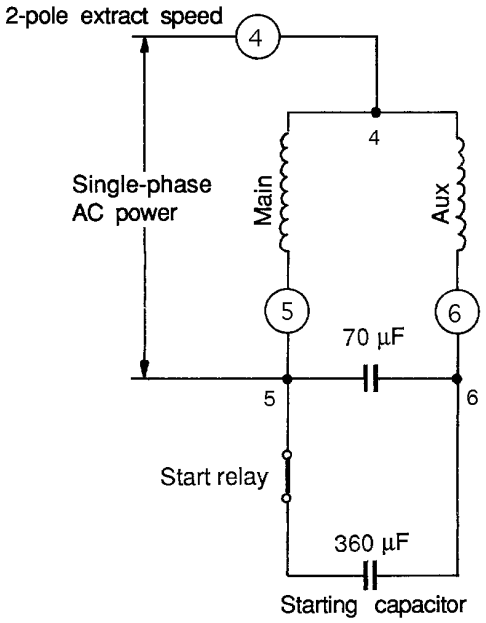
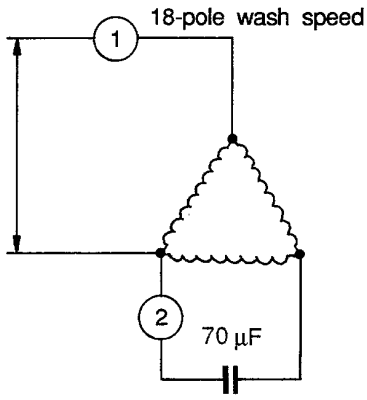
FL185 208-240 V 60 Hz single-phase





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

1730

Motor connections

Fig. (42) 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 each of the windings 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 machines are also equipped with a manually set 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. (43)

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

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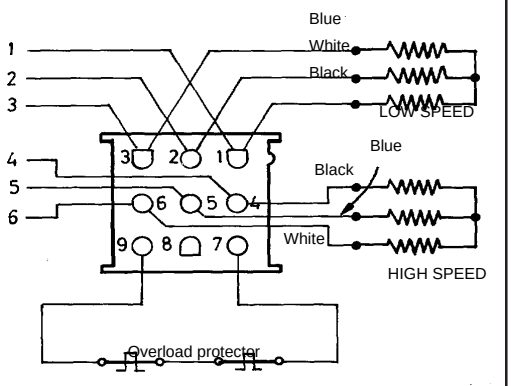

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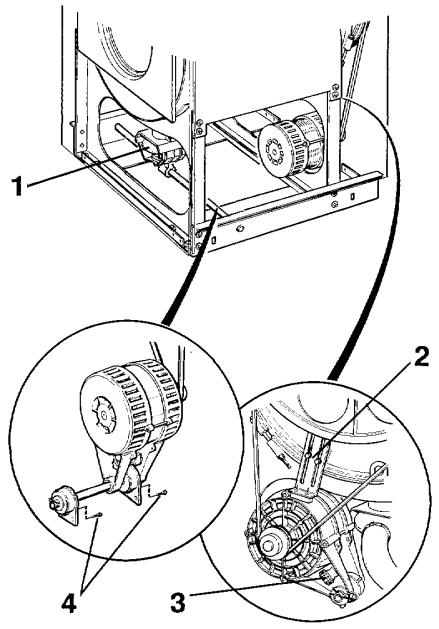

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Water level controls

Fig. 44 One triple-level pressure switch controls the low and high water levels during various cycles of the washing program, and that there is water in the drum before flushing detergent starts.

One double-level pressure switch checks that there is no water in the drum before the door can be opened and does not allow the machine to start extraction with water in the drum.

Adjustment

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

Water level

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

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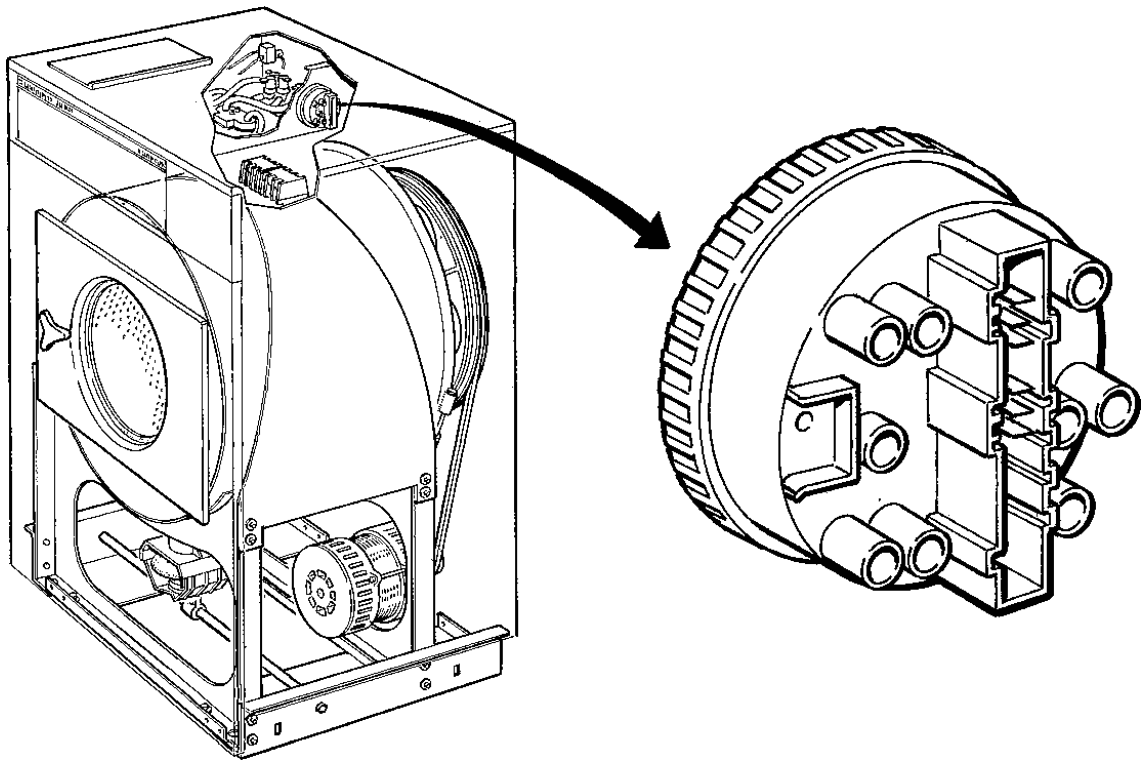

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Rotation guard

The rotation guard checks that the drum is completely at a standstill before the door can be opened. When the drum has been still for approx. 2 seconds the coil in the door lock is activated and the lock can be opened (providing the water has emptied and the programmer has reset). This guard also checks that the drum is actually rotating when the wash or extraction relays are operating.

Fig. 45

The rotation guard consists off a circuit board located in the automatic unit and a pulse generator mounted in a holder on the rear of the machine. There is a magnet on one of the spokes of the belt pulley. Each time this magnet passes the pulse generator, a contact within the pulse generator closes and a pulse is sent to the rotation guard.

The rotation guard exists in two versions, one for machines with an auxiliary transformer, the other for machines without. The two differ in the way that certain straps on the circuit board are arranged. Also, the version for machines with transformer has an LED which indicates error status on the board. The two versions are described on the pages which follow.

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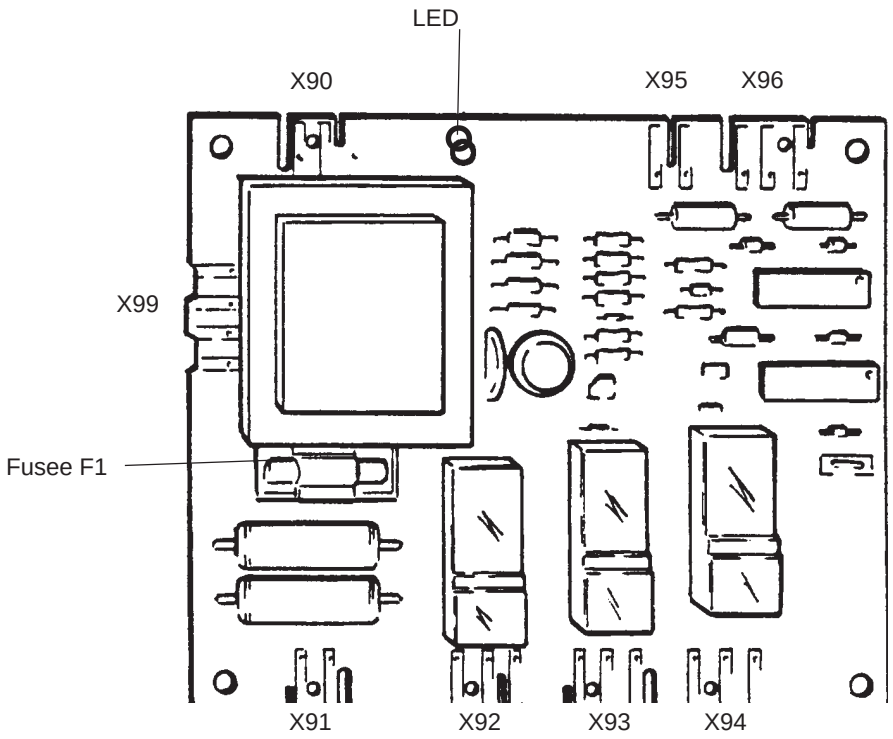

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Rotation guard for machines without auxiliary transformer

Fig. 46

When the machine has halted, the rotation guard relay K1 is closed which means that the door lock coil Y4 will be energised an the door can be opened. Since the wash and extraction relays are not closed, relay K3 is not energised.

When the machine starts and pulses are received from the pulse generator, relay K1 will switch immediately and it will not be possible to open the door. Since the machine's wash or extraction relay is energised, relay K3 closes after a delay of approx. 2 seconds.

The rotation guard also checks that the drive belt has not broken. It works as follows: relay K3 is closed when the machine is working. If the belt breaks, the drum stops and the pulse generator stops transmitting pulses.

After 2 seconds relay K1 closes. When this happens the circuit between phase (L1) and neutral (N) closes. The current increases so that main fuse F11 blows. The machine stops and the door remains locked until the bimetallic strip in the delay unit has cooled.

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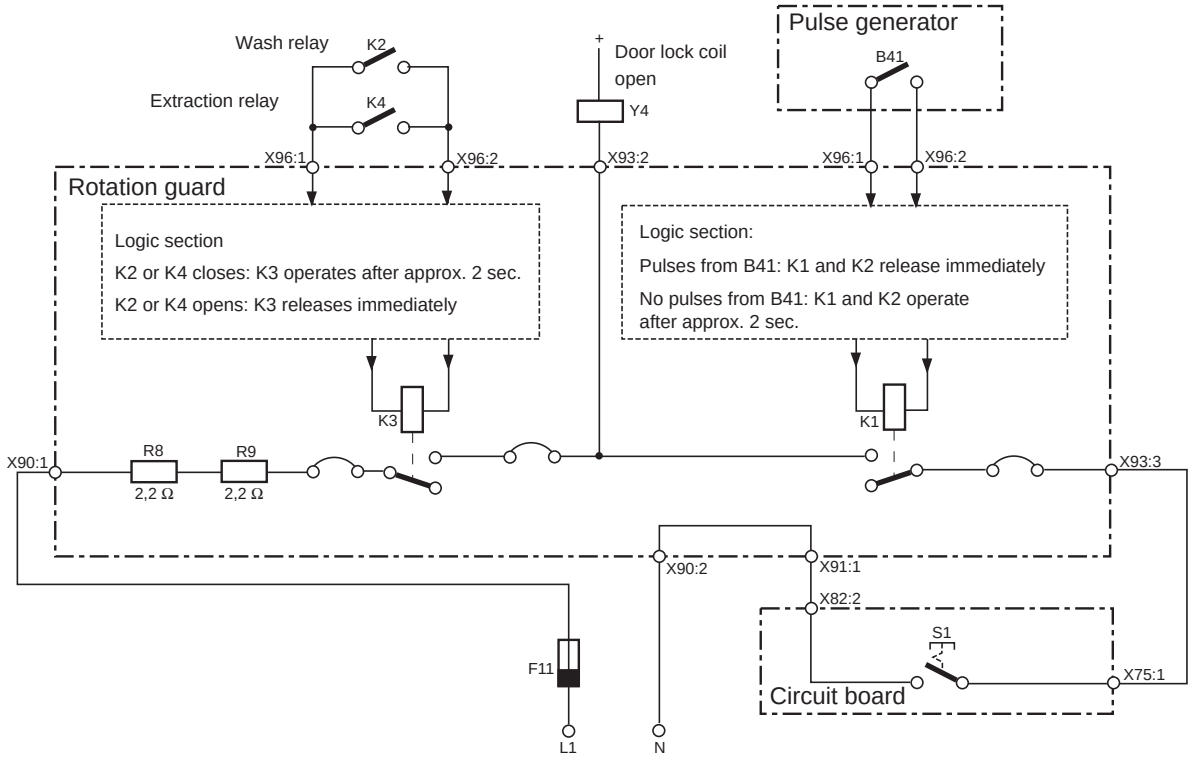

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Inlet valves

Construction

Fig. (47) The valve has a single-inlet with either one, two or three outlets, each with its own solenoid. 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. (48) 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.

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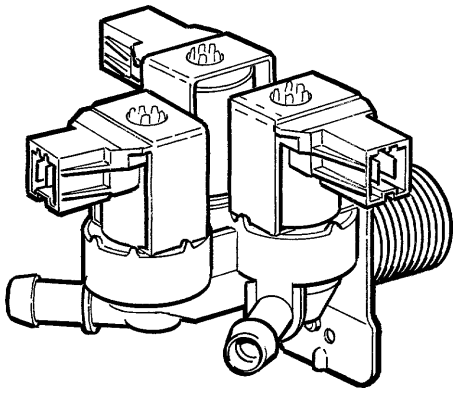

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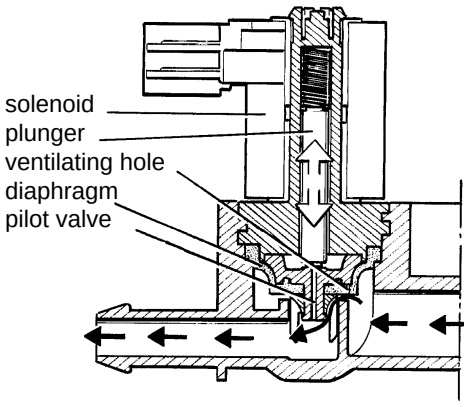

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Maintenance instructions

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

Fig. 49 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.

Trouble shooting

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. 50
- Pull the coil straight upwards. Use a screwdriver if necessary to carefully undo the coil.

Fig. 51
- Use the tool supplied with the machine (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.

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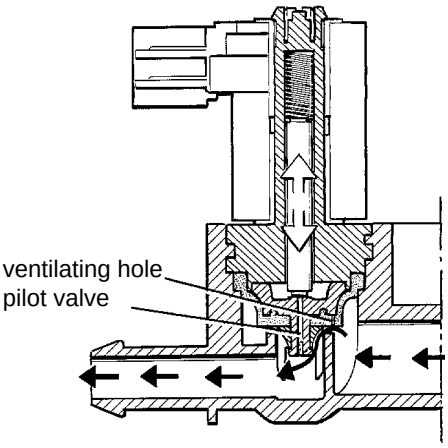

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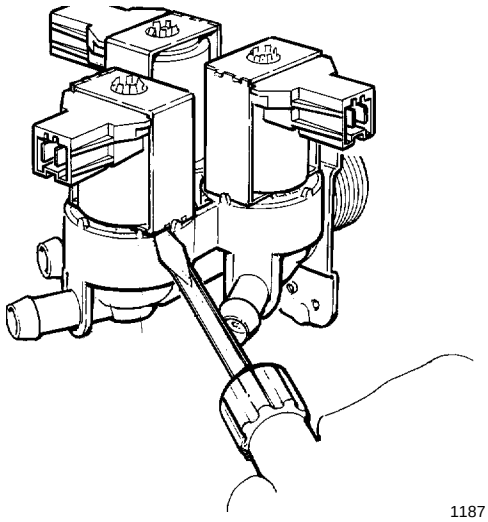

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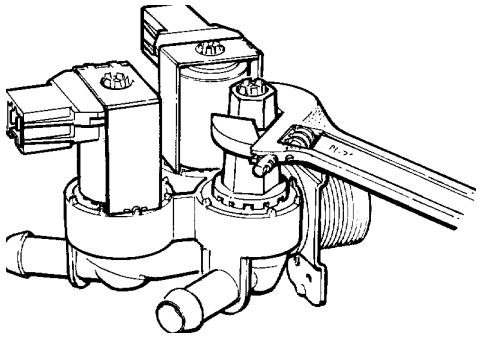

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Inlet valve for FL125-185

Fig. 52 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. 53 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.

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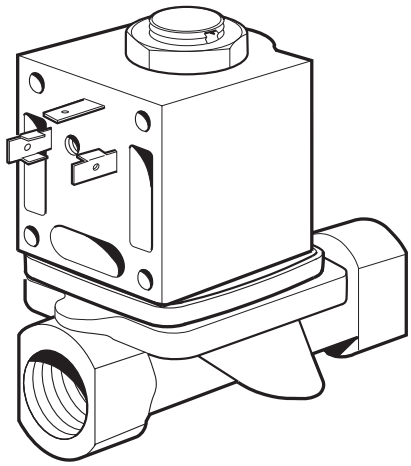

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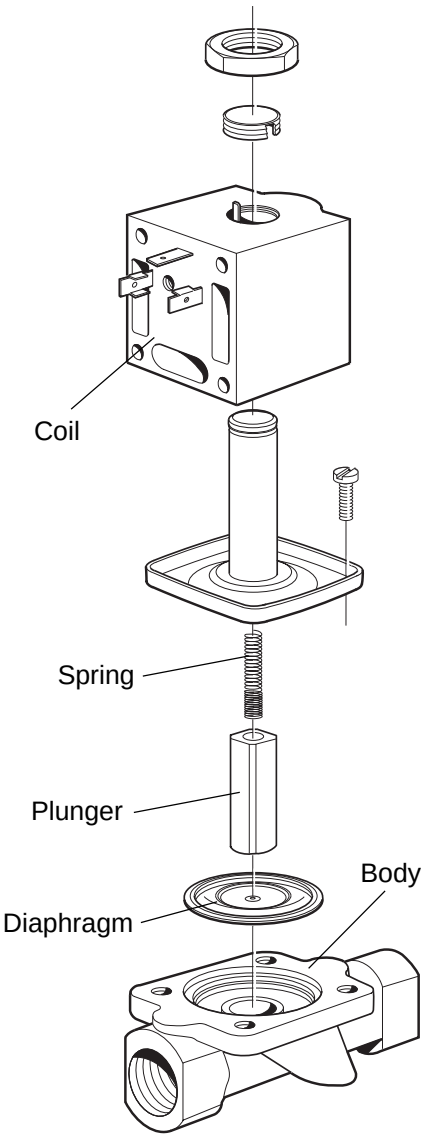

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Soap supply box

Fig. 54

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:

Compartment 1

This compartment is used for adding detergent to the wash at the start of the Soak cycle.

Compartment 2

This compartment is used for adding supplies to the wash at the beginning of the Wash cycle.

The insert is used to help prevent oversudsing.

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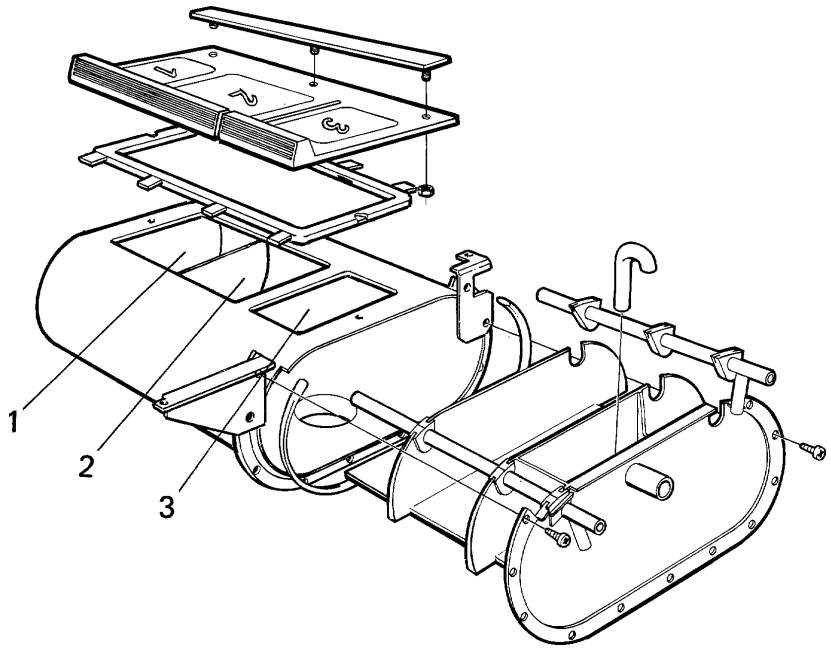

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Drain valve

Description

Fig. 55 The drain valve is operated by using the pressure in the cold water intake. A tube (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 tube (3). The water presses up a piston (4), which uses the pressure lid (5) to close the drain valve rubber membrane. When the solenoid valve cuts out, the water presure and the springs (7) on the lid push the piston back, allowing the water to pass the solenoid valve and drain out via the return tube (8).

Trouble shooting

If the drain valve doesn't close:

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

If the drain valve doesn't open:

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

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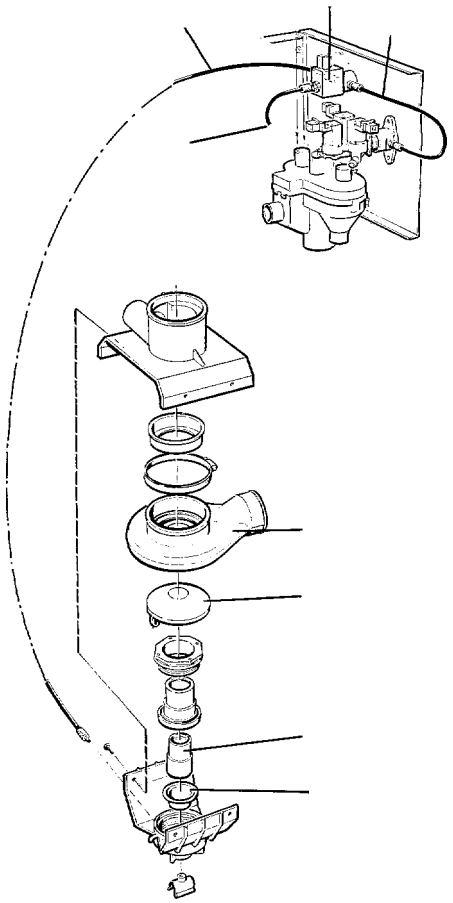

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Procedure for use

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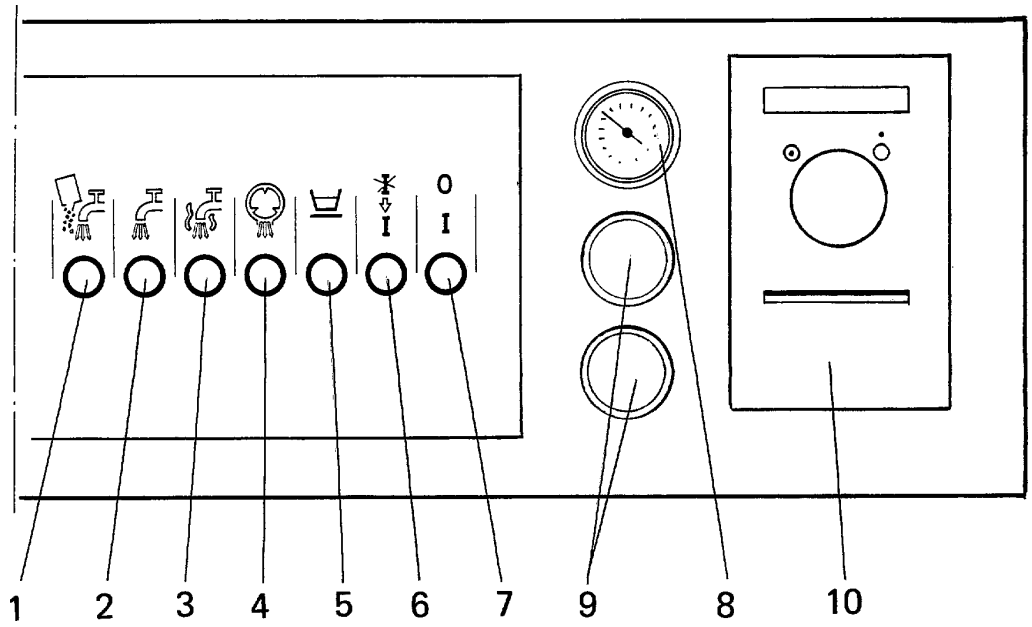

Control panel

Fig. 56 Switches and dials for various functions are located on the control panel whether the machine is controlled manually or via a program card.

1. Switch for manual flushing of detergent from compartment 1. (Powder supply)
2. Switch for cold water filling.
3. Switch for hot water filling.
4. Drain open switch.
5. Switch used to select **GENTLE** action instead of **NORMAL** action. Drum stops when the machine is draining and filling.
6. Restart. When the program card signals **STOP,** the prgram stops, a buzzer sounds and the lamp in the switch lights up. Pressing **REST-ART** allows the program to continue.
7. **ON/OFF** switch. Lit when the machine is on.
8. Thermometer
9. Thermostats (Only heated machines)
10. Card programmer is used to control machine functions via program cards.

Preparations

> **NOTE!**
>
> **To be able to open the door, the ON-OFF switch must be in the ON position and the knob on the card programmer in the position O.**

Sort the laundry according to the categories listed on the control panel. Check washing instructions on garment tags.

Empty pockets and close zippers.

Press the ON-OFF switch to **ON** and turn the programmer knob to position O.

Open door, put laundry in the machine and close door.

Fig. (57) For powder supllies add detergent and fabric softener in the compartments on top of the machine:

- pre-wash detergent in compartment 1
- main-wash detergent in compartment 2
- liquid fabric softener in compartment 3

Follow dosage instructions on detergent package.

When washing delicate fabrics, press **GENTLE ACTION**. This gives a more gentle treatment of fabrics.

Washing

Fig. (58) Insert a programmed card, with the pegs facing up, into the opening of the card programmer. Push the card in as far as it will go.

Fig. (59) Start the machine by turning the programmer knob to position **I.**

The water level can be raised while the program is in progress with the push buttons for water. Additional detergent, from compartment 1, can be flushed down by pressing FLUSHING DOWN DETERGENT.

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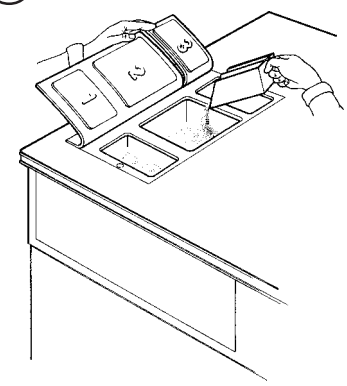

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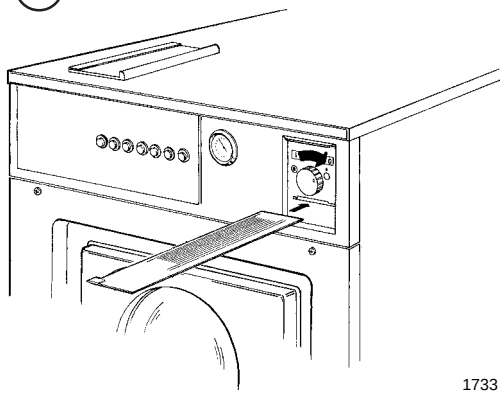

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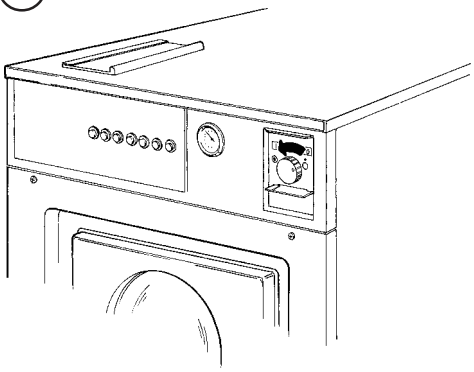

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Soak

Fig. 60 The knob of the card programmer shall be in position **O.**

Fill water manually by pressing the button for cold water until requested level is reached.

Programmed stop

If "Stop with signal" has been programmed, the machine will stop, a buzzer will sound and a light on the **RESTART** button will come on.

Fig. 61 The machine is started again by pressing **RESTART.**

Finishing

Fig. 62 Turn the control on the programmer to **O.**

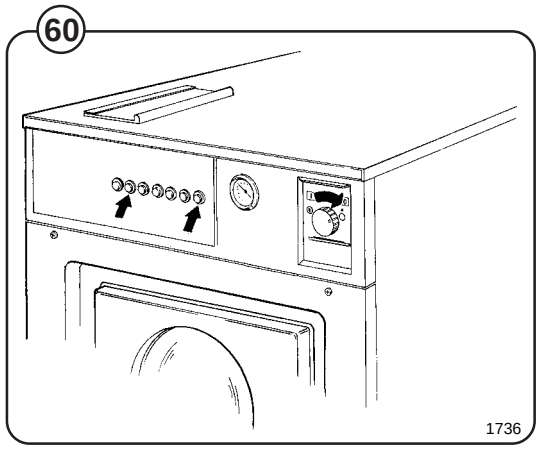
> **Caution**
>
> **The door is locked during wash cycles and can be openend only when the cycle is completed, water has been drained and the drum has stopped all rotation.**

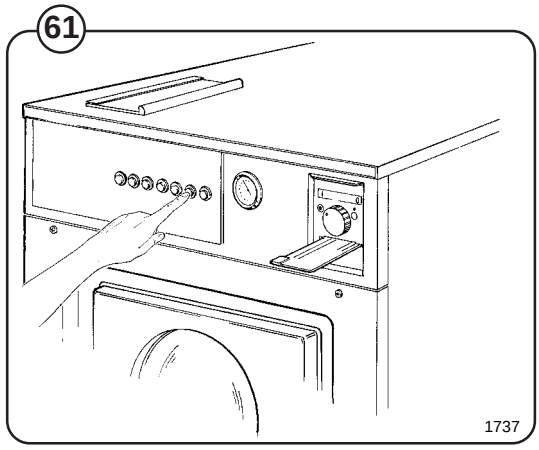
Open the door and take out the laundry.

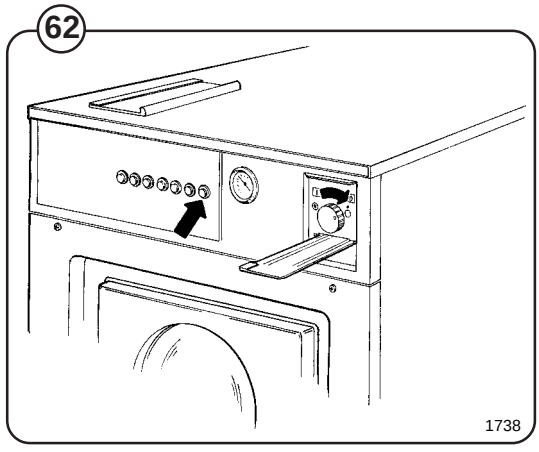
Fig. 63 When necessary, clean the door gasket and detergent compartments. Wipe off the machine with a damp cloth.

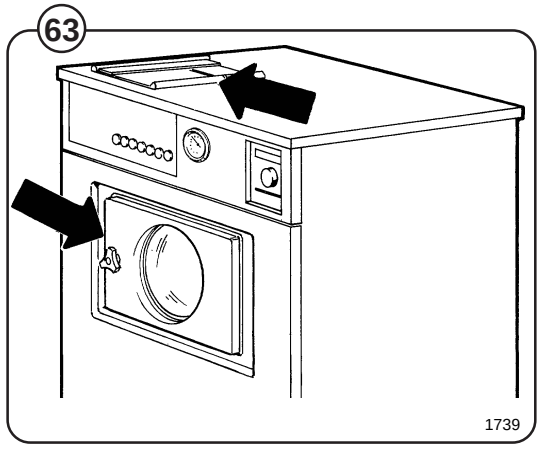
Leave the door open when the machine is not in use.

Leave the machine in the condition you would expect to find it in.







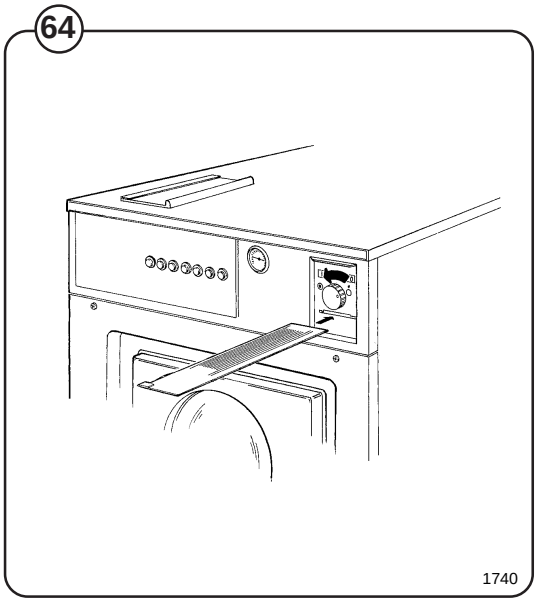


Manual washing

Caution!

To obtain a closed drain during manual washing, an unprogrammed card must be inserted in to the programmer and the control turned to I.

Fig. 64



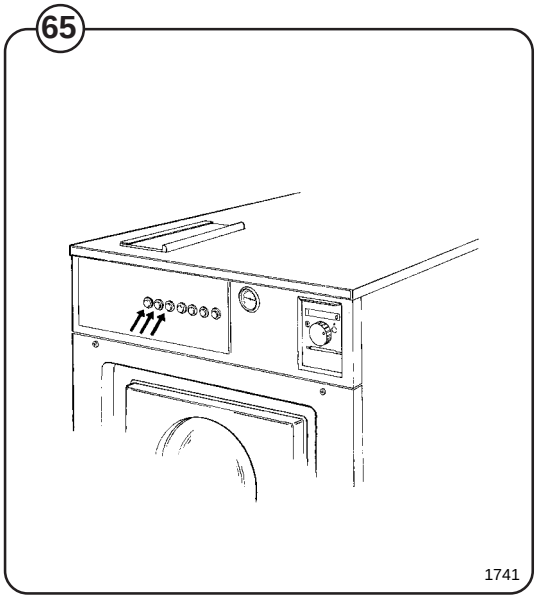
Water, filling with detergent and drain

Fig. 65

Fill with water by pressing **COLD WATER** and/or **HOT WATER**.

Use **FLUSHING DOWN DETERGENT** to flush down the detergent from compartment 1 (pre-wash).

Water is drained from the machine with **DRAIN.**



Extraction

A card must be programmed to provide this function. Refer to the section on card programming.

Caution!

During extraction, the "drain" phase must be programmed for at least 60 seconds before extraction starts. In addition, "drain" must be programmed during the entire extracting time.

Card programming

General

Fig. 66

Programmable cards are used to control the various sequences in a washing cycle. These have 16 ribs with pegs which act on the programmer integral micro-switches. Each rib has its own function. The card is fed through the programmer using mechanically transferred impules from the programmer motor.

A function is selected by punching out one or more pegs depending on the amount of time desired.

The rib are marked A through Q. In order to pinpoint function change-overs in time, every fifth peg is numbered along one edge using two different scales. One is for direct number identification of the pegs and the other to identify peg-number in relation to the front plate of the programmer.

Programming, when using powder supply

Rib function description:

A - For powder supply: Flushing detergent from compartment 1. Programmed for 30 seconds together with water filling. If the water pressure is low, deter- gent supply should occur after water filling. Detergent supply can not be programmed before water filling. If external liquid supply us used, signal is given to connection 1.

B - Thermostat 1 (Only heated machines). Desired temperature is set on the upper thermostat dial. Heat should be programmed after water filling and the appropriate detergent compartment has been emptied.

C - For powder supply: Flushing detergent from compartment 2. See rib A for programming. (*If external liquid supply is used, signal is given to connection 2).

D - Thermostat 2 (Only heated machines). Desired temperature is set on the lower thermostat dial. (See rib B for programming).

E - If external liquid supply is used, signal is given to connection 3.

**F- If external liquid supply is used, signal is given to connection 2.

G - If external liquid supply us used, signal is given to connection 4.

H - Extraction. Before extraction drain must be punched for either 30 or 60 seconds. Drain should be punched during entire extract cycle.

* FL 125 up to machine No. 96/28011.
FL 185 up to machine No. 96/13444.

** FL 125 from machine No. 96/28012.
FL 230 from machine No. 96/13445.

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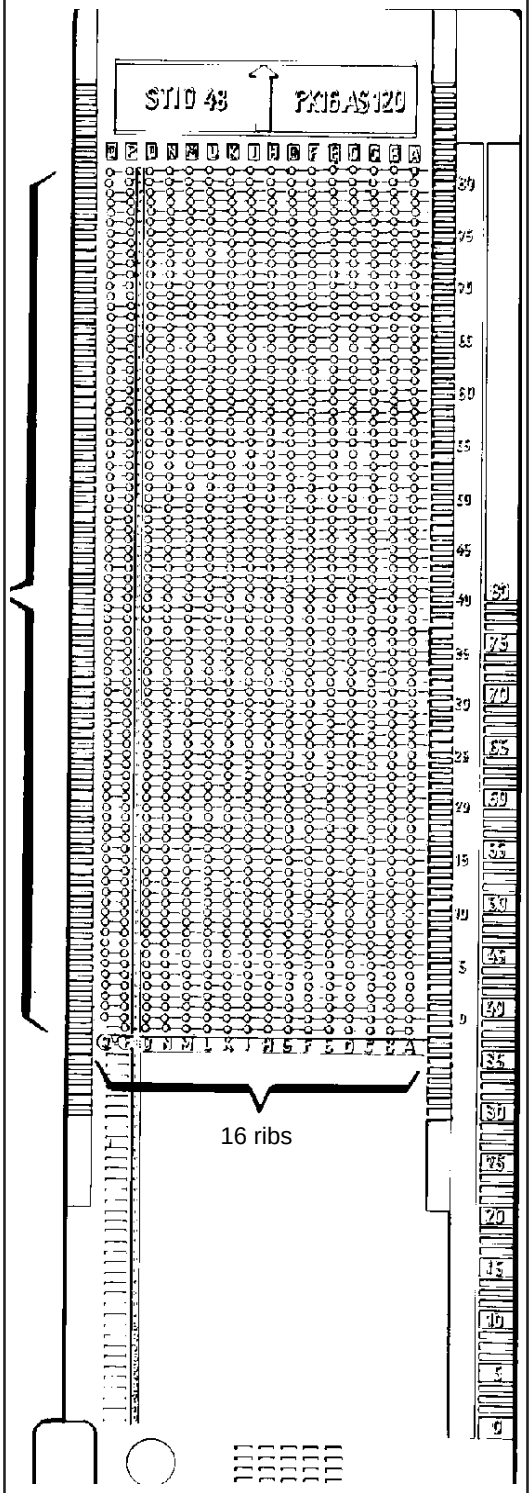

Card programming

I - Flushing conditioner from compartment 3. See rib A for programming. If external liquid supply is used, signal is given to connection 5.

K - Drain. Punched for either 30 or 60 seconds duration. If followed by extraction, cut for minimum 30 seconds prior to extraction and through the period of extraction.

L - Spare

M - STOP. Programmed if a signal is desired after completed wash or when it is desirable to stop in mid-cycle for some reason.

N - High water level. Punch for high level - unpunched for low level.

O - Cold water filling. Programmed for entire function period. EXAMPLE: Prewash 2 minutes - cold water programmed for two minutes.

P - Cool down 3-4°C/min. Programmed directly after main wash without an intervening drain period.

Q - Hot water filling. Programmed for entire function period.

The following must be observed when programming:

First, a useful tip before you begin programming your card. Mark the pegs you want to remove with a felt tip pen. Then make an additional check before you begin to remove the pegs. A special pair of pliers is supplied for use when removing pegs.

Fig. 67 Each peg on the program card equals 30 seconds. (The time unit can be changed to 60 seconds.) To ensure reliable operation, make sure that the entire peg is removed.

Fig. 68 The program begins with step 0. Cut the peg before 0 in the same way as 0 to ensure a correct program start even though the card may be pushed too far into the controls.

When programming Filling (rib marked O - cold water and/or Q - hot water, the program controls stop and start again when the level control provides a pulse to indicate that the level has been reached in the drum.

The last pegs that have been cut away (e.g. peg 12) in a program phase determine which peg is to be removed in the subsequent stage.

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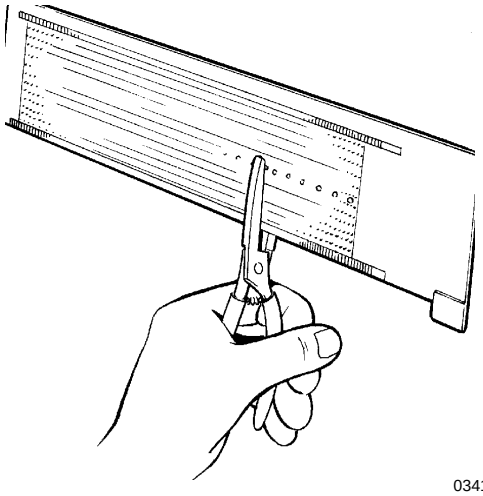

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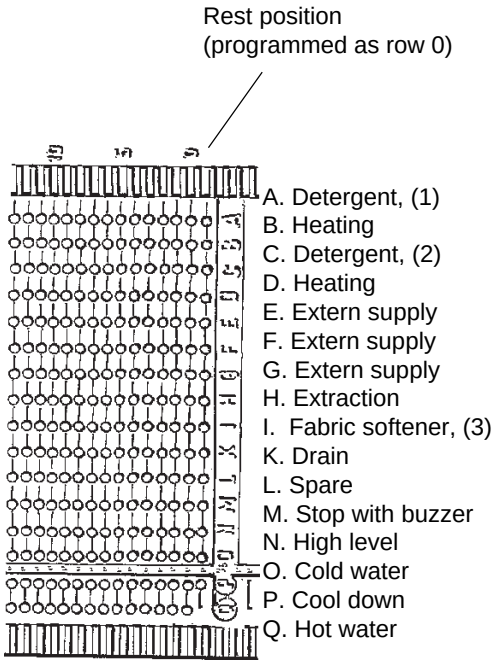

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When Cool down is programmed (rib P) the machine is filled with cold water. The amount of time chosen depends on the temperature desired. The cooling rate is approximately 3-4°C/min.

Fig. 69 Programming Extraction (rib marked H) shall always be preceded by Drain (rib marked K). This shall also be programmed during the entire extract cycle.

Programming Stop with signal (rib marked M) can be carried out several times during the same wash program. When the program comes to Stop, a buzzer sounds and the machine stops. Press **RESTART** to restart the machine.

RESTART may not be used without having a program card inserted in the machine.

Use ribs C, I, A, E and G for signals when connecting external dispensing equipment. In such cases, we recommend that the flushing valves for detergent be disconnected electrically.

Programming example

The following card is programmed for normal soiled wash:

Pre-wash

Fig. 70 The pre-wash lasts for approximately 3 minutes (peg nos. o to 6. It begins with Filling with cold water and hot water to high water level and dispensing of detergent from compartment 1 (peg no. 0 in ribs N, A, O and Q cut away).

Ribs N, A, O and Q are cut at peg no. 1 as a safety measure to ensure that the wash cycle is correct even though the program card may be pushed too far into the program controls.

The program stops the card at peg no. 0 until the water level is reached. The running time once the water level and required temperature are reached is 2 minutes (peg nos. 1-5 cut away in ribs N, O and Q).

Ribs B, I and Q are cut away for the entire pre-wash to ensure that the temperature and water level are maintained during the entire wash sequence. It is usually necessary to top up with water since the dry wash goods soak up a certain amount.

The pre-wash is concluded with Drain for one minute (peg nos. 5 and 6 in rib K cut away).

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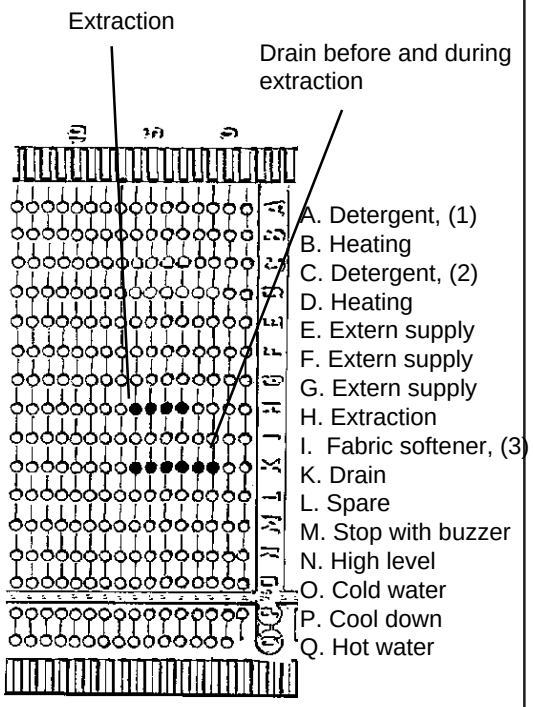

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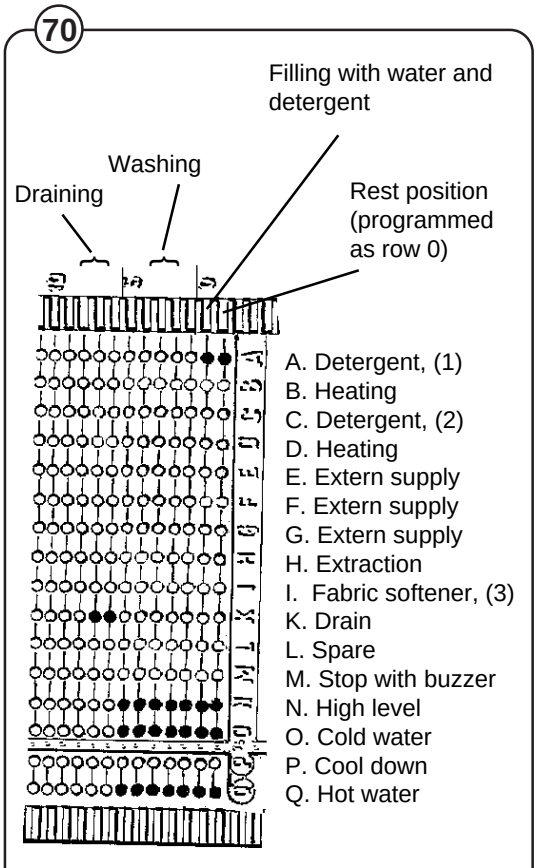


Main wash

Fig. (71) The main wash lasts for approximately 8 minutes and begins by filling with hot water and detergent dispensing from compartment 2 (peg no. 8 in rib C cut away).

The program stops the card at peg no. 8 until the water level is reached.

Rib Q is cut away for the entire main wash to ensure that the water level are maintained during the entire wash procedure. The running time once the required level have been reached is 6 minutes (peg nos. 8-23 removed from rib Q).

The main wash is concluded with Drain for one minute (peg nos. 24 and 25 in rib K removed).

Rinse cycles 1 - 3

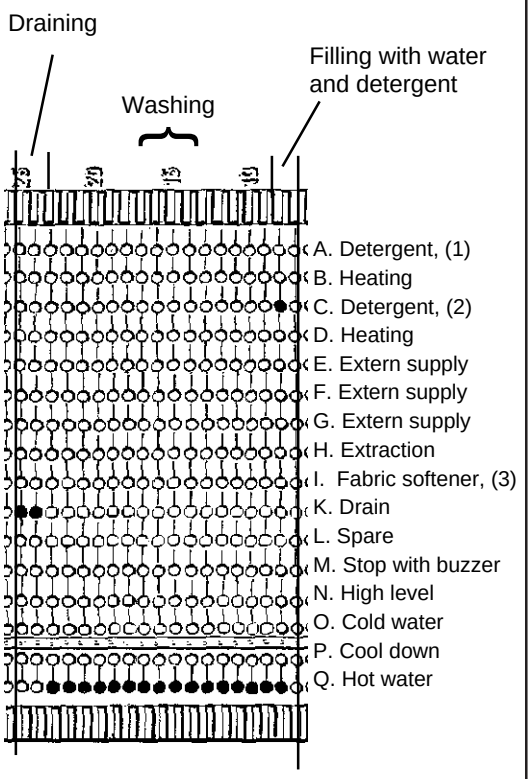
Fig. (72) Rinse cycles 1-3 each last for approximately 2 minutes and are identical. The following describes rinse cycle 1. The rinse cycle begins with Filling with cold water to high level (peg nos. 26-29 in ribs N and Q are cut away).

The program stops the card at peg 26 until the water level is reached. The running time once the water level is reached is 2 minutes.

The rinse cycle is concluded with Drain for 1.5 minutes and with extraction for the last 30 seconds (peg nos. 30-32 in rib K and peg no. 32 in rib H removed).

Rib K must always be programmed parallel with rib H to achieve the extraction cycle. Since extraction must not be operated with the drum filled with water, rib K (Drain) is programmed 2 pegs earlier that the extraction cycle to drain the water before the extraction cycle starts. The machine also has a level guard to ensure that the extraction cycle cannot start while there is water in the drum.

71



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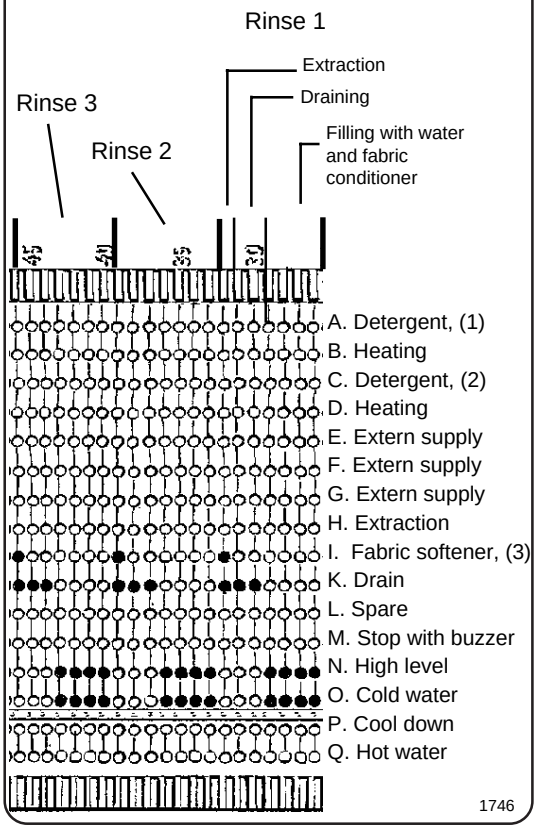


Rinse cycle 4

Fig. 73

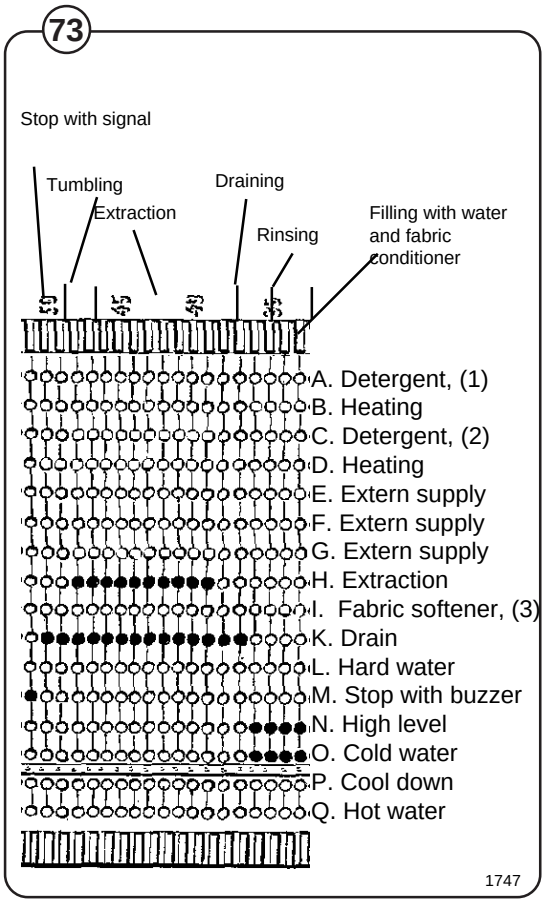
Rinse cycle 4 lasts for 8 minutes and begins with Filling water to high water level and dispensing of fabric conditioner from compartment 3 (peg no. 33 in ribs N, I and O removed).

The program stops the card at peg 33 until the water level has been reached. The running time once the water level has been reached is 2 minutes (peg nos. 33 to 36 in ribs N and O cut away).

Rinse cycle 4 is concluded with Drain for 6 minutes (peg nos. 37-50 in rib K cut away). When Drain has been in operation for 1 minute, the extraction cycle starts and lasts for 5 minutes (peg nos. 39-48 removed from rib H).

Ending the program

The washing process is completed by removing peg no. 51 from rib M (stop with signal). The stop is indicated by a buzzer and the yellow indicator light in the **RESTART** button coming on.



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. 74

- 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

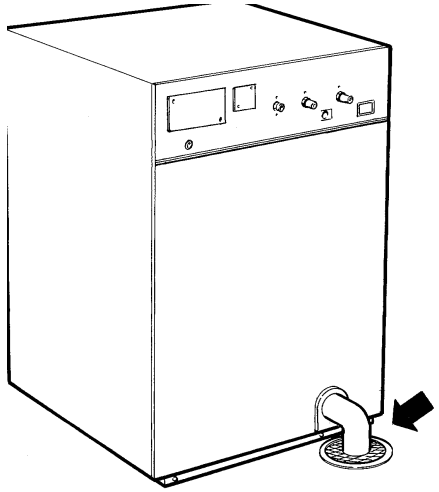
- Remove the hose from the drain connection and clean the inside of the drain valve.

Every three months

Fig. 75

- 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 cleaning operation.

74



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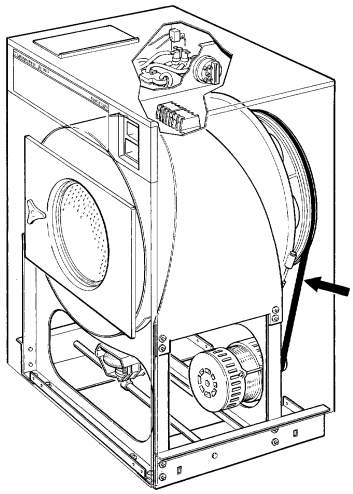

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Trouble shooting

If the machine does not start

Fig. 76

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. 77

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.

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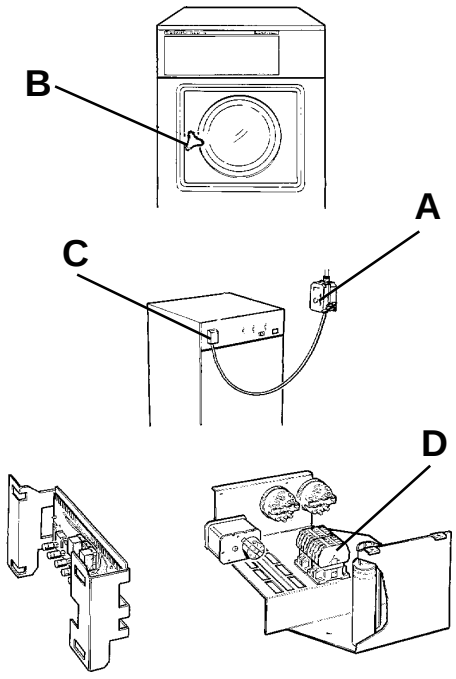

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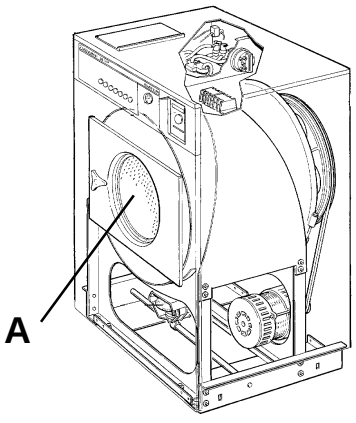

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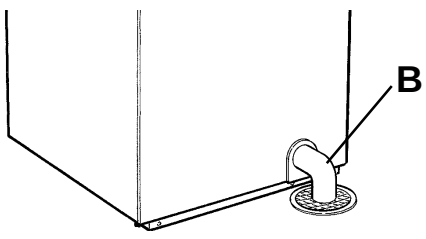

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If machine does not extract

Fig. 78

A Check extract relay and relay coil for proper operation.

If motor does not operate at wash speed

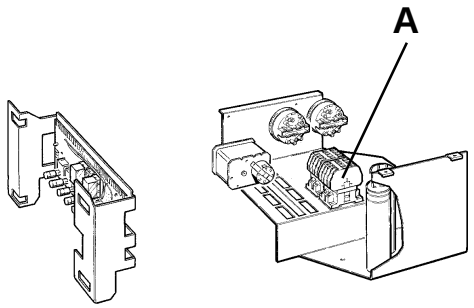
Fig. 79

A Check wash relay.

B Check motor and V-belt.

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

78



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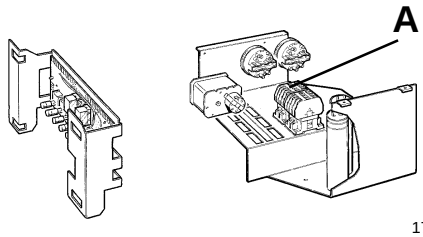

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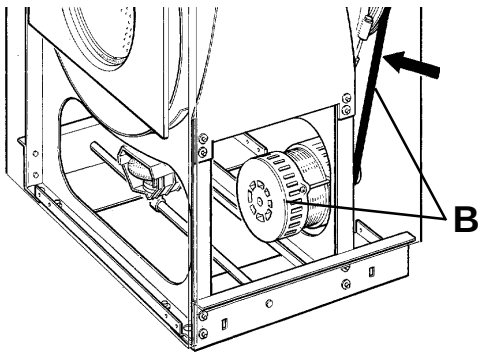

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If machine runs slowly on wash speed or there is a slapping or thumping noise.

Fig. 80 A Replace V-belts

If a metallic noise can be heard at rear of machine

Fig. 81 A Tighten pulley on motor shaft

If the door is leaking

Fig. 82 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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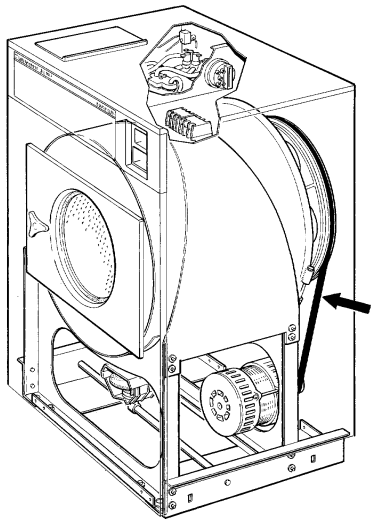

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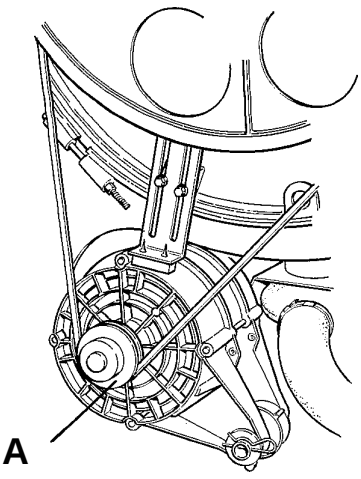

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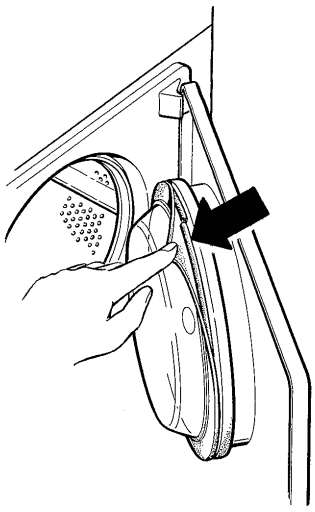

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If there is a leaking around the glass

Fig. 83

A Replace door gasket if worn.

If water does not enter the machine.

A Check the valve coils on inlet valves.

Fig. 84

B Check wires leading to valve coils.

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

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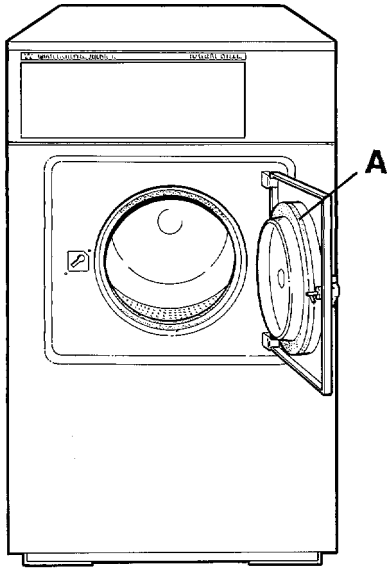

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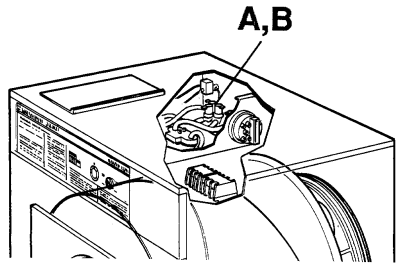

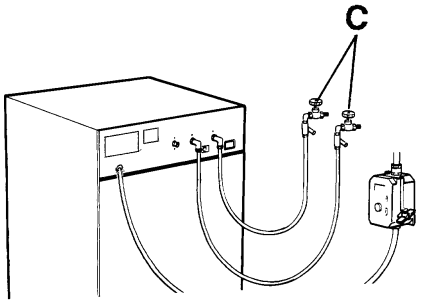

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If water continues to fill without stopping.

Fig. 85

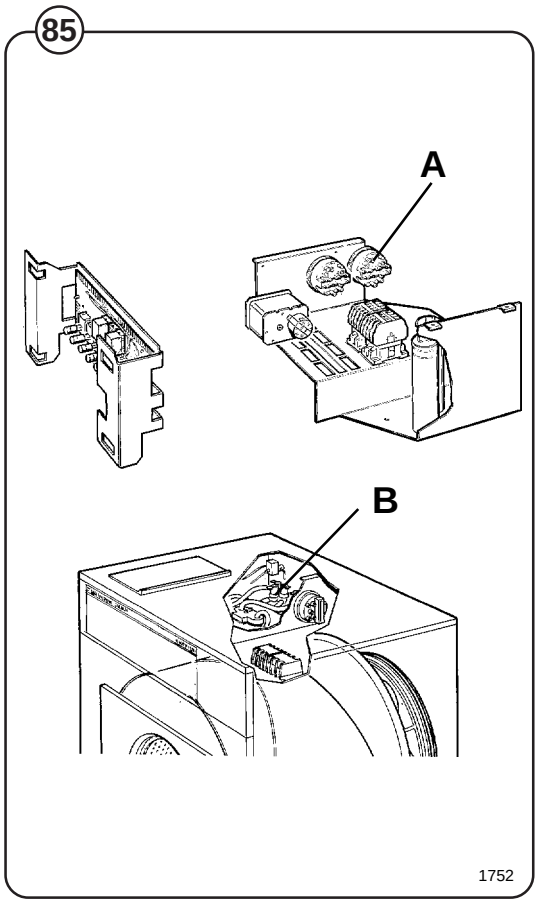
A Check hose attached to level control unit.

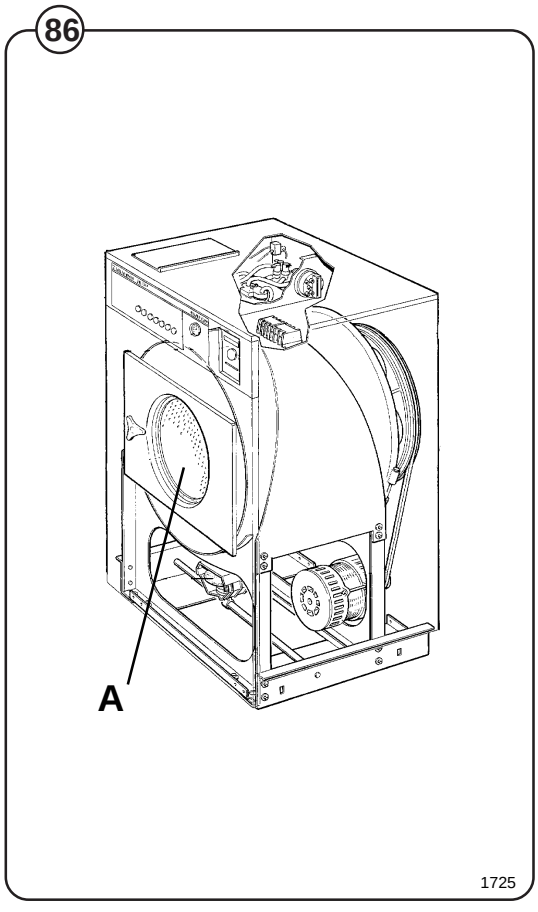
B Check inlet valves for dirt underneath the valve diaphragm. To localize, shut off power. If water continues to flow, inlet valves have foreign material in them and should be thoroughly cleaned.

If water continues to flow without filling machine.

Fig. 86

A Check seating of drain valve.





If machine vibrates excessively.

Fig. 87 Tighten mounting bolts.