

METAL STAMPING CORPORATION
P.O. BOX 1166
CONWAY, ARKANSAS
Telephone 327-1301

Owners Service Manual Model H-17
Automatic Rack Merchandiser

The H-17 is a series of identical independent dispensing mechanisms, each operated by a manual selector button through a common master electric vend relay. When the proper coins are inserted in the machine, the vend relay is energized which establishes a "credit" in the machine.

The separate dispensing mechanisms or driving motor assemblies are assembled into the machine on a "plug in" basis. This system provides an invaluable aid to the service man since any of the functional units are easily removed for exchange on location and are returnable to the factory for repair, cleaning, adjustment or exchange.

The block diagram, Figure 1, illustrates the operating sequence of the H-17. Capital letters designate parts of the electrical circuit wiring diagram, Figure 2.

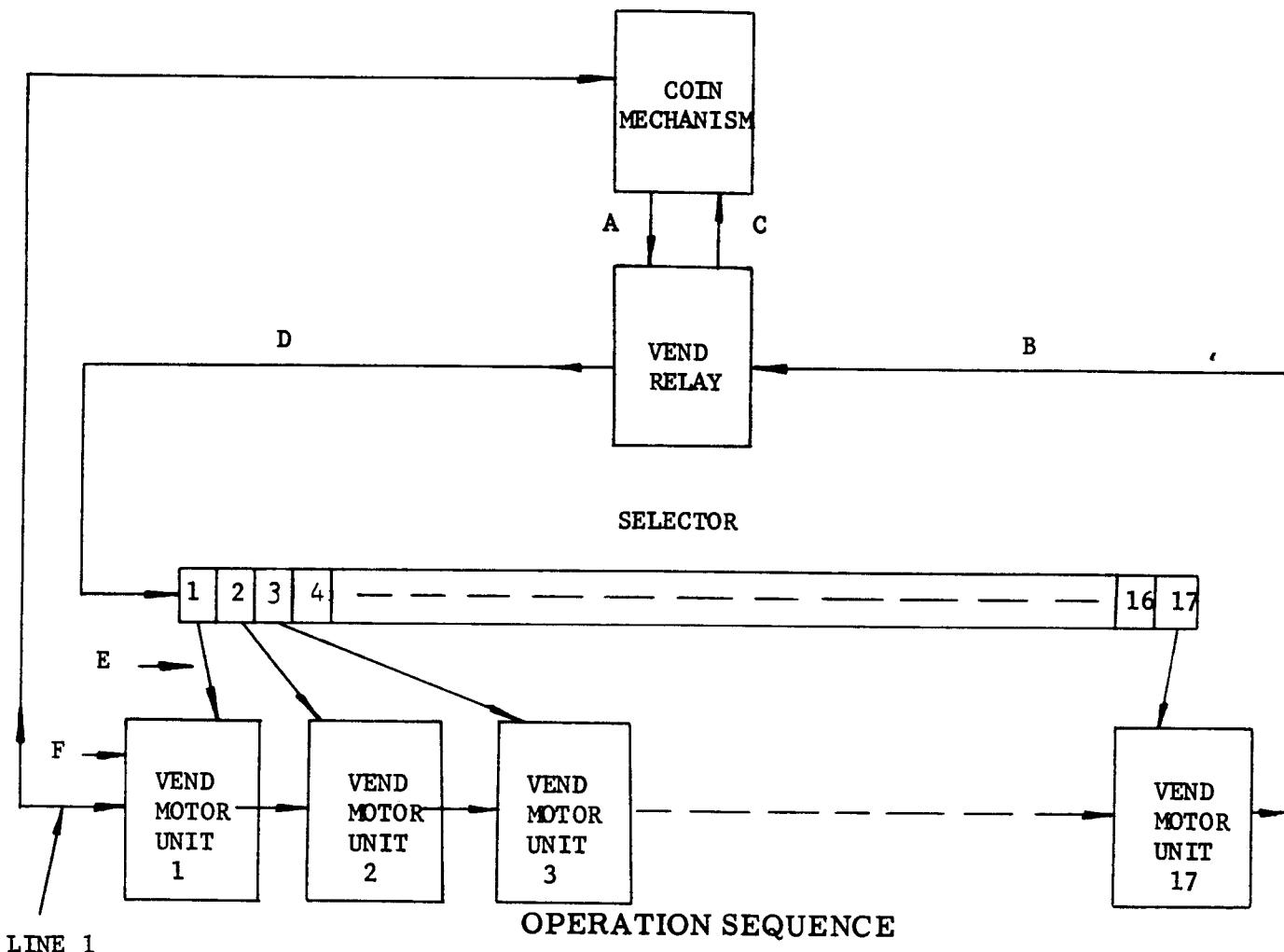
THE FUNCTIONAL PARTS OF THE H-17 RACK VENDOR ARE:

1. THE VENDING MOTOR UNIT:

Each motor is adapted to receive a vending conveyor (item 5 below) and is assembled complete with its own limit control and sold-out switch. Vending Motors are attached to the mounting board by a hand-tightened nut (No wrench!) and the electrical

FIGURE #1

METHOD OF OPERATION
MODEL H-17 VENDING MACHINE



- OPERATION SEQUENCE
- A. Coin switch closes line 1 to vend relay momentarily.
 - B. Vend relay "locks on" to line 1 to hold credit via "ladder circuit" in motor units 17 thru 1.
 - C. Energized vend relay opens normally closed circuit to "coin blocking" relay to prevent further acceptance of coins.
 - D. Energized vend relay also closes line 1 to Selector "ladder circuit" 1 through 17.
 - E. Upon pressing any selector button, all circuits higher in number will be broken to prevent cheating and the vend motor unit associated with the number selected will be energized.
 - F. Upon the start of operation of any vend motor unit, ladder circuit B will be broken to de-energize the vend relay and a "carry over" switch in the operating motor unit continues line 1 to its own motor via the remaining ladder circuit.

Vending Circuit Diagram
Model H-17 Vending Machine

Nos. Refer to
Jones Plug Nos.

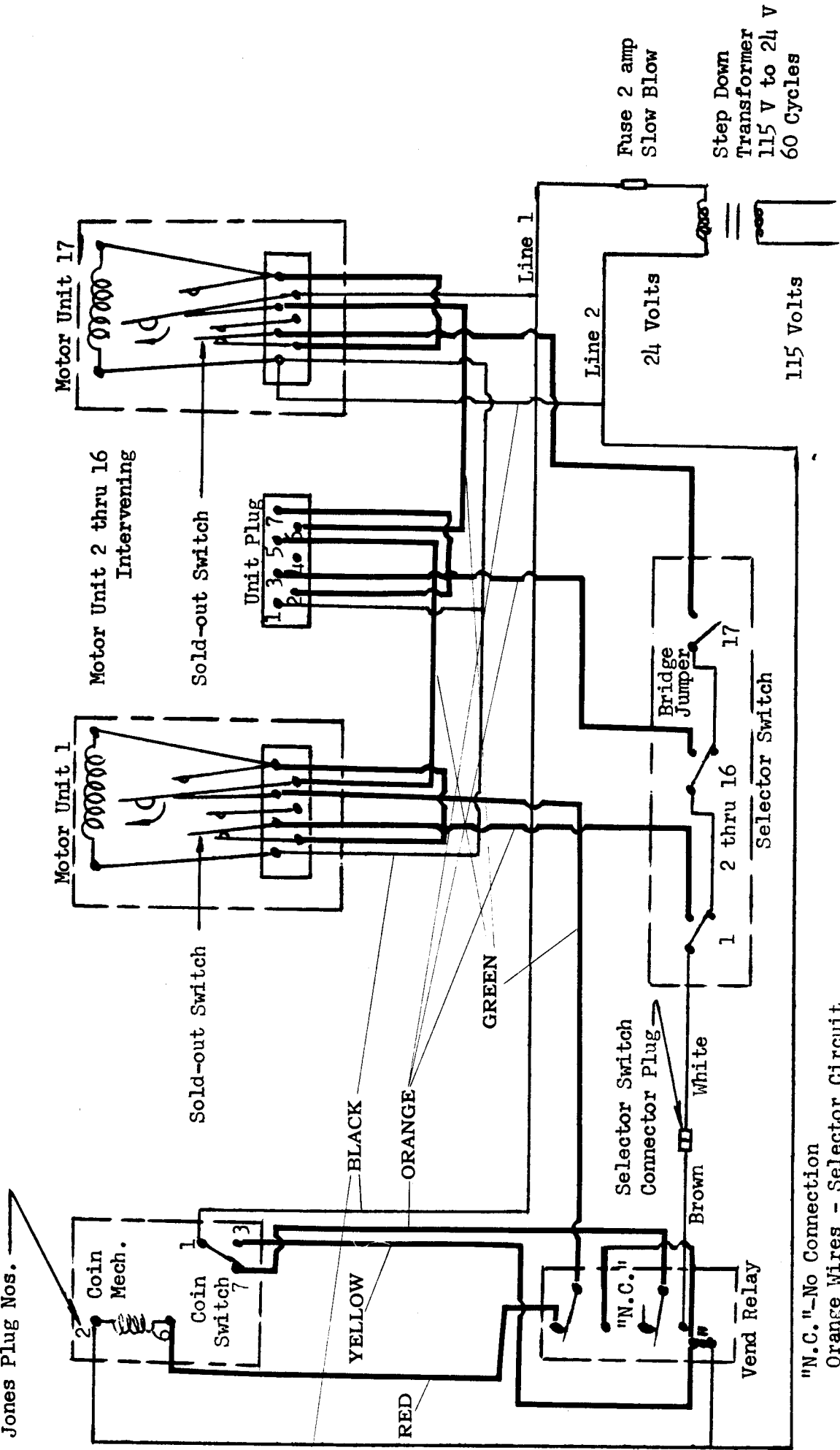


FIGURE 2

connection is by means of a special plug. The rear of the mounting board is shown in Figure #3, showing the removal of a motor unit.

In the event a motor drive unit is not working properly, it should be removed from the machine and replaced by a factory adjusted motor unit, and the faulty motor unit returned to the factory either under warranty or under the regular exchange service charge. If you do not have a spare motor unit to replace the malfunctioning motor unit, any selection can be left out of service by applying a jumper wire as shown in Fig. 4. This jumper wire is necessary to maintain the electrical circuit for operation of the unit remaining in the machine.

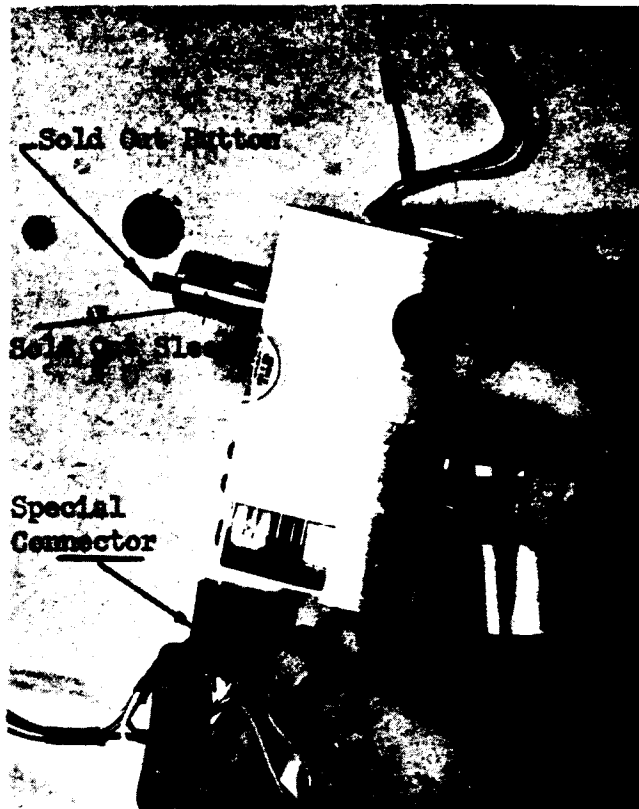
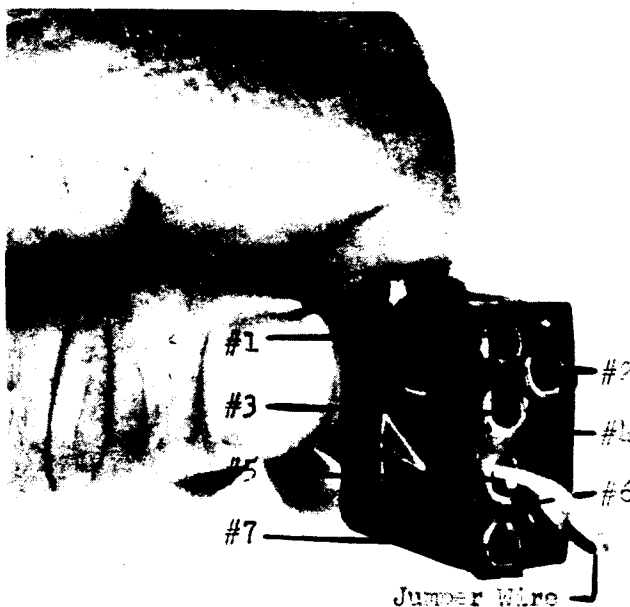


Fig. 3



To keep machine in operation with motor unit removed, Ladder Circuit must be connected with Jumper Wire #5 to #6.

Fig. 4

2. THE VEND AND "CREDIT" RELAY:

This 24 volt relay is mounted on the back side of the Vending Motor Unit Mounting Board and it operates to establish a credit when proper coins are inserted in the machine. When proper coins are inserted, the vend relay closes to activate the item selector buttons switch and deactivate the coin blocking fingers in the coin changer, (item 3 below). The vend relay holds itself closed until a selection is made. Note: Breaking the electrical circuit to any vending motor will release the vend relay or prevent it from closing in response to coins. Refer to Fig. 2 for electrical functions of vend relay and Fig. 2A for operating positions of contacts.

3. COIN MECHANISM:

A standard type "Changer Assembly" containing a slug rejector coin blocking relay and coin switch is mounted in the front, right-hand wall of the cabinet. The slug rejector should be removed monthly for cleaning as shown in Figure #5 by lifting the spring retainer clips and pulling forward and lifting out. The magnet surfaces should be cleaned carefully to insure proper operation.



FIGURE 5

The entire changer assembly is easily removable for inspection or cleaning, by loosening only, three screws and detaching the electrical plug. Refer to the coin equipment manuals which accompanied the machine, for proper care and service.

4. THE SELECTOR SWITCH:

The 17 button selector switch is located and mounted inside the front of the cabinet. The selector and cable assembly terminate in two separable connectors on the back of the unit mounting board for rapid inspection and service. See rear view, Fig. B.

5. VENDING CONVEYORS:

Conveyors are available in two pitches and sizes to accommodate a wide range of products. In use, they are simply pushed into receiving sockets in the Units with the flat face of the hub-end up where they are retained by a spring detent. See Figure #6.

IMPORTANT:

The vending conveyor detent must engage a



FIGURE 6

positive detent inside the receiving motor socket which will receive the conveyor in one correct position only. The detent can be felt to "snap" engage when properly installed.

6. SOLD-OUT SWITCH:

Mounted to the front of the unit mounting board and positioned over each conveyor are formed wire Sold-Out Switch wire loops. Their function is to eliminate the possibility of the customer losing credit, should selections be made from conveyors that have no merchandise. When all products have been vended from a given conveyor, the Sold-Out loop drops over the conveyor and its metal tab extension

operates a soldout switch in the motor Unit which breaks that Unit's vend circuit.

7. ADJUSTMENT OF THE SOLD-OUT SWITCH WIRE LOOPS:

The H-17 is shipped with the sold-out switch wire loops adjusted properly at the factory.

The Sold-Out position of the wire loop is shown in Figure #7.

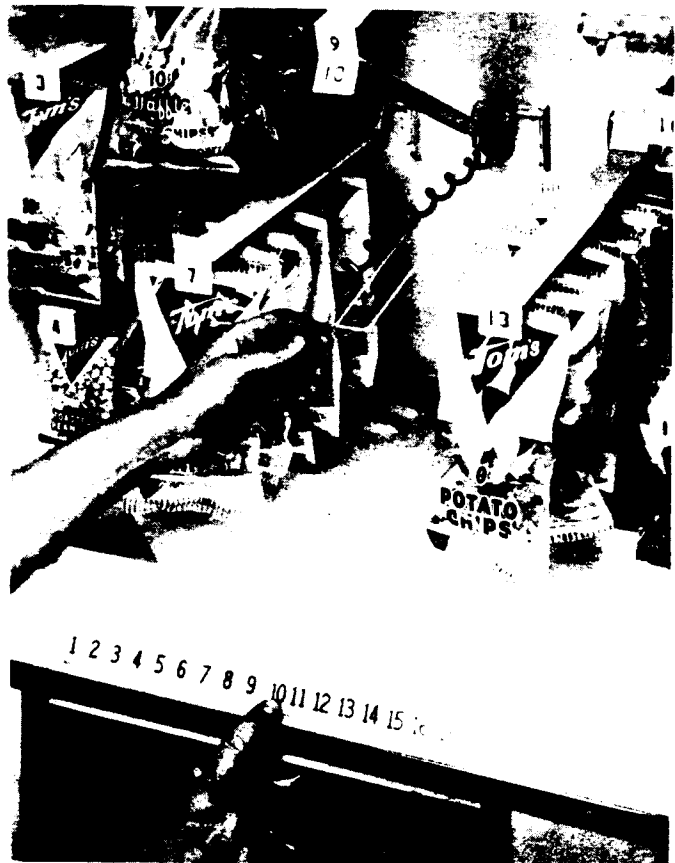


FIGURE 7

In order to check proper adjustment position of the metal tab at the wire loop.

- a. Insert proper coins to establish credit.
- b. Depress the corresponding selector button and hold in.
- c. Slowly raise the wire loop with the other hand. The motor unit should operate when the wire loop is two inches below the end of the conveyor.
- d. If not properly adjusted, carefully bend the tab at the rear of the wire loop until the above operating relationship is established. Repeat the procedure to check.

8. CONVEYOR COVER BARS:

Each machine is provided with conveyor cover bars which cover the sold-out switch wire loops. Each cover bar has an identifying numbered tab at the front corresponding to the selector switch number.

9. PRODUCT DELIVERY COMPARTMENT:

This sub-assembly, including the clear plastic door, can be removed out of the back of the machine by removing the mounting screws.

10. CABINET LIGHTING:

Standard 15 watt fluorescent lamps are used for attractive cabinet lighting and are accessible for replacement through the front product loading door. Ballasts are located on the cabinet floor at rear for easy access. The starter for the top light is located at the top right side of the cabinet. Starter for the bottom light is located to the front side of the coin changer.

11. ELECTRIC POWER SOURCE:

The H-17 operates from a Primary source of 115 volts 60 cycle electricity which is reduced through a transformer to 24 volts secondary which powers the entire machine, except for lighting. The lighting operates at 115 volts a. c. The low voltage system is an added protection to personnel or customers when operating or servicing the machine. The transformer is located on the cabinet floor at the rear of the machine.

PHYSICAL DIMENSIONS OF THE H-17 ARE:

Height 67". Width 32". Depth 25". Weight 325 lbs.

INSTALLATION PROCEDURE:

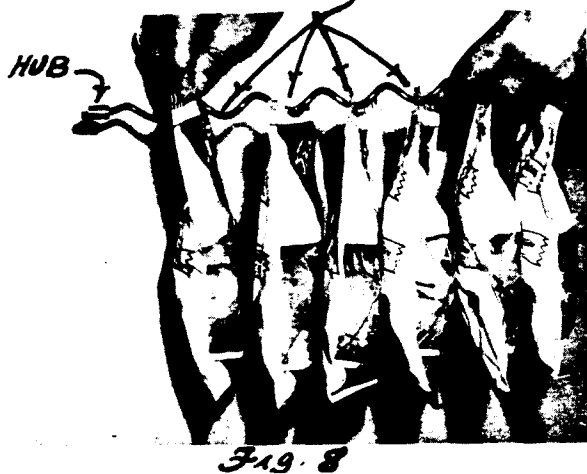
1. Remove all packaging materials.
2. Level Machine. When machine is level, the product loading door should open freely when unlocked, and if it binds in the cabinet opening, the cabinet is not resting on all four leveling screws and thus causing the cabinet to "rack" and bind the door. If desirable, lagbolt machine to floor or wall.
3. Plug service cord into 115 volt source, using the three prong grounded plug connector provided. If a three prong receptacle is not available, ground the machine externally on all locations.
4. Load coin tubes (\$2.00 change per tube).
5. Load products on the product conveyors and insert the conveyors in the motor units as shown in Figure 86.
6. Check out the operation of each conveyor by actual operation with coin and selection button.
7. Be sure front display glass is clean as well as the product delivery compartment and plastic product door.

SERVICING INSTRUCTIONS:

PRODUCT CONVEYOR

LOADING:

Chip products conveyor has 8 vending positions, four of them shown by arrows below:



1. Lift up cover Bar and wire Loop above conveyor as shown in Figure #6.
2. Pull conveyor out of motor unit socket.
3. Load product on, over the back of the conveyor, by holding the conveyor in the left hand loosely between the fingers as shown in Figure #8. The chip product conveyor has 8 vending positions and the candy-nut conveyor has 15 vending positions.
4. With the product facing the front of the conveyor, move the product forward filling all positions on the conveyor, with the milled flat of the hub face up. If a vending position is missed in loading the conveyor, this will result in a customer not receiving a product from that conveyor for his money.
5. Hold the loaded conveyor in the right hand with the fingers between the loaded products.
6. Lift up the Security Bar and Wire Loop with the left hand and plug in the loaded conveyor, with the flat face of the hub end up, and push in until the spring detent engages. In this correct position, the Wire Loop can fall clear of the end of the conveyor when it is Sold-Out. See Figure #6.

NOTE: On Conveyor position Nos. 1 and 14, Vend only candy and nut products - do not load with chip products or other bulky bags. Conveyor Nos. 1, 2, 3, 4, 14, 15, 16 and 17 will Vend bags not over 7" long; Conveyor Nos. 5, 6, 7, 8, 9, 10, 11, 12 and 13 will Vend bags up to 10" long.

COIN COLLECTION:

The coin vault is located under the coin return cup and is opened with the Ace Cam Key. Insert key with the small tab on the key matching up with the "Keyhole" slot in the circular key opening. Push in for the key to release the cams in the lock and while pushing in, turn counter clockwise to unlock and unscrew the coin vault retaining bolt which backs out the coin vault. Several turns are required to release the bolt from the retaining nut. Pull the coin vault forward and remove. When replacing, again push key in during the turning to screw the security bolt into the retaining nut. Tighten up until the face of the vault is flush with the face of the cabinet and the key tab lines up with the "Keyhole" slot for key removal.

STORAGE COMPARTMENT:

Extra product storage compartment is located in the base cabinet of the machine and is opened by a single key located at the top of the removable panel. It is retained at the bottom by two pins which are located at the bottom of the storage compartment and which enter two matching holes in the door.

REAR ACCESS PANEL:

On the back of the cabinet a large access panel is provided which is removed by unlocking the two retaining locks at the top sides of the panel, and lifting the panel up which slides out of the bottom retaining lip of the cabinet. This exposes the rear of the motor unit mounting board and the other internal parts for easy access and servicing. See Figure # B.

H-17 TROUBLE SHOOTING PROCEDURE

PROBLEM: Machine will not accept any coins.

SOLUTIONS:

- A. Make sure machine is plugged into wall outlet.
- B. Make sure machine is level.
- C. Check for a vend on the machine by attempting to make a selection.
- D. Blown Fuse
- E. Burned-out transformer.
- F. Reject scavenger not completely releasing rejector.
- G. Mercury switch misadjusted and breaking the ladder circuit to vend motor.
- H. Red & Green wire contact setting on vend relay misadjusted.
- I. Vend switch wire hanging in down position in the banana slot of the coin changer.
- J. 115 Volt coin changer installed in the machine rather than a 24 Volt changer.
- K. Defective vend motor or defective motor plug.
- L. Loose connections at the Jones Plug.
- M. Loose connection at Amp lock connector where vend relay connects to motor wiring harness.

(A defective motor can be found by turning the spindles counterclockwise. The defective motor is the first one that will not turn or the last one that did turn. The motors are wired in the following sequence: 17, 16, 13, 10, 7, 4, 3, 2, 6, 9, 12, 15, 14, 11, 8, 5, 1.)

PROBLEM: Machine will accept coins but cannot make a proper vend.

SOLUTIONS:

- A. A defective motor or defective motor plug.
- B. Sold Out Button on vend motor sticking.
- C. Orange wire broken loose at the selector switch.

H-17 TROUBLE SHOOTING PROCEDURE

- D. A loose connection at the amp lock connector where the selector switch harness connects to the motor wiring harness.
- E. Wire loop misadjusted and holding the Sold Out button in.

PROBLEM: Machine will accept coins, but a selection cannot be made.

SOLUTIONS:

- A. The brown and orange wire contact setting on the vend relay misadjusted.
- B. The white or brown wire broken loose at #1 selection on selector switch.
- C. Slide missing from selector switch at #1 position.
- D. Vend wire hanging down in the banana slot (after Ser. #1956)
- E. A loose connection at the amp lock connector where the vending relay connects to the motor wiring harness on the brown or orange wire.

PROBLEM: Machine jackpotting.

POSSIBLE PROBLEM & SOLUTION:

- A. Vend relay staying in the closed position. (Change Vend Relay)
- B. If the machine is Serial Number below 1956 check for vend wire hanging down in banana slot. (Install anti-jack wire.)
- C. If one motor is jackpotting (Change defective motor)
- D. Check the selector switch where the brown or white wire is soldered to switch and make sure that the soldering is not making contact with any other contacts.
- E. When making a selection if that selector vends plus another selection, check for cut insulation on the selector switch harness at the delivery area.

H-17 Vendor

Serial Number 601 thru 1956:

PROBLEM: Machines jackpotting if the vend wire in the coin changer is in the down position.

SOLUTION: Install anti-jack pot wire, which is line #7 in the Jones Plug.

Serial Number 601 thru 2175:

PROBLEM: Product Delivery Door falling out of the channel.

SOLUTION: Start installing the Plexiglass Door with screws.

Serial Number 4239: Started mounting Selector Switch with wing nuts.

Serial Number 5235: Discontinued using junction box.

Serial Number 5625: Started using Ace type lock which mounts in the Product Loading Door Frame.

PROBLEM: On early H-17 Model machines — they were easily robbed by using a coathanger.

SOLUTION: Change out the Delivery Area.

PROBLEM: Vend Relay sticking closed which would enable free vending from Selector Switch.

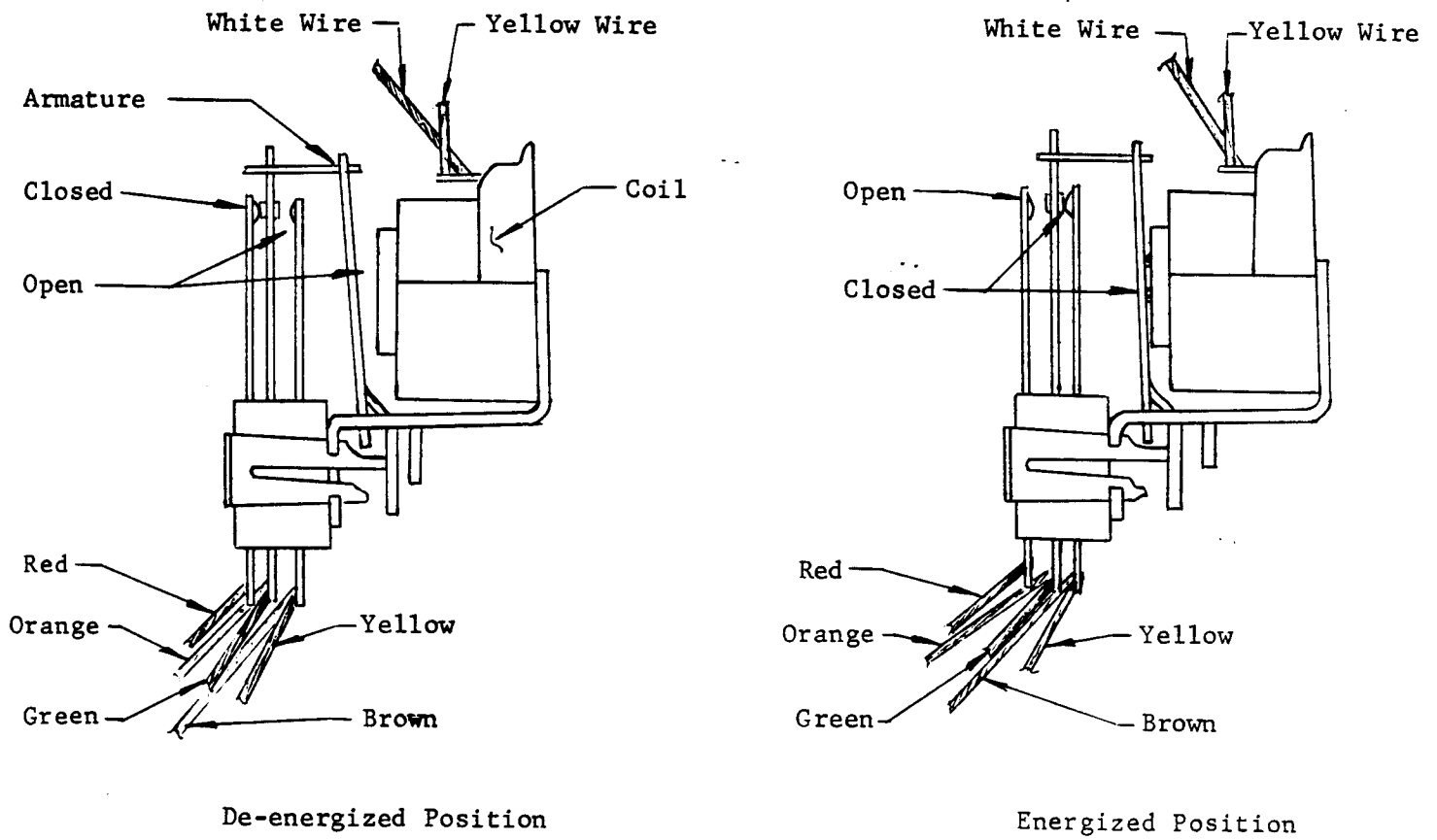
SOLUTION: Install resistor from Line 1 to Line 3 in the Jones Plug.

PROBLEM: A motor that continues to run and will not stop.

SOLUTION: Usually this occurred in the first 3000 machines and was caused from the two piece arrangement in the output shaft of the motor. This was corrected by using a one piece output shaft.

VEND RELAY - OPERATING POSITIONS

FIG 2A



NOTE:

THE CONTACT POINTS MUST MAKE POSITIVE CONTACT IN EITHER OPERATING POSITION.

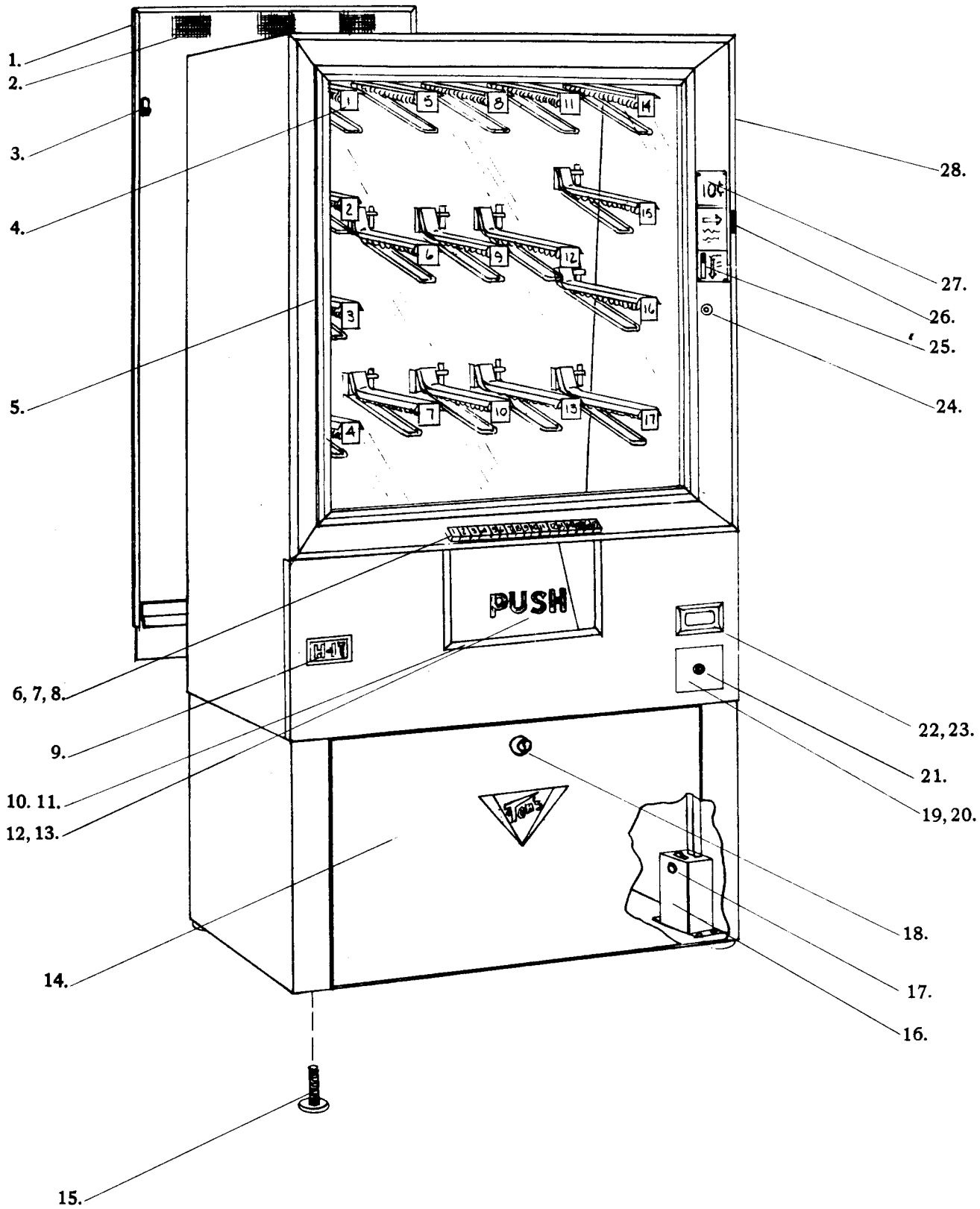


FIGURE 1

FIGURE 1. H-17 RACK VENDOR

INDEX	PART NO.	DESCRIPTION
1.	C-00014	REAR DOOR
2.	A-0018	SCREEN WIRE
3.	A-00112	REAR DOOR LOCK ASS'Y COMPLETE (SPECIFY KEY #)
4.	C-00035	COVER BAR & LOOP ASS'Y— SEE FIGURE 4.
5.	A-00113	SERVICE DOOR—SEE FIGURE 5.
6.	C-00036	SELECTOR SWITCH ASS'Y COMPLETE SERVICE DOOR—SEE FIGURE 5. WITH HARNESS
7.	A-0096-A	SELECTOR BUTTON INSERTS (1-thru-17)
8.	A-0096-B	SELECTOR BUTTON CAPS
9.	A-0156	NAME PLATE (INCLUDES RIVETS)
10.	A-0258	TRIM RETAINER, ACCESS DOOR (SPECIFY LENGTH)
11.	A-0253	S.S. TRIM, ACCESS DOOR (SPECIFY LENGTH)
12.	A-00031	DELIVERY COMPARTMENT COMPLETE WITH DOOR
13.	A-0137	PLEXIGLAS DELIVERY DOOR
14.	B-0025	STORAGE DOOR—SEE FIGURE 6.
15.	A-0295	LEG EQUALIZER (4 EACH)
16.	A-00081	COIN VAULT (NEW STYLE)
17.	A-0359	4153 LOCK—MST KEY (SPECIFY NO.)
18.	A-0359	4153 LOCK—MSU KEY (SPECIFY NO.)
19.	A-00067	COIN VAULT (OLD STYLE)
20.	A-00065	COIN VAULT HOUSING (NOT SHOWN)
21.	A-0362	4107 LOCK—MST KEY (SPECIFY NO.)
22.	B-0063	TRIM PLATE, COIN RETURN CUP
23.	B-0063	COIN RETURN CUP
24.	A-0340	3186 LOCK—(SPECIFY KEY NO.)
25.	A-00075	REJECT LEVER ASS'Y.
26.	A-0100	COIN SLOT
27.	A-0155	ESCUTCHEON-10¢ (A-0184 ESCUTCHEON-15¢)
28.		S.S. FRAME TRIM & RETAINER (SPECIFY SIZE & LOCATION)

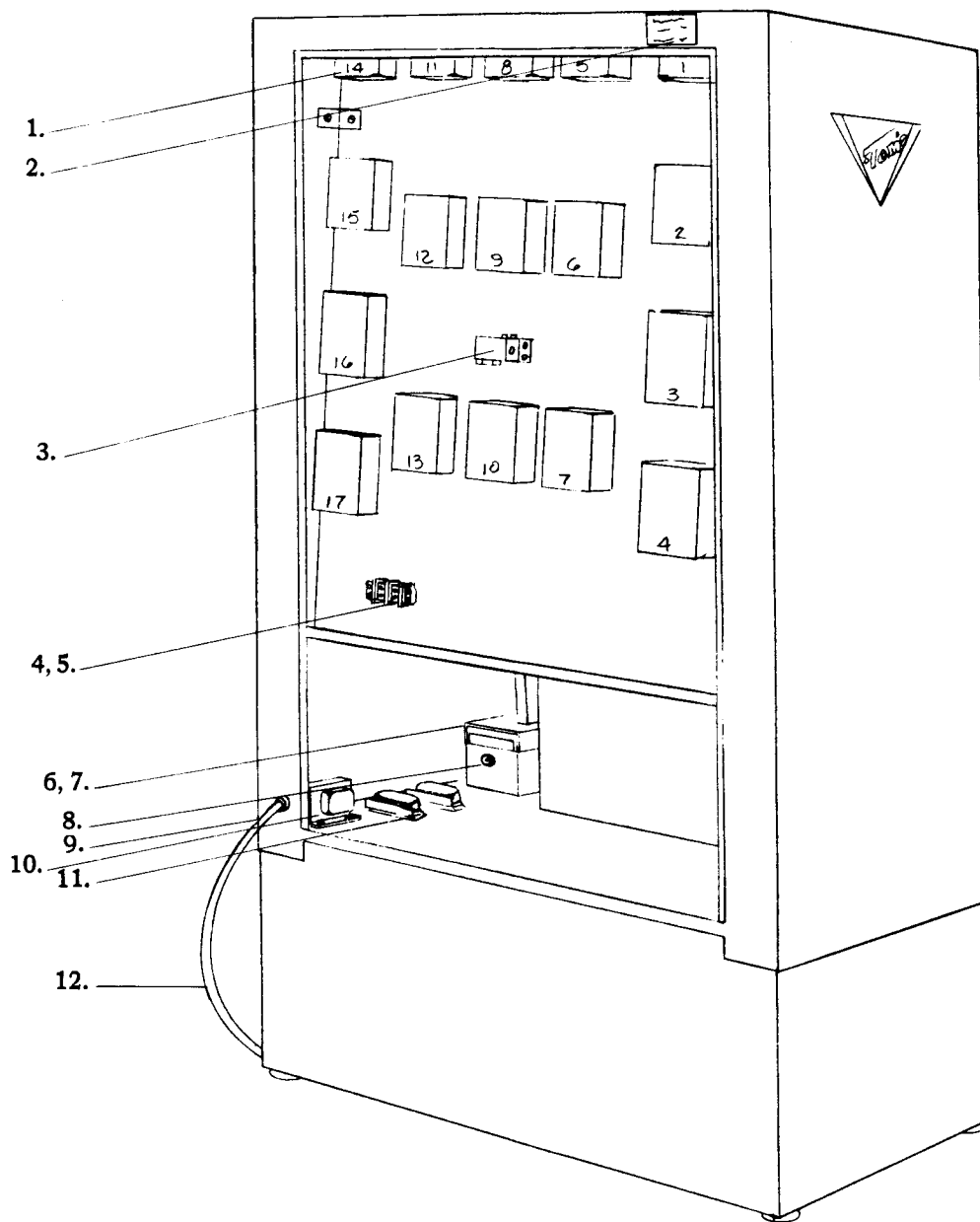


FIGURE 2.

FIGURE 2. H-17 REAR SERVICE VIEW

INDEX	PART NO.	DESCRIPTION
1.	C-00037	MOTOR ASS'Y COMPLETE
2.	A-0157	SERIAL PLATE
3.	A-00079	VEND RELAY & BRACKET ASS'Y.
4.	A-0124	TERMINAL BLOCK
5.	A-0060	MOTOR WIRING HARNESS (NOT SHOWN)
6.	A-00067	COIN VAULT (OLD STYLE)
7.	A-00065	COIN VAULT (OLD STYLE)
8.	A-0265	CAGE NUT
9.	A-0200	STRAIN RELIEF
10.	A-0095	TRANSFORMER (THORDARSON)
11.	A-0104	LIGHT BALLAST (2 EACH)
12.	A-0538	SERVICE CORD

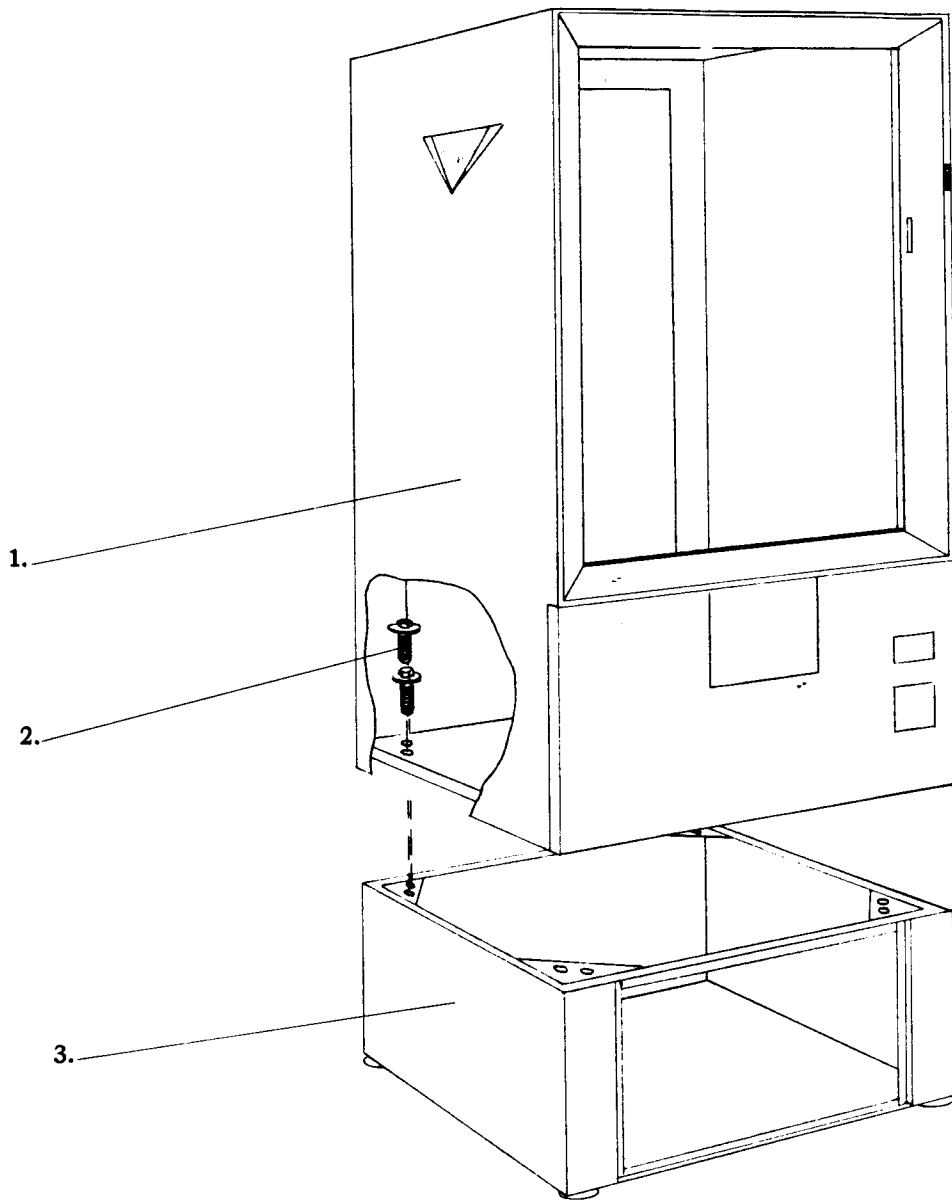
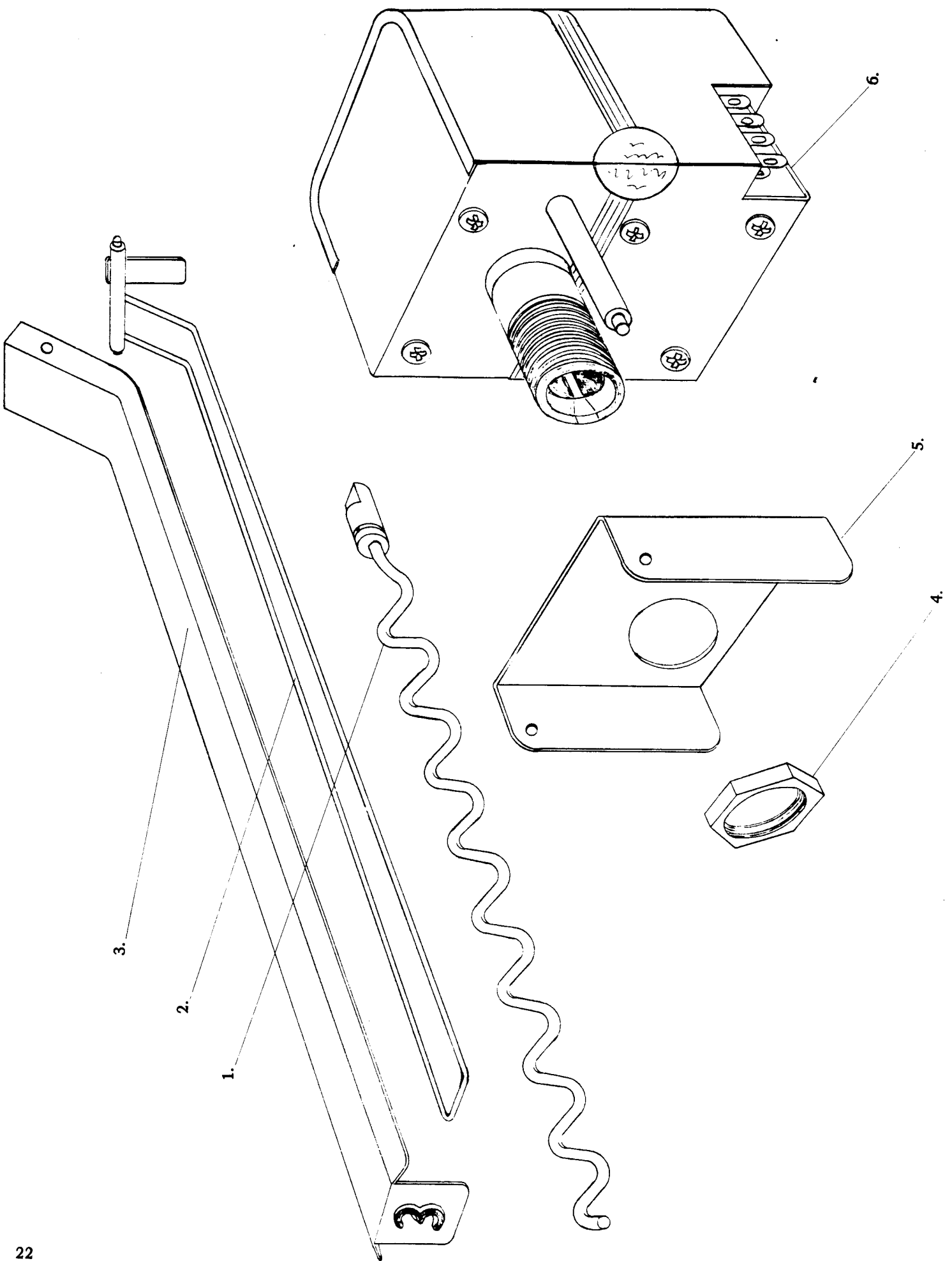


FIGURE 3.

FIGURE 3. H17 SHELL ASS'Y.

INDEX	PART NO.	DESCRIPTION
1.	D-00001	SHELL ASS'Y.
2.	A-0315	SCREW, 1/4-20 HEX WASHER HEAD, SL. (8 ea.)
3.	C-00002	STORAGE COMPARTMENT



INDEX	PART NO.	DESCRIPTION
1.	B-00033	CANDY CONVEYOR ASS'Y.
1.	B-00034	CHIP CONVEYOR ASS'Y.
2.	C-00072	SOLD OUT LOOP & ACTUATOR ASS'Y.
3.	B-0047	COVER BAR (NO.'s 1-17)
4.	A-0269	NUT $\frac{3}{4}$ -16 HEX
5.	A-0048	BRACKET—SOLD OUT LOOP & PIVOT PIN
6.	C-00037	MOTOR ASS'Y. COMPLETE

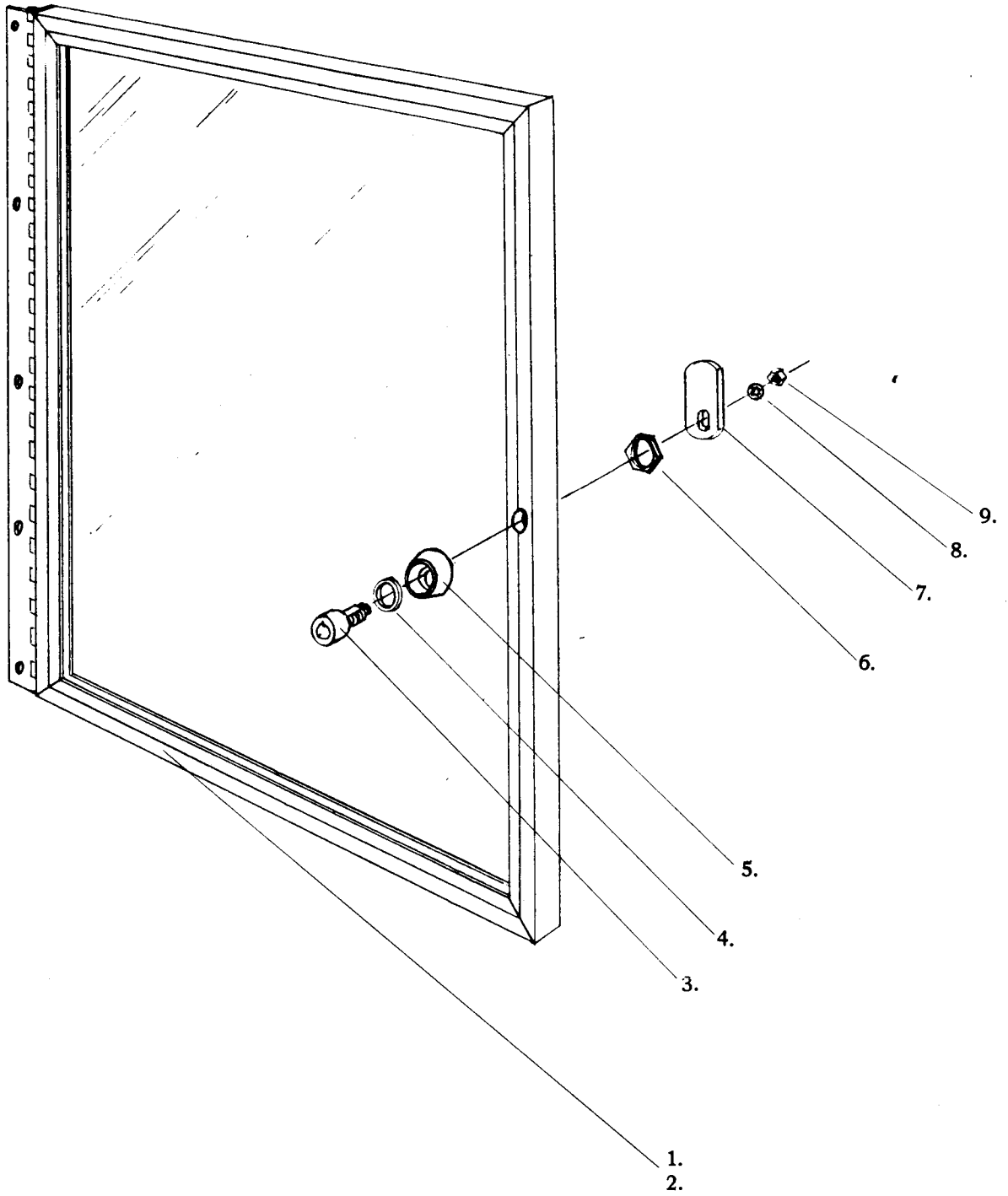


FIGURE 5.

FIGURE 5. SERVICE DOOR & LOCK ASS'Y.

INDEX	PART NO.	DESCRIPTION
1.	A-0211-A	SERVICE DOOR, OLD STYLE (W/HINGE)
2.	A-0211-B	SERVICE DOOR, NEW STYLE (W/HINGE)
3.	A-0350	TUMBLER, #4152 LOCK, KEYED MSU
4.	A-0353	SPACING COLLAR
5.	A-0354	PROTECTION COLLAR
6.	A-0355	HEX NUT—LARGE
7.	A-0356	CAM
8.	A-0357	LOCKWASHER
9.	A-0358	HEX NUT—SMALL

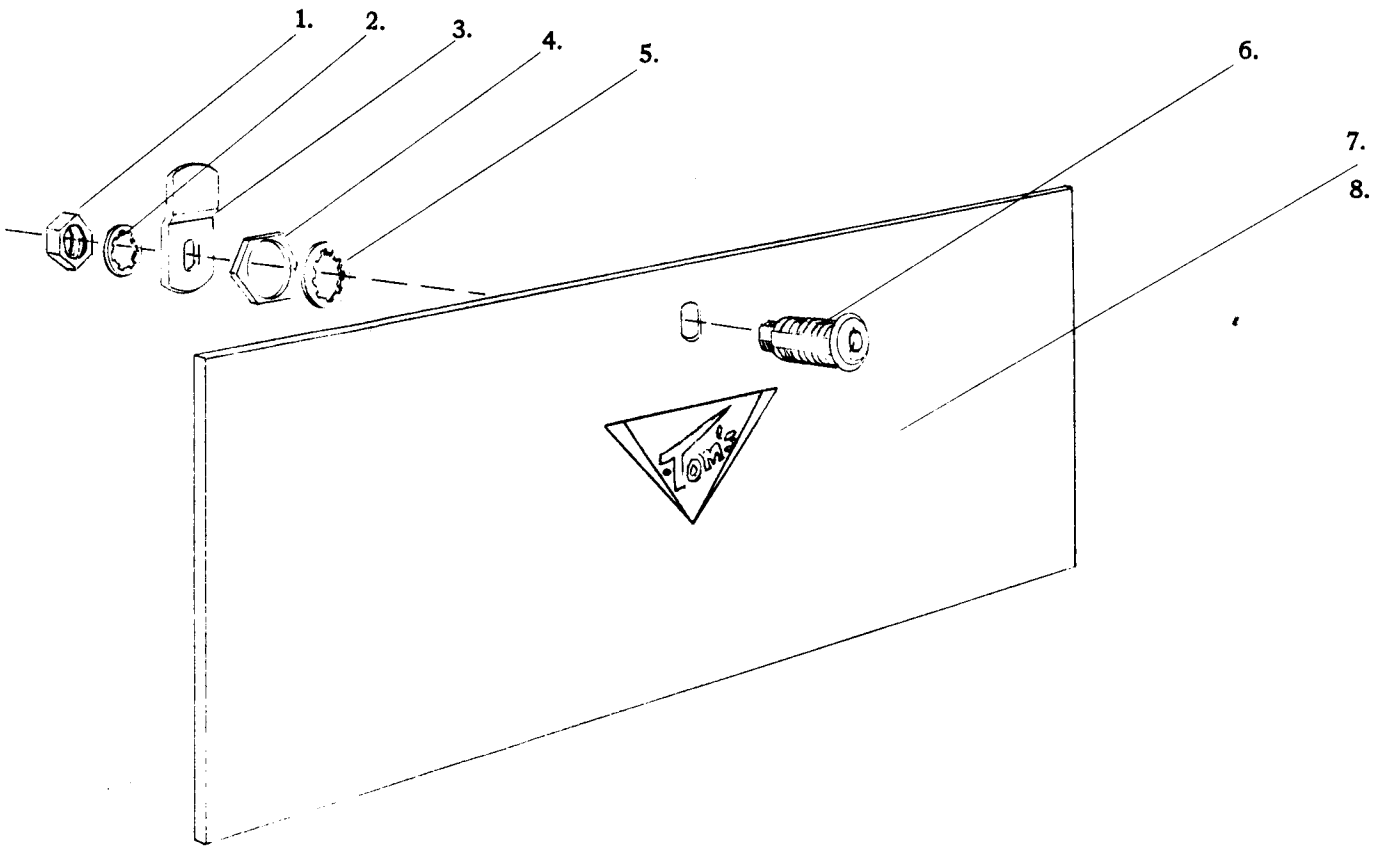
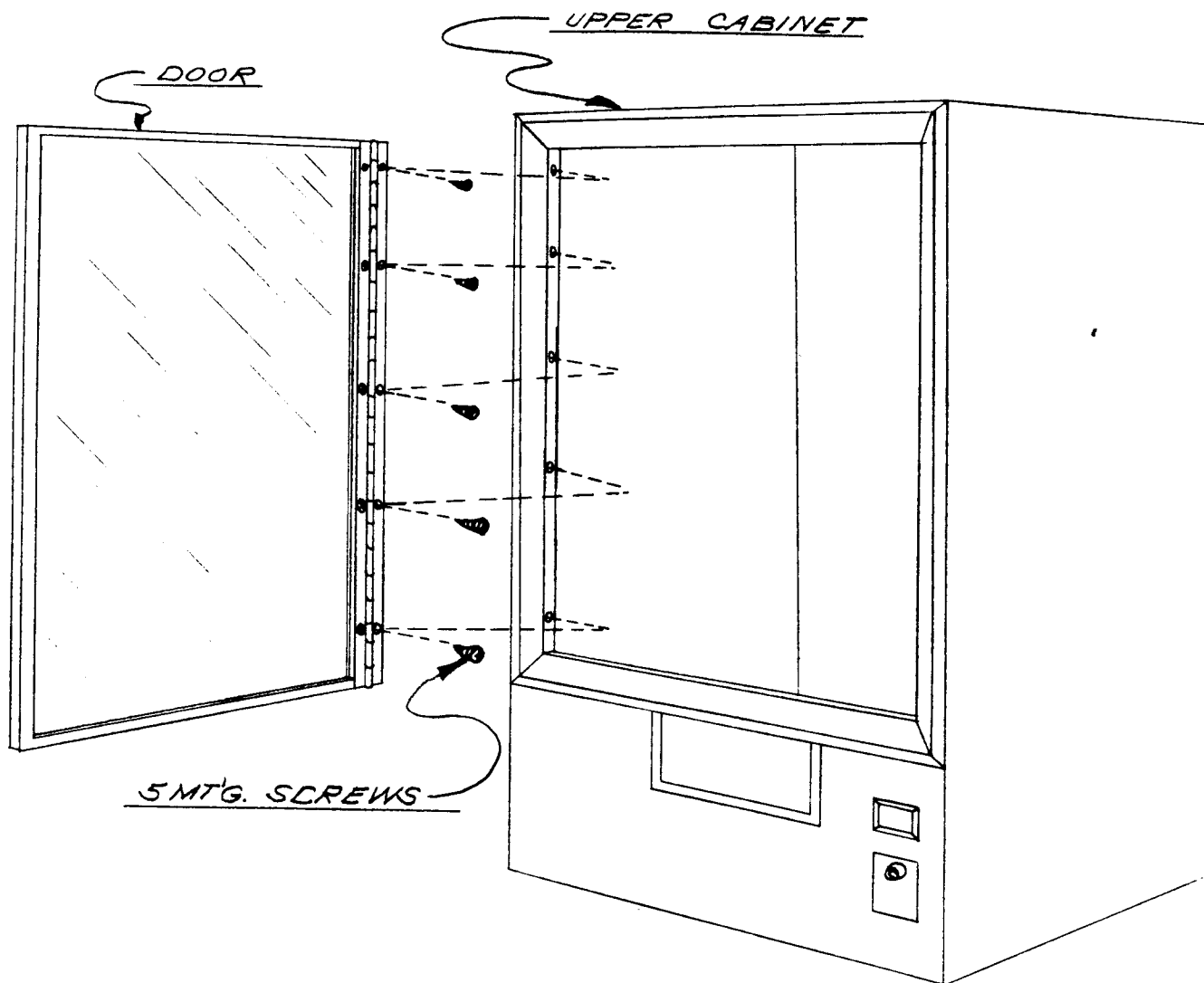


FIGURE 6.

FIGURE 6. STORAGE DOOR & LOCK ASS'Y.

INDEX	PART NO.	DESCRIPTION
1.	A-0358	HEX NUT—SMALL
2.	A-0357	LOCKWASHER—SMALL
3.	A-0361	CAM
4.	A-0355	HEX NUT—LARGE
5.	A-0366	LOCKWASHER—LARGE
6.	A-0360	TUMBLER—#4153 LOCK-KEYED MSU
7.	A-0025-A	STORAGE DOOR (NEW STYLE)
8.	A-0025-B	STORAGE DOOR (OLD STYLE)



H-17 FRONT VIEW
INSTRUCTIONS TO REMOVE DOOR

FIGURE A.