

CONTROL BOARD FUNCTIONAL DESCRIPTION

CONTROL BOARD #407548

DISPLAY BOARD #407406

no sel.

- A. **SALES MODE:** The sales mode is the normal mode of operation and will automatically return to it from the service mode.
- B. **MESSAGE:** While in the sales mode, the programmable display message will display the point of sales message or "Please Insert Exact Money" if the coin tubes are not full.
- C. **CREDIT:** After insertion of enough money, a credit will be displayed and a vend can be made. If the controller is set for force vend, no return of full credit can be made. If in non-force vend, a vend will be made and excess credit will be returned, or the entire credit may be returned by pushing the coin return button.
- D. **COIN ACCEPTANCE:** While using a 9302-A type coin mechanism, the coin acceptance is controlled by the changer. However, when using a 9302-L/L+ type coin mechanism the controller will allow acceptance of all coins as long as the accumulated credit is less than the maximum price of any motor setting. Coin acceptance will be disabled during all vends while coins are being paid out and while in the service mode of operation.
- E. **BILL ACCEPTANCE:** While using a 9302-L type coin mechanism, a bill acceptor may also be used. If such a device is used, bill acceptance will be as follows:

FIRST BILL ACCEPTANCE: The first bill will be accepted if the quarter tube is above the low indicator or if the dime and nickel tubes are both above the low indicators. If the accumulated credit is greater than or equal to the maximum price, then bill acceptance will be disabled. If the bill acceptor offers escrow and acceptance is disabled because of the maximum price, the bill will be kept in the escrow position, otherwise the bill will go straight into the bill stacker. If the bill acceptor does not offer escrow, the bill will go straight to the bill stacker.

ADDITIONAL BILL ACCEPTANCE: Additional bills will be accepted if the dime and quarter tubes are both above the low indicators. If the accumulated credit is greater than or equal to the maximum price, then bill acceptance will be disabled. If the bill acceptor offers escrow and acceptance is disabled because of the maximum price, the bill will be kept in the escrow position, otherwise the bill will go straight into the bill stacker. If the bill acceptor does not offer escrow, the bill acceptor will be disabled after the second bill has been sent to the stacker unless the Force Vend feature is enabled.

- F. **SELECTION VENDING:** When a letter character is depressed on the keypad, it will be displayed for up to 5 seconds. If a number is depressed within that 5 seconds, one of the following will occur:
- If there has not been enough credit deposited, the selection's character, number and price will be displayed for approximately 1 second followed by the "Please Insert More Money" message being scrolled one time. Then the credit, or the point of sales message if no credit has been established, will be displayed again.

If there has been enough credit deposited (see note #1, next page), the selection's character, number and price will be displayed while the controller determines if the exact amount of change can be paid to the customer. If it cannot be returned, the vend sequence is halted and the deposited credit is returned in a "like coin" fashion, the "Please Insert Exact Money" message will be scrolled one time, followed by a return to the idle condition of the sales mode. If the exact amount of change can be returned, then the controller will calculate a check sum of the electrically erasable, programmable, read only memory (EEPROM), this will then be compared to the check sum determined when the controller last programmed an EEPROM location.

If the two check sums are different, the vend will not be allowed and the "Please Call Service" message will be scrolled on the display until the service mode is entered. If the two check sums are the same, then the selection will be vended and the amount of change will be displayed while it is returned using a "least coins" fashion. If for some reason the exact amount of change cannot be returned, as much as possible will be paid out and the remaining amount will be retained as credit toward another vend. If the correct change is returned the "Thank You" message will be displayed for 0.8 seconds, followed by the idle condition of the sales mode. If the motor is not allowed to complete a full cycle, or if after twelve seconds the motor has not yet returned to a home position, the controller will beep three times while the "Make Alternate Selection" message is scrolled one time, and will be followed by the amount of accumulated credit. If it is enabled, the force vend feature will be overridden for approximately 25 seconds after a faulty vend.

If a selection not in the configuration, or one with a bad motor (see note #2 below) is selected, that selection's character, number and price will be displayed for approximately 1 second. Then the controller will beep three times while the "Make Alternate Selection" message is displayed one time. The credit or point of sales message will be displayed again following the above message.

Note #1: An item price of \$0.00 is allowed as a valid vend while in the sales mode of operation.

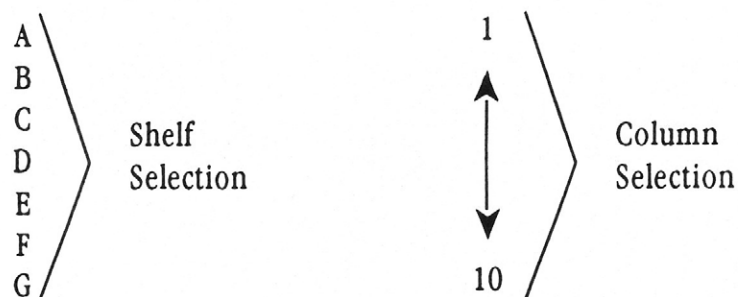
Note #2: A bad motor is defined as a motor location requiring more than 12 seconds before detecting a home position signal or an electrically open motor circuit. Once a bad motor has been detected, it cannot be vended until it is cleared by performing a free vend from within the service mode of operation.

- G. **MOTOR CURRENT MONITORING:** The motor interface will be capable of detecting interruptions in current (home detection).

The controller will current limit the motor under 500 mA. The controller will not turn off a motor due to over current detection.

KEYPAD FUNCTION

1) SALES MODE:



2) SERVICE MODE:

- Coin Dispense: Press #1 followed by A B or C . Press #14 to exit.
- Motor Count: Press #2 for count of good motors. (will be displayed on readout.) Press #14 to exit.
- Accountability: Press #4 to display "accounting", followed by:
A - Total Cash B - Total Bill Acceptor.
Press #14 to exit.
- Price Setting:
 - Single Selection: Press #5 to display "selection". Enter the desired selection to be changed. (example, B - 3)
 - Enter new price for this item, example: \$1.25 = 1 2 5 keys. To save this price press #11. To cancel a price prior to saving, press #14.
 - Entire Row Same Price: Same as single selection except press #12 rather than #11 to save the entire row at the same price. Press #14 to exit.
 - Entire Machine Same Price: Same as single selection except press #13 to save entire machine at same price. Press #14 to exit.
- Free Vend:
 - Single Selection: Press #6 to display "selection". Make selection, example A 2 . Selection & price will display while vend is being made. To exit press #14.
 - Entire Row: Press #7 to display "selection". Press row desired, i.e. C . All motors will be vended individually. If a motor is bad or not connected, three beeps will sound each time. Press #14 to exit.
 - Entire machine: Same as for entire row except press #8. Press #14 to exit.
 - To set or reset sales message or language selection, refer to controller function service mode.

INTERNATIONAL 70 SELECTION CONTROLLER

CONTROLLER FUNCTIONS

A SERVICE MODE

The service mode is entered by depressing the red "mode" button located on the controller board. The controller automatically returns to the sales mode if no input from the keypad is received in approximately 25.5 seconds or if the "mode" button is pressed a second time within this period.

Upon entering the service mode, diagnostics will be displayed until a function key is pressed. The diagnostics will include which motors in the configuration have been flagged as bad motors and an error code as to why. (see below for error code definitions) as well as the loss of changer communications or an EEPROM checksum error.

ERROR CODE	ERROR DESCRIPTION
1	Too little motor current (under 20 mA)
2	Too much time to complete vend (12 seconds)
3	Loss of changer communications
4	EEPROM checksum error

While in the service mode, the following functions are available:

B COIN DISPENSING:

To dispense a coin from either inventory tube, while in the service mode press #1. The controller will display "Dispense" and wait for one of the following letters. The corresponding coins will continue to be paid out until the letter is released.

- A = Left tube.
- B = Middle tube
- C = Right tube

To exit this mode press #14 or exit the service mode.

C MOTOR COUNT:

To display the total amount of functioning motors, while in the service mode, press #2. The controller will test each motor drive in the current configuration to determine if a valid motor is connected at that instant. The message "Motors" and the number of motors responding will then be displayed. To exit this mode, press "14" or exit the service mode.

D DOWNWARD CONFIGURATION:

To remove undesired motor selections from the configuration, while in the service mode, press #3. The controller will reconfigure to the currently functioning motors and display "Configured". This is the only means of removing motors from the configuration. To exit this mode, press "14" or exit the service mode.

E ACCOUNTABILITY:

To display the stored amounts while in the service mode, press #4. The controller will display "Accounting" and wait for one of the following letters: A = Total Cash accountability, which will rollover after \$99,999.95 or B = Total Bill Acceptor accountability, which will rollover after \$99,999.00. To exit, press "14" or exit the service mode.

F. PRICE SETTING

- Single Motor: To get a single selection price, while in mode, press #5, the controller will display "Selection". Enter the desired selection letters followed by the number. These will be displayed with the **current price** until the **desired price** is entered using the numeric keys, the most significant digit followed by lesser significant digit. It is not necessary to enter leading zeros and only the first four numbers will be used. To save the price, press "11". To cancel an unwanted price before saving, press "14".
- Entire Shelf: To set the price of an entire row of selection motors, enter a selection from the desired row and follow the steps for setting a single selection as described above. The only exception is, instead of pressing the "11" to save, press "12" to save the entire row at the same price.
- Entire Machine: To set the price of the entire machine's selection motors to the same price follow the steps for setting a single selection as above using any selection. The only exception is, instead of pressing "11" to save, press "13" and this will save the entire machine at the same price. To exit this mode; before entering a selection, press "14" or exit the service mode; after entering a selection press "14".

G. FREE VEND BY SELECTION

To free vend a single motor, while in the service mode, press #6. The controller will display "Selection". Enter the desired selection's letter followed by the number. These will now be displayed with the selection price while a vend of the motor is attempted. If the vend is successful, the display will blank. If the vend is not successful, the controller will **beep three times** before blanking.

To exit this mode; before entering a selection press "14" or exit the service mode.

H. FREE VEND BY ROW

To free vend an entire shelf of selection motors, while in the mode, press #7, the controller will display "Selection". Enter the letter of the desired row. The controller will display the selections number and price as the corresponding vend is attempted. If the vend is successful, the controller will continue with the next motor. If the vend is not successful, the controller will **beep three times**, and continue with the next motor. This will repeat until vends on all motors in the row have been attempted, then the display will blank.

To exit this mode; before entering a row, press "14" or exit the service mode; after entering a row, press "14" and hold until the current vend is completed.

I. FREE VEND BY MACHINE

To free vend the entire machine of selection motors, while in the service mode, press #8. The controller will display the selection's number and price as the corresponding vend is attempted. If the vend is successful, the controller will continue on with the next motor. If the vend is not successful, the controller will **beep three time** and continue with the next motor. This will repeat until vends on all motors in the machine have been attempted, then the display will blank. To exit mode press "14" and hold until current vend is completed.

J. POINT OF SALES MESSAGE PROGRAMMING

NOTE: Coin Mech must have coins in tubes past low level switches.

To enter a new point of sales message while in the service mode, press #9. The controller will display "Message". Using the keypad and the following keypad definitions, enter in the new message. Menu I is the default menu. After each keypad entry from either menu, the keypad will return to Menu I. To use Menu II, the "Shift" key must be depressed prior to the Menu II key. To save the message, the "Enter" button must be pressed from within the Menu II. If the maximum limit of 55 characters is entered, the message is automatically saved.

MENU I		
A	G	M
B	H	N
C	I	O
D	J	P
E	K	Q
F	L	R
SPACE	SHIFT	BACK SPACE

MENU II		
S	Y	4
T	Z	5
U	0	6
V	1	7
W	2	8
X	3	9
*	ENTER	S

To exit this mode before starting a message, press "14". After starting a new message, the message must be saved before starting another function.

K. LANGUAGE SELECTION

To select the message language, while in the service mode, press "10". The controller will display "Language" and wait for the appropriate letter as defined below. After the letter has been depressed, the nationality of the language selected will be displayed.

A = Italian
B = Dutch
C = Spanish

D = Danish
E = English (default)
F = German

The following messages will be effected by the language selection and will be stored in the controllers memory to be displayed.

ENGLISH: "PLEASE INSERT MORE MONEY"
ITALIAN: "PER FAVORE INTRODURRE PIU SOLDI"
DUTCH: "MEER GELD IN WERPEN"
SPANISH: "POR FAVOR DEPOSITE MAS DINERO"
DANISH: "INDKAST FLERE PENGE"
FRENCH: "MONTANT INSUFFISANT INTRODUISEZ
D'AUTRES PIECES"
GERMAN: MEHR GELD EINWERFEN"

ENGLISH: "THANK YOU"
ITALIAN: "GRAZIE"
DUTCH: "DANK U"
SPANISH: "GRACIAS"
DANISH: "TAK"
FRENCH: "MERCI"
GERMAN: "VIEL DANK"

ENGLISH: "PLEASE INSERT EXACT MONEY"
ITALIAN: "PER FAVORE INTRODURRE I PRECISI SOLDI"
DUTCH: "AFGERPAST GELD IN WERPEN"
SPANISH: "POR FAVOR DEPOSITE CANTIDAD EXACTA"
DANISH: "INDKAST AFTALTE PENGE"
FRENCH: "FAITES L'APPOINT"
GERMAN: ABGEZAHLTES GELD EINWERFEN"

ENGLISH: "MAKE ALTERNATE SELECTION"
ITALIAN: "FARE UNA ALTRE SCELTA"
DUTCH: "ANDERE KEUZE MAKEN"
SPANISH: "SELECCIONE OTRO PRODUCTO"
DANISH: "VAELG ANDEN VARE"
FRENCH: "FAITES UNE AUTRE SELECTION"
GERMAN: "ANDERE WARE WAHLEN"

ENGLISH: "PLEASE CALL FOR SERVICE"
ITALIAN: "PER FAVORE CHIAMARE SERVIZIO"
DUTCH: "SERVICEDIENST BELLEN"
SPANISH: "POR FAVOR LLAMAR MANTENIMIENTO"
FRENCH: "DEMANDEZ LE RESPONSABLE"
GERMAN: "BITTE KUNDENDIENST RUFEN"

To exit this mode, press "14" or exit the service mode.

L. VEND OPTIONS

To enable or disable the vend options while in the service mode, press "11". The controller will display "Options" and at that time press the letter "A" for Escrow or letter "B" for force vend. After the letter has been depressed, the option will be displayed. The option may be changed by depressing the same letter a second time.

- 1 Bill Escrow This option will allow the last bill accepted to be returned, provided the bill acceptor is capable of such a feature. To access this option, press the letter "A" after the "11". The current state will be displayed as "ESCROW xxx".
- 2 Force Vend This option will force the customer to complete a purchase once they have deposited money of any form. If a vend is attempted and the motor fails during this vend, the customer will be allowed to escrow the credit, regardless of the force vend status. To access this option press the letter "B" after the "11". The current state will be displayed as "F VND xxx".

To exit this mode, press "14" or exit the service mode.

70 SELECTION CONTROLLER HEADER PINOUTS

Header P1; The AC Power Interface

Pin #	Function
1	24 VAC
2	Polarizing pin
3	10.8 VAC
4	10.8 VAC
5	24 VAC

Header P2; The Keypad Interface

Pin #	Function
2 of 7	coding

Header P3; The Display Interface

Pin #	Function
1	clock line
2	date line
3	polarizing pin
4	reset line
5	VDD
6	VSS
7	VGG
8	filament A
9	filament B
10	ground

Header P4; The 9302-L/9302-L+ Changer Interface

Pin #	Function
1	send line
2	accept enable line
3	reset line
4	right tube dispense line
5	left tube dispense line
6	middle tube dispense line
7	5 VDC
8	interrupt line
9	data line
10	ground
11	polarizing line
12	24 VDC
13	fourth tube dispense line

Header P5; The 9302-A Changer/Peripheral Interface

Pin #	Function
1	5 VDC
2	send line
3	\$5.00 credit line
4	\$1.00 credit line
5	accept enable line
6	escrow line
7	ground
8	polarizing pin
9	interrupt/no escrow detection line
10	data line
11	serial/parallel detection line
12	polarizing pin
13	relay enable 2
14	polarizing pin
15	relay enable 1

Header P6; The Bill Acceptor Interface

Pin #	Function
1	5 VDC
2	send line
3	\$5.00 credit line
4	\$1.00 credit line
5	accept enable line
6	escrow line
7	ground
8	polarizing pin
9	interrupt / no escrow detection line
10	data line
11	serial / parallel detection line
12	polarizing pin
13	relay enable 2
14	polarizing pin
15	relay enable 1

70 SELECTION CONTROLLER HEADER PINOUTS

Header P1; The AC Power Interface

Pin #	Function
1	24 VAC
2	Polarizing pin
3	10.8 VAC
4	10.8 VAC
5	24 VAC

Header P2; The Keypad Interface

Pin #	Function
2 of 7	coding

Header P3; The Display Interface

Pin #	Function
1	clock line
2	date line
3	polarizing pin
4	reset line
5	VDD
6	VSS
7	VGG
8	filament A
9	filament B
10	ground

Header P4; The 9302-L/9302-L+ Changer Interface

Pin #	Function
1	send line
2	accept enable line
3	reset line
4	right tube dispense line
5	left tube dispense line
6	middle tube dispense line
7	5 VDC
8	interrupt line
9	data line
10	ground
11	polarizing line
12	24 VDC
13	fourth tube dispense line

Header P5; The 9302-A Changer/Peripheral Interface

Pin #	Function
1	5 VDC
2	send line
3	\$5.00 credit line
4	\$1.00 credit line
5	accept enable line
6	escrow line
7	ground
8	polarizing pin
9	interrupt/no escrow detection line
10	data line
11	serial/parallel detection line
12	polarizing pin
13	relay enable 2
14	polarizing pin
15	relay enable 1

Header P6; The Bill Acceptor Interface

Pin #	Function
1	5 VDC
2	send line
3	\$5.00 credit line
4	\$1.00 credit line
5	accept enable line
6	escrow line
7	ground
8	polarizing pin
9	interrupt / no escrow detection line
10	data line
11	serial / parallel detection line
12	polarizing pin
13	relay enable 2
14	polarizing pin
15	relay enable 1