EQUATOR

SERVICE MANUAL AND SPARE PARTS CATALOG

First Edition - October 2003

COMBINATION WASHER-DRYER

MODELS: EZ 1500

EZ 2500 C

EZ 3600 C/CEE



Advanced Appliances

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WARRANTY INFORMATION

Your Equator appliance is protected by this warranty under normal, personal, family or household use (1 Year), and limited commercial use (90 days) in the USA and Canada.

WARRANTY

Equator Corporation undertakes to the consumer-owner to repair or, at Equator Corporation's option, to replace any part of this product which proves to be defective in workmanship or material under normal personal, family or household use, in the USA and Canada, for a period of one year from the date of original purchase.

For commercial use, the product is warranteed for a period of 90 days.

During this period, Equator Corporation will provide all labor and parts necessary to correct such defect, free of charge, if the appliance has been installed and operated in accordance with Equator Corporation's written instructions with the appliance. Ready access to the appliance, for service, is the responsibility of the consumer-owner.

EXCLUSIONS

In no event shall Equator Corporation be liable for incidental or consequential damages or for damages resulting from external causes such as abuse, misuse, incorrect voltage or acts God.

This warranty does not cover service calls which do not involve defective workmanship or materials covered by this warranty. Accordingly, diagnosis and repair costs for a service call which does not involve defective workmanship or materials will be the responsibility of the consumer-owner.

Specifically, the following work is not covered under warranty and does not constitute warranty work:

- . Installation -e.g. improper hook-up or leveling
- . Maintenance e.g. cleaning of air and/or water filter
- . Damage e.g. Replacing broken door handle

Most work is covered. The defining factor is, has the machine malfunctioned (Equator is responsible) or has the customer omitted or done something to cause machine to malfunction (customer is responsible). Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

WARRANTY SERVICE

This warranty is given by:

Equator Corporation, Equator Plaza, 2801 W. Sam Houston Pkwy. N., Houston, TX 77043-1611.

Service under this warranty must be obtained by the following steps, in order:

Call an Equator Corporation Authorized Service Agent (obtain number of nearest agent from your dealer or by calling Equator Service at 1-800-776-3538). Under normal circumstances, Service will be provided during regular business hours (9:00 a.m. to 5:00 p.m. weekdays).

GENERAL

Since it is responsibility of the consumer-owner to establish the warranty period by verifying the original purchase date, Equator Corporation recommends that a receipt, delivery slip or some other appropriate payment record be kept for that purpose.

Remember to send in your Warranty Registration Card so that a proof of your purchase exists with Equator. This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.

Corporate Office

Troubleshooting

	Installat	tion
Problem	Possible Cause	Repair procedure
Machine vibrating or vibrating noise	1a. Shipping brackets not removed	1a. Open back of machine, remove 4 shipping brackets connecting cabinet to drum
	1b. Machine not leveled	1b. Adjust front leveling legs and tighten locknuts
	1c. Machine installed on uneven floor	1c. Adjust leveling legs
	1d. Machine installed on wood floor	1d. Move machin to a more appropriate location or install underlayment
	1e. Rubber cap missing from rear foot	
2. Water leaking from door	2a. Door not screwed in properly	2a. Screw door in properly
	2b. Door not aligned	2b. Align door and screw in properly/Replace with new door
	2c. Boot leaking	2c. Change boot (porthole diaphrgm)
	Wash C	ycle
Problem	Possible Cause	Repair Procedure
1. Won't fill	1a. No power input.	1a. Check that the cord is plugged in, and circuit breaker or fuse is OK. Test unit power switch.
	1b. No water pressure.	1b. Check that fill hoses are connected that the water supply is turned on, and hoses are not kinked.
	1c. Drain outlet below 20" (water siphoning out)	1c. Route drain hose through a clamp on the rear of the machine, at least 24" above the floor.
	1d. Door not closed tightly	1d. Close door firmly, so that it latches.
	1e. Door Switch/Lock.	1e. Set to start of regular wash cycle. Test for 115 vac between the common (low) side of the water inlet valves & terminal 21 of the pressure switch. If not present, the door switch may be defective.
	1f. Pressure Switch. (test with no water in the tub)	Set to start of the regular wash cycle. Test for 115 vac between the common (low) side of the water inlet valves and terminal 22 of the pressure switch. If not present, the pressure switch may be defective.

Problem	Possible Cause	Repair Procedure
	1g. Timer	1g. Set to start of regular wash cycle. Test for 115 vac between high side of hot and cold water inlet valves and common (low) side of water inlet valves. If not present, the timer may be defective.
	1h. Temperature Selector Switch	1h. Set to Start of the regular wash cycle. Set water temperature selector to WARM/COLD. Test for 115 vac between high side of hot and cold water inlet valves and common (low) side of water inlet valves. If not present the selector switch may be defective.
	1i. Water inlet valves.	1i. If 115 vac is present across a water inlet valve coil and water pressure is present, the machine should fill. If not, the valve may be defective.
2. Fills, won't agitate	2a. Belt.	2a. Check belt, adjust tension.
	2b. Electronic Control Module	2b. Test signals at the Control Module. See Testing the Electronic Control Module. If correct, replace the Control. If test on terminals 1 to 7 fail, replace timer. If tests on terminal 8, 9, 12 through 15 fail, replace motor.
	2c. Motor	2c. Check motor resistance. See Testing Drive motor.
3. Won't drain	3a. Filter	3a. Remove, clean, and replace filter.
	3b. Drain hose	3b. Check for kinks or blockage.
	3c. Drain	3c. Drain standpipe inlet more than 36" above the floor. Blocked drain. (direct connection)
	3d. Pump	3d. With power off, run pump cooling impeller manually to check for jamming. If pump does not turn freely, disassemble, remove foreign objects, and reassemble.
	3e. Timer	3e. Set timer to REGULAR SPIN. Test for 115 vac across the pump terminals. If present, the pump may be defective. If not present, timer may be defective.
4. Won't spin.	4a. Belt.	4a. Check belt, adjust tension.
	4b. Electronic Control Module	4b. Test Control Module in accordance with the appropriate procedure.
	4c. Overloaded	4c. Reduce load size.
	4d. Wet load	4d. Check water inlet valves for leaks. See #3

Problem	Possible Cause	Repair Procedure
5. Noisy	5a. Not leveled.	5a. Adjust levelling legs, tighten lock nuts.
	5b. Foreign object in tub.	5b. Check tub, remove object.
	5c. Shock Absorber.	5c. Check that attachment bolts are tight.
6. Vibrates.	6a. Shipping brackets attached.	6a. Remove & store shipping brackets.
	6b. Unstable floor	6b. Remove carpeting, move to abeter location, or install underlayment.
	6c. Not leveled properly	6c. Adjust levelling legs, tighten lock nuts.
7. Water leaks from detergent drawer	7a. Not leveled.	7a. Adjust levelling legs, tighten lock nuts.
	7b. Spinning with water in tub.	7b. Not draining. See Won't drain
	7c. Electronic Control Module	7c. Test signals at Control Module. See Testing Electronic Control. If correct, replace control module. If tests between terminals 1-7 fail, replace timer. If tests on terminals 8, 9 or 12-15 fail, replace motor.
	7d. Motor (tachometer).	7d. Check tachometer resistance. See Testing the Drive Motor.
8. Timer doesn't advance	8a. Water supply off.	8a. Check water pressure at inlet valve connections.
	8b. Filling interrupted.	8b. See Won't Fill.
	8c. Timer.	8c. Test timer motor resistance: 2000 ohms max. Set to different cycle (e.g. Delicates) & check timer function different cycle (e.g. Delicates).
Tub rotates one direction only during wash and dry cycles	9a. Electronic Control Module	9a. Test signals at Control Module. See Testing Electronic Control. If correct, replace control module. If tests between terminals 1-7 fail, replace timer. If tests on terminals 8, 9 or 12-15 fail, replace motor.
	9b. Timer.	9b. See above.
10. Water flows into tub with machine off.	10a. Water inlet valves leaking.	10a. Identify leaking valve. Remove and clean by backflushing to remove foreign material. Replace valve if cleaning does not correct the problem.

Problem	Possible Cause	Repair Procedure	
11. Machine overfills.	11a. Pressure Switch.	11a.Unplug unit. With excessive water still in tub, check for continuity between terminals 21 and 22. Drain machine, then replace pressure switch if test indicates continuity.	
	11b. Pressur Switch Hose.	11b. Drain machine, then replace pressure kinked or leaking switch hose.	
12. Door won't open.	12a. Door lock enabled.	12a. Water in tub. See Won't drain.	
	12b. Pressure Switch.	12b. Unplug unit, wait 2 minutes to release door lock. Test switch with pressure hose off. There should be no continuity between terminals 11&13.	
13. Clothes wet at end of wash cycle.	13a. Water in tub.	13a. See Won't drain.	
	13b. Inadequate final spin.	13b. See Won't Spin.	
	Dry Cycle		
Problem	Possible Cause	Repair Procedure	
No tumble action.	1a. No power input.	1a. Check that cord is plugged in, and circuit breaker or, if fuse is OK. Test unit power switch.	
	1b. Door not closed.	1b. Close door firmly, so that it latches tightly.	
	1c. Door switch.	1c. Close the door. Test for 115 vac between terminal a of the dryer timer and the common (low) side of the water inlet valves.	
	1d. Dry timer.	1d. Set dry timer to 60 minutes. Test for 115 vac between terminal al of the dryer timer and the common (low) side of the water inlet valves.	
	1e. Belt.	1e. Check belt, adjust tension.	
	1f. Electronic Control	1f. Test signals at the Control Module. See Testing the Control Module. If correct, replace the control module. If tests on terminals 1 to 7 fail, replace timer. Tests on terminals 8, 9 or 12 through 15 fail, replace motor.	
	1g. Motor.	1g. Check motor resistance. See Testing the Drive Motor.	
2. Clothes cold and damp at the end of the dry cycle.	2a. Timer not advanced beyond the cool-down period.	2a. Set dryer timer for times longer than 15 minutes.	

Problem	Possible Cause	Repair Procedure
	2b. Blower inoperative.	2b. Check for 115 vac at the blower motor terminals. Check motor resistance: 10 ohms maximum.
	2c. Thermostats open.	2c. Check for continuity, at room temperature.
	2d. Thermal fuse open.	2d. Check for continuity.
	2e. Heating elements.	2e. Check resistance: 25 ohms maximum open.
	2f. Dryer timer.	2f. Test for 115 vac between either terminal of 88° C thermostat & either terminal of 110° C thermostat.
3. Clothes hot and damp at the end of the dry cycle.	3a. Blocked filter.	3a. Remove, clean, and replace filter.
	3b. *No cold water supply.	3b. Cold water reuired for dryer to function properly.
	3c. * Machine not leveled.	3c. Condenser water flow disturbed. Level unit and retest.
	3d. Blower impeller.	3d. Remove and clean. Also check to see if condensing channel is clogged with lint.
	3e. * Condenser water valve inoperative.	3e. Test for 110 vac across the valve terminals. If present, valve may be defective.
	3f. * Blower housing to Tub Seals mismatched.	3f. Disassemble blower housing from tub. Ensure that seals are positioned properly & reassemble.
4. Long drying time.	4a. High suds detergent.	4a. Use Equator detergent, or other low-suds brand.
	Excessive detergent.	Measure detergent, using 2 tablespoons or 1/8 cup maximum.
	4b. Hot and cold water hoses reversed.	4b. Connect hoses to the proper inlet valves.
	4c. Dryer section malfunction.	4c. See #2 and #3 above for tests to perform.
5. Clothes stiff and wrinkled.	5a. Overdrying.	5a. Set dryer timer for a shorter cycle
	5b. High suds detergent.	5b. Use Equator detergent, or other low-suds brand.
	5c. Excessive detergent.	5c. Measure detergent, using 1 tablespoon.*
	* Applies only to models E	Z 3600 C and EZ 2500 C

Cabinet

Pos.	Part Number	Part Name
1	111100830	Top panel
1	111100926	Top panel 2500 C
2	112903512	Top decorative trim
3	116103031	Electronic module assy.
4	116990422	Junction block
4	116990427	Junction block 2500 C
5	112902490	Drain Support "U" connector
6	119100642	Cabinet
7	111100884	Back Panel
7	111100877	Back Panel 2500 C
8	113800472	Spring tub suspension
9	116102798	Pressure switch (terminal connectors)
9	116103075	Pressure switch (quick-connect)
9	116103134	Pressure switch (3+1 level) for CEE
10	113200152	Clamp
11	113800478	Shock absorber (long)
12	114300725	Outlet hose elbow
12	114300744	Outlet hose elbow 2500C
13	116590746	Pump
14	113200240	Clamp
15	113200087	Clamp
16	119803162	Hose (to pressure switch)
16	154300019	Hose (to pressure switch) CEE
17	113200354	Clamp
17	113200113	Clamp for CEE
18	114300737	Hose (filter to pump)
18	114300781	Hose (filter to pump)
20	112990079	Filter assy. 2500 C
20	112990007	Filter assy.
20	112990083	Filter assy. for CEE
21	114200666	Filter gasket
21 22	114200675	Filter gasket for CEE
	11300431	Spring
23	113900489	Pin
24	11100676	Filter door

Pos.	Part Number	Part Name
25	119803003	Levelling leg
26	116102761	Electronic door switch
28	182990046	Hook stop plate
29	113200491	Clamp
30	112990035	Door flange
30	117000099	Door flange for CEE
31	112100590	Outer door trim
32	112300230	Door handle
32	Door Kit	Replaces 100/1500 handle & ring
33	112903262	Support
34	113190159	Door hinge assy. For 2500 C
34	113190122	Door hinge assy.
35	112903554	Safety galss
36	112901939	Adhesive hook
39	112400459	Module housing
40	13800459	Spring
42	112300233	Door ring hook
43	113900056	Pin
45	111901158	Plate
46	113800477	Shock absorber (short)
47	112903547	Plug
47	112902017	Plug for CEE
49	114400211	Rubber pad
52	956333616	Rivet
53	112903121	Wiring support
54	111901190	Plate
54	111901172	Plate for CEE
55	112700001	Diaphragm to pressure switch
56	111901116	Spring plate for CEE
63	116103096	varistar
64	930046335	Washer
65	920143233	Nut

TABLE 1 EZ 3600 CEE

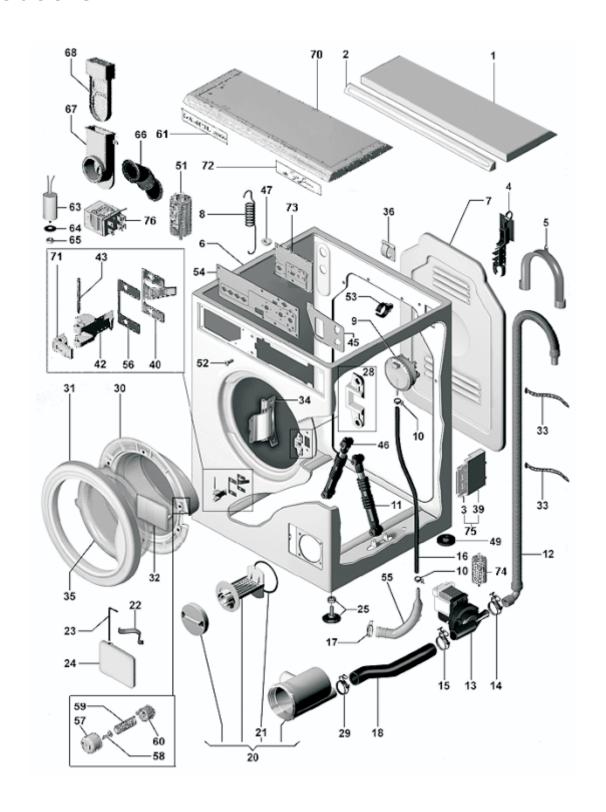


TABLE 2 EZ 3600 C

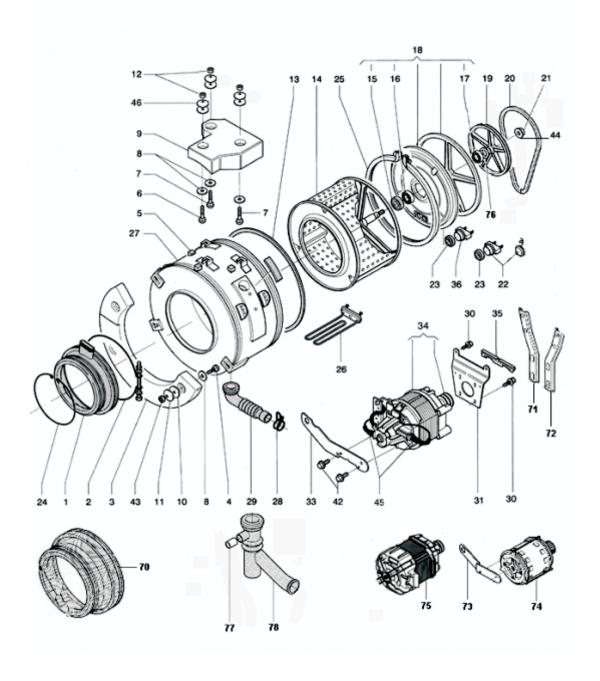
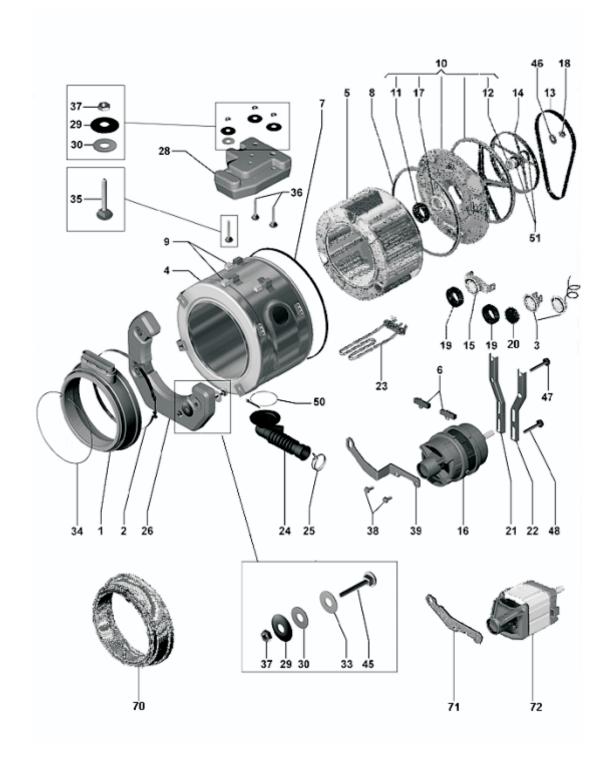


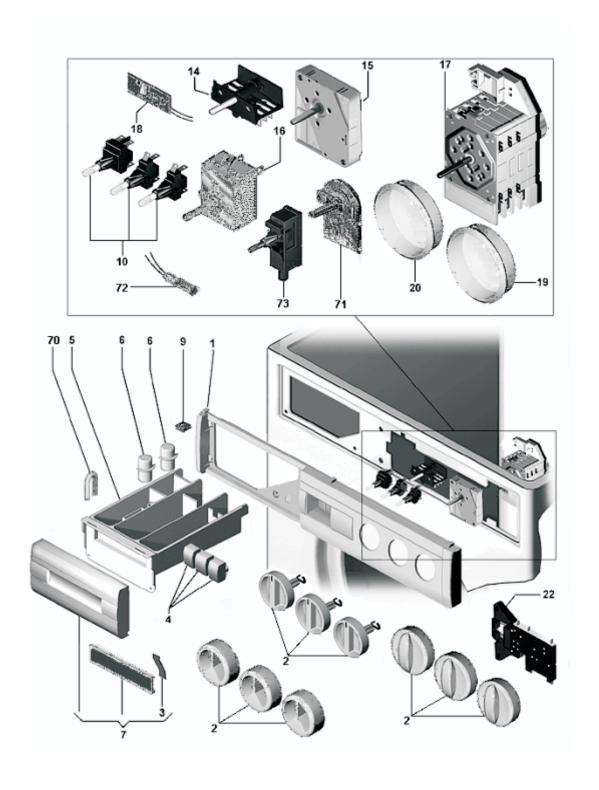
TABLE 2 EZ 3600 CEE



Oscillating group

Pos.	Part Number	Part Name
1	114200661	Porthole Diaphragm
1	114200670	Porthole diaphragm for 2500 C
2	113200012	Clamp
4	119200763	Tub assy. Stainless steel 1500
4	119200811	Tub assy. Stainless steel
4	119200840	Tub assy. Stainless steel 2500 C
4	119200857	Tub assy. Stainless steel
5	119200837	Cylinder assy. 1500
5	119200838	Cylinder assy. 3600
5	119200889	Cylinder assy. 2500 C
6	113390244	Carbon brush
7	114200636	Gasket
7	114200616	Gasket for CEE
8	111600694	Back tub ring assy.
9	114900218	Rubber block
10	119200772	Cylinder cross bearing assy C-CEE
10	119200773	Cylin. Cross bearing assy 1000/1500C
10	119200844	Cylin. Cross bearing assy 2500 C
11	114200638	Seal
11	114200304	Seal for CEE
12	117600244	Ball bearing 47 x 20 x 14
13	114900291	Drive belt for CEE
13	114900133	Drive belt for 1000
14	113300543	Pulley assy.
14	113300551	Pulley assy. For 2500 C
16	116190212	Motor assy. (7 terminals)
16	116190223	Motor assy. (9 terminals)
17	117600243	Ball bearing 52 x 25 x 15
18	992400243	Nut
21	113900494	Right motor support
22	113900495	Left motor support
22	113900499	Front motor support – 2500 C
24	114300707	Hose tub to filter
24	114300772	Hose tub to filter for CEE
25	113200366	Clamp
26	114900266	Front counterweight
26	114900268	Front counterweight 2500 C

Pos.	Part Number	Part Name
28	114900269	Upper counterweight 2500 C
28	114900273	Upper counterweight
29	113800458	Conic spring
30	993100001	Flat washer
33	993279721	Washer
34	113200489	Clamp
34	113200497	Clamp for CEE
35	991173005	Screw
36	991173008	screw
37	992400240	Nut
38	995700012	Screw
39	111901185	Support - 1500, 3600 C & 3600 CEE
39	111901186	Support 2500 C
45	991173005	Screw
46	940018501	Washer
47	995700014	Screw
48	995700012	Screw
50	970230001	Clamp



Controls

Pos.	Part Number	Part Name
1	119803998	Control panel
1	119804128	Control panel for CEE
2	119803935	Knob
4	112903471	Push button
5	112400492	Soap dispenser drawer for 2500 C
5	112400418	Soap dispenser drawer
6	117090235	Container (additives compartment)
6	112400430	Container (additives compt.) for CEE
7	112605474	Front panel (soap dispenser) for 1500
7	112605545	Front panel (soap disp.) for 3600 C
7	112605546	Front panel (soap disp.) for 2500 C
7	112605851	Front panel (soap dispenser) for CEE
8	112400414	Container for additives compartment
10	116102684	On/off switch
11	116102685	Unipolar switch – water level
12	116102965	Unipolar switch – spin speed
13	116102685	Unipolar switch – hi/lo heat
14	116103107	Program selector
15	116102964	Dryer timer
17	116103032	Wash timer
22	116102761	Electric door switch



Water Inlet

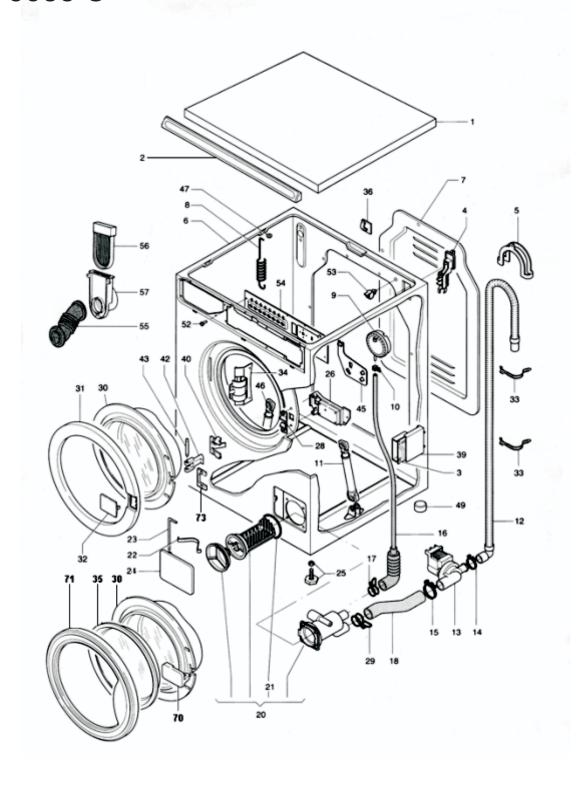
Pos.	Part Number	Part Name
1	116102999	Water valve 2500 C
1	116102549	Water valve
1	116103135	Water valve CEE
2	114200090	Gasket
3	119400110	Inlet hose
4	116102995	Water valve 2500 C
4	1116102541	Water valve 1500 – double
4	116102739	Water valve
5	112903366	Double pipe fitting 2500 C
5	112901946	Double pipe fitting
6	112400499	Soap dispenser housing 1500
6	112400503	Soap dispenser housing 2500 C
6	112400501	Soap dispenser housing
7	112400495	Water outlet dispenser 2500 C
7	112400497	Water outlet dispenser
8	113200491	Clamp
9	114300646	Hose
10	114300700	Hose
11	113200490	Clamp
12	114300731	Hose
13	114300761	Hose – condensing dryers only
15	113200495	Clamp
16	114300718	Hose
17	114300683	Hose
18	112901982	3-way connector



Ventilation

Pos.	Part Number	Part Name
1	114200661	Porthole diaphragm
1	114200670	Porthole diaphragm for 2500 C
2	114200654	Gasket
3	970196912	Clamp
4	113300546	Heater housing
4	113300554	Heater housing for 2500 C
5	111901086	Impeller assembly
6	114200653	Gasket
7	113300547	Cover
7	113300553	Cover for 2500 C
8	116590714	Fan motor
9	186820052	Thermostat
10	186240099	Heater 126?C
11	111901110	Support - 3600 C, 3600 CEE & 2500C
12	119503931	Heater
13	114200662	Gasket
14	116102693	Thermostat

TABLE 1 EZ 3600 C



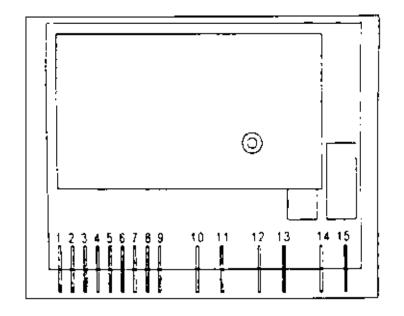
Testing the Electronic Control Module

To help avoid electrical shock, no live electrical test of the Electronic Control Module will be made.

Start by unplugging the unit, then remove the connector from terminals 10 and 11 of the Electronic Control Module. With this connector removed, plug the unit in, set the dry timer to 10 minutes, then push the unit's ON button. All measurements are made with an ohmmeter.

When the test is concluded, unplug the unit before replacing the connector on terminals 10 and 11.

NOTE: With the connector replaced on terminals 10 & 11 and power applied to the unit, 115 volts AC should be present between pins 10 & 11. If test of pins 1-7 are abnormal the timer may be defective. If tests of pins 8 & 9 and 12-15 are abnormal, the motor may be defective. If all indications are correct and the motor does not run, Electronic Control Module may be defective.



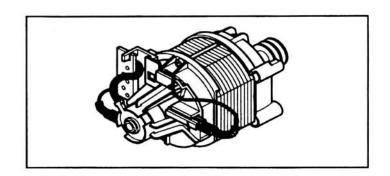
Terminal No.	Function	Test
1*	Agitate/Tumble Direction	Alternates between < 5 ohms and > 1000 ohms
2*	High Spin	> 1000 ohms
3*	Medium spin	> 1000 ohms
4*	Low Spin	> 1000 ohms
5	Reserved	
6*	Agitate/Tumble	Alternates between < 5 ohms and > 1000 ohms
7	Common	Ohmmeter reference connection
8	Motor - Tachometer	Measure resistance between
9	Motor - Tachometer	terminals 8 and 9: 177 Ohms ±20%
10	115 vac Input - Neutral	Measure resistance between
11	115 vac Input - Line	terminals 10 and 11: > 10,000 ohms
12	Motor - Rotor	Measure resistance between
13	Motor - Rotor	terminals 12 and 13: 3.0 Ohms ±20%
14	Motor - Stator	Measure resistance between
15	Motor - Stator	terminals 14 and 15: 1.2 Ohms ±20%

^{*} Measurements for these terminals are made with respect to terminal number 7.

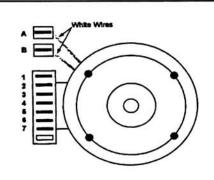
Testing the Drive Motor (7 and 10 pin connector)

MOTOR

The washer-dryers use DC motors. To reach spin speed of 500/1000 rpm, the motor is activated by an electronic module and controlled by a tachometer on the motor shaft.



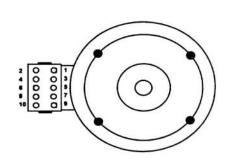
Testing the Drive Motor (7 and 10 pin connector)



Terminal	Description	Resistance*
A-B	Motor Protector	0
1-3	Stator Tap	0.6
2-3	Stator	1.2
4-5	Rotor	3.0
6-7	Tachometer	177

* ± 20%

Test for continuity at A-B. If not present, check for broken wire. Splice broken wire or replace thermal protector.

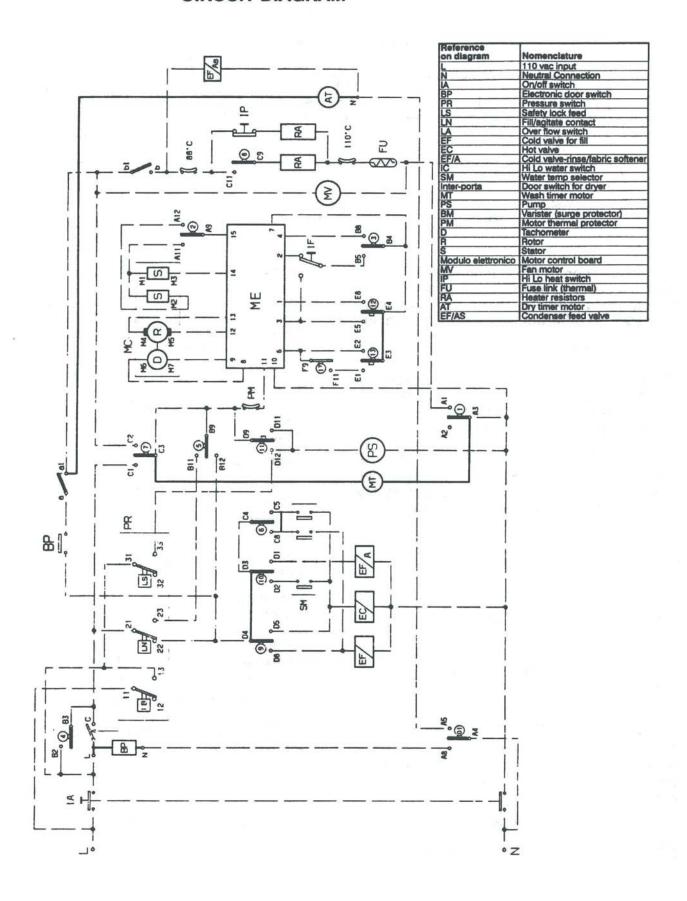


Terminal	Description	Resistance*
1-2	Tachometer	177
3-4	Rotor	3.0
5-6	Stator	1.2
7-8	Motor Protector	0
5-9	Stator Tap	0.6

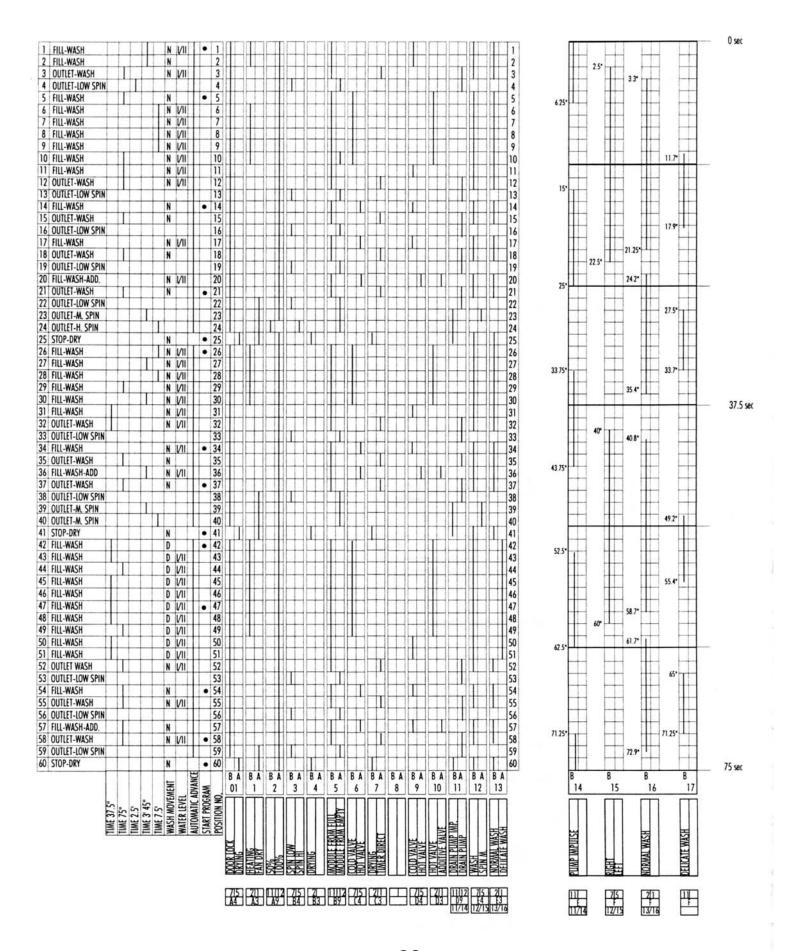
• ± 20%

To test run motor, connect an ac line cord to terminals 3 and 5. Jumper terminal 4 to 6 for normal speed or 4 to 9 for high speed. NOTE: Do not run at high speed for more than 30 seconds.

CIRCUIT DIAGRAM



TIMER CHART





Equator Corporation • Equator Plaza • 2801 W. Sam Houston Pkwy N. • Houston, Texas 77043-1611 Phone: (800) 776-3538 • Parts: (888) 483-9627 • Fax: (713) 464-2151 www.equatorappliances.com • E-mail: service@equatorappliances.com

EQUATOR SERVICE AGREEMENT

Dear Service Agent:

Welcome to the world of Equator! We are pleased to appoint you as an Equator Authorized Service Agent. Equator is an appliance manufacturer that produces Advanced Appliances. Our products are unique, innovative appliances that are high-end, beautifully designed and well engineered. We have attached information for your review. Please do not hesitate to call us for assistance in resolving any problems you encounter. Our goal has been to always take care of the customer. We look forward to your participation in this process.

EQUATOR'S RESPONSIBILITIES:

- 1. To provide service calls for customers in your area as they become available, both in and out of warranty.
- 2. To provide literature and manuals in a timely manner.
- 3. To ship the parts within 24 Hours by UPS Ground freight.
- 4. To pay for all approved service bills within 30-days of receipt.

SERVICER'S RESPONSIBILITIES:

- 1. To get approval from Equator prior to contacting customer for setting up service/diagnosis.
- 2. First visit to customer must be made within 48 hours.
- 3. To diagnose the problem and place the order for spare parts (Tel: 888-483-9627).
- 4. To carry out repairs in a professional manner and in the fastest possible time after receiving parts.
- 5. To invoice Equator for the service call within 30 days of the final repair at the rate agreed to. (Fax: 985-229-3327)
- 6. To provide a 90-day labor warranty on all the work performed.
- 7. To invoice customer at fair market rates for out-of-warranty Service calls.

To be courteous to the Equator customer and to ensure the machine works prior to departing from the customer's house.

departing from the customer	s nouse.
Sincerely,	We agree with the goals and will
Service Department	

we agree with the goals a	na win carry out	our responsibilities.
Authorized Servicer's Sig	gnature _	Date
Print Name:		
Company Name:		
Address:		
City:	State:	Zip:
Phone:	Fax:	
Service Rate:		

carry out our responsibilities