

# e*service*

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<b>Code / Ref. Nr.:</b>	530223
<b>Date:</b>	March 2009
<b>Subject:</b>	Control Boards Overview



## **WARNING:**

- Carry out the handling according to the following manufacturer's instructions.
- Always respect warnings from the relevant manuals of the machine.
- Make sure all electric power or other energy sources are disconnected and closed before any servicing. Always turn off the main switch.
- Wait 10 minutes after electrical power is disconnected to eliminate power on the inverter terminals.
- Installation, maintenance and service must be executed by skilled service personnel only or by a service organisation with appropriate authorization from the manufacturer.
- For service, use only original replacement parts.
- Re-install all machine parts in the original way.
- The qualified agency performing this work assumes all responsibility for this kit installation. Other service activities than described below, disable all manufacturers' responsibility.
- Make sure children are not around during work in progress.



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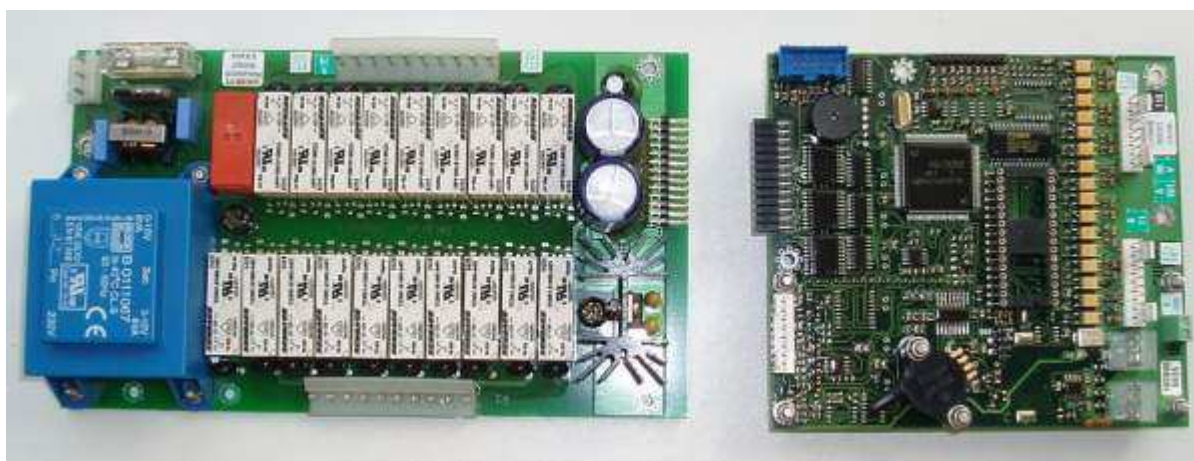
<b>Applicable machine models</b>		
Washer	Dryer	Ironer
<input type="checkbox"/> PW5 <input checked="" type="checkbox"/> P6, P7 <input checked="" type="checkbox"/> C6, 8 <input checked="" type="checkbox"/> RS6, 7, 10 <input checked="" type="checkbox"/> RS13, (16), 18, 22, 27, 35 <input checked="" type="checkbox"/> FS6, 7, 10 <input checked="" type="checkbox"/> FS13, 16, 22, 23 <input checked="" type="checkbox"/> FS33, 40, 55 <input checked="" type="checkbox"/> FS120 <input checked="" type="checkbox"/> MB16, 26, 33 <input checked="" type="checkbox"/> MB44, 66 <input checked="" type="checkbox"/> MB90, 140, 180 <input checked="" type="checkbox"/> XS22 <input checked="" type="checkbox"/> XS35, 43	<input type="checkbox"/> DAM5 / DAMC5 <input type="checkbox"/> DA9 / DAM(S)(T)9 <input type="checkbox"/> T9 <input type="checkbox"/> T11, 13, 16 <input type="checkbox"/> T1313 <input type="checkbox"/> T24, 35 <input type="checkbox"/> DA11, 13, 15 <input type="checkbox"/> DA1313 <input type="checkbox"/> D25, 35 <input type="checkbox"/> D55, 77	<input type="checkbox"/> Pony <input type="checkbox"/> I18, 25, 30 <input type="checkbox"/> I35 <input type="checkbox"/> I50 <input type="checkbox"/> IR50 <input type="checkbox"/> IF50 <input type="checkbox"/> IFF <input type="checkbox"/> Crossfolder <input type="checkbox"/> Stacker
<b>Applicable type of spare parts</b>		
Washer	Dryer	Ironer
<input type="checkbox"/> General <input type="checkbox"/> Chasis <input type="checkbox"/> Shock absorbers <input type="checkbox"/> Cabinet <input checked="" type="checkbox"/> Controler <input type="checkbox"/> Coin unit <input checked="" type="checkbox"/> Electric components & sensors <input type="checkbox"/> Heating unit <input type="checkbox"/> Inlet <input type="checkbox"/> Soap hopper <input type="checkbox"/> Motor & pulley & belts <input type="checkbox"/> Bearing house & seals <input type="checkbox"/> Drum <input type="checkbox"/> Door <input type="checkbox"/> Door lock <input type="checkbox"/> Drain	<input type="checkbox"/> General <input type="checkbox"/> Chasis <input type="checkbox"/> Cabinet <input type="checkbox"/> Controler <input type="checkbox"/> Coin unit <input type="checkbox"/> Electric components & sensors <input type="checkbox"/> Heating unit <input type="checkbox"/> Motor & pulley & belts <input type="checkbox"/> Bearing house & seals <input type="checkbox"/> Drum <input type="checkbox"/> Door <input type="checkbox"/> Air filter <input type="checkbox"/> Air fan <input type="checkbox"/> Exhaust	<input type="checkbox"/> General <input type="checkbox"/> Chasis <input type="checkbox"/> Cabinet <input type="checkbox"/> Controler <input type="checkbox"/> Coin unit <input type="checkbox"/> Electric components & sensors <input type="checkbox"/> Heating unit <input type="checkbox"/> Inlet <input type="checkbox"/> Motor & pulley & chains <input type="checkbox"/> Bearing house <input type="checkbox"/> Ironer belts <input type="checkbox"/> Air filter <input type="checkbox"/> Air fan <input type="checkbox"/> Exhaust <input type="checkbox"/> Delivery system <input type="checkbox"/> Folding system

For better understanding we prepared this overview of the in the past and presently used control boards in washing machines since the implementation of the Full Control and Easy Control concept.

### **1<sup>st</sup> and 2<sup>nd</sup> Hardware Versions:**

The control boards consisted of 2 parts – power board and processor board.

Part number	Description
PRI343000212	Power board (PWR) for Easy and Full Control (MCB LC and MCB 40)
PRI343000198	Power board (PWR P6) for P6/7 (MCB P6)
100984	Processor board Easy Control (MCB LC)
100985	Processor board for P6/7 (MCB P6)
100986	Processor board Full Control (MCB 40)
PRI348000123	Keypad Easy Control (grey)
100052	Keypad Easy Control (black)
100056	Keypad P6/7 (grey)
100716	Keypad P6/7 (black)
100521	Keypad Full Control (grey)
100629	Keypad Full Control (black)
526001	Memory chip (replaces older part numbers 100402, 100839, 102228, 102270)



Power board (left) and processor board

These boards are not available any more and cannot be supplied even as spare parts. They can be replaced by the 3<sup>rd</sup> hardware version.

### 3<sup>rd</sup> Hardware Version:

The control boards consist of 1 part only.

Part number	Description	Replaces
516694	Complete Easy Control board - MCB EC	MCB LC & PWR
516695	Complete control board for P6/7 – MCB ECRD	MCB P6 & PWR P6
516696	Complete Full Control board - MCB FC	MCB 40 & PWR
	Keypads – see the 1 <sup>st</sup> hardware version	
526001	Memory chip	

All dimensions and mounting positions of these boards have not changed – the boards are fully mechanically and electrically compatible with the 1<sup>st</sup> hardware version, i.e. these boards can be used for older washing machines as spare part.

However, the software is not backwards compatible. Therefore, if you replace an old board by a new one, you have to replace or reprogram also the memory chip. Functionality of the software stays the same.



Single piece control board – hardware version 3

### 4<sup>th</sup> Hardware Version

Only used in machines for the U.S.A market.

### 5<sup>th</sup> Hardware Version

This hardware version of control boards is also a single-board execution. It is not electrically compatible with the previous hardware versions any more!

The 5<sup>th</sup> hardware version Full Control board was implemented on individual families of washing machines during years 2007 and 2008. As it is equipped with a graphical display it is also called **Graphi-Tronic** control – see the photo.



The 5<sup>th</sup> hardware version Easy Control board is going to be implemented in the coming months. It will be the same for all machines, i.e. there will not be a separate version for P6/7 any more.

Main features:

- big graphical LCD display with 240x64 dots – nice visual representation of the wash cycle (Full Control only)
- higher processor clock speed
- easy & interactive programming (Full Control only)
- advanced setup functions
- bigger memory enables to program advanced functions in the software in the future
- big serial flash memory enables storage of statistics & traceability data
- multiple motor drive control, i.e. communication with different frequency inverters (Mitsubishi, Ako-Diehl, KEB)
- additional communication port for Primus infrared communication allows easy wash program copy function using e.g. a PDA handheld computer
- weighing system control (optional; Full Control only)
- 24VAC signals to control external liquid soap pumps (unlike 230VAC on the previous Full Control boards)
- bridge rectifiers for door lock coils are implemented on the board; the door lock wiring is plugged directly on a connector on the control board
- power supply for the inputs of the board is changed from 12VDC to 24VDC

The way of operating the machine and accessing settings and parameters (keypad buttons, menu structure) stay the same like on the previous hardware versions, only the menu in Service settings in Full Control was reorganized in groups. Hence neither the machine operator nor the service staff need to learn anything new. You can find all details in the new Programming manuals.

The 5<sup>th</sup> hardware version is not compatible with the previous ones concerning wirings. It means it cannot be easily installed in older machines. Replacement is only possible together with replacement of wire harnesses and keypad.



Part number	Description
526004	Complete Easy Control board – MC5 EC (also for P6/7)
526008	Complete Full Control board – MC5 FC
527273	Keypad Easy Control (grey)
527274	Keypad Easy Control (black)
520681	Keypad Full Control (grey)
525909	Keypad Full Control (black)
520139	Extension board with 9 relays
526001	Memory chip

### Software Key

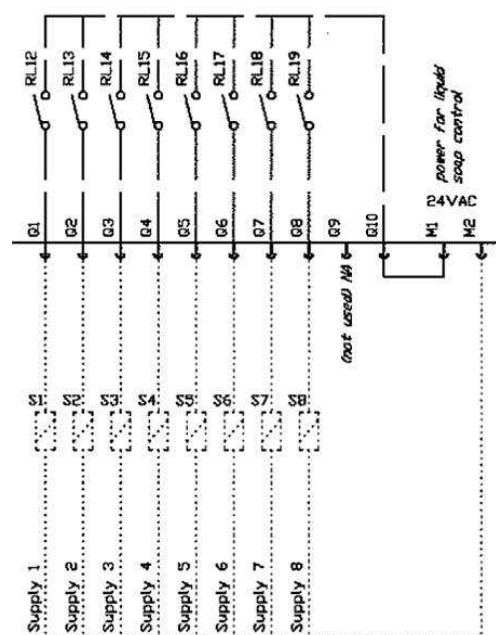
Together with implementation of the new Easy Control board the programming key switch is replaced by a software key on all machines (incl. Full Control). A mechanical key was used to switch over to programming mode in the past. Now this function is executed by a sequence of buttons pushes. You can find some information also in E-service mail 530229 and a detailed description in the programming manuals.

### Liquid Soap Pumps Electrical Connection

One of significant changes on the 5<sup>th</sup> hardware version control board is different voltage of signals for controlling the liquid soap pumps. Voltage 230Vac was used to switch relays of the liquid soap pumps in the previous hardware versions. This voltage was coming from the same point like the voltage for all other outputs of the control board (outputs controlling all valves, heating, contactors), i.e. in case of e.g. opening the door this supply was interrupted by the doorlock microswitch.

In the 5<sup>th</sup> hardware version the connection of Liquid Soap signals is different. The common wire of the output relays is no more connected to the common wire of other output relays on the control board. There is power supply 24Vac available on the control board. As standard this voltage is used for controlling the liquid soap pumps relays – see the schematic enclosed by each machine.

It is also possible to remove the connection between Q10 and M1 and connect another voltage to Q10 – e.g. 230Vac. The necessary safety precautions and devices have to be provided.



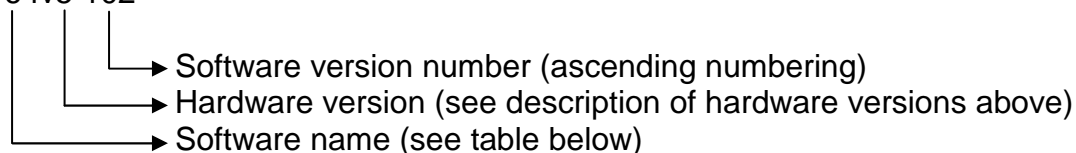
Liquid soap pumps control connection on the 5<sup>th</sup> hardware version

### **Explanation Of Software Numbering**

As you can read above there are different software numbers for different hardware versions of control boards. Find here an explanation of the system of software numbering.

Example:

764v5 102



Software names:

183v2	MCB 40, western languages
194v2	MCB 40, eastern languages
261v2	MCB LC
272v2	MCB P6/7
502v3	MCB ECRD (C8)
513v3	MCB ECRD (P6)
524v3	MCB EC
535v3	MCB FC, western languages
546v3	MCB FC, eastern languages
753v5	MC5 EC
764v5	MC5 FC, western languages
765v5	MC5 FC, eastern languages

In case you have further technical questions, do not hesitate to take contact with the after sales department of PRIMUS (references at the front page of this document).