

## **ARBORTRONICS**

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### **STANDARD Change Maker Machines SCxx Series Retrofit**

#### **ARB-V19-SCM**

#### **DESCRIPTION**

The Standard Change Makers SCxx Series are presently using outdated Bill Validators, severely limiting the potential of these machines.

To upgrade these Change Makers and give them new life, Arbotronics has designed Replacement Kit to install modern Bill Validator and a state of the art controller with sophisticated firmware.

This controller provides possibility to install modern MDB Bill Validators, higher security and higher bill acceptance, less effort for Bill Acceptor maintenance.

The new controller PCB is identical in functioning to the original controller that had been placed on the old Bill Validator. Retrofit Kit mounts easily using the existing mounting studs and holes. The connectors on the new controller PCB are match the original harness connectors so that it can be easily connected using the existing cables.

The retrofit kit consists of:

- New Controller Board with mounting Plate for System 200
- New MDB Bill Validator with mounting Plate for System 200
- New Controller Board and New MDB Bill Validator with mounting Plate for Systems 500, 500E/600
- 24VAC 40VA Wall Mount Power Adapter for all systems
- LED Light Holder for System 200
- Cabinet MDB Cable for all systems

And on request for old type of Change Maker with Power Supply Model - 200-C-P/B:

- STANDARD Power Adapter, Standard part number- 4E00239
- Electrical Outlet Receptacle with Plate
- Coin Acceptor Flat Cable
- MEI CF330 Coin Acceptor with MEI-Standard Output signals or reprogram existing Coin Acceptor

## INSTALLATION

The retrofit kits consist of the following components to be installed:

Component Description	ARBORTRONICS Part Number	STANDARD Model and Part Number		Notes
Controller PCB with the Mounting Plate	ARB-SCM.CNT.200	System 200 Bill Validator		
MDB Bill Validator with the Mounting Plate	ARB-SCM.BV.200	System 200 Bill Validator		
MDB Bill Validator with the Mounting Plate and Controller PCB	ARB-SCM.BV.500-E	System 500 or 600 Bill Validator		For system 500 (not 500-E) ARB-SCM.BV.500-0 Controller PCB
24VAC 40VA Wall Mount Power Adapter with Harness	ARB-SCM.PA.00	All Models		
Led Light Holder	ARB-SCM.LH.200	System 200 Bill Validator		
Cabinet MDB Cable	ARB-SCM.H01.2	Model - SC5 p/n S151-C-3	SYS200	1 Hopper, Power 200 old type. No extra receptacle for Power Adaptor
	ARB-SCM.H01.1	Model - SC5-C p/n S151-3	SYS200	1 Hopper, Power 200 old/new type. Has box for receptacle, no Coin Acc.
	ARB-SCM.H01.3	Model - SC5T-C p/n S151-3	SYS200	1 Hopper, Power 200 new type. Has extra receptacle, no Coin Acceptor
		Model -SC44-C p/nS344-4	SYS500E	4 hoppers, Power 200 new type. Has extra receptacle, Coin Acceptor Stacker x 3, Keypad 600
		Model -SC44-DA p/n S2S244-3	SYS600x2	4 hoppers, Power 200 new type. Has extra receptacle, no Coin Acceptor
		Model -SC94T-C p/n PS394-4-C	SYS500	4 hoppers, Power 500 type. No extra receptacle, has Coin Acceptor
		Model - SC102-C p/n S1-10-2-C-3	SYS500	2 Hopper, Power 500 type. Has extra receptacle, has Coin Acceptor
		Model - SC102-C p/n PS2102-3	SYS600	2 Hopper, Power 200 new type. Has extra receptacle, no Coin Acceptor
Coin Acceptor Flat Cable	ARB-SCM.H02.1	Model - SC5 p/n S151-C-3	optional	
Electrical Power Outlet (Receptacle) with Plate	ARB-SCM.RP.01	Model - SC5 p/n S151-C-3	optional	
Standard Power Adaptor	4E00239	Model - SC5 p/n S151-C-3	optional	
MEI CF330 Coin Acceptor	ARB-CF330.CA.01		optional	Out:25c-C, \$-D, \$2-E

## SYSTEM 200

1. Unscrew and remove metal bracket on the top of the right side of Note-Acceptor and disconnect all harness, then remove original (Standard 200) Note-Acceptor.

## Standard Change Maker Machine Retrofit Installation and Instructions Manual

2. Unscrew the note entrance plastic bezel (four screws on the inner side of the cabinet door) and remove it. Unscrew two nuts on the inner side of the cabinet door below the note entrance opening and remove two small metal brackets besides of the note entrance opening in the cabinet door.
3. Unplug and remove “Out Of Order” Bulb Holder with a bulb from the cabinet door. In place of the original Bulb Holder mount Arbortronics provided Holder ( # ARB-SCM.LH.200).
4. For old type of Change Maker with Power Supply Model - 200-C-P/B install Electrical Outlet Receptacle with a Plate ( # ARB-SCM.RP.01 ) into existing box on the bottom of the right wall inside the cabinet.
5. Place Controller Board with mounting Plate ( # ARB-SCM.CNT.200) on two studs in the middle of the back of the wall inside the cabinet and screw it.
6. Place Bill Validator with the mounting plate ( # ARB-SCM.BV.200 ) on two studs in the middle of the inner side of the cabinet door below the note entrance opening and screw it. Place the note entrance plastic bezel on the outer side of the cabinet door and screw it from inside ( 4 screws), do not tight. Adjust bezel entrance along with the Bill Validator bill entrance and tight the screws.
7. (Optional) Remove Coin Acceptor with the plastic adapter. Unplug coin acceptor cables, unscrew and remove adapter board. In place of the original coin acceptor mount Arbortronics provided Coin Acceptor ( # ARB-SCM.CA.01 ) and Coin Acceptor Flat Cable ( # ARB-SCM.H02.1 ) or original Coin Acceptor which has to be reprogrammed (Output E - \$2) and Coin Acceptor Flat Cable ( # ARB-SCM.H02.1 ).
8. Plug in Power Supply Module Outlet (in case of 200-C-P/B model plug in installed Electrical Outlet Receptacle) 24VAC Wall Mount Adapter.  
Plug in all harness connectors Controller Board connectors:
  - 24VAC Wall mount adapter ( # ARB-SCM..PA.00 ) connector to J4 connector on the board
  - Cabinet MDB cable ( # ARB-SCM.H01.1 ) connector to J3
  - Out of Order cable connector to J8
  - Coin Acceptor Flat Cable ( # ARB-SCM.H02 ) connector to J5
  - Power Supply Module Flat cable Connector to J7 (in case of 200-C-P/B model use STANDARD Power Adapter, Standard part number- 4E00239 )
  - Hopper (hoppers) phone jack to J1 (J1, J2)
9. Plug in “Out of Order” light cable quick connects to contacts of “Out of Order” light holder.

### **NOTE:**

If later after machine will be powered ON and “Out of Order” light will not came ON (hoppers are still empty) Quick connects have to be reversed on light holder.

### **SYSTEM 500, 500E / 600**

10. Disconnect all harness from Note acceptor, then remove original Note-Acceptor.

11. Remove Bill Stacker.
12. Unscrew and remove metal bracket and the note entrance bezel (four screws and four nuts on the inner side of the cabinet door).
13. Place mounting Plate ( # ARB-SCM.BV.500) with Controller Board and Bill Validator on four studs instead of old bracket and screw it with four nuts.
14. Remove “Out Of Order” template from “Out Of Order” Plastic Lens, leave the lens transparent, clean the lens if necessary and put the lens back the same place in the entrance bezel. Now two green LEDs behind the lens will show the status of hoppers:
  - steady green light ON – hopper is OK and not empty
  - steady green light OFF – hopper is empty
  - dimly flashing green light – faulty interrupter or controller PCB
15. Place note entrance bezel in place and screw from inside the door with four screws.
16. (Optional) Remove Coin Acceptor. Unplug coin acceptor cables, unscrew and remove adapter board. In place of the original coin acceptor mount Arbortronics provided Coin Acceptor ( # ARB-SCM.CA.01 ) and Coin Acceptor Flat Cable ( # ARB-SCM.H02.1 ) or original Coin Acceptor which has to be reprogrammed (Output E - \$2) and Coin Acceptor Flat Cable ( # ARB-SCM.H02.1 ).
17. Plug 24VAC Wall Mount Adapter in Power Supply Module (receptacle box), not in Power box.  
Plug In all harness connectors in to Controller Board connectors:
  - 24VAC Wall mount adapter ( # ARB-SCM..PA.00 ) connector to J4 connector on the board
  - Bill Validator MDB cable connector to J3
  - Out of Order cable connector to J8
  - Coin Acceptor Flat Cable ( # ARB-SCM.H02 ) connector to J5
  - Power Supply Module Flat cable Connector to J7
  - Hopper (hoppers) phone jack to J1 (J1, J2)
18. Plug in “Out of Order” light cable quick connects to contacts of “Out of Order” light holder. If later after machine will be powered ON and “Out of Order” light will not come ON (hoppers are still empty) Quick connects have to be reversed on light holder.

## **OPERATION**

Operation procedure does not have difference from the original machine.

## **AUDIT**

Money received is counted by a highly reliable, non-resettable, electro-mechanical counter. One count for every denomination (\$1 = one count, \$2 = two counts, \$5 = five counts, etc.)

## HOPPERS AND PAYOUT RATIOS

A set of four dipswitches is mounted on the Controller board. These switches give possibility to install in the machine different coin value hoppers. See the “DIP SWITCH SETTINGS” table below, for the standard hopper configurations available.

### DIP SWITCH SETTINGS

	SW1	SW2	SW3	SW4	Mode
<b>1</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>1 Hopper 25¢</b>
<b>2</b>	<b>OFF</b>	<b>ON</b>	<b>OFF</b>	<b>OFF</b>	<b>1 Hopper \$1</b>
<b>3</b>	<b>ON</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>2 Hopper 25¢</b>
<b>4</b>	<b>ON</b>	<b>ON</b>	<b>OFF</b>	<b>OFF</b>	<b>2 Hopper \$1</b>
<b>5</b>	<b>ON</b>	<b>ON</b>	<b>ON</b>	<b>OFF</b>	<b>2 Hoppers 25¢ and \$1</b>
<b>6</b>	<b>OFF</b>	<b>ON</b>	<b>ON</b>	<b>OFF</b>	<b>2 Hoppers \$1 and \$2</b>
<b>7</b>	<b>OFF</b>	<b>ON</b>	<b>ON</b>	<b>ON</b>	<b>2 Hoppers 25c and \$2</b>

**Other combinations and Token are available as a factory options.**

The default coin payout ratios for Canadian currency are represented by the table below if two hoppers are installed.

Deposit	25¢ and \$1 Hoppers		\$1 and \$2 Hoppers		25c and \$2 Hoppers	
	25¢	\$1	\$1	\$2	25c	2\$
<b>\$ 1 Coin</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>0</b>
<b>\$ 2 Coin</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>8</b>	<b>0</b>
<b>\$ 5 Bill</b>	<b>8</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>2</b>
<b>\$10 Bill</b>	<b>12</b>	<b>7</b>	<b>4</b>	<b>3</b>	<b>8</b>	<b>4</b>
<b>\$20 Bill</b>	<b>24</b>	<b>14</b>	<b>8</b>	<b>6</b>	<b>16</b>	<b>8</b>

**Other payout ratios for coins and token are available as a factory options.**

### TEST - DISPENSING THE HOPPERS

To test-dispense the hopper/hoppers, press and release both buttons on the controller board simultaneously, the light on the control board will go off while the buttons are pressed and begin to flash constantly two times in a second when buttons are released. While the light is flashing constantly two times in a second, pressing the left Blue Button will test-dispense from the left hopper (the same in case of one hopper machine) and pressing the right button will test-dispense from the right hopper. The controller will exit from test mode automatically after 10 seconds of inactivity.

### MAINTENANCE

All steps of maintenance have to be provided when the main power is OFF.

The Bill Validator sensors should be cleaned every three months or more often in case of high volume locations. Symptom of dirty sensors is poor acceptance of all denominations.

Check the Hopper for any debris from coin bags or wrappers, other subjects.

The Coin Acceptor coin path should be cleaned every three months or more often in case of high volume locations. Symptom of dirty sensors is poor acceptance.

## **TROUBLESHOOTING**

When normal operation the Led on the Controller PCB constantly flashes three times in a second and

- SYSTEM 200: “OUT OF ORDER” light on the front door is OFF.
- SYSTEM 500, 500E/600: two green LEDs is steady ON

If “OUT OF ORDER” light on the front door is ON (System 200), two green LEDs is steady OFF (System 500, 500E/600):

1. When Hopper is empty the Led on the PCB constantly flashes one time in a two seconds.
2. Bill jammed in Bill Validator- sequence of five flashes and pause of the Led on the Controller PCB.
3. Cash box is full or not installed properly - sequence of six flashes and pause of the Led on the Controller PCB.
4. Hopper mode not set properly - sequence of seven flashes and pause of the Red Led on the Controller PCB.
5. MDB problem - sequence of one flash and pause of the Led on the Controller PCB, Out Of Order Led is constantly ON (MDB Reset is faulty)
6. Hopper problem– the Led on the Controller PCB has sequence of three flashes and pause.
7. Dimly flashing green light – faulty hopper interrupter or controller PCB (System 500, 500E/600).

## **RESETTING A MACHINE ERROR**

To reset a machine error press and release both blue buttons on the controller board simultaneously. The light on the controller board will go off while the buttons are pressed, then begin to flash constantly three times in a second when the buttons are released. After about 10 seconds controller has to go to normal operational mode and the led will be flashing three times in a second.

(Optional) Switch for a few seconds main power OFF and than ON on the Power Supply inside the Change Machine and in 30-40 seconds Change Machine has to go to normal operational mode.

(Optional) Unplug the external power cord from the wall electrical outlet for a few seconds and than plug it back and in 30-40 seconds Change Machine has to go to normal operational mode.

**ARBORTRONICS**  
**Downsview, Ontario**

**PRODUCT WARRANTY**  
**ONE-YEAR WARRANTY**

Arbortronics (“Manufacturer”) warrants this product of its manufacture to be free from defects in material and workmanship if properly installed according to the Manufacturer’s Installation Instructions and serviced and operated under normal conditions according to the Manufacturer’s instructions. The Manufacturer’s obligation under this warranty is limited to correcting without charge at its factory, or one of its company-owned service centres, any machine, components, or parts thereof which are returned to its factory, or one of its company-owned service centres (transportation charges prepaid) within one year after being put into service, examination of which must disclose to the Manufacturer’s satisfaction that the machine, components, or parts thereof were originally defective. The warranty period will commence on the invoice date on file with the Manufacturer and extend for exactly one year, unless any of the warranty conditions either implied or specified are violated.

Each machine shipped from the factory contains Owner’s Manuals. Before shipping a machine, components or parts thereof to the Manufacturer or one of its company-owned service centres for warranty work, the owner shall be certain that the source of difficulty could not be corrected by performing one or more of the procedures described therein. If the Manufacturer or one of its company-owned service centres finds, in the sole discretion of each, that the source of difficulty could have been corrected by procedures contained in the Owner’s Manuals, THE MANUFACTURER AND/OR THE COMPANY-OWNED SERVICE CENTRES RESERVE THE RIGHT TO MAKE THEIR REGULAR CHARGE FOR ANY WORK PERFORMED.

This limited warranty shall not apply to any of the Manufacturer’s parts or products, which must be replaced because of normal, wear, which have been subject to misuse, negligence, or accident, or which have been repaired or altered outside of the Manufacturer’s factory or one of its company-owned service centres, unless authorized by the Manufacturer. The Manufacturer shall not be liable any loss, damage, or expense (including without limitation the loss of money caused by the use of counterfeit or bogus money) caused from or related in any way to the use of its products or from any other cause.

No person, agent, dealer, or any entity is authorized to give or alter any warranties of behalf of the Manufacturer nor to assume for the Manufacturer any other obligation or liability in connection with any of its products. The Manufacturer reserves the right to make design and/or operational changes to its products or parts thereof without obligation to incorporate these changes in products previously sold.

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Effective February 15, 2006