

SERVICE MANUAL

E-Z LOAD 1982 MODELS

CANS	COLUMNS	BOTTLES
214	5	118
220	5	125
276	6	156
322	7	182
340	5	190
420	7	231
476	7	266
544	8	304

ANTI-THEFT KIT
SINGLE 123738
DOUBLE 123738-1

Vendo®

Literature No. 384667A



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INTRODUCTION

The 1982 E-Z Load Vender offers a superior package versatility combined with easy conversion and simple loading features, plus a minimum of component parts in its vend mechanism. The double door design allows the inner door (with magnetized gaskets) to remain closed while servicing coinage, changing the display light or flavor strips, etc.

MODEL IDENTIFICATION

This manual applies to any 1982 E-Z Load Stack Vender. WHEN REQUESTING INFORMATION ABOUT YOUR VENDER, PLEASE REFER TO THE COMPLETE MANUFACTURERS NUMBER AND SERIAL NUMBER. This information may be obtained from the metal identification plate attached to the side of the cabinet.

SPECIFICATIONS

NOTE: All Electrical Requirement 115 volt AC-60 Hertz.

SALES MODELS	HEIGHT	WIDTH	DEPTH	SHIPPING WEIGHT	BOTTLES * 6 1/2 OZ. (Return.)	BOTTLES 10 OZ. **	CANS-12 OZ. RIMLESS OR ALUMINUM	CANS-12 OZ. RIMMED STEEL	REFRIG. H/P
118/214	64"	32"	24 3/8"	510 lbs.	118	113	209	209	1/5
125/220	64"	32"	24 3/8"	510 lbs.	125	120	215	215	1/5
156/276	66"	38 1/2"	24 3/8"	605 lbs.	156	150	270	270	1/5
182/322	66"	38 1/2"	24 3/8"	635 lbs.	182	175	316	316	1/5
231/420	72"	38 1/2"	24 3/8"	690 lbs.	231	224	413	399	1/3
190/340	79"	32"	24 3/8"	590 lbs.	190	185	335	325	1/5
266/476	79"	38 1/2"	24 3/8"	715 lbs.	266	259	469	455	1/3
304/544	79"	46 7/32"	24 3/8"	830 lbs.	304	296	536	520	1/2

* TOTAL CAPACITY

**NON-RETURNABLE POLYLABELLED DOUBLE DEPTH LOADING



PARTS ORDERING PROCEDURE

When ordering parts, include the following information:

1. Shipping address.
2. Address where the invoice should be sent.
3. The number of parts required.
4. Always refer to the pertinent parts and/or service manual for the correct part number and description of a specific part.
 - a. If you do not have the right parts manual at the time you order, contact The Vendo Company, 7209 N. Ingram, Fresno, California 93727
Don't hold the order pending receipt of the parts manual; use the most accurate description you can (and the model number of the machine); include the name of the assembly in which the part is used and, if practical, a sample part. Furnish any information which will enable our order department to pinpoint the exact part needed.
 - b. When "RIGHT" and "LEFT" are used in connection with the name of a part, it is taken to mean that the person is facing the machine.
5. Always include model number and the serial number of the machines for which the parts are needed on the order.
6. List any special shipping instructions.
 - a. Always note on the order if you require air or air special, truck, parcel post, or rail. If a specific carrier is desired, note it on the order.
7. Sign the order and note the date entered on the order.
8. When a purchase order number is used, be sure that it is legible and visible.

Mail your order to:

The Vendo Company
7209 N. Ingram
Fresno, California 93650

All orders are carefully packed and inspected prior to shipment. Damage incurred during shipment should be reported at once and a claim filed with the terminating carrier.

Refrigeration Units and Ice Makers require a separate tag for each item returned. The procedure is the same as for parts except the original is attached to the unit and the customer keeps the copy for his records. All refrigeration systems are to be returned to:

THE VENDO COMPANY
4015 E. Raines Road
Memphis, Tenn 38118

The return tag should be filled out in its entirety.



MATERIAL RETURN PROCEDURE

All items returned must be accompanied by material return tags clearly stating the reason for return. (Tags are available on request.)

To replace an inoperative part within the terms of the warranty, please follow these instructions:

1. If a replacement part was taken from the available parts stock and installed on the machine, proceed as follows:
 - a. Complete a parts return tag. Be sure all of the requested information is written in.
 - b. Keep the white (top) copy.
 - c. Attach the tag to the inoperative parts and send it by the cheapest method of transportation to: The Vendo Company, 4015 Raines Road, Memphis, Tenn. 38118.
 - d. A like part will be shipped prepaid, at no charge, if our inspection shows the inoperative part became defective in warranty.
 - e. If a part does not meet the terms of the warranty, it will be replaced with a new part and invoiced accordingly. The returned part will be scrapped to eliminate further handling charges.
2. If a spare part is not available to put on the machine, order the part required. Call 800-344-7216 (In California call 800-742-1815) for emergency requirements. The part will be shipped and invoiced to you. After the replacement is received, follow the procedure as outlined above under Number 1.

After exchange of the part on the machine, complete a material return tag. Check the box marked "Credit" and fill in the invoice number covering the part.

Attach the tag to the inoperative part and send it by the cheapest method of transportation to: The Vendo Company, 4015 E. Raines Road, Memphis, Tenn. 38118.

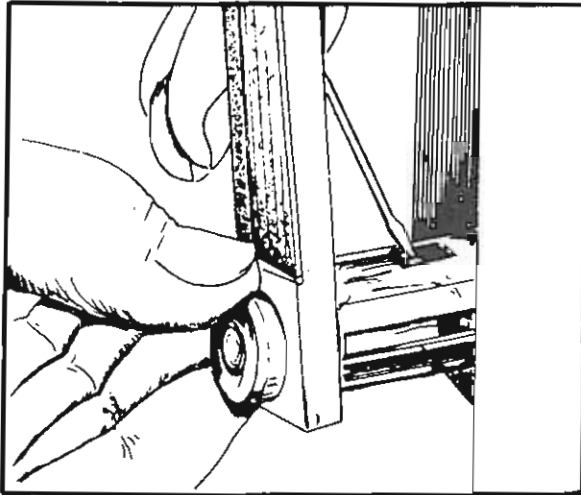
If our inspection shows the inoperative part became defective in warranty, a credit will be issued to cancel the invoice on which the replacement part was shipped. This credit will include any prepaid transportation charges. To receive credit the inoperative part MUST be returned within 30 days from the date the replacement was shipped.

We do not issue cash credit for the return of any part or accessory.

INITIAL INSTALLATION

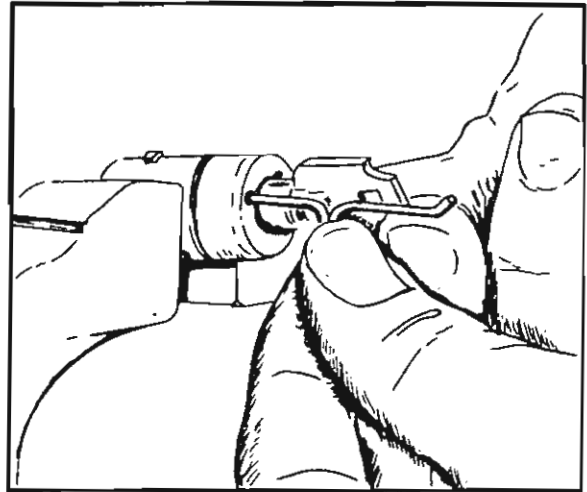
CODE YOUR LOCK (FLEX ACE)

Locks may be recoded either remaining in the handle or outside the handle. Recoding is shown with lock removed from handle and is probably the easiest and safest way and will insure that the lock is recoded properly before it is replaced back into handle. NOTE: Fasten lock in vice or other means of securing lock.



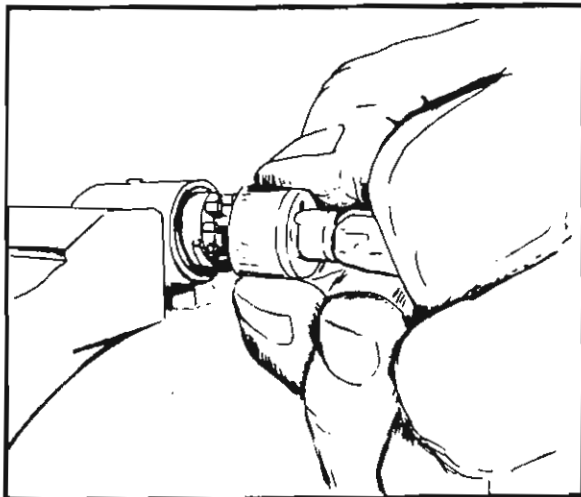
1. Lock may be removed by depressing the latch and sliding lock forward out of handle.

Figure 1



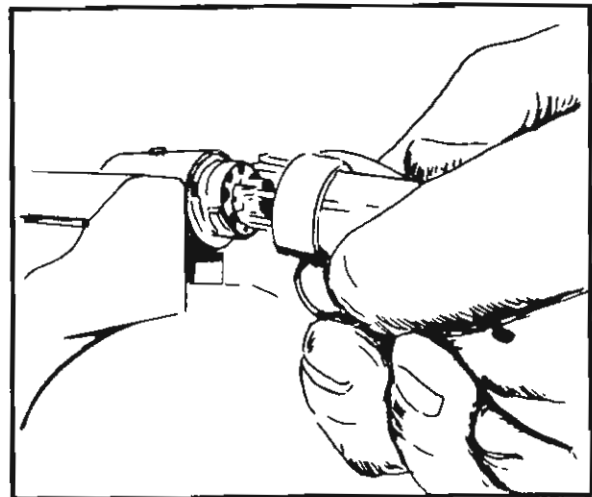
2. Insert release pin into hole in cap. Push pin firmly and rotate key to release at the slot position.

Figure 2



3. Remove cap with key as one unit.

Figure 3

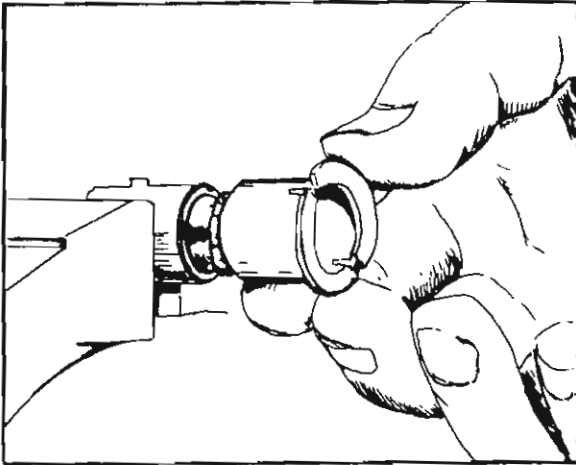


4. Using magnet end of loader tool, remove all seven (7) tumblers.

Figure 4

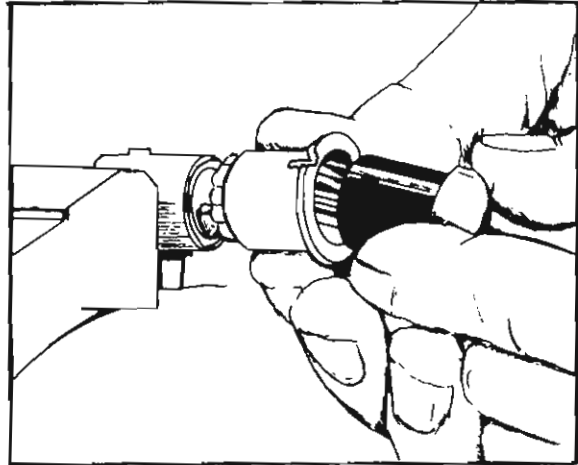
INITIAL INSTALLATION (Continued)

CODE YOUR LOCK (Continued)



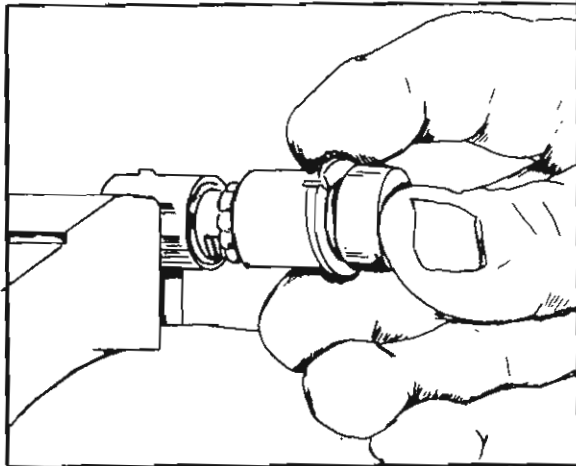
5. Place the preloaded coder into lock. It is slotted to go on the center shaft one way only.

Figure 5



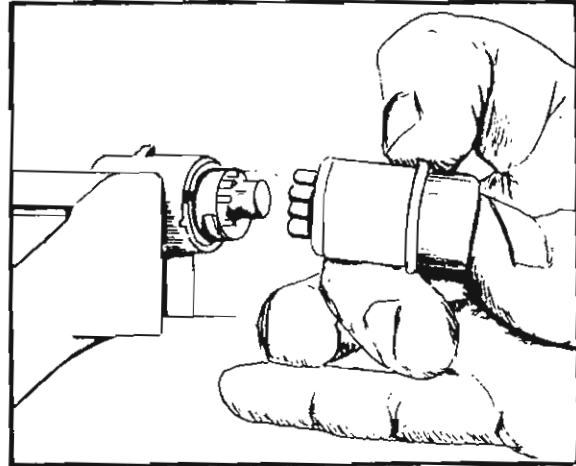
6. Place the loading tool into the coder. (It is slotted to fit one way only.)

Figure 6



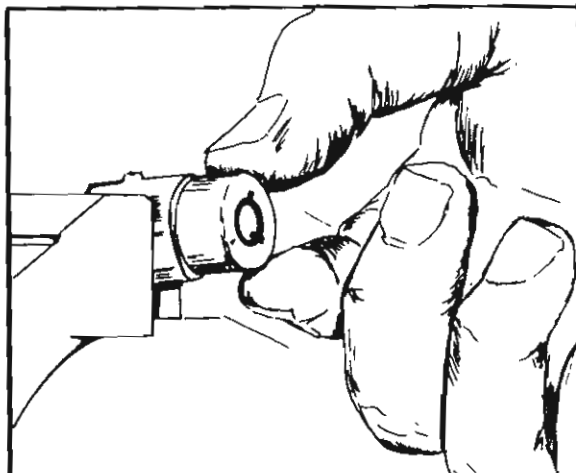
7. Press the new tumblers firmly into place.

Figure 7



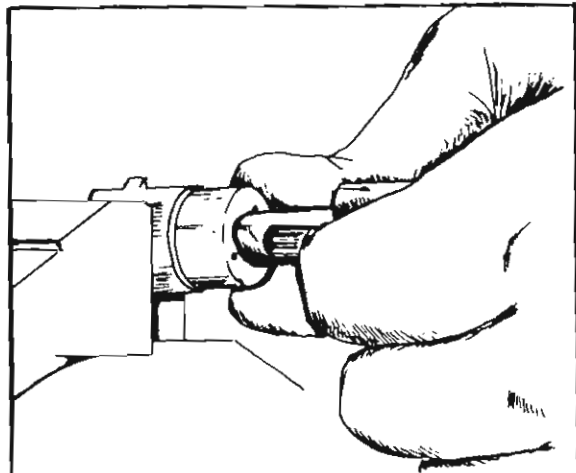
8. While holding loading tool into coder, carefully remove both as one. Be certain all seven (7) tumblers are in place.

Figure 8



9. Replace the lock cap as removed.

Figure 9



10. Insert new key. Press cap in firmly and rotate key to locked position.

Figure 10



INITIAL INSTALLATION

1. UNPACK

CAUTION: If shipping damage is noticed, save the carton, notify the shipper immediately and file a damage claim. Remove all packing and tape from machine.

2. LEVEL THE VENDER (Fig.11)

CAUTION: THE VENDER MUST BE LEVEL TO ASSURE PROPER OPERATION.

Remove the wooden shipping base. Adjust the leveling screws to level the vender. When the vender is level, the outer door can be opened to any position, and the door will not move by itself. On all 72 inch and 79 inch models there is a "safety support" leveler in the lower outer door hinge. Adjust this bolt to touch the floor to prevent forward tilt if the refrigeration unit or vending stack is removed.

CAUTION: Place the vender at least three to four inches away from any rear obstruction of air flow thru the refrigeration compartment. Air circulation, front to rear is essential to proper operation of the refrigeration system.

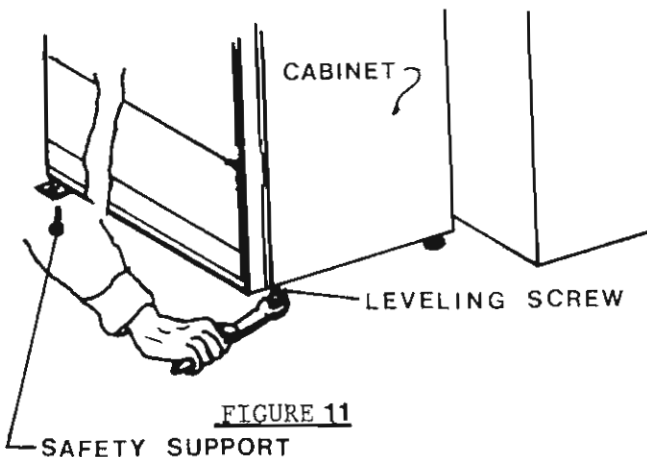


FIGURE 11

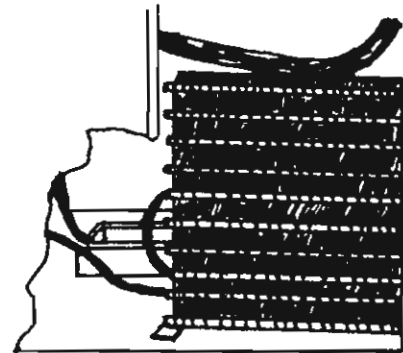


FIGURE 12

3. CONDENSATE PAN (Fig. 12)

Check to make certain the condensate pan is still in proper position. Check the drain tubing leading to the pan, seeing that it is secured with a clip and free of kinks. Loop must be maintained in tubing for air "trap" purposes.

4. COIN MECHANISM (Fig. 13)

The coin mechanism mounts on the hinged coin panel assembly.

Remove the acceptor from the coin mechanism where applicable. Slip the key holes in the back of the mechanism over the three mounting screws and tighten. Replace the acceptor where applicable.

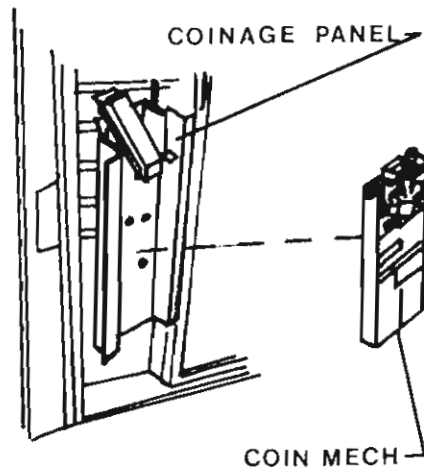


FIGURE 13

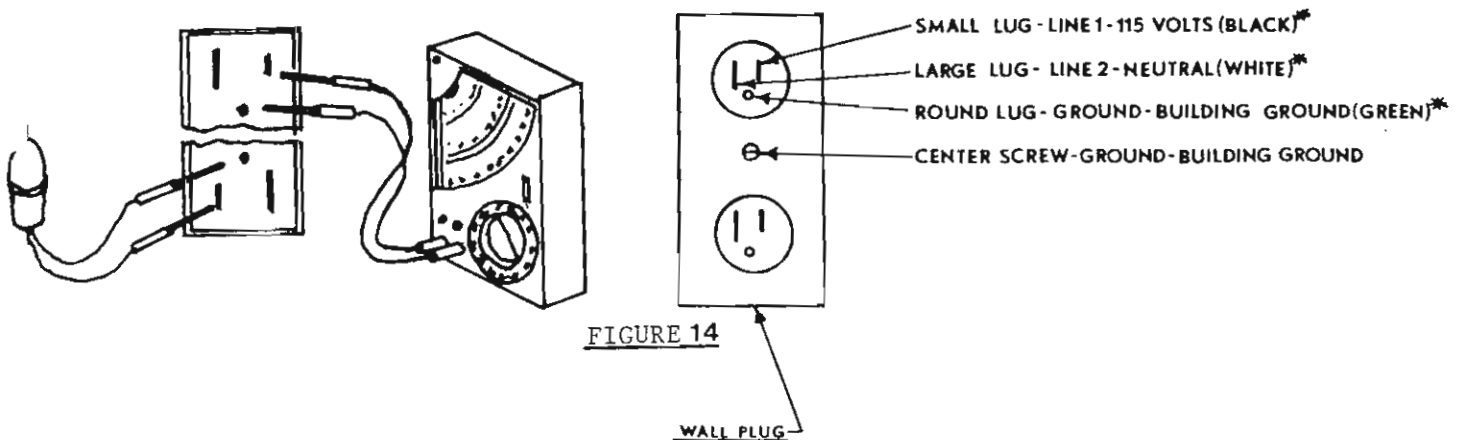


FIGURE 14

5. CONNECT TO POWER SUPPLY (Fig.14)

This vender requires 115 Volt AC 60 Hertz power supply. Check power supply before connecting vender. Any power supply under 103 Volts or over 126 Volts may cause the vender to malfunction. DO NOT USE EXTENSION CORD.

CAUTION: To insure safe operation of an electrical device it must be properly grounded and the power supply polarization should match that of the vender. To test refer to Fig.14 . With one probe of the test device (Test light or Volt meter) connected to the power fixture center screw and the other inserted into the large neutral orifice, you should get no light or meter reaction. When the probe is inserted in the smaller power orifice, you should get a light or meter reaction. If you get no reaction with either test, the outlet is not properly grounded. If the reaction occurs between the center screw and the large orifice, the power source is not properly polarized.

If either of the above requirements are not met properly, you should contact a licensed electrician to obtain the correct power supply and grounding.



INITIAL INSTALLATION

1. PRICE AND INSTRUCTION LABEL

Be sure front surface of coinage casting is clean and dry. Peel off backing paper and apply label with FIRM pressure.

2. PRICE LABEL INSERT

Insert behind window as shown in Fig. 15

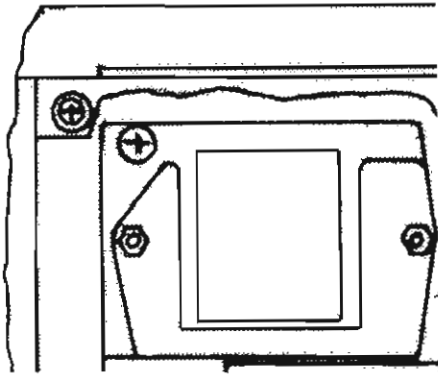


FIGURE 15

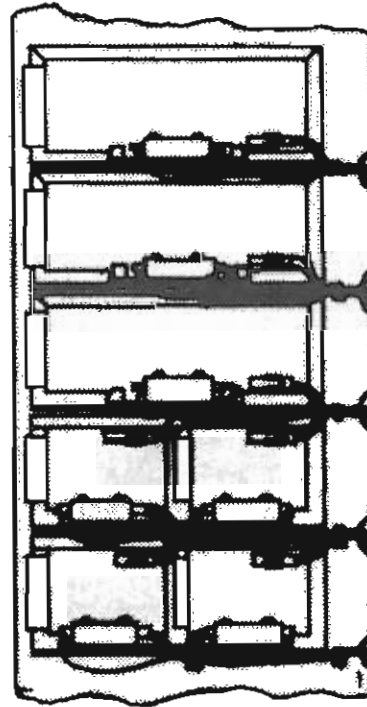


FIGURE 16

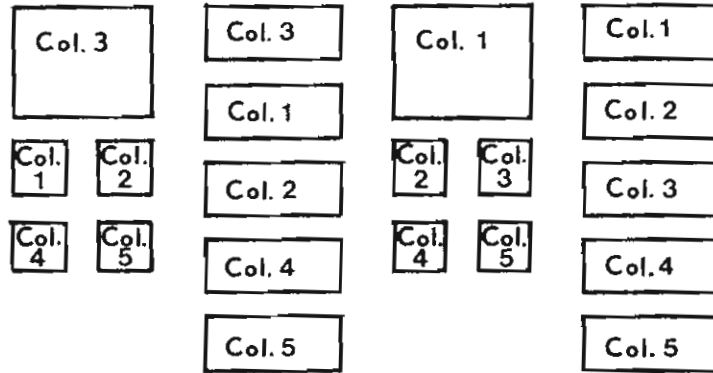
3. FLAVOR LABELS

Open coinage mounting door and insert labels into push buttons from the left.

NOTE: Be sure that labels properly identify product as related to stack columns. See Fig.16 and Fig.17

PUSH BUTTON COLUMN CONTROL

5 COLUMN



6 COLUMN



7 COLUMN



8 COLUMN

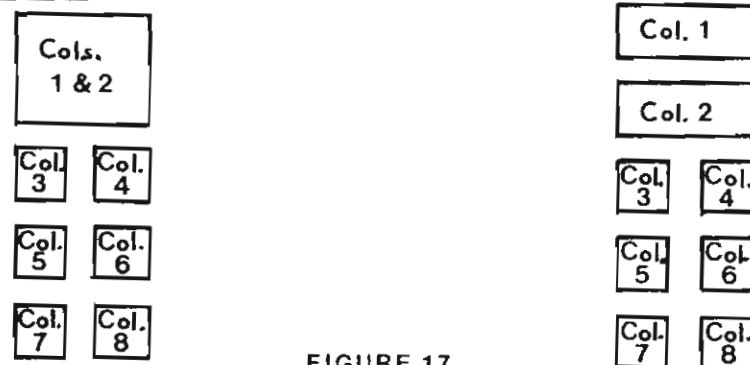


FIGURE 17



LOADING INSTRUCTIONS SINGLE DEPTH

1. INSTALLATION OF SHIMS AND FORM SPACERS

Install spacer supports (See Fig.18)

Recommended side spacers per column for large, medium and small diameter bottles. The following is based on an average bottle size:

- a. Large diameter --- 0 spacers and 0 to 1 shim per side.
(16 oz. returnable)
- b. Medium diameter --- 1 spacer and 0 to 2 shims per side.
(10 - 12 oz. returnable)
- c. Small diameter --- 1 spacer and 2 to 3 shims per side.
(6 oz. returnable)

Shims are flat and will fit either side of column. Spacers are right - left design and stainless steel portion will be toward FRONT of stack. (See Fig.18)

2. LOAD FIRST THREE (3) BOTTLES

- a. With power supplied to the vender all motors will operate to their stand by position without product present.
- b. Move backspacer to rear of column.
- c. Load the first bottle on the "up" lowering shelf. The "up" shelf may be on the right or left side of the column. One shelf will be "up" and the other "down" when the vend motor is in a stand-by position.
- d. Load bottles 2 and 3 as shown. (Fig.19)

3. CHECK EACH COLUMN FOR PROPER USE OF SPACERS AND SHIMS

- a. Make check with only three (3) bottles loaded in the column.
- b. With the last bottle to be loaded, over against the column wall, check for spacing between the largest parts (probably butts) of bottles 2 and 3.
- c. There should be approximately 1/8 inch clearance between the largest parts of bottles 2 and 3.
- d. Add or remove shims as necessary.

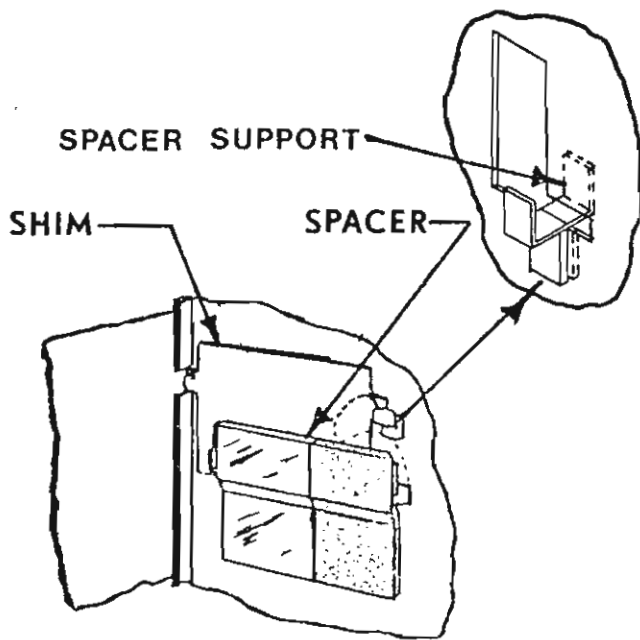
4. TO COMPLETE LOADING AND CHECK-OUT PROCEDURE

- a. Check position of backspacer(s). Position and latch so as to obtain approximately 3/8 to 1/2 inch spacing between bottle crown and backspacer(s).
(Remember bottles must operate sold-out lever.)

NOTE: For vending 16 oz. returnable bottles

- (1) Remove the backspacer. Remove its latch slide and spring. FIGS. 20 & 21
 - (2) Turn the spacer 180° from its original position and remount in the last rear slot.
- b. Complete loading in staggered manner.
 - c. Test vend each column.

NOTE: Where more than one column is operated by one selection button, columns affected should be loaded at equal height.



In some models these spacer supports (Rear) P/N 384990 are NOT installed at the factory but are supplied in a spacer carton assembly or on demand from the VENDO PARTS DEPARTMENT.

FIGURE 18

DESIRED BOTTLE SPACING

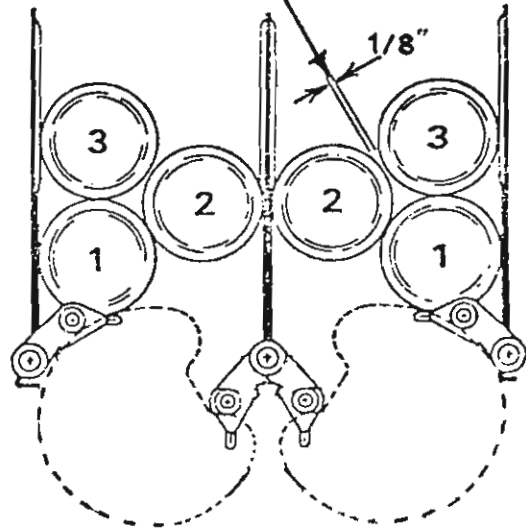


FIGURE 19

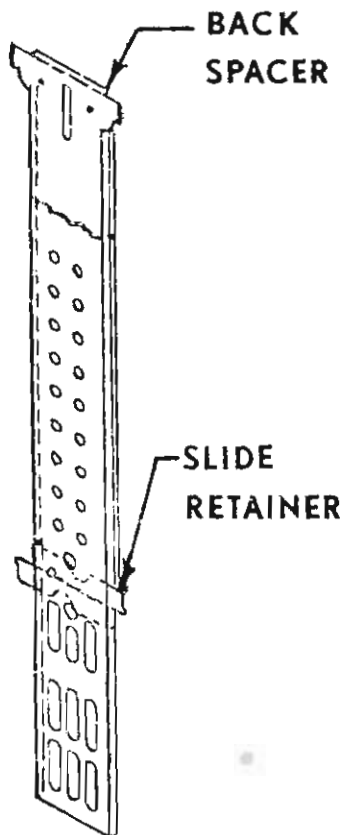


FIGURE 20

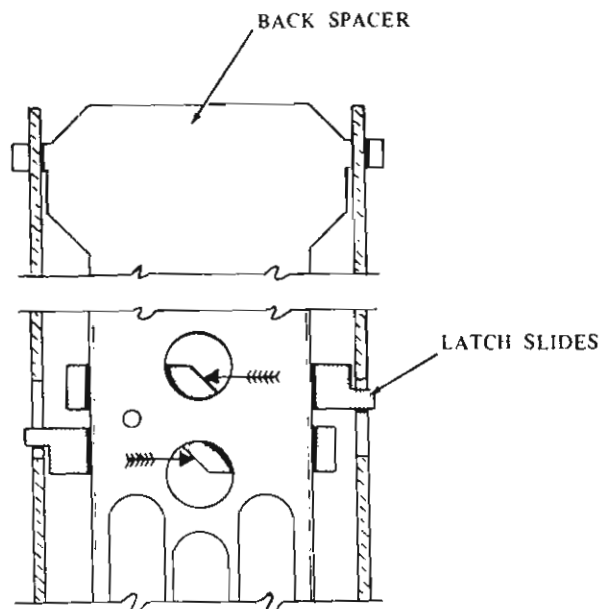


FIGURE 21



LOADING INSTRUCTIONS DOUBLE DEPTH

1. When at stand-by one lowering shelf will be "up" the other will be "down."
2. For 10 oz. Poly-labeled bottles
 - a. Remove the backspacer. Remove its latch slides and spring. (Fig.20,21)
 - b. Rotate 180° from its original position and install in last rear slot.
3. Cans or Bottles (Fig.22)
 - a. Load two on the "up" shelf with one as far forward as possible and the number two directly behind it on the same shelf.
 - b. Load the next two on the opposite side of the column in the same manner.
4. When loading cans check for 3/8 to 1/2 inch spacing between cans(2 and 4)and the backspacer. Fig.22) Adjust spacer if necessary.
5. Continue to load product (cans or bottles) in this manner up to 12.
6. Test vend each column at least twice.
7. Complete loading of each column.

NOTE: When loading bottles double depth, it is important that care be taken to keep the front and rear columns level. Guard against interlocking of the front column crown in the rear column butts.

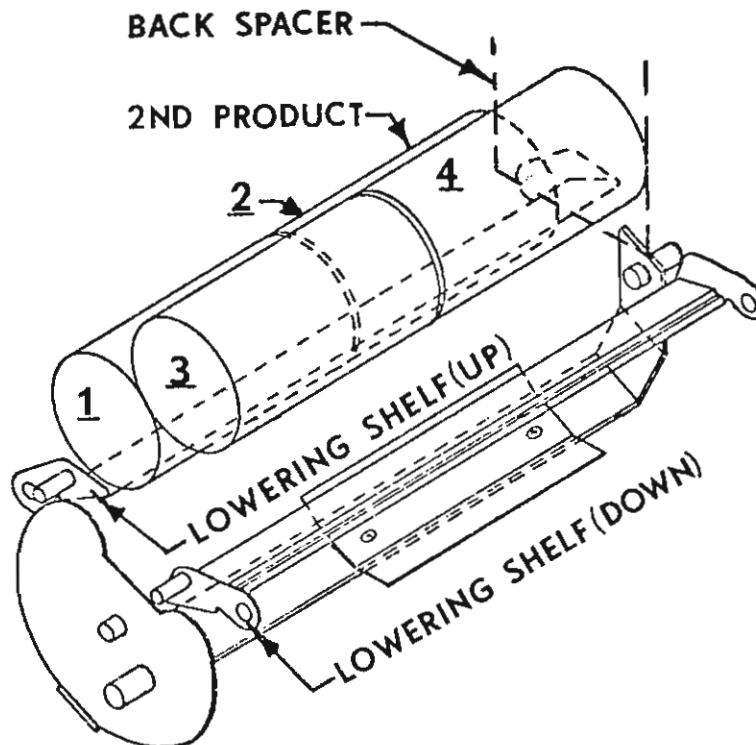


FIGURE 22

Vendo®
SERVICE NOTES



CONVERSION INSTRUCTIONS

When converting from single depth vending to double depth or from double depth to single depth the following PREPARATION STEPS are necessary.

1. Remove the vend mechanism cover.
2. Remove all product from the vender.
3. Stop all motors so that the cam mounting screws are visible and not blocked by the drive link. The bail should also be positioned directly at the bottom of the column to allow access to the bail bracket mounting screws.
 - a. Start each motor by operating the switch lever to the left.
 - b. Stop the motor by removing one of its motor wires.
4. CAUTION: REMOVE POWER FROM THE VENDER AND PROCEED AS REQUIRED.

CONVERT A DOUBLE DEPTH VENDER TO SINGLE DEPTH

Kits are available to make this conversion. They contain shims, form spacers and a crown puller. Determine the number of columns your vender has and order the appropriate kit.

106916-30-6 Column
106916-32-8 Column

106916-31-5 Column
106916-33-7 Column

The conversion procedure is as follows:

1. Remove all existing secondary cam's (Replace existing tapping screws to maintain main cam cover. (See Fig.23)
2. Remove all existing bail brackets from bails.
3. Remove all existing spacer bars from the bottom of all column partitions.

NOTICE: If your vender is equipped with a sequencer assembly you will need four machine screws P/N V800083 and 4 nuts P/N V800956 to remount the sequencer brackets.

4. Refer to Initial Loading Instructions Single Depth for -
 - a. Shim and Form Spacer Needs.
 - b. Adjustment of backspacer.
 - c. Test vending etc.

NOTICE: For venders equipped with a PRIME PRODUCT control feature (push button number 1 controls column 3). See Page 19

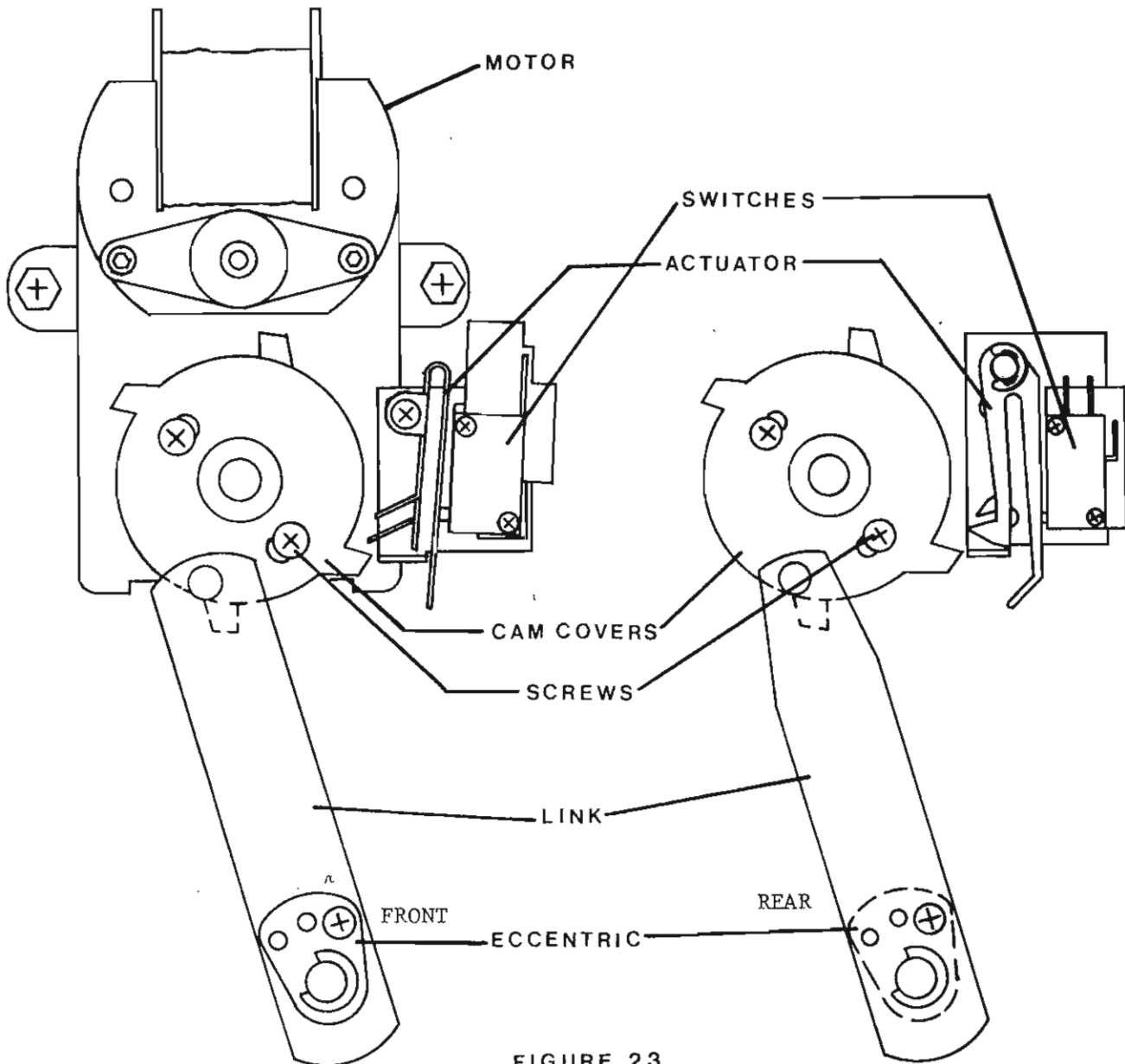


FIGURE 23

ORIGINAL SWITCH
ACTUATOR ASSEMBLY

NEW SWITCH
ACTUATOR ASSEMBLY



CONVERT SINGLE DEPTH TO 12 OZ. CANS
OR 10 OZ. POLYLABELLED N.R. BOTTLES - DOUBLE DEPTH

1. Preform "preparation steps" one thru four.
2. Remove all shims and form spacers from column side walls.
3. Install a secondary cam cover P/N 384319 on each motor assembly.
4. Install a bail bracket P/N 384325 on each bail (one per column). **FIG. 24**
5. Install a spacer bar (product rail) at the bottom of each partition.
 - a. Center Partition - Use P/N 384587 (as required)
 - b. Left Side Partition - Use P/N 384589 (one required)
 - c. Right Side Partition - Use P/N 384588 (one required)
 - d. Screws Partition - Use P/N V800639 (2 per column)
6. Re-connect all motors (wires removed to properly position bails for access).
7. Re-apply power to vender. Motors should automatically run to standby position.
8. Refer to initial loading instruction double depth to adjust backspacer, test vend and load.

NOTICE: For venders equipped with a PRIME PRODUCT control feature
(Push button number 1 controls column 3) See page 19).

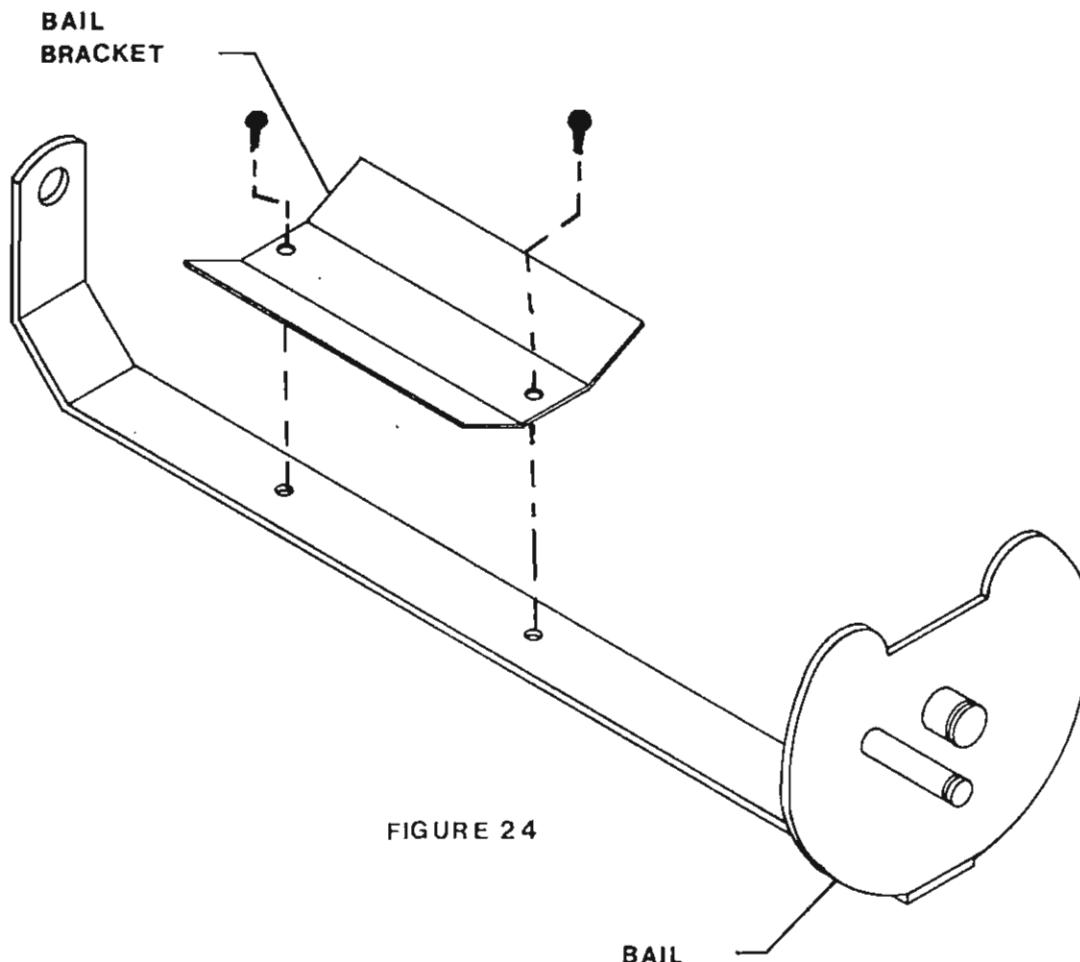


FIGURE 24

1. Preform "preparation steps" one thru four.
2. Remove all shims and form spacers from columns side walls.
3. Install a secondary cam cover P/N 384319 on each motor assembly.
4. Install a bail bracket P/N 384326 on each bail one per column. FIG.25
5. Install a spacer bar (product rail at the bottom of each partition.
 - a. Center Partitions - USE P/N 384587 (AS REQUIRED)
 - b. Left Side " - USE P/N 384589 (ONE REQUIRED)
 - c. Right Side " - USE P/N 384588 (ONE REQUIRED)
 - d. Screws P/N V800639 (USE TWO PER COLUMN)
6. Reconnect all motors (wires removed to properly position bails for access).
7. Re-apply power to vender. Motors should automatically run to standby position.
8. Install right and left hand form spacers.
9. Refer to Initial Loading Instructions Double Depth to adjust backspacers, test vend and load.

NOTICE: For venders equipped with a PRIME PRODUCT control feature (Push Button Number 1 controls column 3) See Page 19

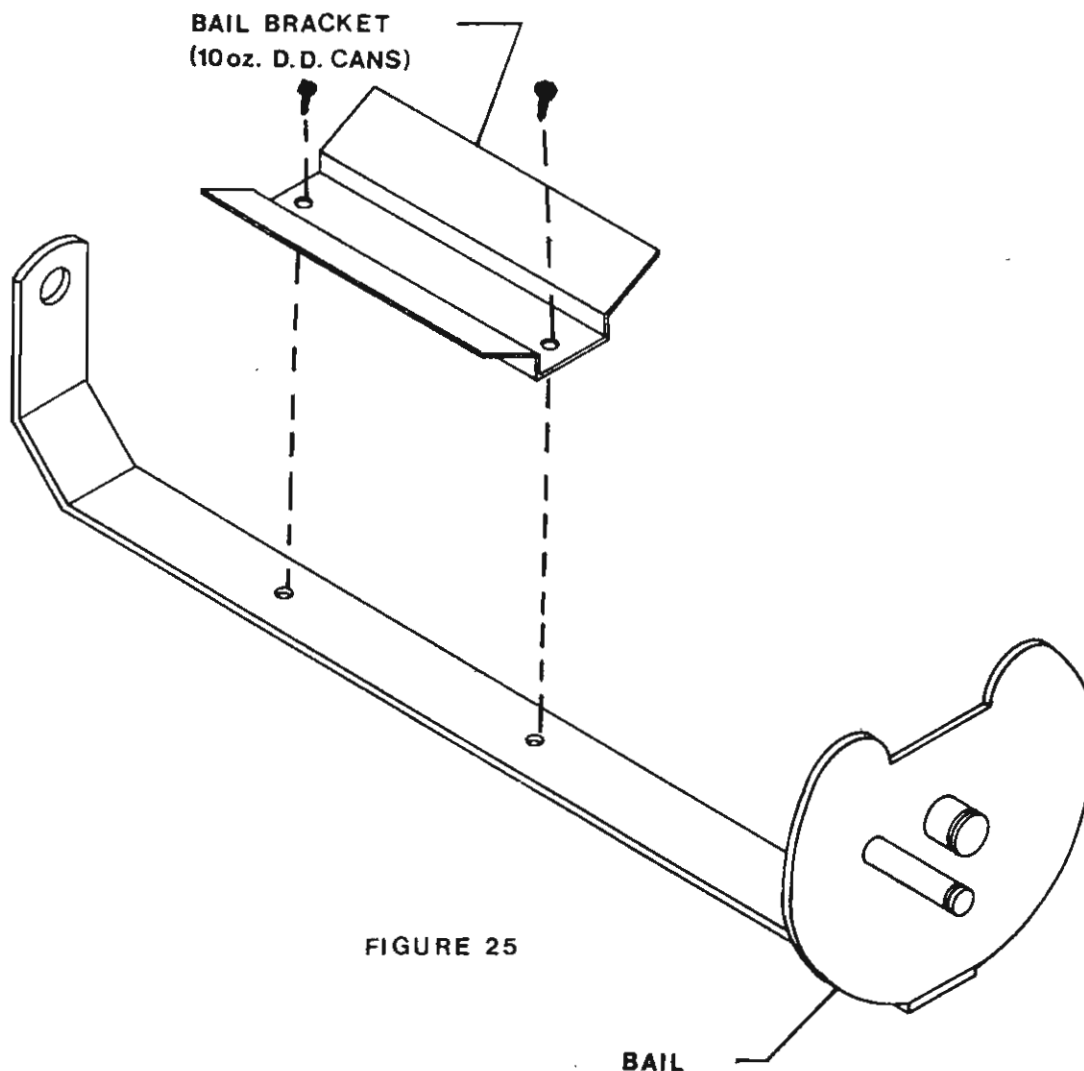


FIGURE 25



CONVERSION INSTRUCTIONS

TO VEND EXTRA LARGE 16 OZ. OR 1/2 LITER BOTTLES SINGLE DEPTH.

Listed below are the "large" size bottles that have been checked and the kits we recommend to use when vending these bottles in E-Z Load model venders. Instructions are included with each kit. 16 oz. non-return plasti-shield (7-5/16" X 3")

1. Model	Use Stack Brace Kit	One Per Vender
156	P/N 131002	" " "
182, 231 & 266	P/N 131003	" " "
304	P/N 131004	" " "

NOTE: The "Prime Product" 5 column models have a standard stack brace and need no kit to vend this bottle.

2. You must also replace all sold out levers P/N 384322 with a "shorter" sold out lever P/N 384322-2 or cut the sold out lever 384322 off at the notch as shown in Figure "A". This step is necessary to maintain 2 bottles per column at sold out.

The following bottles require Neck Guide/Butt Shim Kits as noted. (No kits exist for the prime product models).

16 oz. non-return Coke or Sprite "C" (9"X 2-3/4")

Models 125, 156 & 182 use one kit P/N 128694 per column

Models 231 " " " P/N 128695 " "

Models 190, 266 & 304 " " " P/N 128696 " "

16 oz. non-return Coke "B" (8-1/4" X 2-7/8")

Models 125, 156 & 182 use one kit P/N 128694 per column

Models 231 " " " P/N 128695 " "

Models 190, 266 & 304 " " " P/N 128696 " "

16 oz. non-return Pepsi (7-21/32" X 2-7/8")

Models 125, 156 & 182 use one kit P/N 128694 per column

Models 231 " " " P/N 128695 " "

Models 190, 266 & 304 " " " P/N 128696 " "

Half liter returnable Coke (short) (9-11/16" X 2-13/16")

Models 125, 156 & 182 use one kit P/N 128694 per column

Models 231 " " " P/N 128695 " "

Models 190, 266 & 304 " " " P/N 128696 " "

(NOTE: SEE MANUAL SPECIFICATION PAGE FOR NUMBER OF COLUMNS PER MODEL.)



CONVERTING MODELS WITH PRIME PRODUCT CONTROL FEATURE
(PUSH BUTTON NUMBER ONE CONTROLS COLUMN 3)

To convert these models from single depth to double depth, the following additional procedure and parts are necessary. FIG. 26 & 27

REMOVE

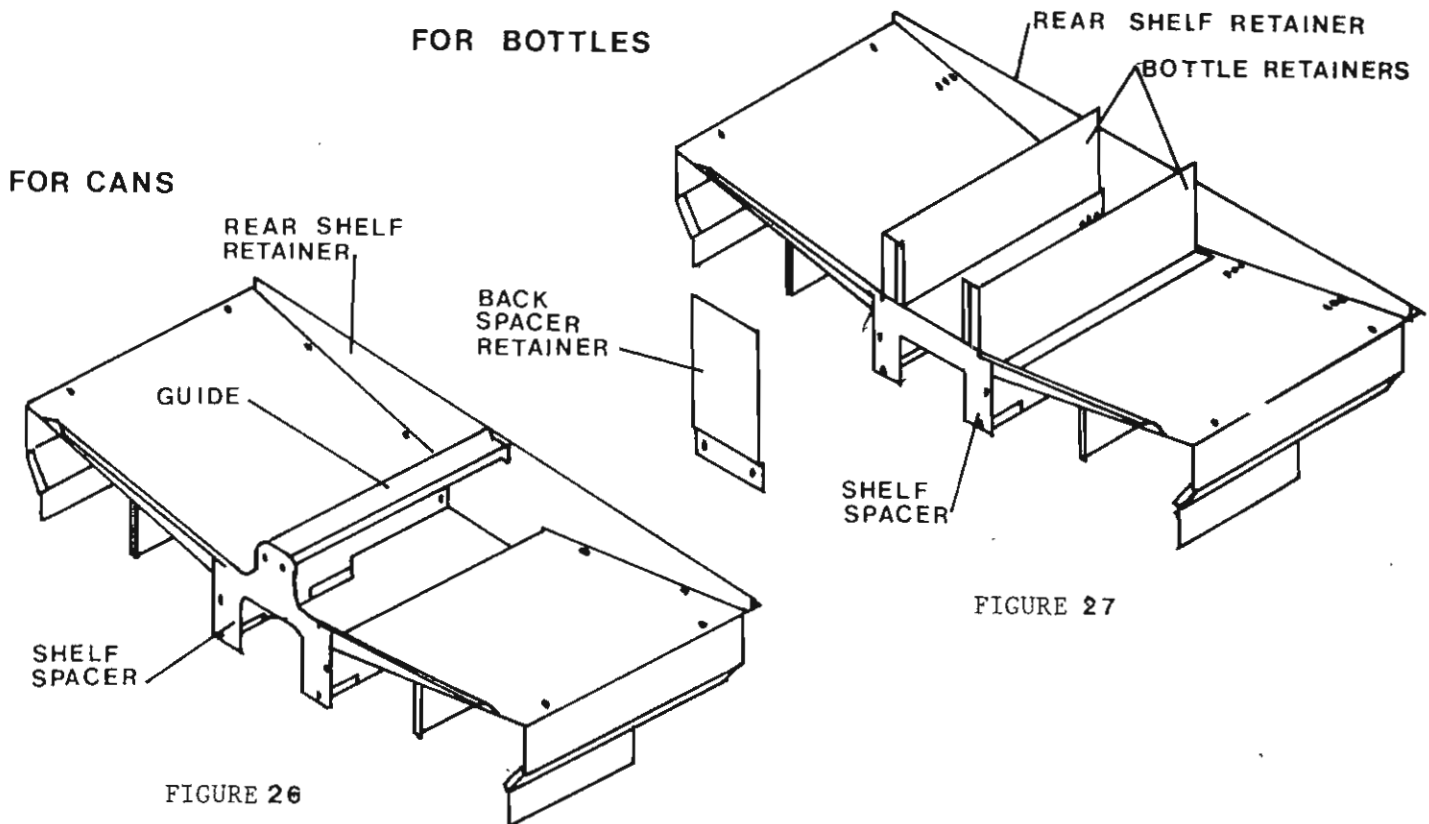
1. The Backspacer Extension P/N 383417.
2. Both Bottle Retainers - L. H. P/N 383415, R. H. P/N 383416.
3. The Shelf Spacer P/N 383443.
4. Then move the rear shelf retainer to the second mounting hole from the front.

ADD

1. Guide P/N 383399
2. Shelf Spacer P/N 383441 (Use two P/N V800570 Screws removed from backspacer extension).
3. Decal P/N 383364.

To convert from Double Depth to Single Depth, use 5 Column kit P/N 106916-31 and reverse the above procedure. In addition, you will need four P/N V800952 Hex Nuts and four P/N V800457 Screws to mount the bottle retainers. NOTE: The space to the right and left of the bottle retainers may be used for pre-cool storage.

CAUTION: DO NOT ATTEMPT TO FEED ANY BOTTLE INTO COLUMN 3 FROM THE SLANT SHELF. THIS FEATURE IS DESIGNED FOR DOUBLE DEPTH CANS ONLY.



ADJUSTMENTS

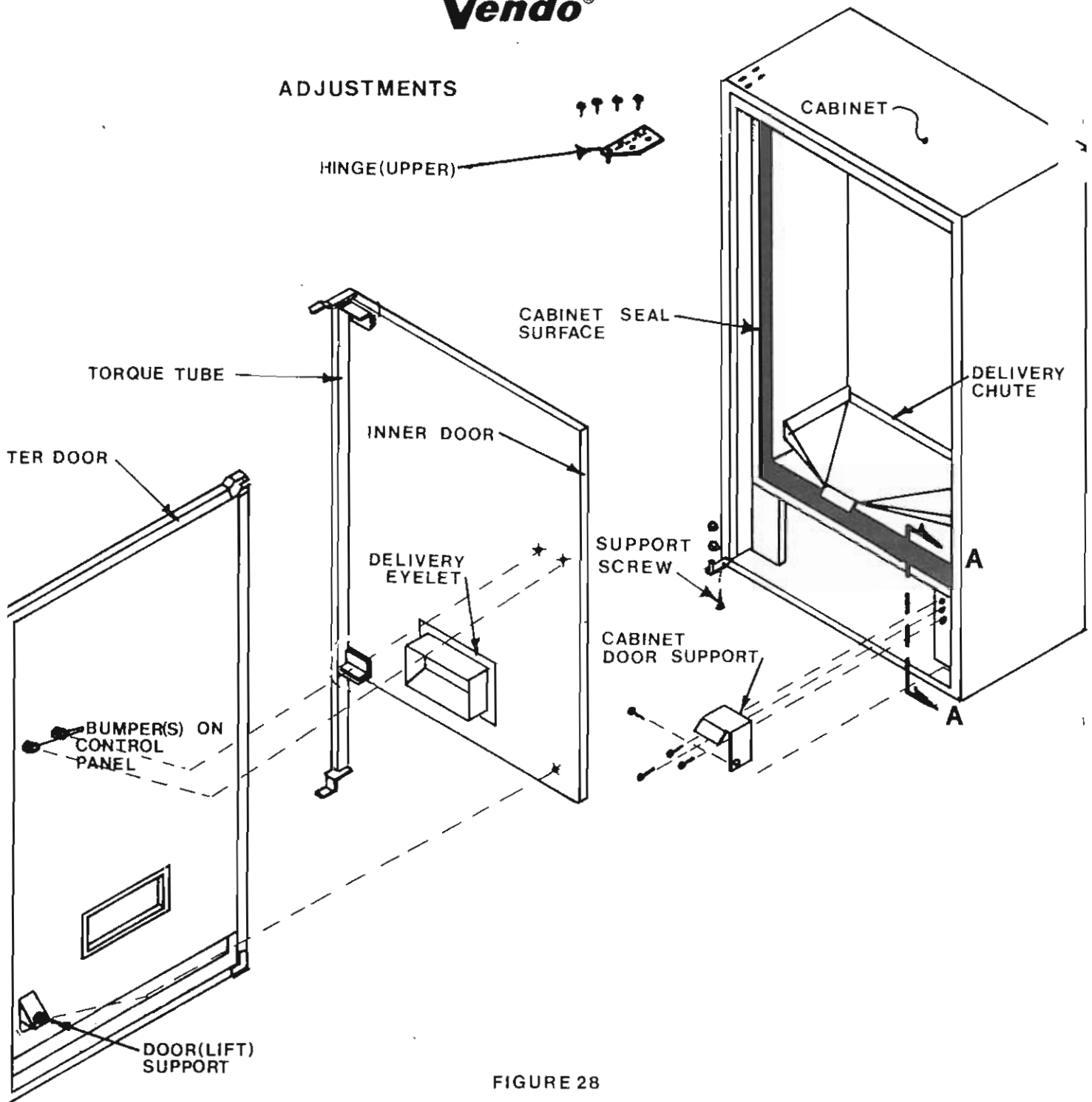


FIGURE 28

ADJUSTMENTS

Check the "L" handle lock cam and cabinet latch alignment for proper engagement. The cabinet latch is adjustable to obtain reasonably free engagement and maximum security. FIGURE 29

The support screw is to prevent tipping of an unloaded cabinet when the door is opened. When vender is in final position adjust screw to floor. FIGURE 28

INNER DOOR (FIGURE 28)

The inner door is mounted to the torque tube on adjustable brackets. It may be adjusted right to left to align it to the cabinet plus obtain a MAXIMUM REFRIGERATION SEAL.

NOTE: The inner door does NOT NECESSARILY have to rest on the cabinet door support. When aligning the inner door with the cabinet be sure to check the delivery chute and delivery eyelet. The delivery chute may be raised or lowered to insure proper product delivery. Right to left alignment is obtained by adjusting the inner door.

Proper refrigeration seal of the inner door is extremely important.

To "check the seal":

- 1). Close the door on a strip of paper.
- 2). Place a very light pressure on the door near its center.
- 3). When you pull the paper out there should be a discernable resistance to the removal of the paper.

THIS PROCEDURE MUST BE REPEATED AT SEVERAL POSITIONS ON ALL FOUR SIDES OF THE DOOR. Adjust the door on its mounting brackets.

To be sure the inner door STAYS SEALED when the vender is locked, place any kind of "transfer" material, chalk line chalk, ink or sealer on all of the bumpers mounted on the outer door. Close and latch the door. Open the outer door and be sure the bumpers have TOUCHED the inner door.

If no contact between the bumper and inner door occurs-

- 1). Repair, replace or "shim" the bumpers.
- 2). Adjust the cabinet latch inward.

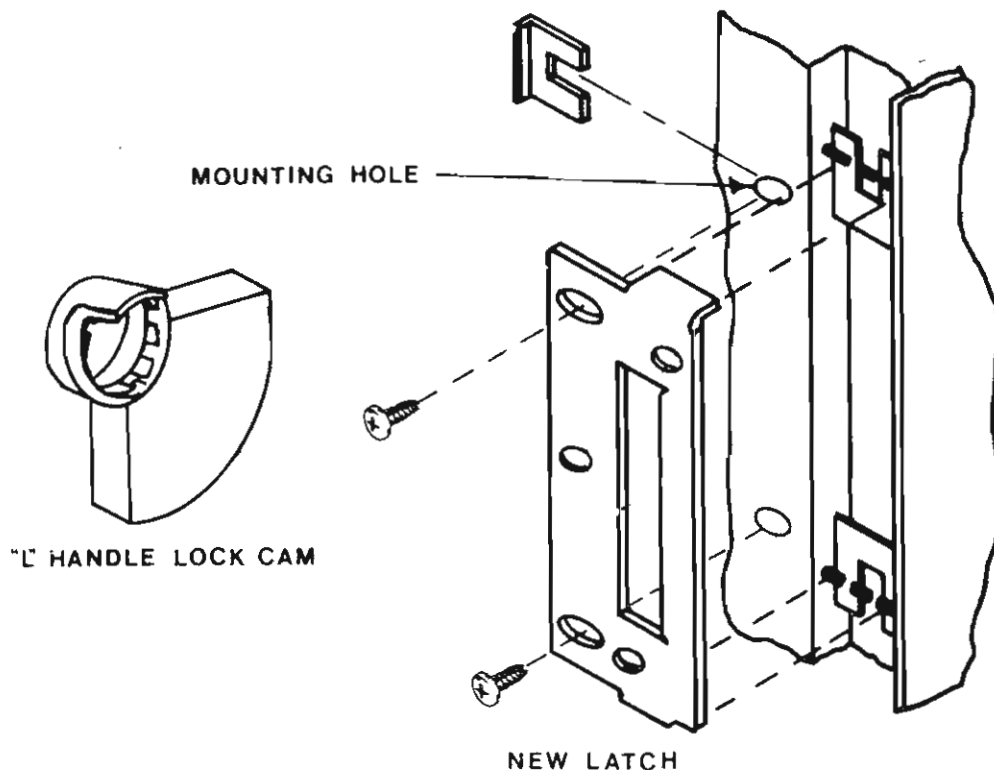


FIGURE 29

TEMPERATURE CONTROL (FIGURE 30)

The temperature inside the cabinet is regulated by the temperature control located on the left side of the evaporator. Before adjusting the control, make sure all components of the refrigeration system are working properly and the inner door seal is tight. The factory setting will normally be with the "knob" at center range. The AIR TEMPERATURE at the feeler bulb should be cut in 39° F. - cut out 26° F. To increase the temperature, turn the control counterclockwise. To decrease the temperature, turn the control clockwise. For a temperature change of approximately 2 degrees, turn the control knob $1/12$ turn.



FIGURE 30

THERMOSTAT FEELER TUBE POSITION (FIGURE 31)

In new production as well as when replacing a refrigeration unit, it is possible to distort the position of the thermostat feeler bulb.

The feeler tube should be positioned as shown in Fig. 31. It must be in the "air stream" from the evaporator fan and must not touch the rear cabinet wall or the evaporator shield except at the retainer clip. The clip should be near the center of the evaporator.

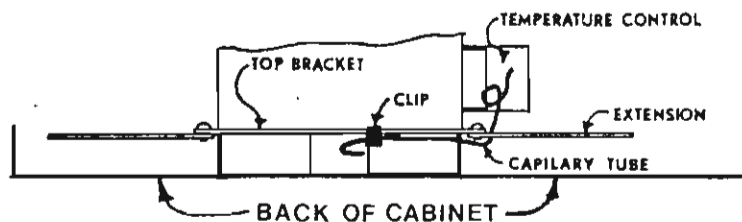


FIGURE 31



MECHANICAL VEND CYCLE

FIGS. 23 & 32

Each column is operated by an individual motor assembly and the vend mechanism consists of a bail and two lowering shelves with a link connecting the motor to the bail.

When vending any product "single depth" the motor cam will have two lobes. The column will vend two products for each 360° rotation of the motor cam.

With the column properly loaded the product in the column is supported by the lowering shelf that is in the "up" position. When the bail is rotated by the motor the shelf is lowered to deposit that product directly to the chute while the opposite shelf is raised to support the remaining product. On the following vend this process is repeated from the opposite side of the column.

When vending any product "double depth" the motor cam will have four lobes. Each column will vend four products for each 360° rotation of the motor cam.

With a column properly loaded and primed there will be a product supported between a bail bracket on the bail and a spacer bar (product retainer) at the bottom of its partition at the rear of the column. One lowering shelf will be down and the opposite shelf will be up supporting the remaining product in that column.

On the first vend from this start position the motor will rotate the bail just enough to release the product from the bail bracket and stop. On the next vend the motor will operate the bail toward the opposite side of the column. The up shelf is lowered allowing both products to leave the shelf. The front product is dropped directly to the delivery chute and the rear product is held on the bail bracket. The process is repeated vending two products from each side of each column for every 360° rotation of its motor cam.

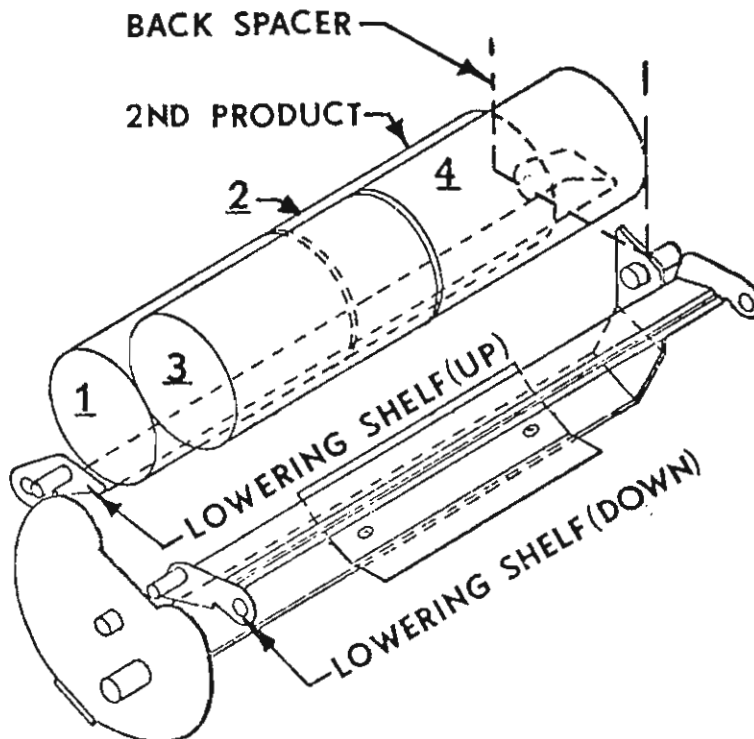
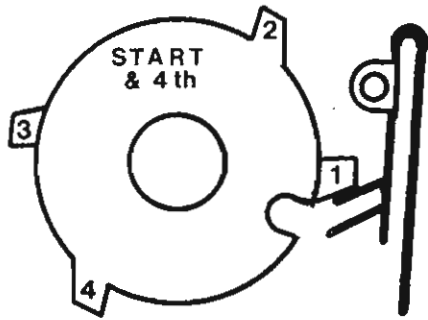


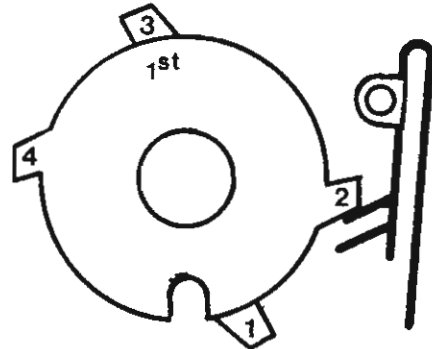
FIGURE 32

Vendo®
CAM TO PRODUCT
RELATIONSHIP

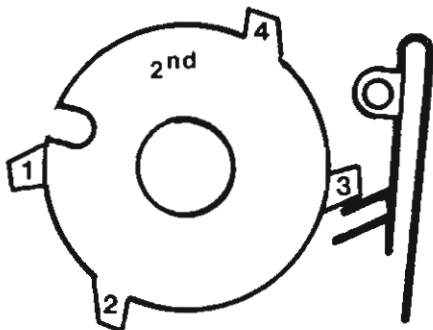


PROPERLY LOADED AND PRIMED.
S 1 PRODUCT WILL BE ON BAIL BRACKET
LEFT SHELF "UP"; RIGHT SHELF "DOWN".

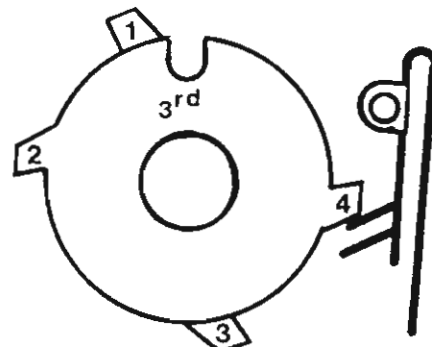
4 VENDS 1 PRODUCT FROM RIGHT SHELF
DEPOSITS 1 PRODUCT ON BAIL BRACKET
LEFT SHELF "UP"; RIGHT SHELF
"DOWN"; CAM HAS ROTATED 360°.



1 VENDS PRODUCT ON BAIL BRACKET (NO
PRODUCT ON BAIL BRACKET) LEFT SHELF
"UP"; RIGHT SHELF "DOWN".



2 VENDS 1 PRODUCT FROM LEFT SHELF
DEPOSITS 1 PRODUCT ON BAIL BRACKET
LEFT SHELF "DOWN"; RIGHT SHELF "UP".



3 VENDS PRODUCT ON BAIL BRACKET (NO
PRODUCT ON BAIL BRACKET) LEFT SHELF
"DOWN"; RIGHT SHELF "UP".

*ANY SELECTION CAM MAY BE AT ANY ONE OF THE FOUR POSITIONS AT STANDBY READY TO VEND.

FIGURE 33



VEND CYCLE
E-Z LOAD

When sufficient coins are deposited and are routed through the acceptor into the changer, the changer vend switch is operated.

The changer vend switch will complete a circuit to the vender credit relay to energize it. (Vender credit established.) With the vender credit relay energized a credit "holding" circuit is created through the motor carrier switches, at least one "B" sold out switch, and a switch in the credit relay. A "Selection Circuit" is now available to all selection switches.

When a selection is made a circuit is completed through the changer switch, a credit relay switch, the selection switch series circuit, the selection switch operated, and one sold out switch "A", to start the motor selected.

As soon as a circuit is completed to a motor the motor starts. The selection must be held until the cam releases its motor carrier switch.

When the motor cam operates its motor carrier switch the credit relay will de-energize. The motor carrier switch provides a circuit to keep the motor running. The bypass switch will be operated after the motor carrier switch. Under these circumstances the remaining selections will not be affected. When the motor carrier and bypass switches are operated the second time the motor stops and vender is ready for another cycle. (Standby position)

* The bypass switch establishes a C.R.E.M., and credit relay "hold" circuit in case the motor does NOT complete its cycle.

ABBREVIATIONS

C.R.E.M.	Coin Return Electro Magnet
N.C.	Normal Closed
N.O.	Normal Open
C.	Common
C.C.	Correct Change

SYMBOLS

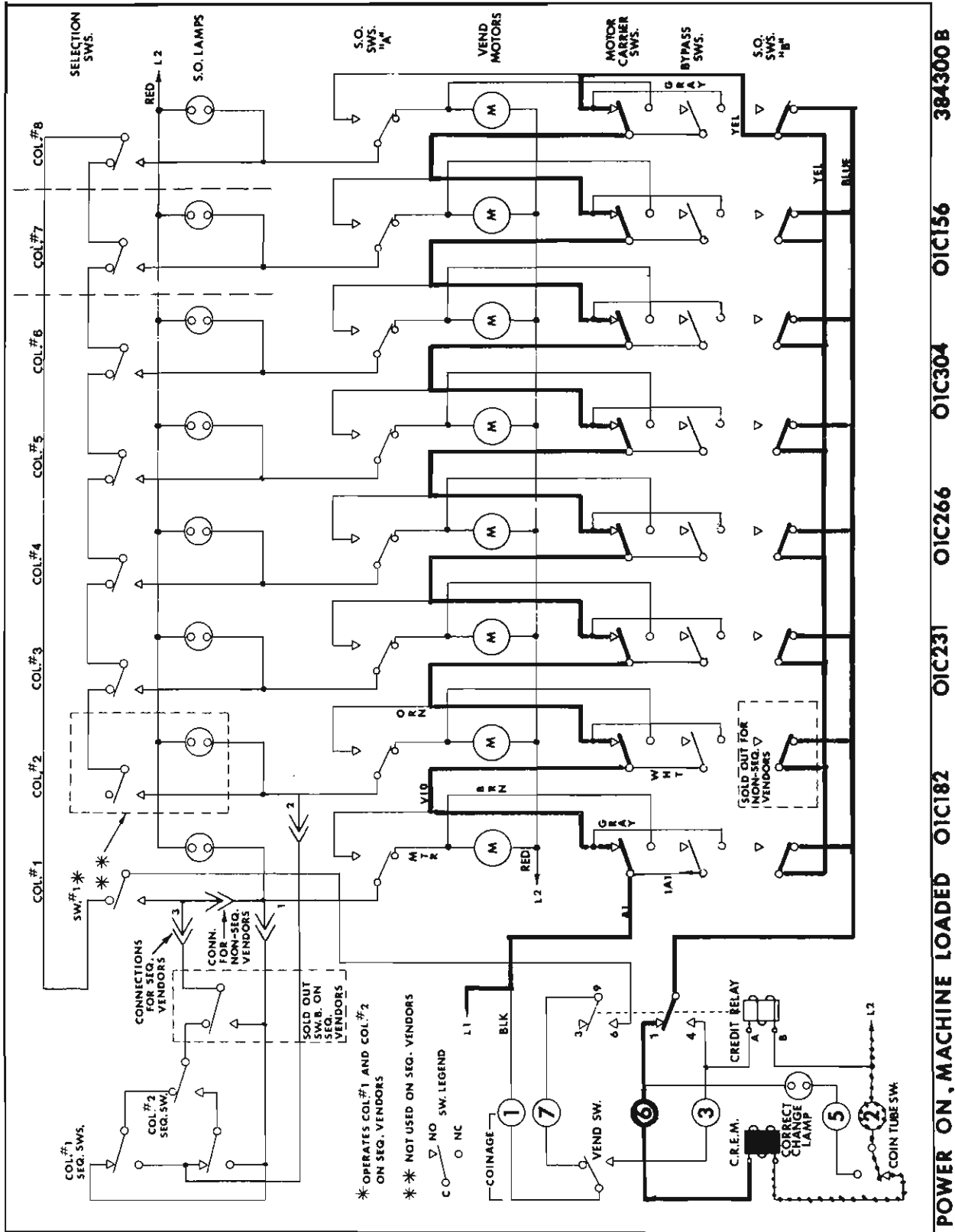
	SWITCH
	
	SERVICE CORD LINE PLUG
	NEON LAMP
	COIL
	ELECTRICAL WIRE JUNCTION
	ELECTRICAL PLUG AND RECEPTACLE IDENTIFICATION

STANDBY CIRCUIT
Power On - All Selections Loaded

The C.R.E.M.s are energized. Vender will accept money.

The following circuits are necessary.

1. All motor carrier switches.
2. Any one, or all, of the sold out switch "B".
3. Credit relay switch. (Common 7)



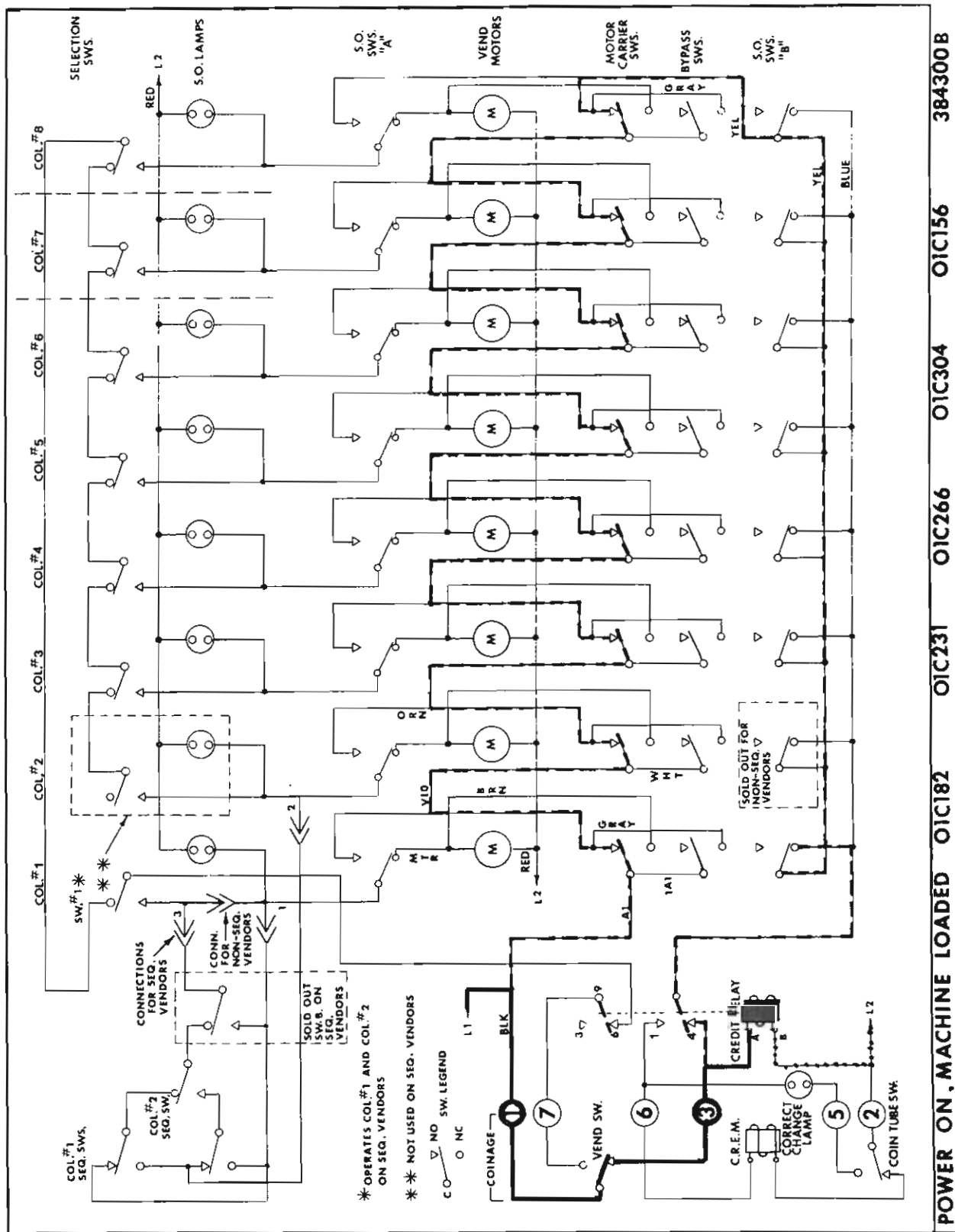
CREDIT RELAY ENERGIZED

The credit relay is energized when the coinage vend switch operates. Changer connections pin #1 and pin #3.

The C.R.E.M.s de-energize. The changer should refuse all money.

The credit relay will stay energized when the changer circuit returns to standby. CREDIT HOLD CIRCUIT DOTTED LINE.

1. All motor carrier switches.
2. Any ONE or all of the sold out switch "B".
3. Relay switch (common 7).



SELECTION MADE

The credit relay remains energized (dotted line).

When the #4 push button selection switch is operated the #4 vend motor starts.

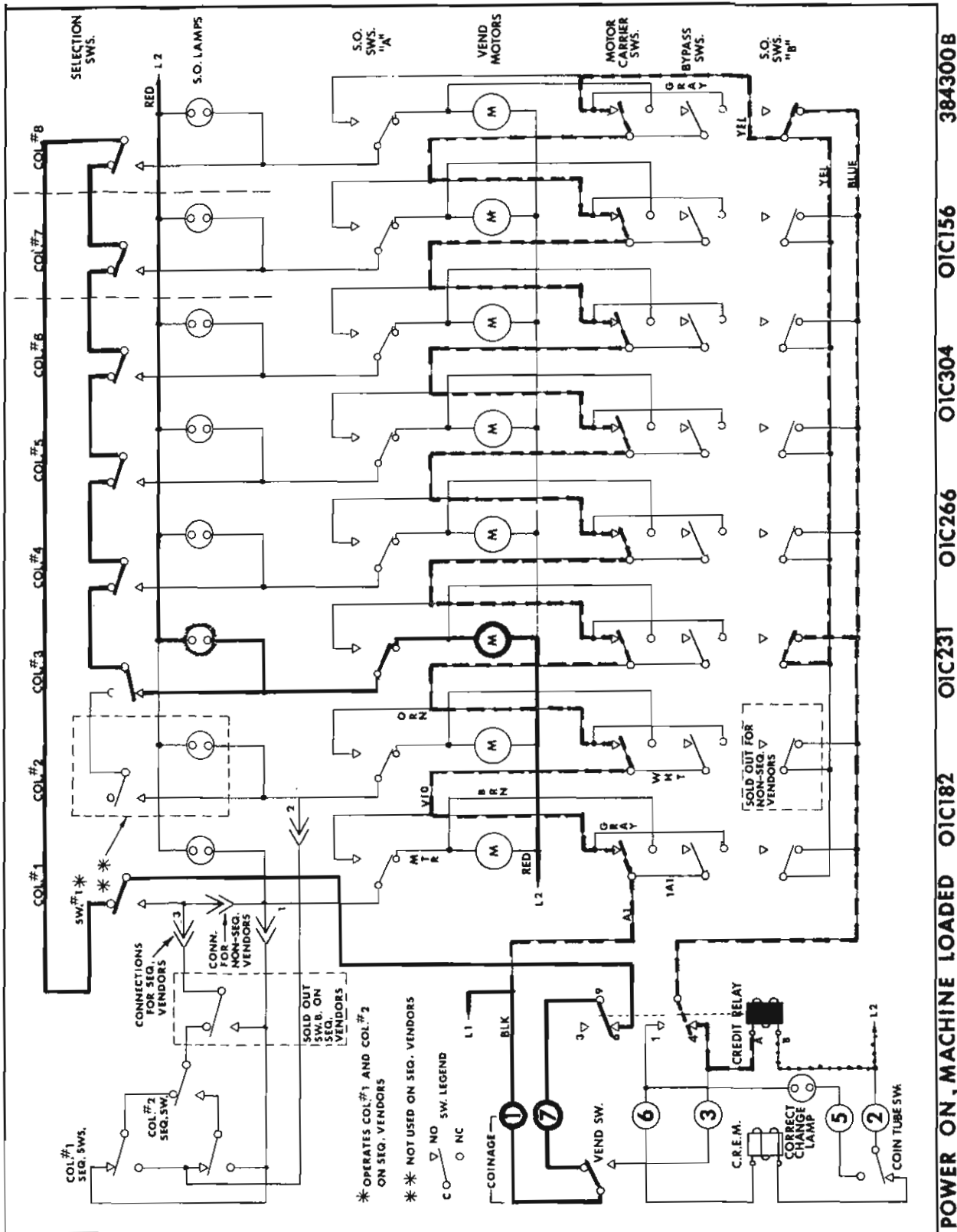
NOTE CIRCUITS TO MOTOR

1. Coinage connections
 - a. Pins #1 and #7.
 - b. Vend Switch
2. Relay Switch (common #9).
3. Push button selection switches #1, #8, #7, #6 and #5 in that sequence.
4. Sold out switch "A".

The sold out lamp lights.

NOTE

If the selected push button is released at this time the selected motor will stop, the credit will be retained and any other selection may be made.



POWER ON, MACHINE LOADED OIC182 OIC231 OIC266 OIC304 OIC156 384300B

MOTOR CARRIER SWITCH

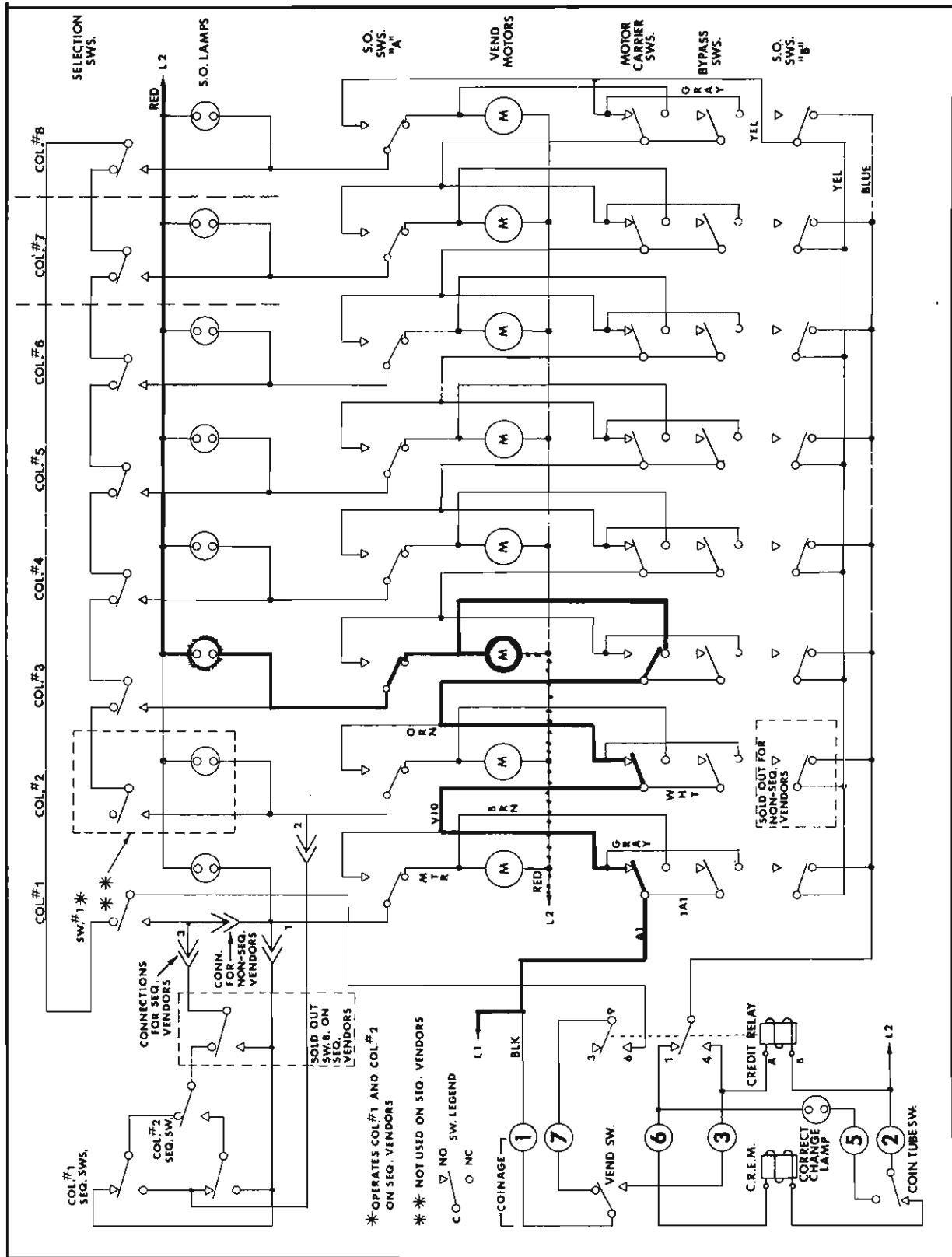
When the motor carrier switch leaves its motor cam lobe (operates) -

1. The credit relay de-energizes.
2. The motor continues to run.

Note that its circuit at this point depends on motor carrier switches #1, #2 and #3.

The motor carrier switch MUST operate BEFORE the bypass switch.

The soldout lamp stays lit.



POWER ON, MACHINE LOADED O1C182 O1C231 O1C266 O1C304 O1C156 384300B

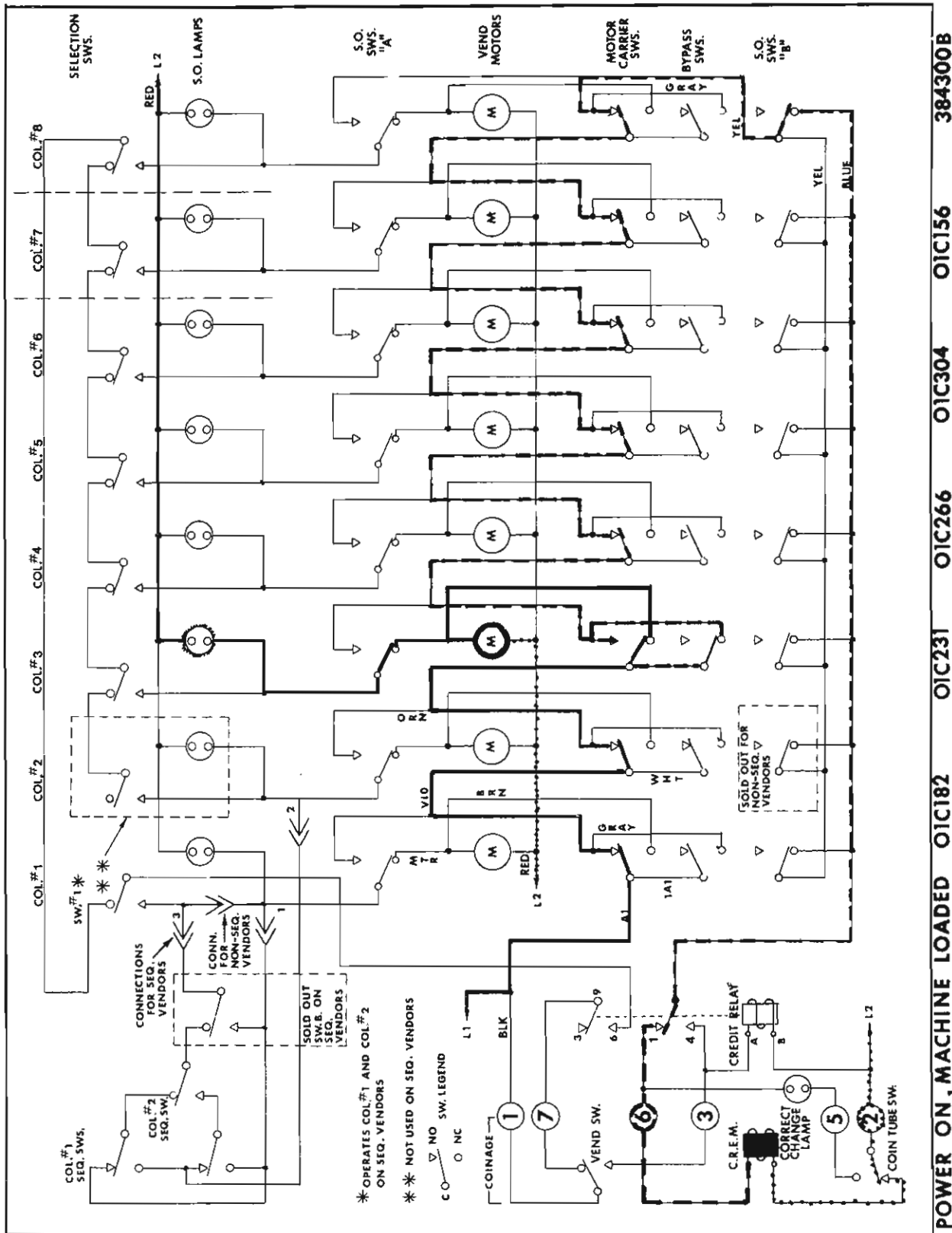
BYPASS SWITCH

The by pass switch operates AFTER the motor carrier switch to establish a temporary by pass circuit. (See next schematic)

If the by pass switch operates BEFORE the motor carrier switch the credit relay will NOT DE-ENERGIZE.

The C.R.E.M.s energize when the by pass switch operates.

When the motor carrier and by pass switches are returned to the motor cam lobe (operated) the motor stops and the vender is at standby. See schematic #1.



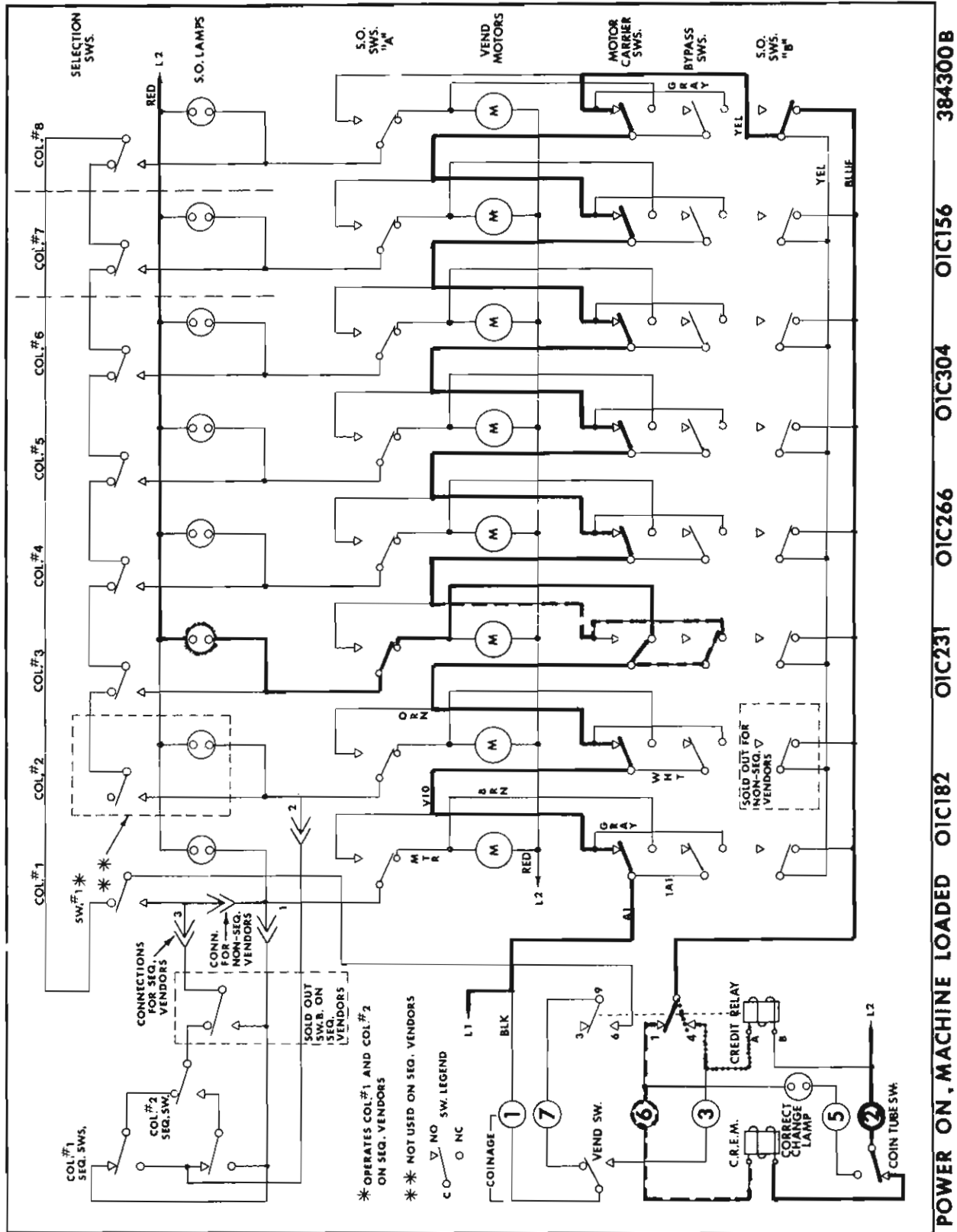
POWER ON, MACHINE LOADED O1C182 O1C231 O1C266 O1C304 O1C156 384300B

BYPASS CIRCUIT

If for any reason the vend motor fails to complete its vend cycle the motor carrier and bypass switches will be "off" the motor cam lobe as shown in selection #3. In this condition the other selections will function normally.

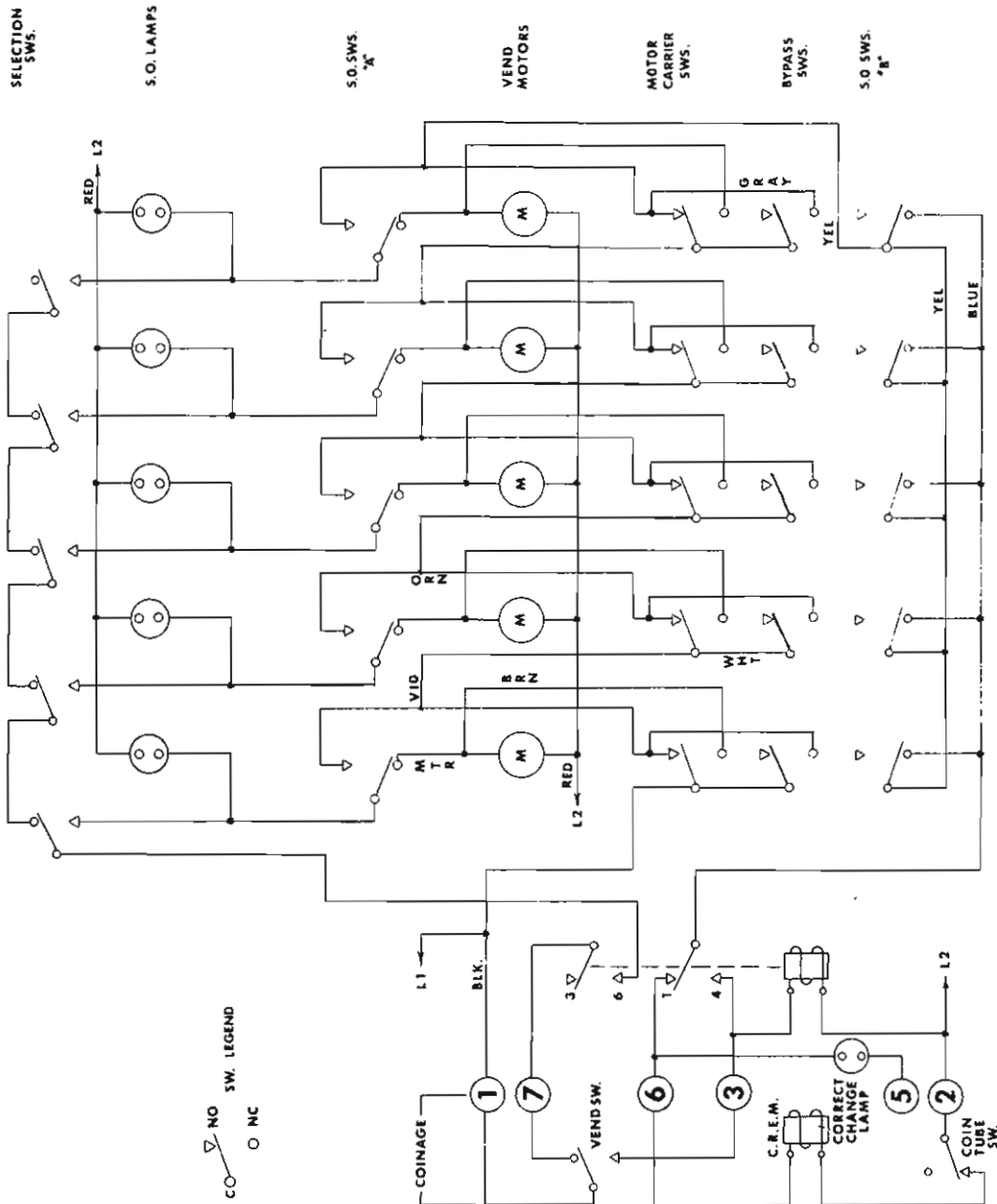
The by pass switch provides:

1. A circuit to the C.R.E.M.s coil. The vender will accept money.
2. A holding circuit to the credit relay if it is energized. See dotted line at relay switch #7.
3. The sold out lamp in the inoperative selection will stay "on".
4. The stalled vend motor will continue to receive power. Each motor is internally protected by either a circuit breaker (ECM) or high impedance wiring (Merkle Korf) to prevent damage.



POWER ON, MACHINE LOADED O1C182 O1C231 O1C266 O1C304 O1C156 384300B

MODELS OIC125/OIC190 ONLY	SW #1 COL #1	SW #2 COL #2	SW #3 COL #3	SW #4 COL #4	SW #5 COL #5
MODELS OIC183 ONLY	SW #1 COL #1	SW #2 COL #2	SW #3 COL #3	SW #4 COL #4	SW #5 COL #5



384302 B

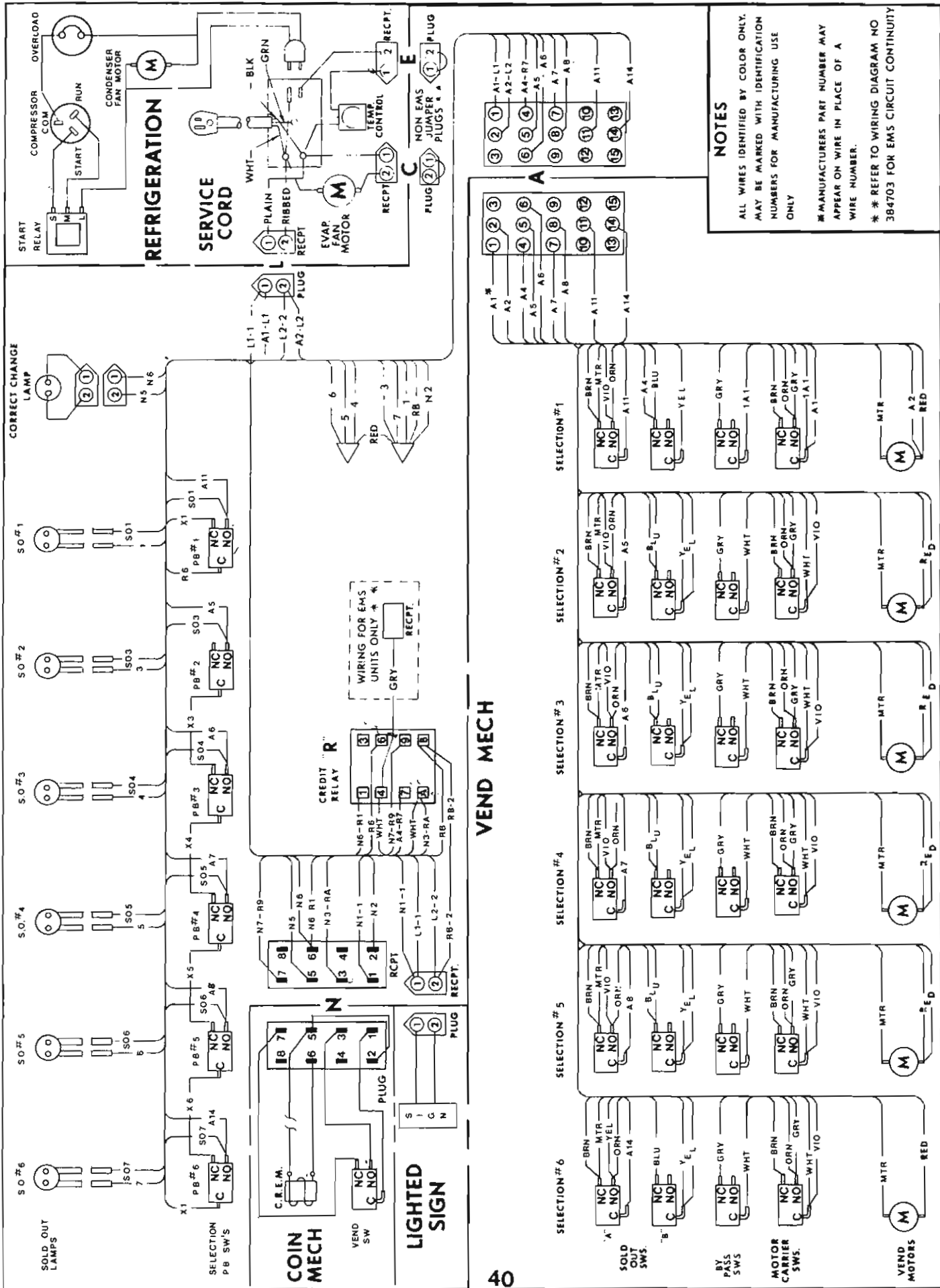
OIC190

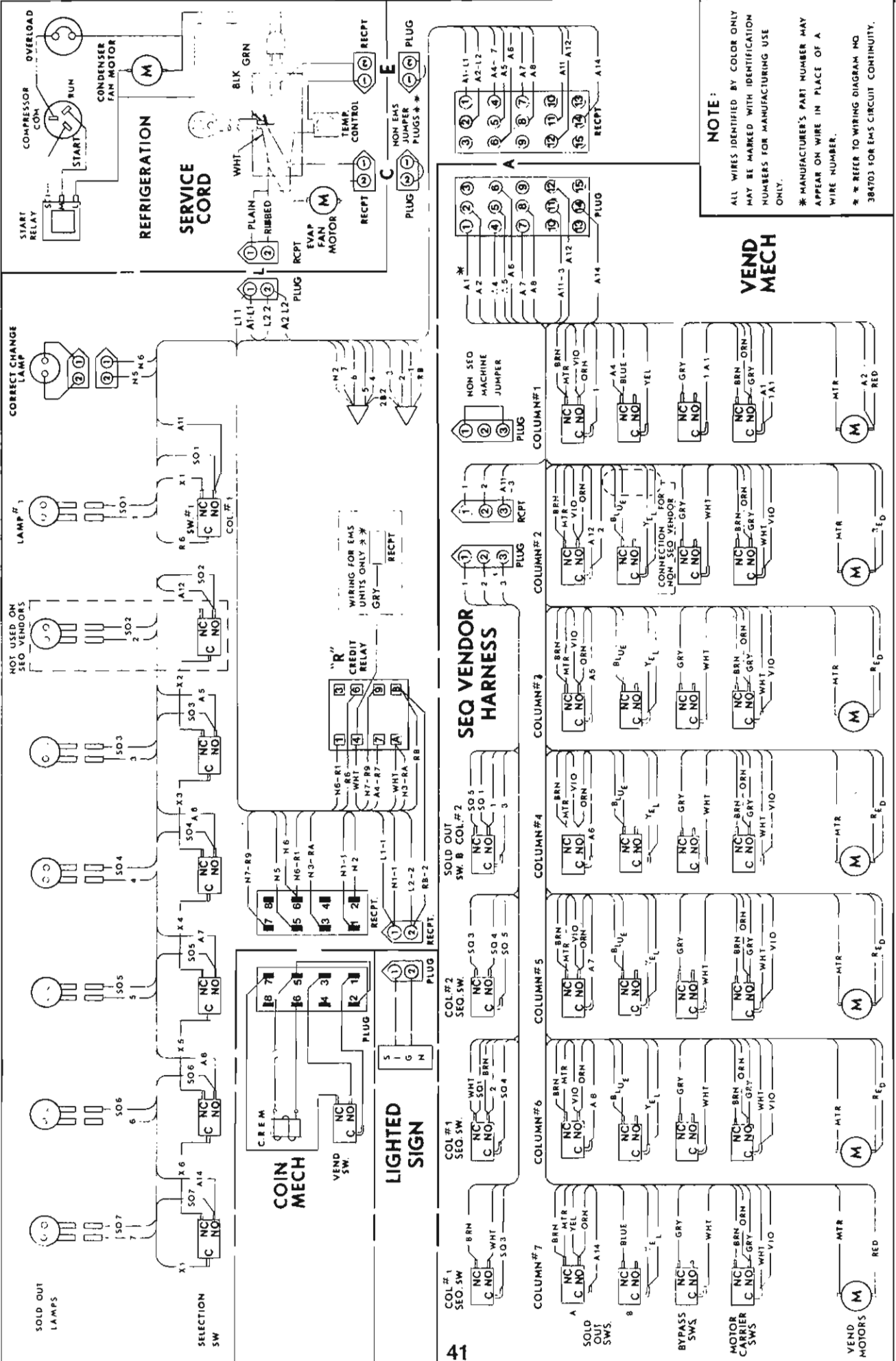
OIC183

OIC111

OIC125

POWER ON, MACHINE LOADED





NOTE:
ALL WIRES IDENTIFIED BY COLOR ONLY
MAY BE MARKED WITH IDENTIFICATION
NUMBERS FOR MANUFACTURING USE
ONLY.
* MANUFACTURER'S PART NUMBER MAY
APPEAR ON WIRE IN PLACE OF A
WIRE NUMBER.
* REFER TO WIRING DIAGRAM NO.
384703 FOR EMS CIRCUIT CONTINUITY.



CARE AND CLEANING

Wash the vender with soap and water. Wax the exterior with any good automobile wax. Corrosion may be removed from the interior with a fine grade steel wool and retouched with paint.

LEXAN SIGNS

A. GENERAL CLEANING PROCEDURE

1. Wash sign with a mild soap or detergent and lukewarm water. (See list of compatible cleaning materials).
2. Using a soft cloth or sponge, gently wash the sign. DO NOT SCRUB.
3. Rinse well with clean water.
4. Dry thoroughly with a chamois or cellulose sponge to prevent water spotting.

NOTE: DO NOT USE A SQUEEGEE

B. COMPATIBLE CLEANING MATERIALS

1. Aqueous solutions of Soaps and Detergents:

- | | |
|-------------------------------|---------------------------------|
| a. Windex (Reg. Trademark) | d. Top Job (Reg. Trademark) |
| b. Joy (Reg. Trademark) | e. Mr. Clean (Reg. Trademark) |
| c. Fantastik (Reg. Trademark) | f. Formula 409 (Reg. Trademark) |

2. Organic Solvents:

- | | |
|---------------------------|--------------------|
| a. Aliphatic Hydrocarbons | e. Hexcel F.O. 554 |
| b. Kerosene | f. Neleco-Placer |
| c. Naphtha (VM-P grade) | g. Turco 5042 |
| d. Petroleum Spirits | |

3. Alcohols

- a. Methanol
- b. Ethanol (denatured)
- c. Isopropyl

C. FRESH PAINT SPLASHES, GREASE AND GLAZING COMPOUND REMOVAL

1. Before drying, these conditions can be easily remedied by rubbing lightly with Naphtha VM-P, Isopropyl Alcohol or Butyl Cellosolve. Afterwards use "General Cleaning Procedure."

D. LABEL AND STICKER REMOVAL

The use of kerosene, Naphtha VM-P, standard solvents or petroleum spirits are generally effective against these conditions. General cleaning procedure should always be used after the use of these products.

In cases where the sticker material, such as vinyl, does not allow the penetration of solvent, the application of heat (a hair dryer for example) will soften the adhesive and promote removal.

CAUTION: EXCESSIVE HEAT CAN CAUSE SURFACE DAMAGE.



CARE AND CLEANING

E. SCRATCH REMOVAL

Hairline scratches and minor abrasions can be removed or minimized by using a mild automobile polish. (Two products that tend to polish and fill scratches making them invisible are: Johnson Past Wax and Mirror Glaze Plastic Polish (M.G.M. 10), Mirror Bright Polish Co., Pasadena, CA). Prior to general use it is suggested that a sample product be tested first.

F. CAUTIONS

1. Do not use abrasive cleaners, highly alkaline cleaners, benzene, leaded gasoline, acetone or carbon tetrachloride.
2. Never scrape with razor blades or other sharp instruments.
3. Do not clean in hot sun or at elevated temperatures.

GENERAL

The condenser and evaporator must be kept clean for efficient operation. You must be sure that All vanes and tubing are clean and clear of obstruction to allow free air passage. Clean with a brush, a vacuum cleaner, or compressed air. Cabinet drain must be kept open. Clean as necessary.

INTERVAL	PARTS	LUBRICANT
Every Six Months	Top hinge of door Door hinge pin at base of cabinet. Door latch cam to cabinet strike.	Part Number 323452 1 Pound Can
Whenever Necessary	Shelf Assembly Pivots & Rollers. Shelf Assembly Pivots & Eccentric Bearing	Part Number 323798 1 Pound Can

TROUBLE	CAUSE	SERVICE SUGGESTION
Compressor will not run.	No electrical power.	Check power source and vender service cord.
	Thermostat open.	Remove cover from thermostat leads and apply jumper across its terminals. If compressor runs, thermostat is defective. Replace.
	Overload protector open.	If unit is not hot, replace protector.
Compressor tries to start but cycles on Overload Protector.	Start relay inoperative.	Replace.
	Compressor motor inoperative.	Ohmmeter check of compressor motor: Remove all leads from compressor. Check continuity from common connector to compressor case. If meter shows continuity, compressor has shorted windings. Repeat check with start and run connections. Replace unit. Check continuity from common to start connections, then from common to run. A meter reading should result. If not, windings are open and compressor should be replaced.
	Compressor failure.	Replace unit.
Cabinet temperature above normal.	Condenser or evaporator fan not operating.	Check fan motor circuit. Check for fan blade obstruction.
	Temperature control sensor out of position.	Check.
	Air flow restricted around evaporator.	Check for obstruction around evaporator area. Frost or foreign matter.
	Blocked or dirty condenser or air scoop screen.	Keep condenser and air intakes free of lint, dirt and obstructions.
	Bad door seal.	Check seal. Make necessary door adjustments. Inner door plus delivery door.

TROUBLE	CAUSE	SERVICE SUGGESTION
	Temperature control setting. Control set too cold or not cold enough.	Adjust or replace control.
	Low voltage.	Check power source with volt-meter.
Excessive noise	Evaporator fan blades hitting ice build up due to stopped up drain.	Check for obstruction.
	Condenser fan blade hitting foreign object or condenser shroud.	Check for obstruction.
	Fan blades bent.	Straighten or replace.
	Fan motor noisy	Repair or replace.
	Fan motor mounting loose.	Tighten.
Returns all good coins	No power to vender. Vender not level. All selection soldout.	Supply power. Level vender. Reload vender.
	Coin path dirty.	Clean acceptor.
	Acceptor needs adjusting or coin gate not closed	Make sure the coin mechanism is properly mounted. See proper coinage manual for adjustments.
	Changer not at standby position.	Replace changer or return it to standby position.
	Coin Return Electro Magnet (CREM) defective or blocking fingers bent.	Replace CREM or reform blocking fingers.
	Contacts of credit relay open.	Check continuity of credit relay switches. Replace if necessary.
	Inoperative motor carrier switch or OPEN motor carrier switch circuit.	Replace switch or repair circuit.
Changer will not pay out change.	Coins not laying flat in coin tube.	Remove coins and reload tube.
	Dime in nickle payout area.	Remove coins and reload tube.



TROUBLE SHOOTING

Changer will not payout change.	Coin tube switch defective	Replace.
	Lack of credit established when money deposited.	Refer to coinage manual.
Correct amount of money deposited but no credit established.	Changer malfunction. Credit relay.	Refer to Coinage Manual. Replace Credit Relay.
Credit relay is energized but selection cannot be made.	Changer fails to return to standby.	Refer to Changer manual.
	Selection Switch inoperative	Replace switch.
	Sold Out/Lock Out Switch "A" inoperative.	Replace switch.



PRICING INSTRUCTIONS
4 PRICE MODELS

COINCO

Selections 1, 2, 3 and 4 on the vender will be priced directly by the four (4) price modules in the Coinco Changer (See Figure 34).

Located behind the acceptor are four (4) price switch modules. Each price switch module has five (5) miniature rocker type switches numbered 1 thru 5. These switches correspond to values as follows: 1=5¢, 2=10¢, 3=20¢, 4=40¢, 5=80¢.

The vend price of Selections 1 thru 4 is set at its corresponding module by adding the value of the switches placed in the ON position. Example: Figure 34 shows SEL. 1 set for 25¢.

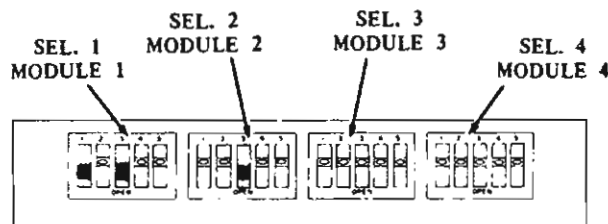


FIGURE 34

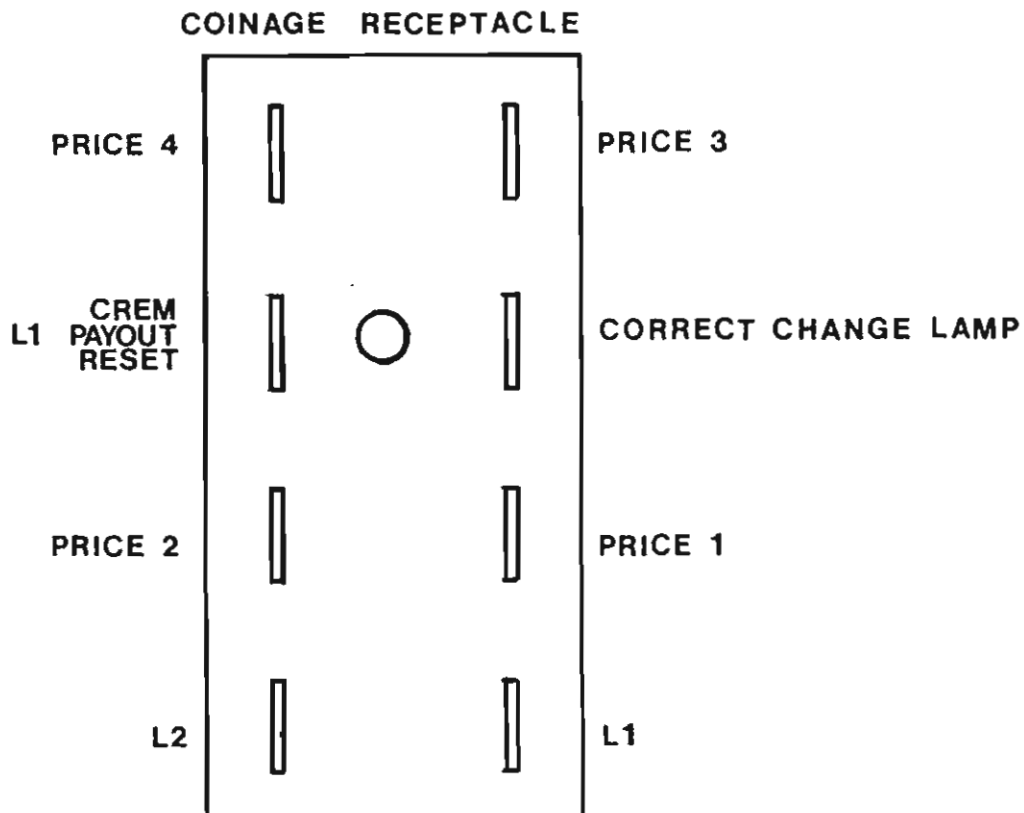


FIGURE 35

MARS

Selections 1,2,3 and 4 on the vender will be priced directly by the four (4) price switch modules in the Mars Changer (See Figure 36).

Located to the right of the coin tube entrance are four (4) price switch modules.

Each price switch module of the Mars Changer has six (6) miniature switches numbered 1 thru 6. The switches correspond to values as follows: 1=5¢, 2=10¢, 3=20¢, 4=40¢, 5=80¢, 6=\$1.60.

The vend price of Selections 1 thru 4 is set at its corresponding module by adding the value of the switches placed in the ON position. Example: Figure 36 shows Selection 1 at 25¢, Selection 2 at 20¢, etc.

SELECTION 5

Selection 5 is priced with the knob on the Control Box Switch No. 1, Figure . The numbers represent the four coinage modules. Example: Figure 37 shows a price setting of 25¢, as related to Figure 34 Coinco and Figure 36 Mars.

SELECTIONS 6, 7 & 8

Selections 6, 7 and 8 will be priced with Switch No. 2 on the control box. These three (3) selections will always be priced the same, but can be any one of the prices established at the coinage.

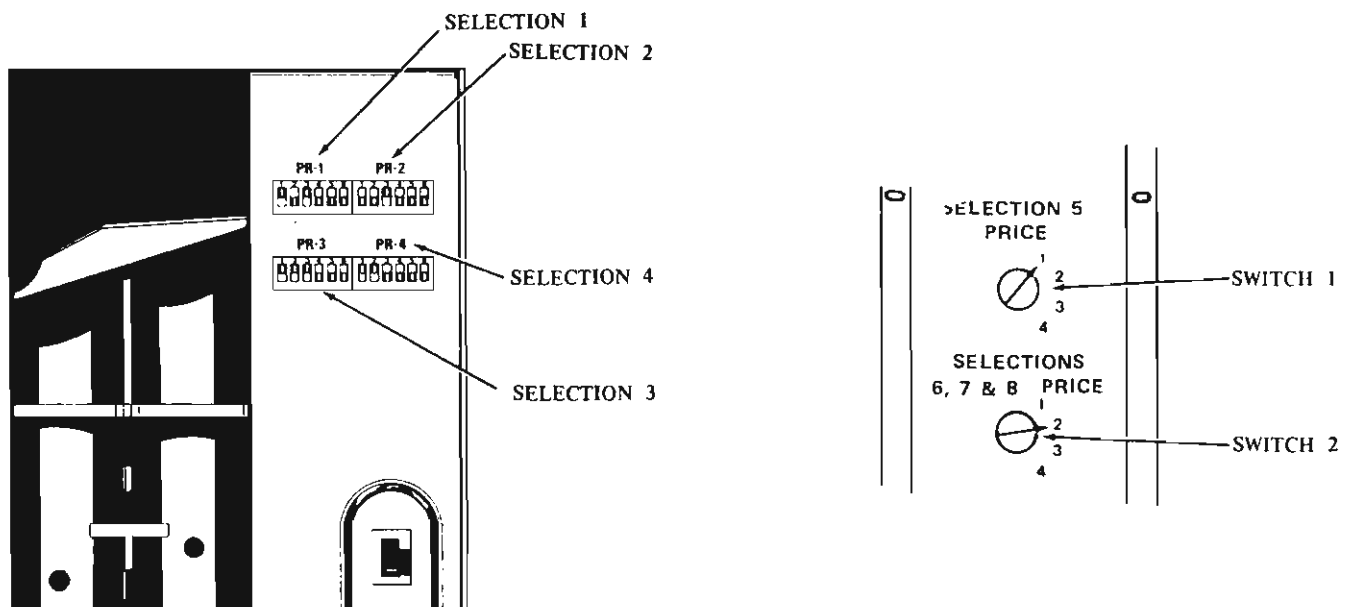


FIGURE 36

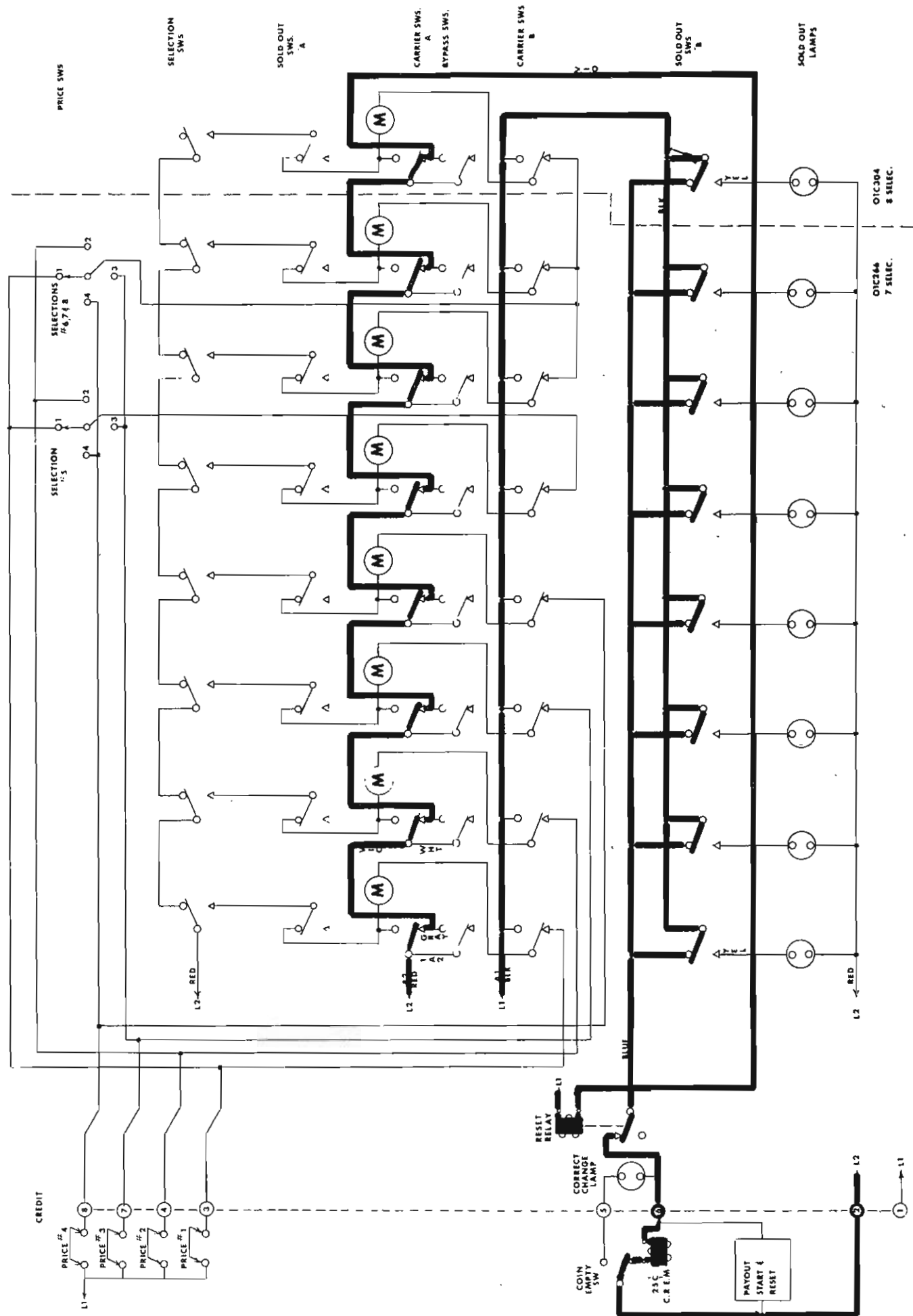
STANDBY

In a four price coinage equipped vender, the Reset Relay is energized at standby.

1. Line one (L1) is direct. (Coinage receptacle pin 1).
2. Line two (L2) is completed thru ALL motor carrier switches "A".

The C.R.E.M.s will be energized.

1. Line one (L1) thru any one OR all of sold out switches "g".
2. Line two (L2) direct from changer receptacle pin 2. (Coin empty switch in the coinage may control a 25¢ C.R.E.M. when applicable).

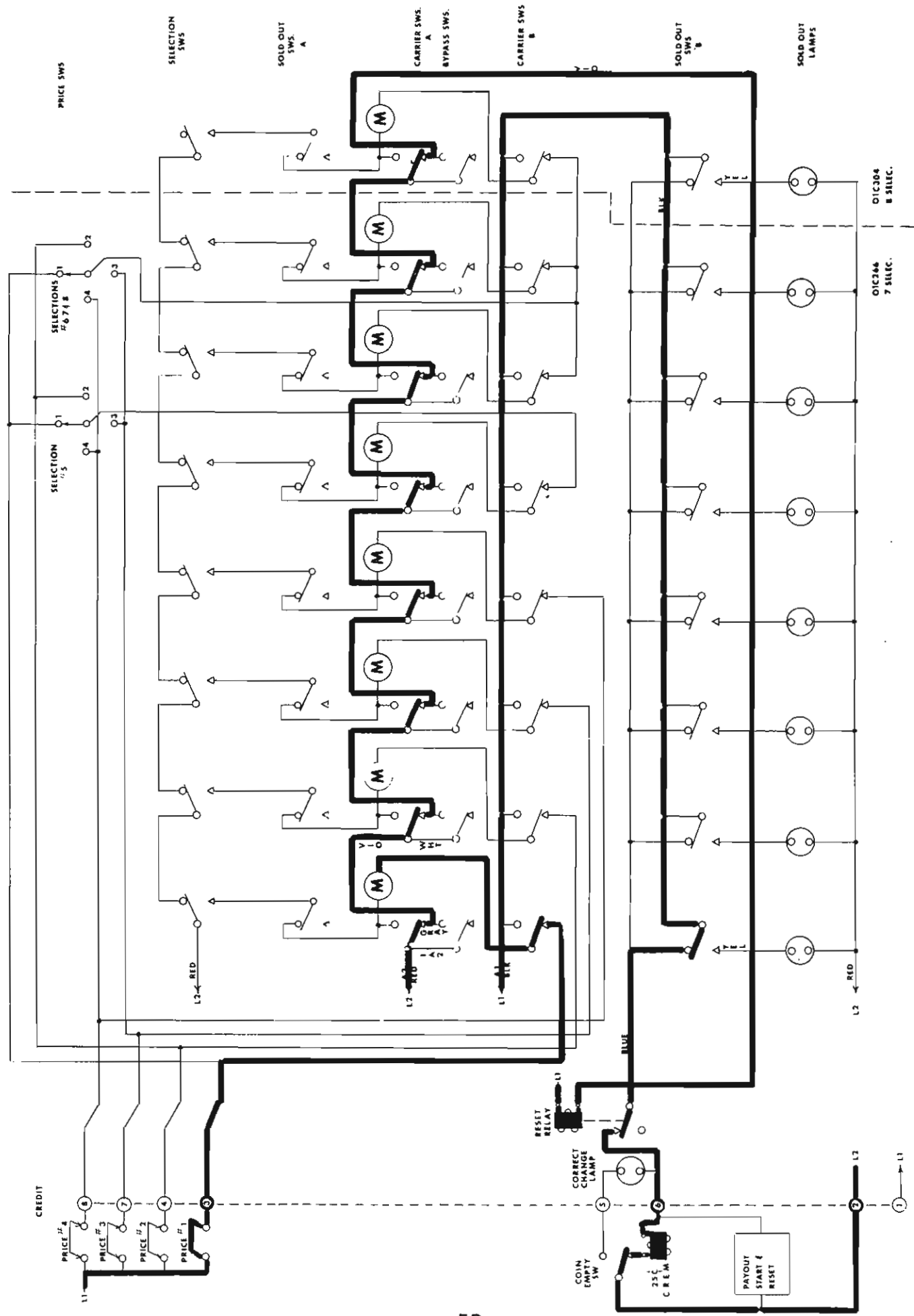


COINAGE CREDIT ESTABLISHED

On this schematic all four prices are the same with both price selection switches set on price number one. All columns and all selections would vend at the same price. The four price switches in the coinage are variable. SEE PRICE SETTING INSTRUCTIONS.

When the established price level of credit has been reached in the coinage (money inserted), line one (11) is completed to ALL motors of selections set at that price level.

1. Motor carrier switch provides path.
2. Reset relay remains energized.
3. C.R.E.M.s remain energized.



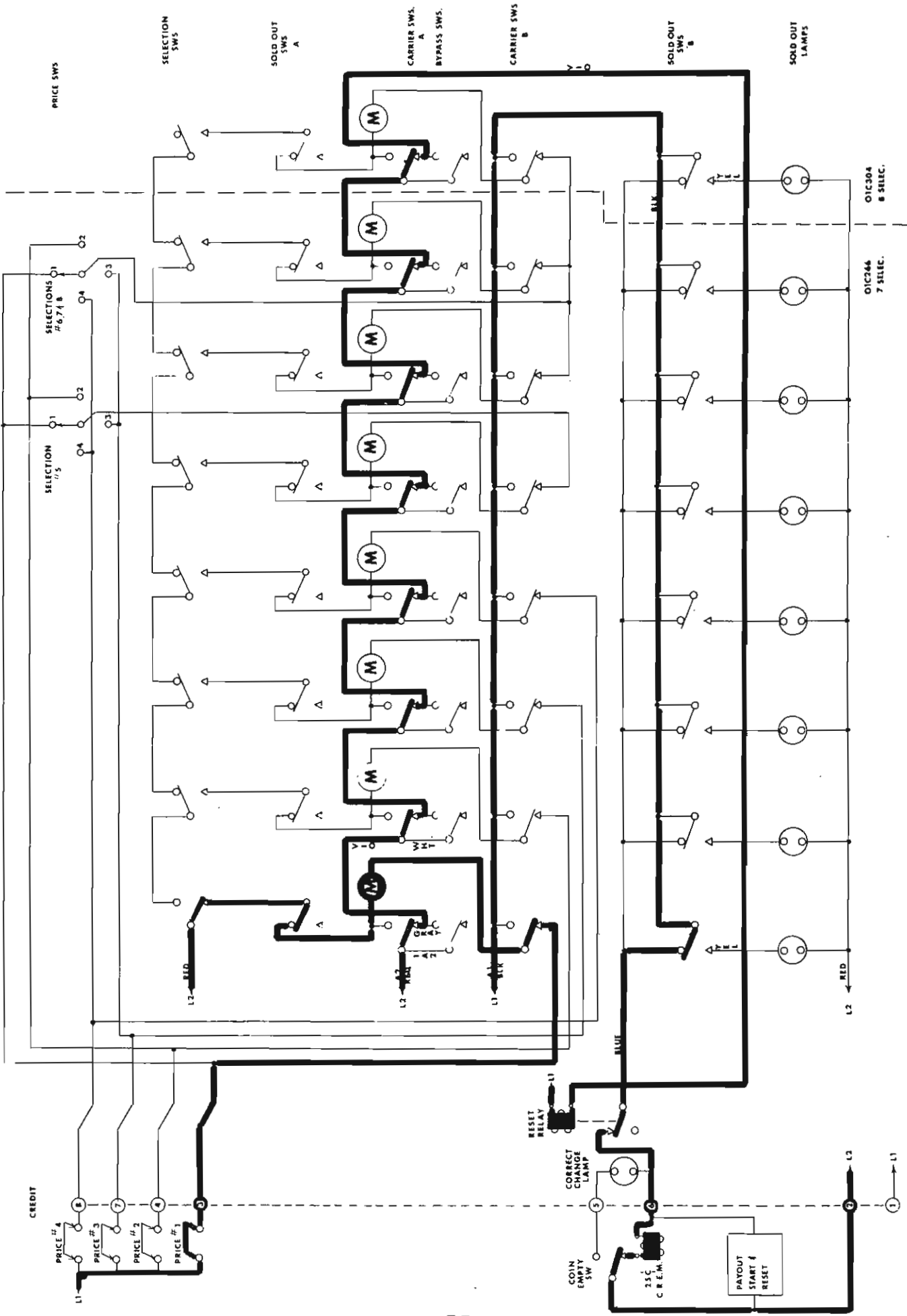
SELECTION MADE MOTOR STARTS

Line two (L2) is supplied to the motor from the push button selection switch and the sold out switch "A".

Line one (L1) is completed from the coinage as noted in the previous step.

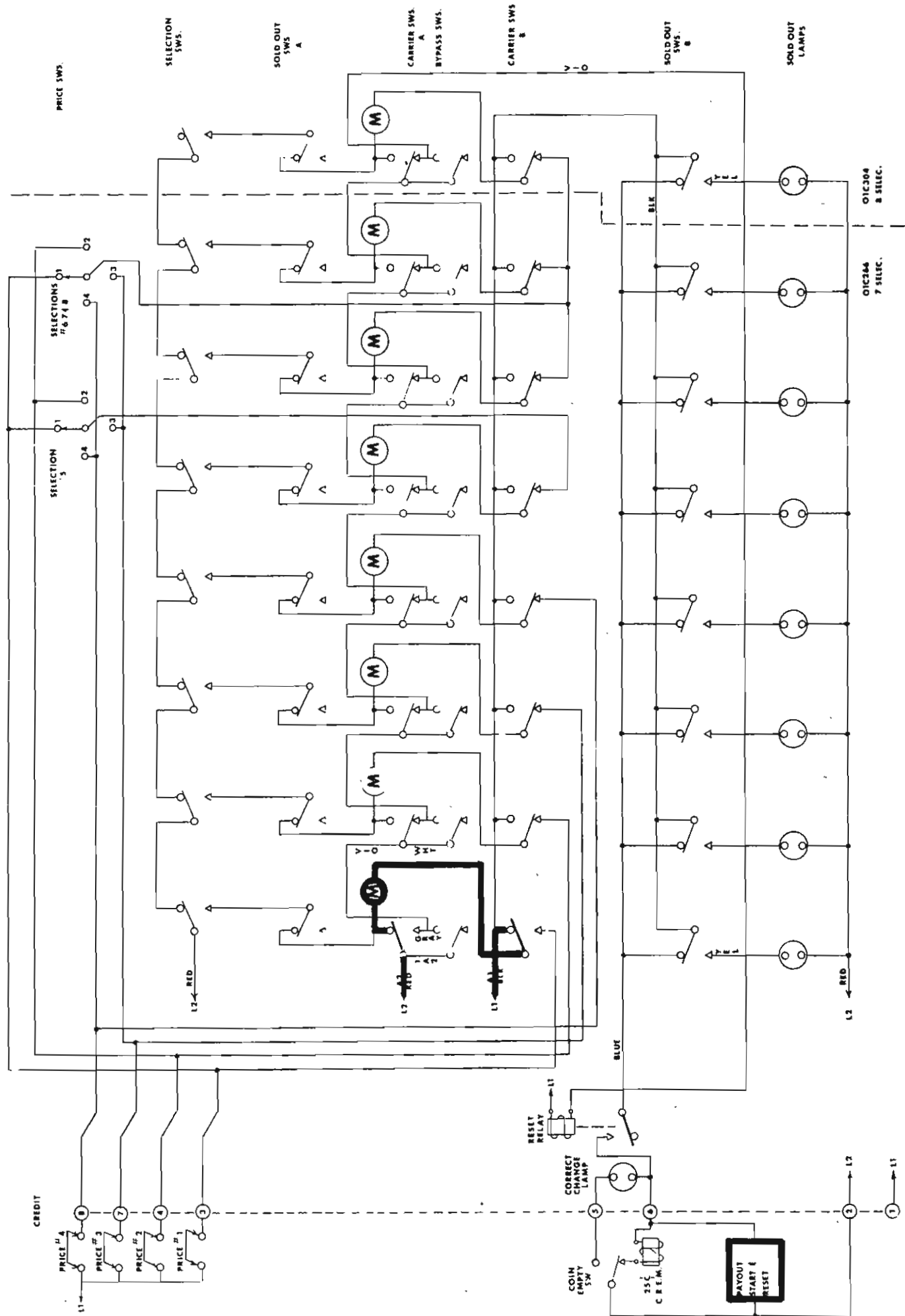
1. The Motor starts.
2. The Reset Relay stays energized.
3. The C.R.E.M.s stay energized.

NOTE: The customer must "push" and "hold" the selection switch until the motor carrier switches are operated.



MOTOR CARRIER "A" & "B" SWITCHES OPERATED

1. Motor Carrier Switch "A"
 - a. Deenergizes Reset Relay.
 - (1) C.R.E.M.s deenergize.
 - (2) Change paid out if necessary.
 - (3) Coinage credit removed.
 - b. Supplies line two (L2) direct to the motor.
2. Motor Carrier Switch "B"
 - a. Removes the coinage "price" line one (L1) from the motor.
 - b. Supplies line one (L1) direct to the motor.



BYPASS SWITCH OPERATED

The bypass switch will be operated momentarily AFTER the motor carrier switches are operated.

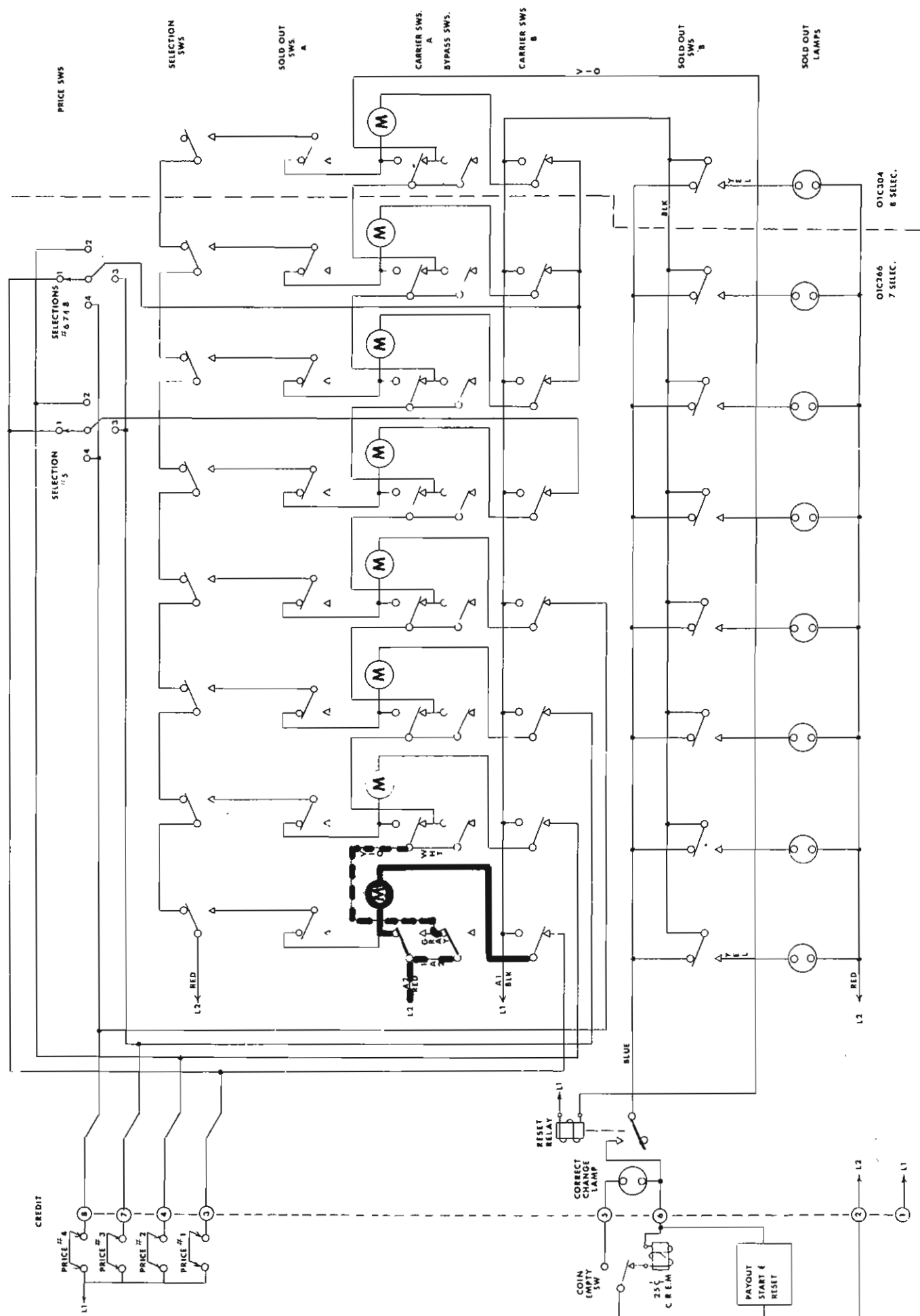
Its only purpose is to provide a bypass for the Reset Relay Circuit. IN CASE THE MOTOR FAILS TO COMPLETE A VEND CYCLE the carrier switches will not be at standby. The bypass switch will allow the other selections to function normally.

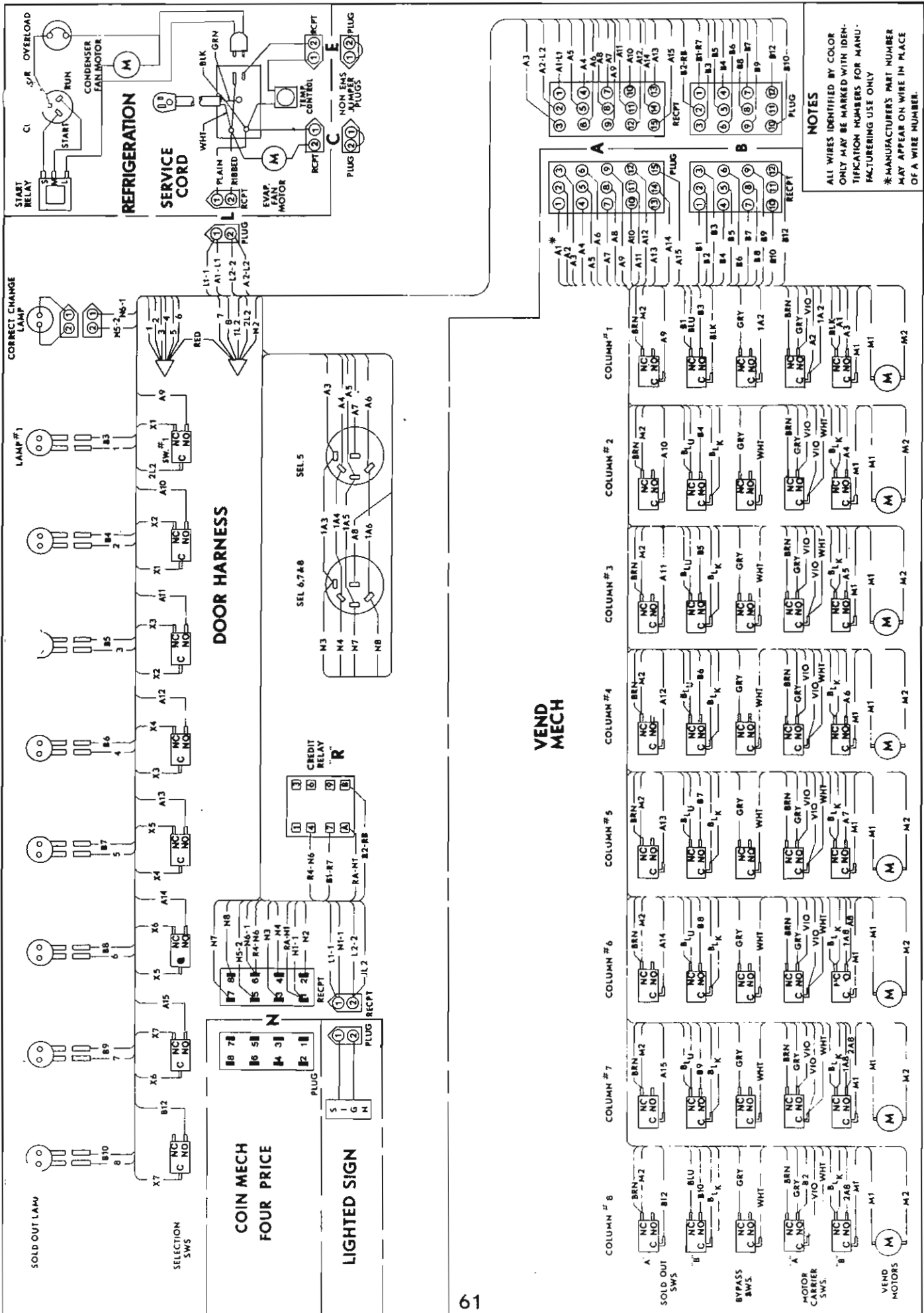
NOTE: The Bypass Switch MUST operate AFTER the motor carrier switches. If it operates before the motor carrier switches during any cycle, credit WILL NOT be erased from the coinage.

When motor carrier switches "A" and "B" and the bypass switch are operated by the cam lobe the second time:

1. The motor will stop.
2. The reset relay will energize.
3. The C.R.E.M.s will energize.

The vender and coinage is now at Standby. See step one.







SUGGESTED
*SPARE PARTS LIST
FOR
E-Z LOAD 1982 SUPERSTACK

QUANTITY	P/N	DESCRIPTION
2	131548	Coin Box
2	370840-1	Push Button - No Label (6")
2	370841-1	Push Button - No Label (3")
2	383991	Lamp S. O.
4	323007	Switch - Selection
1	379407-2	Latch
1	384334	Delivery Door
1	383982	Ballast (2 Lamp)
1	383981	"
1	321345-3	"
6	383980	Lamp (40")
6	384162	" (18")
6	332974	" (36")
6	321350	Starter (Lamp)
12	368299	Switch (S. O.) (MTR.) (By Pass)
1	131580	Motor Assembly
4	131579	Motor & Hub Assembly
1	384329	Lever (MTR. SW.)
1	384311	Lever (By Pass)
2	353343	Relay (Credit)
1	42321-12	Motor (Evp. Fan) (V45)
1	42321-13	" " " (V53)
1	42321-17	" " " (V30)
1	118887-2	Motor (Cond. Fan) (V45)
1	118887-3	" " " (V53)
1	118887-4	" " " (V30)
1	368794	Temp. Control
1	344744	Capacitator
1	333894-6	Relay (Starting) (V45)
1	344894-15	" " (V53)
1	344292-3	" " (V30)
1	45052-12	Overload Protector (V45)
1	45052-27	" " (V53)
1	45052-25	" " (V30)

* This list is only suggested as an initial parts inventory for one to ten venders. Note that all models are included. An accurate history of parts useage must be kept to provide the most efficient and economical handling of any parts department.