

CENTURY SERIES

C-8 AND C-10

BILL AND COIN CHANGERS

FIELD SERVICE MANUAL
& PARTS CATALOG

INSTALLATION, PROGRAMMING,
ROUTINE SERVICE

Part No. 25554501
Second Edition



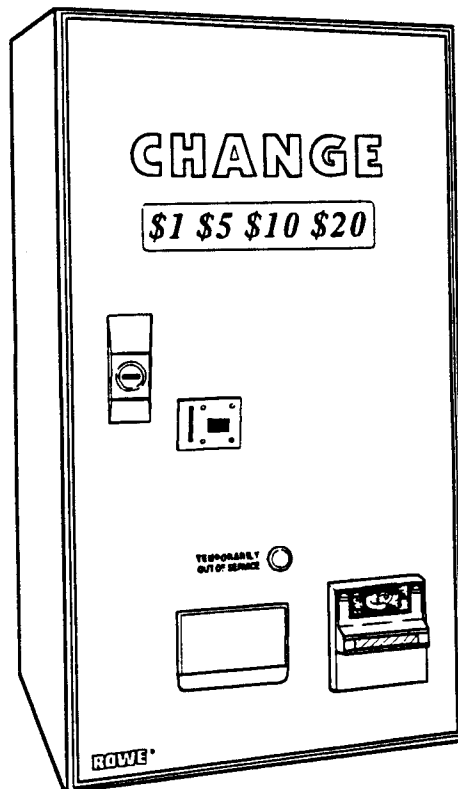
Century Series

C-8 and C-10

Bill and Coin Changers



Field Service Manual and Parts Catalog



PART NO. 25554501

Machine Safety

Your safety and the safety of others are very important to American Changer.

We have provided important safety messages in this manual and on your machine. Always read and obey all safety messages.



This is a safety alert symbol.

This symbol alerts you to potential hazards that can kill or hurt you and others.

All safety messages will follow the safety alert symbol and either “DANGER”, “WARNING”, or “CAUTION”.

These words mean:



You can be killed or seriously injured if you don't immediately follow instructions



You can be killed or seriously injured if you don't follow instructions



You can be injured if you don't follow instructions

All safety messages will tell you what the potential hazard is, tell you how reduce the risk of injury, and tell you what can happen if the instructions are not followed.

Distributors, retailers, operators, and/or service people are to insure the following warning label is properly affixed on the ACC products to which you/they are using and/or servicing in order to help meet the applicable Proposition 65 requirements. For more information go to www.P65Warnings.ca.gov



WARNING: Cancer and Reproductive Harm

www.P65Warnings.ca.gov

Important Safety Instructions

DANGER: To reduce the risks of severe injury secure the machine to a stable structure.



Severe Injury Hazard

This machine is to be secured to a stable structure.

Equipment will fall if not properly secured to a stable structure.

Failure to follow these instructions may result in death, injury, product damage, or property damage.

WARNING: To reduce the risk of electrical shock, disconnect all electrical power to the machine before servicing.



Electric Shock Hazard

Disconnect all electrical power to the machine before servicing.

Electric shock will occur while servicing the machine with electrical power applied to it.

Failure to follow these instructions may result in death, injury, product damage, or property damage.

NOTICE: For indoor use only.



For indoor use only.

Solo para usos en el interior.

Pour une utilisation en intérieur uniquement.



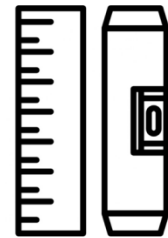
NOTICE: Ensure this machine is level when installed



Ensure this machine is level when installed.

Asegurarse que está máquina esté nivelada cuando haya sido instalada.

S'assurer que la machine soit de niveau lorsqu'installée.



SAVE THESE INSTRUCTIONS

American Changer does not guarantee machines (products) or services to be 100% secure against criminal attempts. All machines (products) and services are to be used in accordance with business best practices and the owner's or operator's best judgement.

Installation, use, service and maintenance must be performed in accordance with applicable machine (product) manuals provided by American Changer and comply with any and all pertinent laws or regulations.

Inspect your machine (product), at a minimum annually, by a qualified service technician.

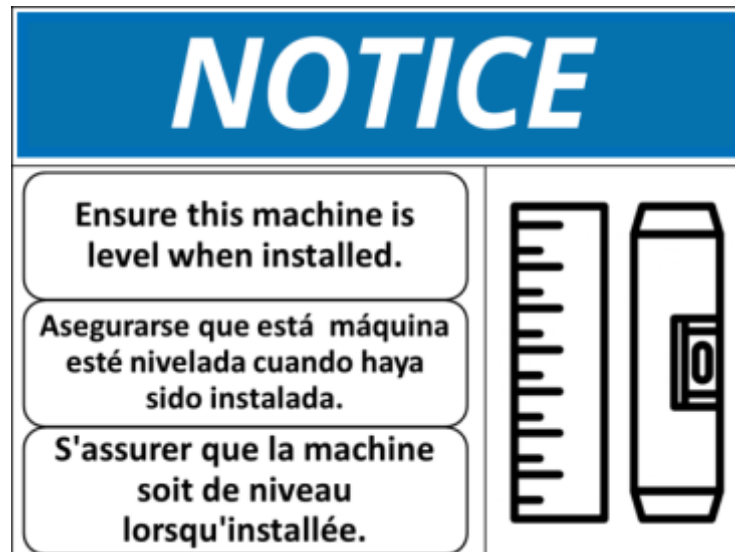
Dimensions and weights are reasonably close estimates. Specifications in this manual can vary without notice.

Section 2 – Setup & Installation

2.2 – Mounting Instructions

This machine must be installed in accordance with local codes. If you are unsure in any way what your local codes are or unsure of anything in the following steps, please hire a licensed professional to mount your machine.

1. Disconnect any and all AC power going to the machine. (Unplug AC line cord from the rear of the machine.)
2. Note: You will need to verify with the building code enforcement to see if it is allowable to plug the changer into a grounded outlet. If it is not, there must be 120VAC run through conduit or other means to meet local codes to the changer. If it is not required, proceed to step #6.
3. Have a licensed electrician run the conduit, install the new breaker, wire and help decide how the wiring will enter the changer (from the back or the bottom).
4. After the conduit has been installed, proceed with securing the machine to a stable structure.
5. Find an appropriate stable structure which to secure the machine to.
6. **NOTICE: BEFORE SECURING ENSURE THE MACHINE IS LEVEL.**



7. **⚠ DANGER** PROPERLY SECURE MACHINE (PRODUCT) TO THE FLOOR SO THE MACHINE (PRODUCT) CANNOT BE MOVED OR TIPPED. USE STRUCTURAL SOUND FASTENERS THAT CAN BE PROPERLY TIGHTENED AND SECURE THE MACHINE (PRODUCT) THROUGH EACH OF THE HOLES IN THE BASE OF THE MACHINE (PRODUCT) TO THE APPLICABLE SURFACE TO WHICH IT IS BEING SECURED.



8. Use the four holes located in the back, bottom, or sides of the cabinet to secure the machine to a stable structure.
9. Verify that the machine is properly secured to the stable structure.
10. Connect your AC line to the outlet. If conduit was run wire it to the power supply located in the machine.
- Do not use an extension cord unless allowed by the building electrical code.**
 - Installation is completed. Proceed to the “Programming the Changer” section.

The proper performance of your American Changer machine is directly related to the quality of the power it is supplied. AC power fluctuations, including blackouts, brownouts, over voltages, sags, surges, and spikes may cause the machine to miss pay. To ensure the most trouble-free operation, we strongly recommend plugging all of our machines into a DEDICATED AC outlet (this means there are no other machines on location plugged into the same AC line). A simple way to check if this is true is to turn off the breaker associated with our machine at the breaker box. No other equipment on location should lose power.

Additionally, if your unit is located in an area prone to lightning storms or other sources of frequent power disturbances, we also strongly recommend using an Uninterruptible Power Supply (UPS). If power is lost during a payout to a customer, a UPS will allow your machines to complete the transaction that would otherwise not be completed. In some cases, a UPS may also correct long-term under and/or over voltages on the AC line by converting to the proper line voltage before the power reaches the machine.

Every American Changer machine has a surge suppressor built into the main logic board. This helps eliminate power related noise problems, but it will not protect from substantial voltage spikes or nearby lightning strikes. If this is a concern for your area, we recommend purchasing a commercial grade UPS with integrated surge protection. **NOTE: A POWER STRIP IS NOT A SURGE PROTECTOR.**

Preface

The Century Series is an all new model bill changer. This manual has been designed and organized to provide you with an easy-to-use source of service information.

This service manual is divided into eight sections:

- **Section 1: SYSTEM DESCRIPTION** — Introduces you to the C-8, C-10, their features, and their major components. A Sequence of Operation Flowchart details Bill Changer operation.
- **Section 2: INSTALLATION** — Provides you with the information that you need to install your Bill Changer safely and securely.
- **Section 3: LOADING & AUDITING** — Outlines instructions for loading and unloading the Bill Changer coin hopper, as well as a basic auditing procedure to guard against loss of money from theft or malfunction.
- **Section 4: PROGRAMMING** — Gives instructions for changing Bill Changer default (factory) programming.
- **Section 5: MAINTENANCE & ADJUSTMENTS** — Provides instructions for removing Bill Changer components for service, and details mechanical maintenance procedures.
- **Section 6: TROUBLESHOOTING & SELF-DIAGNOSTICS** — Describes the meaning of Bill Changer fault codes, as well as remedies for each. This section also describes miscellaneous problems that can occur but may not cause a fault code to be displayed, as well as checking procedures used to verify that the Bill Changer is functioning properly.
- **Section 7: TECHNICAL INFORMATION** — Contains the board layout and components list for the Control Computer.
- **Section 8: PARTS CATALOG** — Lists and illustrates all replaceable modules in the Bill Changer.

This manual is intended for owners, route operators, and technicians. This manual provides all field and shop related service and maintenance material. Accessories and their installation and service are discussed in the corresponding accessory instructions (or manuals).

Specific Bill Acceptor information is discussed in the *Bill Acceptor Field Service Manual and Parts Catalog* included with your Bill Changer.

Contents

SECTION 1: SYSTEM DESCRIPTION

INTRODUCTION	1-1
FEATURES	1-1
GENERAL OPERATION	1-2
SYSTEM COMPONENTS	1-2
BILL ACCEPTOR	1-2
SEQUENCE OF OPERATION FLOWCHART	1-3
DISPENSER	1-4
HOPPER	1-4
CHANGER CONTROL COMPUTER (CCC)	1-5
Status Display	1-6
Service and Control Switches	1-6
PROGRAM/NORMAL Slide Switch	1-6
MODE Button	1-6
UP Button	1-6
DOWN Button	1-6
TEMPORARILY OUT OF SERVICE LAMP	1-7
ELECTRICAL BOX	1-7

SECTION 2: INSTALLATION

INTRODUCTION	2-1
BILL CHANGER MOUNTING & SPECIFICATIONS	2-1
C-8/10 MOUNTING DIAGRAMS	2-2
POWER CONNECTION	2-4
LINE CORD	2-4
CONDUIT	2-4

SECTION 3: LOADING & AUDITING

INTRODUCTION	3-1
LOADING THE BILL CHANGER	3-1
LOADING THE HOPPER	3-2
UNLOADING THE HOPPER	3-3
AUDITING	3-4

SECTION 4: PROGRAMMING

PROGRAMMING THE CENTURY 8 AND CENTURY 10 BILL CHANGES	4-1
PROGRAMMING.....	4-2
Coin Acceptor Settings.....	4-2
Coin Acceptor Setup Information.....	4-3
Mechanical Coin Acceptor	4-3
For US/Canadian Machines	4-3
For Non-US Machines	4-3
Electronic Coin Acceptor.....	4-4
Bill Acceptor Settings.....	4-5
Coin Ratio Settings.....	4-6
Money Meter Settings	4-7
Coin Level Settings.....	4-8
Recommended Low Coin Settings.....	4-9
COIN PAYOUT SETTINGS	4-10
BILL PAYOUT SETTINGS.....	4-11
PROGRAMMING EXAMPLES	4-12
ERROR CODES	4-16

SECTION 5: MAINTENANCE AND ADJUSTMENTS

INTRODUCTION.....	5-1
BILL ACCEPTOR.....	5-1
REMOVING A JAMMED BILL	5-1
REMOVING THE BILL ACCEPTOR	5-2
INSTALLING THE BILL ACCEPTOR.....	5-2
HOPPER	5-3
REMOVING THE HOPPER	5-3
CLEANING THE HOPPER COIN PATH	5-3
HOPPER CHAIN ADJUSTMENT	5-5
DISPENSER.....	5-6
REMOVING THE DISPENSER ASSEMBLY	5-6
INSTALLING THE DISPENSER ASSEMBLY	5-7

SECTION 6: TROUBLESHOOTING & SELF-DIAGNOSTICS

INTRODUCTION	6-1
TROUBLESHOOTING	6-2
CLEARING BILL CHANGER ERROR CODES	6-2
ERROR CODES	6-2
Er 1	6-3
Er 2	6-3
Er 3	6-4
Er 4	6-4
Er 5 or Er 6 or Er 11	6-5
Er 7	6-6
Er 8 or Er 9	6-7
Er 10	6-7
Er 12	6-8
Er 13	6-8
Er 14	6-8
Er 15 or Er 16	6-9
Er 21 or Er 22 or Er 23	6-9
--	6-10
MISCELLANEOUS PROBLEMS	6-11
ERRATIC PAYOUT	6-11
LARGE NUMBER OF VALID BILLS REJECTED	6-11
BILLS JAM FREQUENTLY	6-11
COIN COUNTING PHOTOTRANSISTOR (SENSOR) CHECK	6-12
LOW COIN SENSOR ELECTRICAL CHECK	6-13

SECTION 7: TECHNICAL INFORMATION

INTRODUCTION	7-1
CCC Circuit Board Layout	7-2
CCC CIRCUIT BOARD COMPONENTS LIST	7-3
BILL CHANGER SYSTEM SCHEMATIC	See Accessory Bag (Eng. Draw. 25553301 Q2)

SECTION 8: PARTS CATALOG

INTRODUCTION	8-3
Catalog Description	8-3
Parts List Description	8-3
Ordering Replacement Parts	8-3
PARTS CATALOG	8-4
ACCESSORY KITS	8-19

SECTION 1:

SYSTEM DESCRIPTION

INTRODUCTION

NOTE:

Throughout this manual, the word "coin" is used to refer to either coins or tokens, interchangeably.

The Rowe® Century Series C-8 and C-10 Bill and Coin Changers can accept \$1 thru \$100 bills of United States currency. Using the appropriate bill acceptor, up to 7 denominations of any non-U.S. currency can be accepted. The unit can be programmed by the operator to accept any or all of the bills. Figure 1-1 illustrates the major components of the Bill.

In addition, with the optional coin acceptor installed, up to 8 denominations of coins can be accepted.

The Bill Changer can dispense two different types of coins or tokens at a time. The number of coins dispensed for each bill and coin denomination accepted is programmable.

The C-8 and C-10 differ in height and coin hopper capacity. The C-8 is 32" high and can hold up to 4,200 U.S. Quarters. The C-10 is 33-7/8" high and can hold up to 6,800 U.S. quarters.

FEATURES

- A microcomputer inside the Bill Changer monitors system status, accepts credit inputs from the bill acceptor or coin acceptor (when used), and controls the change dispensing functions.
- Modular assemblies are featured for fast field substitution.
- Setup and programming options are easily changed using the MODE, UP and DOWN pushbutton switches.
- The removable coin hoppers permit rapid bulk loading of coins.

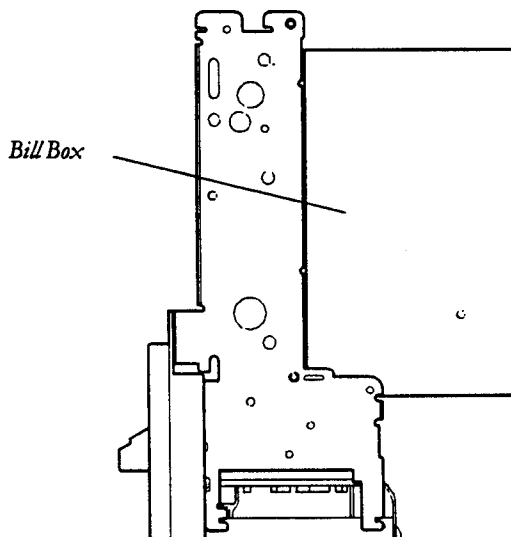
GENERAL OPERATION

The Bill Changer Sequence of Operation Flowchart (*Table 1-1, opposite*) gives an overview of the Bill Changer sequence of operation, from the time that a bill is inserted into the changer until coins fall into the Coin Cup. For detailed information regarding the location and function of individual Bill Changer components, refer to *System Components*, which follows.

SYSTEM COMPONENTS

Refer to *Figure 1-1* for placement of each of the following Bill Changer components:

Figure 1-2
Bill Acceptor



BILL ACCEPTOR*

The bill acceptor accepts and validates various denominations of bills depending on the bill acceptor and its setup. It stacks valid bills in a bill box that opens for easy bill removal. The bill acceptor mounts on the back of the Bill Changer door.

For specific bill acceptor information refer to the bill acceptor field service manual and parts catalog included with the Bill Changer.

* Rowe® Bill Acceptor pictured. Your changer may be equipped with an Acceptor from another manufacturer.

Bill Changer Sequence of Operation Flowchart

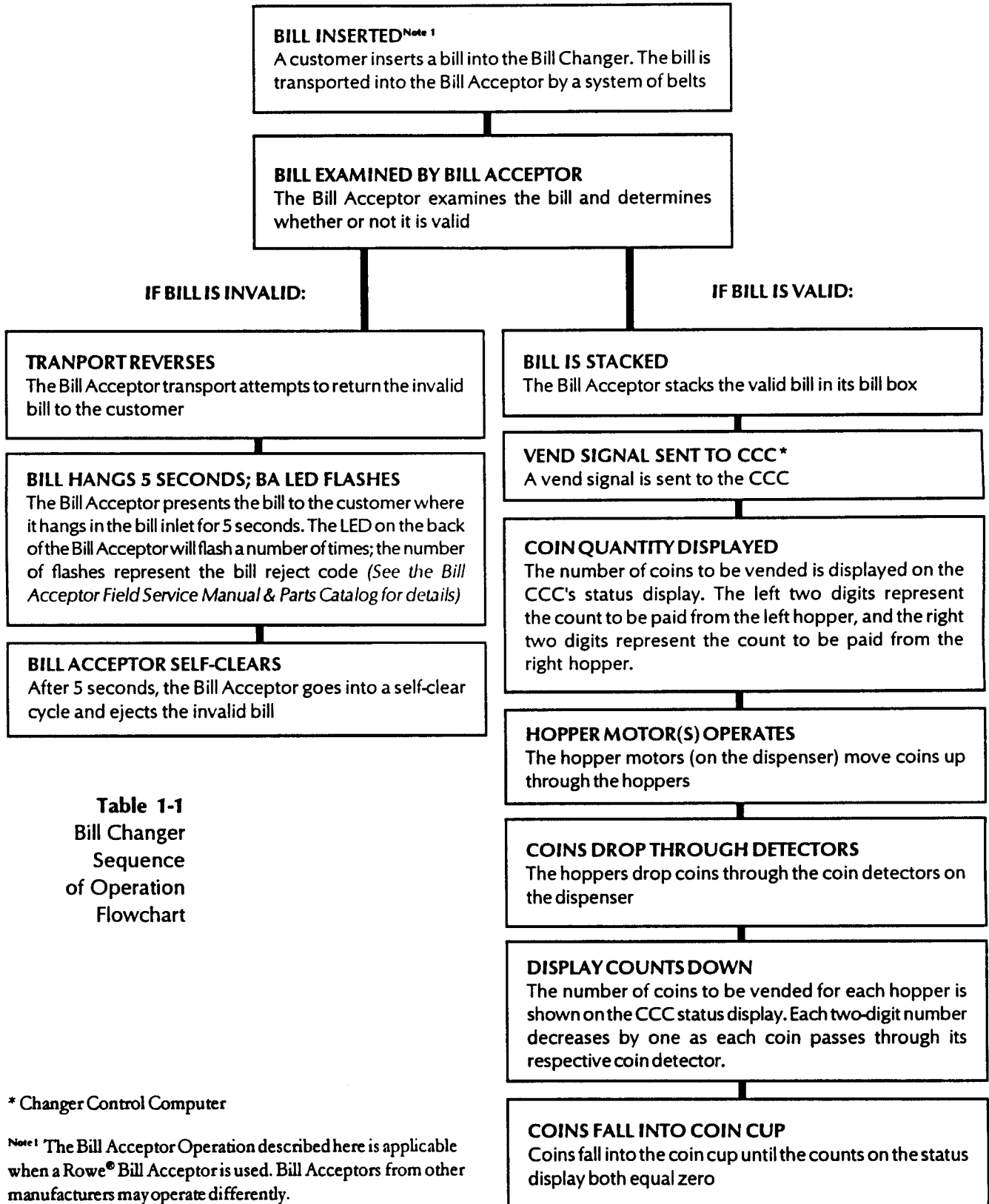


Table 1-1
Bill Changer
Sequence
of Operation
Flowchart

* Changer Control Computer

Note 1 The Bill Acceptor Operation described here is applicable when a Rowe® Bill Acceptor is used. Bill Acceptors from other manufacturers may operate differently.

DISPENSER

The Bill Changer coin dispenser (*Figure 1-3*) contains the coin detector system and the hopper motors. The dispenser mounts on brackets on either side of the cabinet.

The coin detector system – one for each hopper – consists of an LED and a photo-transistor, which “count” the coins as they exit the hopper and fall through the upper coin chute into the coin cup.

The hopper motors engage sprockets that drive the hopper. The 110 VAC motors are controlled by the CCC.

Figure 1-3
Dispenser

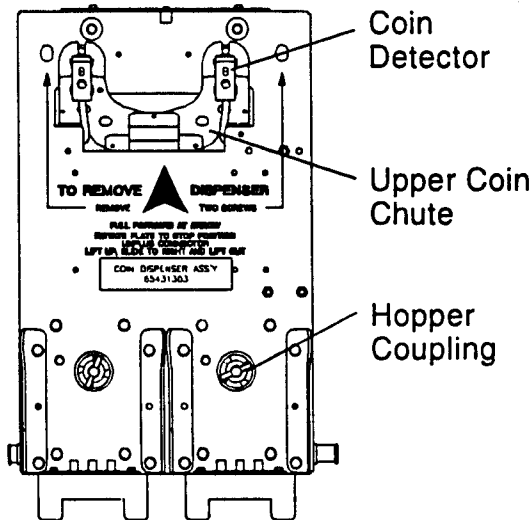
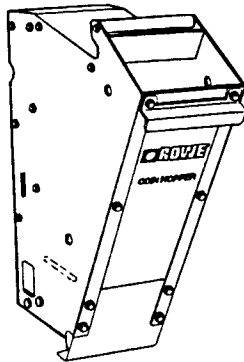


Figure 1-4
Hopper



HOPPER

The Bill Changer contains two hoppers (*Figure 1-4*), which mount on the front surface of the dispenser assembly and pivot out for easy removal.

The hoppers transport coins to their respective coin detector and then the upper coin chute by means of a chain conveyor driven from below by a sprocket. The chain picks up coins from the bottom of the hopper and carries them up to the top, where they fall through the upper chain guide ring and through the coin detector system.

The hopper chain follows a serpentine path that causes excess coins to fall back into the hopper. This ensures that only one coin per pin enters the coin counting area.

An agitator, which is mounted on the drive shaft inside the hopper, agitates the coin load to minimize coin jams in the hopper and to ensure efficient coin pick up. The hopper also contains the low coin sensor antenna and circuit board.

NOTE:

The low coin sensor alerts the computer when the number of coins in a hopper falls below a certain level.

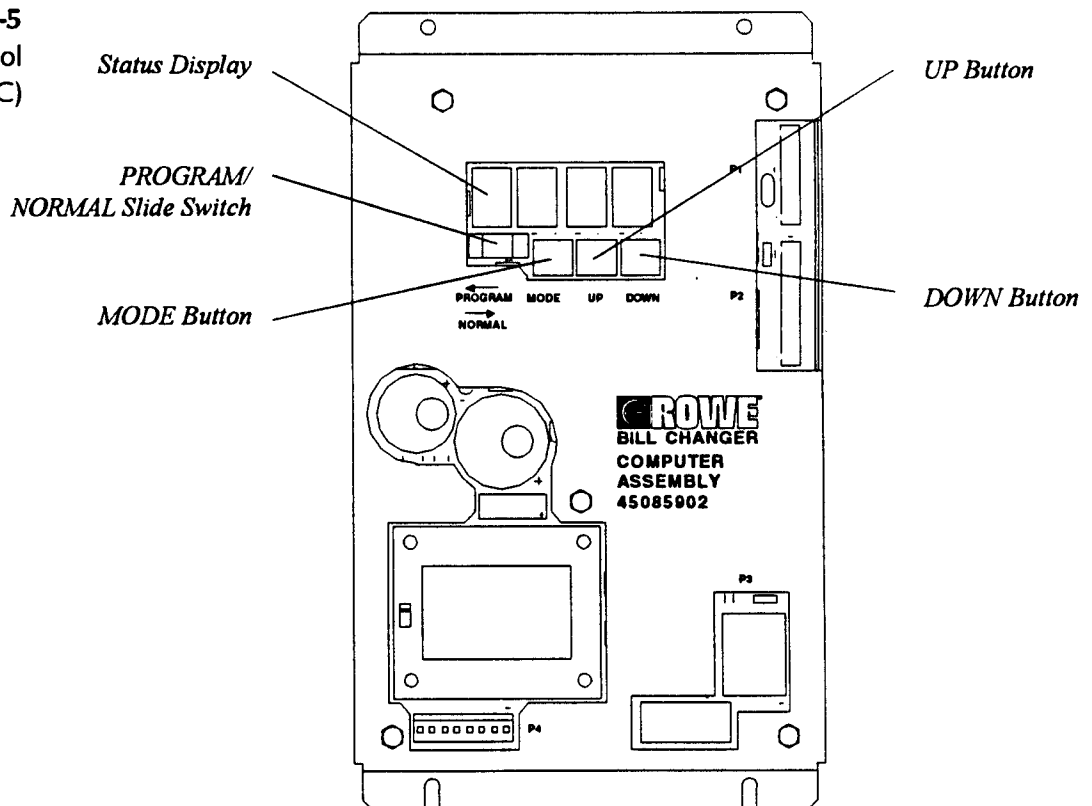
The Bill Changer uses a low coin sensing system to detect when either hopper is low on coins. With this system, the operator does not have to program the computer with the number of coins that have been added to the hopper. When the hopper is loaded, the sensing circuit will automatically signal the computer that coins are present. As the hopper is emptied via the normal changemaking process, eventually the level of coins will fall below the threshold required by the low coin sensing circuit. This circuit will then signal the computer that the low level has been reached.

Each hopper has its own sensing circuit. The sensing circuit is mounted on the front surface of the coin hopper with electrical connections made through high pressure contact springs on the dispenser assembly. Because there are no elements inside the hopper to contact the coins, there is absolutely no impact on hopper operation and no degradation of the sensor due to contamination deposited by the coins themselves.

CHANGER CONTROL COMPUTER (CCC)

The Changer Control Computer (CCC, *Figure 1-5*) mounts on the back wall inside the changer cabinet. The CCC contains a microcomputer that controls and/or monitors all of the major functions of the Bill Changer, including communication with the Bill Acceptor and change dispensing functions. It also contains the following controls and displays:

Figure 1-5
Changer Control Computer (CCC)



NOTE:

When the CCC is initially switched from the NORMAL to PROGRAM position, the status display will show *Pr o S*.

Status Display

The four character LED status display window displays the many Bill Changer programming and self-diagnostic features described in this manual. *See Section 4 for detailed programming information; see Section 6 for error code meanings.*

Service and Control Switches

The Bill Changer's service features and programming options are controlled by three push button switches and one slide switch. The descriptions that follow are introductory. *Refer to the detailed procedures and instructions in Section 4 for specific programming information.*

PROGRAM/NORMAL Slide Switch

Selects either the NORMAL operating position or the PROGRAM position:

PROGRAM Position - Allows you to inspect and/or change Bill Changer setup information. This information is displayed on the status display and is selected and changed by using the MODE, UP and DOWN buttons.

NORMAL Position - Places the changer in a standby condition waiting to give change for a valid bill or coin while the CCC monitors all systems. While in standby, a dash moves from left to right across the 4-character status display.

MODE BUTTON

The MODE button is used to step through the setup options.

UP BUTTON

Increases the displayed value.

DOWN BUTTON

Decreases the displayed value.

TEMPORARILY OUT OF SERVICE LAMP

The temporarily out of service lamp (*Figure 1-1*) is located on the Bill Changer door above the coin cup. It lights when the changer is low or out of change, or if the CCC has detected a malfunction.

Reset the Bill Changer by pushing the UP and DOWN buttons simultaneously on the CCC while the PROGRAM/NORMAL switch is in the NORMAL position. If the error has been corrected, the out of service lamp will go out and a dash will move from left to right across the 4-character status display. See *Section 6* for detailed troubleshooting information.

ELECTRICAL BOX

The **Electrical Box** (*Figure 1-6*), located inside the Bill Changer cabinet, houses the following electrical components:

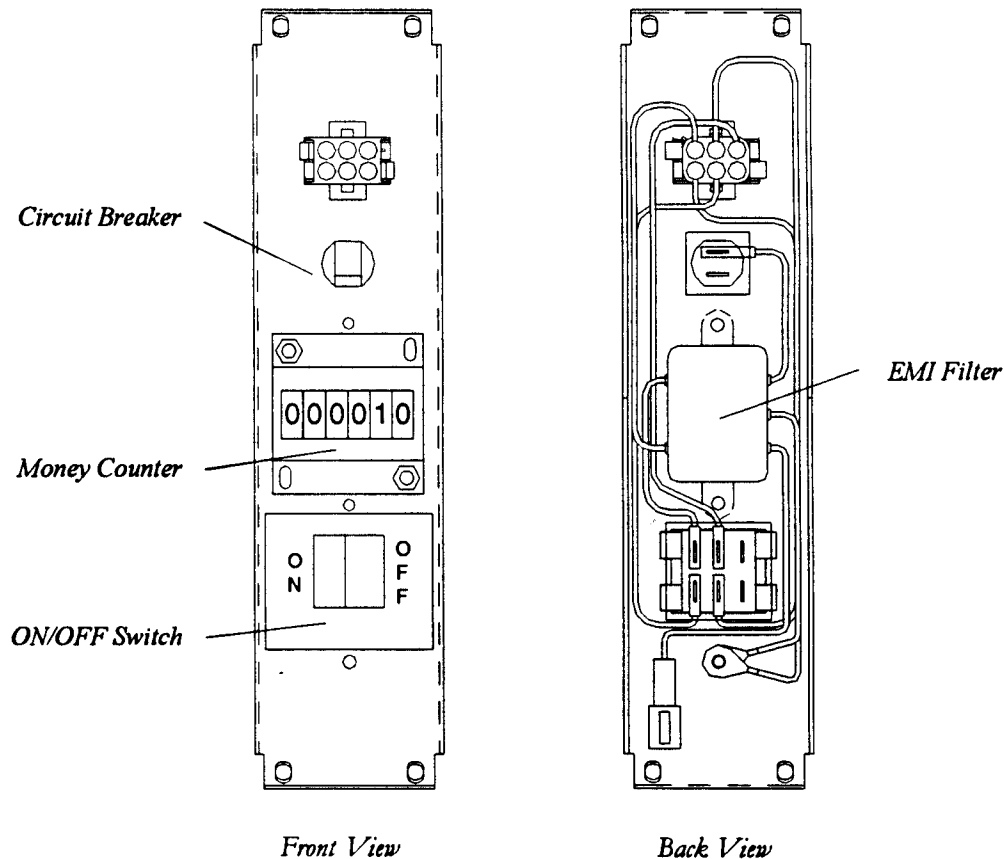
The **ON/OFF switch** controls all power to the machine.

A **5 amp circuit breaker** protects the power line to the bill changer.

An **EMI filter (ElectroMagnetic Interference filter)** removes undesirable electrical noise from the incoming power line.

The **Money Counter** is non-resettable, and indicates the amount of money handled by the changer.

Figure 1-6
Electrical Box



SECTION 2: INSTALLATION

INTRODUCTION

NOTE:

For both safety and security reasons, Rowe® strongly recommends that the Bill Changer be securely anchored to a wall or sturdy countertop. Please follow the mounting instructions provided in this manual.

This section provides instructions for installing the Century Series Bill Changers. To prevent theft, or the possibility of damage or injury should the Bill Changer fall, Rowe® strongly recommends that the Bill Changer be securely anchored to a wall or a sturdy countertop¹. The instructions that follow provide directions for a secure installation.

Before you begin any installation, be sure that a power source is available and that the changer can be mounted level. Choose a location that is easily accessible to customers, with enough room to open the Bill Changer door for convenient service.

Be sure that you read and understand the warnings and instructions in *Power Connection*, page 2-6, before making any electrical connections to the Bill Changer.

BILL CHANGER MOUNTING & SPECIFICATIONS

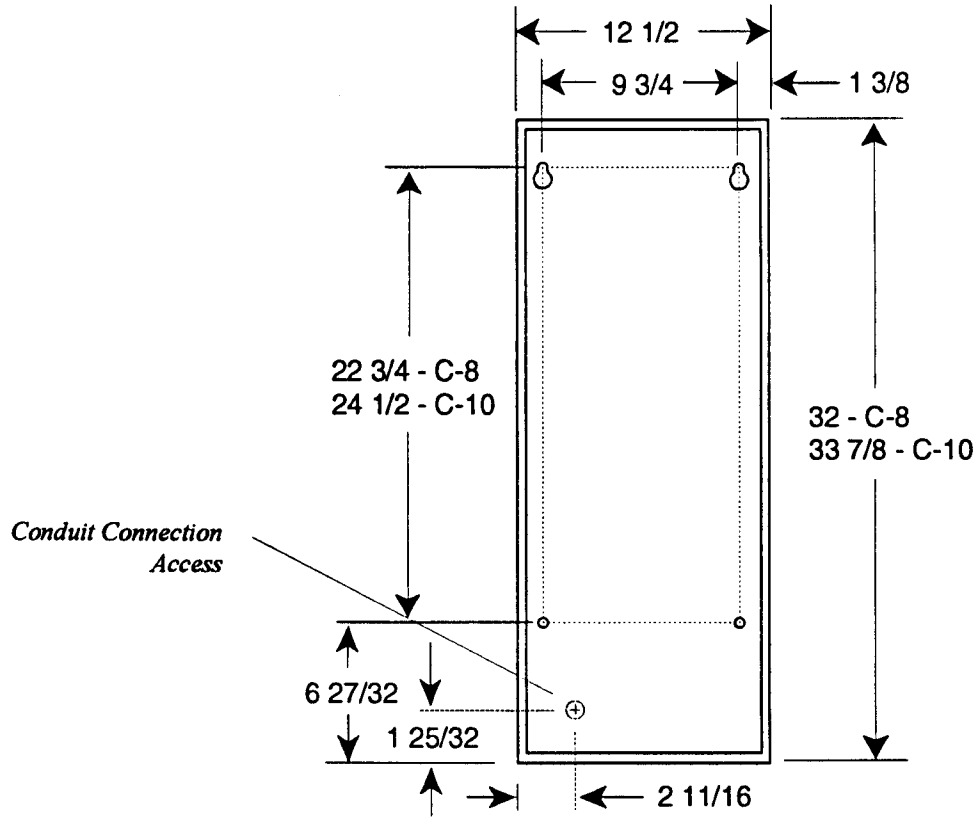
Figure 2-1 illustrates the Bill Changer mounting requirements and specifications, and provides dimensions for drilling.

To mount the Bill Changer, use four 3/8" minimum diameter lag screws (with flat washers) that are long enough to penetrate the counter or supporting surface of the wall at least 2 inches. For wood frame mounting, screw directly into the wall studs. For mounting to concrete or masonry walls, use lag screws with lead anchors.

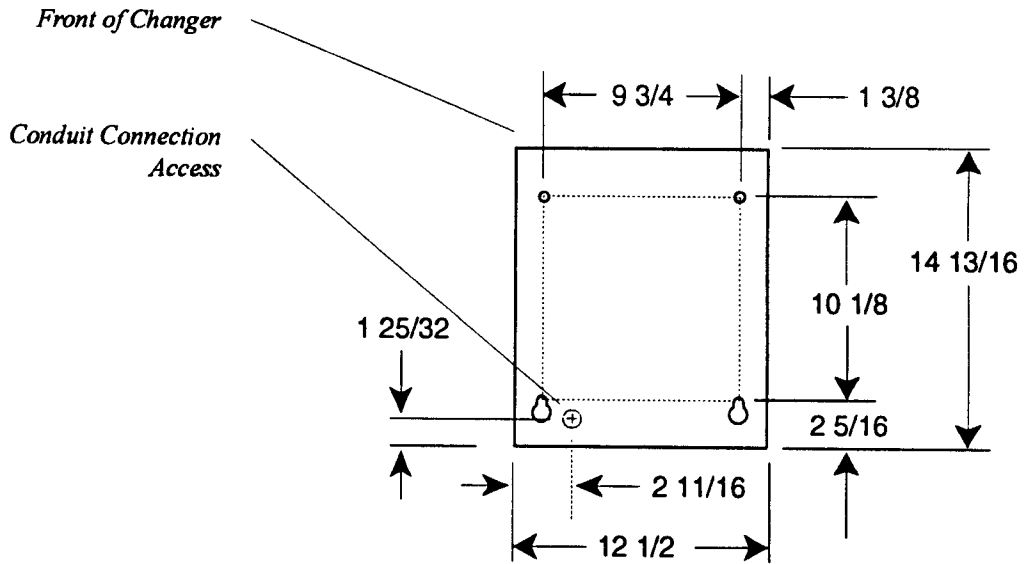
If the mounting surface is not even, you may need to add spacer washers between the mounting surface and the Bill Changer until the Bill Changer is level.

¹ Rowe® also offers two different mounting bases as options. See the Accessory Kits section for details.

Figure 2-1
C-8/10 Mounting
Diagrams

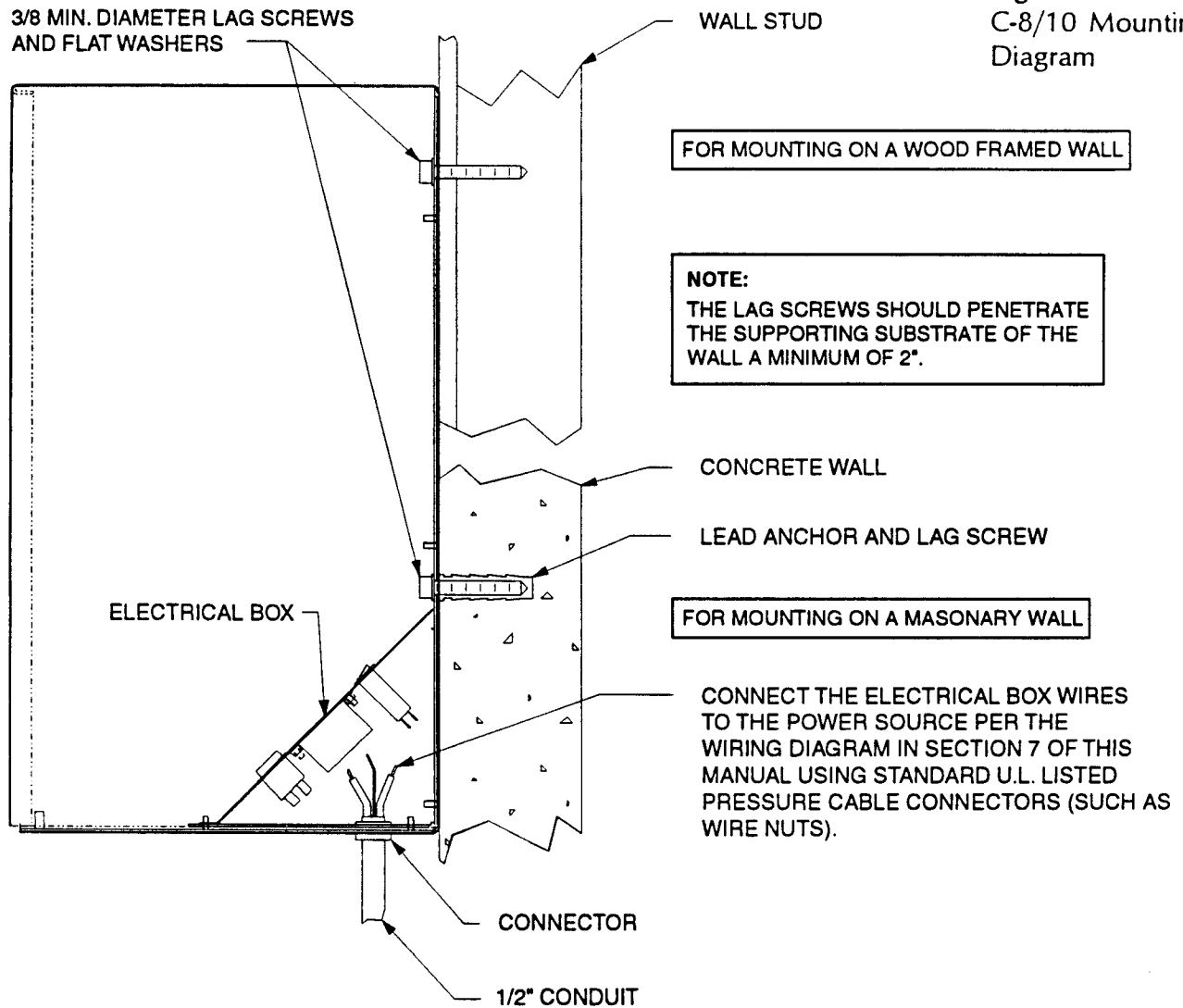


FRONT VIEW
Wall Mounting Dimensions



BOTTOM VIEW
Table or Countertop Mounting Dimensions

Figure 2-2
C-8/10 Mounting
Diagram



WARNING:

BE SURE THAT YOU READ AND UNDERSTAND THE WARNINGS AND INSTRUCTIONS IN THIS SECTION OF THE MANUAL BEFORE MAKING ANY ELECTRICAL CONNECTIONS.

THE CONDUIT CAN BE INSTALLED THROUGH THE BOTTOM OR THROUGH THE BACK BY REVERSING THE ELECTRICAL PLATES. THE POSITION OF THE POWER CORD CAN BE CHANGED IN THE SAME MANNER.

C-8/10 POWER REQUIREMENTS: 120 VAC (MIN. 105 VAC), 60 Hz, 4 Amps.
SHIPPING WEIGHT: 134/140 lbs. (220 or 240 VAC, 50 HZ optional), 2 Amps.

POWER CONNECTION

Always obey local codes and ordinances when making Power connection.

LINE CORD

On 120 VAC models, the Bill Changer power cord can be plugged into any standard three-hole 120 VAC outlet. Do not connect your Bill Changer using a two-pronged grounding adaptor. For 220V/240 VAC operation, install an appropriate connecting plug for your location, follow local safety codes and regulations, and make an earth connection to the case if allowed. To avoid possible voltage spikes that might effect the Bill Changer, do not operate any other high-wattage equipment on the same circuit with the Bill Changer.

The line cord comes factory installed through the back of the changer. Some installations require that the position of the cord be changed to run through the bottom of the changer. This can be done by removing the screws that hold the electrical box in place and reversing the electrical plates underneath (*Figure 2-2*).

CAUTION:

To avoid the hazard of serious electrical shock and/or damage to the Bill Changer, direct wiring to the Bill Changer should only be attempted by a person familiar with proper electrical wiring procedures.

CONDUIT

If the changer is rigidly mounted to a wall, U.L. requirements specify that a direct power connection be made to the changer through a rigid, 1/2 inch conduit.

If a conduit is required for your installation, remove the nuts that hold the electrical box in place, and disconnect the standard line cord and strain relief. The conduit connector will run through the 7/8" diameter round hole in the electrical plate. Position the electrical plates so that the conduit will run either out the bottom or the back of the changer — whichever suits your installation — while blocking off the unused hole.

To install the conduit, cut the connectors of the line cord leaving three inches of wire on each connector. Connect these electrical box wires to the power source per the wiring diagram in Section 7 of this manual using standard U.L. listed pressure cable connectors (such as wire nuts).

CAUTION:

To avoid serious electrical shock, disconnect power at the source before making any electrical connections.

Bill Acceptor Installation and Setup

If you purchased your Century Changer without a Rowe Bill Acceptor Installed, you will need to install the Bill Acceptor into the Changer. Align the Bill Acceptor that you have chosen over the four mounting studs on the door, and secure using the four Keys Hex head nuts provided with the changer.

Harness connections must then be made between the Bill Acceptor and the Changer Control Computer. The following harnesses are provided:

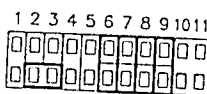
Harness Part Number	Bill Acceptor(s)
45108203 - Data 45108204 - Power	Mars® VN2501, LE3801, AL4L1 Coinco® BA30SA, BA50SA
45108205	CashCode® CSR-Series, CSB-Series
45108207	AstroSystems® VS2C Series

The Bill Acceptor must be set up to communicate in the Serial Interface mode. The DIP switch settings shown below **must** be used; other switches may be set as desired.

Model	Switch Settings
Mars®	AL4: Bank 1 - 1, 3, 4, 5 ON, Remainder OFF Bank 2 - All OFF GL4C: Bank 1 - 3, 4, 5 ON, Remainder OFF Bank 2 - All OFF LE3801: Bank 1 - 8 OFF VN2501: Bank 1 - 1 thru 6 ON, 7 and 8 OFF
Coinco®	BA30S, BA50S: 3 thru 8 ON
CashCode®	Switch 1 - 8 OFF
AstroSystems®	VS2C: DIP 1 - 8 ON, Remainder OFF DIP 2 - 7 ON, Remainder OFF

For reference purposes, the Rowe CBA-4 requires the use P/N 45108201 Harness and the RBA-7 requires a P/N 45108208 Harness. Refer to the respective Interface Instructions manual and set the acceptors for the Serial Interface with Handshaking mode of operation.

CBA-2 25530230 SW # 2 ONLY
 CBA-4 65073230
 RBA-7 65079044

1 2 3 4 5 6 7 8 9 10 11

 SHUNT SETTINGS
 SW1-2 ON, SW2-2,3,4,5 ON

SECTION 3:

LOADING & AUDITING

INTRODUCTION

This section provides instructions for loading and unloading the Century Series coin hoppers.

LOADING THE BILL CHANGER

NOTE:

The hoppers may be loaded with coins or tokens within the diameters specified – but different coin types may not be mixed in the same hopper.

Refer to Section 4: PROGRAMMING to change the default coin payout.

Loading the hopper is easiest when the coins are delivered via a coin bag. Hopper capacities vary depending on the machine model, hopper type, and coin/token size. Tables 3-1 and 3-2 give approximate capacities.

C8 Hopper Capacities

Hopper Type	Dimes 17.9mm	Nickels 21.21mm	Quarters 24.25mm	.984" Tokens 25mm	SBA \$1/ Canadian \$1 26.5mm	Canadian \$2 (1.10") 27.95mm	1.125" Tokens 28.57mm
65094907 (Small Coin)	5000	2400	2100	N/A	N/A	N/A	N/A
65094908 (Large Coin)	N/A	N/A	1850	1600	1400	1200	1000

Table 3-1

C10 Hopper Capacities

Hopper Type	Dimes 17.9mm	Nickels 21.21mm	Quarters 24.25mm	.984" Tokens 25.0mm	SBA \$1/ Canadian \$1 26.5mm	Canadian \$2 (1.10") 27.95mm	1.125" Tokens 28.57mm
65092903 (Small Coin)	8000	4000	3400	N/A	N/A	N/A	N/A
65092904 (Large Coin)	N/A	N/A	3200	3000	2200	2100	1800

Table 3-2

LOADING THE HOPPERS

Refer to Figure 3-1 and load the hopper as follows:

1. Open front door and pull the hopper(s) out against the bail rod.
2. Twist the top of a full coin bag one full turn. Grasp the twisted top with one hand and hold the bottom of the bag with the other. Invert the bag and insert the top into the mouth of the hopper.
3. Slowly release the twist as the bag empties. Avoid spilling coins into the changer. When the bag is almost empty, grasp it at the bottom and shake it to dislodge coins tucked in the folds of the bag.
4. Repeat Steps 2 and 3 with the second hopper.

Figure 3-1.
Hopper Loading

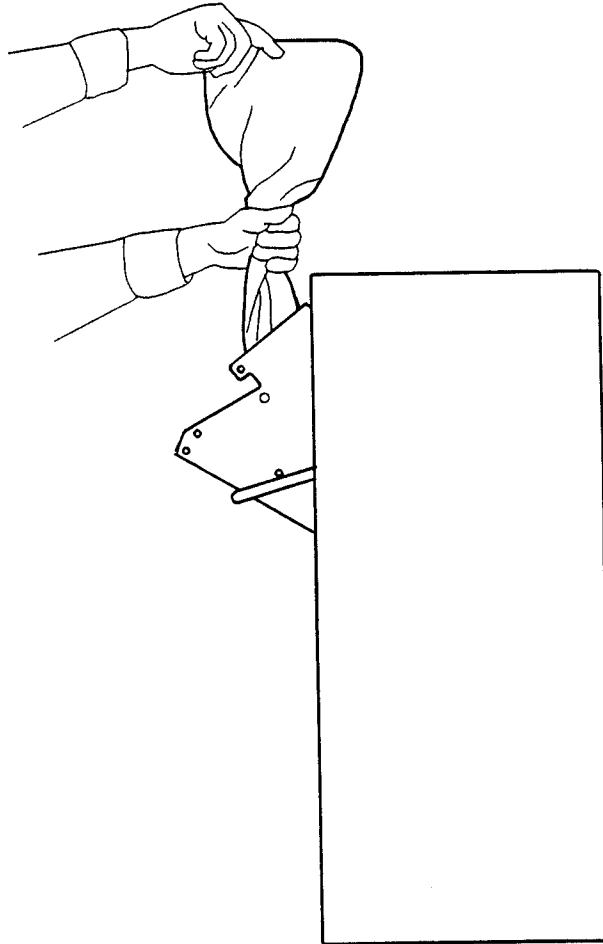
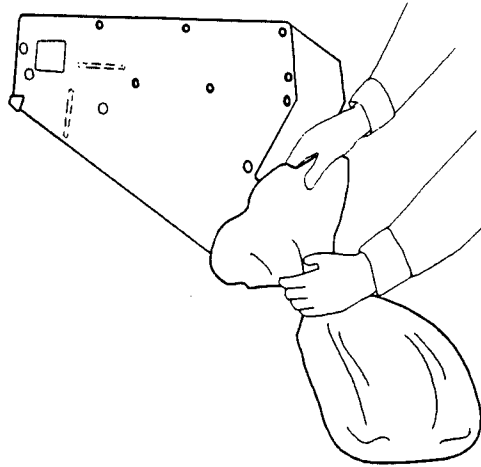


Figure 3-2
Emptying the
Hopper



UNLOADING THE HOPPERS

1. Open the door.
2. Lift the right side of the bail rod upward until it disengages from the cabinet.
3. Pull the right side of the rod out of the hole and remove the rod completely from the cabinet.
4. Carefully pivot the hopper outward until a coin bag can be installed over the top of the hopper. Hold the bag tightly and slowly tip the hopper down until it contacts the rap rod. *Figure 3-2.*
5. Move the hopper up and down on its pivots a few times to completely dislodge all of the coins in the hopper.
6. Repeat Steps 4 and 5 with the second hopper.

Auditing

There are three pieces of information needed in order to thoroughly audit your bill changer. The amount of cash removed from the bill box (and coin box if you have a coin acceptor) should match the difference in money counter readings. Also, the difference between the number of coins (or tokens) initially loaded in the hopper and the remaining number should match the total cash removed multiplied by the number of coins or token paid per unit of cash input. An example follows:

Initially

Accepts: \$1, \$5, \$10 and 25¢

Payout: Tokens (.984") (1 for 25¢, 4 for \$1, 24 for \$5, 50 for \$10)

Initial Hopper Load: 6,000 coins (3,000 each hopper)

Initial Counter Reading: 047233

At Service Interval

Intake Check:

Removed: $40 \times .25 = \$ 10$

$154 \times \$1 = \154

$105 \times \$5 = \525

$38 \times \$10 = \380

Total Intake = \$1069

Counter Reading: 048302

Counter Difference $48302 - 47233 = 1069$ ✓

Coin Count Check:

Hopper Contents: 924 Tokens (Remaining in both hoppers)

Should have dispensed: $40 \times 1 = 40$

$154 \times 4 = 616$

$105 \times 24 = 2520$

$38 \times 50 = 1900$

Total = 5076

Actual dispensed: 6000 (initial)

- 924 (remaining)

5076 ✓

SECTION 4:

PROGRAMMING

PROGRAMMING THE CENTURY 8 AND CENTURY 10 BILL AND COIN CHANGERS

There are three pushbuttons and one slide switch on the controller board. These are used to perform all programming activities.

The Program switch is positioned to the left for normal operations. In this position, if everything is normal, a dash will walk across the four displays, from left to right. If an error has occurred, an error code will be displayed, indicating what has caused the error. See Section 6 for Troubleshooting information.

Sliding the Program switch to the right will place the controller in the programming mode. In this mode the type of coin acceptor, bill validator, mode of operation, and payouts for each bill and coin may be set or adjusted.

The pushbutton switch on the left is the mode switch and is used to step through the options. The middle and right hand switches are used for adjusting the options choices or payout amounts. The middle switch steps up and the right switch steps down.

The middle and right switches are also used to reset any error codes. See Section 6 for details.

PROGRAMMING

NOTE:

Use the Serial setting for all applications. All bill validators must be 120 VAC or 12VDC. An additional transformer (not supplied by Rowe) is required for 24VAC operation.

Slide the normal / program switch to the right. The display will show *Pr o g*.

Press the mode button once for each option to be programmed. The options appear on the display in order as shown below. When a setting has been changed, always press the mode button at least once to "save" the setting.

Coin Acceptor Settings

This option selects the type of Coin Accptor installed in the machine. Using the up and down pushbuttons choose the appropriate type.

- 0* No Coin Acceptor is installed
- 1* A Standard Coin Acceptor is installed. (4 coin types max.)
- 2* A Special Electronic Coin Acceptor is installed. (8 coin types max.)

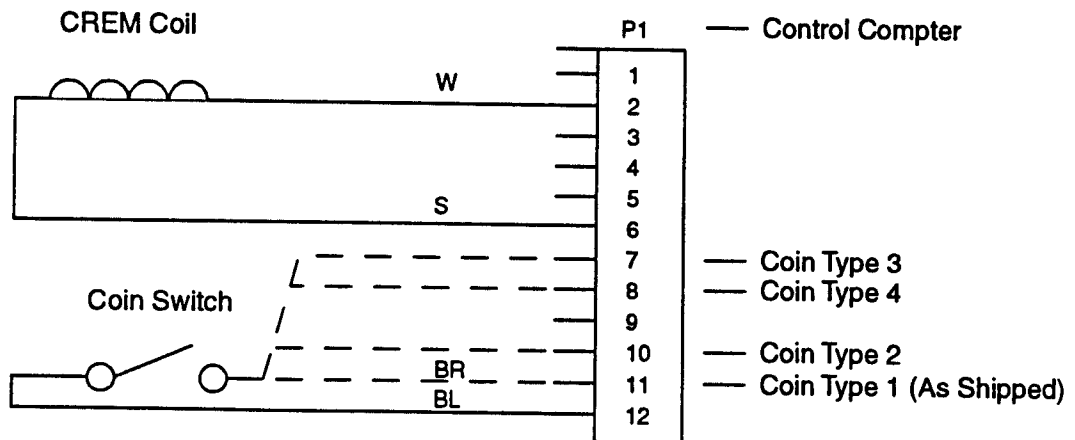
1 Coin type 1. This option selects the coins to be accepted. Use the up and down pushbuttons to enable or disable the displayed coin type. If the value is set to 0, the changer will not recognize that coin. If the value is set to 1, that coin will be recognized, and the change will be paid. Be sure to set the coin acceptor to accept *only* those coins you want accepted as the changer controller *cannot* control which coins the coin acceptor will accept and send to the cashbox.

- 2* Coin type 2. Program as in *1* above.
- 3* Coin type 3. Program as in *1* above.
- 4* Coin type 4. Program as in *1* above.
- 5* Coin type 5. Program as in *1* above.
- 6* Coin type 6. Program as in *1* above.
- 7* Coin type 7. Program as in *1* above.
- 8* Coin type 8. Program as in *1* above.

NOTE:

If the Coin Acceptor type was set to 0 - no acceptor installed - these options will not be displayed. If the Coin Acceptor type was set to type 1, only *1* through *4* will be displayed.

Figure 4-1
Mechanical
Coin Acceptor
Connections



45108301

Coin Acceptor Setup Information

If you purchased your Century Changer with a Coin Acceptor Installed, the following setup information is required.

Mechanical Coin Acceptor

With this system, a simple 3.5" acceptor will deliver a valid coin to the coin box, actuating a microswitch as it passes out of the acceptor. The harness from P1 of the Control Computer will deliver the signal to the Coin Type 1 input line. The computer will assure that the signal is between 15 and 175 milliseconds in duration before credit is issued.

The coin lockout solenoid, also connected to P1 of the Control Computer, will "drop out" and cause inserted coins to be redirected to the coin cup if: the machine is turned off or has no input power applied; if the machine is in the process of dispensing coins; or if the machine is otherwise out of service.

If you are using this system, select Coin Acceptor Type 1 and follow the instructions below.

For US/Canadian Machines:

The coin acceptor harness is shipped to you such that a valid coin is accepted as Coin Type 1. This credit signal will cause the money meter to advance once for every 4 coins accepted. This setting would be used if 25¢ coins are accepted. If you are accepting \$1 coins, move the brown credit wire (See Figure 4-1) connected to the Control Computer at P1, pin 11 over to pin 10 (Coin Type 2) and program the computer to accept Coin Type 2. This credit signal will cause the money meter to advance one count for each coin accepted. If you want to accept \$2 coins, move the brown credit wire to P1, pin 8 (Coin Type 4) and program the computer to accept Coin Type 4. This credit signal will cause the money meter to advance two counts for each coin accepted. Credit received as Coin Type 3 will never advance the money meter.

For Non-US Machines:

Program the computer to enable Coin Type 1, and set the payout accordingly. The money meter will advance based on other settings.

Electronic Coin Acceptor

Rowe also offers a Mars Cashflow 330 electronic coin acceptor option. This acceptor has the ability to accept many different denominations of coins from many different countries. The US/Canadian version of this acceptor can be enabled to accept 5¢, 10¢, 25¢ and \$1 coins from each country, plus the Canadian \$2 coin. This programming is done using DIP switches or with a Route Alpha Terminal available from Mars .

When connected to the P1 connector of the Control Computer, valid coins will provide credit to the Changer as follows:

COIN	COIN TYPE
US 25¢	5
Canadian 25¢	3
US \$1 (SBA)	6
Canadian \$1	4
Canadian \$2	7

Bill Acceptor Settings

bA 1 This option selects the type of Bill Aceptor installed in the machine. Using the up or down pushbuttons select the appropriate type.

1 Pulse type Bill Acceptor is installed. (2 bill types max.)

2 Rowe® Serial type Bill Acceptor is installed. (7 bill types max.)

3 Non-Rowe Serial type Bill Acceptor is installed.

Do not use **bA 1** in the Century 8 or Century 10. (Used in Century 2 only).

Use **bA 2** for Rowe® CBA-4 and RBA-7.

Use **bA 3** for all other bill acceptors.

NOTE: If the **bA 3** option is not available in your control's menu, choose **bA 2**. **bA 3** is present in Software Revision 2.3 and higher and has improvements in the area of Bill Acceptor fault handling.

b1 This option selects the bills to be accepted. Use the up and down pushbuttons to enable or disable the displayed bill type. If the value is set to 0, the changer will not recognize that bill. If the value is set to 1, that bill will be recognized, and change will be paid. There is a maximum of 7 bills for the serial type Bill Acceptors.

b2 Bill type 2. Program as in **b1** above.

b3 Bill type 3. Program as in **b1** above.

b4 Bill type 4. Program as in **b1** above.

b5 Bill type 5. Program as in **b1** above.

b6 Bill type 6. Program as in **b1** above.

b7 Bill type 7. Program as in **b1** above.

Coin Ratio Settings

U.S. and Canadian Changers, Control Computer P/N 45085902 -

This option sets the operating mode for the two coin hoppers. There are only two settings that should be used, although other selections are shown in the setup menu.

[r 1

Choose this setting if the coins in the hoppers are of different values, *or* if you do not want the computer to operate in the MC Mode as described below.

The maximum payout in this mode is 99 coins or tokens from each hopper.

[r 1.1 .

Choose this setting if the coins in the hoppers are of the same value and you want the changer to use the hoppers interchangeably to deliver coins to the customer. If one hopper should become low on coins or experience a failure, the other hopper will be used to pay the customer.

If both hoppers are functioning properly, they will be used equally to deliver change. This is referred to as "MC Mode".

The maximum payout in this mode is 99 *total* coins or tokens.

Do not use any of these settings:

[r 0, [r 2, [r 2.5, [r 4, [r 5, [r 10.

Non - U.S. and Canadian Changers, Control Computer P/N 45085903 -

This option selects the Coin Ratio between the coins in the two coin hoppers. The ratio is between the left hopper, which *must* contain the coin of the smaller monetary value, and the right hopper, which *must* contain the coin of the higher monetary value. Use the up and down pushbuttons to select the appropriate Coin Ratio.

Example: The left hopper contains .10 coins and the right hopper contains .25 coins, set the Coin Ratio to 2.5.

Do not use [r 0.

[r 1 (1:1) Same value coin in each hopper. Each hopper pays a distinct number of coins as programmed. See [r 1.1 . below.

[r 2 (1:2) The coin in the right hopper has 2 times the value of the coin in the left hopper.

[r 2.5 (2:5) The coin in the right hopper has 2.5 times the value of the coin in the left hopper.

[r 4 (1:4) The coin in the right hopper has 4 times the value of the coin in the left hopper.

[r 5 (1:5) The coin in the right hopper has 5 times the value of the coin in the left hopper.

$\text{Cr}1 \ 0$ (1:10) The coin in the right hopper has 10 times the value of the coin in the left hopper.

$\text{Cr}1 \ 1$ (1:1) Choose this setting if the coins in the hoppers are of the same value and you want the changer to use the hoppers interchangeably to deliver coins to the customer. If one hopper should become low on coins or experience a failure, the other hopper will be used to pay the customer. If both hoppers are functioning properly, they will be used equally to deliver change. This is referred to as "MC Mode".

The maximum payout in this mode is 99 *total* coins or tokens.

Money Meter Settings

This menu option appears only with non – U.S. and Canadian Changers, those using Control Computer P/N 45085903 –

$Pc \ 00$ This option selects the correct number of pulses to send to the money meter. The Pulse Count should be set to the number of coins from the left hopper that would be required to advance the Money meter 1 count. For example if the left hopper contains 50 centavo coins and it is desired that the money meter count in pesos, the pulse count should be set to 2 ($2 * 50c = 1$ peso). Even in the case where you might choose to pay no left hopper coins for a certain input, the money meter value will be calculated - using the Pc and Cr settings - and the meter will advance properly.

Use the up and down pushbuttons to select the appropriate setting. Any value between 00 and 99 may be set.

Note: Using the Pc and the Cr values the money meter will advance properly regardless of the number or mix of coins used to pay for any particular bill or coin inserted if the payout combinations add together to *exactly* equal the input value. If you are paying out tokens and provide a bonus for higher input denominations, the money meter will *not* exactly match the amount of money accepted by the changer.

Coin Level Settings

- L1 0.0** This option informs the controller of the minimum number of coins remaining in the **left** hopper when the low-level sensor signals that a low level has been reached. Use the up and down pushbuttons to set this option to an appropriate value. Any value between 60 and 990 may be set in 10 coin increments. Note the position of the illuminated decimal point on the display, indicating the left hopper level is being set.
- L1 00.** This option informs the controller of the minimum number of coins remaining in the **right** hopper when the low-level sensor signals that a low level has been reached. Use the up and down pushbuttons to set this option to an appropriate value. Any value between 60 and 990 may be set in 10 coin increments. Note the position of the illuminated decimal point on the display, indicating the right hopper level is being set.
- L1 0.0.** This option informs the controller of the number of coins remaining in either hopper, when the low-level sensor trips. Use the up and down pushbuttons to set this option to an appropriate value. Any value between 60 and 990 may be set in 10 coin increments. Note that two decimal points on the display are illuminated indicating the machine is set for MC MODE (C-R 1.1.), and the level for both hoppers is being set.

NOTE: This option will **only** be displayed if the Coin Ratio is set to MC MODE (C-R 1.1.).

These settings are used so that you may dispense the maximum number of coins or tokens, without the possibility of shortchanging a customer, before the changer goes out of service for lack of coins. The number you program here lets the computer know how many coins remain in the hopper when the coin level sensing system signals a low level.

B.B.BB The decimal points on the two leftmost displays indicate the state of the low-level sensors. The decimal point on the far-left display indicates a low-level condition exists in the **left** hopper, when lit. The decimal point on the second display from the left indicates a low-level condition exists in the **right** hopper, when lit.

The setting depends on the type of hopper being used and the type of coin or token loaded. To choose the correct setting, use one of the tables below based on the hopper and coins being used:

Recommended Low Coin Settings for Century 8

SMALL COINS HOPPER (65094907)			
US 5¢ (21.21mm)	US 10¢ (17.9mm)	US 25¢ (24.25mm)	.880" Token (22.35mm)
110	400	110	130

LARGE COINS TOKEN HOPPER (65094908)			
US 25¢ (24.25mm)	US SBA Dollar (26.5mm)	.984" Token (25mm)	Can. \$2/1.125 Token (28mm)
100	70	90	60

Recommended Low Coin Settings for Century 10

SMALL COINS HOPPER (65092903)			
US 5¢ (21.21mm)	US 10¢ (17.9mm)	US 25¢ (24.25mm)	.880" Token (22.35mm)
200	500	200	200

LARGE COINS TOKEN HOPPER (65092904)			
US 25¢ (24.25mm)	US SBA Dollar (26.5mm)	.984" Token (25mm)	Can. \$2/1.125 Token (28mm)
160	120	140	80

There is a second limitation on the number you set into the computer – it *must* be at least 30 higher than the highest number of coins or tokens to be paid to the customer.

You *must* choose the hoppers, coins or tokens used, and/or the operating mode as appropriate in order to maintain this 30 coin margin.

Coin Payout Settings

These functions will set the number of coins dispensed from the hoppers for the input coin types set earlier. If a coin type is disabled, its payout amount setting will not be displayed.

Non-MC Mode

1 c 0.0 Left Hopper Payout for Coin type 1. This number represents the number of coins dispensed from the left hopper. Use the up and down pushbuttons to set the number to the desired value. Any value between 00 and 99 may be set. *If a coin type was disabled, its programming will not be displayed.* Note the position of the illuminated decimal point on the display, indicating the left hopper payout amount s being set.

1 c 00. Right Hopper Payout for Coin type 1. This number represents the number of coins dispensed from the right hopper. Use the up and down pushbuttons to set the number to the desired value. Any value between 00 and 99 may be set. Note the position of the illuminated decimal point on the display, indicating the right hopper payout amount is being set.

2 c 0.0 Payout for Coin type 2, left hopper. Program as in 1 c 0.0 above.

2 c 00. Payout for Coin type 2, right hopper. Program as in 1 c 00. above.

3 c 0.0 Payout for Coin type 3, left hopper. Program as in 1 c 0.0 above.

3 c 00. Payout for Coin type 3, right hopper. Program as in 1 c 00. above.

4 c 0.0 Payout for Coin type 4, left hopper. Program as in 1 c 0.0 above.

4 c 00. Payout for Coin type 4, right hopper. Program as in 1 c 00. above.

5 c 0.0 Payout for Coin type 5, left hopper. Program as in 1 c 0.0 above.

5 c 00. Payout for Coin type 5, right hopper. Program as in 1 c 00. above.

6 c 0.0 Payout for Coin type 6, left hopper. Program as in 1 c 0.0 above.

6 c 00. Payout for Coin type 6, right hopper. Program as in 1 c 00. above.

7 c 0.0 Payout for Coin type 7, left hopper. Program as in 1 c 0.0 above.

7 c 00. Payout for Coin type 7, right hopper. Program as in 1 c 00. above.

8 c 0.0 Payout for Coin type 8, left hopper. Program as in 1 c 0.0 above.

8 c 00. Payout for Coin type 8, right hopper. Program as in 1 c 00. above.

MC Mode

1 c 0.0. This option sets the number of coins dispensed from both the left and the right hoppers for the coin types set earlier. Note that two decimal points are illuminated indicating the machine is set for MC MODE (C r l . l .). See above for programming.

NOTES:

1. This option is not displayed unless MC MODE is enabled.
2. The maximum number of coins that can be paid out is 99 in the MC MODE.
3. The above option will repeat for each type of coin accepted, in MC MODE.

Bill Payout Settings

These functions will set the number of coins dispensed from the hoppers for the input bill types set earlier. If a bill type is disabled, its payout amount setting will not be displayed.

Non-MC Mode

1 b0.0 Left Hopper Payout for Bill type 1. This number represents the number of coins dispensed from the left hopper. Use the up and down pushbuttons to set the number to the desired value. Any value between 00 and 99 may be set. *If a bill type was disabled, its programming will not be displayed.* Note the position of the illuminated decimal point on the display, indicating the left hopper payout amount is being set.

1 b00. Right Hopper Payout for Bill type 1. This number represents the number of coins dispensed from the right hopper. Use the up and down pushbuttons to set the number to the desired value. Any value between 00 and 99 may be set. Note the position of the illuminated decimal point on the display, indicating the right hopper payout amount is being set.

2b0.0 Payout for Bill type 2, left hopper. Program as in **1 b0.0** above.

2b00. Payout for Bill type 2, right hopper. Program as in **1 b00.** above.

3b0.0 Payout for Bill type 3, left hopper. Program as in **1 b0.0** above.

3b00. Payout for Bill type 3, right hopper. Program as in **1 b00.** above.

4b0.0 Payout for Bill type 4, left hopper. Program as in **1 b0.0** above.

4b00. Payout for Bill type 4, right hopper. Program as in **1 b00.** above.

5b0.0 Payout for Bill type 5, left hopper. Program as in **1 b0.0** above.

5b00. Payout for Bill type 5, right hopper. Program as in **1 b00.** above.

6b0.0 Payout for Bill type 6, left hopper. Program as in **1 b0.0** above.

6b00. Payout for Bill type 6, right hopper. Program as in **1 b00.** above.

7b0.0 Payout for Bill type 7, left hopper. Program as in **1 b0.0** above.

7b00. Payout for Bill type 7, right hopper. Program as in **1 b00.** above.

8b0.0 Payout for Bill type 8, left hopper. Program as in **1 b0.0** above.

8b00. Payout for Bill type 8, right hopper. Program as in **1 b00.** above.

MC Mode

1 b0.0. This option sets the number of coins dispensed from both the left and the right hoppers for the bill types set earlier. Note that two decimal points are illuminated indicating the machine is set for MC MODE (C-r-1 .! .). See above for programming.

NOTES:

1. This option is not displayed unless MC MODE is enabled.
2. The maximum number of coins that can be paid out is 99 in the MC MODE.
3. The above option will repeat for each type of coin accepted, in MC MODE.

Programming Examples

Example 1:

Typical for US/Canadian C-8 Model using US money

Coin accepted: \$1

Bills accepted: \$1.00, \$5.00, \$10.00, \$20.00

Hoppers: Left: NDQ (65094907), Right: \$1/Tokens (65094908)

Coins Used: 25¢ in left hopper, SBA \$1 in right hopper

Machine settings:

<i>C</i> <i>A</i> <i>2</i>	Electronic coin acceptor installed. (Mars ME330)	<i>L</i> <i>1</i> <i>0</i> <i>0</i>	Countdown starts at 100 coins after low level sensor trips for left hopper
<i>b</i> <i>A</i> <i>2</i>	Serial type Validator installed.	<i>L</i> <i>0</i> <i>7</i> <i>0</i>	Countdown starts at 70 coins after low level sensor trips for right hopper
<i>C</i> <i>1</i> <i>0</i>	Coin value 1 not accepted.	<i>B</i> <i>C</i> <i>0</i> <i>4</i>	4 x .25 = \$1.00
<i>C</i> <i>2</i> <i>0</i>	Coin value 2 not accepted.	<i>B</i> <i>C</i> <i>0</i> <i>0</i>	0 x 1.00 = 0.00
<i>C</i> <i>3</i> <i>0</i>	Coin value 3 not accepted.	<i>I</i> <i>B</i> <i>0</i> <i>4</i>	4 x .25 = \$1.00
<i>C</i> <i>4</i> <i>0</i>	Coin value 4 not accepted.	<i>I</i> <i>B</i> <i>0</i> <i>4</i>	0 x 1.00 = 0.00
<i>C</i> <i>5</i> <i>0</i>	Coin value 5 not accepted.	<i>3</i> <i>B</i> <i>0</i> <i>4</i>	4 x .25 = \$1.00
<i>C</i> <i>6</i> <i>1</i>	Coin value 6 accepted.	<i>3</i> <i>B</i> <i>0</i> <i>4</i>	4 x 1.00 = \$4.00
<i>C</i> <i>7</i> <i>0</i>	Coin value 7 not accepted.	<i>4</i> <i>B</i> <i>0</i> <i>8</i>	8 x .25 = \$2.00
<i>C</i> <i>8</i> <i>0</i>	Coin value 8 not accepted.	<i>4</i> <i>B</i> <i>0</i> <i>8</i>	8 x 1.00 = \$8.00
<i>b</i> <i>1</i> <i>1</i>	Bill value 1 accepted (\$1.00)	<i>5</i> <i>b</i> <i>1</i> <i>2</i>	12 x .25 = \$3.00
<i>b</i> <i>2</i> <i>0</i>	Bill value 2 not accepted (\$2.00)	<i>5</i> <i>b</i> <i>1</i> <i>7</i>	17 x 1.00 = \$17.00
<i>b</i> <i>3</i> <i>1</i>	Bill value 3 accepted (\$5.00)		end of programming
<i>b</i> <i>4</i> <i>1</i>	Bill value 4 accepted (\$10.00)		
<i>b</i> <i>5</i> <i>1</i>	Bill value 5 accepted (\$20.00)		
<i>b</i> <i>6</i> <i>0</i>	Bill value 6 not accepted (\$50.00)		
<i>b</i> <i>7</i> <i>0</i>	Bill value 7 not accepted (\$100.00)		
<i>C</i> <i>r</i> <i>1</i>	Coins are of different values		

Note: A C-10 Model would be setup exactly the same as the C-8, except for the Low Level Settings.

Example 2:

Typical for US/Canadian C-8 Model using Canadian money

Coin accepted: \$2
 Bills accepted: \$5.00, \$10.00, \$20.00
 Hoppers: Both \$1/Tokens (65094908)
 Coins Used: \$1 in left hopper, \$2 in right hopper

Machine settings:

<input checked="" type="checkbox"/> A 2	Electronic coin acceptor installed. (Mars ME330)	L060.	Countdown starts at 60 coins after low level sensor trips for right hopper
<input checked="" type="checkbox"/> B 2	Serial type Validator installed.		
<input type="checkbox"/> 1 0	Coin value 1 not accepted.	700.2	2 x \$1.00 = \$2.00
<input type="checkbox"/> 2 0	Coin value 2 not accepted.	7000.	0 x \$2.00 = \$0.00
<input type="checkbox"/> 3 0	Coin value 3 not accepted.	360.3	3 x \$1.00 = \$3.00
<input type="checkbox"/> 4 0	Coin value 4 not accepted.	3601 .	1 x \$2.00 = \$2.00
<input type="checkbox"/> 5 0	Coin value 5 not accepted.	460.2	2 x \$1.00 = \$2.00
<input type="checkbox"/> 6 0	Coin value 6 not accepted.	4604.	4 x \$2.00 = \$8.00
<input type="checkbox"/> 7 1	Coin value 7 accepted.	560.4	4 x \$1.00 = \$4.00
<input type="checkbox"/> 8 0	Coin value 8 not accepted.	5608.	8 x \$2.00 = \$16.00
<input type="checkbox"/> 1 0	Bill value 1 not accepted (\$1.00)		end of programming
<input type="checkbox"/> 2 0	Bill value 2 not accepted (\$2.00)		
<input type="checkbox"/> 3 1	Bill value 3 accepted (\$5.00)		
<input type="checkbox"/> 4 1	Bill value 4 accepted (\$10.00)		
<input type="checkbox"/> 5 1	Bill value 5 accepted (\$20.00)		
<input type="checkbox"/> 6 0	Bill value 6 not accepted (\$50.00)		
<input type="checkbox"/> 7 0	Bill value 7 not accepted (\$100.00)		
<input type="checkbox"/> r 1	Coins are of different values		
L07.0	Countdown starts at 70 coins after low level sensor trips for left hopper		

Note: A C-10 Model would be setup exactly the same as the C-8, except for the Low Level Settings.

Example 3:

Typical for US/Canadian C-8 Model
using US money.

Coin accepted: \$1
Bills accepted: \$1, \$5, \$10, \$20
Hopper: Both \$1/Tokens (65094908)
Coins Used: .984 Tokens in each hopper

Machine settings:

<i>CR</i> <input checked="" type="checkbox"/>	Electronic coin acceptor installed. (Mars ME330)	<i>L09.0</i>	Countdown starts at 90 coins after low level sensor trips for left hopper
<i>BR</i> <input checked="" type="checkbox"/>	Serial type Validator installed.		
<i>C1</i> <input type="checkbox"/>	Coin value 1 not accepted.	<i>L090.</i>	Countdown starts at 90 coins after low level sensor trips for right hopper
<i>C2</i> <input type="checkbox"/>	Coin value 2 not accepted.		
<i>C3</i> <input type="checkbox"/>	Coin value 3 not accepted.	<i>500.4.</i>	4 Tokens for \$1
<i>C4</i> <input type="checkbox"/>	Coin value 4 not accepted.	<i>160.4.</i>	4 Tokens for \$1
<i>C5</i> <input type="checkbox"/>	Coin value 5 not accepted.	<i>362.4.</i>	24 Tokens for \$5
<i>C6</i> <input type="checkbox"/>	Coin value 6 accepted.	<i>465.0.</i>	50 Tokens for \$10
<i>C7</i> <input type="checkbox"/>	Coin value 7 not accepted.	<i>569.5.</i>	95 Tokens for \$20
<i>C8</i> <input type="checkbox"/>	Coin value 8 not accepted.		end of programming
<i>b1</i> <input type="checkbox"/>	Bill value 1 accepted (\$1.00)		
<i>b2</i> <input type="checkbox"/>	Bill value 2 not accepted (\$2.00)		
<i>b3</i> <input type="checkbox"/>	Bill value 3 accepted (\$5.00)		
<i>b4</i> <input type="checkbox"/>	Bill value 4 accepted (\$10.00)		
<i>b5</i> <input type="checkbox"/>	Bill value 5 accepted (\$20.00)		
<i>b6</i> <input type="checkbox"/>	Bill value 6 not accepted (\$50.00)		
<i>b7</i> <input type="checkbox"/>	Bill value 7 not accepted (\$100.00)		
<i>Cr1</i> <input type="checkbox"/>	Coins are of same value and use MC Mode		

Note: A C-10 Model would be setup exactly the same as the C-8, except for the Low Level Settings.

Example 4:

Typical for Mexican C-8 Model

Coin accepted: 5 Peso, 10 Peso

Bills accepted: 10, 20, and 50 Peso

Hopper: Left: NDQ (65094907),
Right: \$1/Tokens (65094908)

Coins Used: 1 Peso in left hopper, 2 Peso in right hopper

Machine settings:

<i>CA 2</i>	Coin acceptor installed	<i>L1 5.0</i>	Countdown starts at 160 coins after low level sensor trips for left hopper
<i>C1 1</i>	Coin value 1 is accepted		
<i>C2 1</i>	Coin value 2 is accepted	<i>L1 40.</i>	Countdown starts at 140 coins after low level sensor trips for right hopper
<i>C3 0</i>	Coin value 3 not accepted.		
<i>C4 0</i>	Coin value 4 not accepted.		
<i>C5 0</i>	Coin value 5 not accepted.	<i>1 C0.3</i>	3 x 1 = 3
<i>C6 0</i>	Coin value 6 not accepted.	<i>1 C01 .</i>	1 x 2 = 2
<i>C7 0</i>	Coin value 7 not accepted..	<i>2C0.6</i>	6 x 1 = 6
<i>C8 0</i>	Coin value 8 not accepted..	<i>1 C02.</i>	2 x 2 = 4
<i>BA 2</i>	Serial type Validator installed	<i>1 b0.6</i>	6 x 1 = 6
<i>b1 1</i>	Bill value 1 accepted (\$10.00)	<i>1 b03.</i>	2 x 2 = 4
<i>b2 1</i>	Bill value 2 accepted (\$20.00)	<i>2b0.4</i>	4 x 1 = 4
<i>b3 1</i>	Bill value 3 accepted (\$50.00)	<i>2b08.</i>	8 x 2 = 16
<i>b4 0</i>	Bill value 4 not accepted (\$100.00)	<i>3b1 .0</i>	10 x 1 = 10
<i>b5 0</i>	Bill value 5 not accepted (\$200.00)	<i>3b20.</i>	20 x 2 = 40
<i>b6 0</i>	Bill value 6 not accepted		end of programming
<i>b7 0</i>	Bill value 7 not accepted		
<i>Cr 2</i>	Right hopper coin is 2 times value of left hopper coin		
<i>PC01</i>	Money meter increments for every 1 left hopper coin (peso)		

Note: A C-10 Model would be setup exactly the same as the C-8, except for the Low Level Settings.

ERROR CODES

- Er 1* EEPROM error. Reprogram machine. If error repeats, replace controller board.
- Er 2* The bill acceptor accepted a bill that was not programmed. Program the bill acceptor the same as the changer.
- Er 3* Long pulse on bill acceptor credit line. Check for short to ground on credit line. Replace bill acceptor.
- Er 4* BA Fault. Check for full Stacker, or debris in bill acceptor. Replace bill acceptor.
- Er 5* Left hopper error. Check for coin jam, or binding parts in hopper. Verify that the left hopper motor is operating correctly.
- Er 6* Right hopper error. Check for coin jam, or binding parts in hopper. Verify that the right hopper motor is operating correctly.
- Er 7* Extra coin detected. Check brake stop pawl on hopper motors, replace or repair.
- Er 8* Left coin detector blocked. Clear debris. Clean or replace detector or LED.
- Er 9* Right coin detector blocked. Clear debris. Clean or replace detector or LED.
- Er 10* Programming Error. Check programming. A setting is incorrect for conditions.
Example: A bill has been enabled, but the payout was not programmed.
- Er 11* MC_Mode error. One or both hoppers are at fault. Check for coin jam, or binding parts in hopper. Verify hopper motors are operating correctly.
- Er 12* The changer is or was experiencing a low line voltage condition while dispensing coins. Check that the line voltage is maintained at 110 to 125 VAC. Check the Changer setup to be sure it is programmed as desired. An incorrect customer payout may have occurred.
- Er 14* MC_Mode empty. The hoppers are empty. Refill hoppers.
- Er 15* Left hopper empty. Refill left hopper.
- Er 16* Right hopper empty. Refill right hopper.
- Er 21* The computer experienced a problem while saving information in it's onboard
Er 22 memory chip. The most likely cause for this would be a power loss during the
Er 23 programming process. Another possible cause could be a recurring low line voltage condition—See *Er 12* above.
- Dashes walking through only first two LEDs. Check for stuck coin switch.
- Dashes walking through all four LEDs—condition normal.

To clear most errors, press the up and down pushbuttons simultaneously, then release. To clear error 01 or 10, enter Program Mode and make the necessary corrections.

SECTION 5:

MAINTENANCE & ADJUSTMENTS

INTRODUCTION

The modular design of the Century Series allows for fast field substitution and easy maintenance of changer components. This section provides instructions for removing Bill Changer components for service, and details mechanical maintenance procedures.

BILL ACCEPTOR

For specific Bill Acceptor information not included in this manual, refer to the *Bill Acceptor Field Service Manual and Parts Catalog* included with the Bill Changer.

REMOVING A JAMMED BILL — Rowe® Bill Acceptor Only

To remove a jammed bill from the Bill Acceptor, first try to determine where the bill is jammed in the transport.

Open the bill box and determine if the bill can be reached. If necessary, the gear on the side of the transport can be turned by hand, forward or reverse, to remove the bill.

If the bill is jammed near the bill inlet, first try removing it by turning the transport gear by hand. If this does not free the bill, you will need to remove the inlet. Follow the instructions in this section to remove the transport from the Bill Changer, then refer to Section 3 of your Bill Acceptor manual for instructions to remove the bill inlet.

If bills jam frequently, refer to the *Bill Jamming Checklist* in Section 3 of your Bill Acceptor manual.

If your Bill Changer is equipped with a non-Rowe Bill Acceptor, please refer to its manual for instructions.

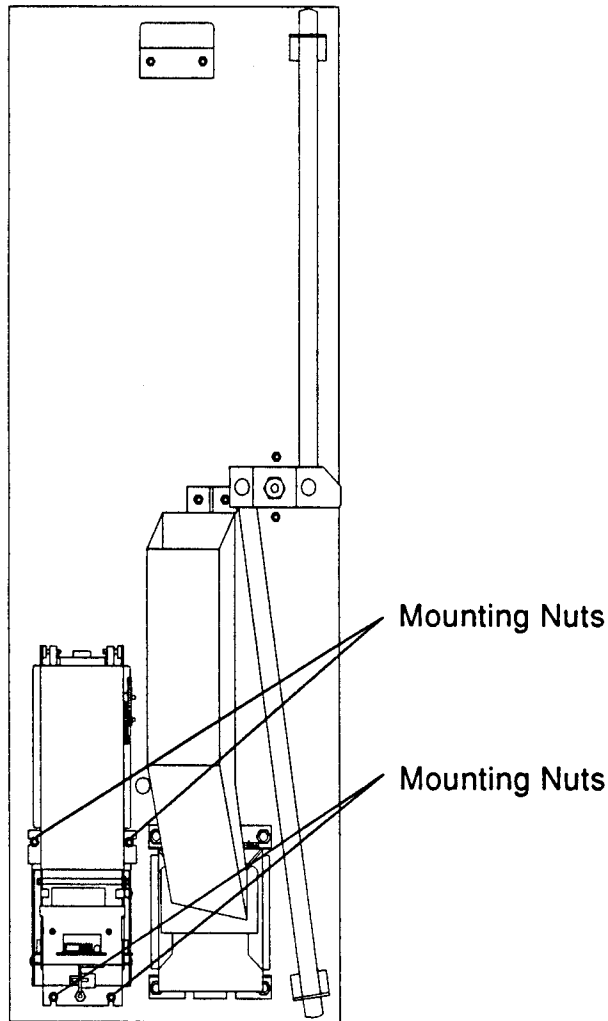
CAUTION:

Always turn the Bill Changer power to off before turning the Bill Acceptor gears by hand. Be careful not to pinch your fingers between the gears.

Figure 5-1
Removing the
Bill Acceptor

NOTE:

You may want to
open the bill box in
order to reach the
upper mounting nuts.



REMOVING THE BILL ACCEPTOR

Refer to Figure 5-1 as you remove the Bill Acceptor as follows:

1. Unplug the harness(es) from the Bill Acceptor. When certain bill acceptors are used, this step may need to be done after the unit is removed from the door.
2. Remove the 4 nuts holding the Bill Acceptor in place. Remove the Bill Acceptor.

INSTALLING THE BILL ACCEPTOR

Refer to Figure 5-1 as you install the Bill Acceptor as follows:

1. Plug the connector(s) into the Bill Acceptor.
2. Mount the Bill Acceptor to the door and tighten the 4 nuts used to hold it in place.

HOPPER

REMOVING THE HOPPER

If you are unfamiliar with the procedure to remove and replace the hopper, refer to *Unloading the Hopper* in Section 3 of this manual.

CLEANING THE HOPPER COIN PATH

NOTE:

Chain lubrication is not normally required.

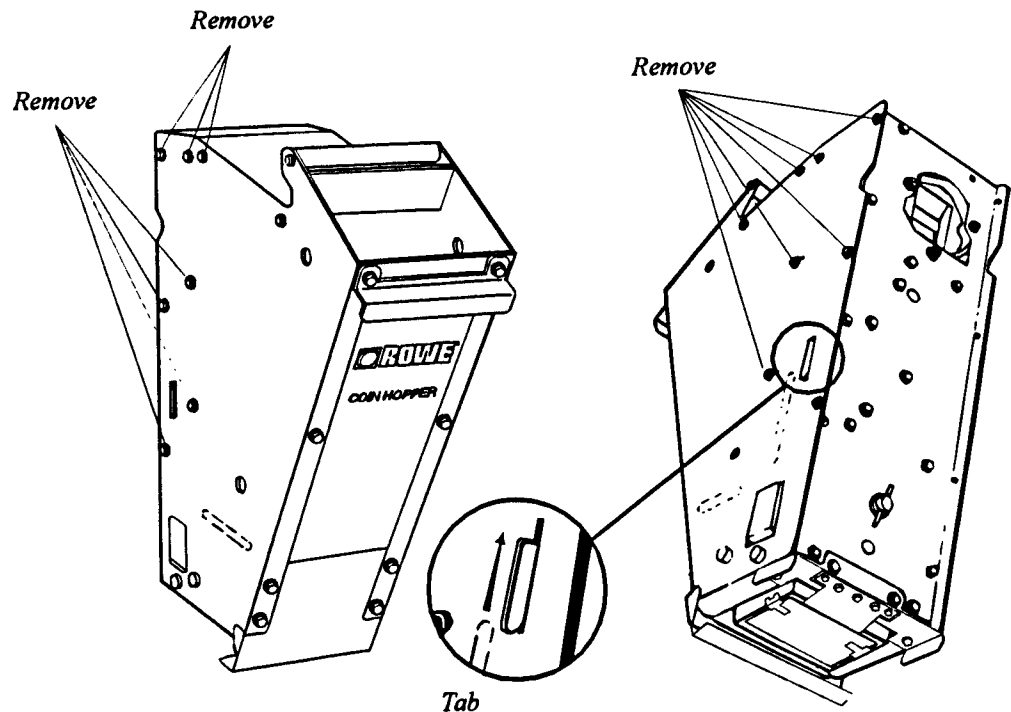
The coin tracks inside the hopper are Teflon coated to minimize dirt build-up. It may still be necessary to clean them at regular intervals, as dictated by the number of vends and the environment, to prevent dirt accumulation in the coin path.

Failure to keep the coin path clean may result in coins sliding out of the track, causing the *E-5* message to occur even though the hopper contains a sufficient amount of coins.

Clean the hopper as follows:

1. Remove the hopper from the bill changer and place it on a working surface.
2. Remove the black screws on each side of the hopper (*Figure 5-2, 17 total*), and lift the chain guide assembly up so that the tab (*Figure 5-2, enlarged*) can be pulled through the slot in the right hand side plate of the hopper assembly. When the tab is free, pull the chain guide assembly straight back out of the hopper.

Figure 5-2
Removing the
Hopper Chain
Guide Assembly

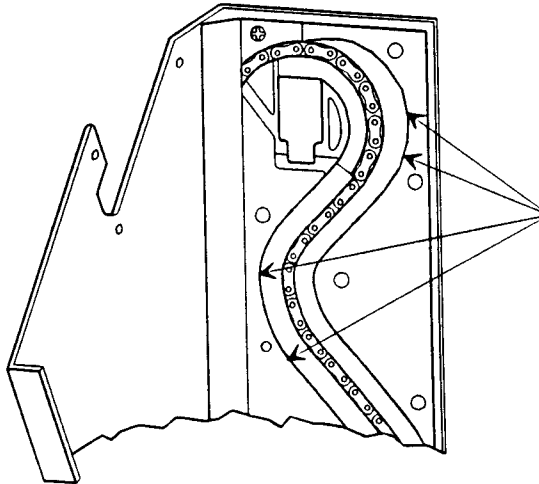


NOTE:

Do not use detergents to clean the hopper. Detergent cleaners destroy the hopper's factory lubrication.

3. Using the Nylon hopper cleaning brush supplied with each machine, remove all dirt from the angular sides and flat surfaces of the serpentine coin path (*Figure 5-3*).
4. To reassemble the hopper, replace the chain guide assembly, securing the tab in its slot, and then *start* each of the screws removed in step 2. When all of the screws have been started, tighten all screws.
5. Replace the hopper in the bill changer. Be sure it is sitting securely in the pivot brackets, snug against the dispenser plate, and the catch is engaged.
6. Make a test vend to check for proper hopper operation.

Figure 5-3
Cleaning the
Hopper Coin Path



Clean top and angular coin path surfaces, especially at guide edges, as shown

HOPPER CHAIN ADJUSTMENT

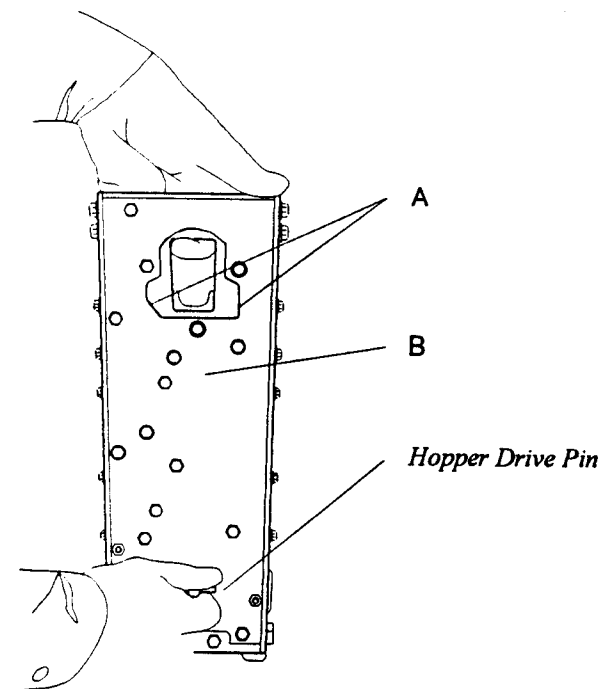
If the hopper coin path has been cleaned and the hopper still fails to operate correctly (jams or fails to pick up coins), you may need to adjust the hopper chain.

NOTE:

Make sure that all coins have been removed from the hopper before you adjust the chain tension.

1. Remove the hopper from the bill changer and empty it of all coins (*Section 3, Unloading the Hopper*).
2. Loosen the three screws at the top back of the hopper (*Figure 5-4, Ref. A and B*) which allow the black plastic upper chain guide ring to move diagonally upward.
3. Pull the chain guide ring up with your index finger as shown in Figure 5-4. At the same time, rotate the hopper drive pin clockwise with your other hand until all slack is removed from the chain, but no binding is evident.
4. Tighten the two top screws (A), and then the bottom screw (B), that you loosened in step 2. If a torque wrench is available, adjust the chain so that the torque input at the drive shaft is one to four inch pounds.

Figure 5-4
Hopper Chain
Adjustment

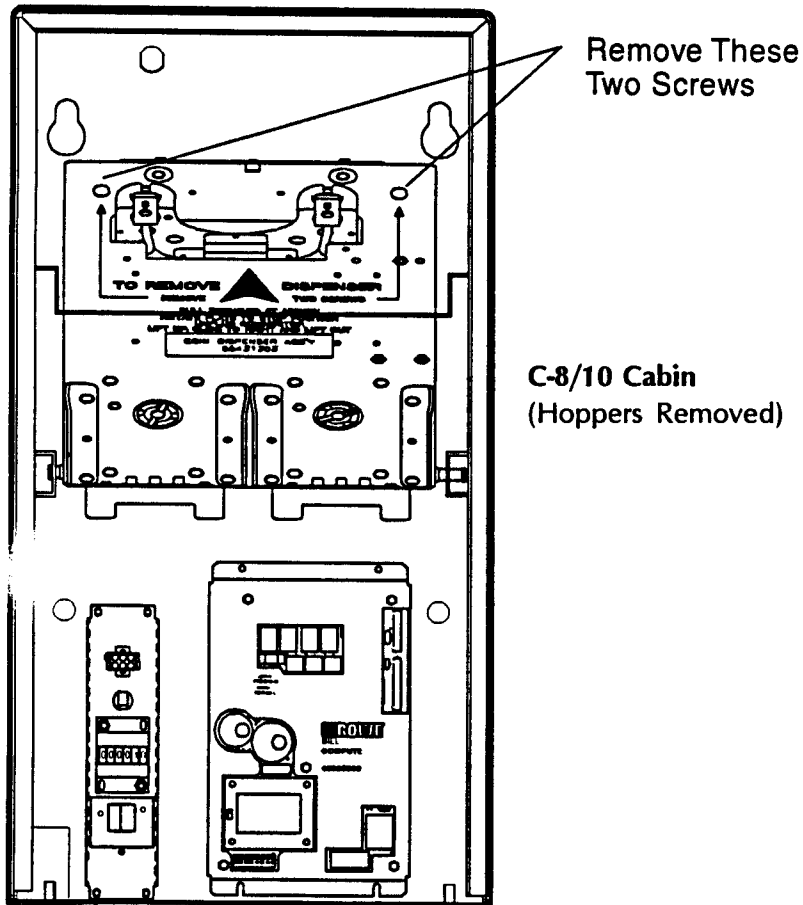


DISPENSER

REMOVING THE DISPENSER ASSEMBLY

1. Remove the hoppers from the Dispenser Assembly (*Section 3, Unloading the Hopper*).
2. Unplug the Dispenser harness from the P3 on the Control Computer.
3. Remove the two 1/4 - 20 screws on either side of the top of the Dispenser Plate.
4. Pivot the top of the Dispenser toward you, then slide the entire assembly to the right to release the left pivot pin from its bracket on the left side of the cabinet.
5. Pull the left side of the Dispenser toward you and move the assembly to the left to release the right pivot pin from its bracket on the left side of the cabinet.

Figure 5-5
Removing
The Dispenser
Assembly
C-8/10



INSTALLING THE DISPENSER ASSEMBLY

1. Insert the right pivot pin into its bracket on the right side of the cabinet and slide the assembly fully to the right.
2. Swing the left pivot pin into alignment with its bracket, then slide the assembly to the left to fully engage the left pivot pin in its bracket.
3. Pivot the top of the assembly back into the machine and re-install the two 1/4-20 screws on either side of the top of the Dispenser Plate.
4. Plug the Dispenser Harness into P3 on the Control Computer.
5. Replace the hoppers, making sure that they are fully seated in their pivot brackets.

SECTION 6:

TROUBLESHOOTING & SELF-DIAGNOSTICS

INTRODUCTION

The Century Series Bill Changers offer a number of self-diagnostic features that aid in troubleshooting. The microcomputer in the Changer Control Computer (CCC) monitors the changer functions, and displays an error code if it detects a malfunction. The meaning of each of the two-character error codes, and instructions for correcting each error, are discussed in this section.

This section also describes miscellaneous problems that can occur but may not cause an error code to be displayed, as well as checking procedures used to verify that the Bill Changer is functioning properly.

TROUBLESHOOTING

Logical troubleshooting minimizes the effort and expense of removing and replacing the wrong part. The *Corrective Actions* in this section are written in order from the most common to least probable solution, to help you put your Bill Changer back in service quickly, and with as little effort as possible.

Many failures are caused by minor problems such as loose connections or dirty contacts. Before replacing any parts, check to make sure that all plugs are firmly seated and that connector pins are not bent, broken, or pushed through the back of the connector when mated.

WARNING:

The Bill Changer operates on 120 or 220/240 VAC line voltage. If any possibility exists that the wall outlet may be wired backwards, or if the changer is connected to a wall outlet via a two-pronged grounding adapter, pull the plug from the outlet before attempting troubleshooting procedures. Failure to do so could result in serious electrical shock.

CLEARING BILL CHANGER ERROR CODES

After performing one of the *Corrective Actions*, reset the Bill Changer by pushing the UP and DOWN buttons simultaneously on the CCC while the NORMAL/PROGRAM switch is in the NORMAL position. If the error has been corrected, a dash will move from left to right across the 4-character status display.

If necessary, perform a test vend (or a number of them) with a valid bill to make sure that the error does not reappear.

ERROR CODES

The self diagnostic features of the Century Series Bill Changers are centered around the four-character status display on the CCC. The message displayed will tell you the type of fault encountered.

A description of each of the possible Bill Changer error codes follows. The Bill Acceptor may experience an error condition that is not communicated to the Changer Control. This is particularly true when pulse-type Bill Acceptors are used. There may be no indication that the Changer is disabled, but there will be no activity with the Bill Acceptor due to such an internal malfunction. In these cases, refer to the status indicator on the Bill Acceptor itself - and the Bill Acceptor Manual provided - in order to isolate and solve the problem.

ERROR CODES:

Er 1

Problem:

No coins or bills are accepted.

Symptom:

The changer is in shutdown due to an EEPROM error.

Corrective Action:

1. Enter the programming mode and check each program option.
2. Reprogram the machine if necessary.
3. Exit the programming mode. If the error returns, replace the CCC.

Er 2

Problem:

The changer did not payout coins for a bill accepted. A bill may have been stacked but no payout made.

Symptom:

The changer is in shutdown because the bill acceptor's output pulse was either too long or there were too many pulses issued. (Pulse type bill acceptors only.)

Corrective Action:

Pulse Type Bill Acceptor:

1. Verify that if a bill type is enabled at the bill acceptor, it is also enabled and that there is a proper payout setting for that bill in the CCC. If each is set properly and this error recurs, replace the CCC.

Serial Type Bill Acceptor:

1. If this was a new CCC being installed for the first time, enter the Programming Mode and program all setup options and the payout settings.
2. If the machine had been in operation, this code should never occur—replace the CCC.

ER 3

Problem:

The changer did not payout coins for a bill accepted. A bill may have been stacked but no payout made.

Symptom:

The changer is in shutdown because the bill acceptors' output pulse was either too long or there were too many pulses issued. (Pulse type bill acceptor only.)

Corrective Action:

Pulse Type Bill Acceptor:

If this is a newly installed Bill Acceptor –

1. **Check the bill acceptor's pulse settings.** All Credit Pulses must be between 19 and 120 MS in duration, with 19 to 150 MS space between pulses. One or two such pulses will be treated as a valid Type 1 Bill and if 3 to 7 are received, they will be treated as a valid Type 2 Bill. If there are 8 or more pulses detected, or the timing of the pulses or spaces exceeds those mentioned, an ER 3 condition will result.

If this Bill Acceptor had been functioning in the Changer –

1. **Check the wiring harness from the CCC to the Bill Acceptor for a short to ground.**
2. **Replace the Bill Acceptor.**

Serial Type Bill Acceptor:

1. **Make sure that the CCC is programmed for a serial type bill acceptor (bA 2 or bA 3) and make the program change if necessary.** If it is set for type 2, replace the CCC.

Er 4

Problem:

No coins or bills are accepted.

Symptom:

The changer is in shutdown because of a fault with the bill acceptor.

Corrective Action:

1. Check for a full bill acceptor stacker.
2. Check for any debris in the bill acceptor.
3. Replace the bill acceptor.

Note: If a Rowe CBA-4 or RBA-7 is used and the CCC is set for Bill Acceptor type 2, this error will disappear if the bill acceptor problem resolves itself. Under any other circumstances, however, this condition will remain in effect until the error is manually cleared.

Er 5 or Er 6 or Er 11

Problem:

The changer did not payout the correct number of coins. *Er 5* signifies that the left hopper was the source; *Er 6* signifies that the right hopper caused the problem. *Er 11* signifies that the machine failed to complete the payout and is operating in the MC Mode; i.e., neither hopper could satisfy the payout.

Symptom:

The changer is in shutdown because no coins were paid out of the hopper for 60 seconds after the dispenser was enabled or for 60 seconds after the previous coin during a dispense cycle.

Corrective Action:

1. Make sure the hopper is lifting the coins into the coin chute. Check for dirt build-up on the coin path (See Section 5). Check for coin jam or binding parts in the hopper.
2. Check the hopper motor. Remove the hopper and clear the error code. Perform a test vend on the changer using a valid bill or coin. If the motor runs, check carefully for excessive bind in the hopper (See Section 5). If the motor does not run, check for 120 VAC at the hopper motor. If voltage is present, the motor is defective. If there is no voltage present, proceed to Step 3.
3. Check for voltage at the CCC connection to the dispenser harness. If 120 VAC is present between P3 Pin 6 and P3 Pin 9, then the harness is at fault. Disconnect the 120 VAC, either at the wall plug or by disconnecting the harness at P4 on the CCC and then check for continuity between pin 6 and the hopper motor and pin 9 and the hopper motor. If continuity test fails, repair or replace the harness.

Note:

If a hopper motor feels very hot to the touch, wait until it cools down, then reset the CCC. Insert a bill to test for proper operation. If the motor operates after cooling off, check hopper for coin jams or binds.

Er 7

Problem:

The changer may have paid an extra coin from one or both of the hoppers.

Symptom:

The changer is in shutdown because two extra coins have been paid out, since the last time the changer was reset.

Corrective Action:

1. **Check for mechanical problems with the dispenser assembly.** Most likely the cause is mechanical, rather than electrical. Check the hopper motor brake's stop-pawl for wear or breakage. Check magnetic brake actuator for binds or sticking. Repair or replace hopper motor.
2. **Check the wiring to the photo-detector cell and LED on the dispenser assembly for loose connections or pinched wiring.** Repair wiring or replace photo-detector cell or LED.

Er 8 or Er 9

Problem:

The changer may have paid an incorrect number of coins. *Er 8* signifies that the left hopper/coin detector was the source; *Er 9* signifies that the problem came from the right hopper/coin detector.

Symptom:

The changer is in shutdown because the coin-detector is (or was) blocked.

Corrective Action:

1. **Check for debris such as paper or a foreign object stuck between the photo-detector and the LED on the dispenser assembly.**
2. **Verify that the LED is lit. Check the wiring to the photo-detector cell and LED on the dispenser assembly for loose connections or pinched wiring. Repair wiring or replace photo-detector cell or LED.**

Er 10

Problem:

Programming Error.

Symptom:

The computer will not exit the programming mode because there is an error in the present setup.

Corrective Action:

1. **A programmable setting is not correct for the conditions under which it was set. An example of this would be an additional bill type was enabled, but the payout settings for that bill type were not set. Verify all programming options and make any necessary changes. If the settings are correct, and the error persists, replace the CCC.**

Er 11 - SEE PAGE 6-5

Er 12

Problem:

The changer is out of service.

Symptom:

The last customer was most likely short-changed due to loss of power during the payout cycle.

Corrective Action:

1. **Make certain that there is a continuous power source connected to the Changer.** Check to be certain that the supply is again restored properly. Check the fuse or circuit breaker is OK.
2. Check the internal circuit breaker (5A) and the ON-OFF switch for intermittent contact.
3. If the problem recurs, and power failure can be completely ruled out, replace the CCC.

Er 13

This error should never occur in a Century Changer. If it does, replace the CCC.

Er 14

This error should never occur in a Century Changer. If it does, replace the CCC.

Er15 or Er16

Problem:

The changer does not contain enough coins to continue in service. *Er15* signifies that the left hopper is too low to continue; *Er16* signifies that the right hopper is too low to continue.

Symptom:

The changer is in shutdown because the low coin level sensor in the hopper has signalled a low level and the CCC has counted down to within 25 coins of the maximum payout.

Corrective Action:

1. **Refill the hopper with the appropriate coins or tokens.**
2. **If the hopper contains sufficient coins, check the low level sensing circuit.** The decimal point on the second-from-left 7-segment display is used as a low coin condition indicator for the hopper when lit.

If a low-level indicator is lit, but the hopper contains sufficient coins, the low coin level sensing circuit should be checked for proper operation.

3. **Remove the hopper.** The low-level indicator LED should not be lit. If it is lit, check the wiring between the low-level sensor contacts on the dispenser assembly and the CCC for pinched or shorted wiring. The voltage across pins 2 & 5 of P3 on the CCC should be 4.5 - 5.0 VDC. If this is the case, replace the hopper, or repair the low-level sensing circuits in the hopper.

Er21 or Er22 or Er23

Problem:

The changer goes out of service when trying to exit the programming mode.

Symptom:

The computer experienced a problem while saving information in its onboard memory chip.

Corrective Action:

1. The most likely cause for this would be a power loss during the programming process. Another possible cause could be a recurring low line voltage condition – See *Er12*.

--

Problem:

The Changer will not accept coins.

Symptom:

The coin equipment is disabled because of a coin related error.

Corrective Action:

1. **If a mechanical coin acceptor is installed, check the coin switch and switch actuator wire for proper operation.** Check for a stuck coin or other object holding the switch closed. Clear the obstruction, and reset the error.
2. **If an electronic coin acceptor is installed, check for a stuck coin or other object in the flight deck.** Check the programming. Verify that if a coin type is enabled at the coin acceptor, it is enabled and the payout for that programmed into the CCC. If an electronic coin acceptor accepts a coin that was not programmed into the CCC, this error code will appear.
3. **Check the wiring between the coin acceptor and the CCC for pinched or shorted wiring.** If in doubt, disconnect the coin acceptor harness at the CCC. Reset the error. If the error does not return, replace the coin acceptor or the coin acceptor harness. If the error does return, replace the CCC.

MISCELLANEOUS PROBLEMS

The following problems may occur in the Bill Changer without causing a fault code.

ERRATIC PAYOUT

Problem:

The changer is not consistently dispensing the correct number of coins.

Symptom:

One vend is short a coin. The next vend contains an extra coin.

Corrective Action:

1. **Check the coin chute on the back of the dispenser.** Most likely, a coin is getting hung up in the dispenser coin chute, after it has been “counted” by the detector, then being shaken loose by a later vend. Check the coin chute for any dirt or obstruction that might cause a coin to hang up.

LARGE NUMBER OF VALID BILLS REJECTED

Problem:

The bill acceptor rejects a large number of valid bills.

Corrective Action:

Refer to the Troubleshooting Chart in the Bill Acceptor Field Service Manual and Parts Catalog included with your Bill Changer.

BILLS JAM FREQUENTLY

Problem:

Bills repeatedly become jammed in the Bill Acceptor transport.

Corrective Action:

Refer to the Bill Jamming Checklist in the Bill Acceptor Field Service Manual and Parts Catalog included with your Bill Changer.

COIN COUNTING PHOTOTRANSISTOR (SENSOR) CHECK

Use the following procedure to check the phototransistor (sensor) in the dispenser coin detector system:

1. Switch the Bill Changer power OFF at the electrical box.
2. Remove the black plastic cover from the phototransistor and connect a common meter lead to the metal dispenser backing plate as shown in Figure 6-1.
3. Connect the positive (+) meter lead to the blue wire (*Figure 6-1, Sensor Check - Blue Wire*).
4. Turn the power switch ON and check to see that the LED is lit. The meter should indicate between 4.7 and 5.2 VDC.

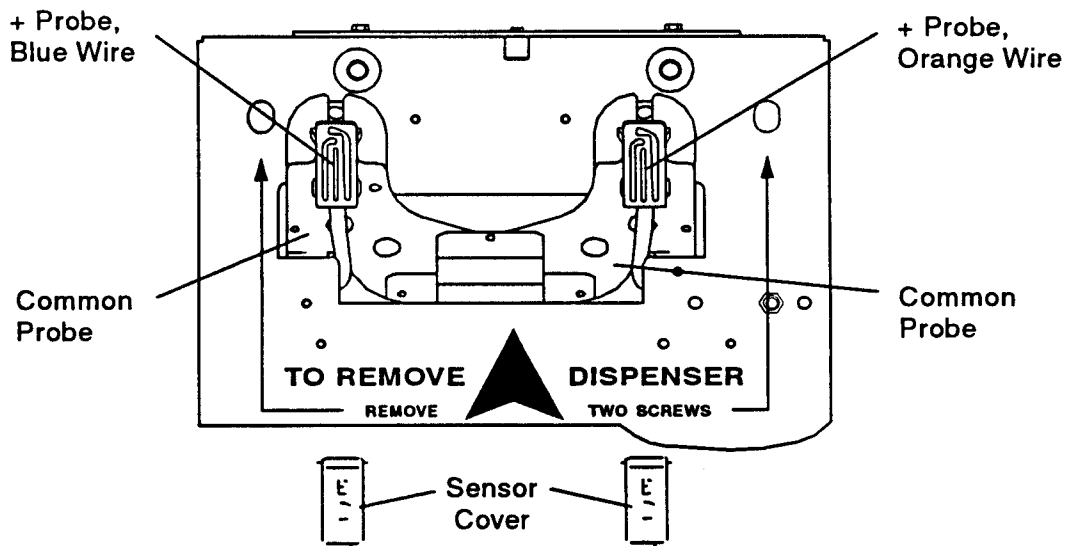
If the meter indication is not correct (between 4.7 and 5.2 VDC), the voltage regulator on the CCC board may need replacement (*see Section 7*). Repair the malfunction before continuing this procedure.

If the meter reading is correct:

5. Move the + meter lead to the orange wire on the phototransistor as shown in *Figure 6-1, Sensor Check - Orange Wire*. The meter should indicate between 3.5 and 5.0 VDC.

If the voltage is less than 3.5 volts, replace the phototransistor board with the correct part number listed in *Section 8: PARTS CATALOG*.

Figure 6-1
Sensor Check



LOW COIN SENSOR ELECTRICAL CHECK

Perform the following procedure to ensure that the Low Coin Sensor is functioning properly.

1. Turn the Bill Changer power to OFF.
2. Remove the hopper and empty it of all coins.

WARNING:

Make sure that the power is OFF before performing the following step.

3. Locate connector P3 on the Changer Control Computer (CCC). Connect a DC voltmeter to P3-5 (GND) and P3-4 (+).
4. Replace the empty hopper and turn Bill Changer power to ON. The voltmeter should read less than +.5 volts DC.
5. Tape 2 x 2 inch piece of aluminum foil around the end of a non-metallic object such as a long plastic ruler or wood stick. Figure 6-3, the Hopper Cleaning Brush is good for this purpose.
6. Place the foil end of the test object *inside* the hopper as close as possible to the location of the sensor (Figure 6-2, Hopper Sensor Area). The voltmeter should now have a reading of no less than 4.3 volts and a maximum of 5.5 volts.

Figure 6-2
Hopper Sensor
Area

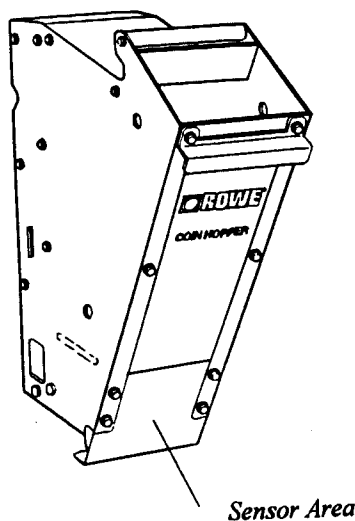


Figure 6-3
Hopper Cleaning
Brush



SECTION 7:

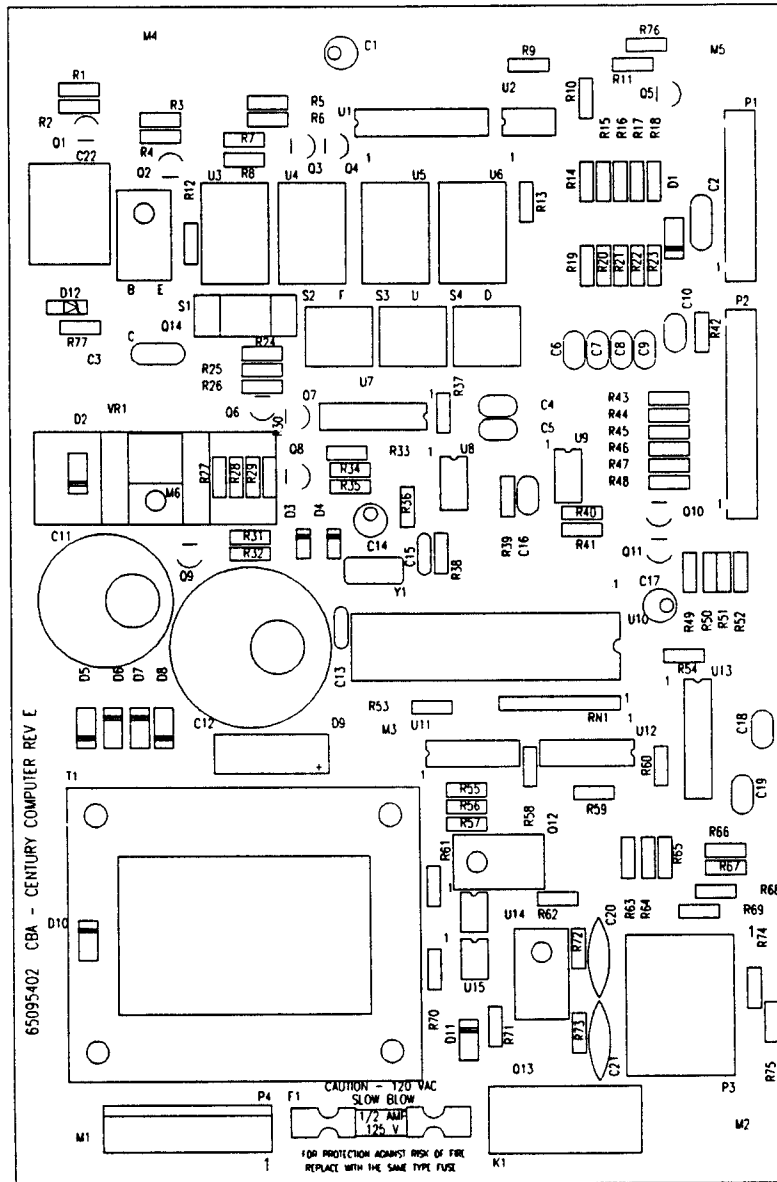
TECHNICAL INFORMATION

INTRODUCTION

The information contained in this section details the electronics found on the Changer Control Computer board, and is not intended for the casual repair person or the novice technician. No attempt should be made to repair the CCC board unless you have had considerable experience troubleshooting and repairing complex, microprocessor controlled electronic circuit boards.

Rowe® recommends that you send any failed CCC boards back to the factory for service.

Figure 7-1
CCC Circuit Board
Layout
65095402



COMPONENTS LIST

CCC CIRCUIT BOARD 65095402 Rev. E

C1	CAPACITOR - ELECTROLYTIC 10 VDC	20%	100 UF	70028128
C2	CAPACITOR - MONOLYTHIC CERAMIC	20%	1 UF	70028521
C3	CAPACITOR - MONOLYTHIC CERAMIC	20%	1 UF	70028521
C4	CAPACITOR - MONOLYTHIC CERAMIC	20%	.1 UF	70028514
C5	CAPACITOR - MONOLYTHIC CERAMIC	20%	.1 UF	70028514
C6	CAPACITOR - MONOLYTHIC CERAMIC	20%	.1 UF	70028514
C7	CAPACITOR - MONOLYTHIC CERAMIC	20%	.1 UF	70028514
C8	CAPACITOR - MONOLYTHIC CERAMIC	20%	.1 UF	70028514
C9	CAPACITOR - MONOLYTHIC CERAMIC	20%	.1 UF	70028514
C10	CAPACITOR - MONOLYTHIC CERAMIC	20%	.1 UF	70028514
C11	CAPACITOR - ELECTROLYTIC 25 VDC	20%	4700 UF	70023613
C12	CAPACITOR - ELECTROLYTIC 50 VDC	20%	2200 UF	70023602
C13	CAPACITOR - MONOLYTHIC CERAMIC	20%	22 PF	70028705
C14	CAPACITOR - ELECTROLYTIC 10 VDC	20%	100 UF	70028128
C15	CAPACITOR - MONOLYTHIC CERAMIC	20%	22 PF	70028705
C16	CAPACITOR - MONOLYTHIC CERAMIC	20%	.1 UF	70028514
C17	CAPACITOR - ELECTROLYTIC 10 VDC	20%	100 UF	70028128
C18	CAPACITOR - MONOLYTHIC CERAMIC	20%	.1 UF	70028514
C19	CAPACITOR - MONOLYTHIC CERAMIC	20%	.1 UF	70028514
C20	CAPACITOR - CERAMIC DISK 1 KV	20%	.01 UF	70022508
C21	CAPACITOR - CERAMIC DISK 1 KV	20%	.01 UF	70022508
C22	CAPACITOR - ELECTROLYTIC 16V LOW ESR	20%	2200 UF	70028311
D1	DIODE - SILICON		1N4004	70035005
D2	DIODE - SILICON		1N4004	70035005
D3	DIODE - SILICON		1N4148	70035012
D4	DIODE - SILICON		1N4148	70035012
D5	DIODE - SILICON		1N4004	70035005
D6	DIODE - SILICON		1N4004	70035005
D7	DIODE - SILICON		1N4004	70035005
D8	DIODE - SILICON		1N4004	70035005
D9	RECTIFIER - BRIDGE		3 AMP	21822503
D10	DIODE - SILICON		1N4004	70035005
D11	DIODE - SILICON		1N4004	70035005
D12	DIODE - ZENER 13V, 1W		1N4743A	70035506
F1	FUSE - SLOW BLOW 1/2 AMP 125V			70072101
K1	RELAY PC BOARD (SPST) 12 VDC			70042410
P1	HEADER - 2.5 MM	12 POS.		70074312
P2	HEADER - 2.5 MM	15 POS.		70074315
P3	HEADER - PC BOARD	12 POS.		30763506
P4	HEADER - POLARIZED .156	8 POS.		70075008
Q1	TRANSISTOR - SILICON PNP		MPSA56	70030104
Q2	TRANSISTOR - SILICON PNP		MPSA56	70030104
Q3	TRANSISTOR - SILICON PNP		MPSA56	70030104
Q4	TRANSISTOR - SILICON PNP		MPSA56	70030104
Q5	TRANSISTOR - SILICON DARLINGTON		TN6725A	70030215
Q6	TRANSISTOR - SILICON NPN		MPSA06	70030008
Q7	TRANSISTOR - SILICON NPN		MPSA06	70030008
Q8	TRANSISTOR - SILICON PNP		MPSA56	70030104

Q9	TRANSISTOR - SILICON NPN	MPSA06	70030008
Q10	TRANSISTOR - SILICON PNP	MPSA56	70030104
Q11	TRANSISTOR - SILICON PNP	MPSA56	70030104
Q12	THYRISTOR - TRIAC	T2500D	70038102
Q13	THYRISTOR - TRIAC	T2500D	70038102
Q14	TRANSISTOR - DARLINGTON NPN	TIP102	70030808
R1	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R2	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R3	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R4	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R5	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R6	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R7	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R8	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R9	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R10	RESISTOR - CARBON FILM 1/4W 5%	2.2 K	79901222
R11	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R12	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R13	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R14	RESISTOR - CARBON FILM 1/4W 5%	4.7 K	79901472
R15	RESISTOR - CARBON FILM 1/4W 5%	4.7 K	79901472
R16	RESISTOR - CARBON FILM 1/4W 5%	4.7 K	79901472
R17	RESISTOR - CARBON FILM 1/4W 5%	4.7 K	79901472
R18	RESISTOR - CARBON FILM 1/4W 5%	4.7 K	79901472
R19	RESISTOR - CARBON FILM 1/4W 5%	100 OHM	79901101
R20	RESISTOR - CARBON FILM 1/4W 5%	100 OHM	79901101
R21	RESISTOR - CARBON FILM 1/4W 5%	100 OHM	79901101
R22	RESISTOR - CARBON FILM 1/4W 5%	100 OHM	79901101
R23	RESISTOR - CARBON FILM 1/4W 5%	100 OHM	79901101
R24	RESISTOR - CARBON FILM 1/4W 5%	4.7 K	79901472
R25	RESISTOR - CARBON FILM 1/4W 5%	4.7 K	79901472
R26	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R27	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R28	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R29	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R30	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R31	RESISTOR - CARBON FILM 1/4W 5%	4.7 K	79901472
R32	RESISTOR - CARBON FILM 1/4W 5%	4.7 K	79901472
R33	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R34	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R35	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R36	RESISTOR - CARBON FILM 1/4W 2%	5.6 K	79902562
R37	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R38	RESISTOR - METAL FILM 1/4W 1%	1 K	799121001
R39	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R40	RESISTOR - CARBON FILM 1/4W 5%	390 OHM	79901391
R41	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R42	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R43	RESISTOR - CARBON FILM 1/4W 5%	220 OHM	79901221
R44	RESISTOR - CARBON FILM 1/4W 5%	220 OHM	79901221
R45	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R46	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R47	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R48	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R49	RESISTOR - CARBON FILM 1/4W 5%	6.8 OHM	79901689

R50	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R51	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R52	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R53	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R54	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R55	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R56	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R57	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R58	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R59	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R60	RESISTOR - CARBON FILM 1/4W 5%	10 K	79901103
R61	RESISTOR - CARBON FILM 1/4W 5%	150 OHM	79901151
R62	RESISTOR - CARBON FILM 1/4W 5%	150 OHM	79901151
R63	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R64	RESISTOR - CARBON FILM 1/4W 5%	4.7 K	79901472
R65	RESISTOR - CARBON FILM 1/4W 5%	4.7 K	79901472
R66	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R67	RESISTOR - CARBON FILM 1/4W 5%	1 K	79901102
R68	RESISTOR - CARBON FILM 1/4W 5%	100 OHM	79901101
R69	RESISTOR - CARBON FILM 1/4W 5%	100 OHM	79901101
R70	RESISTOR - CARBON FILM 1/4W 5%	150 OHM	79901151
R71	RESISTOR - CARBON FILM 1/4W 5%	1.5 K	79901152
R72	RESISTOR - CARBON FILM 1/4W 5%	1.5 K	79901152
R73	RESISTOR - CARBON FILM 1/4W 5%	150 OHM	79901151
R74	RESISTOR - CARBON FILM 1/4W 5%	47 OHM	79901470
R75	RESISTOR - CARBON FILM 1/4W 5%	47 OHM	79901470
R76	RESISTOR - CARBON FILM 1/4W 5%	1.8 OHM	79901189
R77	RESISTOR - CARBON FILM 1/2W 5%	150 OHM	79904151
RN1	RESISTOR NETWORK SIP 5% SIP9	10K X 8	799091030901
S1	SLIDE SWITCH - MICRO MINIATURE		70045001
S2	SWITCH PUSHBUTTON		21773303
S3	SWITCH PUSHBUTTON		21773303
S4	SWITCH PUSHBUTTON		21773303
T1	TRANSFORMER - PC MOUNT		45084403
U1	IC - LED DISPLAY DRIVER	MM5481	30800264
U2	IC - EPROM 128 X 16 SERIAL	93C56	30800263
U3	LED DISPLAY 7 SEGMENT COMMON ANODE		21766708
U4	LED DISPLAY 7 SEGMENT COMMON ANODE		21766708
U5	LED DISPLAY 7 SEGMENT COMMON ANODE		21766708
U6	LED DISPLAY 7 SEGMENT COMMON ANODE		21766708
U7	IC - 1 OF 8 MULTIPLEXER	74HCT151	79930151
U8	IC - UP SUPERVISOR	MAX813L	30800296
U9	IC - DUAL OP AMP	LM358	30800214
U10	MICROCOMPUTER	87C52	70039411
U11	IC - HEX INVERTER OPEN COLLECTOR	74LS05	70037108
U12	IC - HEX INVERTER OPEN COLLECTOR	74LS05	70037108
U13	IC - DRIVER OCTAL SINK	ULN2595A	70036913
U14	IC - OPTOCOUPLER OPTO - TRIAC	IS-3021	70033705
U15	IC - OPTOCOUPLER OPTO - TRIAC	IS-3021	70033705
UX1	SOCKET - IC DIP - 40 (U-10)		70074240
VR1	VOLTAGE REGULATOR - LOW DROPOUT	LM330T-5.0	70036528
Y1	CRYSTAL - QUARTZ 9.216 MHZ		25167323

SECTION 8:

PARTS CATALOG

INTRODUCTION	8-3
Catalog Description	8-3
Parts List Description	8-3
Ordering Replacement Parts	8-3

PARTS CATALOG

C-8, C-10 Door Assembly	8-4
C-8, C-10 Cabinet Assembly	8-8
C-8 Hopper Assembly	8-10
C-10 Hi Capacity Hopper Assembly	8-12
C-8, C-10 Coin Acceptor Assembly	8-14
C-8, C-10 Coin Dispenser Assembly	8-16
C-8, C-10 Change Bucket Assembly	8-18
Electrical Box Assembly	8-20
Accessory Kits	8-21

This page intentionally left blank.

INTRODUCTION

This parts catalog lists procurable replacement parts for the Century Series Bill Changer. The purpose of this parts catalog is to help you locate and identify replaceable components and supply information on how to order them.

Catalog Description

This catalog is divided into sections (*figures*), which include a parts list and corresponding illustration. Some assemblies require more than one illustration to identify its parts. In this case, each included page has a sheet number to identify it as part of one assembly.

Since replacing parts that are welded or riveted onto an assembly is normally impractical, replacement parts are not listed for these items. The assembly that contains the welded part should be replaced.

Parts List Description

The parts list contains four columns:

- **Reference Number** — The reference number is used to identify a part on the illustration. The abbreviation "Ref" is used in place of a number when items are listed for reference purposes only, or when the item listed is an alternate part.
- **Rowe Part Number** — This column lists the part number to use when ordering replacement parts or making inquiries.
- **Description** — This column gives a description of each part or assembly. Items are indented with a "bullet" (·) to show their relationship to the next higher assembly.
- **Qty** — This column contains the part quantity used in the assembly. When a figure describes more than one model of an assembly, the "Qty" column is divided to show each model.

Ordering Replacement Parts

All replacement parts must be ordered directly from an Authorized Rowe® Distributor.

A Standard Parts Order Form is available from your Rowe® Distributor at no charge. Parts orders are often delayed because of inadequate information on parts order forms. To enable prompt delivery, *always* specify the following information:

- **Part Number and Description** (indicate color, if applicable)
- **Quantity Required**
- **Machine Model and Serial Number**
- **Complete Shipping Address**, including the ZIP code
- **Shipping Instructions** (Must be included). If the shipping method is Parcel Post, Air Parcel Post, United Parcel Service, or Air UPS, and the packages may exceed the size and weight limits of these services, indicate an alternate shipping method.

If the shipment must be delivered as fast as possible, specify "Fastest Way". Rowe® will select the carrier for orders that justify shipment by truck.

Figure 8-1. C-8, C-10 Door Assembly

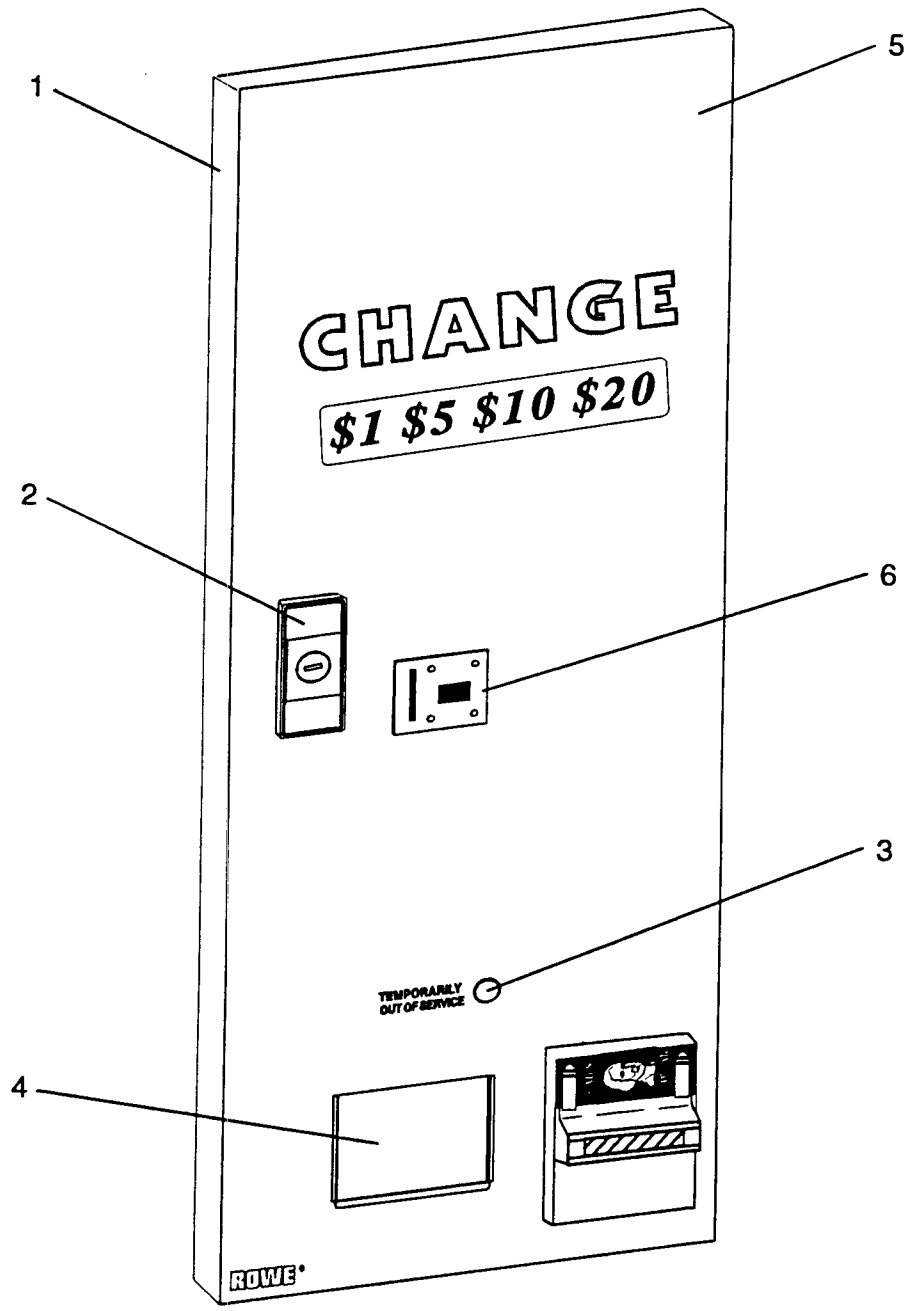


Figure 8-1. C-8, C-10 Door Assembly

Ref.	Part No.	Description	Qty
1	65421002	C-8 Door Weld Assembly	1
	65421001	C-10 Door Weld Assembly	1
2	47901420	T-Handle Assembly - Pop Out (Without Lock Cylinder and Key)	1
3	25251801	Light - Indicator (Temporarily Out of Service)	1
4	35116901	Change Cup Door	1
5	65431401	Label - Door (C-8 Domestic With Coin Acceptor)	1
	65431402	Label - Door (C-8 Domestic - No Coin Acceptor)	1
	65431101	Label - Door (C-10 Domestic With Coin Acceptor)	1
	65431103	Label - Door (C-10 Domestic - No Coin Acceptor)	1
6	35143601	Trim Plate (With Coin Acceptor)	1
	35143602	Trim Plate (No Coin Acceptor)	1

Figure 8-2. C-8, C-10 Door Assembly

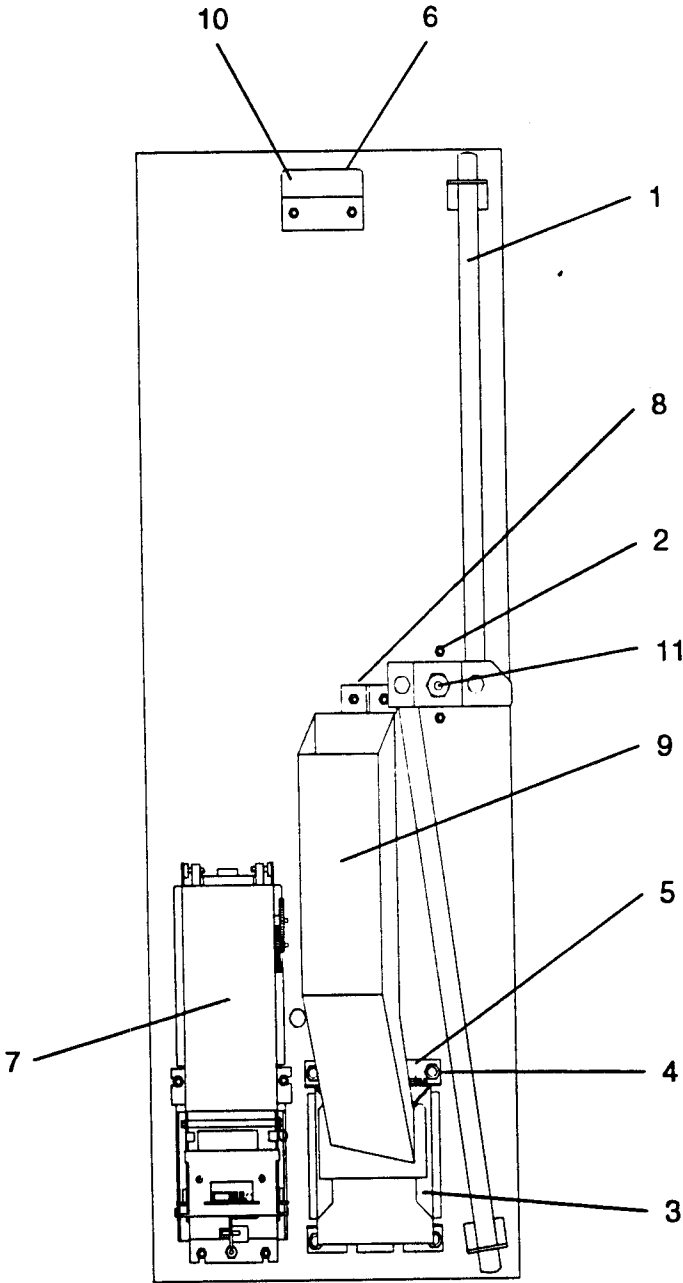


Figure 8-2. C-8, C-10 Door Assembly

Ref.	Part No.	Description	Qty
1	35131405	C-8 Lockbar Assembly	1
	35131406	C-10 Lockbar Assembly	1
2	70134103	#10-24 Carriage Bolt	2
3	45085601	Coin Cup Assembly	1
4	35121501	Coin Cup Mounting Bracket	2
5	25239701	Coin Cup Door Shaft	1
	25181701	Tension Spring	1
6	25190003	Foam Pad	1
7	65073229	CBA-4 - \$1, \$5, \$10, \$20	1
8	45109401	Coin Mech Bracket & Chute Assembly	1
9	45109501	Coin Chute Assembly	1
10	25211503	Bracket	1
11	92400181	#1/2-20 UNC Self Locking Nut	2

Figure 8-3. C-8, C-10 Cabinet Assembly

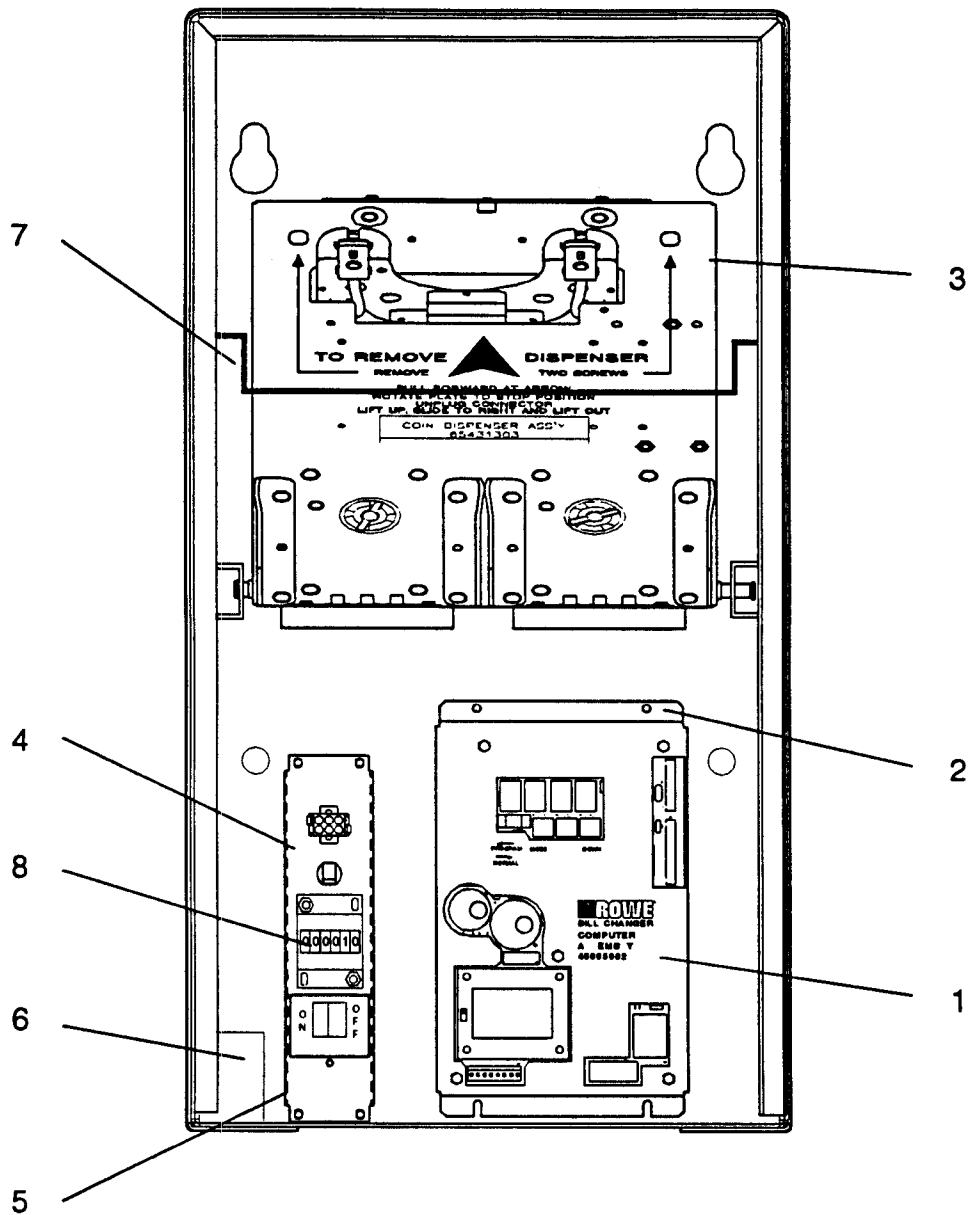


Figure 8-3. C-8, C-10 Cabinet Assembly

Ref.	Part No.	Description	Qty
1	45085902	Computer Assembly	1
	45085205	Cover - Computer	1
	65095402	Circuit Board Assembly - Computer	1
		(See Section 7 for Circuit Board Layout & Components)	
2	25249102	Insulation - Base	1
3	65431302	Coin Dispenser Assembly (Low Coin) C-8 (See Figure 8-7)	1
	65431301	Coin Dispenser Assembly (Low Coin) C-10 (See Figure 8-7)	1
4	45085303	Electrical Box Assembly (See Figure 8-9)	1
5	35132801	Electrical Box Plate	2
6	45108902	Coin Box (Coin Acceptor Only)	1
7	35144601	Bail Wire	1
8	25065710	Counter Assembly	1

Parts Not Shown:

65094907	Standard Capacity Hopper Assembly (Small Coins) (C-8 Only) (See Figure 8-4)	1
65094908	Standard Capacity Hopper Assembly (Large Coins) (C-8 Only) (See Figure 8-4)	1
65092903	Hi Capacity Hopper Assembly (Small Coins) (C-10 Only) (See Figure 8-5)	1
65092904	Hi Capacity Hopper Assembly (Large Coins) (C-10 Only) (See Figure 8-5)	1
35131301	Power Cord Assembly	1
70232302	Strain Relief - Right Angle	1
45108102	Harness Assembly - Dispenser	1
45109102	Harness Assembly - Power	1
45108201	Harness Assembly - Computer to CBA4 B.A.	1
45108203	Harness Assembly - Computer to MARS/COINCO B.A.	1
45108204	Harness Assembly - Power (MARS/COINCO B.A.)	1
45108205	Harness Assembly - Computer to Cashcode B.A.	1
45108208	Harness Assembly - Computer to RBA - 7BA	1

Figure 8-4. C-8 Hopper Assembly

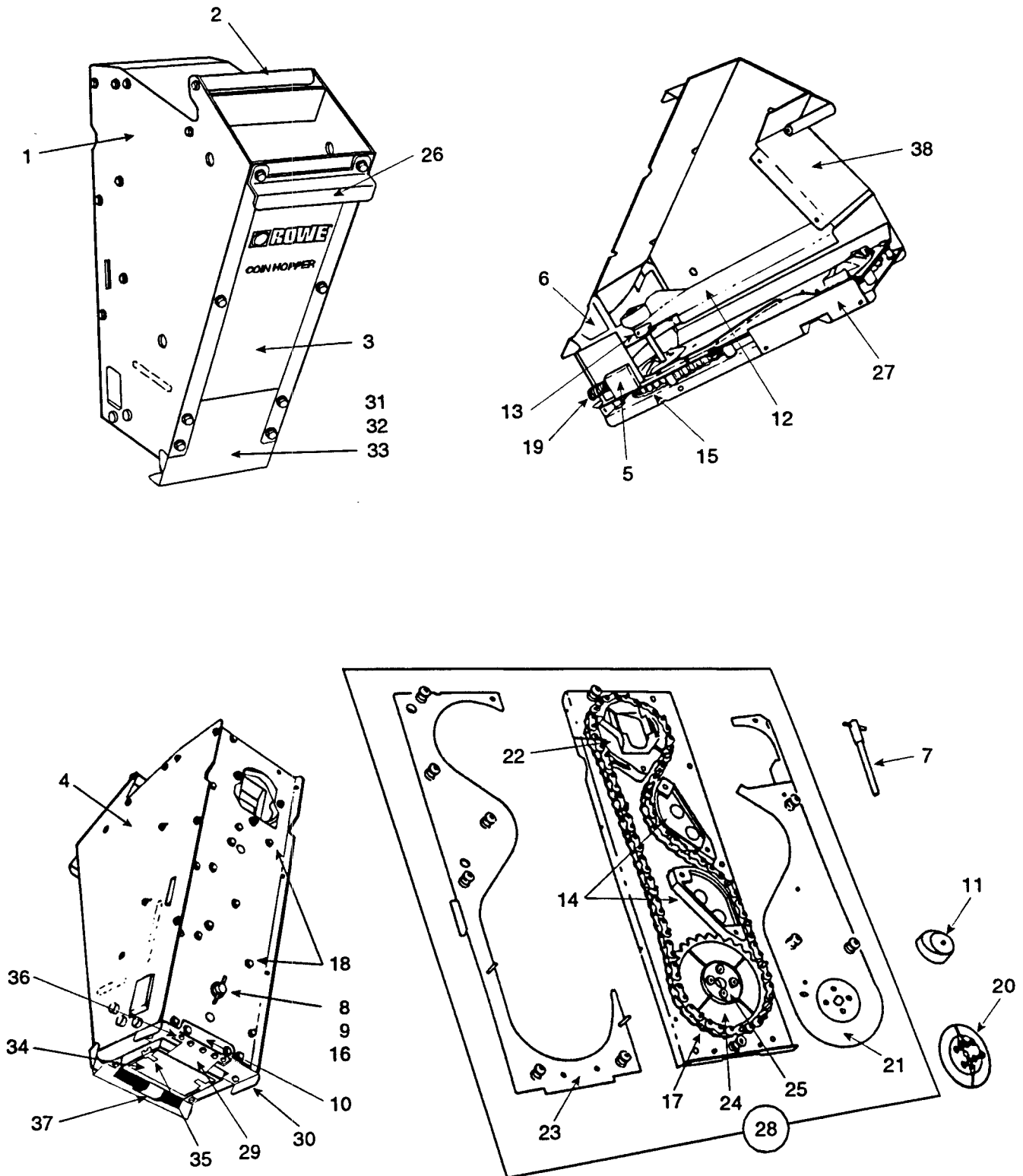


Figure 8-4. C-8 Hopper Assembly

Ref.	Part No.	Description	Qty
	65094907	Hopper Assembly (Small Coins).....	Ref.
	65094908	Hopper Assembly (Large Coins)	Ref.
1	45032401	L.H. Side Assembly	1
2	25098101	Hopper Handle	1
3	35044640	Front Cover (Small Coins)	1
	35044641	Front Cover (Large Coins).....	1
4	45032501	R.H. Side Assembly	1
5	65028202	Sliding Funnel.....	1
6	65027903	Fixed Funnel	1
7	25113701	Drive Shaft And Pin Assembly (Small Coins)	1
	25113702	Drive Shaft And Pin Assembly (Large Coins)	1
8	70120903	Washer	1
9	70121624	Spacer	2
10	35048801	Tie Bracket.....	1
11	35047201	Agitator Cam (Small Coins)	1
	35047202	Agitator Cam (Large Coins).....	1
12	45032101	Coin Baffle (Small Coins)	1
	45032102	Coin Baffle (Large Coins)	1
13	70146006	Nyliner Bearing	1
14	35048501	Chain Guide	2
15	35060501	Plate and Post Assembly	1
16	70146021	Nyliner Bearing	1
17	35043703	Extended Pin Chain (Small Coins)	1
	35043705	Extended Pin Chain (Large Coins)	1
18	70134109	Special Screw (Black)	2
19	25113401	Compression Spring	2
20	45034205	Coin Agitator (Small Coins)	1
	45034204	Coin Agitator (Large Coins)	1
21	35044502	Inner Coin Guide Assembly (Small Coins)	1
	35044504	Inner Coin Guide Assembly (Large Coins).....	1
22	65028803	Chain Guide Ring	1
23	45031902	Outer Coin Slide Assembly (Small Coins)	1
	45031903	Outer Coin Slide Assembly (Large Coins)	1
24	45035601	Sprocket.....	1
25	35047101	Drive Spacer	1
26	25165902	Hopper Handle.....	1
27	25226901	Coin Ramp (Large Coins)	1
	<i>This assembly, including items 21 and 23, is available as a replacement part as follows:</i>		
28	47000601	Coin and Chain Guide Assembly (Small Coins)	1
	47000602	Coin and Chain Guide Assembly (Large Coins)	1
29	45106901	CBA Low Coin Sensor	1
30	35142901	Bracket - Contact Mounting	1
31	25553001	Flattener - Antenna	1
32	70220804	Tape - Foamed	1
33	45107301	Bracket - Antenna Cover	1
34	35173901	Cover - Circuit Board	1
35	21776009	Fastener - Speed Clip	2
36	25552301	Spacer - Contact Board	3
37	92803607	Gasket - Poly	1
38	45131501	Top Assembly	1

Figure 8-5. C-10 Hi Capacity Hopper Assembly

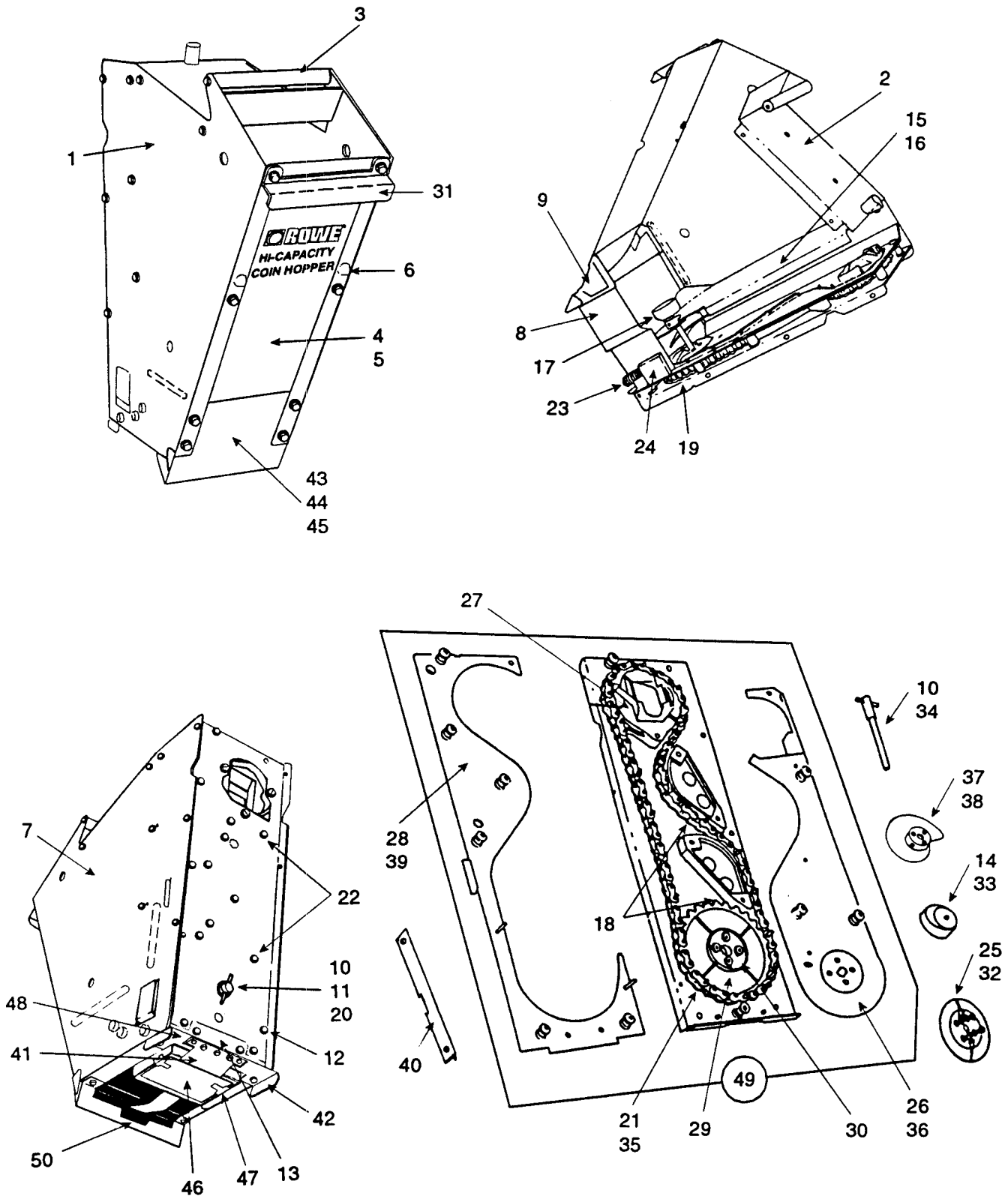


Figure 8-5. C-10 Hi Capacity Hopper Assembly

Ref.	Part No.	Description	Qty
	65092903	Hi-Capacity Hopper Assembly (Small Coins)	Ref.
	65092904	Hi-Capacity Hopper Assembly (Large Coins)	Ref.
1	45032402	L.H. Side Assembly	1
2	35074201	Top Assembly	1
3	25098101	Hopper Handle	1
4	35044638	Front Cover (Small Coins)	1
5	35044639	Front Cover (Large Coins)	1
6	25114701	Bumper	2
7	45032503	R.H. Side Assembly	1
8	65027902	Hopper Funnel (Intermediate)	1
9	65027903	Fixed Funnel	1
10	25113701	Drive Shaft And Pin Assembly (Small Coins)	1
11	70120903	Washer	1
12	70121624	Spacer	2
13	35048801	Tie Bracket	1
14	35058101	Agitator Cam (Small Coins)	1
15	45072101	Coin Baffle And Stud Assembly (Small Coins)	1
	25224501	Baffle And Bracket Assembly	1
16	45072102	Coin Baffle And Stud Assembly (Large Coins)	1
	25224501	Baffle And Bracket Assembly	1
17	70146006	Nyliner Bearing	1
18	35048501	Chain Guide	2
19	35060501	Plate and Post Assembly	1
20	70146021	Nyliner Bearing	1
21	35043703	Extended Pin Chain (Small Coins)	1
22	70134109	Special Screw (Black)	2
23	25113401	Compression Spring	2
24	65028202	Sliding Funnel	1
25	45034205	Agitator (Small Coins)	1
26	35044502	Inner Coin Guide Assembly (Small Coins)	1
27	65028803	Chain Guide Ring	1
28	45031902	Outer Coin Slide Assembly (Small Coins)	1
29	45035601	Sprocket	1
30	35047101	Drive Spacer	1
31	25165902	Hopper Handle	1
32	45034204	Agitator (Large Coins)	1
33	35058102	Agitator Cam (Large Coins)	1
34	25113702	Drive Shaft and Pin Assembly (Large Coins)	1
35	35043705	Extended Pin Chain (Large Coins)	1
36	35044504	Inner Coin Guide (Large Coins)	1
37	25171202	Upper Agitator Assembly (Large Coins)	1
38	70113013	Roll Pin (Large Coins)	1
39	45031903	Outer Coin Slide Assembly (Large Coins)	1
40	25226901	Coin Ramp (Large Coins)	1
41	45106902	CBA Low Coin Sensor (Hi Capacity Hopper)	1
42	35142901	Bracket - Contact Mounting	1
43	25553001	Flattener - Antenna	1
44	70220804	Tape - Foamed	1
45	45107302	Bracket - Antenna Cover	1
46	35173901	Cover - Circuit Board	1
47	21776009	Fastener - Speed Clip	2
48	25552301	Spacer - Contact Board	3
	<i>This assembly, including items 26, 28, 36 and 39, is available as a replacement part as follows:</i>		
49	47000601	Coin and Chain Guide Assembly (Small Coins)	1
	47000602	Coin and Chain Guide Assembly (Large Coins)	1
50	92803607	Gasket - Poly	1

Figure 8-6. Coin Acceptor

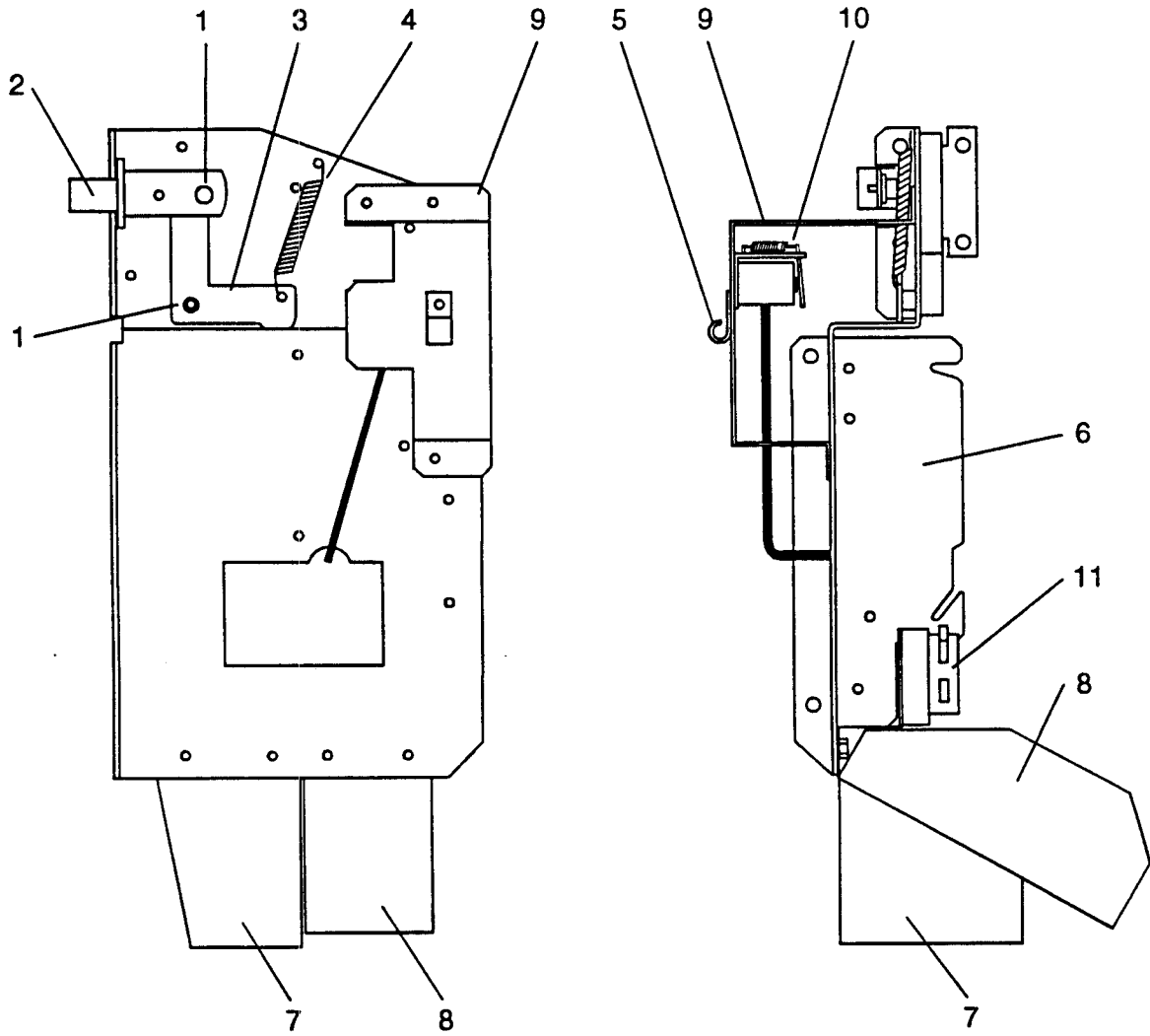


Figure 8-6. Coin Acceptor

Ref.	Part No.	Description	Qty
1	70143003	External Retaining Ring	2
2	25056504	Button & Blade Assembly - Reject	1
3	35143702	Actuator Bracket (C-8 & C-10)	1
4	21083601	Tension Spring	1
5	70093103	Cable Clamp (1/4)	1
6	30984404	Coin Mech Holder Assembly	1
7	35144101	Coin Chute (Reject)	1
8	35144001	Coin Chute (Accept).....	1

The Following Parts Are Used With Mechanical Coin Acceptors Only:

9	35174301	Magnetic Lockout Bracket.....	1
10	35031703	Lockout with Magnet (IMONEX)	1
11	21990203	Switch & Bracket Assembly	1

Parts Not Shown:

25553201	Stop Bracket (Reject Lever).....	1
45108902	Coin Box Assembly (C-8 and C-10).....	1
45108301	Harness Assembly - Computer to Coin Acceptor (Mechanical)	
45108302	Harness Assembly - Computer to MARS 330 Coin Acceptor	
45108303	Harness Assembly - Computer to Coin Controls C120	
45108304	Harness Assembly - Computer to Microcoin S5	

Figure 8-7. C-8, C-10 Coin Dispenser Assembly

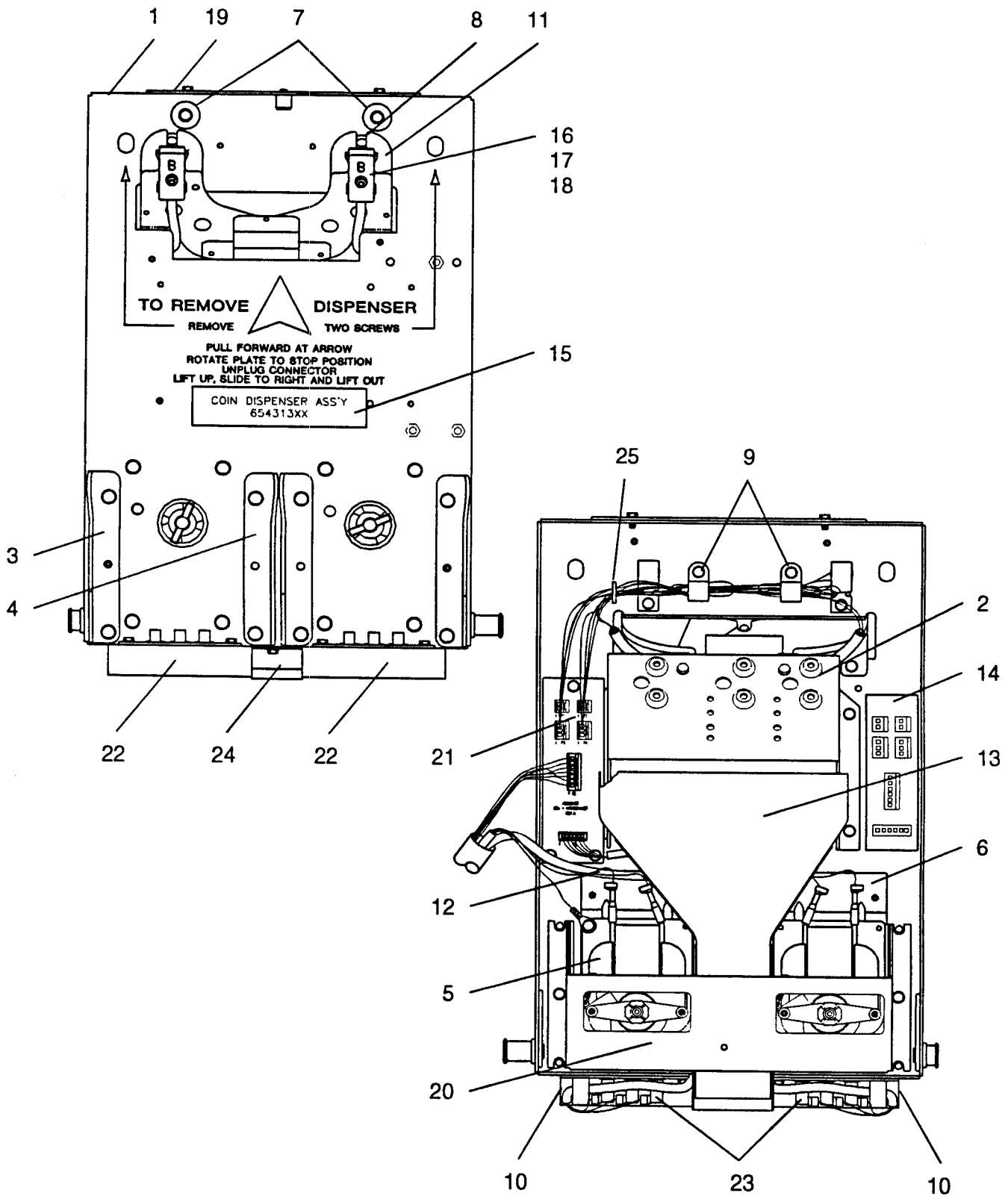


Figure 8-7. C-8, C-10 Coin Dispenser Assembly

Ref.	Part No.	Description	Qty
	65431302	C-8 Dispenser Assembly - Coin	Ref.
	65431301	C-10 Dispenser Assembly - Coin	Ref.

Both the C-8 and C-10 use the same components, except as noted.

1	45035311	Frame and Pivot Assembly	1
2	45032620	Change Bucket Assembly (See Figure 8-8).....	1
3	35044701	Hopper Mounting Bracket (L.H.) C-8	2
	35044702	Hopper Mounting Bracket (L.H.) C-10	2
4	35044801	Hopper Mounting Bracket (R.H.) C-8	2
	35044802	Hopper Mounting Bracket (R.H.) C-10	2
5	35049102	Hopper Drive Motor Assembly	2
	45034102	Hopper Drive Motor	1
	45034001	Coupling - Ratchet	1
	25097701	Spring - Compression	1
	70120904	Washer (Nylon)	1
	70110126	Pin - Groove	1
	37004601	Gear Box	1
6	35046401	Mounting Bracket (Motor).....	2
7	25112701	Rubber Bumper	2
8	45076101	Holder Assembly - LED.....	2
	70035315	LED	2
9	70093105	Cable Clamp (3/8)	2
10	70093401	Cable Clamp (1/2)	2
11	45035006	Chute Assembly	1
12	65065340	Dispenser Harness Assembly	1
13	35068202	Chute Assembly - Coin Weld (BC-1200 Only)	1
14	25169107	Dispenser Wiring Label	1
15	25189421	Label - Coin Dispenser (65431302) C-8	1
	25189420	Label - Coin Dispenser (65431301) C-10	1
16	25175702	Photo Detector Board and Terminal Assembly	2
17	70121626	Spacer (Nylon)	2
18	35048202	Cover - Terminal Board	2
19	35125402	Hopper Latch Assembly	1
20	45042602	Guard - Dispenser Motor	1
21	45076403	Circuit Board Assembly - Interconnect	1
	70035006	Diode	3
22	35142801	Contact Mounting Bracket	2
23	25552401	Board and Spring Contact Assembly	2
24	25200001	Extension - Coin Chute	1
25	70800101	Tie Wrap	1

Figure 8-8. C-8, C-10 Change Bucket Assembly

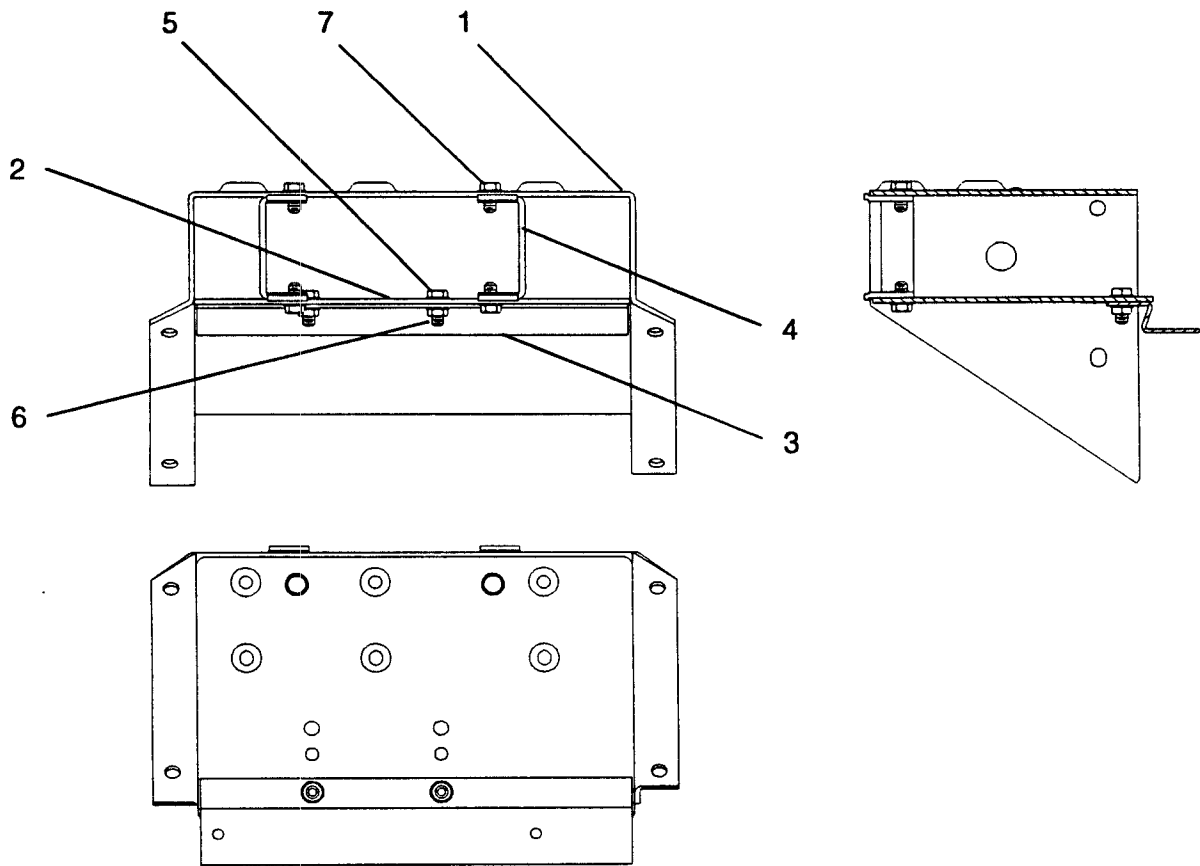


Figure 8-8. C-8, C-10 Change Bucket Assembly

Ref.	Part No.	Description	Qty
	45032620	Change Bucket Assembly	Ref.
1	45033306	Bucket Frame	1
2	35047002	Plate - Front, Bucket	1
3	25112402	Dispenser Chute Mounting Bracket	1
4	25112902	Support Bracket.....	2
5	80443006	Screw - #8-32 x 3/8 HWHM, SF	2
6	87843000	Nut - #8-32 KEPS	2
7	80443004	Screw - #8-32 x 1/4 HWHM, SF	4

Figure 8-9. Electrical Box Assembly

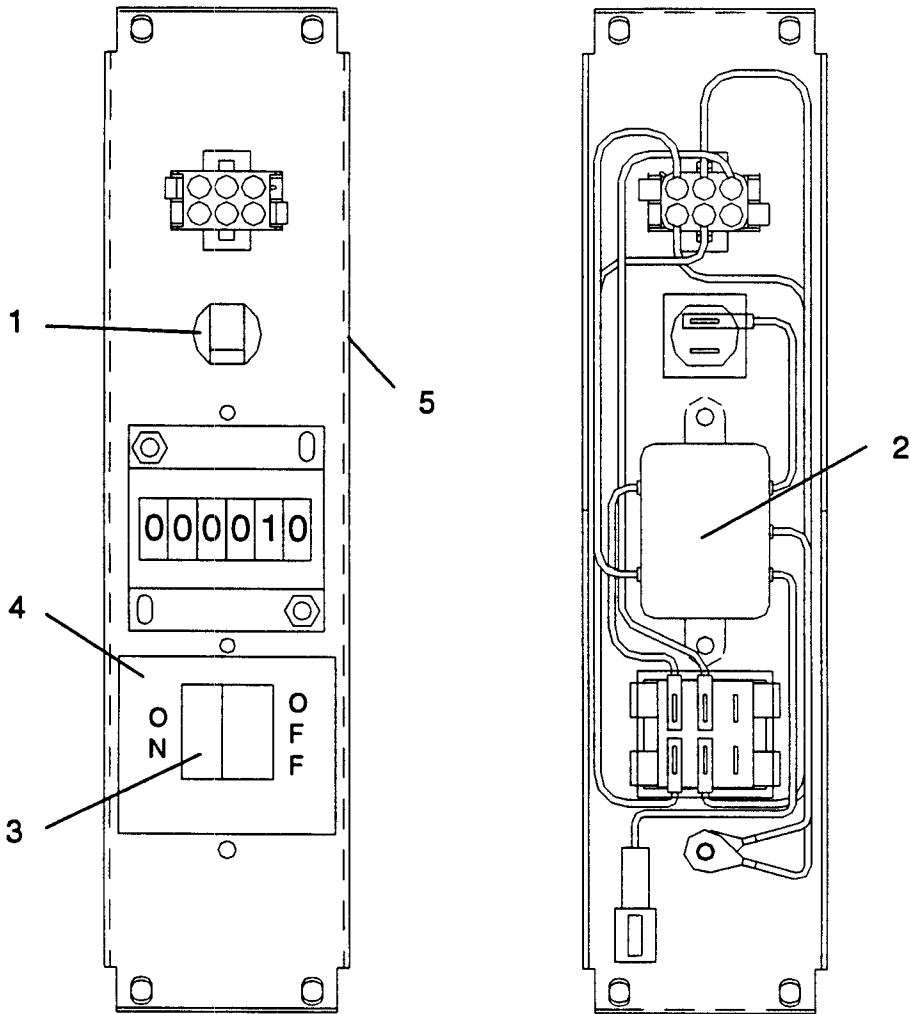


Figure 8-9. Electrical Box Assembly

Ref.	Part No.	Description	Qty
	45085303	Electrical Box Assembly (See Figure 8-3)	
1	70073608	Circuit Breaker (5 Amp)	1
2	35131102	Filter & Lug Assembly	1
3	30785702	Rocker Switch (DPST)	1
4	25250101	Label - On-Off	1
5	45085402	Box - Electrical	1

C-8, C-10 Accessory Kits

Part No.	Description	Qty.
Heavy Duty Base Kits		
27063602	Heavy Duty Base Kit C-6, C-8, C-10	1
Light Duty Base Kits		
27044002	Light Duty Base Kit C-6, C-8, C-10	1
Top Filler Kits		
27044103	Top Filler Kit C-8	1
27044104	Top Filler Kit C-10	1
Kit-Lock Guard		
27041704	Kit-Door Guard C-8	1
27041705	Kit-Door Guard C-10	1
Accepted Bills Labels		
35143902	\$1 & \$5	1
35143903	\$1, \$5 & \$10	1
35143904	\$1, \$5, \$10 & \$20	1
35143906	\$5 & \$10	1
35143907	\$5, \$10 & \$20	1
Token Label		
35175101	Label - Tokens	1

Warranty Terms and Conditions

LIMITED WARRANTY AND EXCLUSIVE REMEDIES – The goods delivered hereunder are subject to the terms of American Changer Corporation's (Seller or Seller's) Limited Warranty provided with the deliverable, or if there is no such warranty, the terms set forth herein. In the event of any inconsistency between the written warranty provided with deliverable, and the description of the warranty set forth herein, the written warranty shall govern.

Seller warrants that its new products and parts are free from defects in material or workmanship in normal use for one year from the date of shipment by Seller. In addition, this warranty will be extended for a second year for Bill Validators. Refurbished parts carry a six-month warranty from date of shipment by Seller.

Seller will furnish without charge, F.O.B. Fort Lauderdale, repair or replacement of any defective part qualifying for repair and/or replacement under the terms of its warranty, within one year of the date of delivery. Any transportation, diagnosis calls, or similar expenses are not included. The warranty for any replacement part will only apply to the remainder of the warranty period.

This warranty may not be changed or modified without the consent of an Executive Officer of Seller.

To make a claim under this warranty, Buyer must call Seller's Service Department and provide the model number and serial number of the goods. If the goods were purchased from a reseller, Buyer must provide the name, address and telephone number of the reseller. Seller reserves the right to request proof that the reseller purchased the goods from the Seller.

Seller's Limited Warranty does not cover damage caused by: (I) shipping or physical abuse; (II), misapplication or misuse including improper installation, startup, storage, or failure to comply with any instructions for use set forth in the owner's manual supplied with the goods, or use, storage or operation of the goods in a manner that fails to comply with all applicable laws, rules and regulations, including, without limitation, any local labeling requirements or labeling required under California's Safe Drinking Water and Toxic Enforcement Act of 1986 (also known as "Proposition 65") and its implementing regulations; (III) failure to perform necessary maintenance and cleaning in accordance with the owner's manual provided with the goods or comply with all applicable law or regulation, all applicable labeling requirements (IV) power surges, improper electrical supply and/or lightning strike; (V) operation, use or storage of goods in weather or outdoor conditions which do not comply with the guidelines set forth in the owner's manual supplied with the goods; and (VI) fires, floods, or other casualty or Acts of God outside of Seller's control.

This warranty is void if: (I) repairs and/or replacement are performed by anyone other than Seller or a qualified repair technician; (II) the goods were purchased in a used condition or not in the original packaging; (III) the goods have any defects or damage due to any alterations, or damage caused by improper electrical supply, shipping and handling, fire, flood, misuse, vandalism, or any other condition or event outside of Seller's control, or the goods are used, stored or operated in a manner that fails to comply with any applicable law, rule, or regulation, including, without limitation any local labeling requirements or labeling required under California's Safe Drinking Water and Toxic Enforcement Act of 1986 (also known as "Proposition 65") and its implementing regulations; (IV) the failure to clean and maintain the product in accordance with the owner's manual supplied with the goods or comply with all applicable law and regulations and any applicable labeling requirements; (V) the goods are operated, used, or stored in weather or outdoor conditions which do not comply with the guidelines set forth in the owner's manual.

The owner is responsible for: (I) using the goods supplied by the Seller in accordance with the installation, start-up, use, storage, inspection, and service requirements, and all other instructions set forth in the owner's manual supplied with the goods; (II) providing normal cleaning and maintenance in accordance with the owner's manual supplied with the goods; (III) operating, using, and storing the goods in accordance with the owner's manual supplied with the goods and in compliance with all applicable laws, rules, or regulations, including any local labeling requirements or labeling required under California's Safe Drinking Water and Toxic Enforcement Act of 1986 (also known as "Proposition 65") and its implementing regulations; (IV) contacting American Changer during the warranty period to obtain a Return Material Authorization to make a claim under this warranty; (V) providing proof of purchase if requested, and if the goods were purchased from a reseller, the name, address, and telephone number of the reseller; (VI) providing any other information American Changer may

reasonably request to confirm that the goods are eligible for repair/replacement under this warranty; (VII) paying for any repairs or replacement of parts outside the scope of this warranty; (VIII) paying any shipping costs.

ENTIRE WARRANTY

THIS WARRANTY CONSTITUTES THE EXCLUSIVE REMEDY OF THE PURCHASER AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE TO THE EXTENT PERMITTED BY LAW.

SELLER EXPRESSLY DISCLAIMS ALL LIABILITY ARISING OUT OF THE THEFT, MISAPPROPRIATION, OR MISUSE OF ANY PERSONAL FINANCIAL INFORMATION OF AN END USER OF THE GOODS, INCLUDING, BUT NOT LIMITED TO, CREDIT CARD AND/OR DEBIT CARD NUMBERS, PERSONAL IDENTIFICATION NUMBERS, PERSONAL PASSWORDS OR PASSCODES, OR OTHER SIMILAR PERSONAL INFORMATION OF THE USER OF THE GOODS.

IN NO EVENT SHALL AMERICAN CHANGER BE LIABLE TO BUYER UNDER THIS WARRANTY FOR AN AMOUNT WHICH EXCEEDS THE PURCHASE PRICE OF THE GOODS.

IN NO EVENT SHALL AMERICAN CHANGER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOST PROFITS, OR FOR DAMAGES ARISING OUT OF BUYER'S INSTALLATION, OPERATION OR STORAGE OF THE GOODS IN A MANNER THAT FAILS TO COMPLY WITH ANY APPLICABLE LAW, RULE, OR REGULATION, INCLUDING ANY LABELING LAW, RULE OR REGULATION INCLUDING, WITHOUT LIMITATION, CALIFORNIA'S SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 (ALSO KNOWN AS "PROPOSITION 65") AND ITS IMPLEMENTING REGULATIONS.

SELLER EXPRESSLY DISCLAIMS ALL GUARANTEES AND/OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, OR USEFUL LIFE.

LIMITATIONS OF DAMAGES – Seller's liability for any loss or damage arising out of, or resulting from, any breach or default by Seller in connection with the sale of goods hereunder, shall not exceed the purchase price thereof, regardless of whether such liability arises in contract, tort (including, without limitation, negligence or strict liability) or otherwise, and in no event shall Seller be liable for incidental or consequential damages of any kind or for lost profits.

Buyer is solely responsible for installing, storing, operating and maintaining the goods delivered hereunder in compliance with all applicable laws, rules and regulations, and any local labeling requirements or labeling required under California's Safe Drinking Water and Toxic Enforcement Act of 1986 (also known as "Proposition 65") and its implementing regulations. In no event shall Seller be liable for Buyer's failure to install, store, operate or maintain the goods in compliance with any applicable law, rule or regulation.