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1-800-968-6955

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MC CHANGER CABINET INSTALLATION INSTRUCTIONS

Standard Change-Makers manufactures change machines in the following cabinet styles: 1) Free standing consoles, 2) Front loading wall mount, 3) Through-the-wall rear load and 4) Slim-line vending changer. Because physical locations vary, we do not suggest an exact method of installation. To assure proper operation of your Standard bill changer the following general guidelines should be observed:

1. Full swing of the door when open.
2. Wall construction: For maximum security, it is recommended that the changer be installed on a wall made of cement block, brick or other type of masonry.

WARNING!!!

Welding the cabinet to any kind of mounting could cause damage to electrical components within the machine! Warping of the cabinet may also occur. Welding of any kind to the cabinet during installation will void the manufacturer's warranty!

If welding is ultimately necessary, all components within the machine must be removed prior to welding! Please contact our Service Department with any questions.

3. Rear loading changers (through the wall mountings) should always open into a secure location that has a locked door and no windows.
4. Good overhead lighting is highly recommended in the area that your changer is located not only for your customers but for additional security.
5. **Accessibility of power supply.** (120 Volt/ 60 Hertz on its own grounded circuit – 10 amp minimum required.)
6. Carwash locations will want to locate their changers out of reach of high-pressure hoses.
7. The changer should be located so that any water runoff from the roof of the building does not run down the face of the changer. A protective awning or shelter is highly recommended for all outdoor installation sites.

Mounting the Changer Cabinet

Note: If the floor is uneven, the stand can be warped when the mounting bolts are tightened to the floor. It may be necessary to shim one or more corners of the stand. If this condition is not corrected, distortion of the cabinet can occur when it is attached to the stand.

1. After the site for your changer has been determined and prepared, open the cabinet door and:
 - a. Your machine was shipped with the hoppers installed. The shipping clips and straps must be removed. Remove the hoppers from the inside the cabinet.
 - b. Use ¼ inch diameter bolts for mounting the cabinet.**
 - c. Make sure the cabinet is level and the mounting surface is flat.

CAUTION: Even the slightest uneven surface can cause cabinet distortion when mounting bolts are tightened. This can cause the doors to fit unevenly when closed. This distortion can occur even more easily on large cabinets. Should this occur, it may be necessary to shim one or more of the cabinet corners.

2. Be sure the inside of the cabinet as well as the changer components are free of metal shavings.
3. After mounting the cabinet, replace any components that were removed.
4. Remove all packing material and straps from inside the cabinet. Some items have yellow tags with removal instructions.

Outdoor Installations All Cabinets

This machine can be used in protected outdoor locations. Standard Change-Makers, Inc. recommends the use of an awning, canopy, marquee, or other protective screen to prevent machine damage from exposure to weather. **Caution/ Important - Any open mounting holes in the top or sides of the cabinet must be plugged with an appropriately sized bolt or screw. The threads of the screws and bolts should be coated with a silicone or RTV sealer to prevent water intrusion. Failure to do this will allow water to enter the cabinet and pose a possible electrical shock hazard.** Any holes in the bottom of the cabinet should be left open to allow for drainage if water enters the cabinet. **Machines to be installed in outdoor locations require watertight electrical conduit to be used if the power cord would be exposed to the weather. Follow the instructions for converting to a permanently wired machine to connect the conduit and supply lines to the unit.** (See page 6)

Hardware that will be required:

- 6 – 6/32 self tapping (used on the top of the cabinet if a cap kit is not installed)
- 4 – 1/4” bolts (used on the back of the cabinet if mounted on an open stand)
- 4 – 1/4” nuts
- 8 – 1/4” washers

Watertight electrical conduit and fittings, (Note: cabinet is sized for 1” conduit fittings.)

Installing Front Load Changers - Wall mount

Type of wall construction: For maximum security, it is recommended that the changer be installed on a wall made of cement block, brick or other type of masonry, not a stud wall covered by plaster board.

The mounting holes on the back of the changer will accommodate four 1/4-inch diameter bolts.

WARNING: CHANGERS MOUNTED ON THE BASES ARE TOP HEAVY. The changer must be secured to a rigid vertical surface, as well as to the stand to provide appropriate security, stability, and safety.

Installing Front Load Changers - Vending Bases & Pedestal Stands

If the wall to which the changer will be mounted does not meet the construction standards above, we recommend the Standard Change-Makers stand. Mounting holes are provided on the bottom for mounting the stand to the floor. Cabinets are provided with mounting holes on the top surface for mounting the changer to the stand. A drill template is included with the stand. When utilizing the stand, we recommend that the machine be bolted to the wall as well as to the stand.

If the changer is to be mounted to a post, the post should be sunk in concrete for stability. It is also recommended that the post be filled with concrete for strength. A steel plate approximately the same dimensions, as the changer should be welded to the post. Bolt the changer to the steel plate through the four 1/4-inch mounting holes drilled into the plate. Tack weld the heads of the mounting bolts to prevent their removal. Four nuts and washers inside the changer can then secure the changer. If this method is not feasible the bolts can be bent after installation to prevent removal.

WARNING!!!

Welding the cabinet to any kind of mounting could cause damage to electrical components within the machine! Warping of the cabinet may also occur. Welding of any kind to the cabinet during installation will void the manufacturer's warranty!

If welding is ultimately necessary, all components within the machine must be removed prior to welding! Please contact our Service Department with any questions.

Installing Rear Load Changers

The rear load changer cabinet must slide through the hole in the wall. The stainless front plate, which extends 2 inches beyond the cabinet on both sides and top and bottom, must be tight against the wall surface. The cabinet is 13-18 inches deep. Its protrusion into the back room will be the difference between this depth and the thickness of your wall. Allow for proper door swing. Angle iron should be used for securing the changer in place. One side of the angle iron should be secured to the side of the cabinet while the other side of the angle iron secures against the inside of your wall.

For rear load changers it may be necessary to temporarily remove the power cord to make installation of the cabinet easier. Cover or remove the hoppers to prevent debris or metal shavings from falling into the hopper mechanisms. To remove the cord, locate the cord retaining plate on the inside of the changer cabinet. Remove the two nuts securing the cord to the inside of the changer. Pull the cord into the inside of the changer. After installing the cabinet, reverse the directions above to return the cord to its correct location.

For Outdoor locations

Use either silicone or RTV caulking for a watertight fitting. Place a large continuous bead of caulking on the backside of the front plate around the changer cabinet and fill gap around the faceplate to cabinet joint so that when the changer is slid through the wall opening a tight weather proof seal is formed.

Any deviation of these guidelines will void the machine’s warranty.

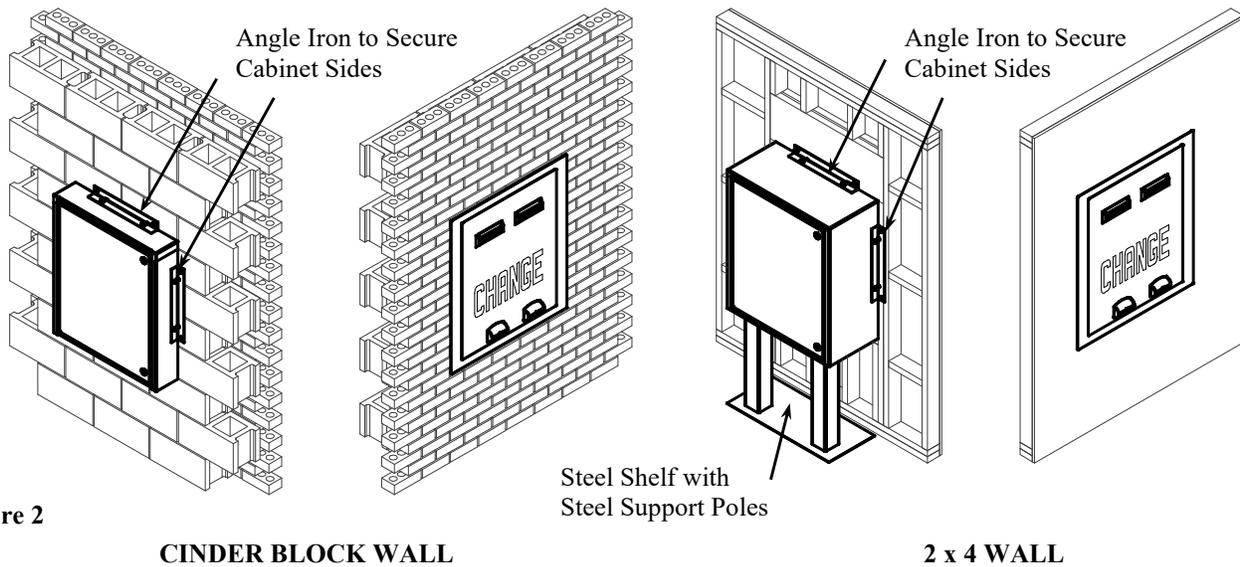


Figure 2

CINDER BLOCK WALL

2 x 4 WALL

Installing Stand Mounted Changers

Stand mounted changers can be mounted in between or with other vending machines. Optional cap kits are available to make the changer the same height as other vending machines. The changer is bolted to the stand (four mounting holes) and the stand can be bolted to the floor (four mounting holes) or to the wall for maximum security and safety. A floor template is included with the stand.

WARNING: CHANGERS MOUNTED ON THE BASES ARE TOP HEAVY. The changer must be secured to a rigid vertical surface, as well as to the stand to provide appropriate security, stability, and safety.

Electrical Hook-up

WARNING: Never Connect or disconnect electrical cables with power on.

CAUTION: It is recommended that electrical connections be performed by a qualified electrician and that you should check local building codes for compliance.

The MC Changer cabinet comes pre-wired*. The changer need only be connected to a properly grounded electrical outlet. (3rd wire ground back to main service panel) We also recommend that the changer be wired on a dedicated line. A dedicated line is a circuit which has no other equipment connected on the same circuit breaker or fuse. The purpose of a dedicated line is to reduce the possibility of line interference, which may cause the changer to malfunction. Some models have several cut outs allowing alternate wiring inlets. For outdoor locations permanent wiring is required. (See instructions below.)

Important Note:

NOTE: TEMPORARY HOOKUPS: never allow access to the power plugs. Power cable feed should not exceed 100 Feet in length.

NOTE: An improperly connected machine may void your warranty.

* **NOTE:** Permanent outdoor installations require the use of watertight conduit if the supply line would be exposed to the weather.

WARNING!!!

Welding the cabinet to any kind of mounting could cause damage to electrical components within the machine! Warping of the cabinet may also occur. Welding of any kind to the cabinet during installation will void the manufacturer's warranty!

If welding is ultimately necessary, all components within the machine must be removed prior to welding! Please contact our Service Department with any questions.

Instructions for Converting to a Permanently Wired Machine

CAUTION: The following instructions are intended to be used by a qualified electrician. Local building codes should be checked for compliance.

1. Disconnect power to the changer.
2. Remove hoppers from change machines if needed to access outlet box.
3. If used remove the two nuts holding cord retaining plate to the cabinet.
4. Pull the cord through outlet hole into the cabinet.
5. The hole in the cabinet is sized for 1-inch conduit fittings. Some models have several cutouts allowing alternate wiring inlets.
6. Install conduit and supply lines (**NOTE:** for outdoor locations use water tight conduit and fittings). It is important to the operation of your changer that wiring be in properly grounded electrical conduit. (3rd wire ground back to the main service panel) We also recommend that the changer be wired on a dedicated line. A dedicated line is a circuit which has no other equipment connected on the same circuit breaker or fuse. The purpose of a dedicated line is to reduce the possibility of interference, which may cause the changer to malfunction.
7. Remove the screws from the outlet box cover.
8. Pull the cover out to access the terminal block inside the box and disconnect the cord from the terminal block. No other wires should be removed.
9. Remove the power cord from the outlet box.
10. Route new supply line through cabinet to the outlet box supply line should be kept away from all low voltage cable to reduce risk of EMI interference.
11. The electrical connections should be as follows:

The Neutral line (White wire) from the supply line must be connected to the White or Blue (Filter only) wire at the terminal block.

The Hot Line (Black wire) from the supply line must be connected to the Black or Brown (Filter only) wire at the terminal block.

The Ground (bare/green) supply line wire must be connected to the Green wire at the terminal block.

12. Reinstall cover onto outlet box.
13. With power OFF use an ohmmeter to check the connections making sure there are no shorts to the cabinet except for the ground connection and that hot and neutral are not shorted together.
14. Power on machine.
15. Test machine for proper operation.

IMPORTANT NOTE:

A WORD ABOUT GROUNDING

Please insure your changer has a good ground. Improper grounding of the changer will cause erratic operation and is unsafe for the people using the changer.

Power Considerations

GENERAL	RANGE	DETAILS
OPERATING VOLTAGE	105 VAC - 135 VAC	See "Power Considerations"
POWER CONSUMPTION	80W (min) - 360W (max)	See "Power Considerations"
OPERATING TEMPERATURE	0 - 60°C (32 - 140°F)	See "Environmental Considerations"
ELECTRICAL SERVICE	15A – DEDICATED RUN	See "Electrical Hook-up"

The MC machine series is equipped with a highly efficient "switching power supply". One advantage of this type of power supply is its ability to deliver steady output power when encountering large fluctuations in input voltage - **100VAC** to **135VAC**. In addition this supply will only use power when it is needed during the change making process. This means the heat created by the power supply is only generated for brief periods of time and as a result will create very little heat build-up inside the machine. Heat build-up can have adverse effects on the life of the machine components as well as the performance of the bill acceptor.

The power consumption of your particular machine model will vary depending on the number of modules in the model you have purchased. One hopper machines will require a maximum of 60 Watts of momentary power, two hopper machines will require **80 Watts**, and Dual machines models that include a second supply may require up to 160 Watts momentarily.

Ancillary items can increase the overall machine power consumption requirement. An example would be the power consumption of a heater kit. The power consumption of this device (device draws 100% load when on) is equal to the wattage of the heating element. A 100 Watt heating element in addition to the momentary power supply draw of 80W would bring the total maximum power consumption of the machine to 180 Watts. The maximum wattage for the entire machine, including ancillary items, should not be allowed to exceed **360 Watts**.

Electrical Hook-Up

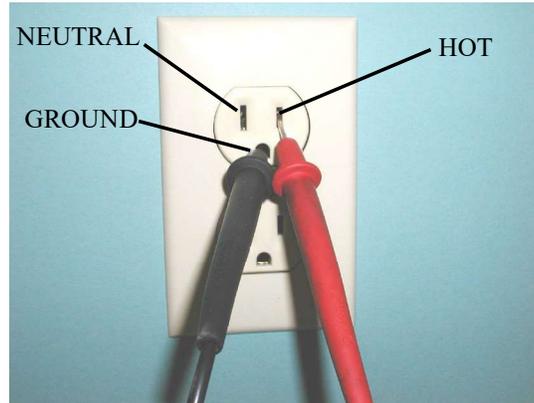
The changer need only be connected to a properly grounded electrical outlet (3rd wire ground back to main service panel). We also recommend that the changer be wired on a dedicated line. A dedicated line is a circuit which has no other equipment connected on the same circuit breaker or fuse. The purpose of a dedicated line is to reduce the possibility of line interference, which may cause the changer to malfunction. Some models have several cut outs allowing alternate wiring inlets. If the machine is located in a harsh electrical environment, or if dedicated line is not feasible, the use of a high quality surge suppressor (same as used for home computers) is recommended.

IMPORTANT

This machine must be grounded through a properly installed 3rd wire ground, which extends intact to the main service panel.

The Locations Electrical Supply

If this machine has a service cord that ends in a 3-pin connector. The wall receptacle you plug the machine into must be properly polarized and grounded. Operating your machine from an improperly connected power source will VOID THE WARRANTY. The wall receptacle must be able to supply a constant 120 volts at 60Hertz. The receptacle should be protected by a 15 amp circuit breaker or fuse. The machine should have its own electrical circuit. Perform checks on the power source as follows: (See image below)



1. Voltage Check

When placed across the **HOT** and **NEUTRAL** terminals, a volt-ohmmeter should indicate 110-130 volts AC.

2. Polarity Check

When placed across the **HOT** and **GROUND** terminals, a volt-ohmmeter should indicate 110-130 volts AC.

3. Noise Potential Check

When placed across the **NEUTRAL** and **GROUND** terminals, a volt-ohmmeter should indicate no more than .5 volts AC. Readings greater than .5 volts AC indicate a poor grounding condition that could result in noise problems for the electronic circuitry.

If you are hard wiring the changer the same checks should be performed on the supply line going to the changer. Any deviation from these requirements may result in unreliable performance from your machine.

Environmental Considerations

Advance consideration should be given to the environmental conditions (temperature, dirt and moisture extremes) the machine will be exposed to. A *base machine* model is intended for use in locations where moderate temperatures are encountered and the machine has minimal exposure to the elements. A typical location where a *base model* would be used is one where the machine is located inside a building. If extended environmental conditions exist, the machine should be equipped with the additional ancillary items required to ensure proper performance.

Moderate Environments – typically indoors:

These environments have a minimum temperature of 0° C (32° F) and a maximum of no more than 41° C (106° F) as measured inside the machine. Keep in mind that all electro-mechanical equipment found inside an enclosure will be affected by two sources of heat: the outside temperature of the enclosure and the heat generated by the components inside the enclosure. The MC machine series is equipped with a highly efficient “*switching power supply*” that generates very little heat. Therefore the heat generated inside the cabinet is of minimal consequence. As a rule of thumb: The power supply heat will only raise the inside temperature to within 3–7° C (5-10° F) of the temperature outside the machine.

Extended Environments – typically outdoors:

These environments are characterized by temperatures either below or above that of the moderate environment, and / or where the machine is exposed to additional weather elements. We recommend a properly equipped Rear Load model changer for these locations. Whenever possible, we highly recommend the rear load changer be placed in an area that minimizes the machine’s exposure to excessive dust/dirt, direct sunlight, and/or direct rainfall. A canopy or other cover, that protects the machine from direct exposure to sunlight and the elements, is strongly recommended. This simple precaution will not only reduce maintenance issues for the changer’s major operating components; it will also increase the potential operating life of the machine.

For climates that see sustained temperatures below the previously defined moderate levels (0° C / 32° F), an optional Heater Kit is strongly recommended. For climates that see sustained temperatures above the previously defined moderate levels (41° C / 106° F), the optional Outdoor Rated Power Supply is strongly recommended.

The Outdoor Rated Power Supply will continue to function properly when exposed to temperatures up to 60° C (140° F). Therefore, it is strongly recommended for regions in the Southern and Southwestern United States.

Bill Acceptor Considerations

The performance and life of the bill acceptor supplied with your machine is limited to the particular manufacturers' specifications. See the Bill Acceptor owners' manual for the recommended operating specifications.

NOTE: Most OEM bill acceptors are specified to operate properly between 0° C (32° F) and 50° C (122° F) ambient temperature. These conditions meet our recommended specifications for a moderate environment application. If the precautions, outlined above, for extended environment applications are met, we do not anticipate any adverse operating conditions associated with OEM bill acceptors.

Bill Dispenser Considerations

The performance and life of the bill dispenser supplied with your machine is limited to the particular manufacturers' specifications. Most bill dispensers will perform more reliably in environments that have low humidity and are operated between a 0° C (32° F) and 50° C (122° F) ambient temperature. A cabinet heating kit will help keep the humidity level low during daily temperature transitions (night to day when humidity can increase rapidly) and seasonal changes.

Installation Details

Cabinet Installation Instructions

Standard Change-Makers manufactures change machines in the following cabinet styles: 1) Free standing consoles, 2) Front loading wall mount, 3) Through-the-wall rear load and 4) Slim-line vending changer. Because physical locations vary, we do not suggest an exact method of installation. To assure proper operation of your changer the following general guidelines should be observed:

Location of the Changer

The following points should be considered when locating a changer:

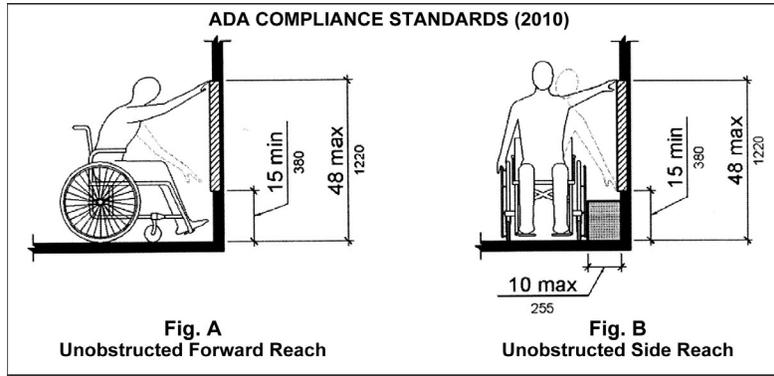
Service Access: Full swing of the door when opened for removing and replenishing revenues.

User Access: Easily accessed by customers and proper height from the floor. The height will vary depending upon the changer model. Accessibility for the handicapped, as required by the Americans with Disabilities Act (ADA) specifies that all controls (coin cup, coin insertion slots and bill acceptor slots) shall not be higher than 48" (1220 mm), or no less than 15" (230 mm) from the floor for Forward Reach or "Straight On" access. For Side Reach or "Side" Access, ADA requires that all controls shall not exceed 54" (1370 mm), or no less than 9" (200 mm) from the floor.

AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE

Next page shows a chart listing each MC series cabinet model and the corresponding **MAXIMUM INSTALLATION HEIGHT** required to comply with the ADA height standards. The measurement shown is taken from the bottom edge of the machine cabinet to the floor. On **FRONT LOAD** machines this would be the bottom of the cabinet. On **REAR LOAD** machines, these would be the bottom of the rough opening where the cabinet would sit.

Additionally, ADA requires a 30" (760mm) by 48" (1220mm) "clear floor space" in front of the machine to provide sufficient clearance for a single wheelchair and occupant to use the machine.



Cabinet Model	ADA Requirements Maximum Installation Height Floor to Cabinet bottom (inches)		Base Height (inches)	Header Height (inches)
	No Coin Acceptor	With Coin Acceptor		
MC100	27.25	NA	26.50	8.50
MC200 *	32.75	25.00	Bills Only: 30.00 Bills & Coin: 25.00	16.00 21.00
MC300RL	27.00	27.00	NA	NA
MC350RL-TIK	20.00	20.00	NA	NA
MC400RL *	30.50	26.00	NA	NA
MC500RL-DA	25.00	25.00	NA	NA
MC520-RL *	28.00	24.50	NA	NA
MC525/535RL-CC *	28.00	24.50	NA	NA
MC600RL-DA	25.00	25.00	NA	NA
MC700 Series	30.50	30.50	26.625	13.625
MC720-CC	30.50	30.50	26.625	13.625
MC720-CC with printer #	26.625	26.625	26.625	13.625
MC800-DA	26.00	26.00	26.00	NA
MC900-DA	Console	NA	NA	6.030
BX-FRONT (FUJ)	30.00	NA	30.00	14.00
BX-REAR (FUJ)	28.00	NA	NA	NA
BCX-FRONT (FUJ) *	20.50	18.00	18.00	16.00
BCX-REAR (FUJ) *	24.00	22.50	NA	NA

Cabinet Model	ADA Requirements Maximum Installation Height Floor to Cabinet bottom (inches)	Base Height (inches)	Header Height (inches)
<p>For maximum mounting height the cabinet without a coin acceptor or printer can sometimes be mounted higher and meet ADA requirements. (See Chart Above)</p> <p>* If a mounting height with no coin acceptor is used and a coin acceptor is added at a later date then the machine would no longer meet ADA Requirements.</p> <p># If a mounting height with no printer is used and a printer is added at a later date then the machine would no longer meet ADA Requirements.</p>			

Test the Machine Operation

When installation is complete, test each machine function for proper payout and operation.

1. Fill the hoppers until the black area at the bottom is covered.
2. Insert monetary bills in the bill acceptor.
3. Count the coins dispensed.

**FOR ADDITIONAL QUESTIONS OR ASSISTANCE IN
INSTALLING STANDARD CHANGE-MAKERS, INC. PRODUCTS,
PLEASE CONTACT OUR SERVICE DEPT.**

Standard Change-Makers, Inc.
3130 N. Mitthoeffer Road
Indianapolis, IN 46235-2400
TOLL FREE: 1-800-968-6955
PHONE: 317-899-6966
FAX: 317-899-6977
WEB: www.standardchange.com
EMAIL: service@standardchange.com