OPERATING & MAINTENANCE MANUAL

W 74 - W 124

W 184 - W 244

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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 repaired or replaced. (See the door interlock section of the manual.)

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

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

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

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

SAFETY AND WARNINGS SIGNS

Replace If Missing Or Illegible

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

LOCATED ON THE OPERATING INSTRUCTION SIGN OF THE MACHINE:

CAUTION

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

MACHINE SHOULD NOT BE USED BY CHILDREN

PRECAUCION

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

LAS MÁQUINAS NO DEBEN SER USADAS POR NIÑOS

LOCATED AT THE REAR OF THE MACHINE:

INSTALLATION AND MAINTENANCE WARNINGS

1. **When 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.**
2. **This washing machine MUST be securely bolted to an uncovered concret floor according to the installation instructions to reduce the risk of fire and to prevent serious injury, or damage to the machine.**
3. **This washing machine MUST be serviced and operated in compliance with ma nufacturer's instructions. CHECK DOOR LOCKS EVERY DAY FOR PROPER OPERATION TO PREVENT INJURY OR DAMAGE.**
4. **Disconnect power prior to any servicing of machine.**
5. **This washing machine MUST be connected to a dedicated electrical circuit to which no other lighting unit or general purpose receptacle is connected.**
6. **TO REMOVE TOP PANEL FOR SERVICE, remove two screws under soap supply box cover, holding panel to the supply box, before unlocking. Be certain to reinstall screws when remounting the top panel to prevent leaks from the supply box.**

MANUFACTURED BY ELECTROLUX-WASCATOR, LJUNGBY, SWEDEN
DISTRIBUTED BY WASCOMAT OF AMERICA, INWOOD, NEW YORK, USA
SOLD AND SERVICED BY INDEPENDENT WASCOMAT DEALERS

471 7646 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 OPEN THE DOOR UNTIL 30 SEC.
AFTER THE PROGRAM IS COMPLETED.

471 4009-53

Table of contents

Specifications subject to change without notice.

Introduction

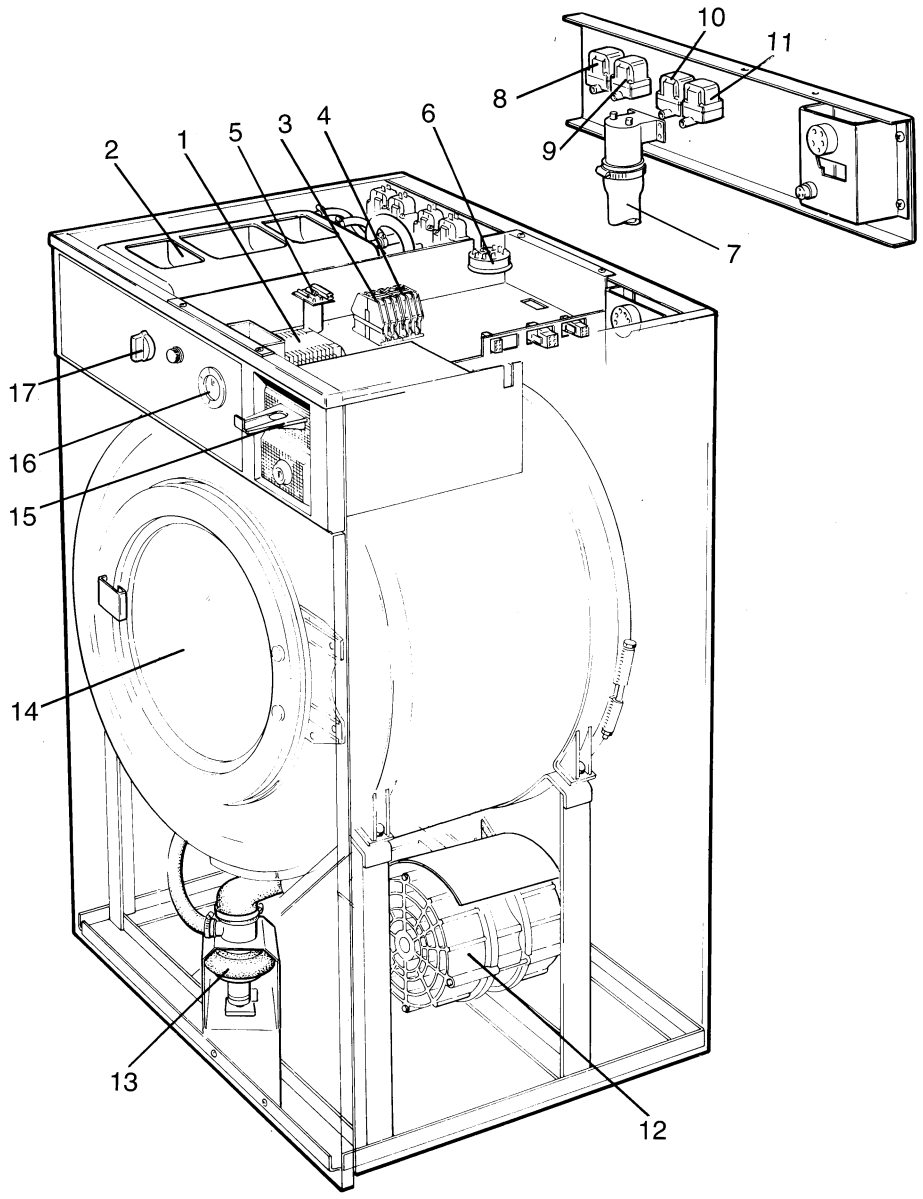
The W model washer/extractor has been developed to cover the heavy duty and various size requirements of coin laundries, apartment houses, hotel, motels, nursing homes, hospitals, restaurants, schools, colleges and other on-premise laundries where high quality automatic washing and quick formula variation are required.

The W model offers four pre-set wash programs, hot, warm, cold and permanent press, which can be selected by means of a rotary switch. These programs are designed to suit a variety of fabrics and offer different water temperatures programs. The machine is designed for connection to hot and cold water supplies.

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 W model machines and instructions for their installation, operation and maintenance. Together with the wiring diagram which accompanies each individual macchine, it should be kept in a safe place for easy reference.

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



1	Timer	10,11	Hot water valves
2	Detergent supply box	12	Wash/extract motor(s)
3	Relay, extraction	13	Drain valve
4	Relay, wash	14	Door
5	Delay unit	15	Coin meter
6	Level control	16	Cycle indicator
7	Siphon breaker	17	Program selector
8.9	Cold water valves		

Illustration of a W model washing machine

Technical data

W 74

Dry load capacity	up to	7 kg	18 lbs
Overall dimensions	Width	664 mm	26 1/8"
	Depth	630 mm	24 13/16"
	Height	1055 mm	41 1/2"
	Net weight	120 kg	265 lbs
	Dyn. weight		210 lbs/sqft
Crated Dimensions	Volume	0,54 m^3	18,9 cu.ft
	Weight	128 kg	282 lbs
Inner drum	Diameter	520 mm	20 1/2"
	Depth	336 mm	13 1/4"
	Volume	70 litre	2,5 cu.ft
Speed of rotation	Wash		52 r.p.m.
	Extraction		530 r.p.m.
G-factor	During wash		0,8
	During extraction		81,5
Motor speed	During wash		360 r.p.m.
	During extraction		3350 r.p.m.
Voltage requirements	Choice:		
	120 V 1-Phase 60 Hz		
	208–240 V 3-Phase 60Hz		
	Optional:		
	440 V 3-Phase 60 Hz		
Rated power	Motor, wash, 3-phase		100 W
			0,14 HP
	Motor, extract., 3-phase		550 W
			0,75 HP
	Motor, wash, 1 phase		110 W
			0,15 HP
	Motor, extract., 1 phase		370 W
			0,5 HP
Overcurrent protection	Three-phase		15 A
	Single-phase		20 A
Recommended water pressure	2 – 6 kp/cm^2		25 – 85 psi
Hose connection, water	20 mm		3/4"
Hose connection, drain	75 mm		3"

Technical data

W 124

Dry load capacity	up to	17,5 kg	30 lbs
Overall dimensions	Width	750 mm	29 1/2"
	Depth	930 mm	36 5/8"
	Height	1190 mm	46 7/8"
	Net weight	204 kg	450 lbs
	Dyn. weight		194 lbs./sqft
Crated Dimensions	Volume	1,2 m^3	34,7 cu.ft
	Weight	213 kg	470 lbs
Inner drum	Diameter	620 mm	24 3/8"
	Depth	490 mm	19 5/16"
	Volume	148 litre	5,4 cu.ft
Speed of rotation	Wash		50 r.p.m.
	Extraction		510 r.p.m.
G-factor	During wash		0,8
	During extraction		90
Motor speed	During wash		360 r.p.m.
	During extraction		3450 r.p.m.
Voltage requirements	Choice:		
	208–240 V 1-Phase 60Hz		
	208–240 V 3-Phase 60Hz		
	440 V 3-Phase 60 Hz		
Rated power	Motor, wash		250 W
			0,35 HP
	Motor, extraction		1100 W
			1,5 HP
Overcurrent protection	Three phase		15 A
	Single phase		20 A
Recommended water pressure	2 – 6 kp/cm^2		25 – 85 psi
Pipe connection, water	20 mm		3/4"
Pipe connection, drain	75 mm		3"

Technical data

W 184

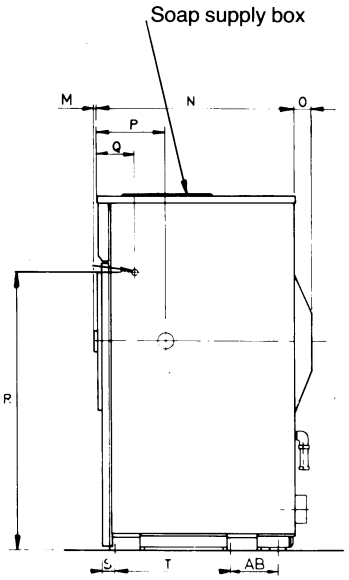
Dry load capacity	up to	21,5 kg	50 lbs
Overall dimensions	Width	830 mm	32 11/16"
	Depth	991 mm	39"
	Height	1310 mm	51 9/16"
	Net weight	277 kg	612 lbs
	Dyn. weight		193 lbs./sqft
Crated Dimensions	Volume	1,26 m^3	44,4 cu.ft
	Weight	288 kg	635 lbs
Inner drum	Diameter	700 mm	27 1/2"
	Depth	555 mm	21 7/8"
	Volume	214 litre	7,6 cu.ft
Speed of rotation	Wash		45 r.p.m.
	Extraction		455 r.p.m.
G-factor	During wash		0,8
	During extraction		79
Motor speed	During wash		360 r.p.m.
	During extraction		3450 r.p.m.
Voltage requirements	Choice: 208–240V 1-Phase 60Hz 208-240V 3-Phasae 60Hz 440V 3-Phase 60Hz		
Rated power	Motor, wash		330 W 0,45 HP
	Motor, extraction		1500 W 2,0 HP
Overcurrent protection	Three-phase		15 A
	Single-phase		25 A
Recommended water pressure	2 – 6 kp/cm^2		25 – 85 psi
Hose connection, water	20 mm		3/4"
Hose connection, drain	75 mm		3"

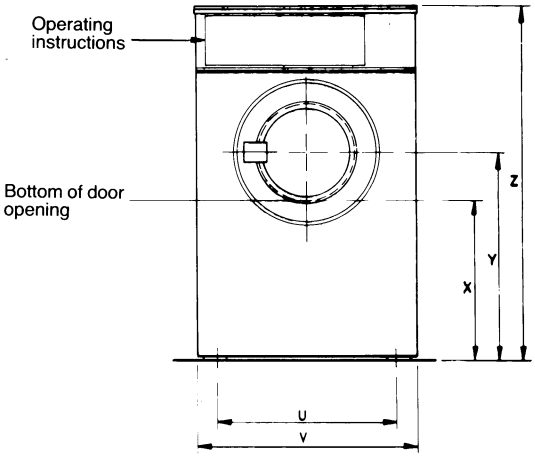
Technical data

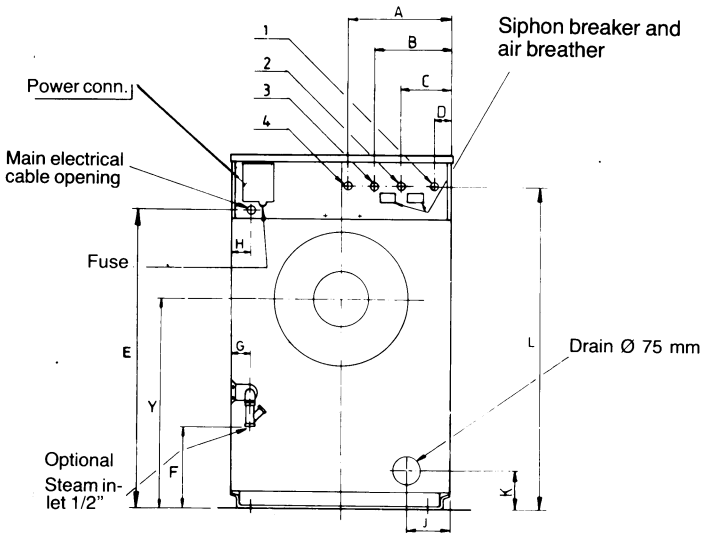
W 244

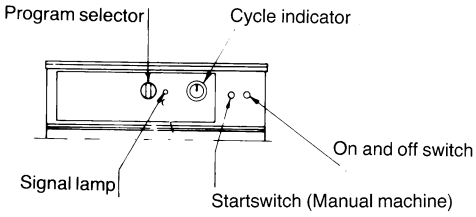
Dry load capacity	up to		75 lbs
Overall dimensions	Width	940 mm	37"
	Depth	1090 mm	42 15/16"
	Height	1420 mm	55 7/8"
	Net weight	358 kg	789 lbs
	Dyn. weight		194 lbs./sqft
Crated Dimensions	Volume	1,74 m^3	61,5 cu.ft
	Weight	370 kg	815 lbs
Inner drum	Diameter	830 mm	32 11/6"
	Depth	590 mm	23 1/4"
	Volume	320 litre	11,3 cu.ft
Speed of rotation	Wash		41 r.p.m.
	Distribution		60 r.p.m.
	Extraction		410 r.p.m.
G-factor	During wash		0,8
	During extraction		79
Motor speed	During wash		540 r.p.m.
	During distribution		860 r.p.m.
	During extraction		1740 r.p.m.
Voltage requirements	Choice:		
	208–240 V 3-Phase 60Hz		
	440V 3-Phase 60Hz		
Rated power	Motor, wash		650 W
			0,9 HP
	Motor, extraction		1100 W
			1,5 HP
Overcurrent protection	Three phase		15 A
Recommended water pressure		2 – 6 kp/cm^2	25 – 85 psi
Hose connection, water		20 mm	3/4"
Hose connection, drain		75 mm	3"

W74, W124, W184, W244









Water inlets

	Valve	
W74	1	Cold water
	2	Hot water
W124	1	Cold water
	2	Hot water
W184	1	Cold water
	2	Cold water
	4	Hot water
W244	1	Cold water
	2	Hot water
	4	Hot water

	W74		W124		W184		W244	
	mm	inches	mm	inches	mm	inches	mm	inches
A	–	–	–	–	315	12 13/32	315	12 13/32
B	235	9 1/4	235	9 1/4	235	9 1/4	235	9 1/4
C	155	6 3/32	155	6 3/32	155	6 3/32	155	6 3/32
D	50	1 31/32	50	1 31/32	50	1 31/32	50	1 31/32
E	875	34 7/16	990	38 31/32	1065	41 15/16	1235	48 5/8
F	240	9 1/2	240	9 1/2	270	10 5/8	250	9 7/8
G	55	2 1/8	55	2 1/8	100	3 15/16	120	4 3/4
H	55	2 1/8	55	2 1/8	55	2 1/8	55	2 1/8
J	135	5 5/16	135	5 5/16	135	5 5/16	135	5 5/16
K	85	3 5/16	85	3 5/16	85	3 5/16	105	4 1/8
L	940	37	1055	41 17/32	1130	44 1/2	1305	51 3/8
M	10	25/64	10	25/64	10	25/64	8	5/16
N	585	23 1/32	885	34 13/16	920	36 7/32	1010	39 3/4
O	–	–	–	–	60	2 3/8	60	2 3/8
P	200	7 7/8	200	7 7/8	200	7 7/8	245	9 5/8
Q	110	4 3/8	110	4 3/8	110	4 3/8	105	4 1/8
R	825	32 31/64	960	37 3/4	1075	42 21/64	1155	45 7/16
S	30	13/16	45	13/4	35	1 3/8	95	3 3/4
T	365	14 3/8	508	20	600	23 5/8	575	22 5/8
U	530	20 7/8	600	23 5/8	700	27 5/8	800	31 1/2
V	660	26	745	29 5/16	830	32 11/16	960	37 3/4
X	470	18 1/2	545	21 7/16	580	22 1/16	595	23 7/16
Y	615	24 1/4	690	27 1/8	765	30 1/8	800	31 1/2
Z	1055	41 1/2	1190	46 7/8	1300	51 3/16	1400	55 1/8
AB			280	11 1/64	235	9 1/4	293	11 17/32

Installation instructions

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.

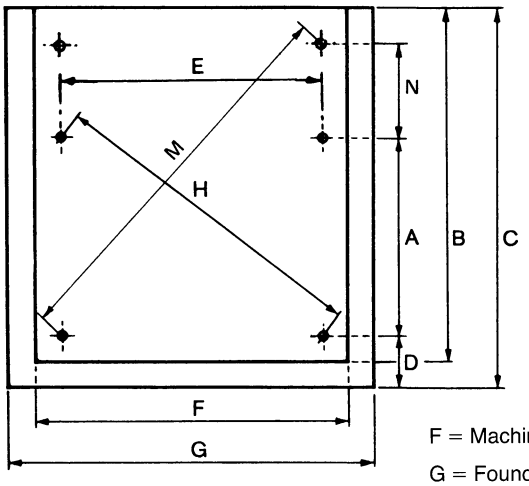
For installation on an existing concrete floor, the floor must be at least 8" thick and of good quality. If the floor does not meet these requirements, then a 6-8" high concrete foundation should be made. A prefabricated steel base is available for mounting of machines without an additional foundation.

Follow the instructions below when making a concrete foundation:

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 18 and 2 inches, respectively. See illustration and table with dimensions on page 10.
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.
5. Use the template to position the foundation bolts correctly – bolts are to extend 1-1/2" above concrete.

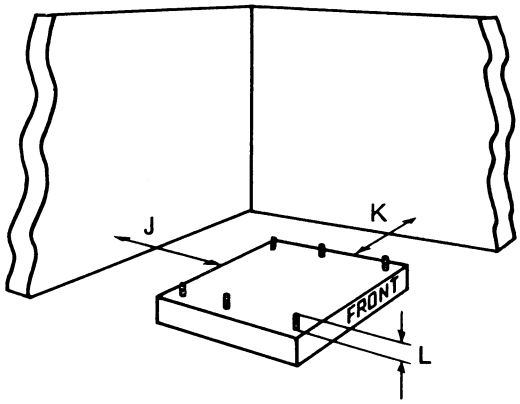
   NOTE: A prefabricated steel frame, designed to be placed in the concrete instead of the individual mounting bolts, is available.

Foundation measurements W74, W124, W184, W244



F = Machine

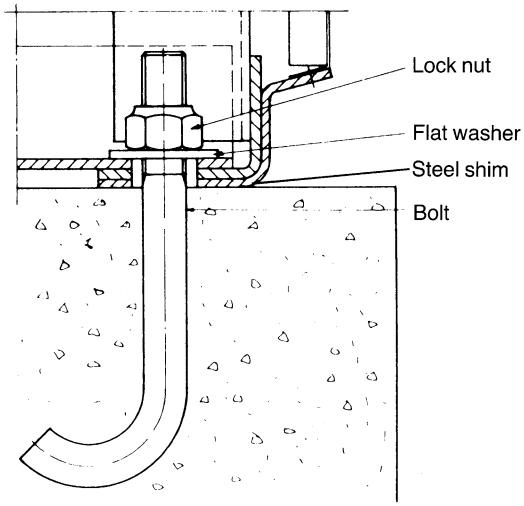
G = Foundation



	Model	A	B	C	D	E	F	G	H	J minimum	K	L	M	N
mm	**W74**	364	586	635	87	530	660	700	643	400	50	40		
inches		14 5/16	23 1/16	25	3 7/16	20 7/8	26	27 1/2	25 5/16	15 3/4	2	1 9/16		
mm	**W124**	508	885	930	102	600	745	800	786	400	50	40	991	281
inches		20	34 11/16	36 11/16	4	23 5/8	29 5/16	31 1/2	31	15 3/4	2	1 9/16	39	11
mm	**W184**	600	922	980	100	700	830	880	922	400	50	40	1090	236
inches		23 5/8	36 19/64	38 5/8	4	27 9/16	32 11/16	34 11/16	36 5/16	15 3/4	2	1 9/16	42 7/8	9 19/64
mm	**W244**	575	1010	1060	150	800	940	985	985	400	50	40	1180	290
inches		22 5/8	39 3/4	41 3/4	6	31 1/2	36 29/32	38 13/16	38 13/16	15 3/4	2	1 9/16	46 1/2	11 17/32

Mechanical Installation

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



Electrical installation

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

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

Connect L1, L2, L3 and ground 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.

On three-phase machines: start the machine and check that the drum rotates in the proper direction during extraction, i.e. counter-clockwise when seen from the front. If the drum rotates in the wrong direction, interchange line L1 and L3 at the power connection terminal. Check the incoming power for a high voltage leg. If present, connect that line to L2 on the terminal block.

Water connection

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.

- Flush the water system thoroughly and check that the filter in the machine inlet is fitted correctly.
- Connect the machine to the water mains with 3/4" reinforced rubber hosing not to be exceed 6 ft in length. Hang the hosing in a large loop. Do not use rigid piping.
- Water inlets are labelled for hot and cold water connection.

Drain connection

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

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

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

Steam connection

Steam heated machines are delivered with a filter in the inner drum, which has to be mounted on the inlet side. Use flexible steam hose only, with a working pressure of 140 psi max.

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

Start-up and safety checklist

Start-up and Safety Checklist

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

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

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

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

Function control check-out list

In the machine you will find the warranty registration card, the template, and other pertinent material. These should be removed and put in a safe place for future reference as needed.

On coin metered machines, the key is wired to the right rear side of the meter housing below the top panel on the machine.

The machine should be cleaned when the installation is completed, and function control by making a full washing trial without wash load.

- Check power source for electric characteristics as to voltage, phase and cycles to be sure they are proper for the machine.
- Open manual shut-off valves to the machine.
- Turn on electric power.

– On coin metered machines: insert coins in coin chute to start machine.

– On non-metered machines: select a program and then press the on-off switch and white start button to start machine.

- Check the door safety interlock.
- Run through complete cycle, checking for water temperature, drain operation and extract direction. To advance timer, press start button and hold down until indicator arrow reaches desired part of the cycle.

– When machine is in wash operation turn the program selector to "Warm". Check water temperature. Turn "hot" and again check water temperature. If "hot" is turned and cold water comes in the hoses are connected improperly. Reverse hot and cold water hoses.

– Machine must sprin counter-clockwise during extraction. If it does not, reverse position of line connection L1 and L2.

- Check permanent press cycle.

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

Safety rules

- 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 concerned must fully comprehend the operating manual before attempting any repair or maintenance of the machine.
- The machine must not be sprayed with water, otherwise short circuiting may occur.
- Fabrics softener with volatile or inflammable fluids are not to be used in the machine.

Machines must not be used by children.

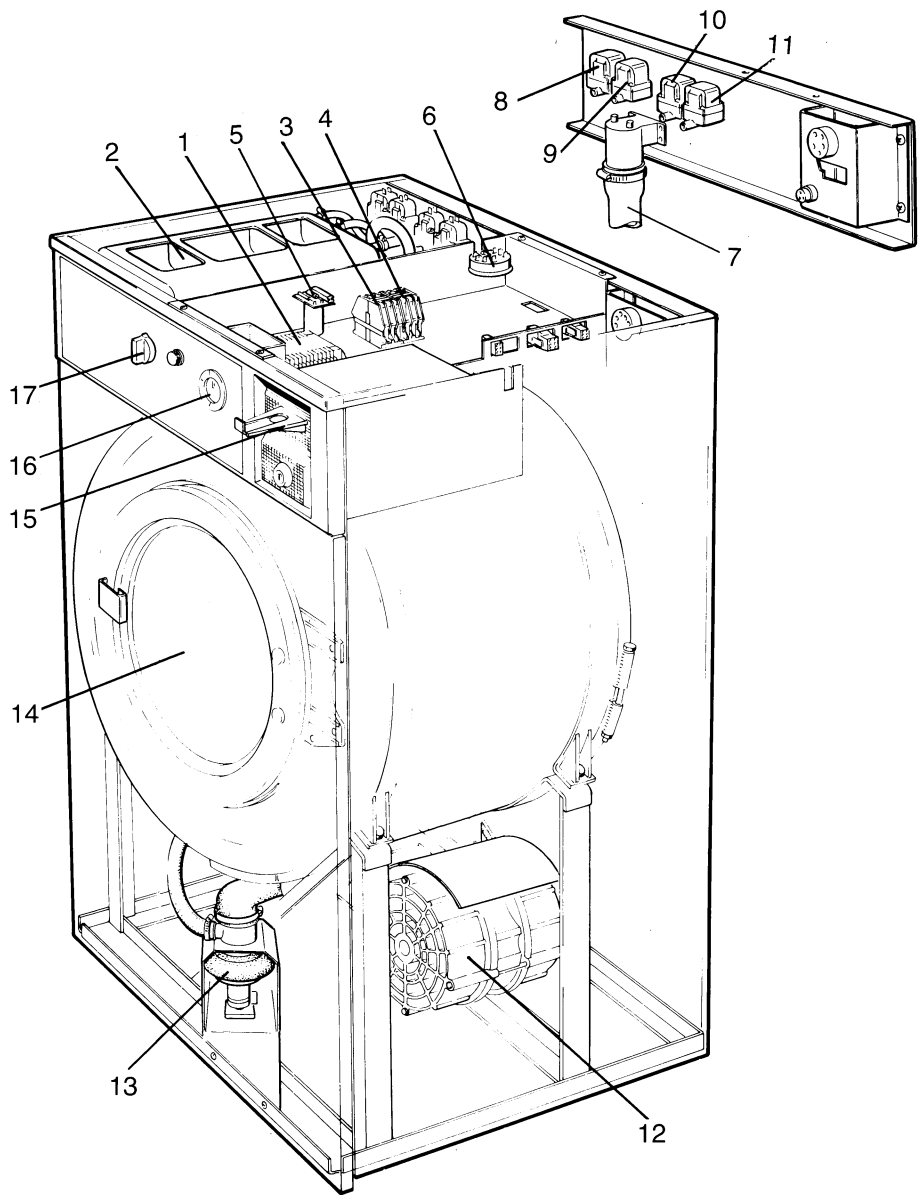
Mechanical and electrical design

The door, cycle indicator, coin meter or manual start switches, program selector and control light are fitted at the front of the machine.

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

Main units

- Coin meter or start button – to start the machine.
- Program selector – rotary switch for choice of different wash programs.
- Cycle indicator – for visual information regarding the different program items.
- Door – with automatic locking device, remains locked throughout the different wash processes.
- Detergent supply box – three compartments for automatic injection of detergents and fabric softener.
- Inner cylinder – of stainless steel supported at the rear by two ballraces.
- Outer drum – of stainless stell (18/8) securely attached to the frame.
- Wash motor – for reversible rotation and high speed spin action, with self tensioning V-belt drive and rubber suspension.
- Hot and cold water valves – program and level controlled solenoid valves for filling with water, and for flushdown of automatic detergent dispenser.
- Drain valve – timer controlled valve for draining the machine of water.
- Siphon breaker – to prevent water in the machine from re-entering the water supply system.
- Control equipment – of plug in type, for time and temperature control of the different wash cycles.



1	Timer	10,11	Hot water valves
2	Detergent supply box	12	Wash/extract motor(s)
3	Relay, extraction	13	Drain valve
4	Relay, wash	14	Door
5	Delay unit	15	Coin meter
6	Level control	16	Cycle indicator
7	Siphon breaker	17	Program selector
8.9	Cold water valves		

Illustration of a W model washing machine

Machine construction

Outer Shell

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

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

Inner Cylinder

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

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

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

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 panels can easily be removed.

Back Gable and Bearing

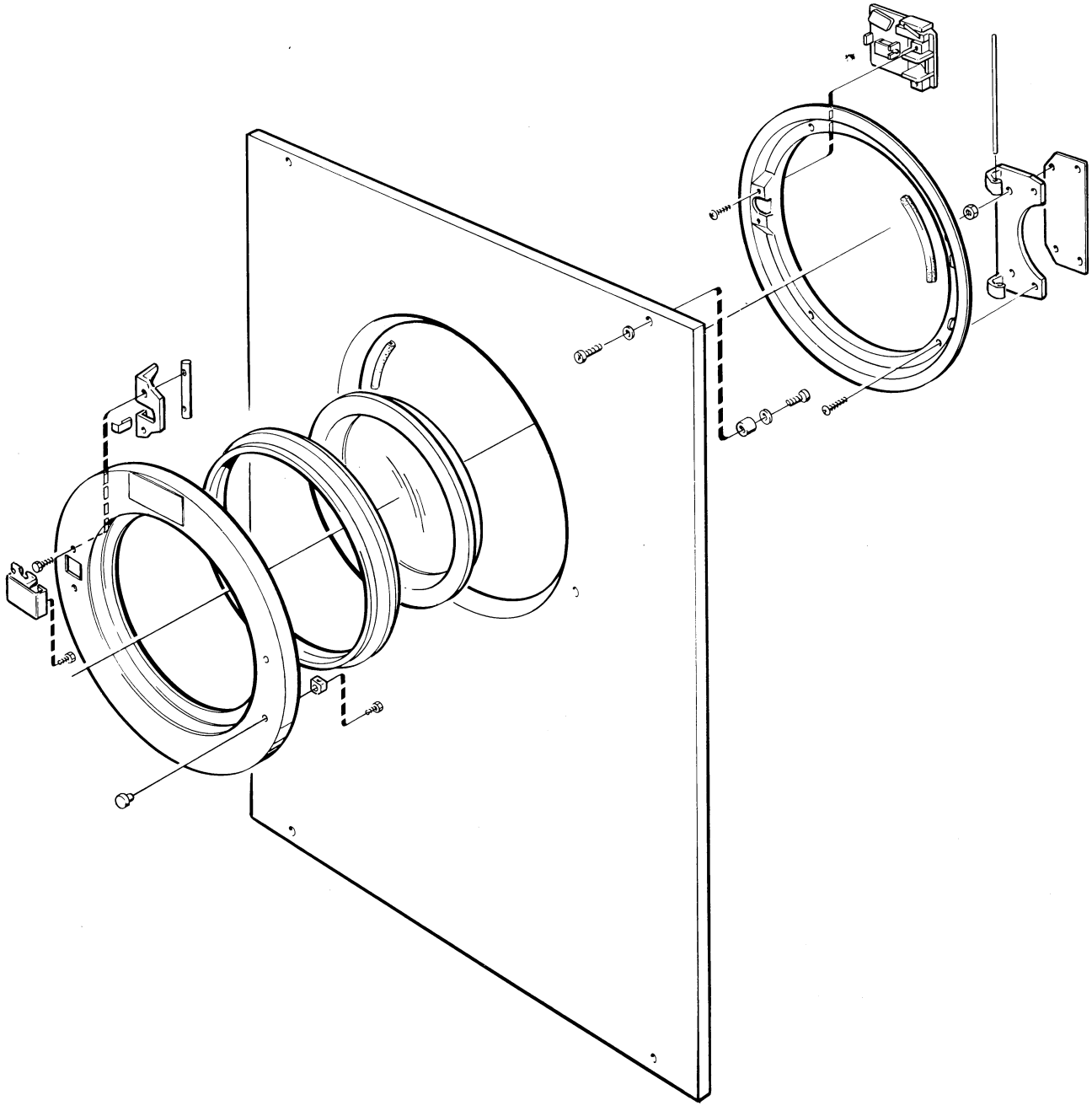
The back gable and the bearing trunnion housing are constructed of a webbed heavy casting for extra rigidity. The bearings are protected against filtration of water by three neoprene seals. An intermediate safety outlet provides an escapement for any possible condensation.

The seals are mounted on a chrome-plated, non-corrosive, specially hardened sleeve bushing that is mounted on the drive shaft to prevent wear of the seals and shaft. The main bearing is fitted machine-tight into the bearing trunnion housing. On the W74 and W124 the main bearing is held in place with a C-clamp to prevent the cylinder from moving in and out. On the W184 and W244 a nut is tightened on the shaft instead.

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

Door description

The door is made of stainless steel and is equipped with a flat door gasket, which acts as a seal to prevent water leakage and also holds the heat-hardened door glass.



Door lock description

See exploded view on opposite page. The door lock assembly is mounted on a die-cast bracket (1), which is mounted to the front gable of the outer drum.

The door lock consists of a DC-solenoid (2), door swithes (4) and a catch (3). The door handle of the machine has a latch, which engages the lock and the door safety switch(5).

Door lock operation

As the door is closed, the door switches are activated through notches in the door skirt.

When the machine starts, the delay circuit in the control panel becomes energized and the capacitor (d) is charged via the diode (a) and the resistor (b). The voltage will be about 90-120 V DC*. When the machine is stopped the capacitor will keep the solenoid engaged for about 20 seconds ensuring that the cylinder has stopped turning and is emptied of water.

*This voltage energizes the door lock solenoid, causing the rod to be drawn forward, engage the door latch and in turn activate the door safety switch which then allows machine to start.

Trouble shooting the door lock and interlock

If the machine does not start:

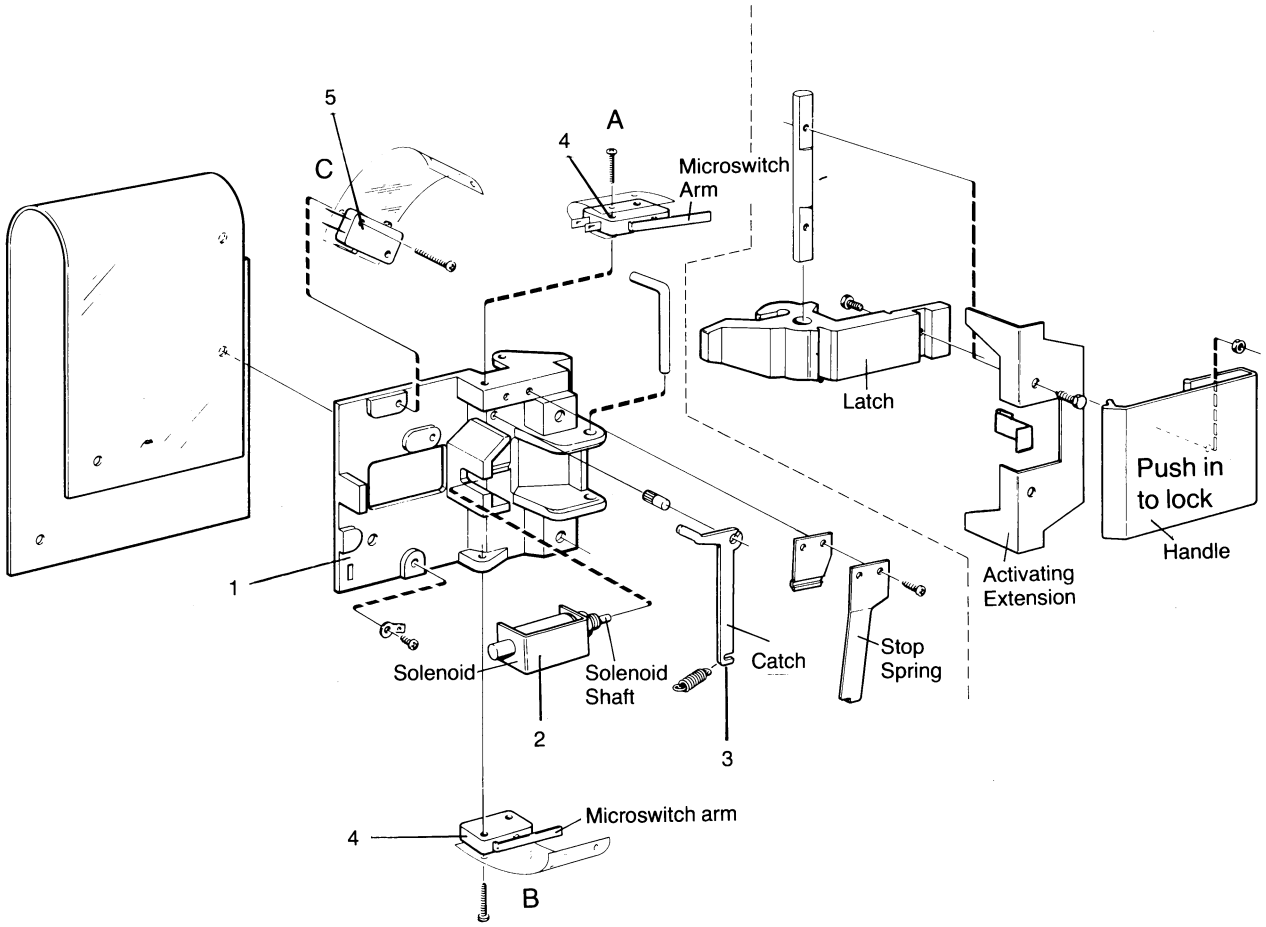
Check that all three switches are activated when the door is locked. Adjustment can be made after the front panel of the machine has been removed.

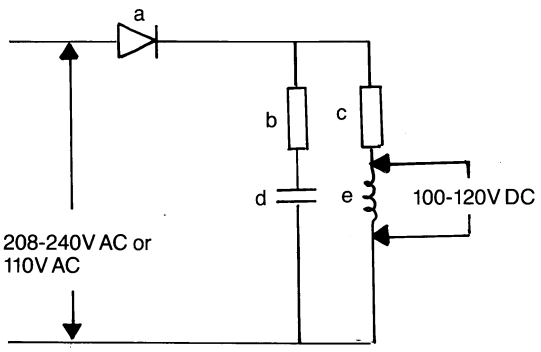
If the solenoid does not lock the door:

Check that the solenoid becomes energized (90-120 V DC).

Check that the catch can easily move forward and backward.

Check that the catch has not become obstructed.

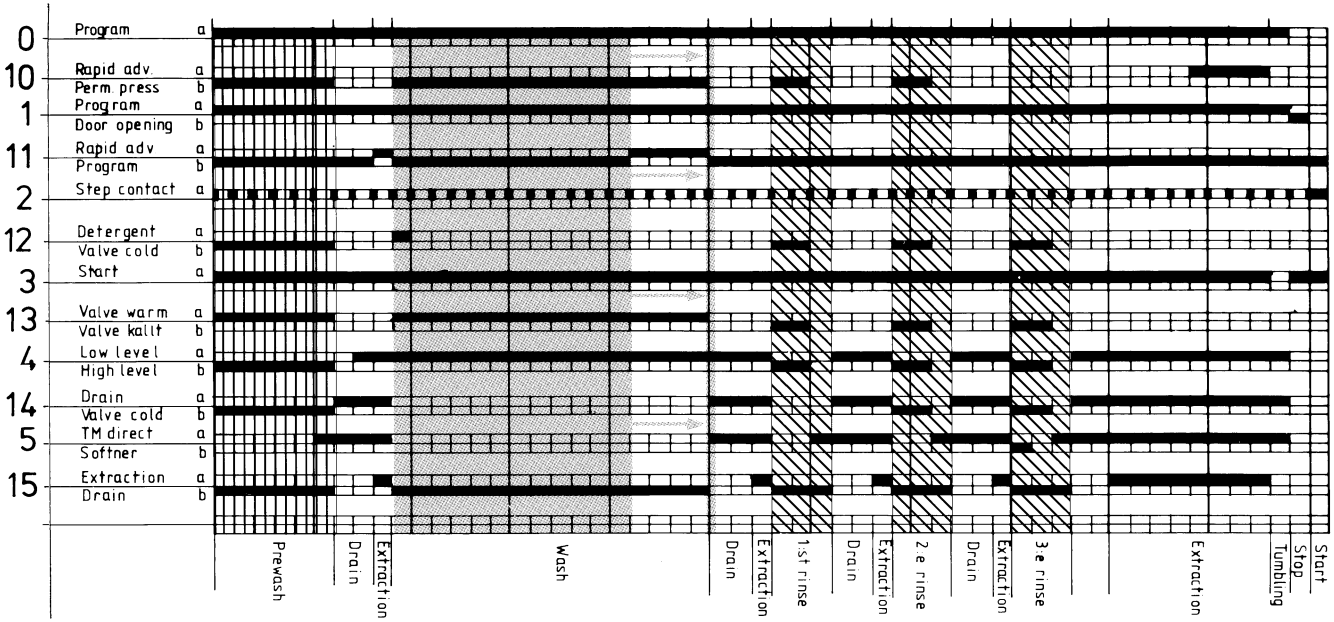




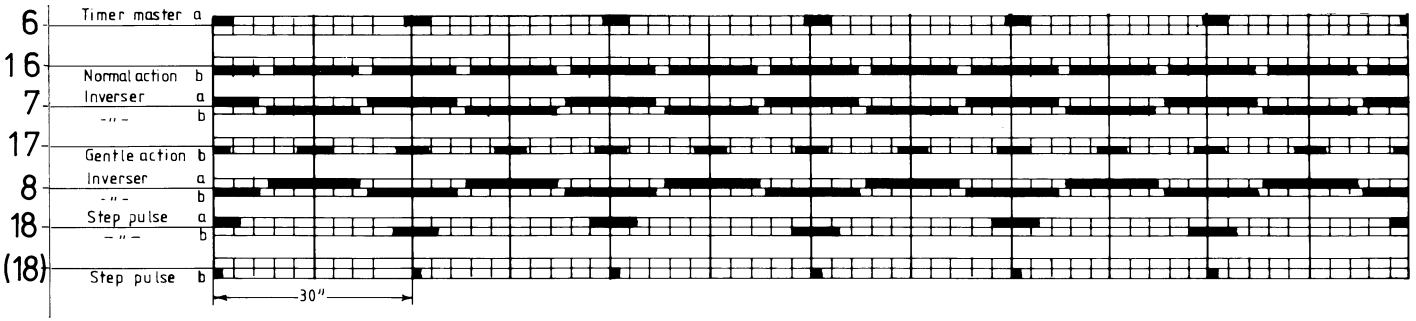
Door locking and delay circuit

220V machines
b = 1000 ohms
c = 4700 ohms
d = 470 mf capacitor
e = door lock coil

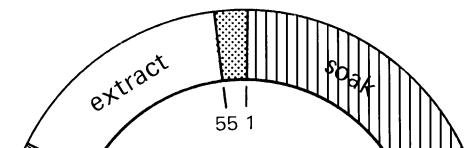
110V machines
b = 120 ohms
c = 1000 ohms
d = 680 mf capacitor
e = door lock coil



Sequence diagram of programming section of timer.
Colors refer to different parts of cycle as indicated on timer indicator below.



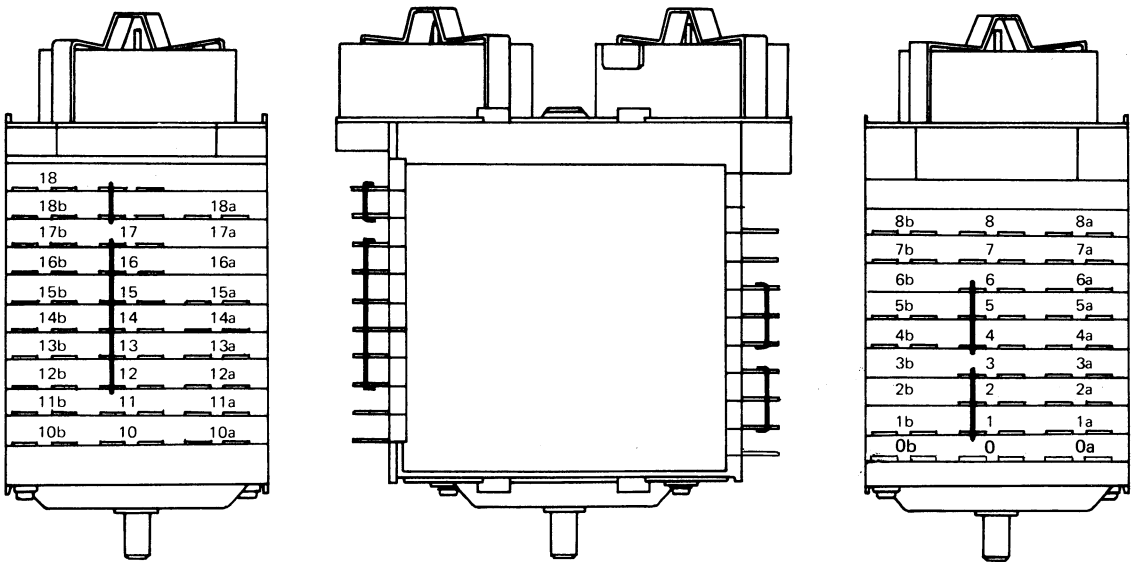
Sequence diagram of reversing section of timer



Timer

The timer has two assemblies ofdisc. cams. These assemblies are capable of operating independently on the same shaft are driven by two timer motors through gears on an escapement. Each contact is a single pole double throw switch. The timer motor on the 0-8 contact bankside turns the cam assembly that controls the reversing contacts and the contacts that control the wash relay and impulse to the program timer motor mounted on 10-18 contact side. This motor controls the program functions of the machine from start to stop.

The complete timer sequence diagram is shown on opposite page.



Art. No.

471 89 50-15 60 Hz P3
471 89 50-16 60 Hz 110 V P3

Relays

The W74, 124 and 184-models employ two relays. Viewed from the front, the first relay is for providing electrical power to the wash windings of the motor and the second is for the extract windings.
The two are identical except for the addition of a normally-closed pair of contacts on the extract relay.

The W244 has one additional relay for the distribution windings of the wash motor.

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.

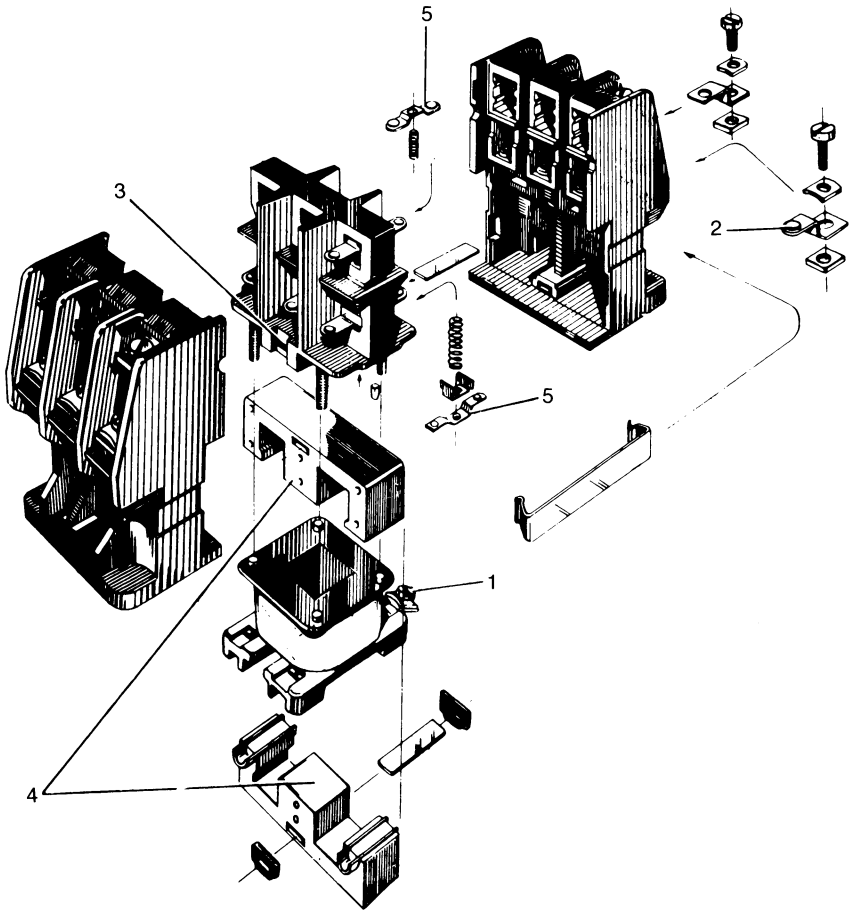
The relay is constructed for continous operation, whether mounted horizontally or vertically.

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

The wash relay makes use of three normally-open contacts while the extract relay uses an additional normally-closed one.

Operation

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



Trouble shooting

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

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

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

Drive motor

Drive motor description W74, W124 and W184

The two-speed motor of the W74, W124 and W184 is mounted on a hinged base, making tension adjustment on the belt automatic. For silent operation the motor hinge is provided with rubber bushings.

Drive motor description, W244

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

Construction of three-phase W74, W124, W184 and W244 motors

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 (the 8-pole and 12-pole resp. 4-pole windings for W244) 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, W74, W124 and W184

Single-phase motors have an 18-pole winding (wash-speed) the same as three-phase motors, using a continous connected run capacitor, while the 2-pole winding (extract-speed) is a specially designed winding using a continous connected run capacitor and, on the W124 and W184, a start capacitor which is disengaged when the motor reaches the proper speed.

Function of 3-phase motor, W74, W124 and W184

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 synchronous 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.

Function of W244 motors

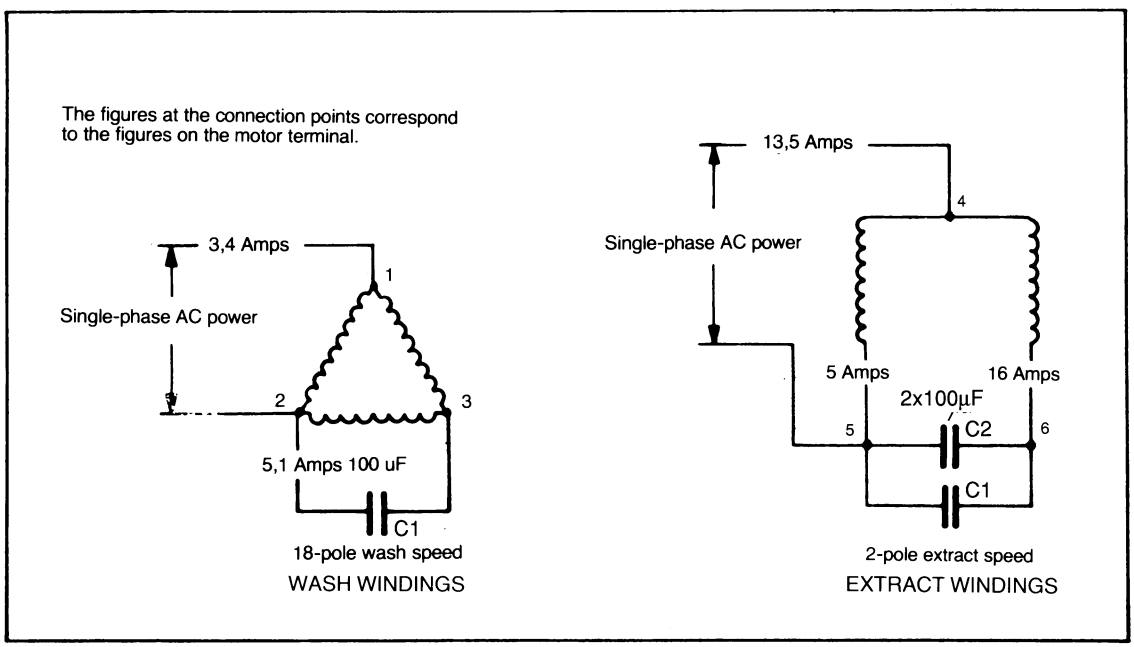
When the stator winding is charged, a magnetic field will occur, which in turn will rotate the motor at a fixed RPM depending upon the number of poles in the winding. The 12-pole winding gives the wash speed and the 8-pole winding in the same motor gives the distribution speed. The separate 4-pole motor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

Principal wiring and points of measuring on single-phase motors

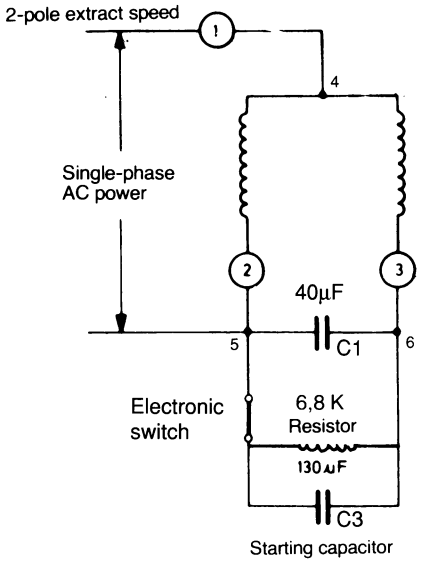
The numbers at the connection points refer to the terminal numbers at the motor connector plug.

The numbers in circles indicate points of ampere measurements.

W74

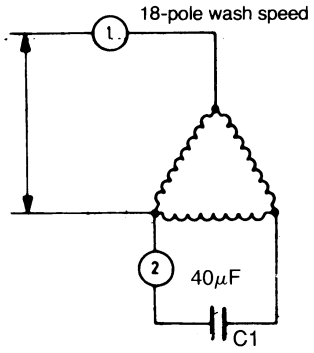


W124



EXTRACT WINDINGS

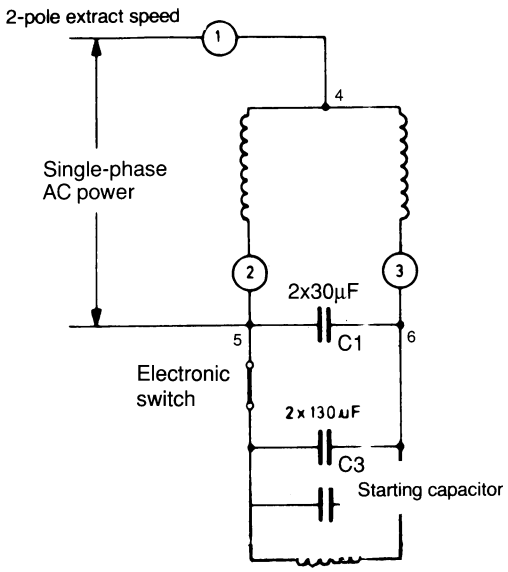
Measuring point	208 V	240 V
1	4,7 A	4,2 A
2	2,1 "	2,6 "
3	5,8 "	6,8 "



WASH WINDINGS

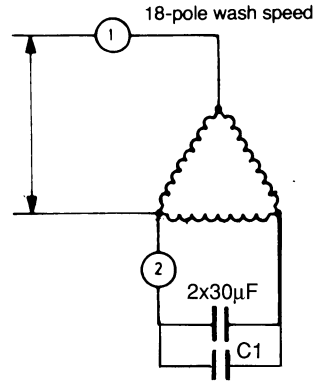
Measuring point	208 V	240 V
1	2,1 A	2,9 A
2	4,0 "	4,3 "

W184



EXTRACT WINDINGS

Measuring point	208 V	240 V
1	3,3 A	3,0 A
2	2,6 "	5,1 "
3	5,7 "	6,6 "

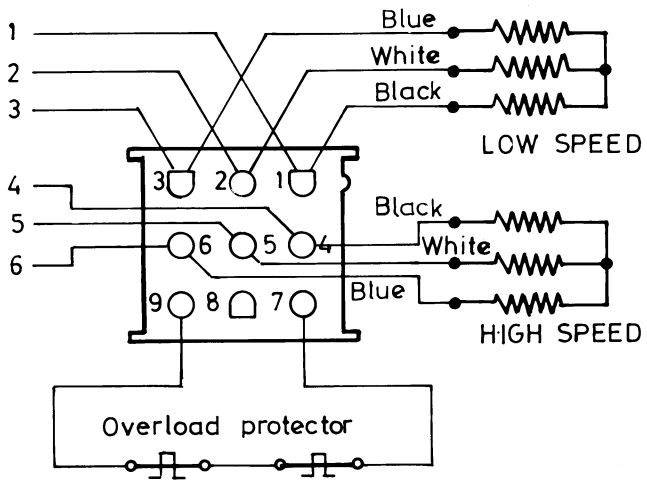


WASH WINDINGS

Measuring point	208 V	240 V
1	2,8 A	3,5
2	6,5 "	7,0 "

Motor connections, W74, W124, W184 and W244

The following diagram illustrates motor connections to the connector plug:



W74, W124 and W184

1, 2 and 3: wash speed (18-pole winding).
4, 5 and 6: extract speed (2-pole winding).
7 and 9: motor overload protector.

W244

Wash/distribution motor:
1, 2 and 3: wash speed (12-pole winding).
4, 5 and 6: distribution speed (8-pole winding).
7 and 9: motor overload protector.

Extract motor:
1, 2 and 3: extract speed (4-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 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.

How to remove the W74, W124 and W184 motor

Lift the motor with a wooden black and take off the V-belt. Remove the C-clamps securng the motor hinge shaft. Then take a suitable piece of pipe and tap out the hinge shaft. Be sure that the motor rests on the wood blocking as otherwise it may be damaged.

How to remove W244 motors

Loosen the spring loaded set screw. Lift the motor unit and detach the V-belts. Dismount the bracket holding the motor hinge shaft. Lift out the motor bracket with motors mounted. Loosen the mounting screws of the wash/distribution motor and the set screws. Lift off the V-belts. Now remove the mounting screws for each motor and the guide pins for the wash/distribution motor.

How to mount the W74, W124 and W184 motor

Lift the motor into place after having mounted the rubber bushings. Do not forget the washers when mounting the motor hinge shaft. Secure the motor hinge shaft with the two C-clamps and make sure that they rest properly in the grooves.

How to mount W244 motors

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

Water level controls

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

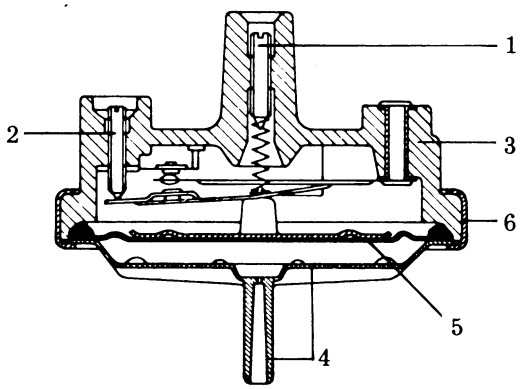
A second level control is installed on the machines to prevent the machine from going into extraction until a sufficient amount of water has been drained.

Adjustment

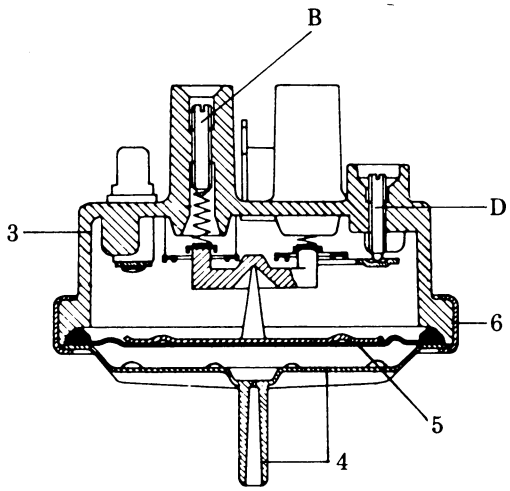
All pressure switches are factory-calibrated to meet specific requirements. The trip level for any one pressure switch can be changed only within narrow limits because each trip range requires a different set of springs.

Water level

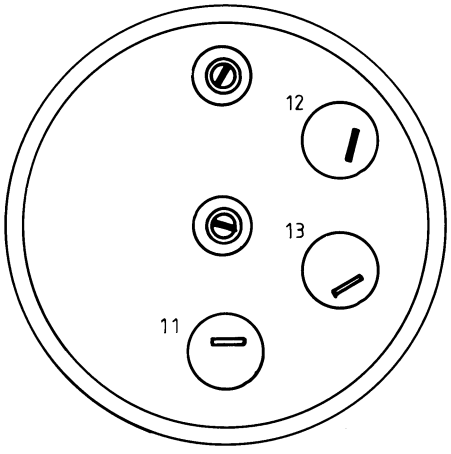
As a guide for checking the level control for proper functioning, the low level should be at the bottom of the door glass; and the high level approximately three inches above it.



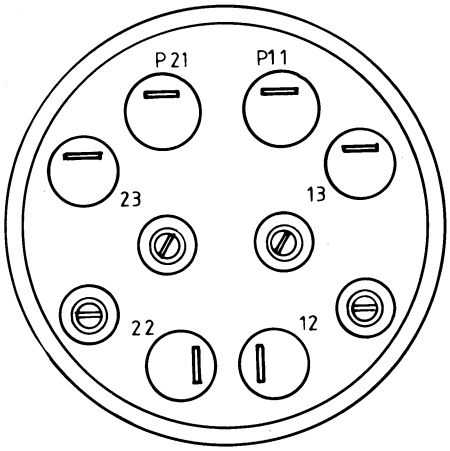
Single-level switch



Double-level switch



Single-level switch



Double-level switch

Inlet valves for W74 and W124 supply injection valve for W184 and W244

Construction

The valves are all single-inlet with either one, two or three outlets, each with its own solenoid coil.

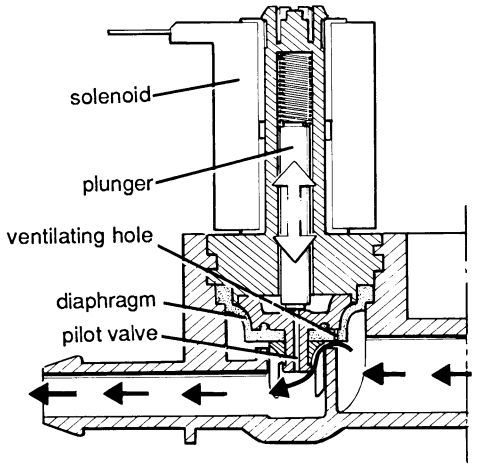
The bodies are made of heat-resistant polyamid plastic and the solenoids encased in water-tight plastic. The electrical connector terminals are spade lugs.

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

Operation

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.



0307

Repair instructions

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

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

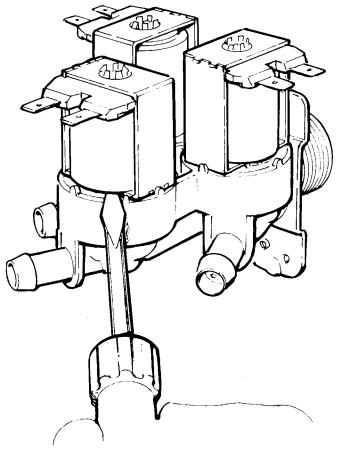
- Check that power is supplied to the coil.
- Check the coil with an instrument to determine whether there is a break or a short circuit.
- Dismantle the valve (see below) and check the openings in the valve diaphragm.
- Check the inlet strainer and clean as required.
- Undo the coil and clean the surfaces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

If the valve does not close

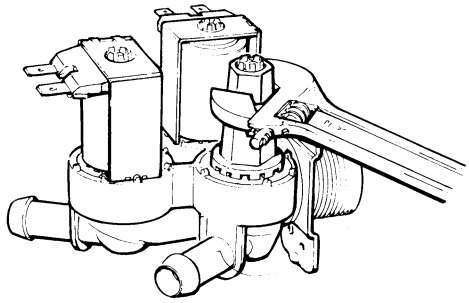
- Check that the coil is not live. The valve is normally closed when the magnet is not energised.
- Check the plunger spring.
- Check the diaphragm (pilot pressure opening).

Dismantling the valve

- Pull the coil stright upwards. Use a screwdriwer if necessary to carefully undo the coil.
- 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 so 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.



0309



0310

Inlet valve for W184 and W244

The water inlets on the W184 and W244 have brass bodies with larger cross section of the outlet in order to acheive 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

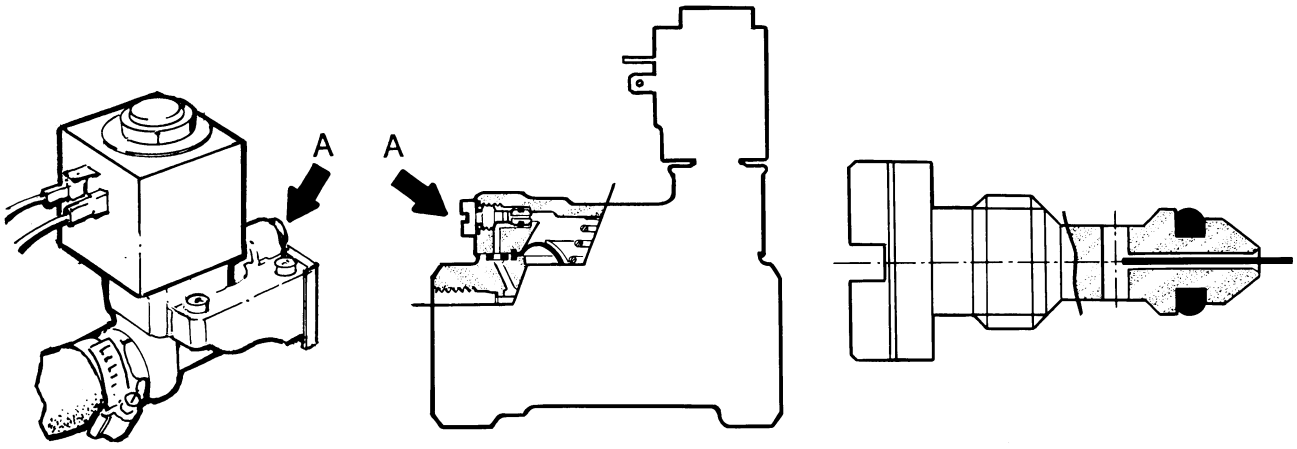
At water temperatures of more than 60°C/140°F, the lime deposits are heavily increased. This can cause function problems due to blocking up the equalizing orifice of the valve.

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

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 mm resp. 0,8 mm.
4. Mount the orifice, be careful with sealing and tighten.
5. Open the main supply.



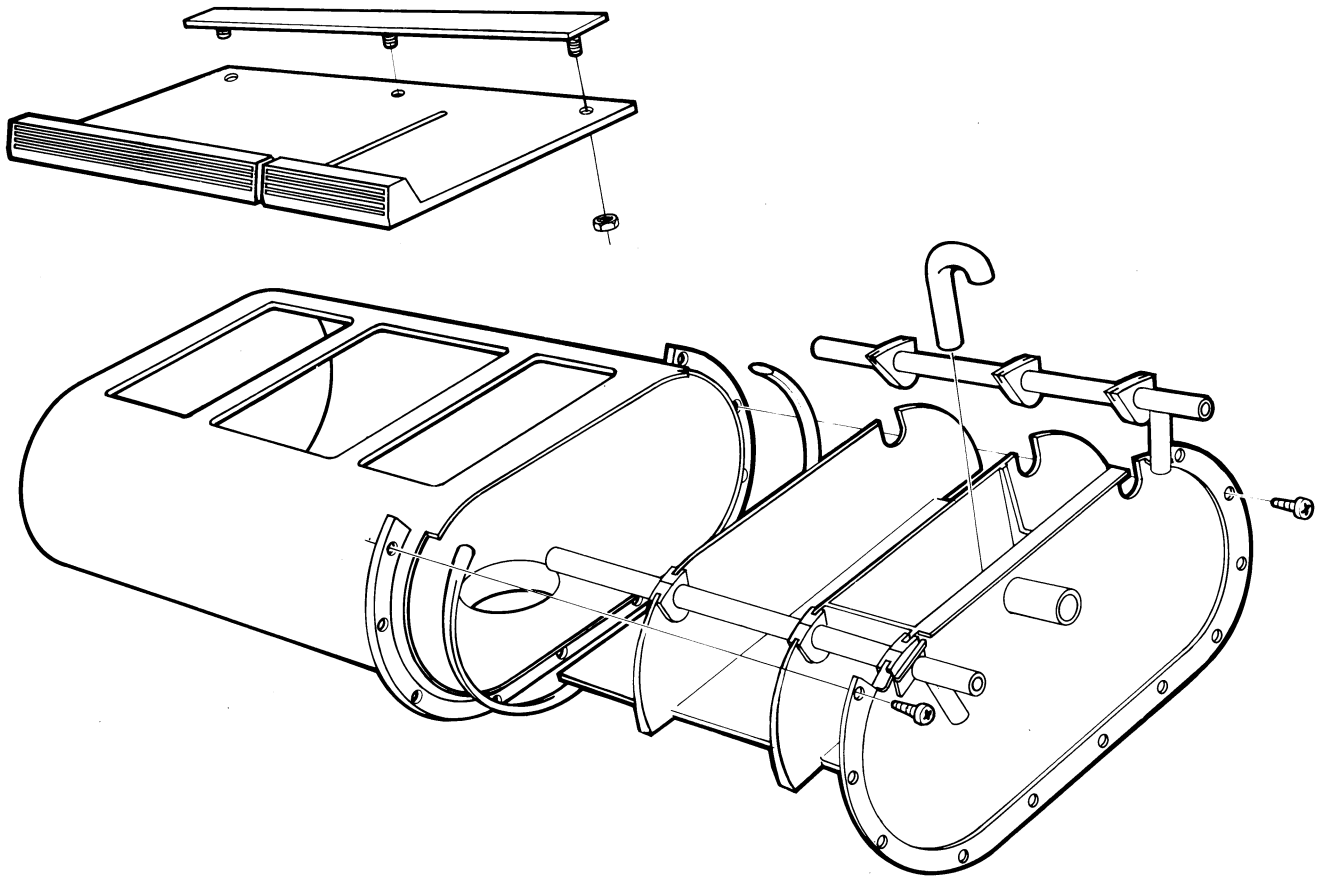
Soap supply box

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 beginning of a cycle or at any time during the cycle when extra suplies are required. Rib F.

Compartment 2
This is the main compartment adding detergent to the wash when called for by rib A on the formula card.

Compartment 3
The small compartment is used to adding fabric softener. The fabric softener is flushed down with water by overflowing when the injection of fabric softener is called by rib E on the formula card.



Drain valve

Description

The drain valve consists of a bracket (1), on which are mounted the motor and gear (2) and diaphragm (3). The rubber diaphragm is resistant to a water temperature up to 100°C (212°F). The installation of a lint trap is not necessary. The machine is equipped with an overflow, which bypasses the drain valve. The drain can be cleaned by removing the drain connection (4) outside of the machine or by removing the rubber diaphragm (3). The motor and gear assembly is covered by a plate and provided with quick connect electrical connections. The stator coil is constructed for continuous operation.

Operation

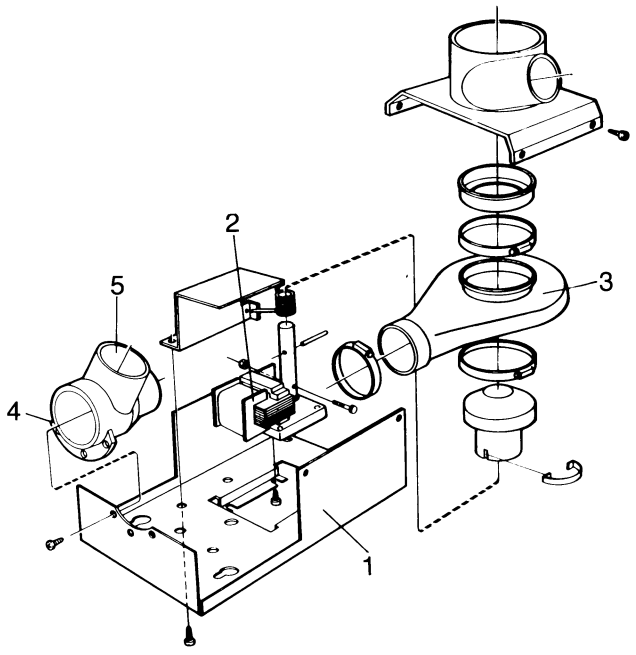
The drain valve is normally open, i.e. the motor does not close the valve until it receives current via a contact of the timer. As soon as the current is cut, the shaft turns and opens the diaphragm of the valve. This also permits the machine to drain, in the event of power failure. The overflow hose (5) leads excess water or suds directly to the waste line, in the event of failure in the inlet valves or level control.

Trouble-shooting

If the valve does not open or close properly:
1. Check that the shaft is moving freely.
2. Check that the diaphragm is not obstructed.
3. Check the coil for continuity.

Clean out

Periodic cleaning of the valve is recommended, depending upon how often the mahines are used, as well as the type of wash handled most frequently.



W74 · W124 · W184 · W244
wash programs

	Hot			Warm			Cold			Perm. press		
	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level
Soak Drain	3 1	Warm	High	3 1	Warm	High 1	3 1	Cold 1	High	3 1	Warm	High
Wash Drain Extract	6 1 0,5	Hot	High	6 1 0,5	Warm	High	6 1 0,5	Cold	High	6 1 0,5	Warm	High
Rinse 1 Drain Extract	1.5 1 0.5	Cold	High	1.5 1 0.5	Cold	High	1.5 1 0.5	Cold	High	1.5 1 0.5	Cold	High
Rinse 2 Drain Extract	1.5 1 0.5	Cold	High	1.5 1 0.5	Cold	High	1.5 1 0.5	Cold	High	1.5 1 0.5	Cold	High
Rinse 3 Drain Extract	1.5 1 4	Cold	High	1.5 1 4	Cold	High	1.5 1 4	Cold	High	1,5 1 2	Cold	High
Shake-out	0,5			0,5			0,5			0,5		
Total	24,5 Minutes (Plus Fill Time)			24,5 Minutes (Plus Fill Time)			24,5 Minutes (Plus Fill Time)			22,5 Minutes (Plus Fill Time)		

Summary

All programs have a three (3) minute high level soak and a six (6) minute high level wash and three (3) – 1,5-minute high level rinses. All rinses are cold water. All final extracts are four (4) minutes except for permanent press which has a 2-minute final extract.

Program sequence

Wash program, Hot

After the machine has started and the door automatically locked, the drain valve will close and the hot and cold water valves will open to fill the machine with mixed hot and cold water to the level determined by the level control.

When this level is reached, both water valves will close and the wash motor will start its reversing rotation.

At the end of the soak, the drain valve will open, whereafter hot water will fill to the level determined by the level control. At the same time water valve is opened and detergent is mixed with the incoming hot water.

On reaching the proper level, the hot water valve will close and the wash motor will immediately start its reversing action.

The water level controlled machine will now wash the fabrics for 6 minutes. The machine is then emptied and the first extraction is started.

After this extraction cold water is filled to the proper level for the first rinse which lasts one and a half minutes, followed by spin extraction for 30 seconds.
After the extraction comes the second rinse in cold water, ending with spin extraction, whereafter the third rinse is started. Fabric softener is automatically admitted during the third rinse, when the water valve is opened. The fabrics are rinsed in cold water for one and a half minutes followed by a spin extraction of four minutes duration. Finally there is a shake out for half a minute.

The delay circuit of the door lock remains energized after completion of the shake out extraction, whereby the door is kept locked approximately 20 seconds before it can be opened and the washed fabrics can be removed.

Wash Program, Warm

On starting the machine, the door will be automatically locked and the pre-wash will be carried out as previously described, whereafter the main wash is started.

As the main wash is started, the drain valve closes, detergent is admitted and mixed hot and cold water is filled to the proper level.

On reaching this high level, the water valves are closed and the wash motor starts its reversing rotation.

The water level controlled machine will now wash the fabrics for six minutes. The machine is then emptied and the first extraction is started.

After this extraction cold water is filled for the first rinse which lasts one and a half minutes, followed by spin extraction for 30 seconds.

After this extraction comes the second rinse in cold water ending with spin extraction, whereafter the third rinse is started. Fabric softener is automatically admitted during the third rinse. The fabrics are rinsed with cold water for one and a half minutes followed by a spin extraction of four minutes duration. Finally there is a shake out for half a minute.

The delay circuit of the door lock remains energized after completion of the shake out extraction, whereby the door is kept locked approximately 20 seconds before it can be opened and the washed fabrics can be removed.

Wash Program, Cold

On starting the machine, the door will automatically lock, the drain valve close, the cold water valve open and the pre-wash carried out as previously described, whereafter the main wash is started.

As the main wash is started, the drain valve closes, detergent is admitted and cold water is filled to the proper level.

On reaching this level, the cold water valve is closed and the wash motor starts its reversing rotation.

The water level controlled machine will now wash the fabrics for six minutes. The machine is then emptied and the first extraction is started.

After this extraction, cold water is filled for the first rinse which lasts one and a half minutes, followed by spin extraction for 30 seconds.

After this extraction comes the second rinse in cold water concluded with spin extraction, whereafter the third rinse is started.

Fabric softener is automatically admitted during the third rinse. The fabrics are rinsed with cold water for one and a half minutes followed by a spin extraction of four minutes duration. Finally there is a shake out for half a minute.
The delay circuit of the door lock remains energized after completion of the spin extraction, whereby the door is kept locked approximately 20 seconds before it can be opened and the washed fabrics can be removed.

Wash Program, Permanent Press

On starting the machine, the door will automatically lock, the drain valve close, the hot and cold water valves open and the pre-wash will be carried out as previously described, whereafter the main wash is started.

As the main wash is started, the drain valve closes, detergent is admitted and mixed hot and cold water is filled to the proper level.

On reaching this high level, the water valves are closed and the wash motor starts is reversing rotation.

The water level controlled machine will now wash the fabrics for six minutes. The machine is then emptied and the first extraction is started.

After this extraction cold water is filled for the first rinse which lasts one and a half minutes, followed by spin extraction for 30 seconds.

After this extraction comes the second rinse in cold water concluded with spin extraction, whereafter the third rinse is started.

Fabric softener is automatically admitted during the third rinse. The fabrics are rinsed with cold water for one and a half minutes followed by a spin extraction of two minutes duration. Finally there is a shake out for half a minute.

The delay circuit of the door lock remains energized after completion of the spin extraction, whereby the door is kept locked approximately 20 seconds before it can be opened and the washed fabrics can be removed.

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 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.

- 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 machine is not in use, leave door slightly open to allow moisture to dry.

Weekly

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

Every three months

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

Trouble-shooting

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 is to 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.

1. The machine does not start	A. Check main fuse well as circuit breaker on the wall B. Check the rotary switch for continuity C. Replace microswitches. D. Replace fuse and determine cause. E. Check and repair or replace the coin meter.
2. Motor does not operate at wash speed.	A. Replace drive belt. B. Check and repair or replace the relay. C. Check and repair or replace the timer. D. Check and repair or replace the relay. E. Check and repair or replace the timer.
3. Drum rotates slowly at wash speed.	A. Replace drive belt.
4. Machine does not reverse on wash speed.	A. Check and repair or replace the timer. B. Check synchronous motor of the timer. C. Check the drain system. D. Check level control.
5. The machine does not extract.	A. Check and repair or replace function of the relay. B. Check or replace solenoid of the relay. C. Check and repair or replace the timer. D. Check and repair or replace the drive motor. E. Check level control. Check motor overload protector. F. Automatically resets after 15-30 minutes.
6. Metallic noice at rear of machine.	A. Tighten stop screw of pulley.
7. Timer does not advance.	A. Check synchronous motor of the timer. B. Check level control and rubber hose leading to same.
8. The machine does not fill with water.	A. Check manually operated shut off valves. B. Check the solenoid as well as the valve for obstruction. C. Check wires leading to the valves. D. Check and adjust contact of timer. E. Check level control and rubber hose leading to same. F. Check, adjust or replace rotary switch. G. Check motor overload protector. Automatically resets after 15-30 minutes.
9. The machine continues to fill with water and timer does not advance.	A. Check level control and plastic tubing leading to same. B. Check seating of the drain valve. C. Disconnect wires leading to solenoid of inlet valve if water continous to flow the valve has stuck. Strip and clean the valve. Clean the diaphragm carefully.
10. Water continous to flow without filling machine.	A. Check drain valve for obstruction. B. Check solenoid and replace if necessary.
11. Machine does not drain.	A. Check that the shaft of the drain valve moves freely and that the pressure spring is not defective or has stuck. B. Adjust or replace faulty parts. C. Clean the valve. Check and adjust the timer.
12. Door leaks.	Adjust by removing washers at the door hinge or at the catch Replace gasket.
13. Machine vibrates excessively during extraction.	Tighten bolts.

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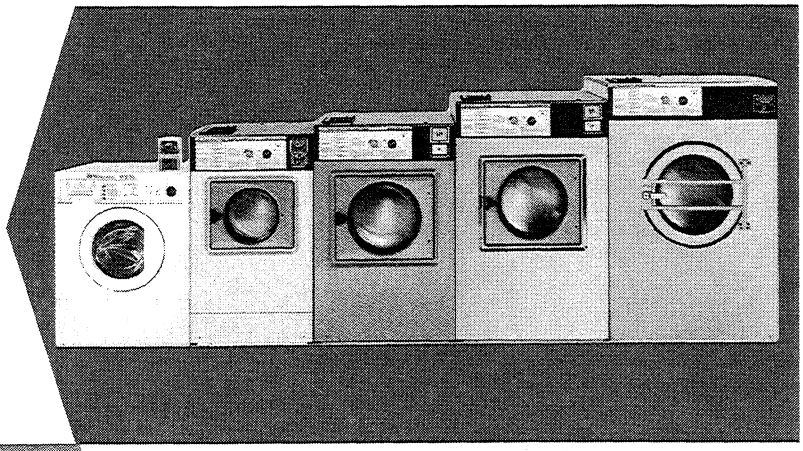
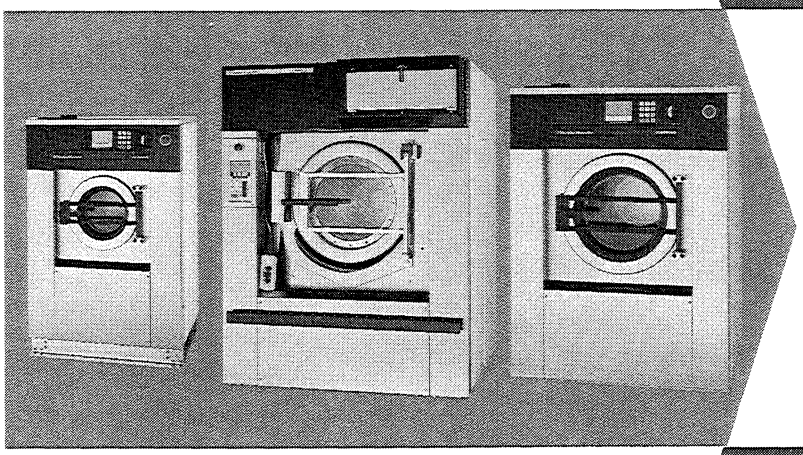
Wascomat Coin-Op Washers



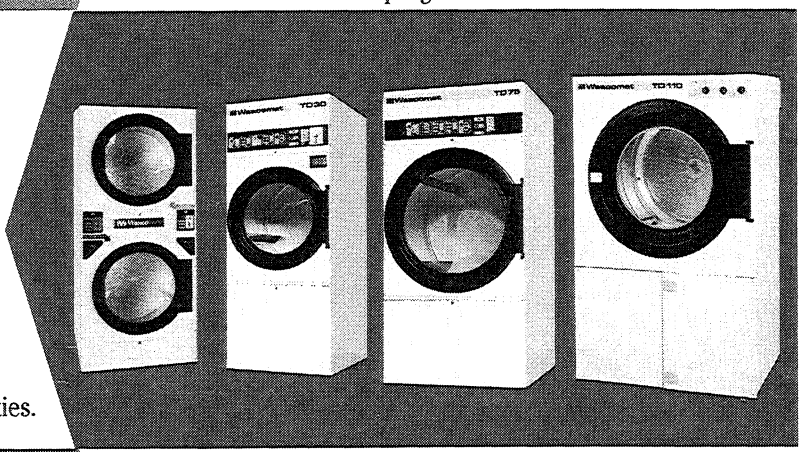
- Electro-mechanical or Emerald Series microprocessor controls.
- Fully automated 16 lb, 18 lb, 25 lb, 35 lb, 50 lb and 75 lb capacities.
- State-of-the-art water and energy saving washers.
- Ideal for: coin, self service apartment and dormitory laundries.
- Coin slide, coin drop or cash card activated models.
- Hard and soft mount models.
- Models with owner-selectable water & energy saving options.
- Handicapped accessible.



Wascomat Multi-Purpose Solid and Soft Mount Washers

- Solid mount EXSM 230 and 350, 220 G-Force extraction models: 65 lb and 80 lb capacities.
- Ideal for: shirt laundry washers, all OPL installations.
- Soft mount Extract-O-Matic models feature ultra high extraction up to 480 G-Force.
  Suitable for upper floor installation. Available in 15 lb, 25 lb, 30 lb, 50 lb, 100 lb and 200 lb capacities.
- All EXSM and Extract-O-Matic washers are fully equipped with frequency controlled motors and your choice of state-of-the-art fully programmable Clarus microprocessor or Selecta 28 fixed program controls.

Wascomat/WascoDry Dryers

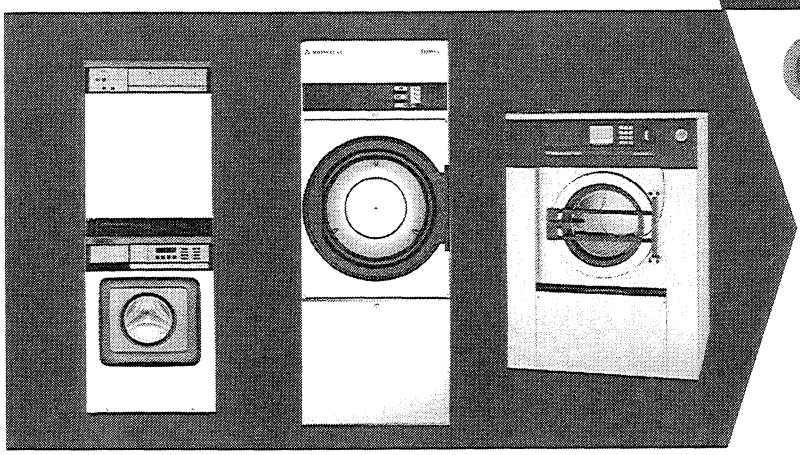


WascoDry dryers for Coin-Op Market

- State-of-the-art, energy efficient WascoDry dryers.
- Coin or cash card activated.
- Available in 30+30 Stack, 30 Slim, 50 lb and 75 lb capacities.

Wascomat dryers for OPL Market

- Gas, electric, and steam heated versions.
- Ideal for: hotel/motels, nursing homes, clubs and all other institutional on-premises laundry rooms.
- State-of-the-art Wascomat dryers are user friendly, easy to service and extremely efficient.
- Available in 30 lb, 50 lb, 75 lb, 110 lb, 125 lb, 150 lb, 190 lb capacities.



Aqua Clean Washer-Dryer Systems

- The Aqua Clean System beautifully wetcleans leathers, suedes, angora, wools, silks, linens, cottons, rayons, blends, formal wear, beaded, sequined and bridal gowns.
- With the push of a button, the dual purpose AquaClean System becomes the ideal shirt laundry washer and dryer.
- Environmentally safe, uses only water and biodegradable non-polluting chemicals.
- Meets OSHA, EPA, DEC, NESHAP and all other regulations.
- The unique RMC dryer saves energy and prolongs garment life.
- Available in 12 lb "MINI", 25 lb, 30 lb, 50 lb, 80 lb and larger capacities.

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