

Guardian

GLX



Operation & Service Manual

coinco®

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SECTION 1: GENERAL INFORMATION

Introduction

This manual contains information on installing, operating and maintaining a Coinco Guardian GLX model coin changer. This manual is intended for owners, route operators and shop-level technicians as a primary source of information. Taking time to read this manual and become familiar with the information will help you obtain the best performance from your Coinco Guardian GLX coin changer.

Product Overview and Features

The Guardian GLX changer incorporates a wide range of benefits, including:

- Six self-replenishing coin tubes with cash accountability.
- Lift-out, removeable, illuminated payout cassette.
- Built-in self diagnostics.
- MDB (Multi-Drop Bus) interface (optional MDB to USB converter available).
- Field tuning for tokens & slug elimination.
- Interchangeable coin tubes enable simple payout re-configuration.
- Full support of Guardian GLX features and upgrades using the Coinco FP-5 Field Programmer.

For Your Records

A label indicating the changer's model number and serial number can be found on the side of the Guardian GLX coin changer. Refer to the model number and serial number whenever you call your Coinco Service Center for information or service. The first four digits of the changer serial number indicate when the unit was built, which is also the beginning of the warranty period:

- First two digits: indicate the week of manufacture.
- Third and fourth digit: indicate the year.

For example, serial number 0216000123 indicates the unit was manufactured in the 2nd week of 2016.

Icons

The following icons will guide you throughout the manual. Each icon highlights an area to which you may want to pay closer attention.



Indicates a checklist type of process that you can readily “check” as you proceed to the next step.



Indicates a warning that you should adhere to. It is often accompanied by the words “DO NOT...”



Indicates that this is a good time to pause, step back, and verify that everything is correct before proceeding further.



Indicates a helpful hint or shortcut to simplify the task.



Indicates frequently asked questions with their corresponding answers.



Indicates a possible issue dependent on the application and provides direction on how to correct the problem should it occur.

Guardian

GLX

Naming Convention

GL X XX-XX

Protocol

X = MDB

A = Protocol A

Country Code

US = United States

CA = Canada

EU = Europe

GB = United Kingdom

AU = Australia

MX = Mexico

RU = Russia

Payout Configuration

(Cassette ID)

Cassette ID	Country	Coin Denomination Tube Position					
		A	B	C	D	E	F
BB	US	25¢	10¢	5¢	5¢	25¢	25¢
BD	US	\$1	\$1	25¢	5¢	10¢	25¢
BE	US	25¢	25¢	5¢	5¢	25¢	25¢
EF	US	25¢	25¢	5¢	25¢	25¢	25¢
BE	CANADA	\$2	\$1	25¢	5¢	25¢	25¢
ED	CANADA	\$2	\$1	25¢	5¢	10¢	25¢
EE	CANADA	\$2	\$2	\$1	25¢	10¢	5¢

SECTION 1: GENERAL INFORMATION

Dimensions and Specifications

Power Requirements:

20 to 42V DC

0.15 Amp average standby

0.6 Amp average operating

1.8 Amp max operating

Operating Temperature

0°F to 150°F

-18°C to 65°C

Storage Temperature

-22°F to 160°F

-30°C to 72°C

Relative Humidity

20% to 95% non-condensing

Operating Attitude

Vertical $\pm 3^\circ$

Shipping Weight in Carton

Approximately 5 lbs. or 2.267 kilograms

Figure 1

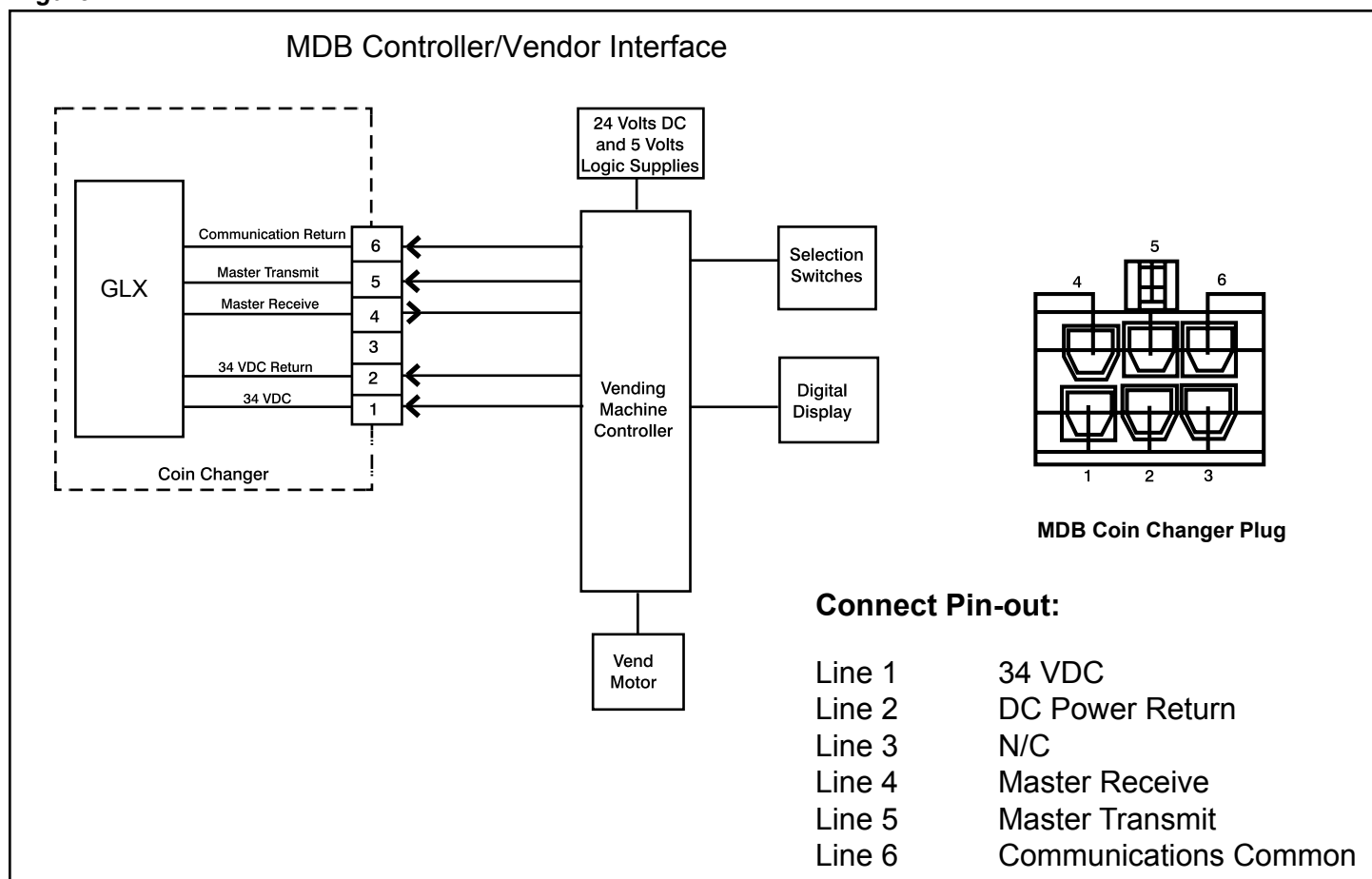
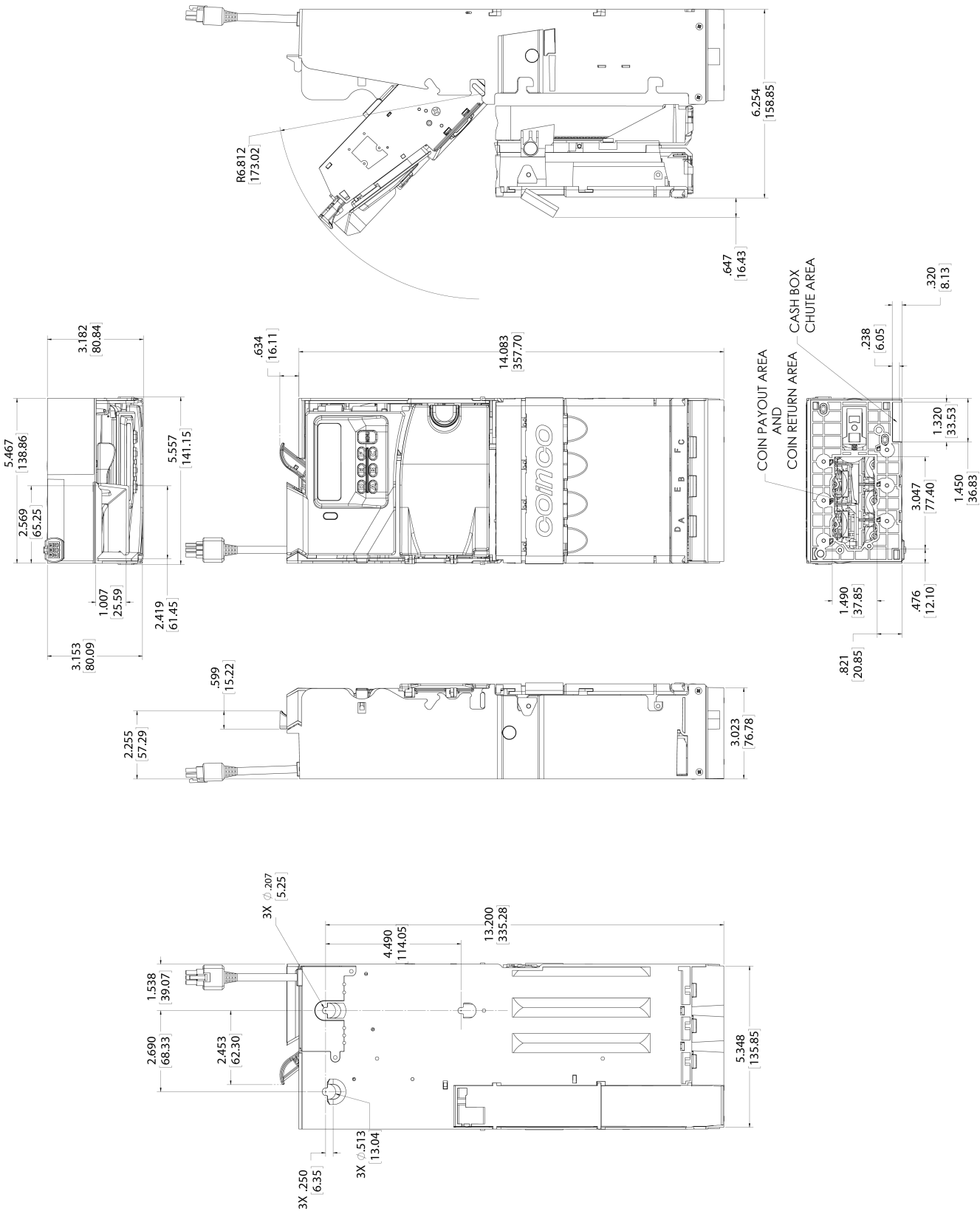


Figure 2

Dimensional Drawing
inches (mm)



Unpacking / Installing the Changer

After removing the coin changer from the shipping carton, inspect it for possible damage. If the unit is damaged, notify the shipping company immediately. The consignee (person or company receiving the unit) can file a claim against the carrier for shipping damage. We recommend you keep the original carton and packaging materials to reuse if you need to transport or ship the coin changer in the future.

If the coin changer is being stored or used as a spare, always keep it in its shipping carton when not in use. This will keep it clean and offer the best protection for the unit.



Installing the Changer


1. Remove power from the vending machine.
 **DO NOT connect the changer harness to the vending machine with power connected.**
2. Remove the acceptor from the changer housing by pressing the acceptor release latch (see Figure 4) on the front of the acceptor to the right, then pull the escrow lever towards you, away from the changer housing.
3. Disconnect the two harnesses from the acceptor (see Figure 5). Lift the acceptor slightly to free the lower acceptor studs from the changer housing. Place the acceptor in a clean, dry area.
4. Set the three mounting holes in the back of the changer housing over the mounting screws in the vending machine (see Figure 6). Tighten securely by hand.
5. Reinstall the acceptor by inserting the lower acceptor studs into the changer housing. Plug the two harnesses into the acceptor. Press the top of the acceptor into the changer housing until the acceptor latch engages the changer housing.
6. Verify the vendor's coin return mechanism is adjusted so that the acceptor gate is fully closed. There should be a small gap between the coin return mechanism and the changer escrow lever.

Figure 3

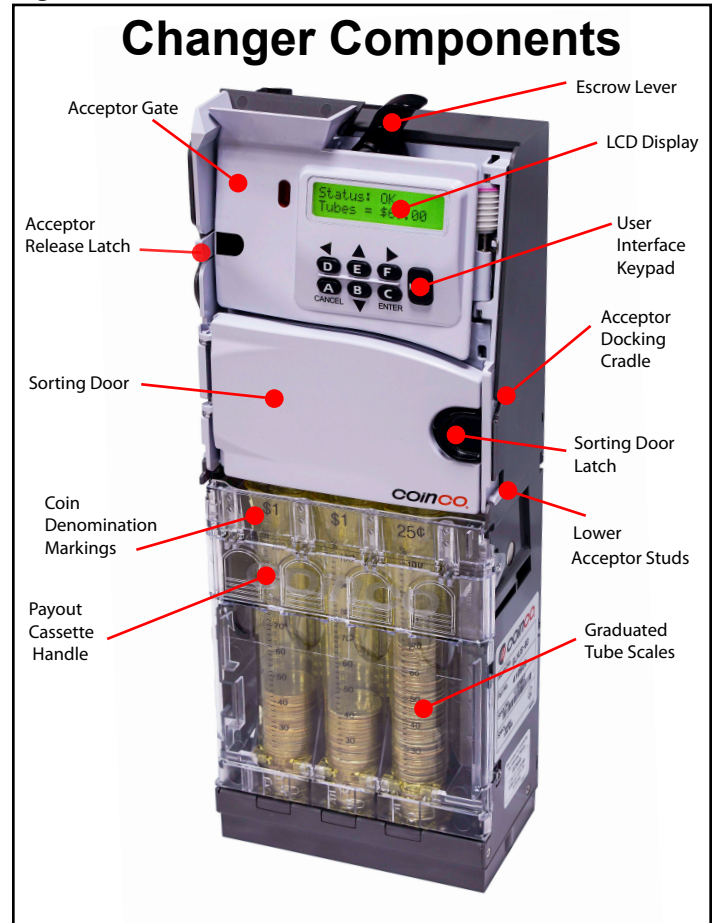
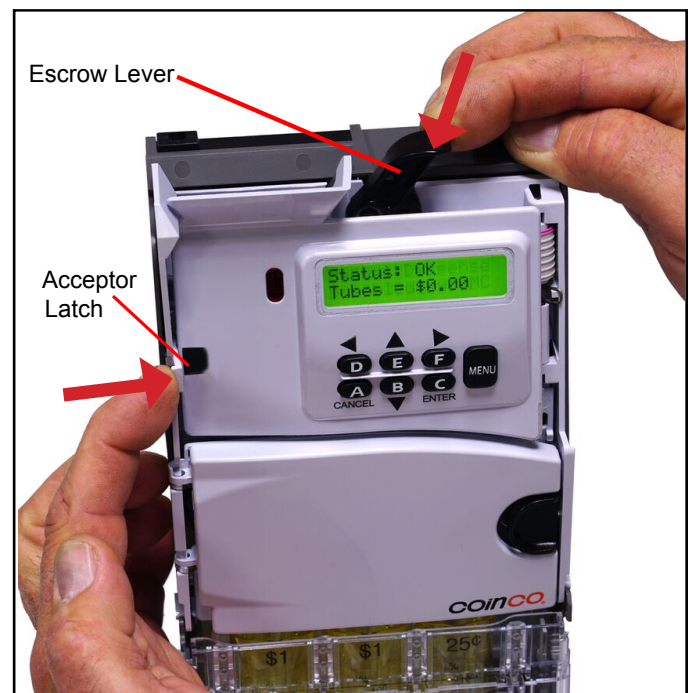


Figure 4



7. Plug the changer harness into the vending machine.
STOP **Verify steps 1 to 7 are completed correctly.**
8. Apply power to the vending machine.
9. The changer will power up, perform an autotest of all systems, then the display will begin cycling in steady state mode (See Figure 7).

Figure 5

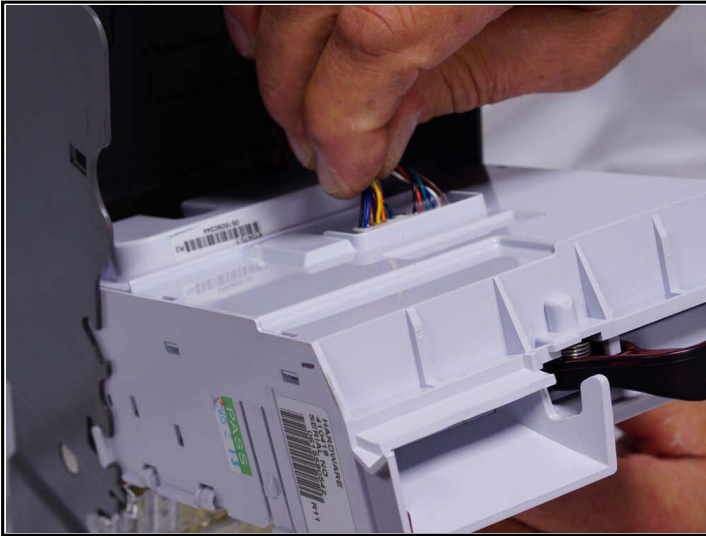


Figure 6

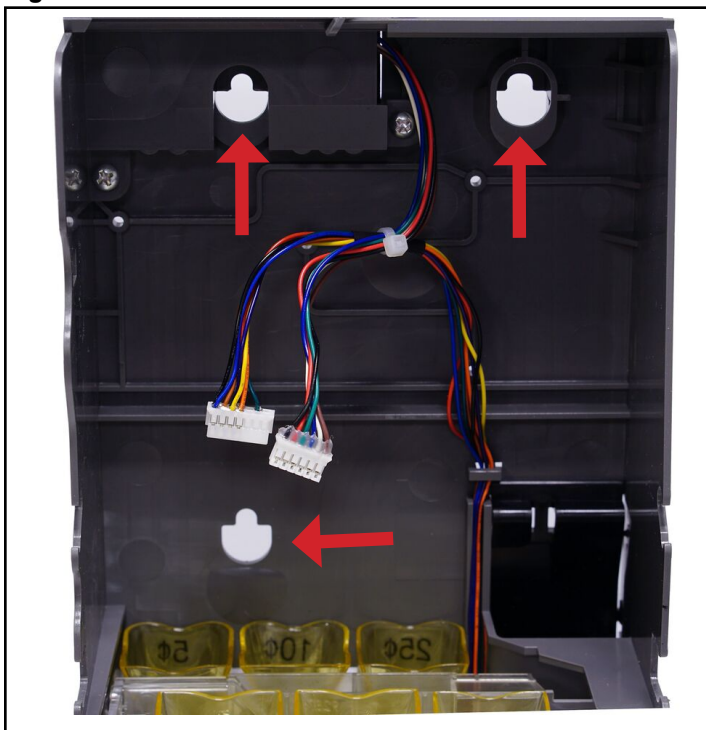
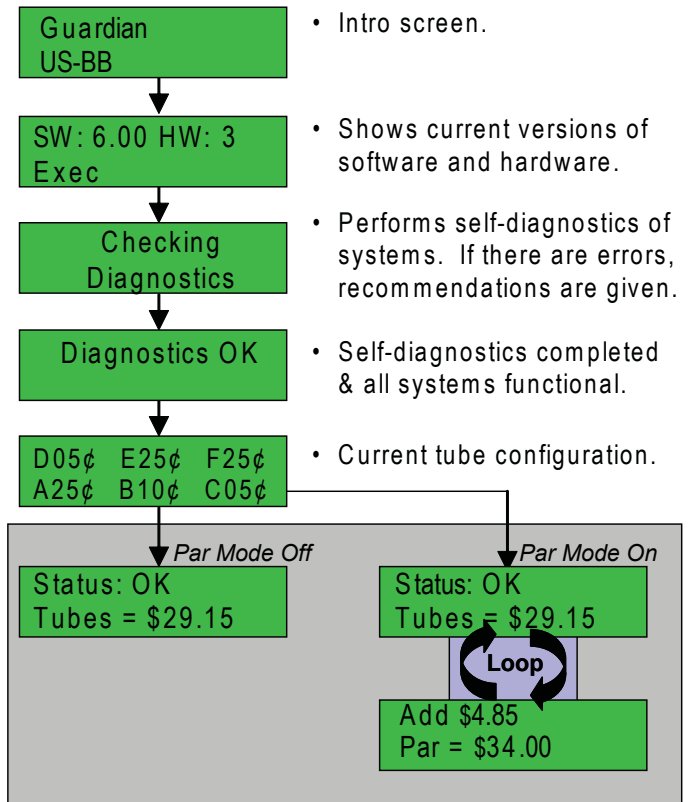


Figure 7

Power Up Sequence

Typical User Display Messaging



Note: Some Guardian models may show different messaging.

SECTION 2: INSTALLATION & SETUP

Loading Coins

10. Load coins into the changer the tubes using one of the following 3 options:

- **Remove Cassette:**

Raise the cassette handle and lift the coin tube cassette up, then slide the cassette out of the coin changer housing (See Figures 8 & 9).

Refer to the coin denomination labels at the top of each coin tube and fill the 6 coin tubes to the desired level with the appropriate coins.

VERIFY THAT ALL COINS LAY FLAT IN EACH COIN TUBE.

Fill each coin tube with a minimum of 5 coins and DO NOT fill the coin tubes above the 100% mark!

NOTE: If you do not plan on using all 6 coin tubes, make sure you disable coin routing to the unused tubes in the acceptor programming. Use: MENU-SETUP-CASSETTE-CUSTOM and set the unused tubes to “---”

To reinstall the coin tube cassette, the 2 studs located on each side of the cassette must line up with the receiving slots on the changer housing. Use the cassette handle to lift and position the coin tube cassette with the coin changer housing. Slide the cassette into the housing. The coin tube cassette will slide into the housing then drop down against the bottom payout section of the coin changer when it is correctly installed (See Figure 9).

- **To Load Front Tubes Only:** Tubes A, B, and C can be hand loaded without opening the cassette. By pushing the Sorting Door Latch to the left and swinging open the Sorting Door (See Figure 11), you can load coins directly in tubes A, B, and C.
- **For manual fill:** Follow Hot Key Chart on page 15 (See Figure 17).



NOTES:

- See Figure 10 for coin capacities.
- **Make sure all coins lay flat** and fill each coin tube to be used with at least 5 coins.
- For the most reliable operation, do not load coin tubes above the 100% level marking.
- **If not using all 6 tubes, leave all tubes installed and make sure to disable coin routing and coin level sensing for unused tubes.** Use MENU/SETUP/CASSETTE/CUSTOM and set unused tubes to “---”.

Figure 8



Figure 9

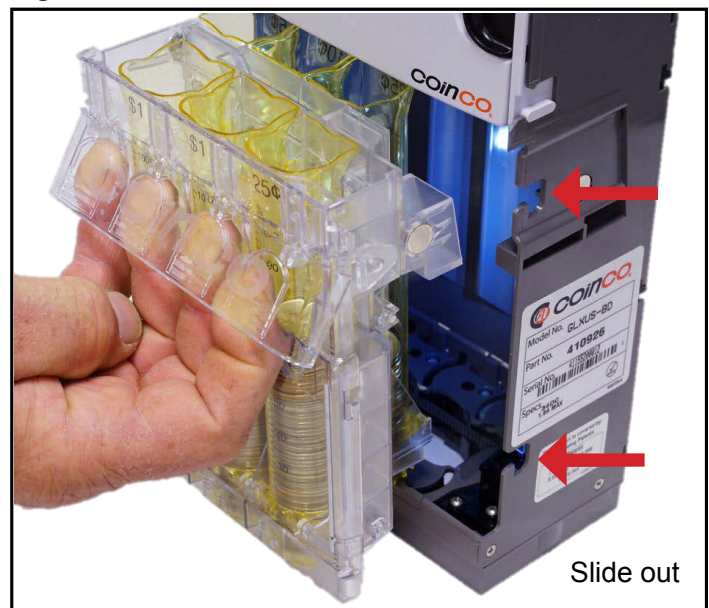


Figure 10

Coin Tube Capacities			
Country	Coin Type	Max Coin Count	
		Qty	\$
US	5¢	80	\$4.00
	10¢	111	\$11.10
	25¢	81	\$20.25
	\$1	67	\$67.00
Canada	5¢	80	\$4.00
	10¢	121	\$12.10
	25¢	88	\$22.00
	\$1	68	\$68.00
	\$2	79	\$158.00

Basic keypad navigation is shown in Figure 13 and a coin payout mode summary in Figure 12.

Figure 12

Coin Payout Modes	
Manual Payout	
Normal Mode	Keystrokes
Payout one or more coins from a tube	Hold down letter key until desired coins are paid out.
Auto Paydown Mode	Keystrokes
Payout ALL coins in a tube	Hold down letter key until at least 4 coins are dispensed.
Stop Coin Payout	Press any key.

Note: the last several coins in a tube can be paid out with individual button pushes.

Figure 11



Does the changer pay out all coins from tubes or leave hidden coins? How are hidden coins reported?

As is typical with most changers, the Guardian GLX leaves some hidden coins per tube (typically 5 per tube) to ensure incoming coins will always stack properly. These coins can be paid out in a manual payout mode. Hidden coins are not reported on MDB and are not available for change making. They are included in audit information and are used in all tube scanning and float/par calculations.

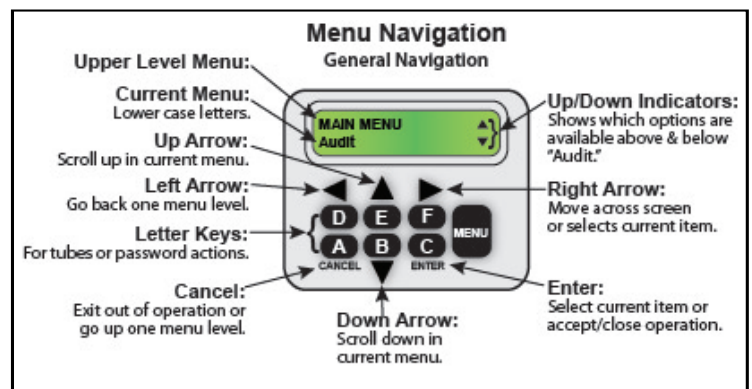


Dispensing Coins

Verify proper payout operation

- Pay out at least two coins from each tube to ensure proper operation. Press each coin tube Inventory Button (See Figure 12) to dispense coins.
- Insert a variety of coins into the changer to ensure proper operation.

Figure 13



SECTION 2: INSTALLATION & SETUP

✓ Setting Par/Float (optional)

Float Mode, also known as Par, records and maintains a predefined level of coins in the tubes, and typically will maintain a lower level of change in the changer than if Par is not used. When using Par mode, an accepted coin will only be routed to the tube if one has been paid out.

13. You can quickly Enable Par at the current coin levels by simultaneously pressing the keypad hotkeys **E+F**. Then press **ENTER** to accept the displayed Par Value.
14. To disable or reset the Par level, simultaneously press keypad hotkeys **D+F** to Disable Par. To reset par, adjust the coin levels and repeat step 13 above.

❓ When I add coins prior to resetting my par level, the changer automatically kicks coins out. Why?

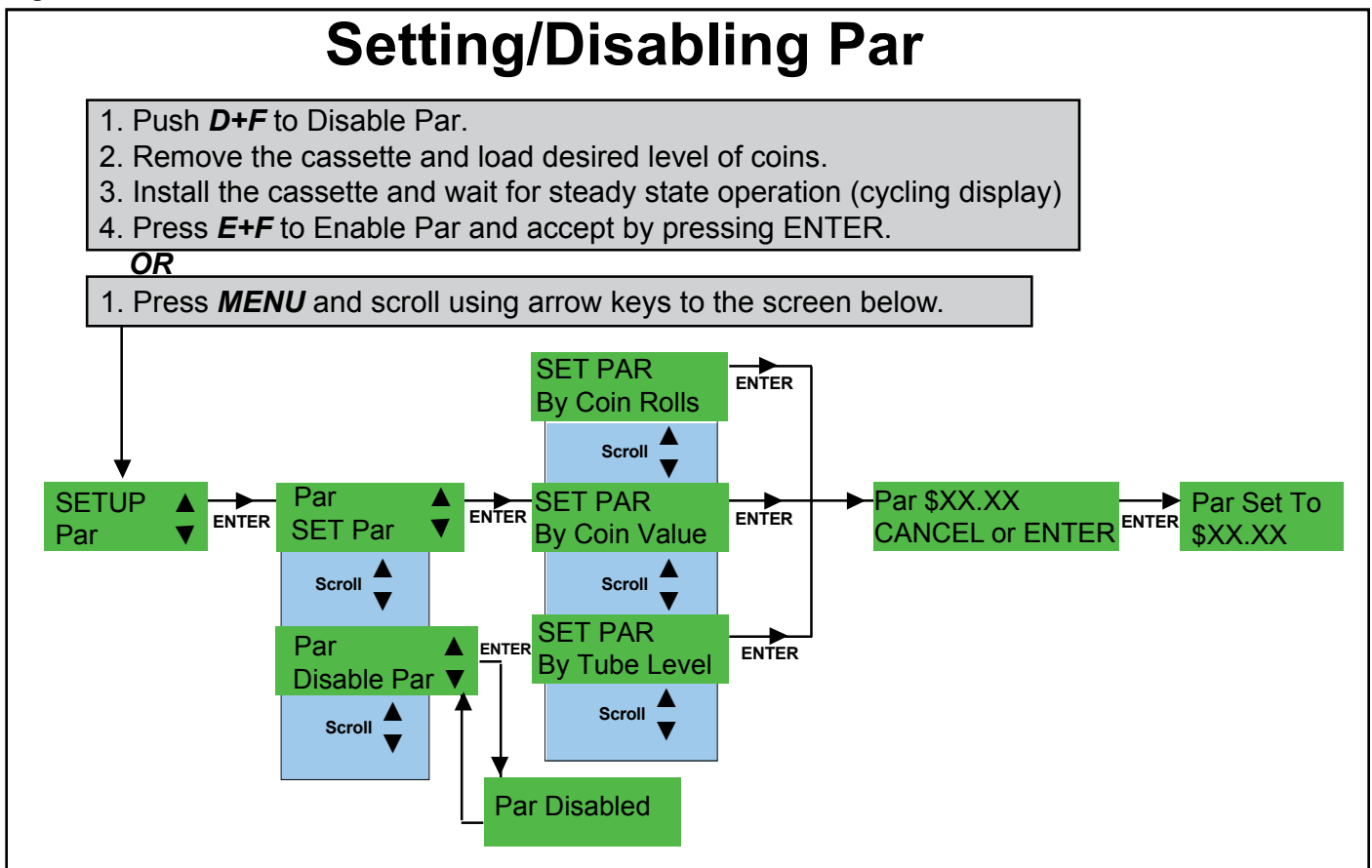
Overfill Paydown automatically returns any coins that exceed the Par level. Any coins added to the coin tubes after parring, or adding coins prior to setting a higher Par level will result in these extra coins being sent to the coin return. See Step 14 above for how to Disable Par.

❓ Why is it that sometimes when setting a Par Level, the Par setting does not match the exact value of coins loaded in the changer?

This could be for a couple of different reasons. The coin level sensing is accurate to within ± 2 coins, so there could be a discrepancy based on coin stack thickness tolerances.

Secondly, when setting the par level, the coin level sensing assumes a minimum of the hidden coin level (5 coins per tube) for all enabled tubes, even if there are no coins loaded. To eliminate this condition, disable all unused tubes by entering MENU/SETUP/CASSETTE/CUSTOM and set unused tubes to "---".

Figure 14



Steady State User Display

During steady state operation, the user display will show one of four typical screens as shown in Figure 15.

General Changer Operation

Acceptor Module

The Acceptor Module contains the majority of the Guardian GLX's control logic. The acceptor can electronically validate up to 32 different coin types and actively route accepted coins to six coin tubes or to the vending machine cashbox. An LCD display provides visual feedback on the functioning condition of the changer. Six inventory buttons allow the user to manually dispense coins from the coin tubes. The *MENU* button allows access to enter special programming and features.

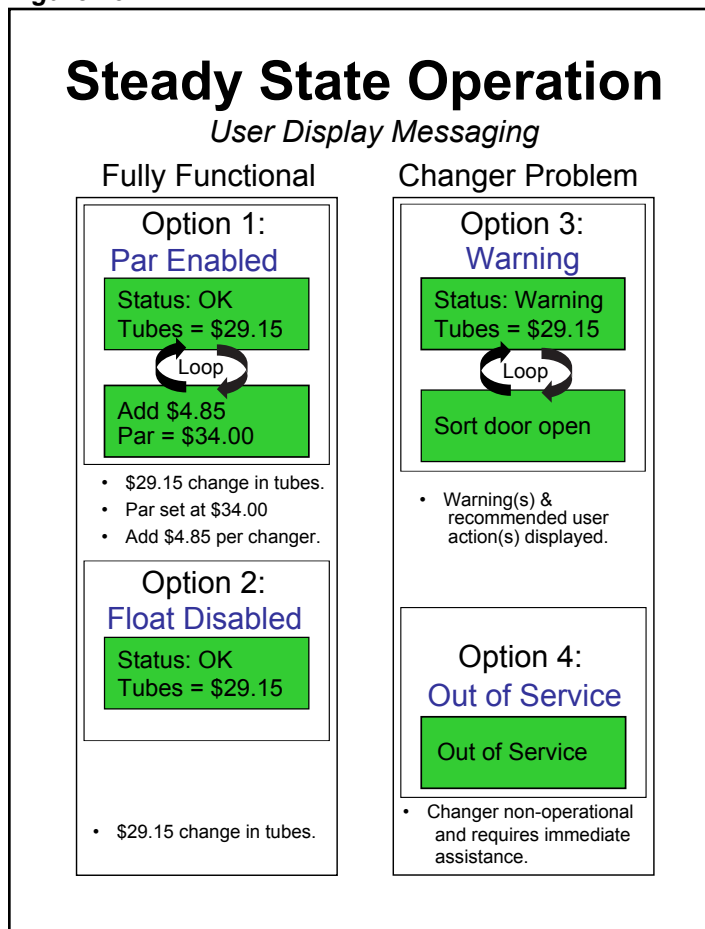
The Acceptor Module transmits credit and status information and receives payout and control information from the vending machine. The acceptor monitors each coin tube to know when it is full so any additional coins can be routed to the cashbox.

Coin Acceptance

Deposited coins enter the coin inlet funnel, where they are directed down a coin rail formed by the mainplate and acceptor gate. Optical and magnetic sensors positioned along the rail validate the coins. When the coin reaches the end of the coin rail, motor and solenoid-operated coin doors direct the coins to either the coin tubes, cashbox or to the coin return chute.

Pressing the escrow lever physically opens the acceptor gate, allowing bent coins and foreign materials to fall into the coin reject chute. Movement of the front gate is also detected by the coin changer electronics and is communicated to the vending machine controller causing any customer credit to be paid back.

Figure 15



If coins are deposited too closely together (fast feed), one or more coins may be rejected if the acceptor cannot safely route them to the appropriate coin tube. When any object (coin, counterfeit coin, etc.) is rejected, the changer will temporarily delay coin validation to allow the rejected object to exit the changer.

SECTION 3: GENERAL CHANGER OPERATION

Housing Module

The Housing Module consists of the changer housing and MDB harness. The backside of the housing has three mounting holes for attaching the Guardian GLX changer to the vending machine. The changer's cashbox coin chute is also part of the housing.

Coin Tube Cassette

The coin cassette contains the six coin tubes that store coins for change payout. The center slot of the cassette is the changer's coin return chute. Rejected coins from the acceptor pass through the center of the cassette assembly and fall out the bottom of the coin changer. Accepted coins are guided into the coin tubes.

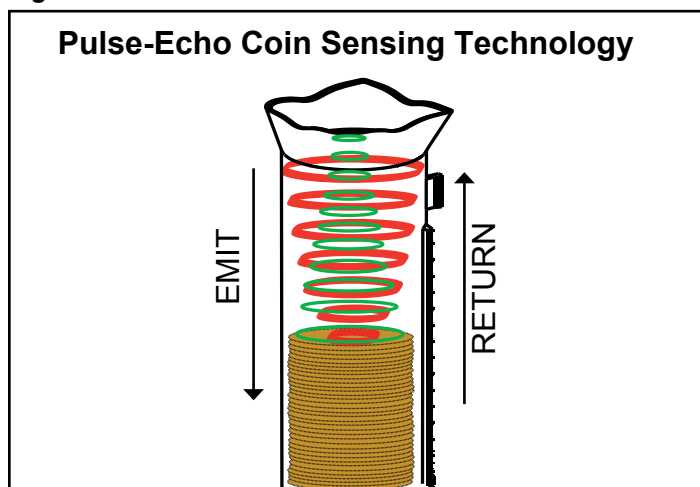
Payout Module

The bottom of the Guardian GLX changer is the Payout Module. Coins stored in the coin tubes of the cassette are dispensed by the payout module's motor driven belt. The belt has two pins attached to it, which engage a sweeper at the bottom of each coin tube. When the sweeper is engaged, one coin is released from the coin tube. The acceptor module sends information to the payout module for dispensing coins from the cassette.

Coin Level Sensing

The Pulse-Echo coin level sensing method emits and detects sound waves. The number of coins is calculated by the amount of time it takes the emitted sound wave to reflect off the coin stack and return to be detected. (See Figure 16)

Figure 16



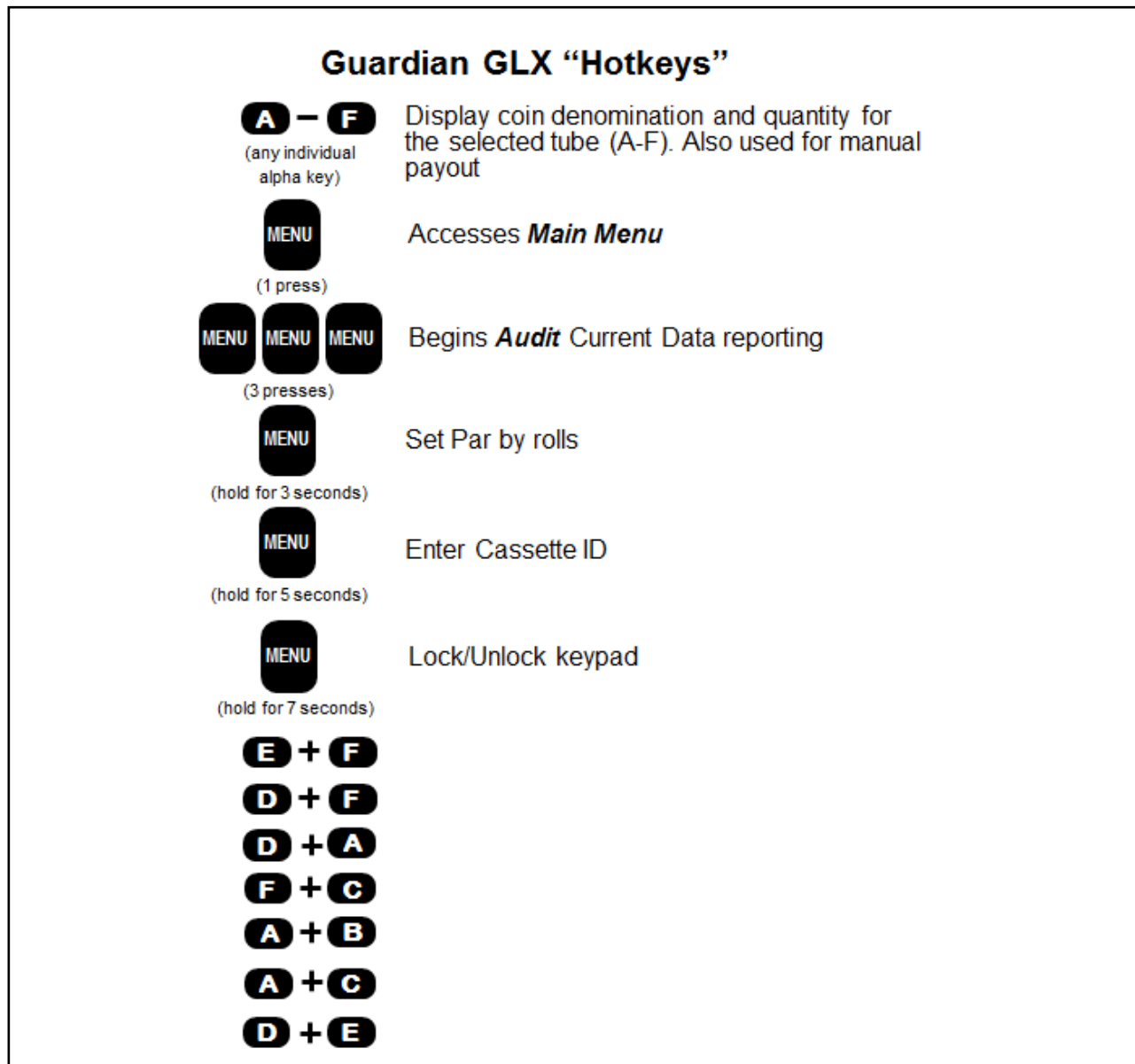
- ❓ **How often does the changer scan the tubes?**
The Guardian GLX will automatically scan after any coin deposit or payout. It will also scan after any “change in state”, e.g. when the payout cassette is reinstalled or when the sorting door is opened then closed.
- ❓ **I added one coin to a tube and the coin level sensing did not detect it. Why?**
The Pulse-Echo coin level sensing method is accurate to within ± 2 coins. It may not necessarily detect a difference when a single coin is added. This is normal and is within the technology's margin of error.
- ❓ **Does the Guardian GLX require tube sensing calibration as with some other models?**
No, it does not require any calibration to attain its level of accuracy.

Menu Navigation

The following views summarize menu navigation for the Guardian GLX changer:

- General menu navigation and keypad functionality is shown in Figure 13.
- The special “hotkeys” to streamline key operations are shown in Figure 17.

Figure 17



Menu Structure

The main menu consists of two primary functions: 1) Audit capabilities, and 2) Changer Setup.

The overall menu layout is shown in Figure 18. This figure is also your guide showing where each menu topic is reviewed in this user manual. Figure 19 shows more information specifically on the Setup menu.

? What happens if I do not complete a programming change? For safety purposes, the Guardian GLX times out if a programming step is not completed. After about 45 seconds it will default to the prior settings.

SECTION 3: GENERAL CHANGER OPERATION

Figure 18

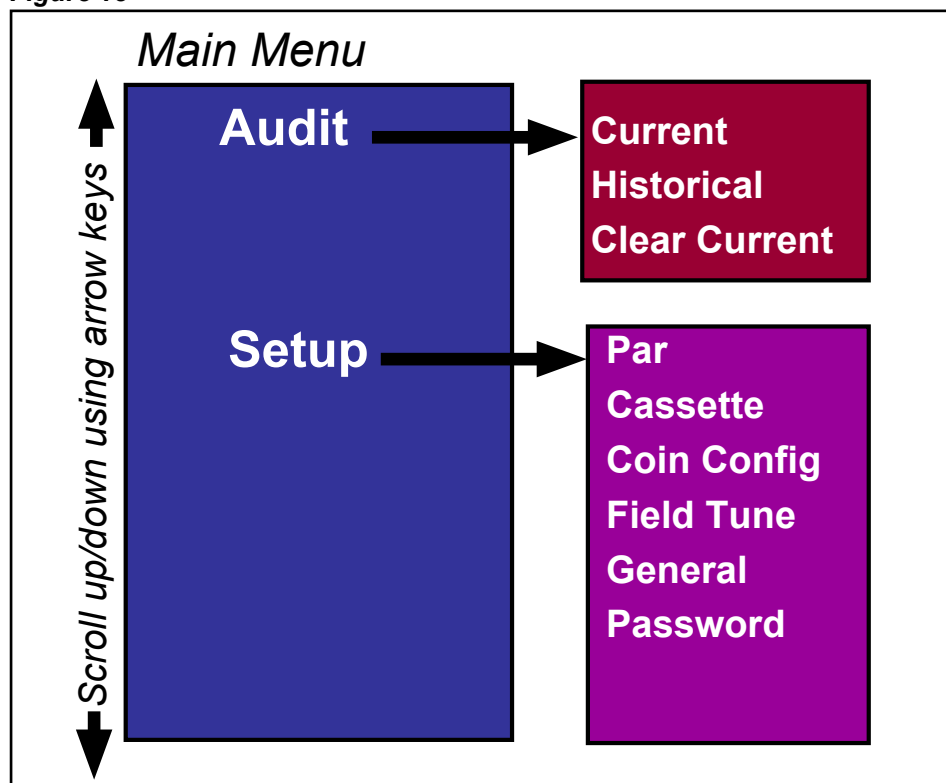
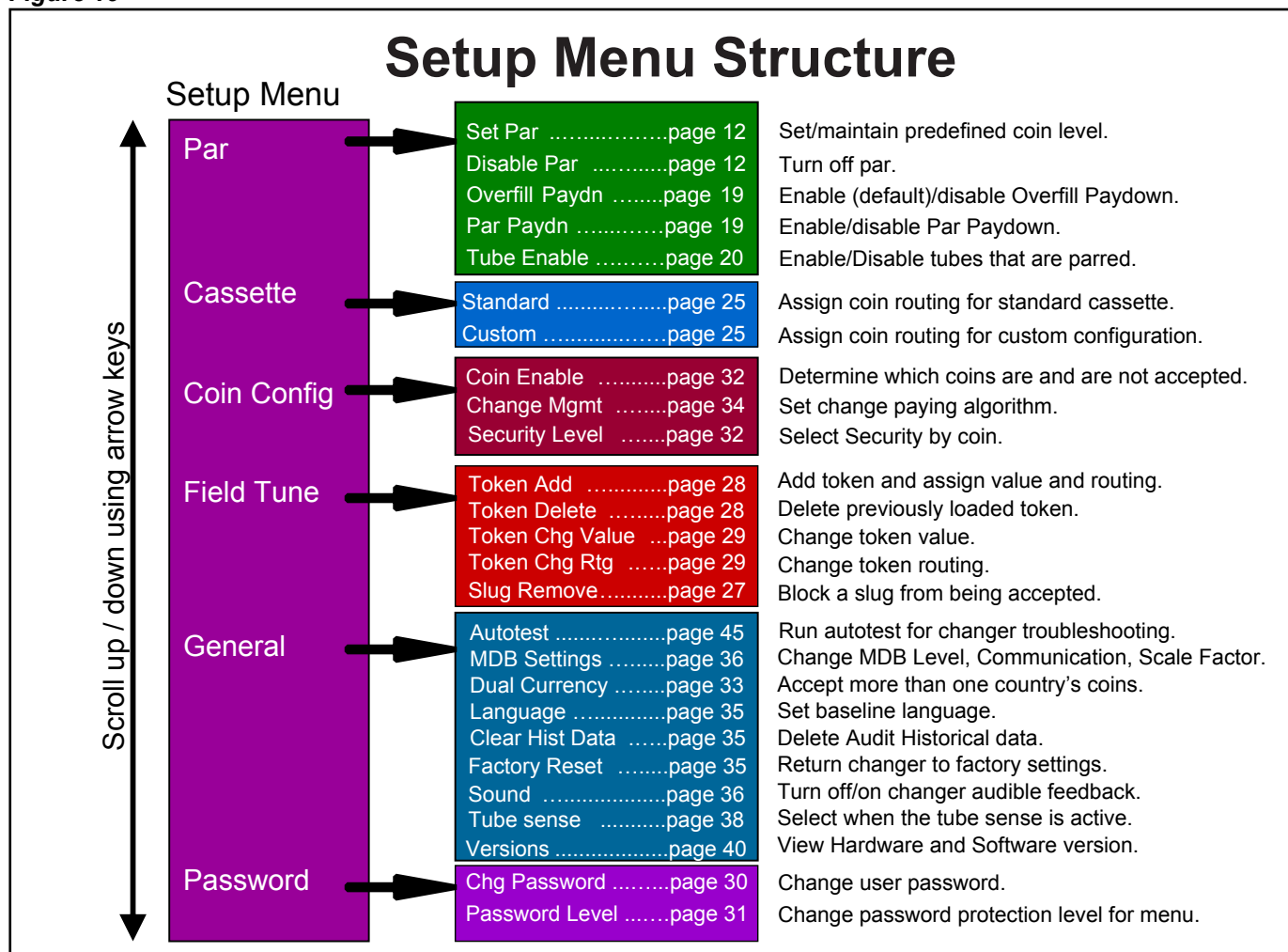


Figure 19



Now that you've installed and completed the basic setup of your Guardian GLX changer, this section will review typical route operations. More detailed setup capabilities are detailed in Section 5.



Parring the Guardian GLX

Parring is the action of bringing the changer back to its original float or par level. This can be accomplished either via the Guardian GLX's automated parring system (when Par has been set by the user), or visually when Par has not been set.

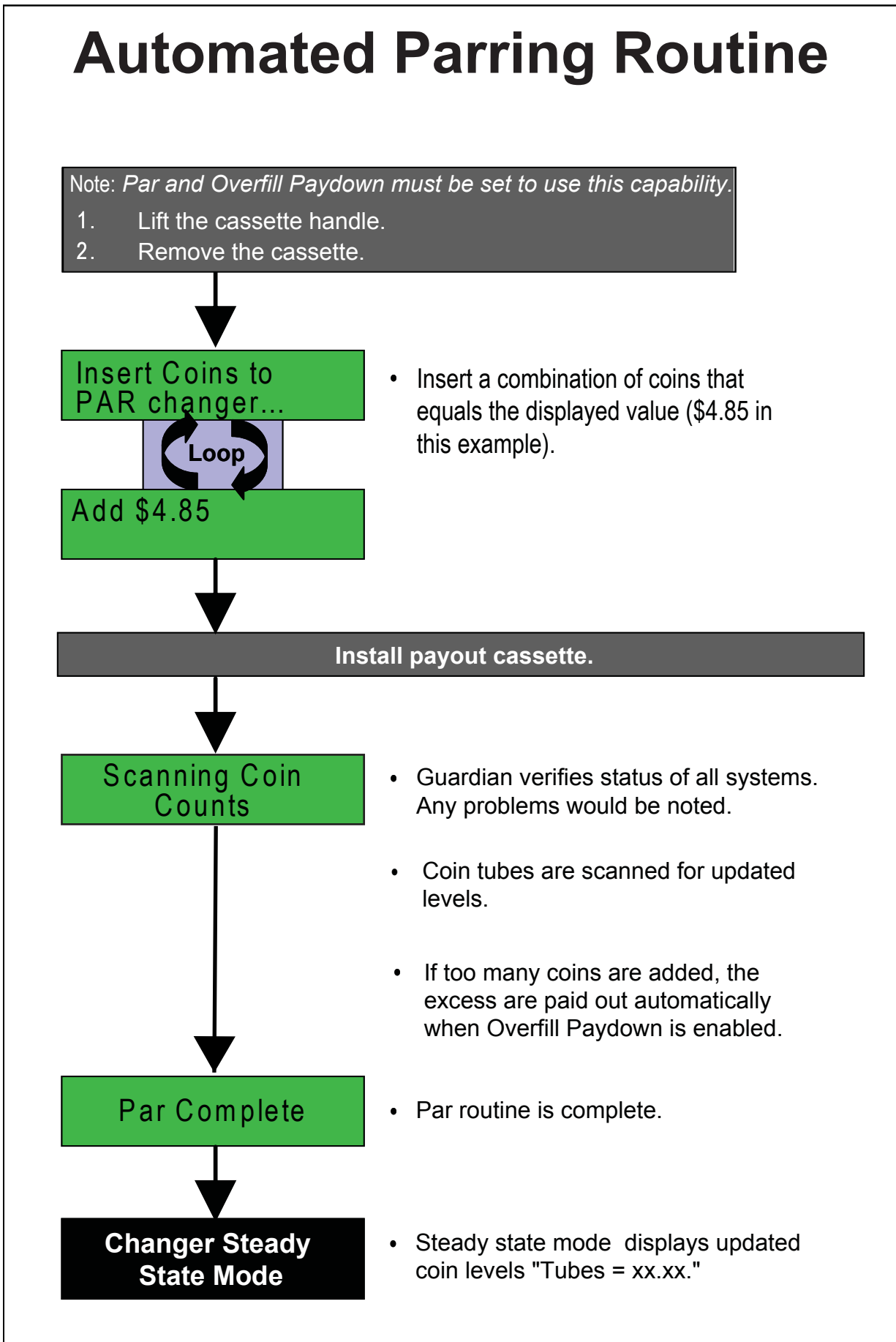
1. **Automated Parring System:** The simplest way to par is by using the Guardian GLX's automated parring recommendations. See Figure 20 for details.



If coins only need to be added to the front tubes, the Sorting Door can be opened instead of removing the payout cassette. Otherwise, everything else is the same in Figure 20.

2. **Visual Parring:** The Guardian GLX can also be parred visually by refilling the tubes to the approximate levels. This can be accomplished by using the tube markings. The Visual Parring method should only to be used when Par is disabled.
 - Remove the payout cassette (all tubes) or open the sort door (front tubes only) and load coins to the desired tube level marking to the parring level.

Figure 20



✓ Setting Par (optional)

See Section 2: Installation & Setup.

✓ Enabling / Disabling Overfill Paydown

When the changer is in Par Mode, the Overfill Paydown feature causes the changer to pay out any coins in excess of the Par level that are inserted during parring. Overfill Paydown is defaulted to “on” in the standard changer setup.

✓ Par Paydown

When the changer is in Par Mode, the Par Paydown feature causes the changer to route all accepted coins to the tubes until they are full, with the balance going to the cashbox. Par Paydown is commonly used to ensure the maximum change making capability is always available without having to manually fill the changer during the route visit. Par Paydown is defaulted to “off” in the standard changer setup.

See Figure 21 for how to turn this feature on or off.

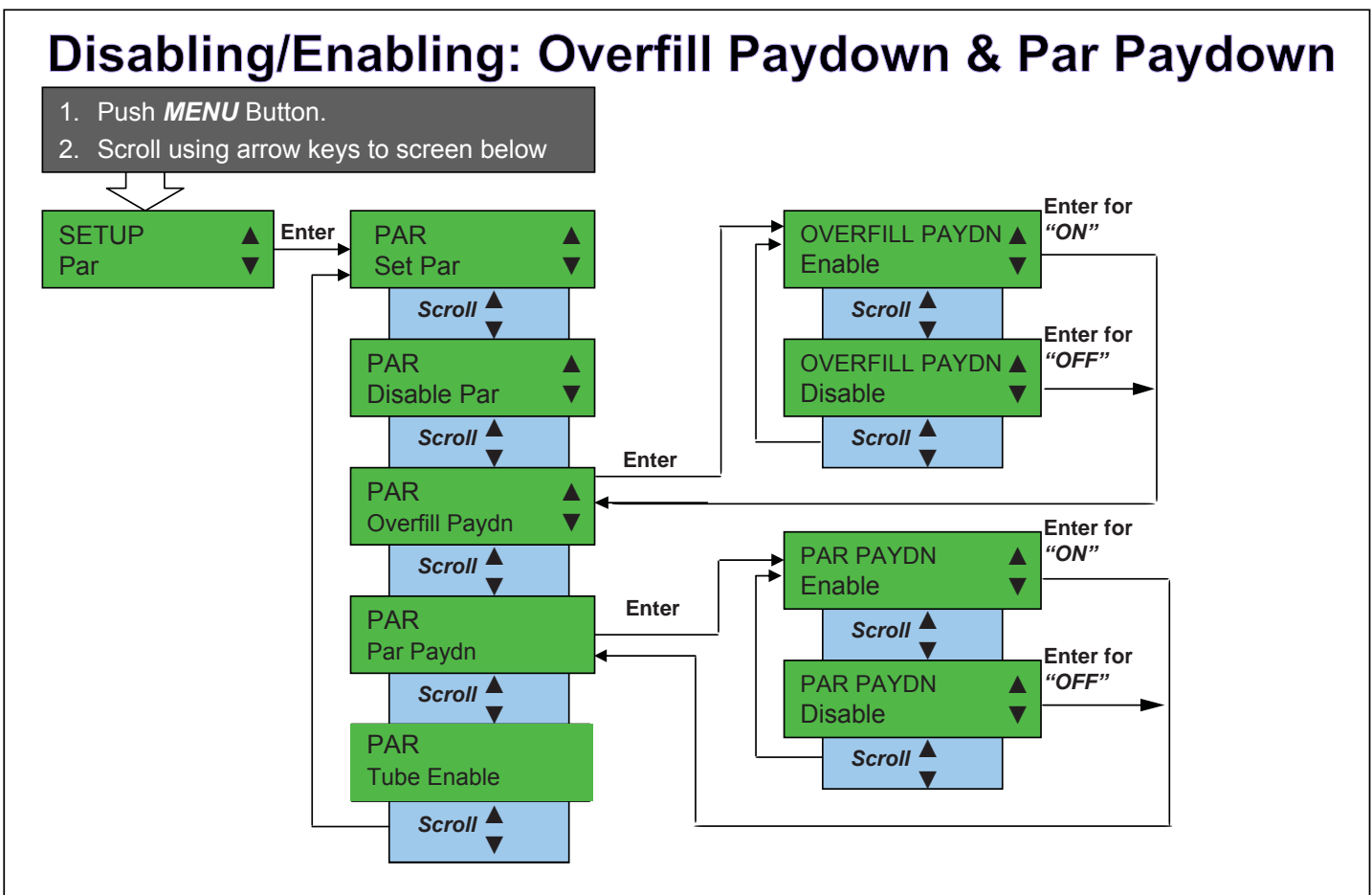


Figure 21

SECTION 4: TYPICAL USAGE

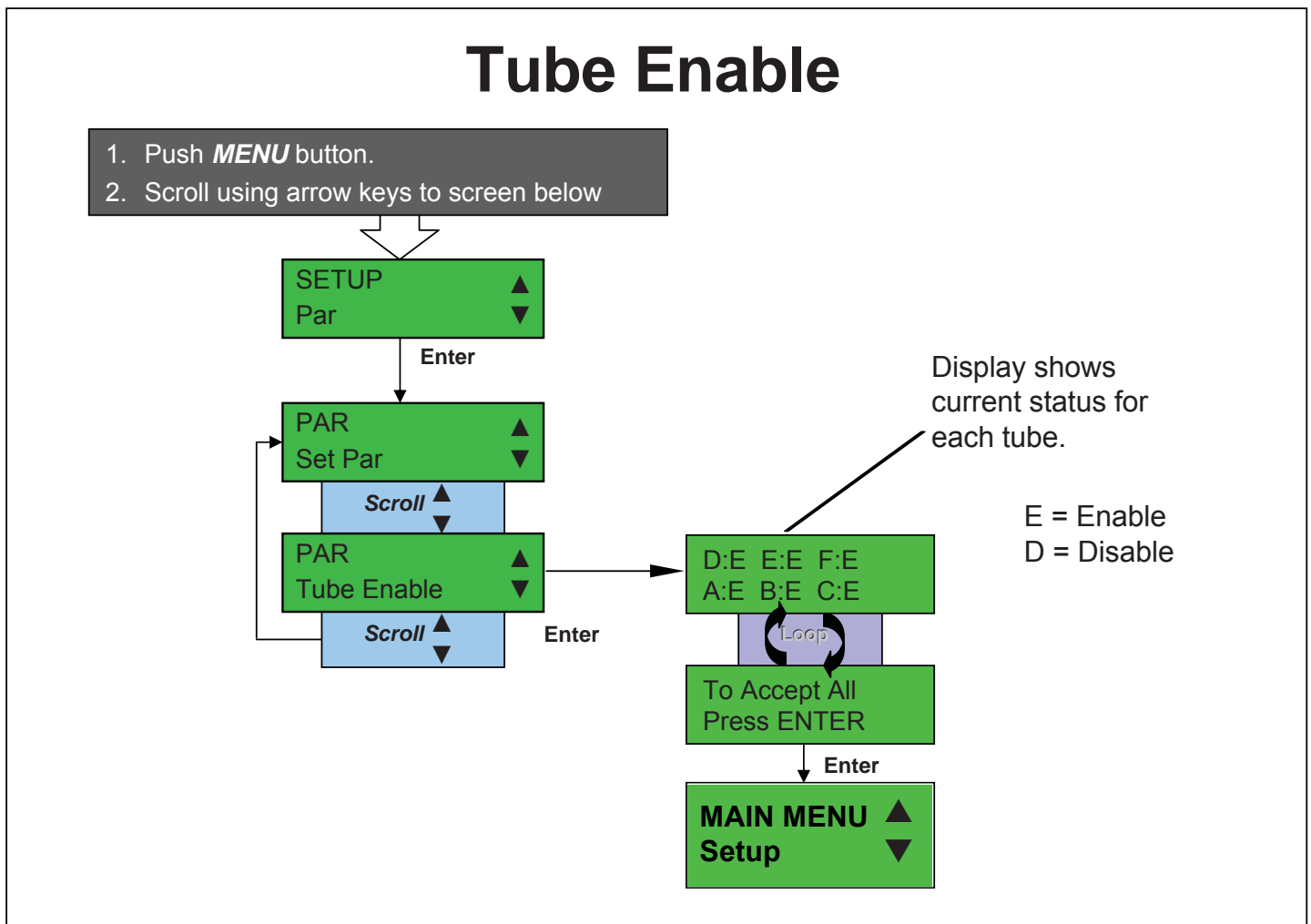
Tube Enable

Before putting the changer in Par Mode it is possible to set which tubes will have the Par enabled. All enabled tubes will be set to the current coin level when par is enabled. All disabled tubes will fill as normal.

By default all of the tubes are enabled.

See Figure 22 for how to enable/disable tubes.

Figure 22



Audit Reporting

The Guardian GLX has a means of tracking and reporting all sales. Audit data consists of two types of data: 1) Current Data, and 2) Historical Data.

1. **Current (Resettable) Data:** consists of changer data stored since the last user reset. See Figure 23 for details.



The user can quickly begin Audit Current Data reporting by pushing **MENU** twice. Refer to Figure 18 for additional information on changer hotkeys.

2. **Clear Current (Resettable) Data:** Clears all changer data since the last user reset. Current data can be cleared at any time. (See Figure 23).

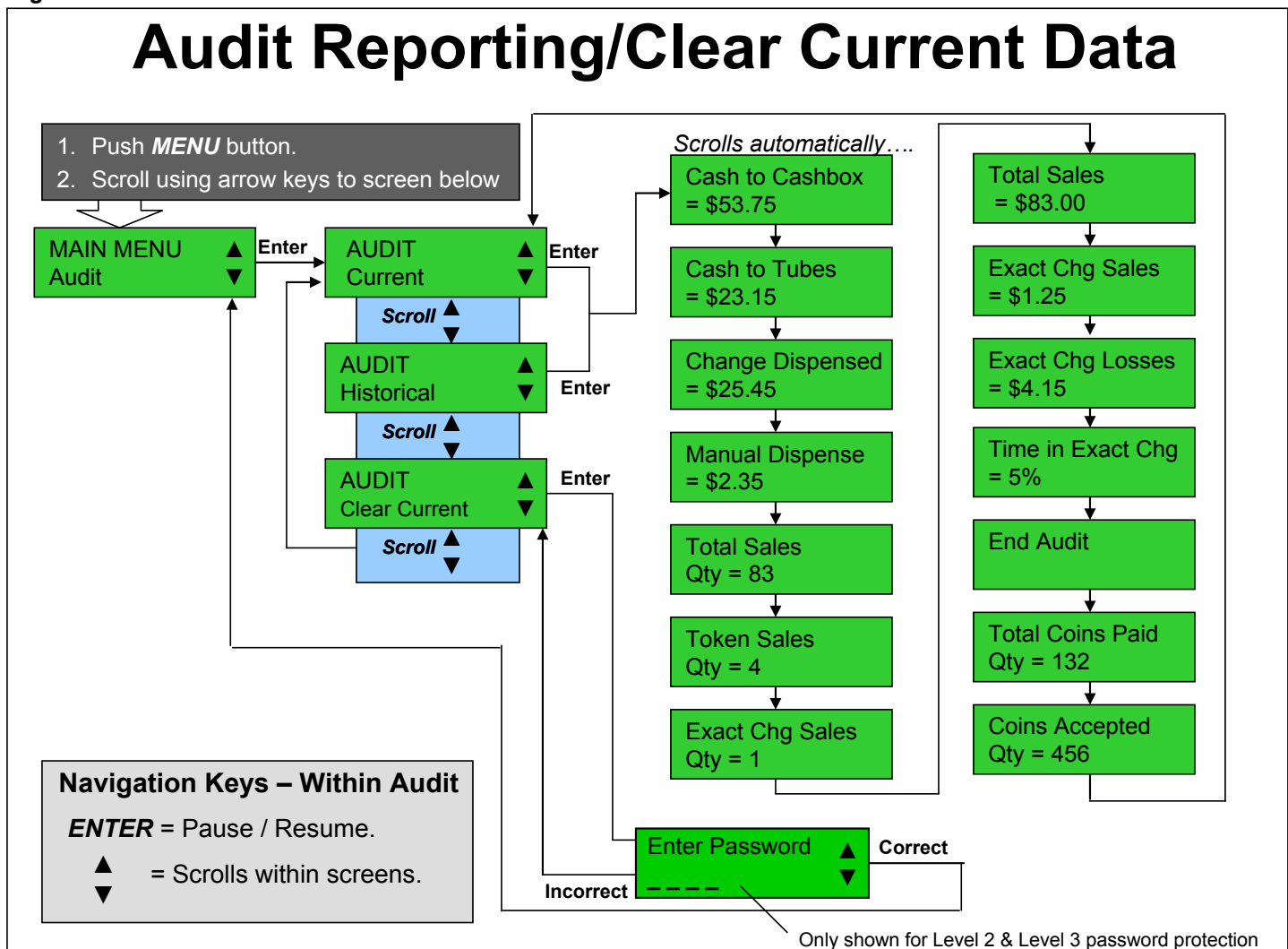
How are 'Exact Change Losses' calculated?

Historical sales activity is used to calculate lost sales when in the exact change mode.

How are 'Total Sales' quantities and dollar values calculated?

*Unfortunately, there is no "MDB vend" command, so this is an estimate. For our audit fields, a vend is defined as **all coins being disabled by the VMC, then reenabled**. Some vending machine controllers do not disable coins before a vend so we may register an incorrect number of vends. Also, some vending machines disable coins while in service mode. This means that the coin changer would register a vend every time the operator enters and exits service mode. The value of vends is also an estimate and does not include bills.*

Figure 23



SECTION 4: TYPICAL USAGE

3. **Historical Data:** consists of data stored since the changer was first put in service. Audit Historical Data displays the same categories of data as Current Data, the totals will just be from the beginning of the changers service life. See Figure 23 for details.



Historical Data can also be reset for extreme cases where the user does not want their sales data to be revealed; e.g. changer is being sold, etc. See Figure 40 for more information.

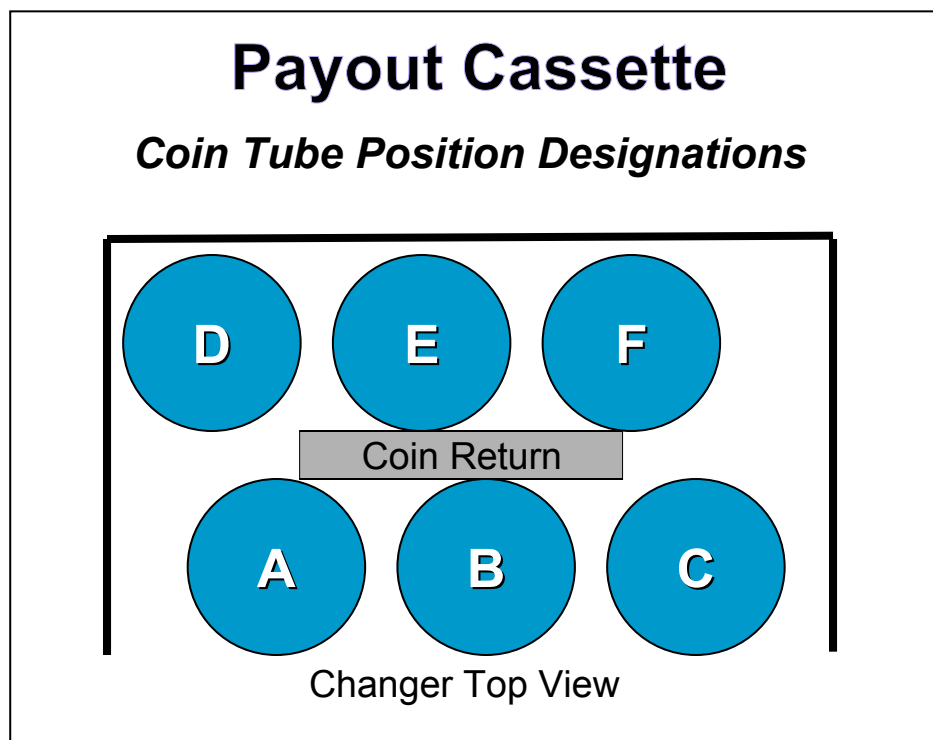


Changing the Payout Coin Tube Configuration

Your Guardian GLX will typically incorporate a Standard Cassette configuration. The Guardian GLX features the capability of changing individual tubes within the payout cassette.

The Guardian GLX coin tube locations are designated as shown in Figure 24. Coin tubes A-B-C are in the front, tubes D-E-F are in the back.

Figure 24



Changing the Coin Tubes

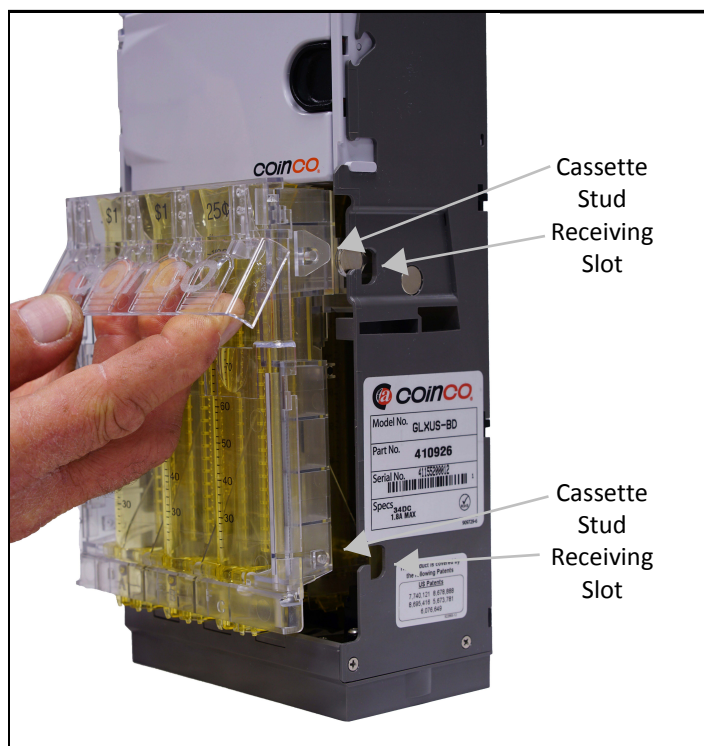
There are 5 different tube sizes for the North American market. Quarter and nickel tubes can be placed in any of the six payout positions. Tubes for very small and very large coins have restrictions on their placement.

Each coin tube will require a specific coin shim in order to accurately pay out that coin thickness.

6. To install a coin tube, set the bottom of the coin tube on the two lower posts in the bottom of the cassette. Tilt the top of the tube inward to snap it in the upper part of the cassette.
7. Reinstall the cassette front cover onto the cassette.
8. Reinstall the cassette into the coin changer housing.

1. Raise the cassette handle and lift the coin tube cassette up, then slide the cassette out of the coin changer housing (See Figure 25).
2. Remove the cassette front cover by first spreading the lower left and right cover tabs outward (See Figure 26).
3. Then slide the cover down to release it from the cassette (See Figure 27).
4. To remove an individual coin tube, hold the cassette assembly then gently pull the top of the coin tube forward to unsnap the top of the tube (See Figure 28).
5. Tilt the top of the tube away from the cassette and lift the tube out (See Figure 29).

Figure 25



SECTION 4: TYPICAL USAGE

Figure 26

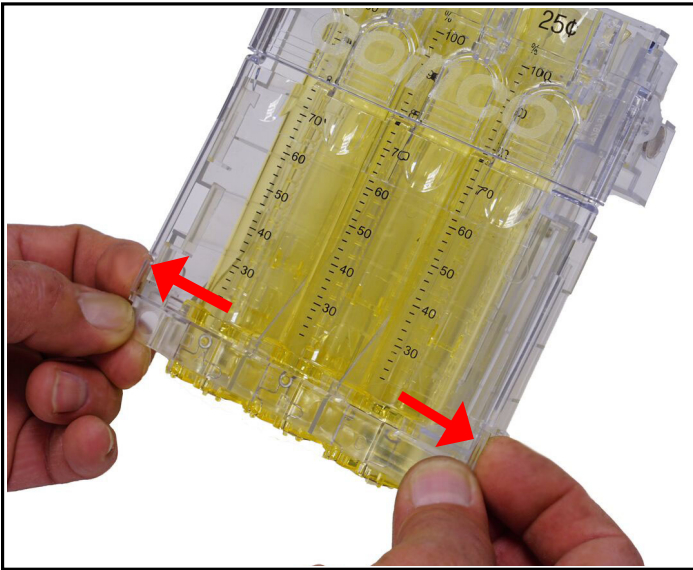


Figure 28

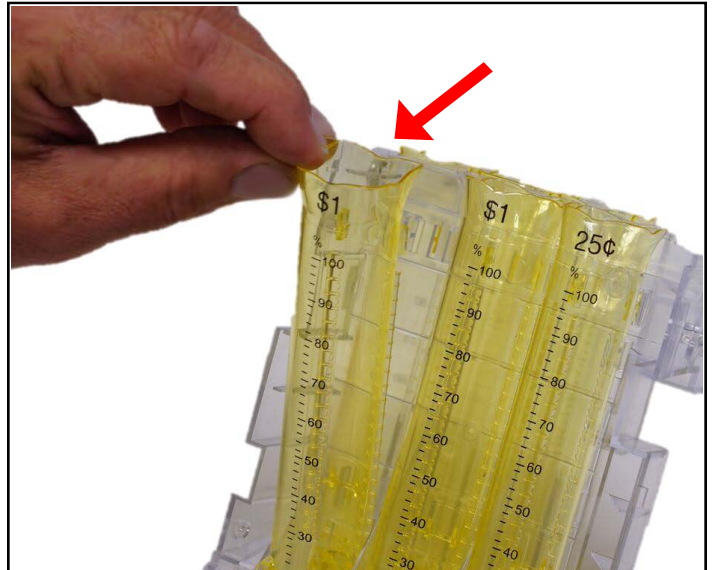


Figure 27

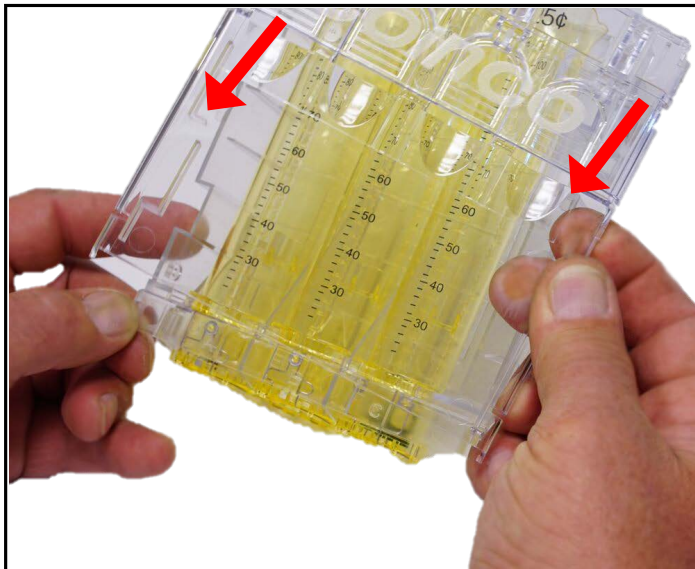
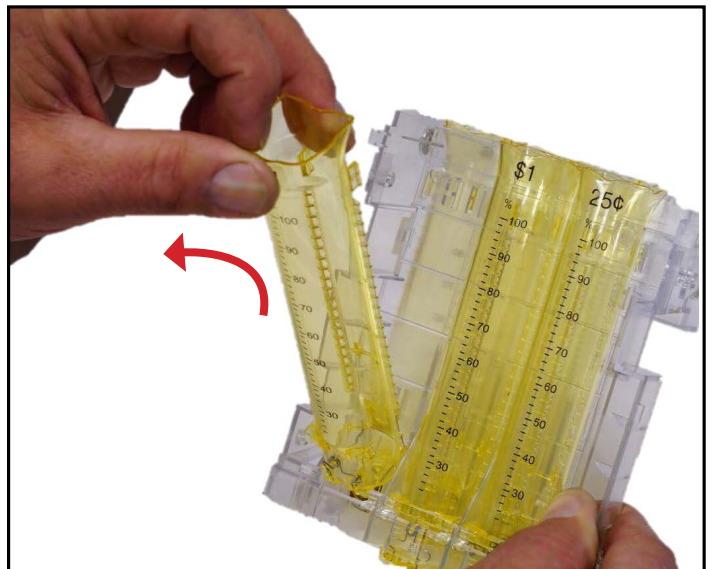


Figure 29



Programming the Coin Routing

Whenever the coin tubes are changed, the GLX must be reprogrammed to route coins to the new tube locations. See *Cassette Coinfiguration - Using a Custom Configuration*.



Cassette Configuration

Cassette configuration assigns which coins route to which payout tubes.

Your new Guardian GLX changer will already be configured for the factory cassette and coin routing. This step of changing the cassette configuration is only necessary if:

- a payout cassette has been replaced with a cassette containing different coin tubes, or coin tubes in different positions.
- individual coin tubes have been replaced (or moved).

There are two ways to assign coins: 1) *Using a Standard Cassette*, or 2) *Using a Custom Configuration*.

1. **Using a Standard Cassette:** If you are using a Standard cassette, find the cassette configuration designation (such as BB, BD, etc.) and proceed to Figure 30 to enter this cassette configuration. The Guardian GLX will automatically set the coin routing based on the selected Standard cassette.

A list of the Standard cassette configuration designations are available from either coinco.com or your local Coinco Sales Representative.

2. **Using a Custom Configuration:** a Custom configuration is any combination of tubes and/or coin routing other than the standard cassette configurations. If you want to reconfigure the payout tubes and have not already done so, please refer to *Changing the Payout Coin Tube Configuration* before proceeding. After this has been done, you will need to reconfigure the coin routing. See Figure 30.



If you do not plan to use all 6 coin tubes, leave tubes installed and **make sure to disable coin routing and coin level sensing for the appropriate tubes**. This is done by entering “---” when assigning coins. See Figure 30 for an example.

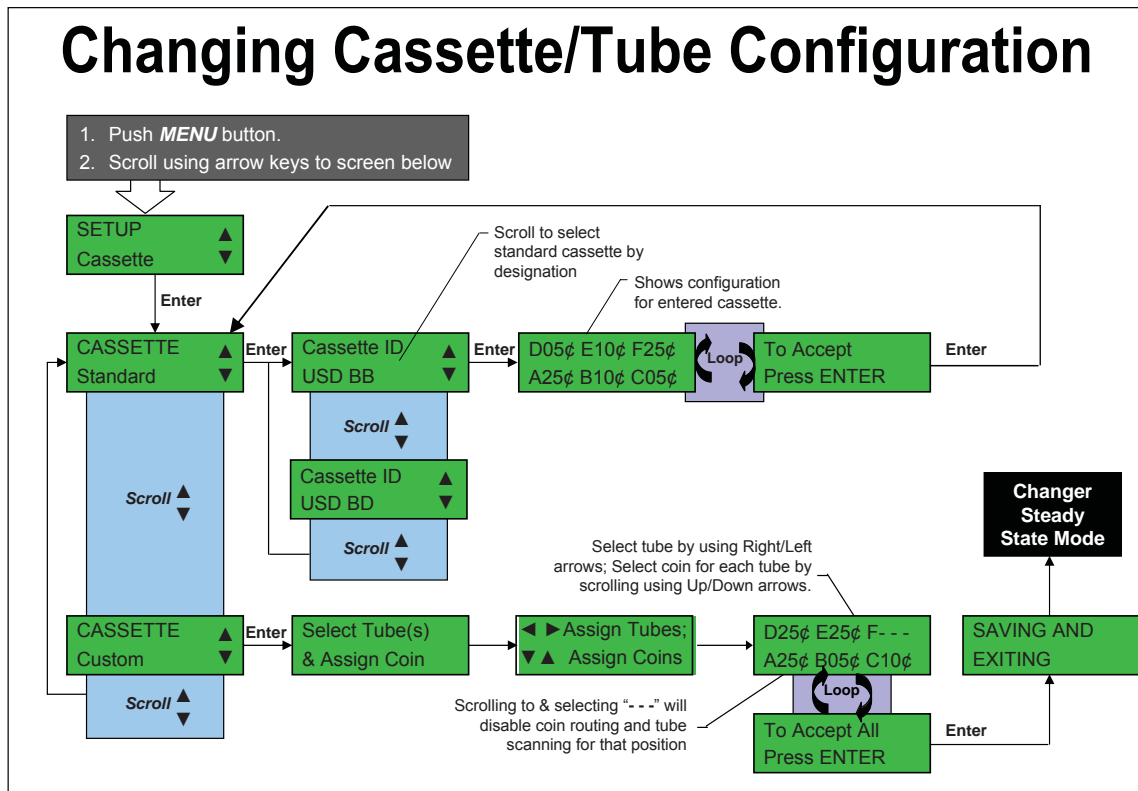


On some Vendo and Dixie-Narco machines, certain changer setup modifications (tube reconfiguration, changing coin routing, token additions/deletions) may not be recognized. If this occurs, cycle power to the main controller board to correct the problem.



Tokens cannot be routed using the Custom Cassette menu.

Figure 30



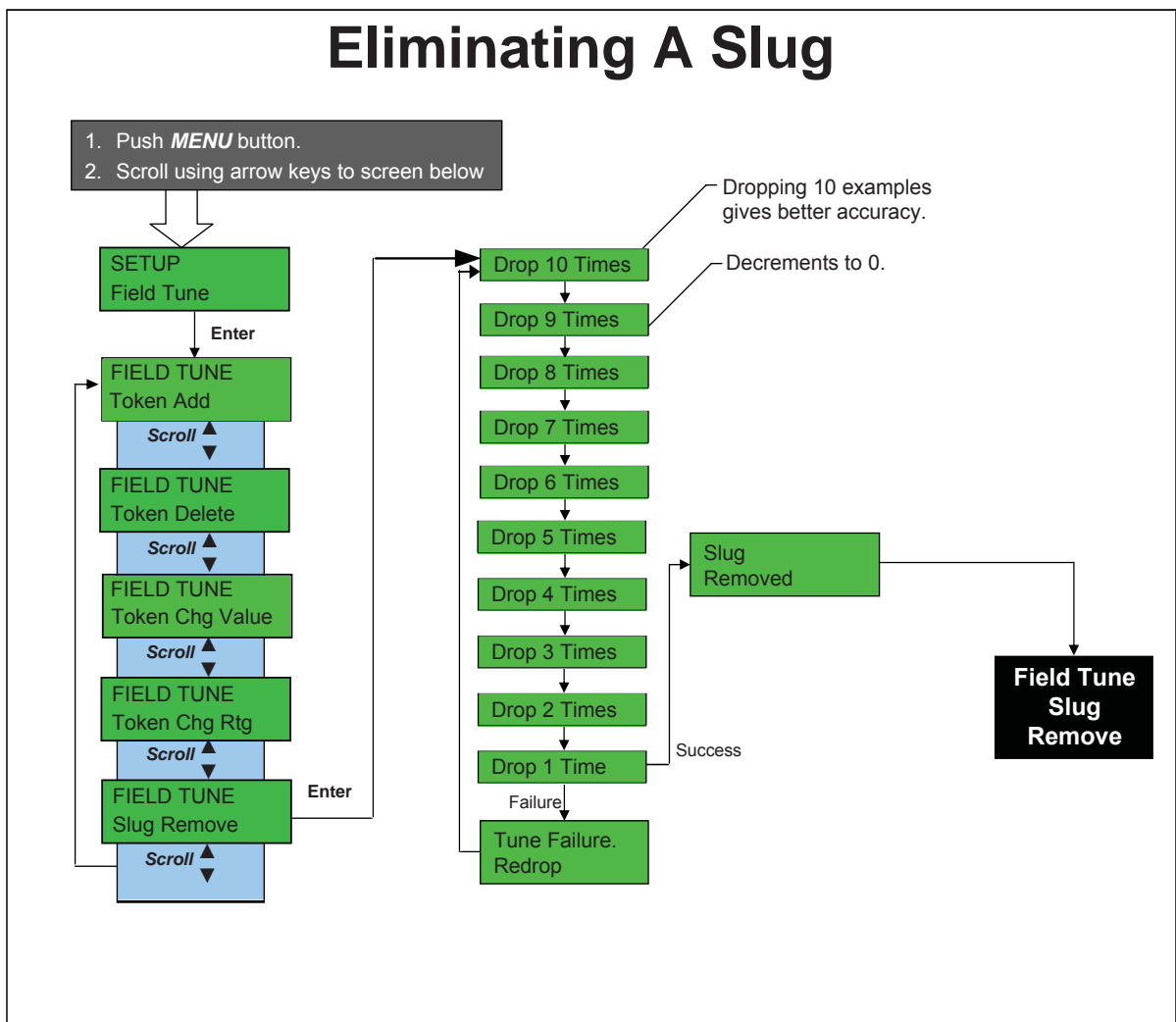


Eliminating a Slug

Slugs are counterfeits or foreign coins that are used to gain credit. The Guardian GLX enables simple blocking of slugs while the changer is still on site.

Slugs can easily be blocked by completing the simple field tune in Figure 31. You will need at least one sample of the slug to be blocked to tune the changer. Eliminated slugs can be routed to the cashbox to prevent reusing them.

Figure 31



SECTION 4: TYPICAL USAGE

Working with Tokens

The Guardian GLX features a wide range of token capabilities all of which can be accomplished while the changer is still on location. These capabilities are covered here.



Adding A Token

Enables acceptance of a token.

Tokens can easily be added while the changer is still on site by completing the simple field tune in Figure 32.



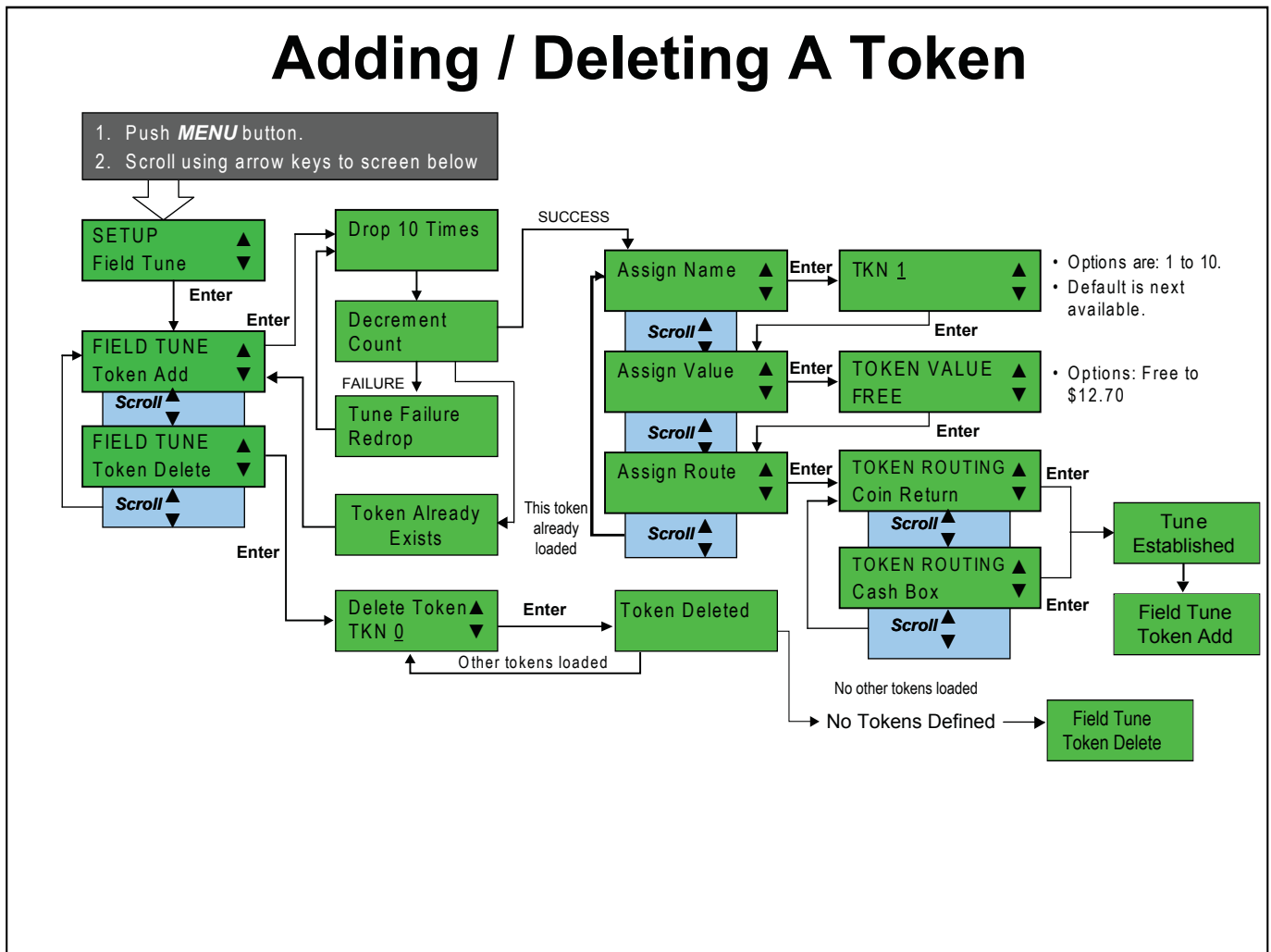
Deleting a Token

Allows the user to block acceptance of a previously tuned token.

See Figure 32 for how to delete a token.

On some Vendo and Dixie-Narco machines, certain changer setup modifications (tube reconfiguration, changing coin routing, token additions/deletions) may not be recognized. If this occurs, cycle power to the main controller board to correct the problem.

Figure 32





Change Token Value

Change the value of a previously tuned token.

See Figure 33 for how to change token value.



Change Token Routing

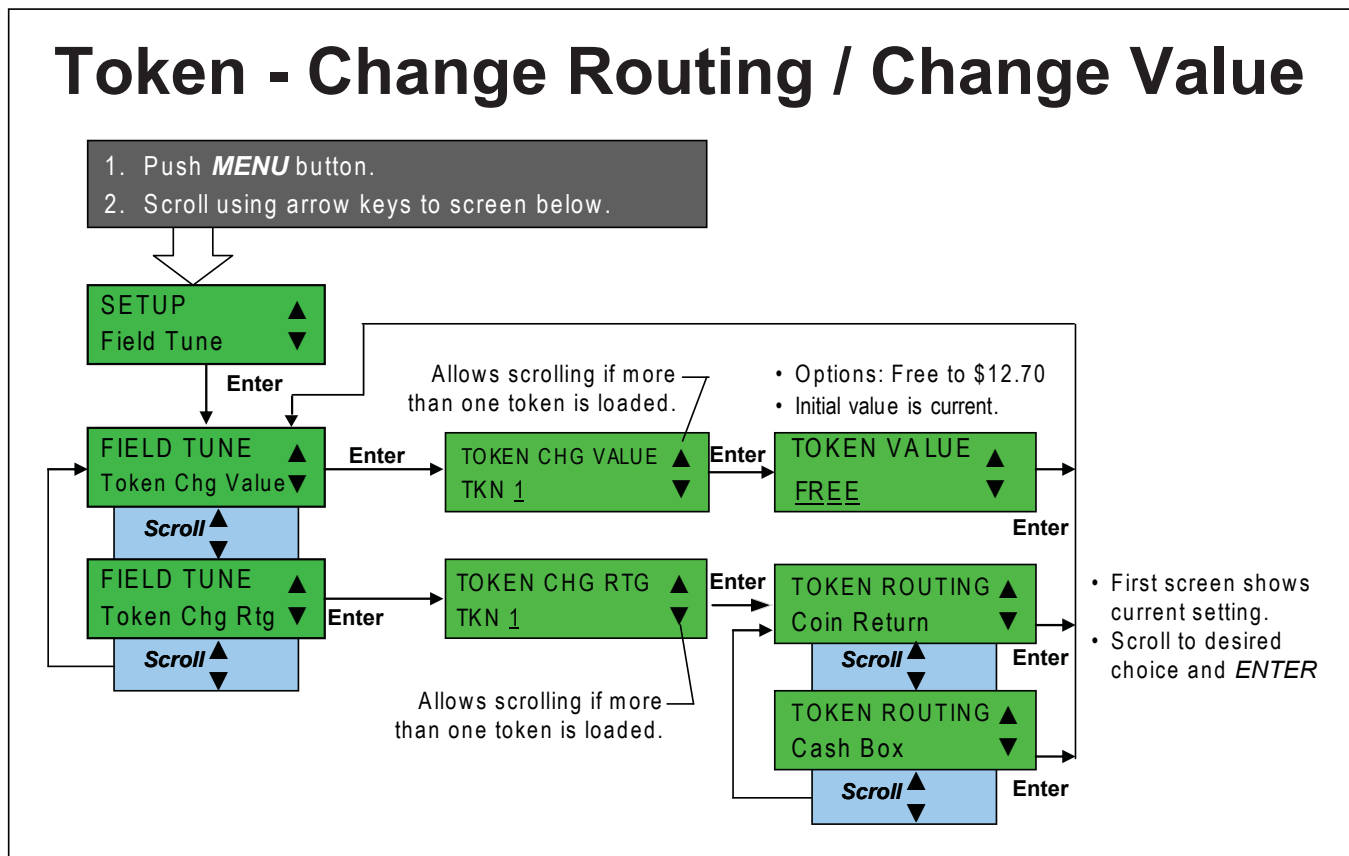
Change the routing of a previously tuned token.

See Figure 33 for how to change the routing for a token.



The Guardian GLX also supports factory added tokens. The main difference between these tokens and tokens added using the method above is that they cannot be deleted. Instead they can be enabled/disabled in the same way as genuine coins.

Figure 33



SECTION 5: ADVANCED CONFIGURATION

Advanced Configuration

This section explains the lesser-used features of the Guardian GLX changer.

Password

The password section protects the more sensitive changer information.

Entering the Password

A password must be entered any time the user attempts to enter a password-protected area of the menu. These include the Password area of the Setup menu, as well as the areas defined by the Password Protection Level (see below).

The basics of Password operation are as follows:

1. The default Password for most changer configurations is D-E-F-B
2. The CANCEL button allows you to back up while typing the password, or to back out of the Password screen entirely.
3. Once the correct password is entered, it allows access to the user's original destination.
4. There is no penalty for multiple incorrect password attempts; i.e. the screen does not lock out access to non-password protected items.

Changing the Password

Passwords can easily be changed from the default.

Valid passwords are four characters and are any combination of the letters D, E, F, and B (the four arrow keys). See Figure 34 for how to change the password.


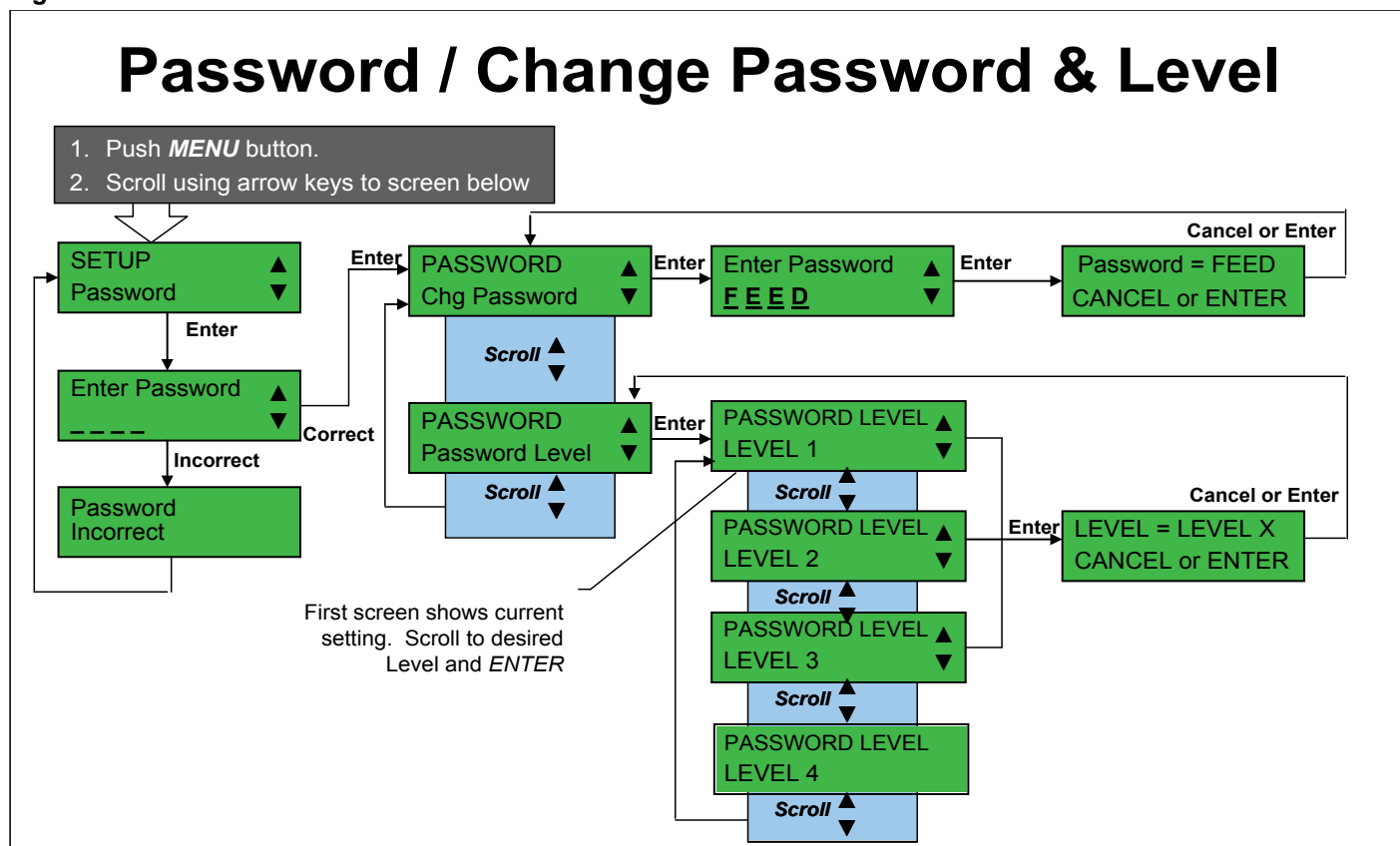
 If the password has been changed from the standard D-E-F-B, and the user cannot remember what it is, the Password can be reset by using the Coinco FP-5 Field Programmer.

Figure 34





Password Protection Levels

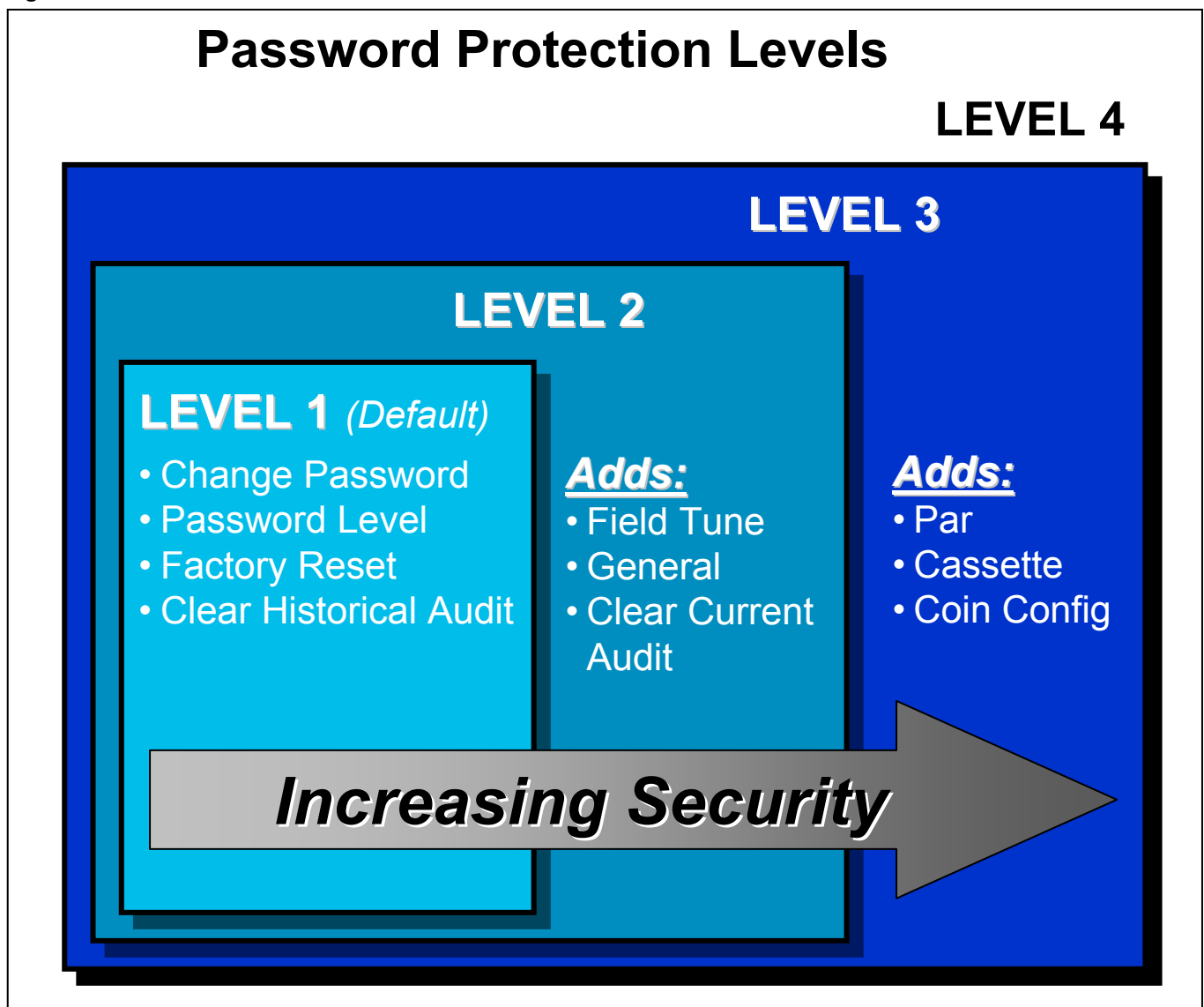
Password Protection Levels allow the user to decide which information is protected by a password.

The Guardian GLX features three levels of password protection:

- **Level 1:** The default, or lowest level of security.
- **Level 2:** Adds *Field Tuning* and the entire *Setup-General* sections of the menu.
- **Level 3:** Adds *Par*, *Cassette Configuration*, and *Coin Configuration*.
- **Level 4:** Reserved for future use.

See Figure 35 for a visual representation of the Password Protection Levels. Figure 34 shows how to change the level.

Figure 35



SECTION 5: ADVANCED CONFIGURATION



Coin Enable

Coin Enable allows the user to select which coins are and are not accepted within the standard coin set for the country.

See Figure 36 for enabling and disabling acceptance of coins within the standard coin set.



The standard coin set for the country is determined by the changer “Country Code”. See the Guardian GLX Naming Convention (page 5) to determine the Country Code of the changer.



Coin Security Level

Allows the user to determine how tight the acceptance rate should be for each type of accepted coin.

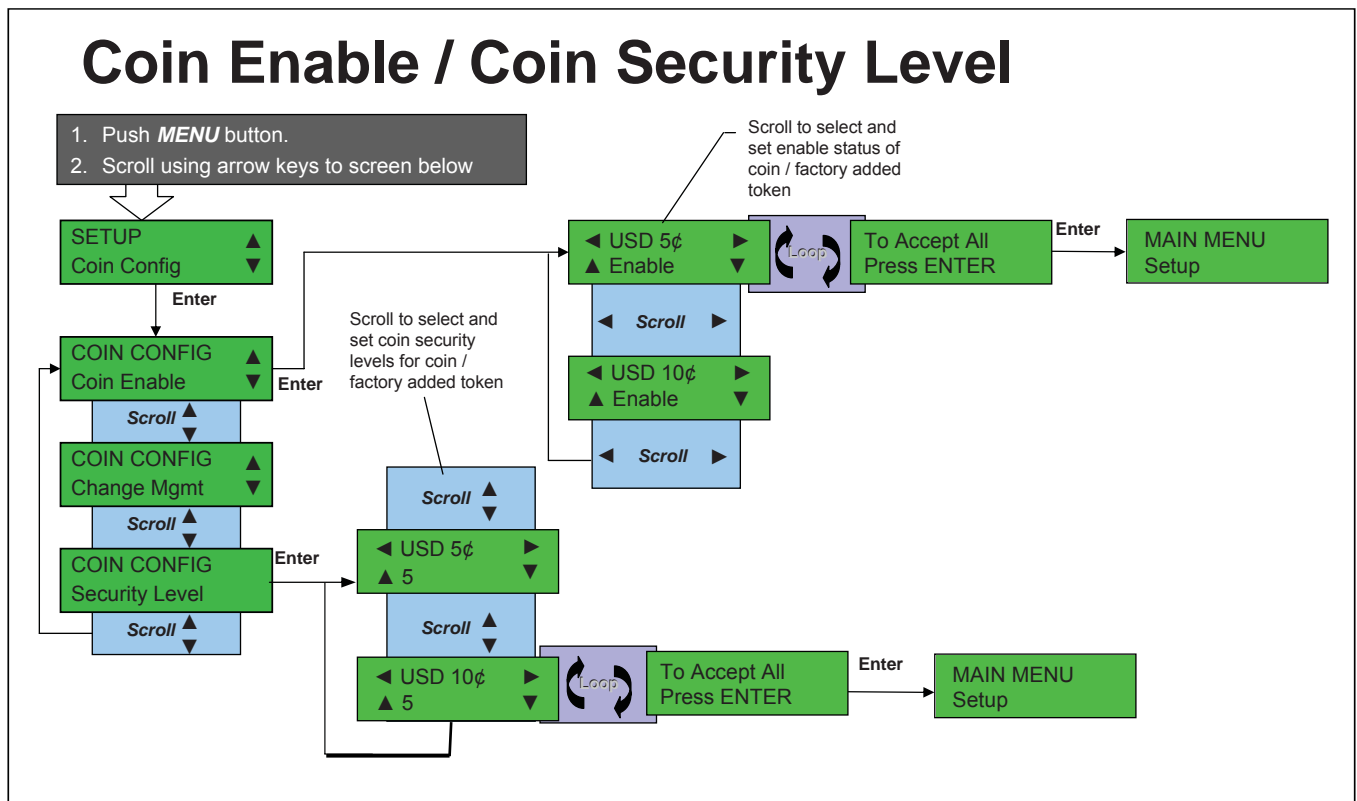
The Guardian GLX features nine levels of security ranging from one to nine. Five is the default setting.

See Figure 36 for how to change the security level for each accepted coin.



Increasing the Coin Security Level for a coin from one to nine will make it less likely that a similar slug will be accepted, yet it will also reject a higher percentage of authentic coins. It is recommended that the Highest Security setting only be used in specific instances to deal with higher slug acceptance rates.

Figure 36





Dual Currency

Allows coins from two countries to be accepted by the changer, and allows the user to set the routing (cashbox or coin tube) for the coins.

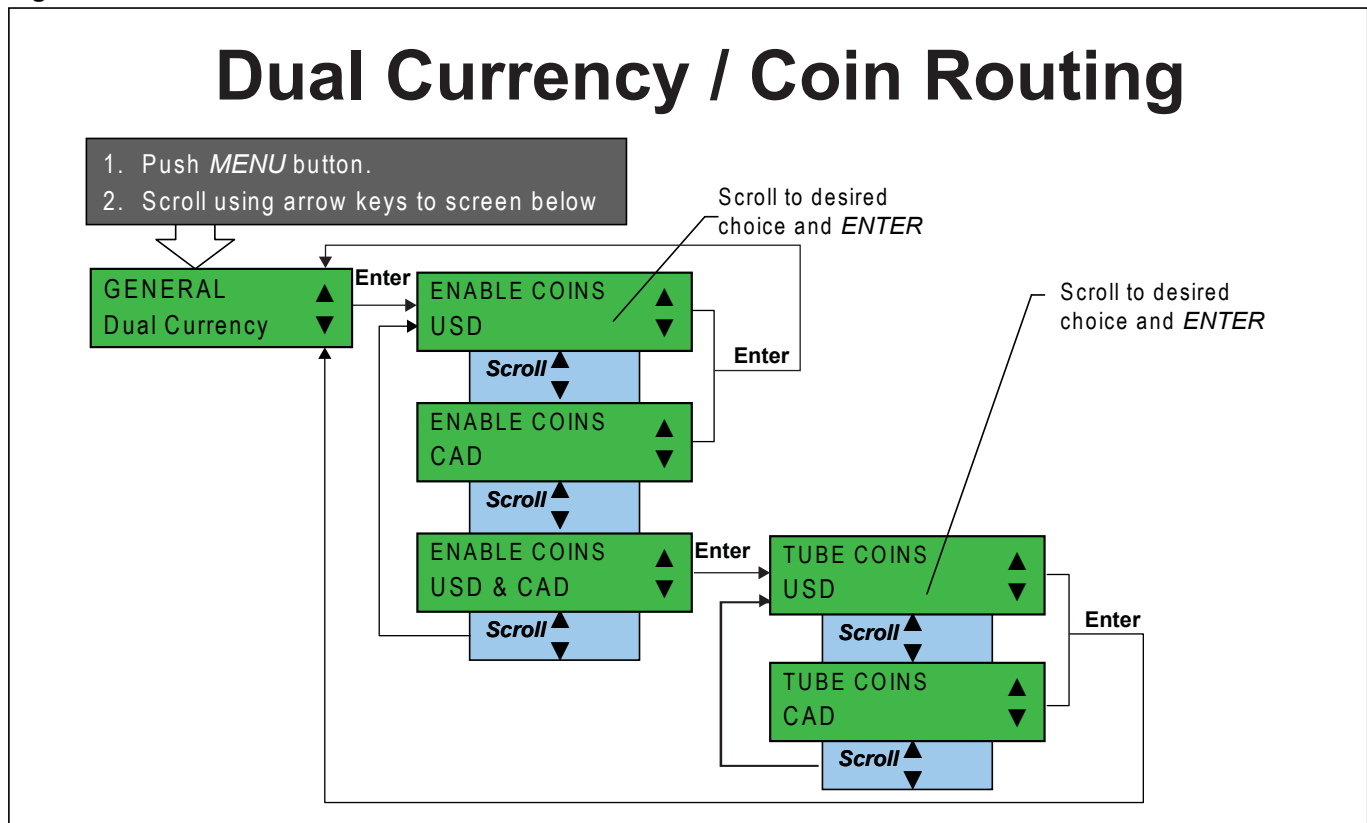
See Figure 37 for how to enable acceptance of more than one country set of coins.

If Dual Currency is enabled, then you must select which coins are routed to the coin tubes and which are routed to the cashbox. Figure 37 shows how to set which country set is routed to the coin tubes; the other country's coins are automatically routed to the cashbox.



If Dual Currency is enabled and the selected country coin set that is routed to the coin tubes is changed, the installed coin tubes may need to be replaced.

Figure 37



Change Management

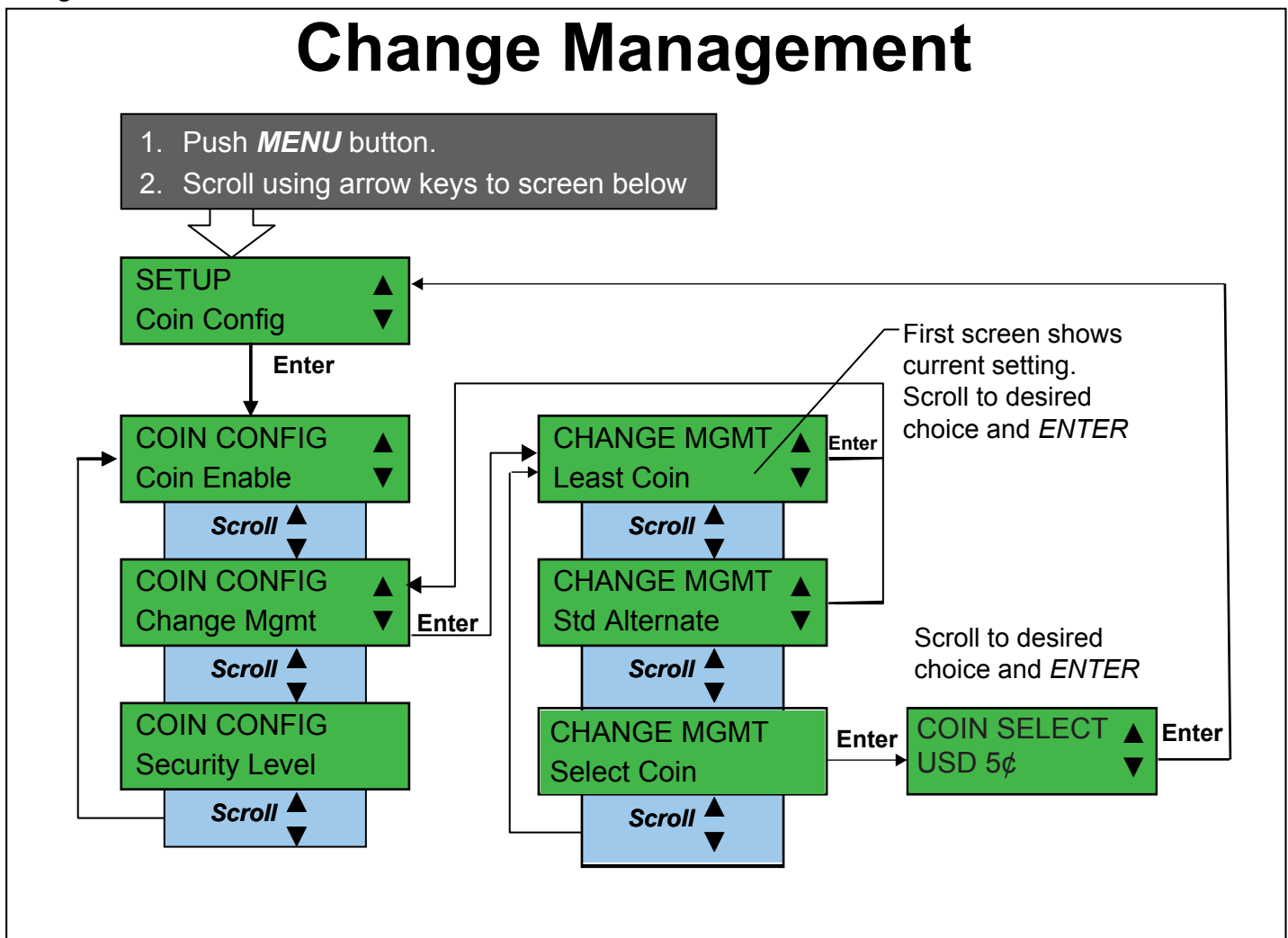
Allows the user to select the preferred method of paying change from the tubes.

The Guardian GLX offers three alternatives for satisfying change requirements:

1. **Least Coin Payout:** Always pay out least amount of coins, regardless of whether correct change can be made. Depending on the coins available for payout, there can be specific conditions where the full change due to the consumer will not be returned.
2. **Standard Alternate Payout:** Designed to *optimize the payout of change based on the existing coin tube levels* in the changer. This method will pay one of the lowest denomination tube coins from a tube determined to be full and then resorts to *Least Coin Payout*.
3. **Select Coins:** Allows you to select a specific coin type to be dispensed during payout. When the selected coin type is no longer available, Least Coin Payout will resume.

See Figure 38 for how to change the payout algorithm.

Figure 38



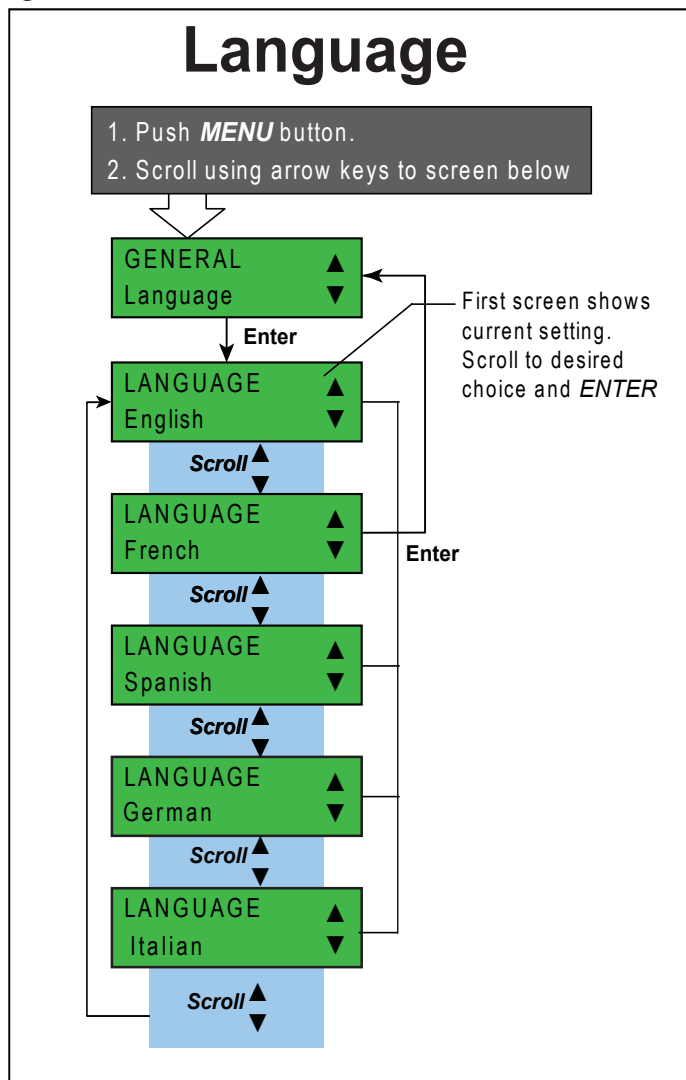


Language

Language enables the user to change the user interface LCD display language.

See Figure 39 for how to change the default language.

Figure 39



Clear Historical Audit

Clears ALL historical changer information that resides in the changer.



Historical Data should only be reset for extreme cases where the user does not want their data to be revealed; e.g. the changer is being sold to a competitor, etc.

See Figure 40 for more information.

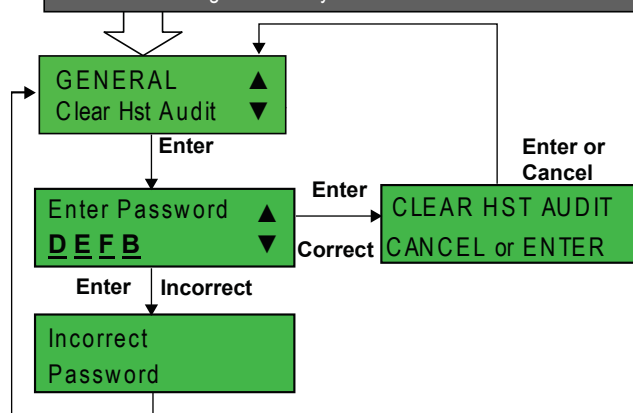
Figure 40

Clear Historical Audit



This will delete **ALL** changer historical audit information. Data cannot be restored after this step is completed.

1. Push **MENU** Button.
2. Scroll using arrow keys to screen below



Factory Reset

Deletes all user settings and returns the changer to the original as-new configuration



Factory Reset should only be used in extreme cases since all user settings will be deleted. Factory Reset does not reset Audit Settings - those are cleared elsewhere.

See Figure 41 for more information.

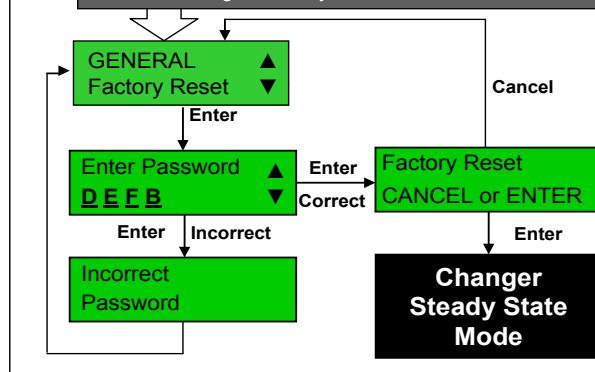
Figure 41

Factory Reset



This will delete **ALL** user settings and return the changer to the original as-new configuration. Data cannot be restored after this step is completed.

1. Push **MENU** Button.
2. Scroll using arrow keys to screen below



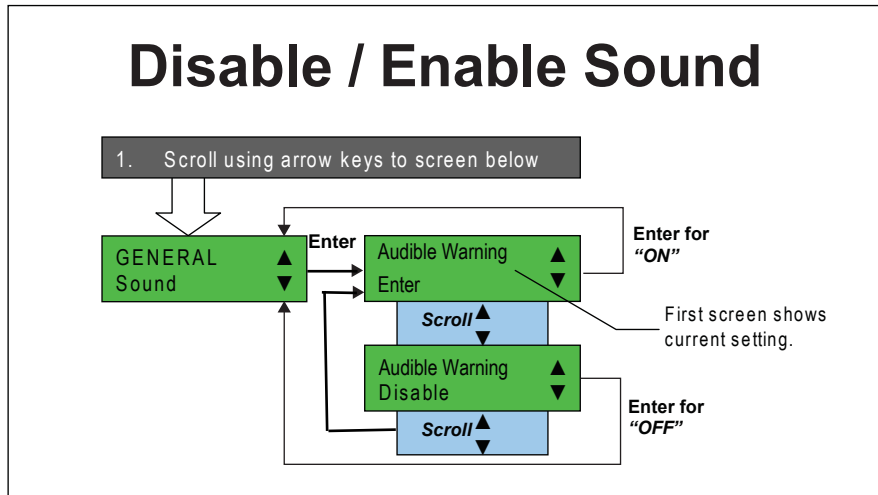


Disable / Enable Audible Feedback

Turns feedback sounds from the warning beeper “on” or “off.” The default setting is “off.”

See Figure 42 for how to turn the beeper on.

Figure 42



MDB Level

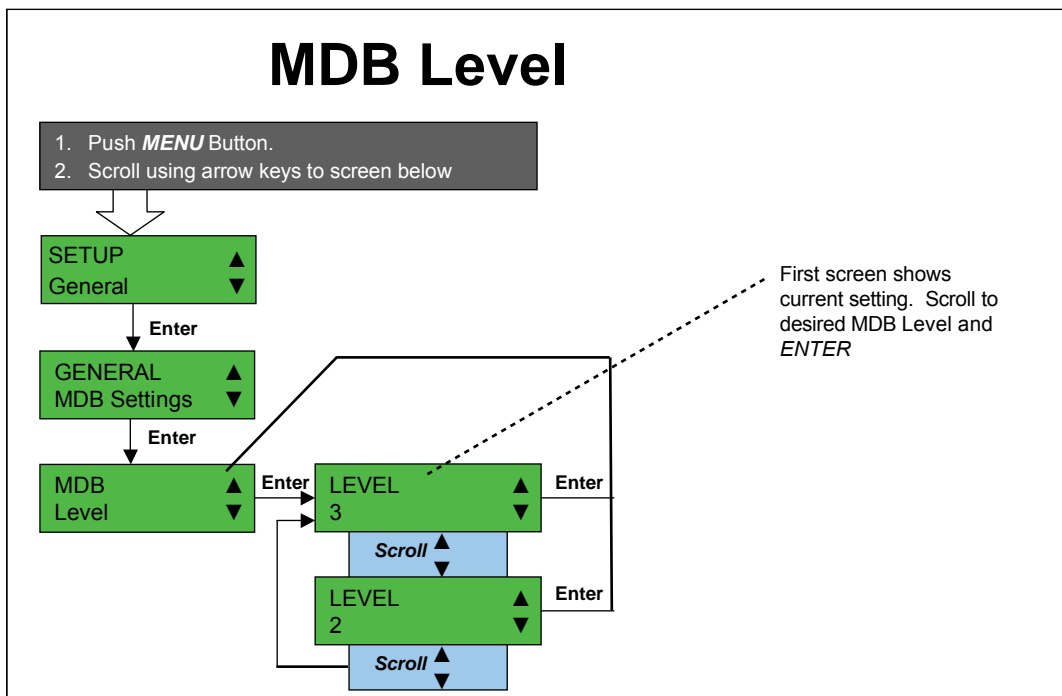
Allows user to set the MDB communications level.

The Guardian GLX offers two MDB Level setting options:

1. **MDB Level 3 (default setting):** this is the latest communications protocol and provides added functionality. It is recommended for all equipment.
2. **MDB Level 2:** this is an earlier protocol to support machines prior to the early 1990s that do not communicate properly using the MDB Level 3 above.

See Figure 43 for how to change the MDB Level.

Figure 43





MDB Scale Factor

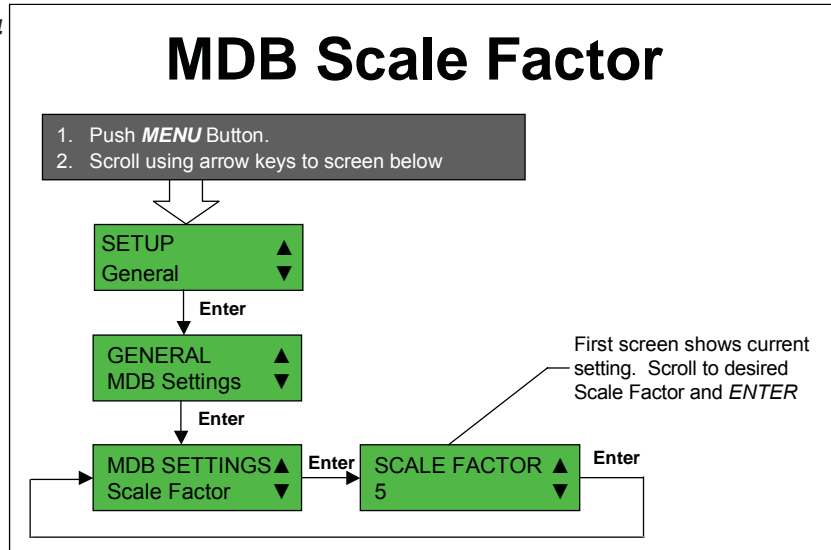
Allows user to set the MDB scale factor.

The MDB scale factor determines how coins are scaled when reported to the Vending Machine Controller (VMC). Any coin that is not a multiple of the scaling factor set will not be reported to the Vending Machine Controller (VMC) and so will not be accepted.

For example, when MDB scale factor is set to 5, all coins that are a multiple of 5 will be reported.

See Figure 44 for how to change the MDB Scale Factor.

Figure 44



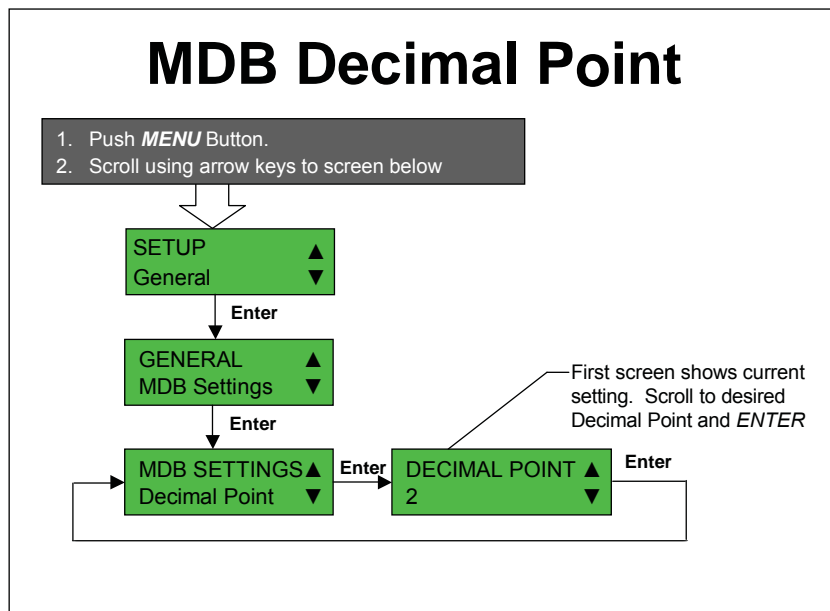
MDB Decimal Point

Allows user to set the MDB decimal point.

The MDB decimal point sets the number of decimal places reported to the Vending Machine Controller (VMC).

See Figure 45 for how to change the MDB Decimal Point.

Figure 45





Tube Sense

Allows user to set the circumstances under which the changer will automatically scan for the number of coins in the enabled tubes.

Five options are available:

1. G2 Tube Sense - When enabled the scanned tube count does not measure the exact number of coins. It separates each tube into three regions: empty, not empty, or full.

Coin counts are primarily based on coins being routed to the coin tubes through the acceptor or dispensed by the changer payout.

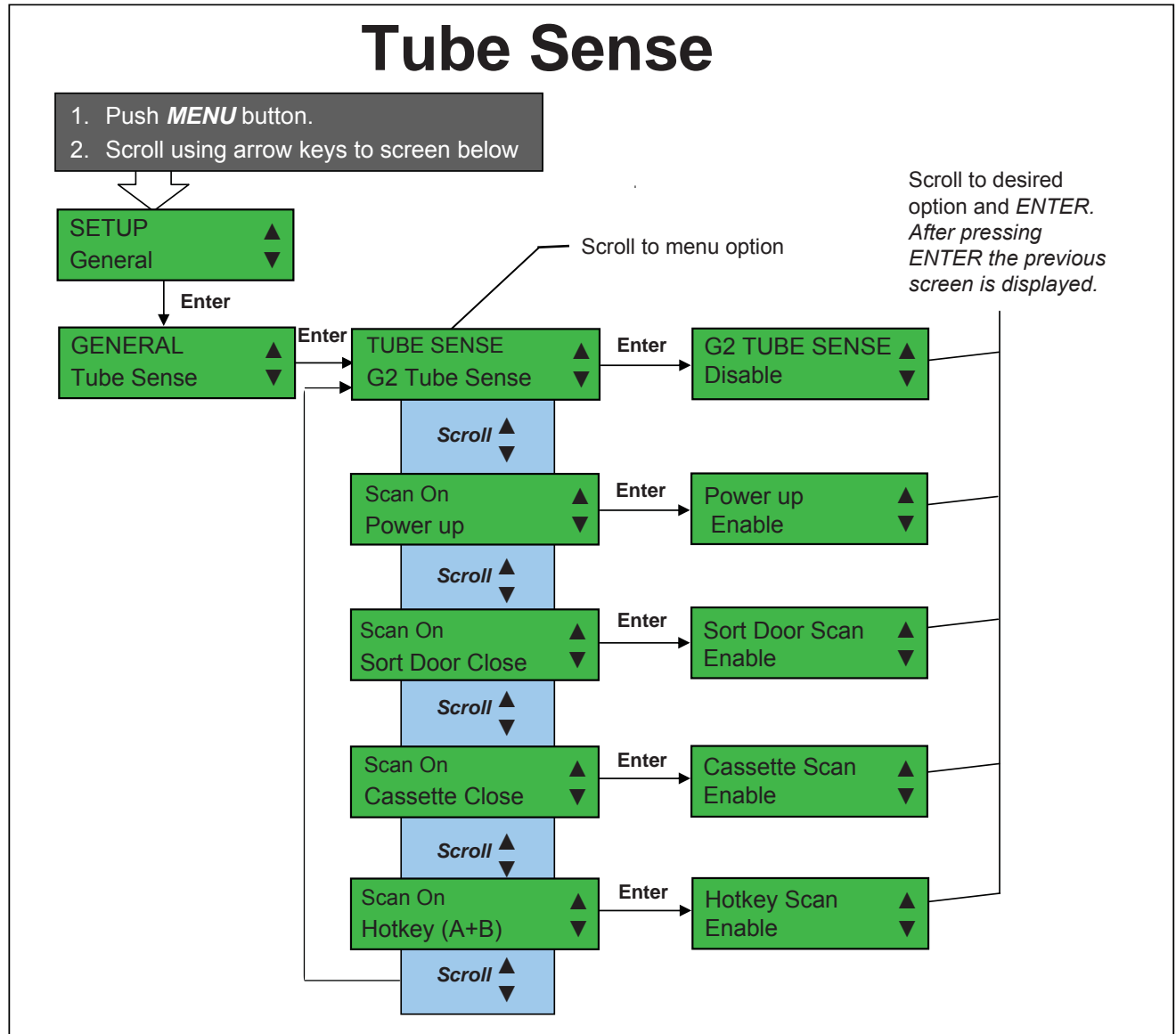
2. Sort Door Close - When enabled (default setting), the changer will use the scanned tube count when the sort door is closed.
3. Cassette Close - When enabled (default setting), the changer will use the scanned tube count when the cassette is closed.
4. Hotkey (A+B) - When enabled (default setting), the changer will scan the tubes and use the scanned tube count when the hotkey (A+B) is pressed.
5. Power Up - When enabled (default setting), the changer will scan the tubes and use the scanned tube count at power up.



The number of coins in the enabled tubes is automatically scanned at power up. It will also automatically override the count if the scanned number of coins in a tube is consistently higher or lower than the manually filled count for that tube.

See Figure 46 for how to change the Tube Sense.

Figure 46



SECTION 5: ADVANCED CONFIGURATION

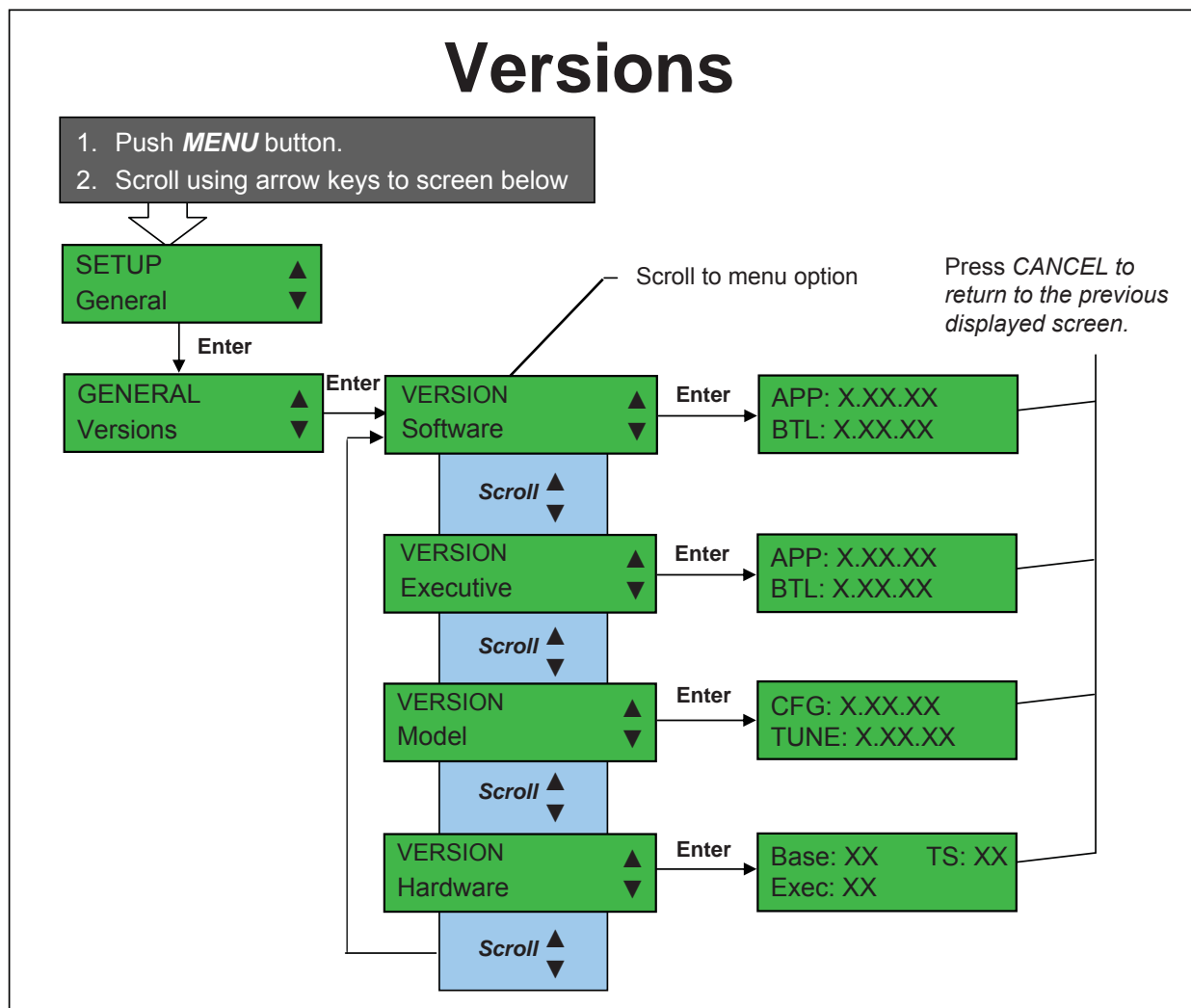


Versions

Allows users to view the current software, configuration and hardware versions.

See Figure 47 for how to display current the software, executive (if applicable), model and hardware versions for the Guardian GLX.

Figure 47



Routine Maintenance

Routine maintenance will improve the performance and extend the life of your Guardian GLX changer while reducing the need for more involved repairs. Frequency of maintenance will depend on environment and number of transactions.

Cleaning

Your Guardian GLX changer is manufactured using high-quality industrial grade plastic and should be cleaned with a warm water and detergent solution.

⚠ CAUTION:

- Never submerge the changer in water.
- Do not use petroleum solvents, steel wool, scouring pads, or metal brushes for cleaning.
- Do not spray any part of the changer with any type of lubricant.

Since all coins share a common inlet and coin ramp, heavy usage or a dirty environment can result in dirt build-up in the acceptor. Clean the coin ramp by opening the acceptor gate to the right. Hold the gate to prevent it from snapping back. Wipe the exposed coin ramp and inner surfaces with a damp cloth. For excessively dirty units, use a damp cloth and mild detergent.

⚠ DO NOT SUBMERGE UNIT IN WATER!

Maintenance / Disassembly

Removing the Acceptor

1. Remove the acceptor from the changer housing by pressing the acceptor release latch (see Figure 48) on the front of the acceptor to the right then pull the escrow lever towards you, away from the changer housing.
2. Disconnect the two cables from the acceptor (see Figure 49). Lift the acceptor slightly to free the lower acceptor studs from the changer housing. Place the acceptor in a clean, dry area.

Changer Components

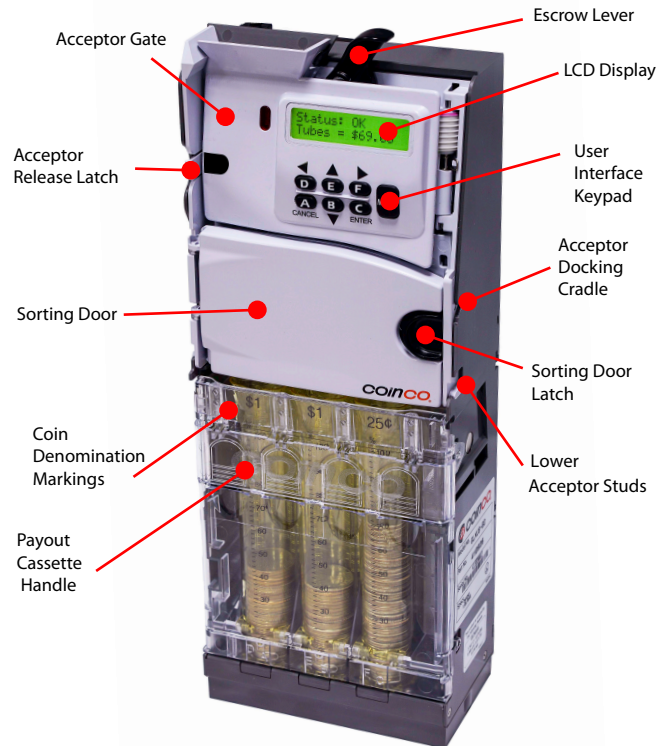
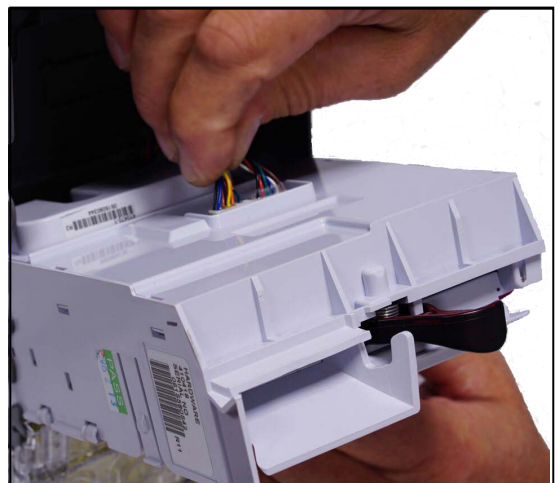


Figure 48



Figure 49



SECTION 6: MAINTENANCE

Removing the Coin Tube Cassette

3. Raise the cassette handle and lift the coin tube cassette up, then slide the cassette out of the coin changer housing (See Figure 50).

Removing the Coin Tubes from the Cassette

1. Remove the cassette front cover by first spreading the lower left and right cover tabs outward.
2. Slide the cover down to release it from the cassette (See Figure 52).
3. To remove an individual coin tube, hold the cassette assembly then gently pull the top of the coin tube forward to unsnap the top of the tube (See Figure 53).
4. Tilt the top of the tube away from the cassette and lift the tube out.

Figure 51

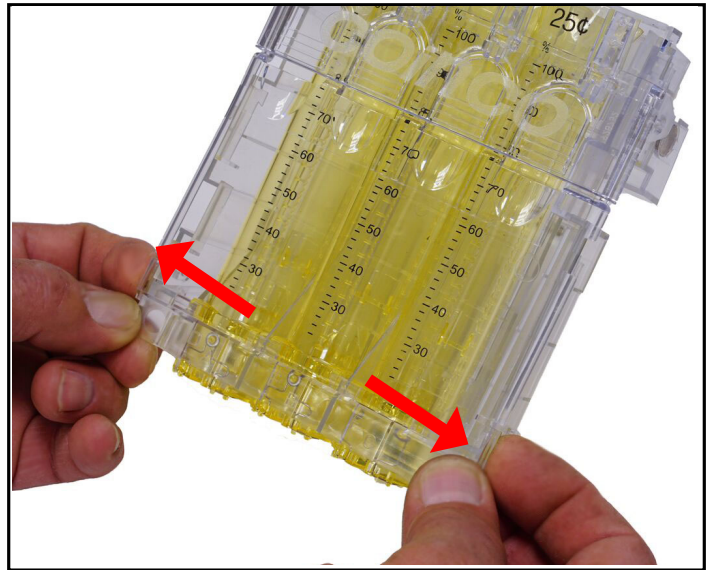


Figure 52

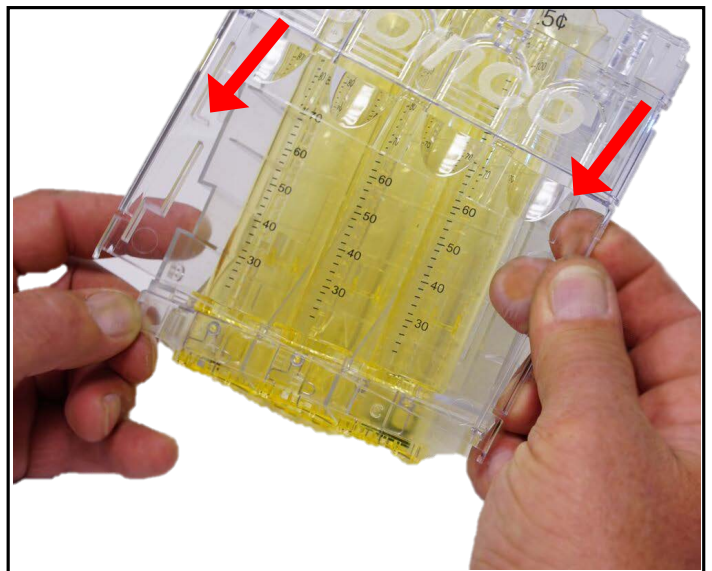


Figure 53

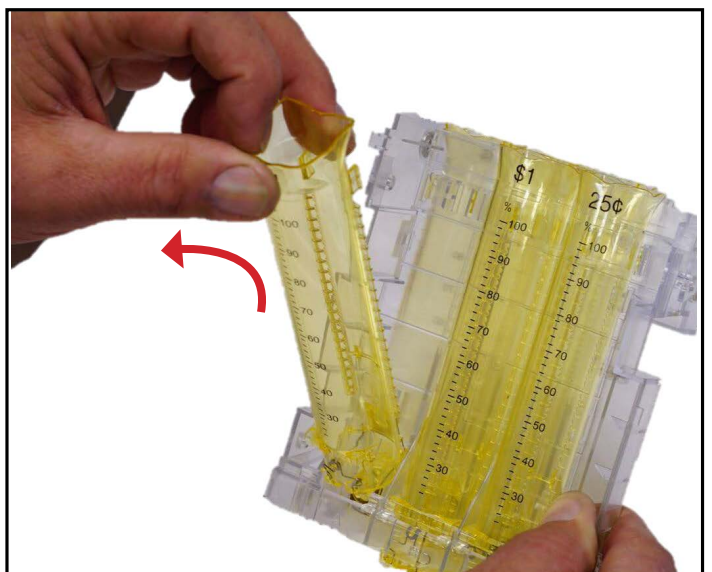
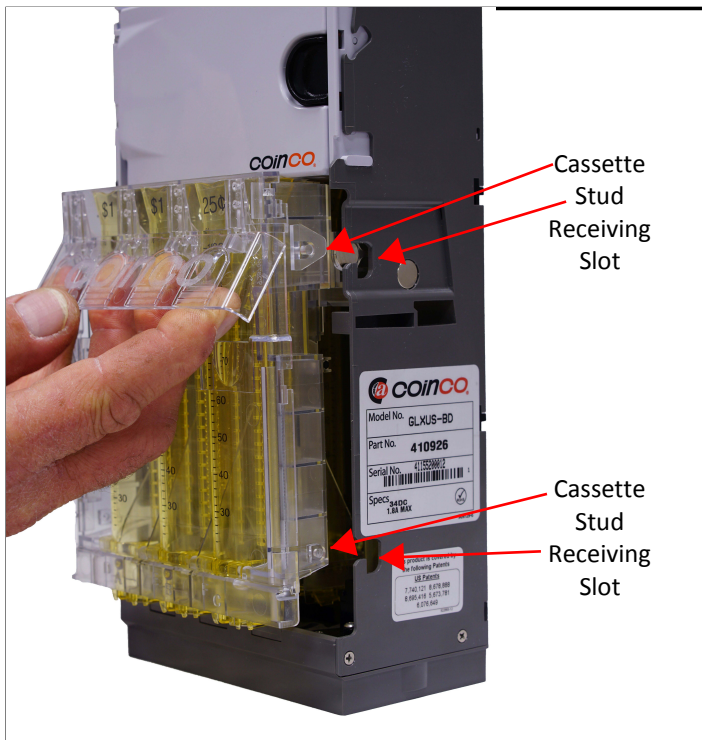


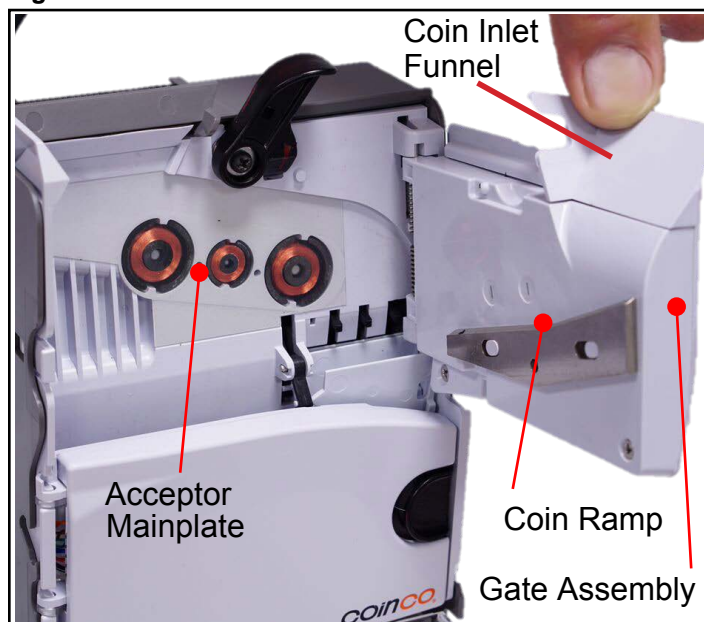
Figure 50



Cleaning the Acceptor

1. To open the Acceptor Gate assembly, grab the coin inlet funnel and pivot the gate assembly to the right. Clean the acceptor main plate, inner gate surface and coin ramp (See Figure 54).

Figure 54



2. Open the acceptor Sorting Door assembly. Slide the Sorting Door Latch to the left and swing the Sorting Door to the left. Clean the inner surface of the front cover assembly (See Figures 55 & 56).

Figure 55



Figure 56



SECTION 6: MAINTENANCE

3. Access to the various coin paths for cleaning requires the removal of the clear plastic covers. The Upper Front Cover pivots to the left. Clean both sides of Upper Front Cover (See Figure 57).
4. Remove the Upper Back Cover by pushing its release tab to the right. Lift the upper back cover out of the acceptor. Clean both sides of the Upper Back Cover (See Figures 58 and 59).

Cleaning the Cashbox Chute

1. Pull the bottom of the cashbox chute out slightly, away from the backside of the changer housing and slide the chute down to release it. Twist the chute clockwise to disengage the upper pin. Clean the chute and housing coin path (See Figure 60).

Figure 57



Figure 58

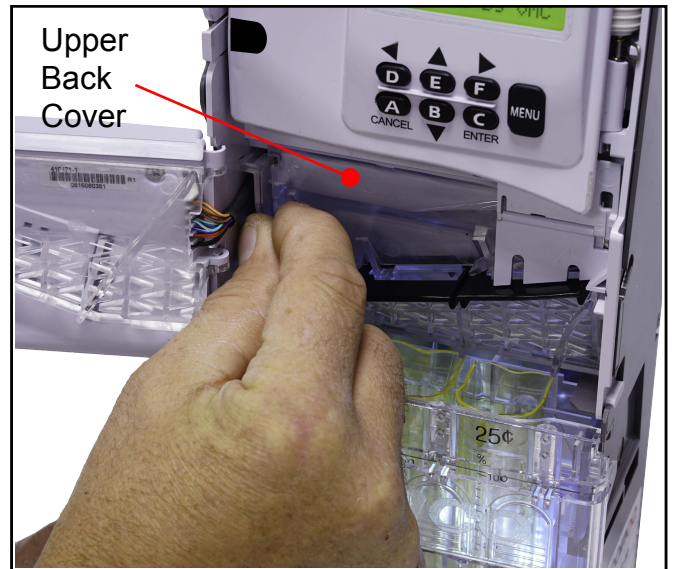


Figure 59

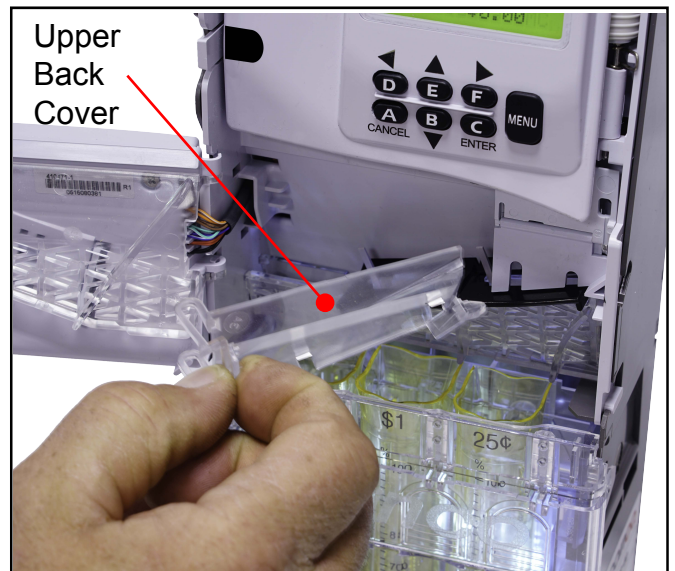
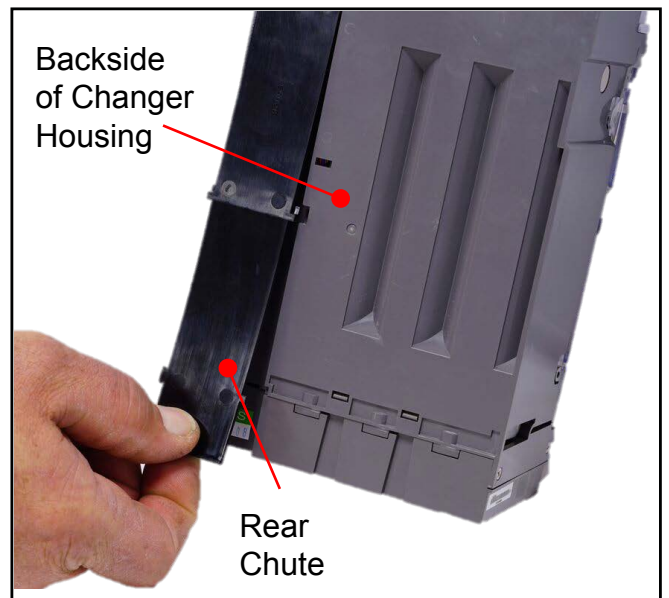


Figure 60



Troubleshooting

The Guardian GLX incorporates a range of features to assist the user. These include:

1. Active **audible and visual feedback** to make sure the changer is not inadvertently left in a non-ready state.
2. A changer **Autotest** capability to cycle and verify proper feedback of all changer systems.
3. **Warning** and **Out of Service** messages to notify the user of corrections that should be made.



Guardian GLX Autotest

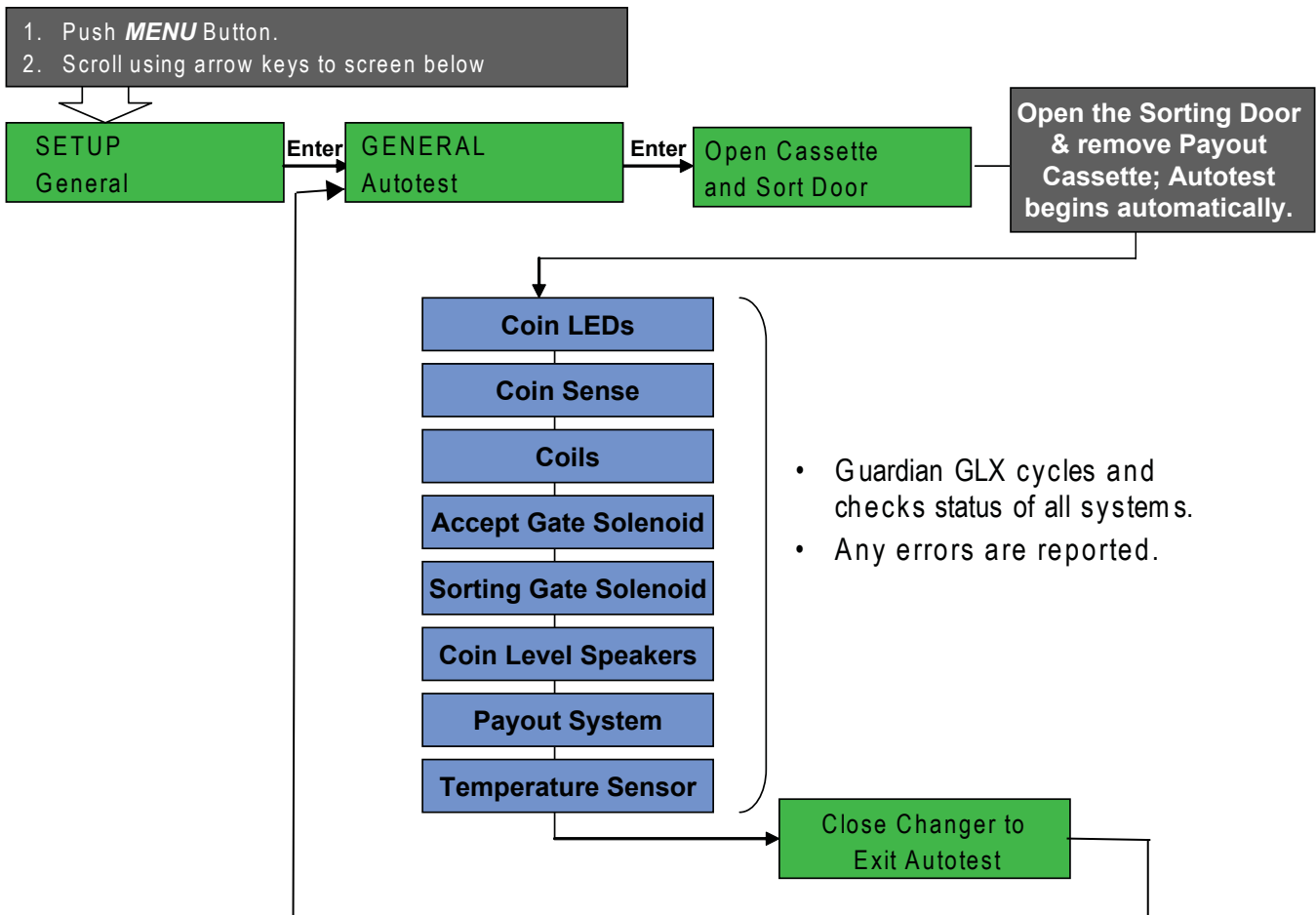
Cycles and verifies proper feedback of all changer systems

The Autotest feature can be used to verify the correct operation of all systems. After being initiated by the user, the changer will cycle each system, and report the status of each on the LCD display as the systems are being checked.

See Figure 61 for how to initiate the Autotest feature.

Figure 61

Changer Autotest





Guardian GLX Warning Messages

The LCD user interface display notifies the user of any corrections that should be made, or service work to be performed.

The Guardian displays two types of messages:

1. **Warnings:** “soft” errors that are displayed for the user’s information. The changer might remain in operation with one or more warnings.
2. **Out Of Service:** a problem that must be corrected. The changer is not operational when this kind of message is displayed.

Figure 63 shows the different types of messages and what each means. All warnings are accompanied by an audible beep if the sound is turned on. See Figure 42 for how to disable/enable audible feedback.



How do I access changer usage data?

The most useful data is displayed for the user in Audit Reporting.

Figure 62

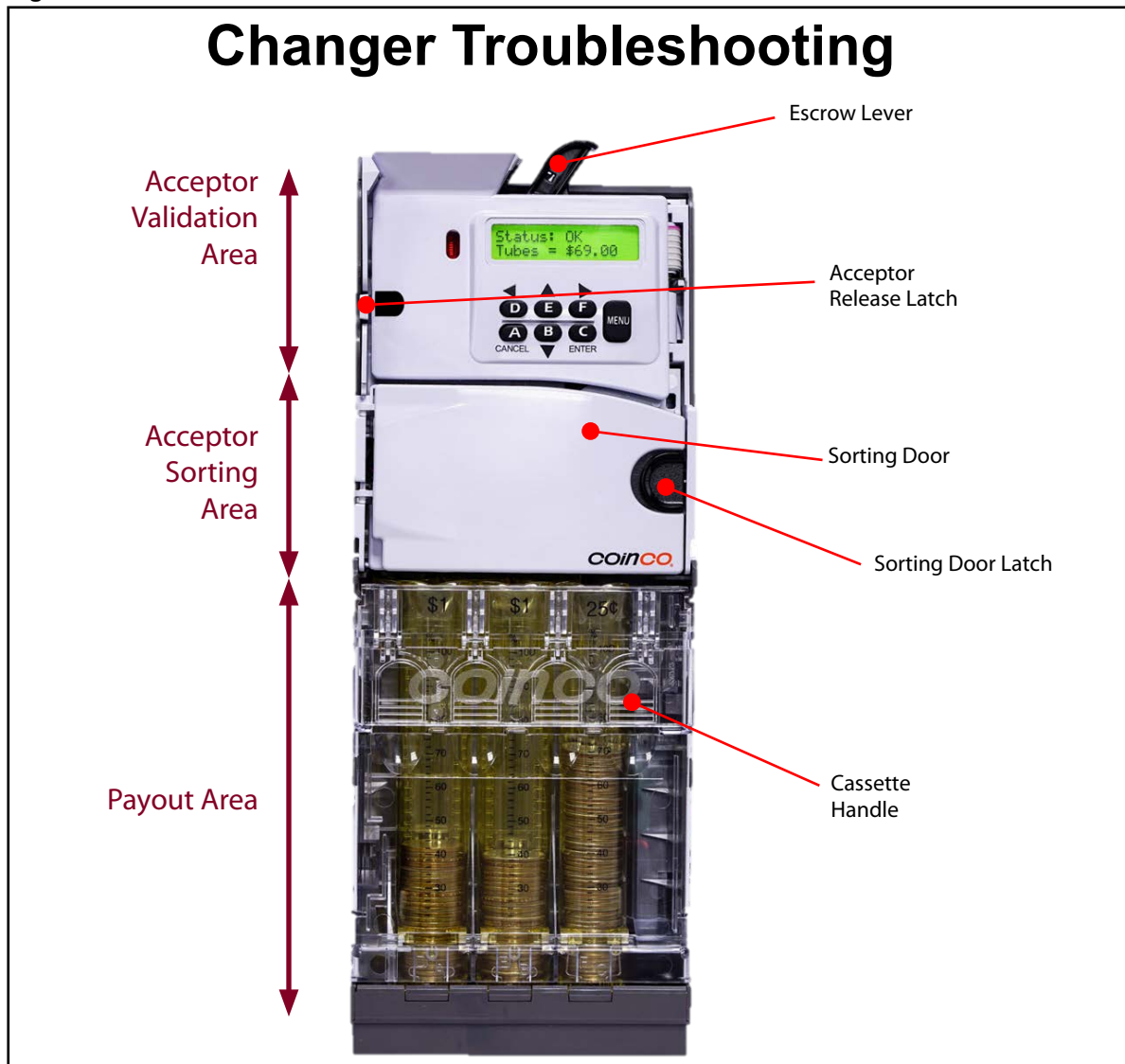


Figure 63

Warning Messages

Display

Check Coin Path

Sorting Error
Tube X

Escrow Detected

Sort Door Open

Cassette Door Open

Payout Error
Tube X

Tube Sense
Tube X

Low Power

Definition

There is a problem in the Acceptor Validation or Sorting area and these should be checked. Cleaning is most likely required.

Tube sense detected a coin routing error.

The Escrow Lever is depressed enough to open the acceptor gate or there is a jam in the Acceptor Validation area. Please check these areas.

The Sorting Door has not been closed properly or there is a jam in the sorting area.

The Payout Cassette has not been installed properly.

Tube sense detected a payout error.

The noted coin tube level reading is inaccurate due to some interference. Please check for any obstructions.

Power to the changer has dropped below the recommended MDB power level.

Out Of Service Messages

Out -of-Service
Tube Sense

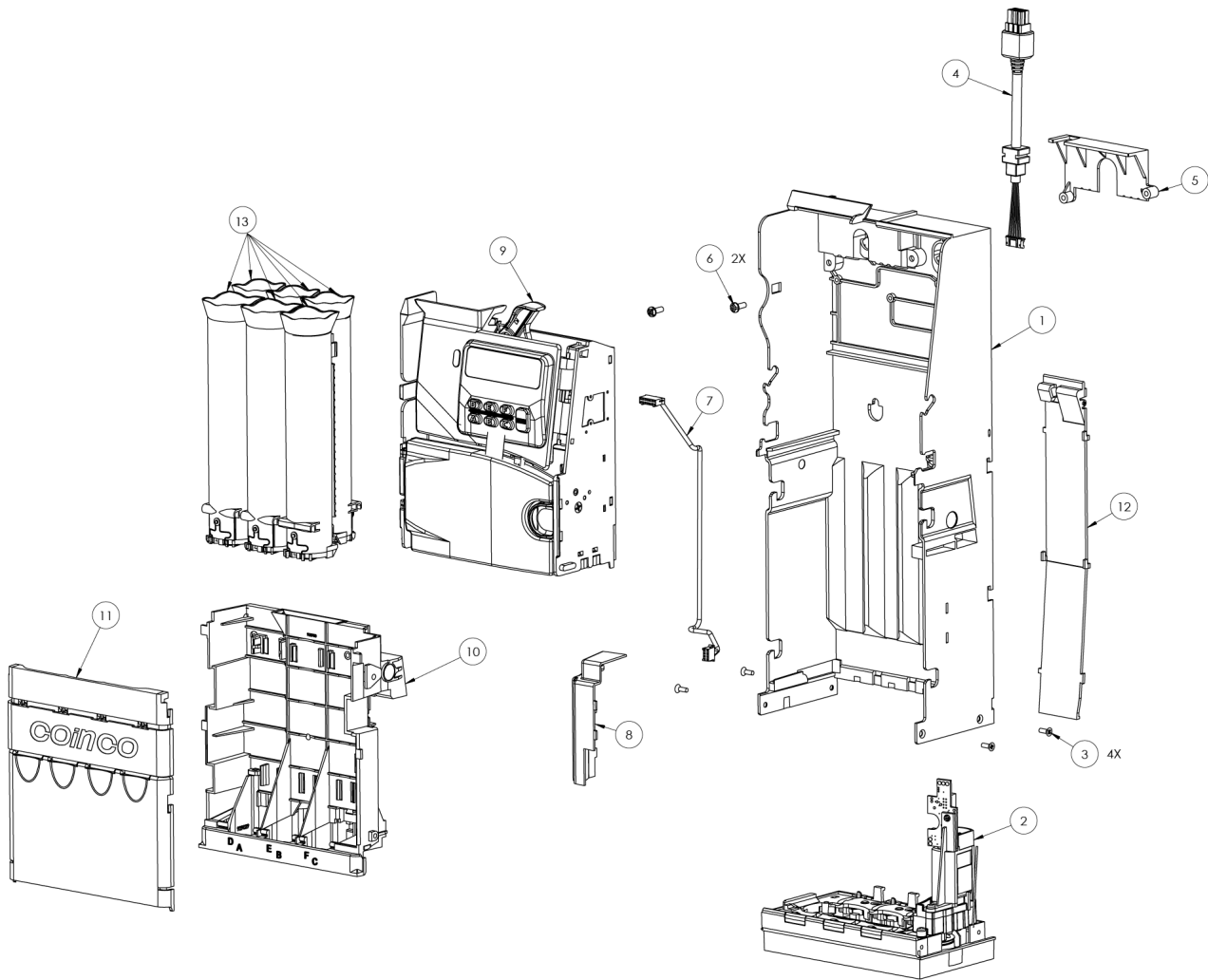
There are multiple tube sense errors and the changer is not operational. ***Please take it to a Coinco authorized Service Center for service.***

Out -of-Service
Payout Motor

The changer has a Payout Motor problem and is not operational. Check that all harnesses are properly connected. Check for a jam in the payout section. If still nonoperational, ***please take it to a Coinco authorized Service Center for service.***

SECTION 8: PARTS LIST

410926 GLX CHANGER ASSEMBLY



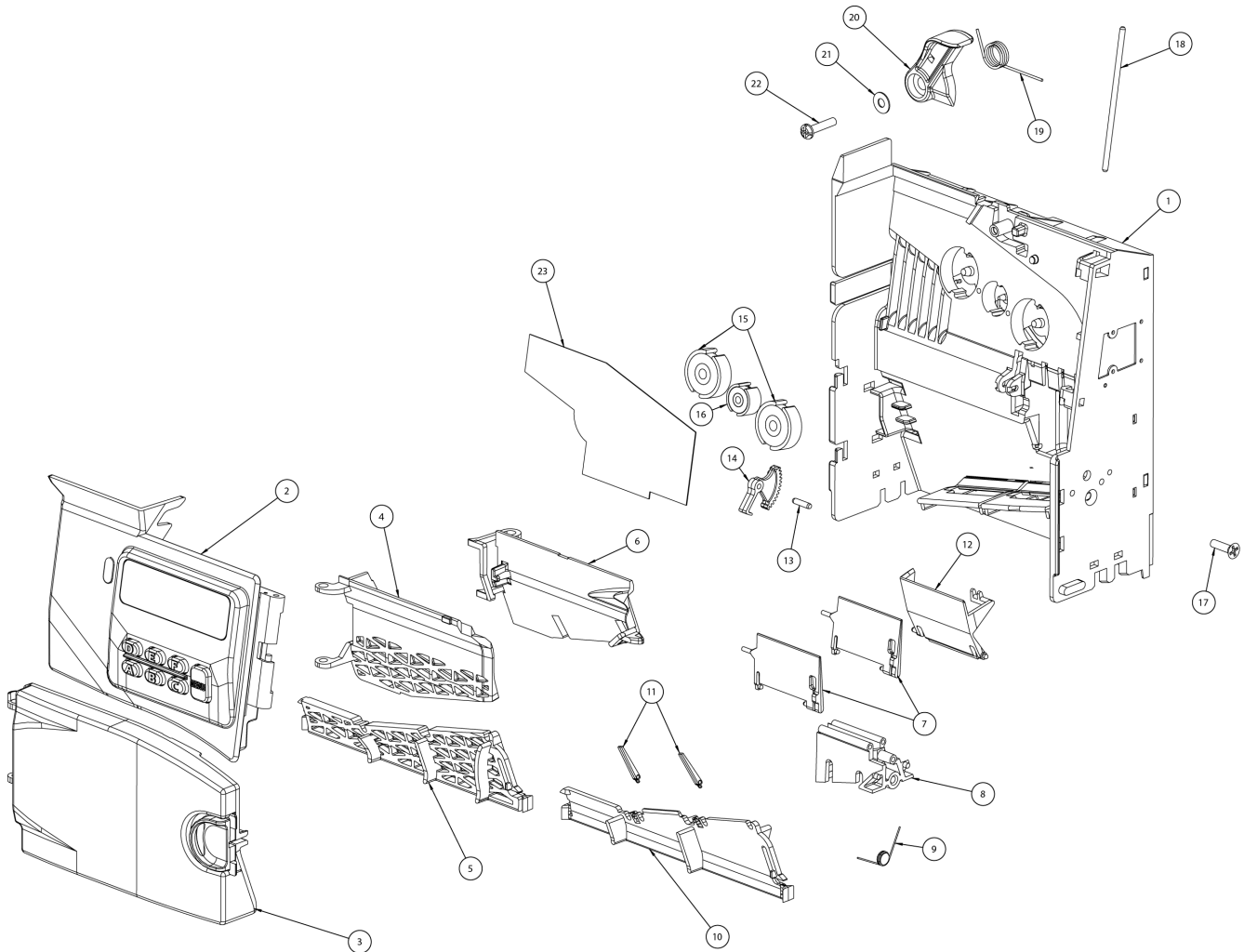
Item #	Part #	Description	Qty
1	410910	GLX HOUSING ASSEMBLY	1
2	410245	GLX PAYOUT BASE ASSEMBLY	1
3	341S4R5	SCREW, 4 X 5/16 FH PHIL SS PLAS	4
4	410016-2	GUARDIAN MDB HARNESS	1
5	926096	HARNESS STRAIN RELIEF BRACKET	1
6	345-6R6	SCREW, 6 X 3/8 PH PHIL, PLAS	2
7	410037-3	GUARDIAN CHASSIS HARNESS	1
8	928739	MOTOR SHIELD	1
9	410418-1	GLX ACCEPTOR ASSY, NO IRDA	1
10	410707	GLX CASSETTE ASSEMBLY	1
11	410711	GLX FRONT COVER ASSEMBLY	1
12	926051-1	CASHBOX CHUTE	1
13	SEE COIN TUBE LIST		

GLX COIN TUBE ASSEMBLIES

	Coin	Part #	Description
U.S.	5¢	411004-1	GLX TUBE ASSY, USD/CAD 5¢
	10¢	411006-1	GLX TUBE ASSY, USD/CAD 10¢
	25¢	411003-1	GLX TUBE ASSY, USD 25¢
	\$1.00	411002-1	GLX TUBE ASSY, USD/CAD \$1
CANADA	5¢	411004-1	GLX TUBE ASSY, USD/CAD 5¢
	10¢	411006-1	GLX TUBE ASSY, USD/CAD 10¢
	25¢	411003-3	GLX TUBE ASSY, CAD 25¢
	\$1.00	411002-1	GLX TUBE ASSY, USD/CAD \$1
	\$2.00	411001-1	GLX TUBE ASSY, CAD \$2
MEXICO	50c	411004-4	GLX TUBE ASSY, MXN 50
	1p	411004-5	GLX TUBE ASSY, MXN \$1
	2p	411003-6	GLX TUBE ASSY, MXN \$2
	5p	411002-4	GLX TUBE ASSY, MXN \$5
	10p	411001-3	GLX TUBE ASSY, MXN \$10
EURO	5¢	411004-2	GLX TUBE ASSY, EUR 5¢
	10¢	411005-2	GLX TUBE ASSY, EUR 10¢
	20¢	411004-3	GLX TUBE ASSY, EUR 20¢
	50¢	411003-5	GLX TUBE ASSY, EUR 50¢
	€ 1	411003-4	GLX TUBE ASSY, EUR €1
	€ 2	411002-3	GLX TUBE ASSY, EUR €2
GREAT BRITAIN	5p	411006-2	GLX TUBE ASSY, GBP 5p
	10p	411003-2	GLX TUBE ASSY, GBP 10p
	20p	411004-7	GLX TUBE ASSY, GBP 20p
	50p	411001-5	GLX TUBE ASSY, GBP 50p
AUSTRALIA	10¢	411003-2	GLX TUBE ASSY, AUD 10¢
	20¢	411001-2	GLX TUBE ASSY, AUD 20¢
	50¢	410404	GLX TUBE ASSY, AUD 50¢*
	\$1.00	411002-2	GLX TUBE ASSY, AUD \$1
	\$2.00	411005-1	GLX TUBE ASSY, AUD \$2
* 50¢ can only be used with GLX changer p/n: 410929			
RUSSIA	1R	411005-3	GLX TUBE ASSY, RUB 1
	2R	411003-7	GLX TUBE ASSY, RUB 2
	5R	411002-5	GLX TUBE ASSY, RUB 5
	10R	411004-6	GLX TUBE ASSY, RUB 10

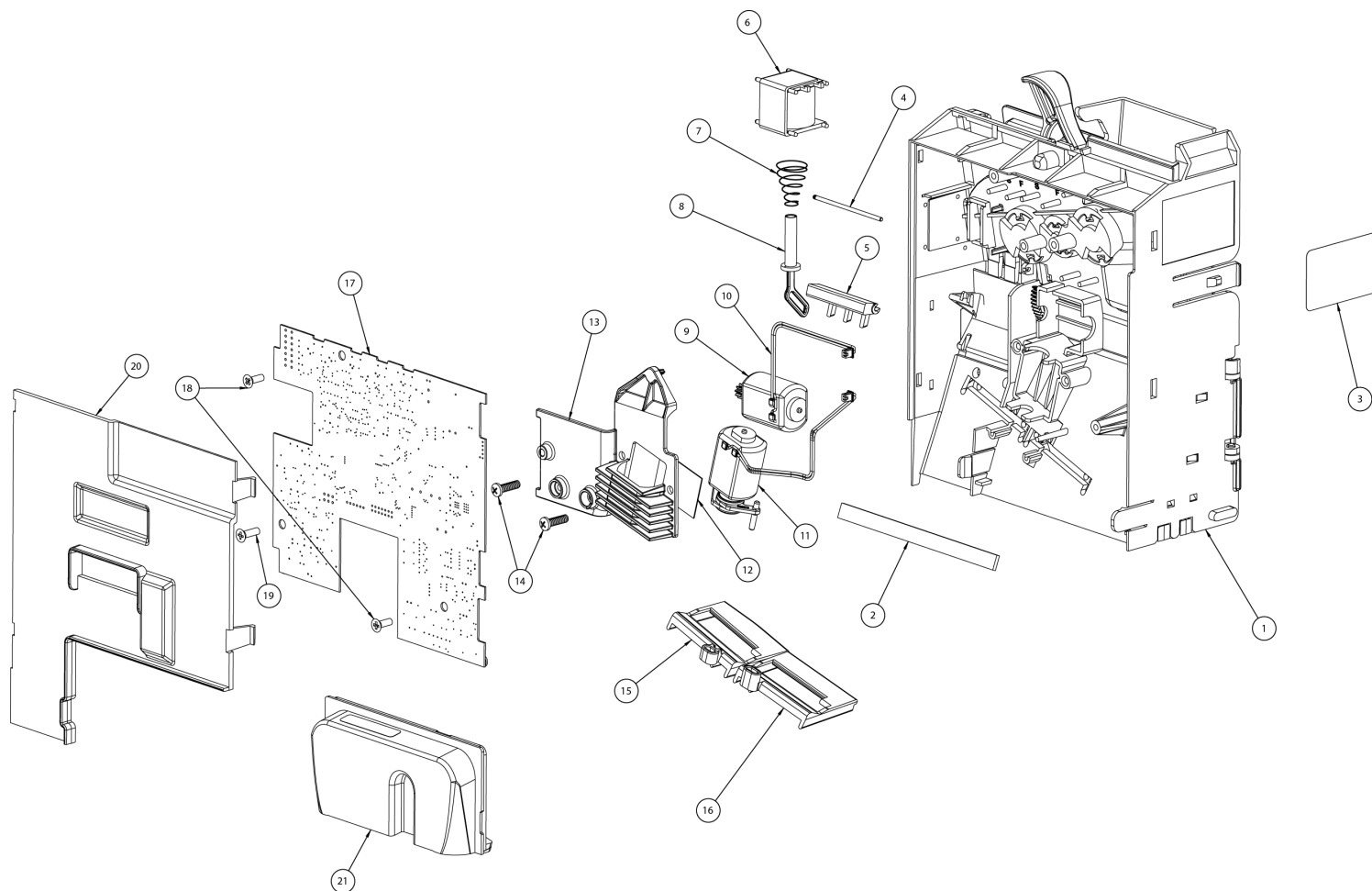
SECTION 8: PARTS LIST

410418-1 GLX ACCEPTOR FRONT VIEW



Item #	Part #	Description	Qty
1	410241	MAINPLATE ASSY W/COILS, LENS, ARM	1
1	926001-3	MAINPLATE (NO COILS INSTALLED)	1
2	410442-4	GATE ASSY, LCD, NO IRDA	1
3	410471-2	FRONT COVER ASSY, W/TUBE SENSE	1
4	926030-1	INTERNAL FRONT UPPER COVER	1
5	926029	INTERNAL FRONT LOWER COVER	1
6	926028	INTERNAL BACK UPPER COVER	1
7	926011	SORTING DOOR	2
8	926012	SORTING DOOR MOUNT	1
9	926013	SORTING DOOR SPRING	1
10	926027	INTERNAL BACK LOWER COVER	1
11	926038	REAR COIN STOP	2
12	926018	CASHBOX GATE	1
13	926025	SORTING ARM SHAFT	1
14	926014-2	SORTING DOOR ARM	1
15	408540-1	MAG WIRE & CORE ASSY (LG COIL)	2
16	407825-6	TAU COIL & POT CORE (SM COIL)	1
17	282-6R8	SCREW, 6 X 1/2 FH PHILLIPS TYPE BT	1
18	926004	GATE PIN	1
19	926007-1	ESCROW LEVER SPRING	1
20	926006-1	ESCROW LEVER	1
21	926213	ESCROW LEVER WASHER	1
22	296P6R10	SCREW, 6 X 5/8 PH PHILLIPS TYPE 25 BLK	1
23	928400	GUARDIAN MAINPLATE LENS	1

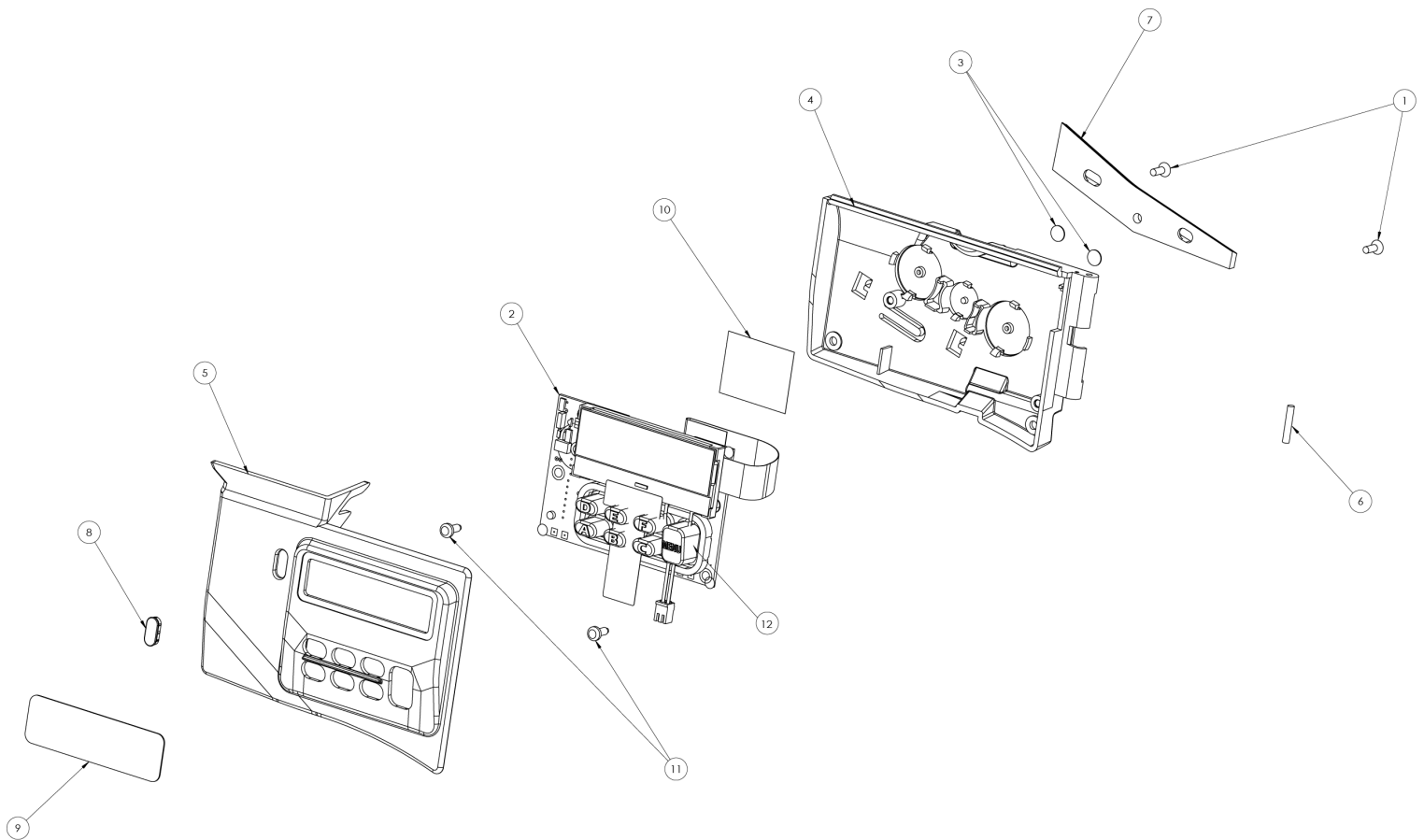
410418-1 GLX ACCEPTOR BACK VIEW



Item #	Part #	Description	Qty
1	410241	MAINPLATE ASSY W/COILS, LENS, ARM	1
1	926001-3	MAINPLATE (NO COILS INSTALLED)	1
2	926048	FOAM STRIP FOR REAR SPEAKERS	1
3	925044	ACCEPTOR SERIAL NUMBER LABEL	1
4	921785	SHORT DIVERTER PIN	1
5	926017-2	ANTI-STRING LEVER	1
6	407981-2	SOLENOID & "C" FRAME ASSY	1
7	925288	FRONT - BACK SOLENOID SPRING	1
8	926019	CASHBOX YOKE	1
9	410102	SORTING MOTOR W/HARNESS	1
9	926015	SORTING MOTOR W/O HARNESS	1
10	410014	SORTING MOTOR HARNESS	2
11	408815-1	SORTING SLIDE MOTOR ASSY W/HARNESS	1
12	928205	THERMAL PAD	1
13	928204-1	MOTOR RETAINER	1
14	345S4R7	SCREW, 4 X 7/16 PH PHILLIPS SS PLAS	2
15	926023-1	C-F SORTING SLIDE	1
16	926022-1	B-E SORTING SLIDE	1
17	410234-5	ACCEPTOR LOGIC BOARD ASSY, .8A	1
18	341S4R5	SCREW, 4 X 5/16 FH PHILLIPS SS PLAS	2
19	282-4R6	SCREW, 4 X 3/8 FH PHILLIPS TYPE BT	1
20	926031	ACCEPTOR REAR COVER	1
21	410470-1	REAR SPEAKER ASSY	1

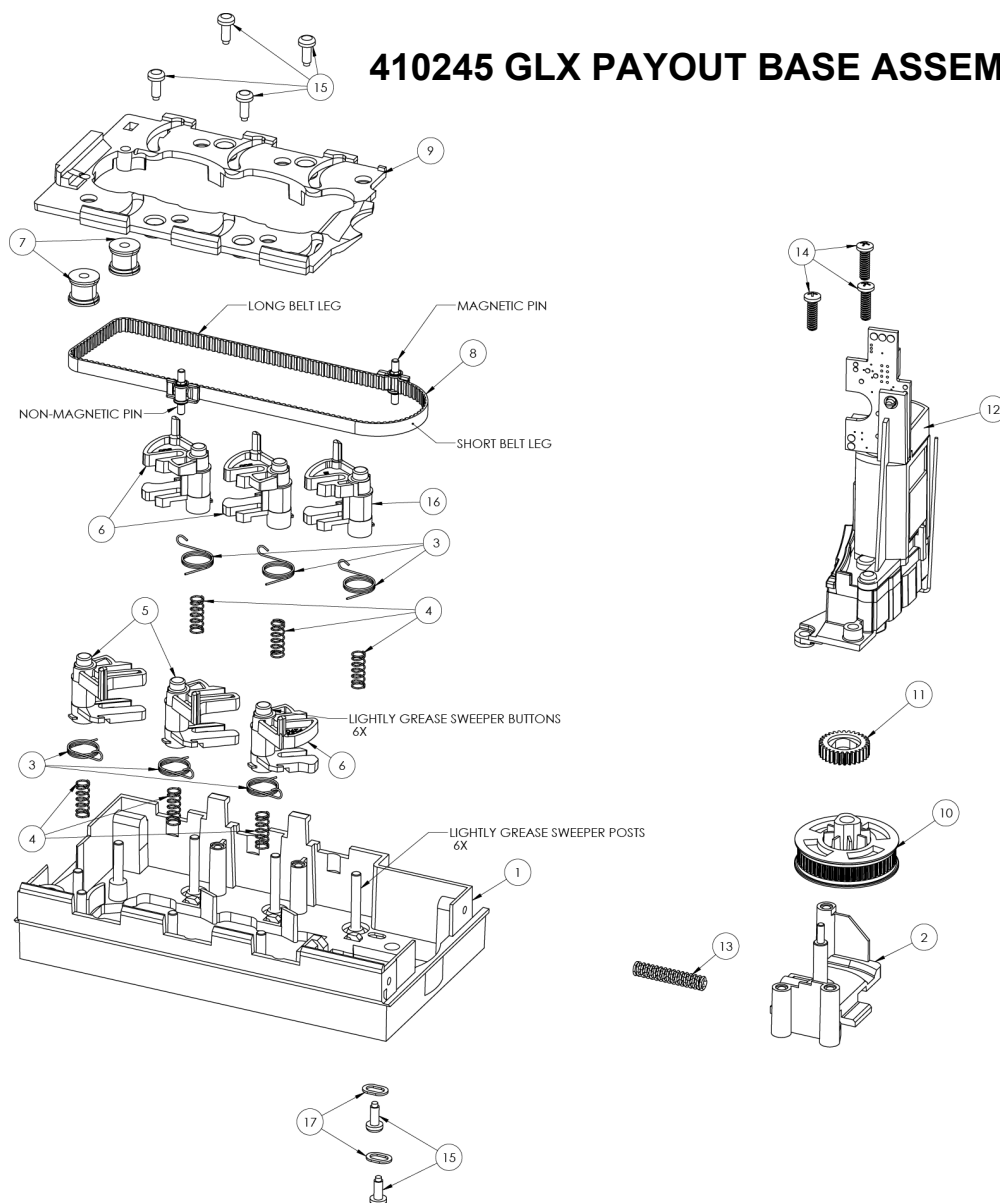
SECTION 8: PARTS LIST

410442-4 GLX ACCEPTOR GATE ASSY



Item #	Part #	Description	Qty
1	341S4R5	SCREW, 4 X 5/16 FH PHIL SS PLAS	2
2	410432-4	GLX GATE BOARD ASSY	1
3	921625	.250" GRAY POLYESTER LABEL	2
4	926002-3	GATE, LARGE C COIL	1
5	926003-2	GLX GATE COVER	1
6	926005	GATE SPRING	1
7	922641	VALIDATION DEBOUNCE, STD 20/12	1
8	926009	OVAL LENS	1
9	926046	GATE LCD LENS	1
10	921473	CLEAR TAPE, 1" WIDE	0.2
11	345-4R5	SCREW, 4 X 5/16 PH PHIL PLAS	2
12	926010-1	KEYPAD, BLACK	1

410245 GLX PAYOUT BASE ASSEMBLY



Item #	Part #	Description	Qty
1	928125-2	GLX PAYOUT BASE	1
2	928129	TENSION BLOCK	1
3	928138	SWEEPER SPRING	6
4	928139	SWEEPER COMPRESSION SPRING	6
5	929046	SWEEPER "A-B"	2
6	929047	SWEEPER "C-D-E"	3
7	928525	IDLER PULLEY	2
8	410840	XL/GLX GRAY BELT ASSEMBLY	1
9	928126-3	GLX PAYOUT COVER	1
10	410380	52T PULLEY ASSEMBLY	1
11	928136	GEAR	1
12	410040-2	GEARBOX ASSEMBLY	1
13	928140	TENSION BLOCK SPRING	1
14	345S4R7	SCREW, 4 X 7/16 PH PHIL SS PLAS	3
15	345-4R5	SCREW, 4 X 5/16 PH PHIL PLAS	6
16	929048	SWEEPER "F"	1
17	927474	OBLONG WASHER	2

Manufactured under one or more of the following patents:

- USA: 4,587,984; 4,763,769; 4,838,406; 5,167,314; 5,184,708; 5,460,256; 5,485,908; 5,577,957; 5,579,887; 5,607,350; 5,662,205; 5,673,781; 5,733,186; 6,230,870;
- France: 9302237
- Canada: CA1,223,364 and CA1,281,134
- Germany: DE3410924
- Great Britain: GB2140954
- Italy: IT1263618