

# QuantumPro



## **COINCO QUANTUMPRO**

### **FOUR TUBE**

### **OPERATION AND SERVICE MANUAL**



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# SECTION 1: GENERAL INFORMATION

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## Introduction

This manual contains information on installing, operating and maintaining your COINCO QuantumPro four tube 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 becoming familiar with this information will help you obtain the best performance from your COINCO QuantumPro four tube coin changer.

COINCO QuantumPro Changers can accept and validate up to 16 different coins or tokens ranging in diameter from 15.0 to 28.0 mm and 1.07 to 2.40 mm in thickness.

- For the United States, USQ models are factory tuned to accept U.S. nickels, dimes, quarters, and dollar coins.
- For Canada, CAQ models accept U.S. and Canadian nickels, dimes, quarters, one dollar and Canadian two dollar coins.

QuantumPro changers are available in the following models:

\_\_\_-G\_\_\_ **MDB**, For electronic vending machines using Multi-Drop Bus

\_\_\_-S\_\_\_ **Single Price**, For electromechanical vending machines.

\_\_\_-L\_\_\_ **Logic**, For use in vending machines with a logic interface

## For Your Records

A label indicating the changer's model number and serial number can be found on the side of the 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 serial number indicate when the unit was built which is also the beginning of the warranty period. The first two digits indicate the week of manufacture; the third and fourth digits indicate the year of manufacture. For example, Serial Number 420307145 would indicate the unit was manufactured in the 42nd week of 2003.

The model number indicates the country, currency, interface type and payout configuration of the coin changer.

The first three letters of the model number indicate the Country Code (USQ = United States Quantum, CAQ = Canadian Quantum). The fourth letter indicates the changer model (G = MDB, S = Single Price, L = Logic).

The first digit of the model number indicates the series of changer (7 = 700), and the last two digits represent the changer's payout configuration.

## SECTION 1: GENERAL INFORMATION

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	Payout Configuration		Tube Location	
	A	B	C	D
701	1.00	.10	.05	.25
702	.25	.10	.05	.25
703	1.00	.10	.05	1.00
704	.25	.25	.25	.25
705	1.00	.25	.25	1.00
706	.05	.10	.10	.05
707	.10	.10	.10	.05
708	.25	.10	.10	.05
709	.25	.05	.05	.25
710	.05	.05	.05	.05
711	1.00	.10	.10	.05
712	.25	.10	.05	.05
713	.25	.05	.25	.25
714	1.00	.05	.05	.25
715	.05	.10	.05	.05
716	1.00	.25	.25	.25
717	1.00	.10	.10	.25
718	1.00	.10	.05	.05
719	2.00	.05	.25	1.00
720	1.00	.05	.25	.25
721	2.00	.10	.05	1.00
722	2.00	.25	.25	1.00
723	2.00	.10	.05	.25
724	1.00	.05	.05	.05
725	1.00	.05	.05	1.00
726	1.00	.05	.25	1.00

Example: USQ-G706 = United States Quantum, MDB 700 series, 5-10-10-5 payout  
 CAQ-L701= Canadian Quantum, Logic 700 series, \$1-10-5-25 payout

**NOTE:** "L" model changers should only be configured as 701, 702, or 708.

# SECTION 1: GENERAL INFORMATION

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## Features

- The COINCO QuantumPro coin changer has a modular design for easy service.
- Individual tubes snap in and out for easy customization.
- Coin tubes are clearly marked with coin denomination in bold white numbers.
- Programmable acceptor allows for easy reconfiguration of coin tubes in the field.
- Hinged front cover simplifies tube removal and serviceability.
- Acceptor "Park Position" allows easy access to the coin tubes.
- Pays change from self-loading high capacity change tubes.
- Two motors provide fast accurate payout.
- All models equipped with the MDB protocol.
- Lightweight, rugged plastic construction.
- State-of-the-art electronic logic system is designed for reliability and performance.

## After Unpacking

After unpacking the unit, inspect it for any possible shipping damage. If the unit is damaged, notify the shipping company immediately. Only the consignee (the person or company receiving the unit) can file a claim against the carrier for shipping damage. We recommend that you keep the original carton and packing materials to reuse if you need to transport or ship your 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.

## Coin Tube Capacity

	Low Sensor Level	Full Sensor Level	Hand Load Level
US .05	8	78	84
US .10	11	115	123
US .25	9	87	94
US 1.00	7	74	79
CAN 2.00	9	87	94

## SECTION 1: General Information

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### Specifications

#### Power Requirements (by model)

MDB-(G).....34V DC

Single Price-(S).....120VAC, 60Hz  
.....(95 to 130 VAC, 60Hz)

Logic-(L).....15 pin, 24 VDC  
.....(20 to 30 full wave rectified)  
@ 1.5Amax

#### Operating Temperature

0 to 150 Degrees Fahrenheit  
-18 to 65 Degrees Celsius

#### Storage Temperature

-22 to 160 Degrees Fahrenheit  
-30 to 72 Degrees Celsius

#### Relative Humidity

20% to 98% Noncondensing

#### Operating Attitude

Vertical  $\pm$  3 degrees

#### Physical Dimensions

Height: 14.77 inches (base to top of coin  
return lever)

Width: 5.47 inches

Depth: 3.25 inches (gate open)  
3.00 inches (gate closed)

#### Shipping Weight

Approximately 7 pounds

## SECTION 2: INSTALLATION

### Installing the Changer

1. Remove power from vendor.
2. Remove the acceptor from the changer by pressing down on the acceptor latch, releasing the acceptor. Rotate the top of the acceptor forward, away from the changer (see figures 1 and 2). Unplug the ribbon cable from changer. Free the lower acceptor studs from the changer housing. Place the acceptor in a clean area.
3. With the acceptor removed, set the mounting holes in the back of the changer housing over the mounting screws in the vendor. Tighten snugly (see figure 3).
4. Re-install the acceptor by inserting the lower acceptor studs into the changer housing guides. Plug the ribbon cable into the changer (see figure 2).
5. On Single-Price units using the DEX/UCS Hand-Held Computer, attach the DEX plug ground connector to the vending machine frame (see figure 1).
6. Plug changer into vendor socket.

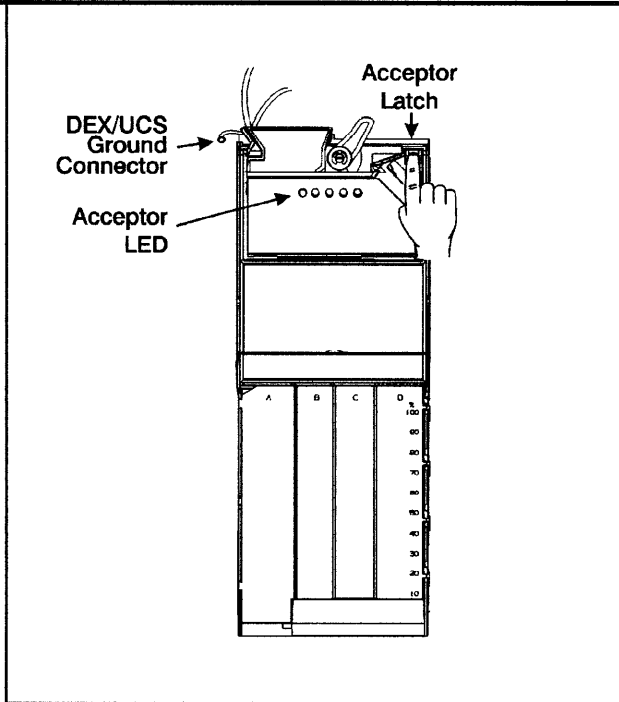


Figure 1

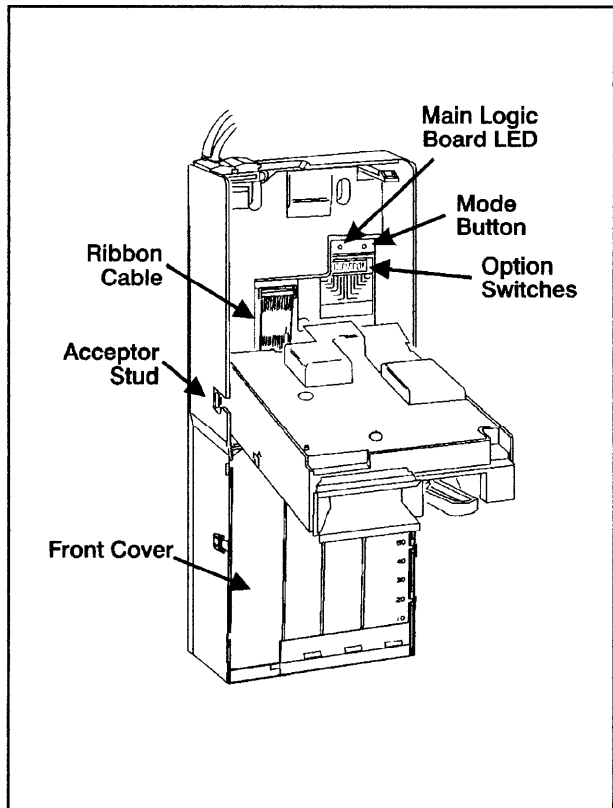


Figure 2



## SECTION 2: INSTALLATION

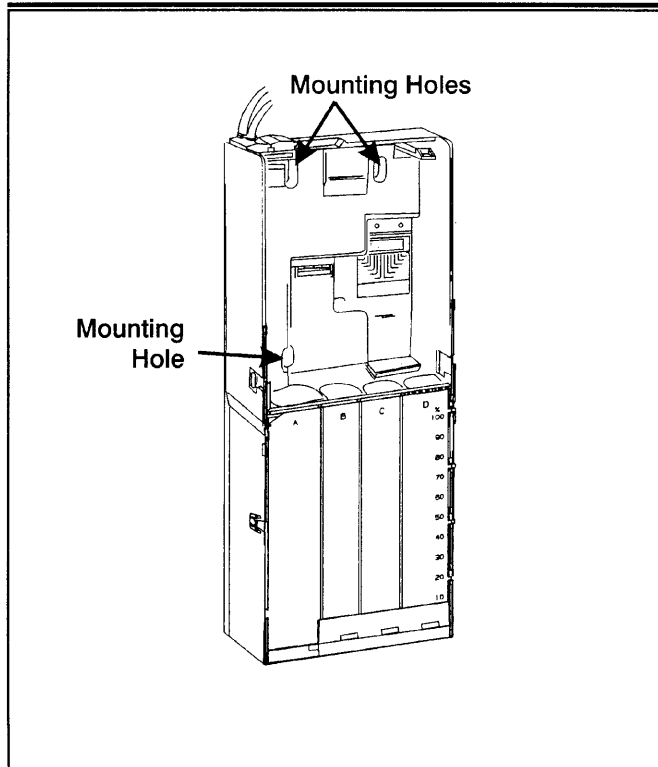


Figure 3

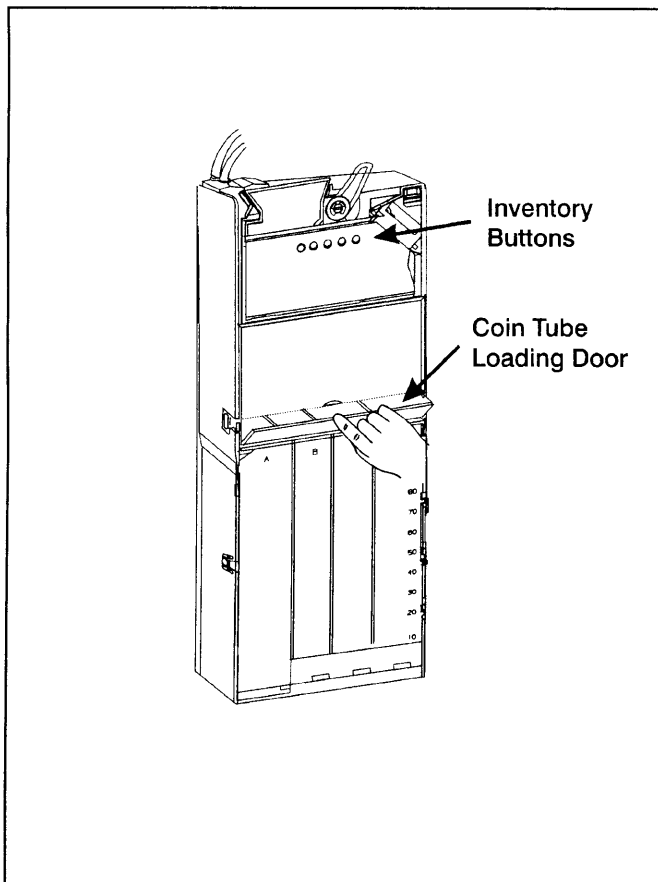


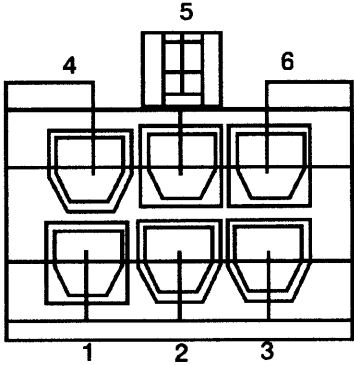
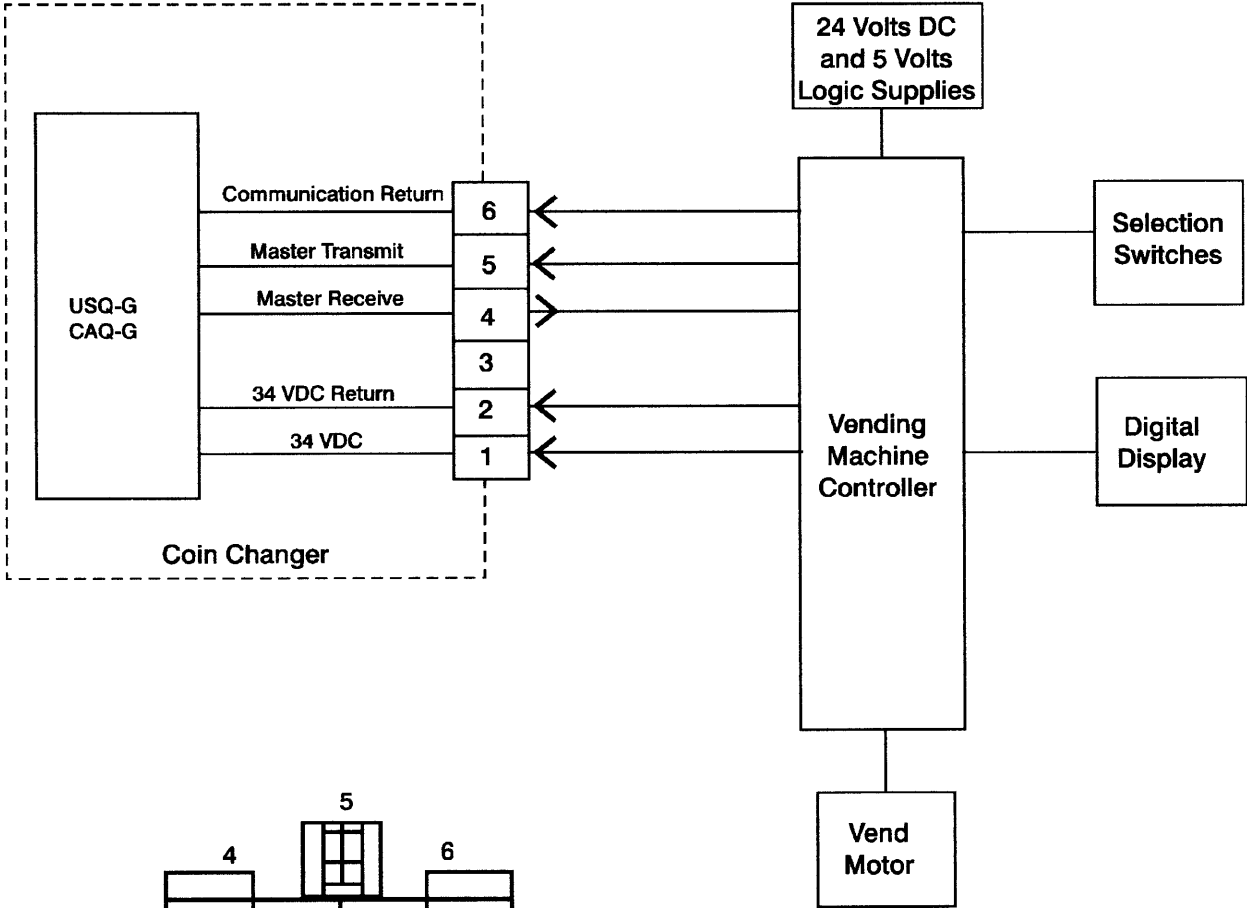
Figure 4

### Installing the Changer (cont'd)

7. For Single-Price units set the desired vend price and options on the changer (refer to "Setting the Vend Price" and "Option Switch settings").
8. Press top of the acceptor into the changer housing until the acceptor latch locks.
9. Load the tubes with coins (see "Hand Loading" and "Loading Through the Acceptor" figure 4).
10. (Optional) Set the coin tube float levels (refer to "Setting The Float Mode Levels").
11. Check to make sure the front cover, tube shield and acceptor are properly installed.
12. Apply power to the vendor.
13. Test the changer with a variety of coins to ensure proper operation.

# SECTION 2 INSTALLATION

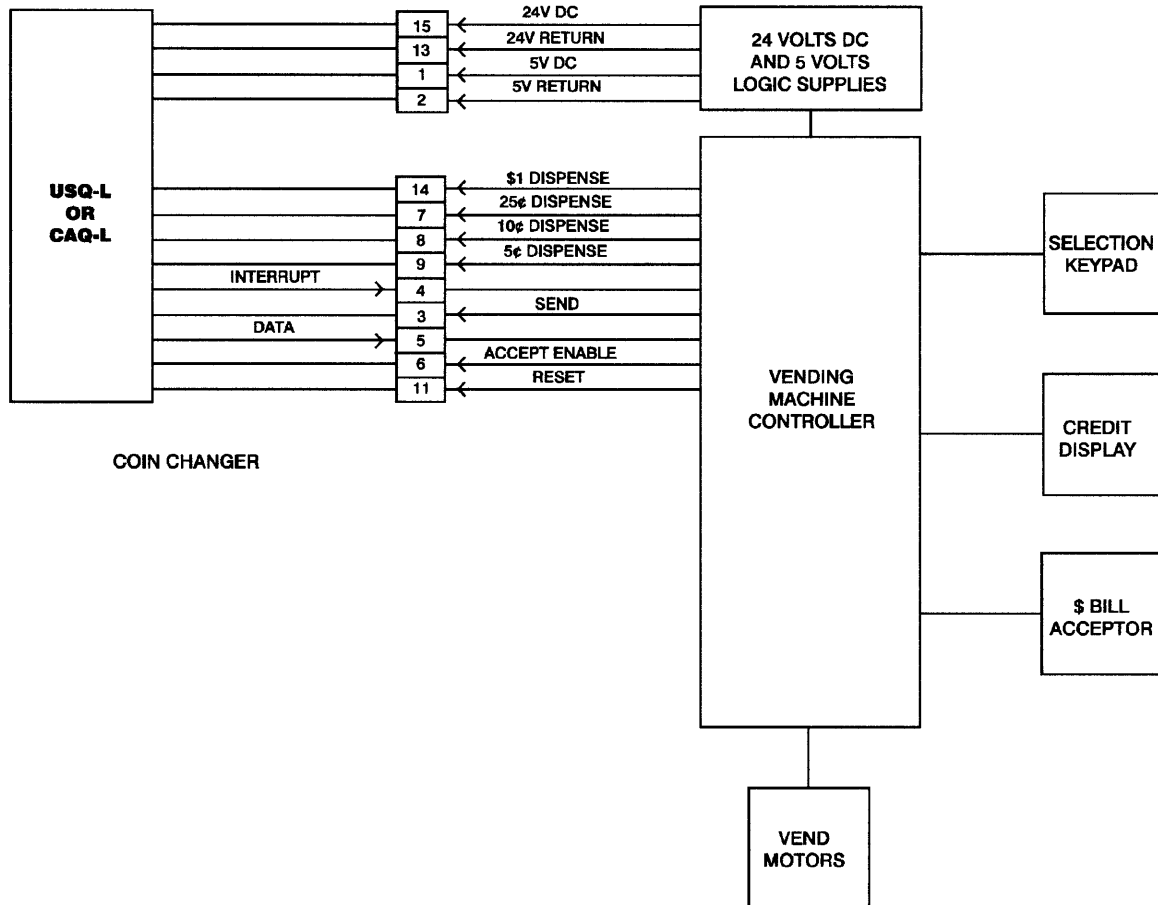
## "G" Model Controller/Vendor Interface



**MDB Coin Changer Plug**

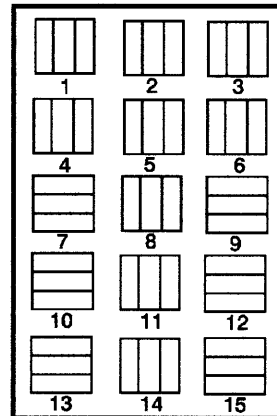
# SECTION 2: INSTALLATION

## “L” Model Controller/Vendor Interface



### USQ-L/CAQ-L PLUG

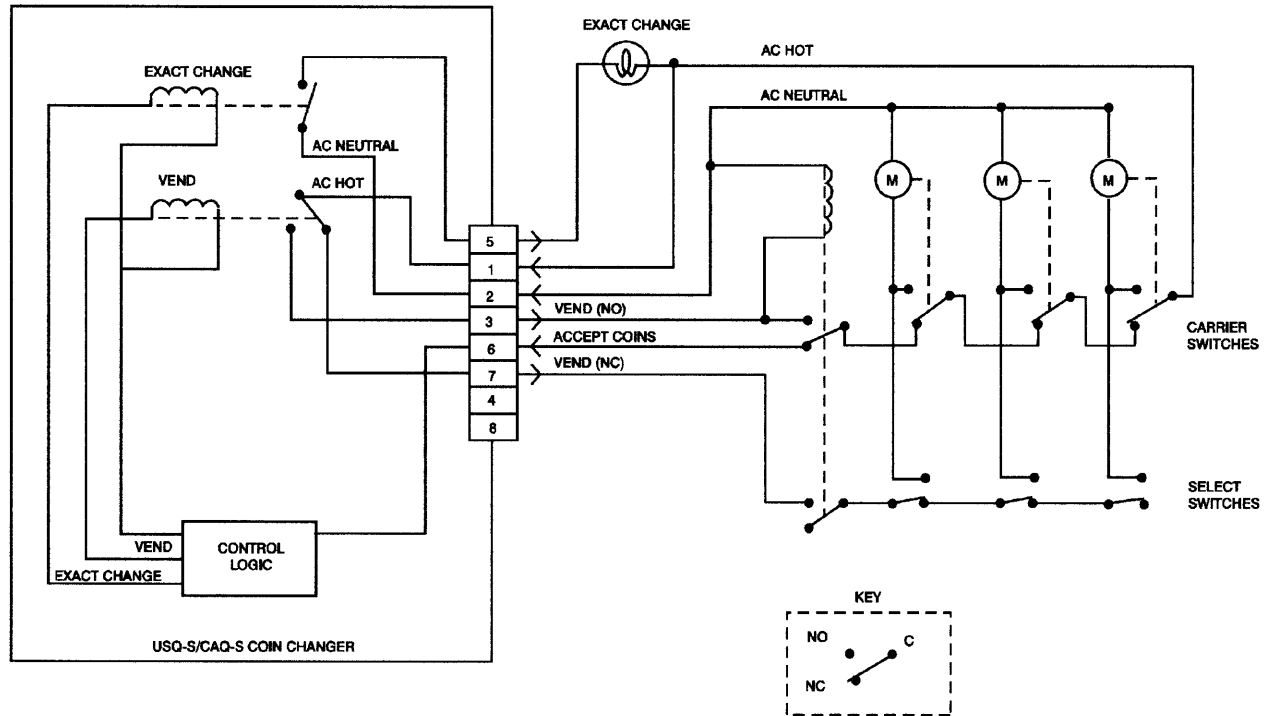
PIN #	FUNCTION
1	5 VDC Supply Positive
2	5 VDC Supply Return
3	Send (0-Volts Active)
4	Interrupt (0-Volts Active)
5	Data (0-Volts Active)
6	Accept Enable (0-Volts Active)
7	\$.25 Dispense (0-Volts Active)
8	\$.10 Dispense (0-Volts Active)
9	\$.05 Dispense (0-Volts Active)
10	Not Used
11	Reset (+5VDC Active)
12	Not Used
13	24 VDC Supply Return
14	\$1 Dispense (0-Volts Active)
15	24 VDC Supply Positive (rectified unfiltered)



“L” Coin Changer Plug

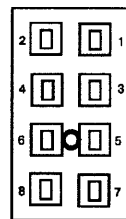
# SECTION 2: INSTALLATION

## "S" Model Controller/Vendor Interface

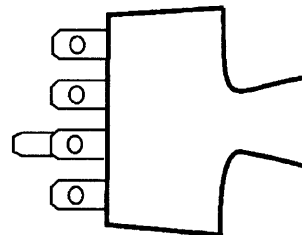


PIN #	FUNCTION
1	117 VAC (hot)
2	117 VAC (neutral)
3	Vend Relay-normally open
4	NC (no connections)
5	Exact Change-normally open (neutral)
6	Enable Coin Acceptance (hot)
7	Vend Relay-normally closed (hot)
8	NC (no connections)

### "S" COIN CHANGER JONES PLUG



FRONT



SIDE

## SECTION 3: CONFIGURATION

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### Single Price “S” Models

#### SETTING THE VEND PRICE/OPTION SWITCH

Located behind the acceptor in the middle right hand side of the changer housing are twelve switches (see Figure 2). The vend price is set using the first eight switches, the last four switches are used to enable or disable different options.

#### VEND PRICE

The vend price is set in single increments up to 255 times the lowest denomination coin accepted by the changer and routed to a coin tube. In most cases this will be a nickel.

*Example:* If the lowest denomination coin accepted to a tube for payout is a nickel, the highest vend price setting would be 255 (times) .05 or \$12.75, in this case the value of the price switches are:

1	=	.05
2	=	.10
3	=	.20
4	=	.40
5	=	.80
6	=	1.60
7	=	3.20
8	=	6.40

When the top of the rocker switch is pushed in, it is in the ON position. If switches 1, 3 and 4 are ON, the vend price would be \$.65, if the lowest denomination coin accepted to a payout tube is a nickel.

#### OPTIONS

##### Switch A (Switch 9)

Controls the escrow feature of the changer.

ON Escrow inhibited

OFF Escrow enabled

##### Switch B (Switch 10)

Not used.

##### Switch C (Switch 11)

Vend signal length

ON Vend is held until a selection is made

OFF Vend is pulsed (300 msec)

##### Switch D (Switch 12)

When to enter “Use Correct Change” condition

ON - The changer will use the vend price plus the largest denomination coin accepted (U.S.= \$1.00). This is the amount of money reported in the tubes to the logic board to shut the correct change light off.

*Example: \$.50 vend price plus \$1.00 coin = \$1.50*

OFF - The changer uses the factory settings.

U.S. = \$1.00, Canada = \$2.00

#### SAVING THE VEND PRICE

To save the vend price and option switch setting (in the coin changer’s memory), press and release the Mode Button located above the price switch. The Main Logic Board LED and the “Use Correct Change” light on the vendor will flash once, indicating that price was recorded.

The vend price must be set to an amount greater than zero for the changer to accept coins. *Note: If a Single Price Changer is used in a MDB machine, set the vend prices on the machine controller board, NOT in the coin changer.*

## SECTION 3: CONFIGURATION

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### MDB & Logic Changers

#### SETTING THE VEND PRICE

Vend prices for MDB and Logic coin changers are set through the vending machine controller (VMC). See vending machine manual for details.

#### Filling the Coin Tubes

##### HAND LOADING

To hand load the coin tubes, tilt the coin tube loading door open (see Figure 4, page 9), load the four tubes with appropriate coins. **Make sure all coins lay flat** and that each tube is filled at least to the 20% mark

\$.05	=	15-16 coins
\$.10	=	23-24 coins
\$.25	=	18-19 coins
\$1.00	=	15-16 coins

Payout at least two coins from each tube to verify tubes are loaded correctly.

*NOTE: If your Four Tube coin changer does not have a quarter or dollar payout tube, it is best to load one nickel tube and/or one dime tube all the way to the top (to cover the upper tube sensors) rather than filling multiple similar tubes part way full. This will ensure the bill acceptor stays enabled for a longer period of time.*

*Example: A USQ-G710 has four nickel tubes. If you are hand loading the payout tubes and do not have enough nickels to completely fill all four tubes, load each tube with approximately 15 coins. Then with the remaining coins, fill at least on nickel tube to the top.*

### LOADING THROUGH THE ACCEPTOR

Hand loading coins directly into the coin tubes and making sure they lay flat is one way to fill the Four Tube changer with coins. If you are keeping track of the DEX information for accounting purposes, the coins loaded into the tubes need to be counted by the acceptor.

- For “MDB” changers use the vending machine controller board’s “Tube Fill” or “Coin Fill” mode. Refer to the vending machine manual for details.
- For Single Price changers, use the coin-changer’s “Manual Fill Mode”.

#### MANUAL FILL MODE

Manual fill mode can be used to fill the tubes of the coin changer, through the acceptor, without accumulating credit and having to vend the credit away. The advantage of this is that coins are accounted for in the DEX fields of a Single-Price changer.

To enter the Manual Fill Mode, press inventory buttons C and D at the same time. The acceptor LED will flash an equal pattern of ON and OFF to indicate the Manual Fill Mode is active. Coins inserted through the acceptor will be routed to their proper tubes. When the upper tube sensor is reached, coins will be directed to the cash box or to the next tube of like coins.

The changer will automatically exit Manual Fill Mode after 45 seconds of no activity, or if an inventory switch is pressed and released.

## SECTION 3: CONFIGURATION

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### FLOAT MODE

Float Mode is used to reduce the number of coins kept in a tube to a level anywhere between the upper and lower tube sensors.

The Quantum changer supports one of two factory programmed Float Mode operations. They are Float Level and Float Pay-Down.

#### **FLOAT LEVEL** (standard on USQ models)

In Float Level, coins are filled to a chosen level between the upper and lower tube sensors. Once the Float Level is set, coins will only be routed to the tube if a coin was paid out for change. Accepted coins normally routed to that tube will be sent to the cash box.

#### **FLOAT PAY-DOWN** (Optional, must be set at the factory)

In Float Pay-Down, coins are filled to a chosen level between the upper and lower tube sensors. Once the level is set, coins will continue being routed to the tube until the upper sensor is covered, then they will be routed to the cash box. Activating the Float Pay-Down by pressing inventory buttons A and B simultaneously will pay down any coins above the level you previously set. After the coins are paid down, the acceptor will automatically go into manual fill mode. In manual fill mode, the acceptor will only route coins to tubes that are below the set level. Once the level is reached, the coins will be rejected.

### SETTING THE FLOAT MODE

The Float Mode for both Float Level and Float Pay-Down are set for all four tubes using the acceptor inventory buttons.

1. Using "Tube Fill", "Coin Fill", or Manual Fill mode, fill the four tubes to the float level you want the changer to maintain.
2. Press and release the A and D inventory buttons simultaneously. The acceptor LED will flash an equal ON and OFF pattern.
3. Within two seconds, press and release inventory buttons B and C at the same time to store the tube levels and turn the Tube Float Mode ON. The acceptor LED will now display a flash pattern of 10% ON and 90% OFF to indicate the levels are set.

*NOTE: To turn off the Float Mode, repeat steps 2 and 3.*

### ACTIVATING FLOAT PAY-DOWN

Press and release acceptor inventory buttons A and B simultaneously. After the tubes pay down, Manual Fill Mode is automatically entered to allow low tubes to be replenished through the acceptor. When the float levels are reached, coins are directed to the coin return. The changer will automatically return to operating mode after 45 seconds of no activity or if any inventory button is pressed and released.

## SECTION 3: CONFIGURATION

### Changing the Coin Tubes

#### REMOVING/REPLACING THE TUBES

To change the coin tubes (see Figure 6)--

- Remove the acceptor and tube shield from the changer housing.
- Next, open the front door by gently pulling outward on the left side, swinging it open to the right.
- Remove the four inventory tubes one at a time (starting from the left side and working to the right) by unsnapping the tube using a flat screwdriver in the window in the upper payout base.
- Replace the tube and shim assemblies by inserting the tube's dovetails into the guides in the housing and push down.

Coin tubes should be arranged in the order specified on page 5.

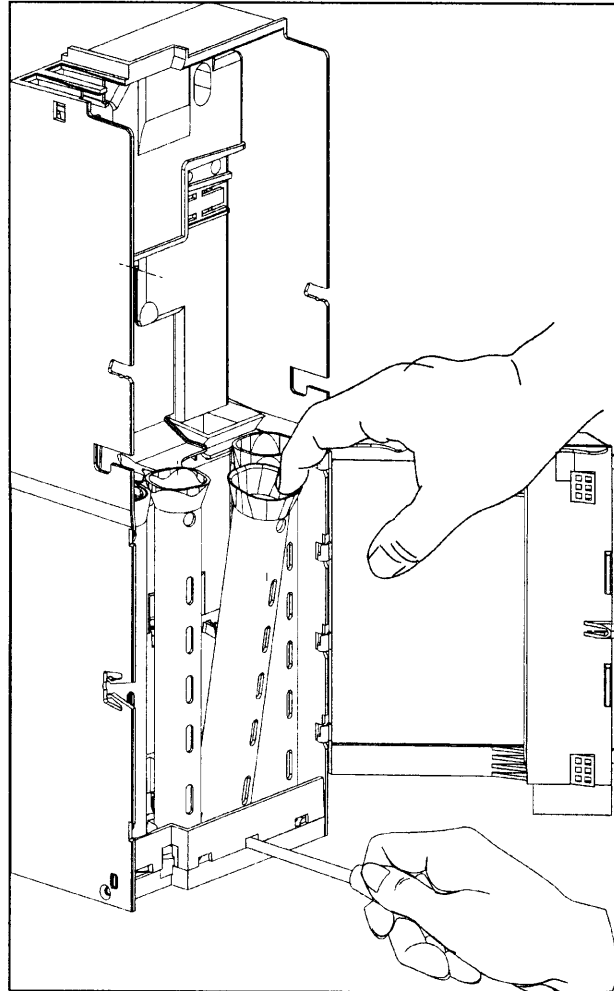


Figure 6



## SECTION 3: CONFIGURATION

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### TUBES AND SHIMS

The coin tubes for your QuantumPro changer are different sizes to accommodate the different diameter coins.

Each coin tube has a removable, color-coded shim which adjusts the tube for the coin's thickness.

For **USQ** coin changers, the COIN/TUBE/SHIM combinations are as follows:

COIN	TUBE#	PART#	SHIM	PART#	TUBE/SHIM ASSY#
\$.05	#7	408161-1	(Blue)	921462	408192-1
\$.10	#10	408161-2	(Red)	921800	408192-2
\$.25	#5	408161-3	(Blue)	921462	408192-3
\$1.00	#3	408161-7	(Lt. Gray)	921802	408192-5

For **CAQ** coin changer, the COIN/TUBE/SHIM combinations are

COIN	TUBE#	PART#	SHIM	PART#	TUBE/SHIM ASSY#
\$.05	#7	408161-1	(Blue)	921462	408192-1
\$.10	#10	408161-2	(Red)	921800	409192-2
\$.25	#6	408161-4	(Black)	921801	408192-4
\$1.00	#3	408161-7	(Lt. Gray)	921802	408192-5
\$2.00	#3	408161-8	(Blue)	921462	408192-6

*NOTE: For CAD units, if a \$.25 tube is installed in the "A" tube location, use tube #5 with a black shim.*

The shims are removed and replaced by sliding them in or out of the bottom of the tube. Do not reuse shims. Continuous installation and removal can stress the plastic, causing the shims to lose their ability to stay firmly in place. The shim is installed correctly if its part number is visible looking at the rear of the tube.

## SECTION 3: CONFIGURATION

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### Rerouting the Coins

Whenever the coin tubes are rearranged, the programmable acceptor has to be reconfigured to route accepted coins to either the correct tube or vendor cashbox.

To reconfigure the acceptor, apply power to the QuantumPro changer.

- Press inventory buttons A B and D simultaneously for 2 seconds (until the acceptor LED goes out).
- Release the inventory buttons, and the LED will flash an alternating pattern of 1 second ON/ 1 second OFF, then 2 seconds ON/ 2 seconds OFF. This indicates the rerouting process is waiting for a coin destination (coin tube or cashbox) to be selected.
- To select a coin tube, press and release its inventory button. Once the coin destination has been selected, the LED will flash a 1 second 50% ON / 50% OFF sequence.
- Drop the appropriate coin for the tube you have chosen into the acceptor. An accepted and validated coin will be routed and assigned to the tube you've chosen.

*Example:* For a payout configuration of  
25 – 10 – 10 – 05 (USQ-708)

- Press and release inventory button A, insert a quarter through the acceptor.
- Press and release inventory button B, insert a dime through the acceptor.
- Press and release inventory button C, insert a dime through the acceptor.
- Press and release inventory button D, insert a nickel through the acceptor.

Any coin dropped through the acceptor before a coin tube is selected will be routed to the vendor's cashbox. Valid coins not assigned to a tube will also be routed to the cashbox.

- To save the new routing information and exit the routing mode, hold the coin return lever down for 4-5 seconds (until the acceptor LED returns to its normal pattern) or wait 45 seconds and the Four-Tube changer will automatically save the routing information and exit this mode.

*NOTE: If power is removed from the changer before the rerouting information is saved, all new routing information will be lost.*

## SECTION 4: MAINTENANCE

### Routine Maintenance

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

The coin changer should be kept in its original shipping carton when not in use. This will keep the changer clean and offer the best protection for the unit.

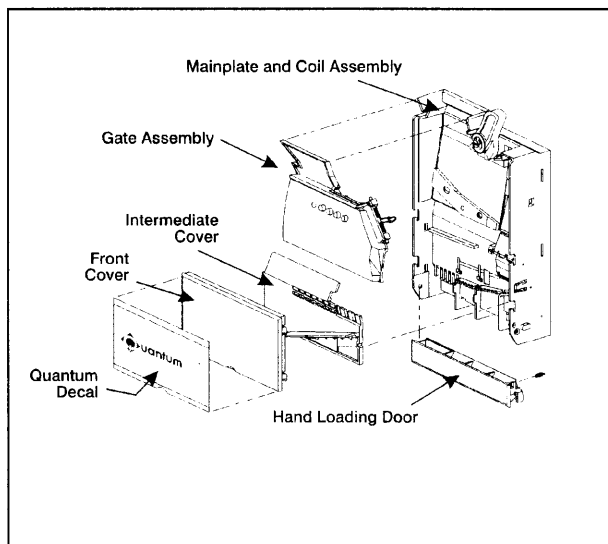


Figure 7

### Cleaning

The majority of your QuantumPro changer is manufactured from a high-quality plastic, which should be cleaned with a warm water and mild detergent solution.

#### CAUTION:

- Never submerge 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 coin ramp, heavy usage or a dirty environment can result in dirt build-up in the acceptor. To clean the coin ramp, lift the acceptor gate upward and diagonally 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 with a mild detergent. **DO NOT SUBMERGE UNIT IN WATER.**

For more detailed cleaning of the acceptor, remove the front cover (see Fig. 7) by opening the coin tube loading door and wedge your thumb underneath the front cover. To remove the cover, push out and up. Next, remove the intermediate cover using a small screwdriver to release tab on the right side of the acceptor. Pivot the intermediate cover out towards the left. Lift the metal debounce rail out of the acceptor. You are now able to fully clean the interior coin rail, gates and the intermediate cover (pay attention to the mirrored surface on the intermediate cover). Reassemble the acceptor in the reverse order.

*NOTE: When installing the intermediate cover, make sure the metal debounce rail is in place and raise the anti-stringing door on the accept/reject gate before snapping the cover in place.*

## **SECTION 4: MAINTENANCE**

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### **Removing/Replacing Individual Assemblies**

#### **ACCEPTOR**

To remove the acceptor, press down on the acceptor latch and pull the top of the acceptor forward and away from the changer housing. Unplug the ribbon cable from the changer. Raise the acceptor and pull outward until the acceptor clears the housing slots.

#### **FRONT COVER AND TUBE SHIELD**

Remove the front cover by swinging the door open to the right. Lift the front cover off of the hinges on the changer housing. Remove the tube shield off the top of the coin tubes.

#### **REMOVING THE TUBES**

The tubes are held in place by 3 sets of tabs that secure it to the payout base.

To remove the tubes, start with the tube on the left side and pull it straight up. Working your way to the right, remove all four individual tubes.

#### **REMOVING THE LOGIC BOARD COVER**

To remove the logic board cover, first remove the strain relief bracket and screw. Next, remove the screw in the lower center portion of the logic board cover. Lift the cover out.

#### **REMOVING THE UPPER TUBE SENSOR BOARD**

Connected to the bottom of the main logic board is the upper tube sensor board. To remove the sensor board, release the locking tab and gently pull the sensor board out. As you pull the sensor board out, hold the main logic board in place and the sensor board will unplug from the main logic board.

#### **REMOVING THE LOGIC BOARD**

Unplug the remaining harnesses from the main logic board and lift it out of the housing.

#### **REMOVING THE PAYOUT BASE ASSEMBLY**

With the harnesses disconnected from the main logic board, remove the two screws (one on each side) from the changer housing. Lay the changer on its back and spread the sides of the housing apart. Pull up and out on the payout base assembly.

#### **REMOVING THE CASHBOX CHUTE**

From the backside of the changer housing, remove the tape seal from the cashbox chute. Lift the bottom of the chute up and slide the cashbox chute out.

### **Clearing Coin Jams**

Should a coin jam occur in the cash box chute area, use the following steps to help dislodge the coins:

1. Remove changer from vendor.
2. From the backside of the changer housing, remove the tape seal from the cashbox chute. Lift the bottom of the chute up and slide the cashbox chute out.
3. Remove any lodged coins.
4. Replace the cashbox chute by pressing in and up to snap into place.

## SECTION 5: TROUBLESHOOTING

Troubleshooting Guide			
TROUBLE	POSSIBLE CAUSE	PROCEDURE	REMEDY
No Coin Acceptance	<p>No power</p> <p>Acceptor</p> <p>No vend price set</p>	<p>Make sure changer is plugged into vendor.</p> <p>Check acceptor LED. If LED is on, replace acceptor.</p> <p>If still no coin acceptance--</p> <p>If still no coin acceptance--</p> <p>If Acceptor LED is off, check to see that acceptor cable and changer power harness are properly connected to changer's main logic board.</p> <p>If still no coin acceptance--</p> <p>If still no coin acceptance--</p> <p>Set vend prices (see "Setting the Vend Price" section of this manual).</p>	<p>Plug changer into vendor.</p> <p>Replace acceptor.</p> <p>Replace changer's main logic board.</p> <p>Replace changer's main power harness.</p> <p>Plug acceptor cable and/or changer power harness into changer main logic board.</p> <p>Replace changer's acceptor logic board.</p> <p>Replace changer's main power harness.</p>
No coin acceptance Rejects percentage of good coins	<p>Coin Return Lever</p> <p>Acceptor is dirty or foreign matter in coin accept path</p>	<p>Make sure changer is mounted correctly and coin return lever is in proper position.</p> <p>Check to see that acceptor coin path is clean and free of matter.</p> <p>If still rejects good coins--</p> <p>If still rejects good coins--</p>	<p>Reposition changer and/or vendor coin return.</p> <p>Clean acceptor and remove any foreign matter.</p> <p>Replace acceptor.</p> <p>Replace changer's main logic board.</p>
Accepts coins but gives no /or erratic credit	Acceptor	<p>Replace acceptor with good acceptor and test to see if changer functions properly.</p> <p>If still no/erratic credit--</p> <p>If still no/erratic credit--</p>	<p>Replace defective acceptor.</p> <p>Replace changer's main logic board.</p> <p>Replace changer's main power harness.</p>

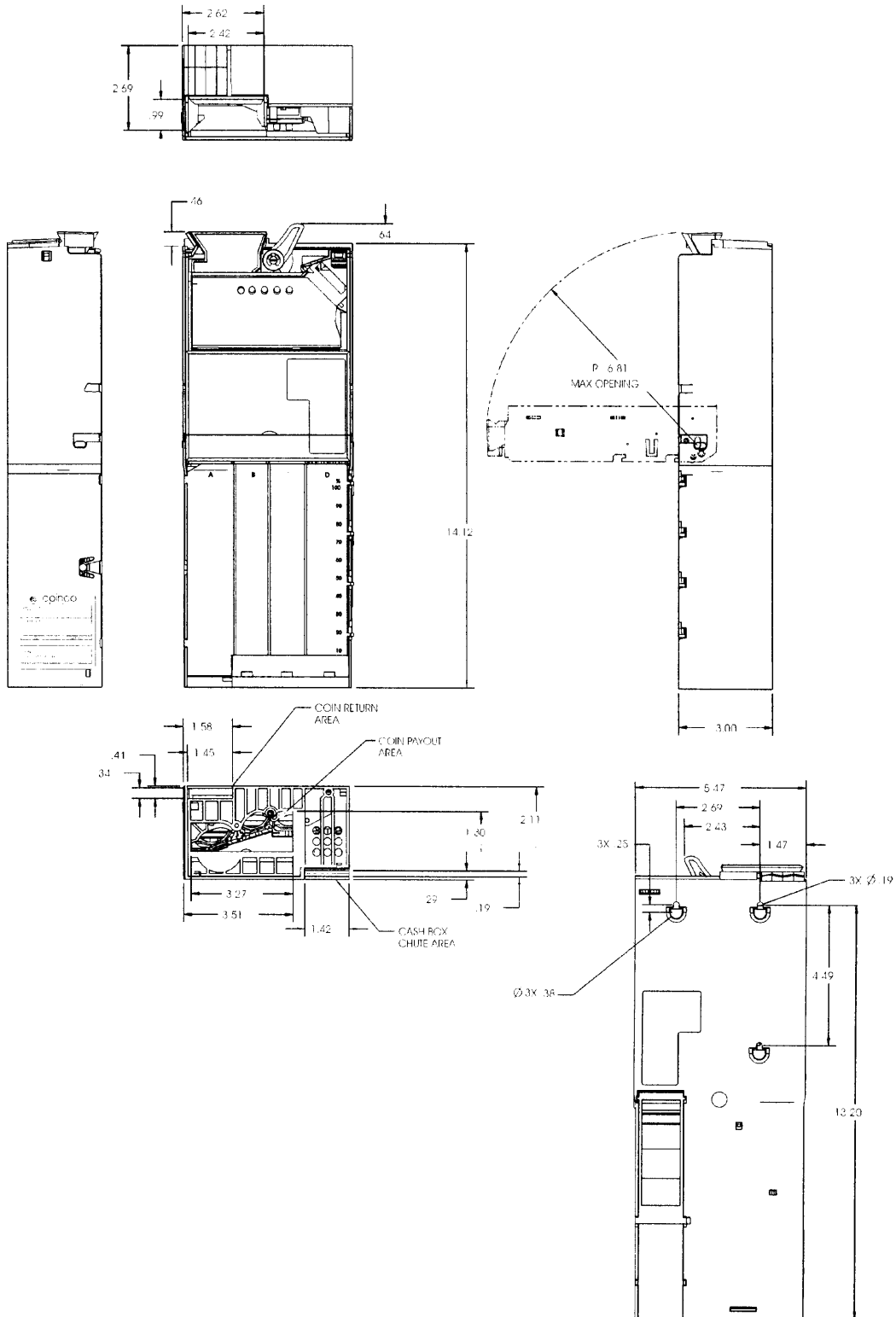
## SECTION 5: TROUBLESHOOTING

<b>Troubleshooting Guide</b>			
<b>TROUBLE</b>	<b>POSSIBLE CAUSE</b>	<b>PROCEDURE</b>	<b>REMEDY</b>
Accepted coins always go to cashbox	Front cover	Check front cover for proper installation, check the mirrors.	Clean or replace front cover.
	Acceptor	If coin still goes to cashbox, replace acceptor with good acceptor and test to see if changer functions properly.	Reprogram acceptor coin routing.
		If coin still goes to cashbox--	Replace acceptor.
	Tube Sensor Board	Check the sensor board for loose components. Make sure tube sensor board is properly secured to main logic board. Check cable from sensor board for damage or improper connection.	Replace tube sensor board.
		If coin still goes to cashbox--	Replace changer's main logic board.
Accepted coins always go to the coin tubes	Coin tube gate is in the open position	Remove acceptor back cover and check solenoid for free operation.	Replace acceptor.
	Tube sensor board	Replace tube sensor board with good board and test to see if changer functions properly.	Replace tube sensor board.
		If coins still go to tubes--	Replace changer's main logic board
Changer credits coins but does not escrow	Coin return lever	Make sure changer is mounted correctly and acceptor gate opens when vendor coin return lever is operated.	Reposition changer and/or vendor coin return lever.
	Acceptor	Replace acceptor with good acceptor and test to see if changer operates correctly.	Replace defective acceptor.
	SINGLE PRICE ONLY Switch 9 is ON-escrow is inhibited	Uninhibit the escrow feature.	Turn Switch 9 OFF and press the mode switch.
No Payout	Payout Motor	Make sure motor wires are properly connected to changer's main logic board.	Plug motor wires into main logic board.
		If still no payout, replace motor with good motor and test to see if changer operates properly	Replace defective payout motor.
		Make sure coin is routed to that tube.	

# SECTION 6: EXPLODED VIEWS

## QuantumPro Dimensional View

(All measurements are shown in inches)







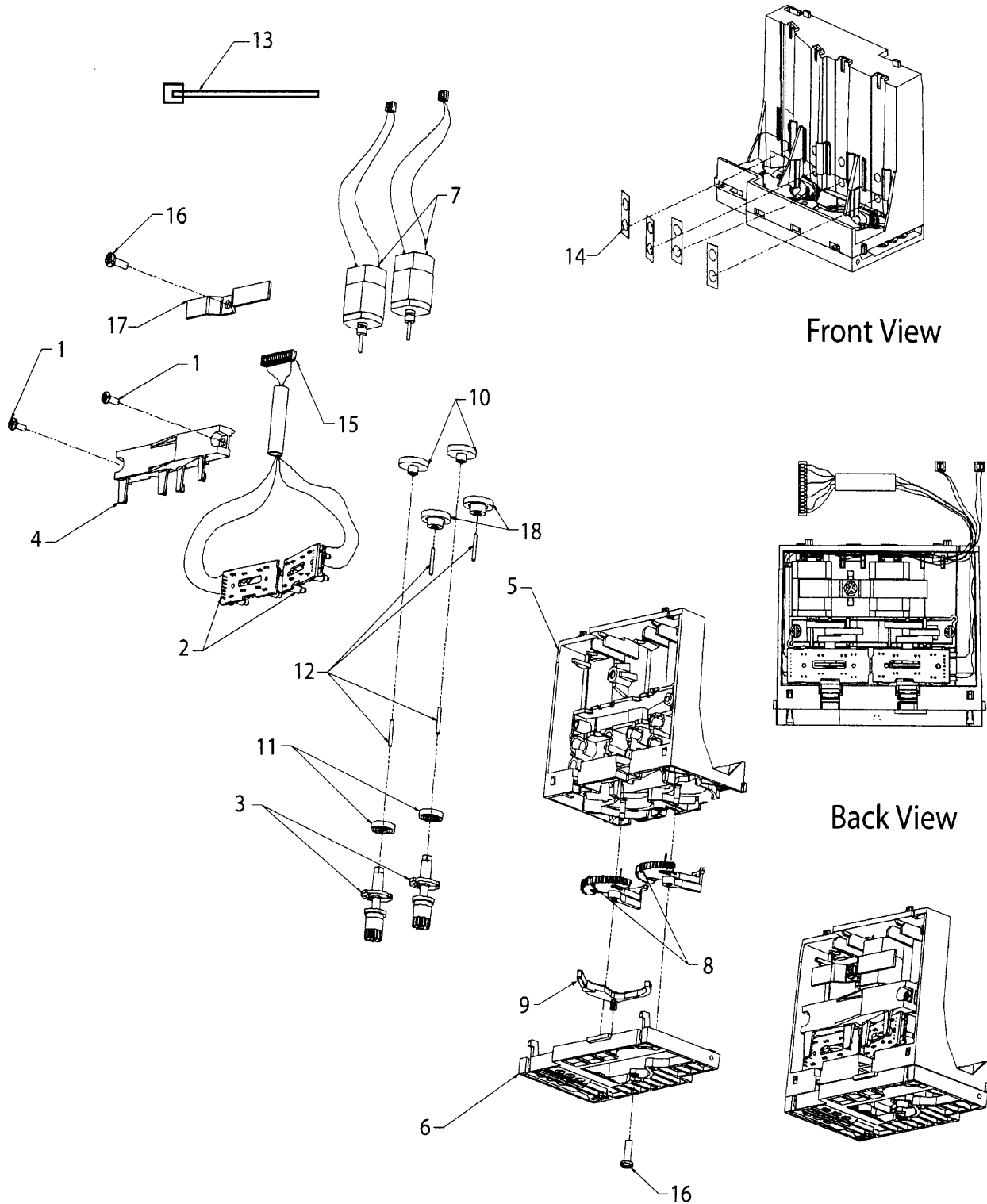
## SECTION 6: EXPLODED VIEWS

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<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	408545-1	Mainplate and Coil	1
2	906618	Operating Lever Spring	1
3	906606-2	Operating Lever	1
4	751S21X	Retaining Ring	1
5	906624	Gate Lever Pivot Screw	1
6	408546-1	Gate and Coil Assembly	1
7	408042	Gate Board (700 Series)	1
8	922284-1	Keypad	1
9	408153-1	Gate Cover Assembly	1
10	921475-4	Mirror .450 x .375	1
11	921433-1	Front Cover	1
12	407954-1	Intermediate Cover and Mirror	1
13	341S4R5	Screw, Flat Head #4-5/16	1
14	925294	Validation Debounce Rail	1
15	921437	Sorting Debounce Rail	1
16	921671-1	Hand Loading Door	1
17	921672	Hand Loading Door Spring	1
18	921732-3	Accept/Reject Door	1
19	921427-2	Sort Door	1
20	921737-1	Cashbox Door	1
21	921588	Diverter Pivot Pin	2
22	921785	Short Diverter Pin	1
23	921443-2	Coin Stop	2
24	407615-1	Plunger and Yoke Assembly	1
25	407614-2	Tube "C" Gate and Plunger Assy.	1
26	922415	Solenoid Spring (Copper)	3
27	407981	Solenoid and Frame Assembly	3
28	908845-1	Spring Retention Plug	1
29	407613-2	Tube "B" Gate and Plunger Assy.	1
30	400-8	Self Locking Hex Nut (8-32)	1
31	408041-1	Acceptor Logic Board	1
32	921432-1	Rear Cover	1
33	925044	Acceptor Serial # Label	1
	925045	Acceptor Tune Label	1
	925024	Acceptor Configuration Label	1
34	921974	Debounce Plate	1
35	345-4R5	Screw, Pan head #4-5/16	1
36	925527-1	QuantumPro Front Cover Decal	1
37	922283-3	Anti-Stringing Lever	1
38	925023	Acceptor Gasket	1
39	922642-1	Mainplate Insert	1
40	925359	Mainplate Textured Lens	1
41	922161	Sorting Lens	1
42	408544	Multifrequency Coil Assembly	1
43	408540	Coil Assembly	2
44	922161	Saltwater Protection Decal	2
45	921810	Gate Lens	1
46	921489	Gate Pin	1
47	906617	Gate Spring	1
48	923362	Water Protection Decal	1
49	922783	PVC Foam	1

# SECTION 6: EXPLODED VIEWS

## Payout Base Assembly QuantumPro 408567-3



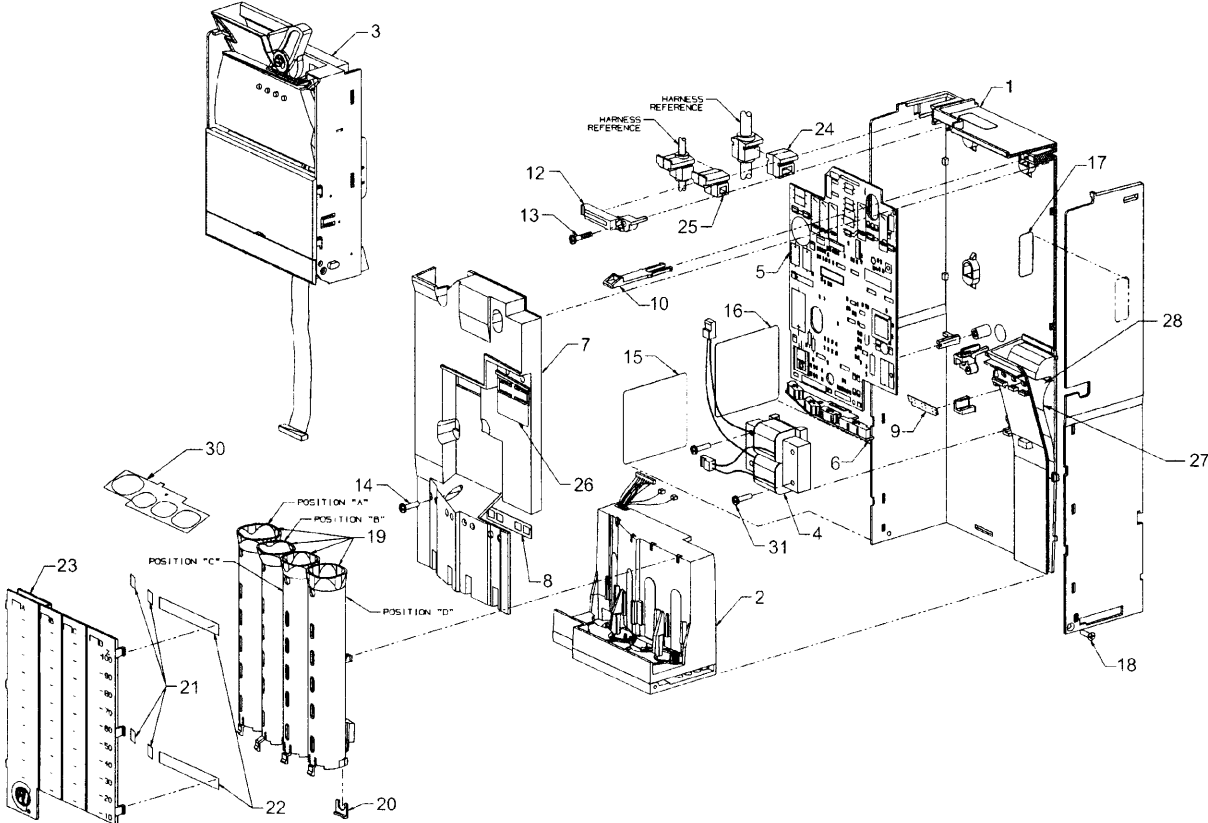
## **SECTION 6: EXPLODED VIEWS**

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<b><u>ITEM</u></b>	<b><u>PART NO.</u></b>	<b><u>DESCRIPTION</u></b>	<b><u>QTY.</u></b>
1	296-6R6	Screw, Pan Head 6-3/8 PH Type 25	2
2	408052	Harness Assembly & Tube Sense Board	1
3	921430-1	Encoder Gear	2
4	921442-4	Gearbox Cover	1
5	921449-4	Upper Payout Base	1
6	921450-2	Lower Payout Base	1
7	407684-1	Motor/Harness Assembly	2
8	407683-3	Sweeper Assembly	2
9	408178-1	Coin Clearing Arm	1
10	923387	Reduction Gear, 34/10 teeth	2
11	923144-1	Pinion Gear	2
12	921585-1	Gear Shaft	4
13	901358	Cable Tie, 4"	1
14	921839-2	Lower Tube Sense Lens	4
15	921768-1	Lower Tube Sense Harness	1
16	296-8R8	Screw, Pan Head 8-1/2 Type 25	2
17	923797-1	Motor Retainer	1
18	923143-1	Reduction Gear, 34/14 Teeth	2

# SECTION 6: EXPLODED VIEWS

## QuantumPro Final Assembly

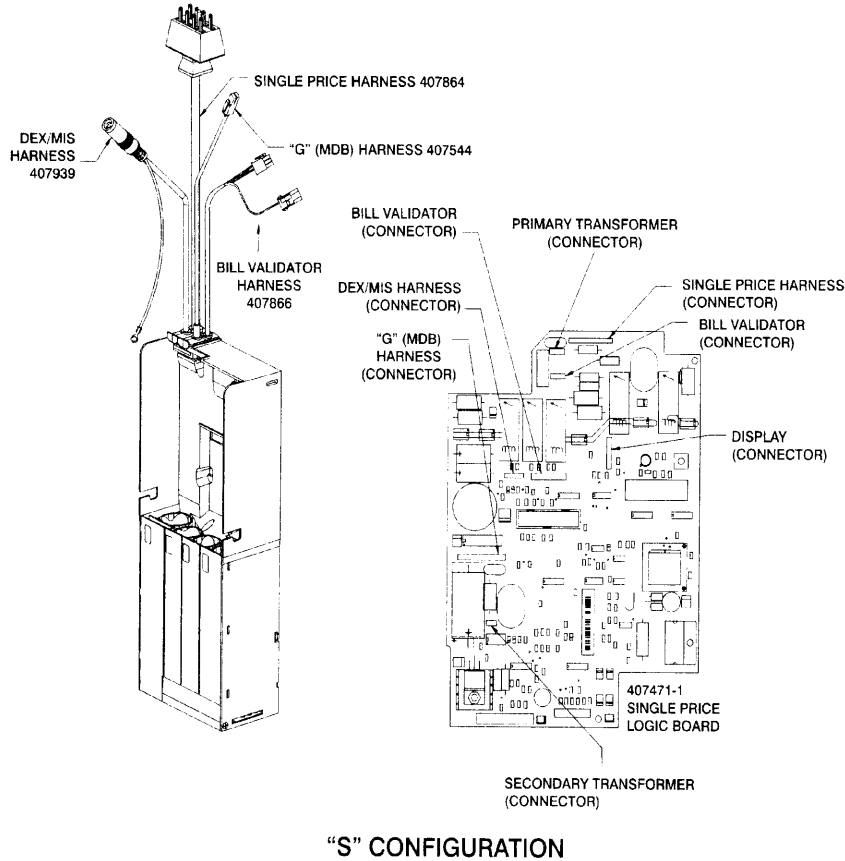
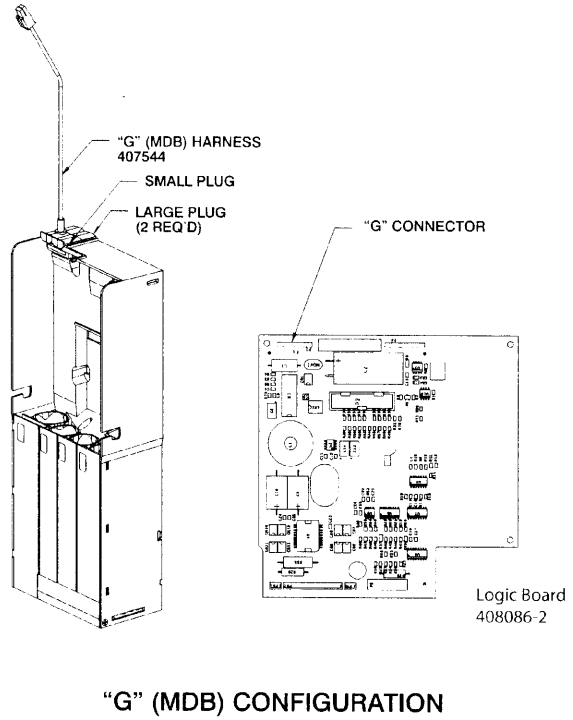
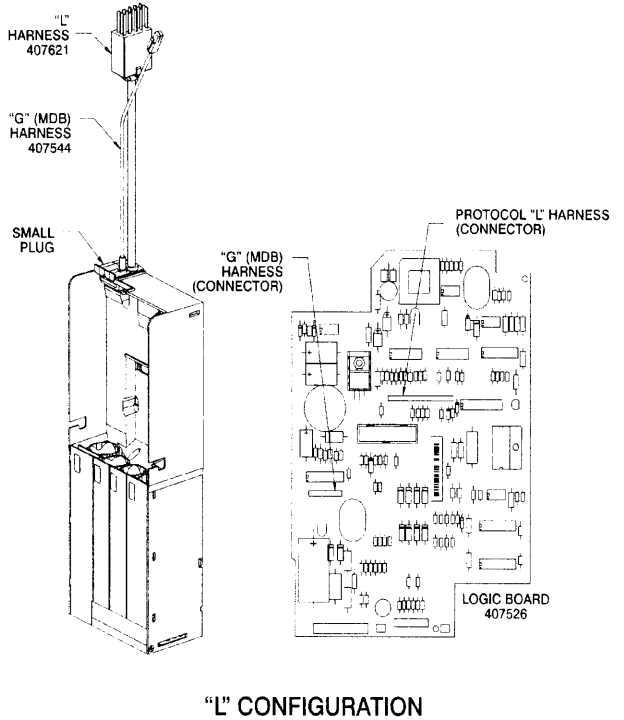


## SECTION 6: EXPLODED VIEWS

<u>ITEM #</u>	<u>PART #</u>	<u>DESCRIPTION</u>	<u>QTY</u>	<u>NOTES</u>
1	407610-9	Housing Assy	1	Includes #9, 10, 27, 28, 29
2	408567-3	Payout Assembly	1	QuantumPro
3	AUSQ7XX	Acceptor Assy (U.S.)	1	QuantumPro, XX = Payout Configuration
	ACAQ7XX	Acceptor Assy (CAN.)	1	QuantumPro, XX = Payout Configuration
4	407544-4	Transformer	1	For 110V Single Price
5	408086-2	"G" Logic Board	1	For Quantum MDB units
	407526	"L" Logic Board	1	For Logic Interface units
	407471-1	"S" Logic Board	1	For Single Price units
6	407541	Upper Tube Sense Board	1	
7	407956-4	Logic Board Cover	1	For "G" & "L" models
	407956-5	Logic Board Cover	1	For "S" models
8	921840	Upper Tube Sense Lens	2	
9	921822	Cashbox Lens	1	
10	921586-1	Latch	1	
11	-----	-----		
12	921724-1	Strain Relief Bracket	1	
13	345-6R11	Screw, Pan Head #6-11/16	1	
14	345-6R8	Screw, Pan Head #6-1/2	1	
15	909729-4	Identification Label	1	
16	922868	Patent Label	1	
17	909846-1	Configuration Label	1	
18	341S4R5	Screw, Flat Head #4-5/16	2	
19	408192-1	U.S. .05 Tube & Shim Assy	*	#7 Tube with Blue Shim
	408192-2	U.S. .10 Tube & Shim Assy	*	#10 Tube with Red Shim
	408192-3	U.S. .25 Tube & Shim Assy	*	#5 Tube with Blue Shim
	408192-4	Can. .25 Tube & Shim Assy	*	#6 Tube with Black Shim
	408192-5	U.S. 1.00 Tube & Shim Assy	*	#3 Tube with Lt. Gray Shim
	408192-6	Can. 2.00 Tube & Shim Assy	*	#3 Tube with Blue Shim
20	921462	Blue Shim	*	\$.05, U.S. \$.25 & CAN \$2.00
	921800	Red Shim	*	\$.10 Tubes
	921802	Light Gray Shim	*	For \$1.00 Tubes
	921801	Black Shim	*	Canadian .25 Tubes
21	922201	Tube A & B Mirror	4	
22	923353	Tube C & D Mirror	2	
23	407746-4	Front Cover & Mirror Assy	1	Quantum
24	921804	Lg. Strain Relief Plug	*	
25	921668	Sm. Strain Relief Plug	*	
26	922391	Price Setting Label	1	For Single Price units
27	921464-2	Cashbox Chute	1	
28	922200-1	Cashbox Mirror	1	
29	921474	Clear Tape 3/4"	-	Not shown
30	923127-2	Tube Shield	1	Do Not Use in 704, 705, 716
31	345-4R12	Screw, Pan Head #4-3/4	2	For Transformer in Single Price

# SECTION 6: EXPLODED VIEWS

## QuantumPro Harness and Logic Board Configuration



# NOTES

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Coin Acceptors, Inc. products are patented, and patents are pending,  
in the United States and throughout the world.



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