


**AUTOMATIC PRODUCTS international, Ltd.**

**STUDIO™**  
**S E R I E S**

**STUDIO™ 1,2,3,4 & 5**

**SERVICE and PARTS MANUAL**

**PLEASE DO NOT  
REMOVE MANUAL  
FROM MACHINE.**

**AUTOMATIC**  **PRODUCTS**  
international, Ltd.

A Higher Standard.

75 West Plato Boulevard • St. Paul, Minnesota 55107-2095

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To achieve the most trouble-free operation from your Studio Series Merchandiser, it is recommended that this service manual be thoroughly read and the instructions followed pertaining to installation, servicing and maintaining of the unit.

Should you have questions pertaining to this manual or the vendor, please contact your API distributor or write directly to:

Technical Service Dept.  
Automatic Products int. ltd.  
75 West Plato Blvd.  
St. Paul, MN. 55107 USA  
651-224-4391  
651-602-3558 (fax)  
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## EXPRESS WARRANTY

Automatic Products international ltd. (APi) expressly warrants these automatic merchandisers (the "Unit"), manufactured by it, to be free under normal use and service from defects in material or workmanship for a period of two (2) years from the date of delivery of this Unit to the original purchaser. This warranty extends only to the original purchaser of the Unit. The exclusive remedy for this warranty is limited to the repair or replacement, at APi's sole option, of any part or parts of the Unit that are returned to APi or to the authorized dealer or distributor of APi from whom the unit was purchased with all transportation charges prepaid, and which, on APi's examination, shall, conclusively appear to have been defective. This warranty does not:

- a. extend to any Unit, or part thereof, that was subjected to misuse, neglect, or accident by other than APi after its delivery to the original purchaser;
- b. extend to any Unit, or part thereof, that was modified, altered, incorrectly wired or improperly installed by anyone other than APi or used in violation of the instructions provided by APi;
- c. extend to a Unit which has been repaired or altered by anyone other than APi or authorized dealer/distributor;
- d. extend to a Unit which has had the serial number removed, defaced or otherwise altered;
- e. extend to plastic or glass windows, lamps, fluorescent tubes and water contact parts;
- f. extend to any unit used outdoors
- g. extend to accessories used with the Unit that were manufactured by some person or entity other than APi.

APi DISCLAIMS ALL OTHER WARRANTIES OF ANY KIND AS TO THE UNIT AND ALL WARRANTIES OF ANY KIND AS TO ANY ACCESSORIES. THIS DISCLAIMER OF WARRANTIES INCLUDES ANY EXPRESS WARRANTIES OTHER THAN THE LIMITED WARRANTY PROVIDED ABOVE AS TO THE UNIT AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AS TO THE UNIT AND ANY ACCESSORIES. UNDER NO CIRCUMSTANCES SHALL APi BE RESPONSIBLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES, LOSSES OR EXPENSES ARISING FROM OR IN CONNECTION WITH THE USE OF, OR THE INABILITY TO USE, THE GOODS FOR ANY PURPOSE WHATSOEVER. No representative of APi or any other person is authorized to assume for APi, or agree to on the behalf of APi, any other liability or warranty in connection with the sale of this Unit.

APi reserves the right to make any changes or improvements in its products without notice and without obligation and without being required to make corresponding changes or improvements in Unit theretofore manufactured or sold.



75 West Plato Boulevard  
St. Paul, MN 55107 USA  
651-224-4391  
651-602-3558 (fax)



# features

## FEATURES OF THE STUDIO MERCHANDISER

- Up to 80 selections.
- Multi drop buss capabilities.
- Extensive diagnostics capabilities.
- Friendly text based interface.
- Flexible spiral spacing for large products.
- Eight point star drive motor.
- Dex/Ucs compatible.

## PRICING

- Global pricing by machine or by shelf.
- Extensive accountability, including all discounts and free vends.

## OPTIONS

- Point of sale window.
- Delivery bin cushion.
- Base kit.
- Lexan window.

## NOISE LEVEL

Operates at less than 70 db (A).

## ACCEPTABLE AMBIENT OPERATING TEMPERATURE RANGE

All equipment manufactured by Automatic Products Intl. Ltd. is designed to work properly in a temperature range of 10°C to 38°C (50°F to 100°F) in still air (75% R.H. non-condensing). The machine is being stored in a temperature range of -18°C to 68°C (0°F to 155°F).

Studio 3 Specifications	Domestic Ambient	Domestic Chilled	Export Ambient	123 Export Chilled
Height	72"/183 cm	72"/183 cm	72"/183 cm	72"/183 cm
Width	38.875"/99 cm	38.875"/99 cm	38.875"/99 cm	38.875"/99 cm
Depth	35"/89 cm	35"/89 cm	35"/89 cm	35"/89 cm
Floor Space	9.5 sq. Ft./ .88 Sq. Meter	9.5 sq. Ft./ .88 Sq. Meter	9.5 sq. Ft./ .88 Sq. Meter	9.5 sq. Ft./ .88 Sq. Meter
Container Size	72.5 Cu Ft./ 2.05 Cu Meter	72.5 Cu Ft./ 2.05 Cu Meter	72.5 Cu Ft./ 2.05 Cu Meter	72.5 Cu Ft./ 2.05 Cu Meter
Voltage (AC)	120V	120V	230V	230V
Hertz	60Hz	60Hz	50Hz	50Hz
Standby Amperes	0.7A	0.7A	.35A	.35A
Running Amperes	3A	12A	3A	6A
Watts	360W	1440W	345W	1380W
Refrigerant Type	N/A	134A	N/A	134A
Refrigerant Charge	N/A	9.0 oz/0.25 Kg	N/A	9.0 oz/0.25 Kg
High Side Test Pressure	N/A	230 psi	N/A	230 psi
Low Side Test Pressure	N/A	133 psi	N/A	133 psi
Shipping Weight	600 lbs/272 kg	700 lbs/318 kg	600 lbs/272 kg	700 lbs/318 kg

SPECIFICATIONS	STUDIO 1 DOMESTIC AMBIENT	STUDIO 1 DOMESTIC CHILLED	STUDIO 1 EXPORT AMBIENT	STUDIO 1 EXPORT CHILLED	STUDIO 2 DOMESTIC AMBIENT	STUDIO 2 DOMESTIC CHILLED	STUDIO 2 EXPORT AMBIENT	STUDIO 2 EXPORT CHILLED
Height	72" 183 cm				72" 183 cm			
Width	33.5" 88 cm				33.5" 88 cm			
Depth	27.625" 70.167 cm				35" 89 cm			
Floor Space	6.4 Sq. Ft. .59 Sq. Meter				8.1 Sq. Ft. .75 Sq. Meter			
Container Size	45.5 Cu Ft. 1.29 Cu Meter				58.1 Cu Ft. 1.65 Cu Meter			
Voltage (AC)	120V		230V		120V		230V	
Hertz	60Hz		50Hz		60Hz		50Hz	
Standby Amperes	0.7A		.35A		0.7A		.35A	
Running Amperes	3A	12A	1.5A	6A	3A	12A	1.5A	6A
Watts	360W	1440W	345W	1380W	360W	1440W	345W	1380W
Refrigerant Type	N/A	134A	N/A	134A	N/A	134A	N/A	134A
Refrigerant Charge	N/A	9.0 oz 0.25 Kg	N/A	9.0 oz 0.25 Kg	N/A	9.0 oz 0.25 Kg	N/A	9.0 oz 0.25 Kg
High Side Test Pressure	N/A	230 psi	N/A	230 psi	N/A	230 psi	N/A	230 psi
Low Side Test Pressure	N/A	133 psi	N/A	133 psi	N/A	133 psi	N/A	133psi
Shipping Weight	500 lbs 226 kg	600 lbs 272 kg	500 lbs 226 kg	600 lbs 272 kg	600 lbs 272 kg	700 lbs 318 kg	600 lbs 272 kg	700 lbs 318 kg

SPECIFICATIONS	STUDIO 5 DOMESTIC AMBIENT	STUDIO 5 DOMESTIC CHILLED	STUDIO 5 EXPORT AMBIENT	STUDIO 5 EXPORT CHILLED	STUDIO 4 DOMESTIC AMBIENT	STUDIO 4 DOMESTIC CHILLED	STUDIO 4 EXPORT AMBIENT	STUDIO 4 EXPORT CHILLED
Height	72" 183 cm				72" 183 cm			
Width	33.5" 88 cm				33.5" 88 cm			
Depth	27.625" 70.167 cm				35" 89 cm			
Floor Space	6.4 Sq. Ft. .59 Sq. Meter				8.1 Sq. Ft. .75 Sq. Meter			
Container Size	45.5 Cu Ft. 1.29 Cu Meter				58.1 Cu Ft. 1.65 Cu Meter			
Voltage (AC)	120V		230V		120V		230V	
Hertz	60Hz		50Hz		60Hz		50Hz	
Standby Amperes	0.7A		.35A		0.7A		.35A	
Running Amperes	3A	12A	1.5A	6A	3A	12A	1.5A	6A
Watts	360W	1440W	345W	1380W	360W	1440W	345W	1380W
Refrigerant Type	134A	134A	134A	134A	134A	134A	134A	134A
Refrigerant Charge	9.0 oz 0.28 K	10.3 oz 0.29 Kg	9.0 oz 0.28 Kg	10.3 oz 0.29 Kg	9.0 oz 0.28 Kg	10.3 oz 0.29 Kg	9.0 oz 0.28 Kg	10.3 oz 0.29 Kg
High Side Test Pressure	190 psi	200 psi	190 psi	200 psi	190 psi	200 psi	190 psi	200 psi
Low Side Test Pressure	133 psi	133 psi	133 psi	133 psi	133 psi	133 psi	133 psi	133 psi
Shipping Weight	552 lb		226 kg		728 lbs		272 kg	

# installation

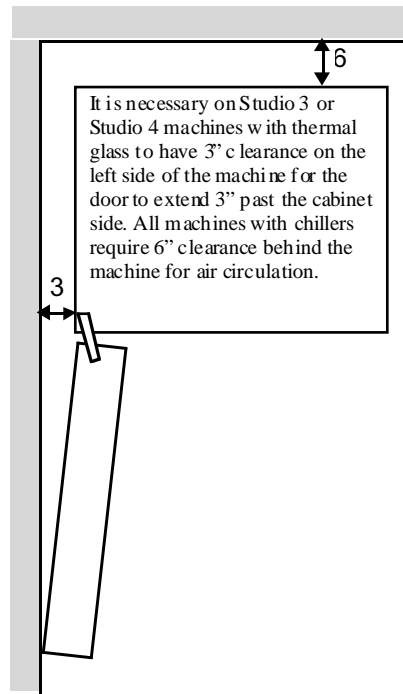
The Studio Line is assembled and packed so that a minimum amount of time is necessary for preparation to install it on location. The following steps are recommended to insure correct unpacking.

1. **Shipping Damage:** Thoroughly inspect the exterior of the carton for damage which may have occurred during shipment. Report any damage to delivering carrier and follow their instructions.
2. Remove the remainder of the packing material. On machines shipped with lock in place, the keys are taped inside the coin return.

**NOTE:** Because the weight concentration is toward the back of the cabinet, trucking and lifting should be done from the back. CAUTION should be taken when trucking from side.

3. On machines with lock in place, unlock, and turn handle to open door. When no lock is furnished, remove clip and turn handle. Swing door to its full open position.
4. Remove all packing tape and paper from various areas of machine and the shipping strap.
5. **Warranty:** The warranty card is attached to the cover of this manual. It must be filled out in full and mailed at once to insure coverage.

◆ **IMPORTANT:** A set of anchoring brackets are sent with each machine. The kit is located in the bottom of the machine complete with instructions. It is recommended that this kit be installed to prevent shifting of the machine.



## CLEANING

The Studio Line series will do the best merchandising job for you if it is kept clean. The display window can be cleaned with any good glass cleaner. The exterior and interior surfaces should be cleaned with warm water and mild detergent. Rinse thoroughly and dry all surfaces.

**CAUTION:** Do not use any cleaners containing silicon as this could cause electrical failures.

The main product shelves can be best cleaned with the spirals and product spacers removed. Refer to page 1.03 for removal of spirals and removal of the product spacers.

Clean the acceptor on the coin mechanism frequently as accumulated dirt in this area can cause coins to hang or not be accepted. Follow recommended cleaning procedures as described by the manufacturer.

**Leveling the Machine:** on location is important for the proper function of the machine. The four leveling screws in the legs are the means of leveling the machine. After positioning the machine, level machine in front to rear and right to left directions. After leveling, turn front right (lock side) leveling screw in about one-half turn to drop this corner slightly to make the door easier to close and lock.

## Voltage and Polarity Check

It is important that this machine is hooked up to the proper voltage and polarity for your country. Use a voltmeter to verify voltage and polarity.



**CAUTION:** THIS MACHINE IS DESIGNED FOR INDOOR USAGE ONLY. ANY OTHER USAGE MAY VOID THE MANUFACTURERS WARRANTY.



**CAUTION:** THE FOLLOWING PROCEDURE REQUIRES THAT THE MACHINE HAVE POWER APPLIED AND A SHOCK HAZARD EXISTS.



**CAUTION:** IT IS IMPORTANT THAT THIS MACHINE IS HOOKED UP TO THE PROPER VOLTAGE AND POLARITY FOR YOUR COUNTRY. USE A VOLTMETER TO VERIFY VOLTAGE AND POLARITY. SHOULD THE READING BE ANY DIFFERENT THAN A NORMAL READING FOR YOUR COUNTRY OR IF YOU ARE UNSURE OF WHAT THE READING SHOULD BE CONTACT AN ELECTRICIAN.



**CAUTION:** DIFFERENT COUNTRIES MAY HAVE UNIQUE PLUG ARRANGEMENTS. ENSURE THAT THE MACHINE IS PROPERLY GROUNDED BEFORE OPERATING.



**CAUTION:** THE POWER CORD IN THIS MACHINE IS OF A TYPE Y ATTACHMENT. IF THE POWER CORD IS DAMAGED, IT MUST BE REPLACED BY: THE MANUFACTURER, IT'S SERVICE AGENT, OR A SIMILARLY QUALIFIED PERSON, IN ORDER TO AVOID A HAZARD.

## Loading Snack Shelves

Open door to full open position, push down on plastic lock lever (Figure 1) on the right side of shelf to unlock shelf, holding lever down. Grasp the shelf, under both front corners (see Figure 1), lift front shelf slightly and pull forward until shelf reaches its stop. The shelves tilt down (do not drop) to make loading easier. Only one product shelf should be in the loading position at a time. When returning a shelf, be sure the shelf is in its full home or vend position. Begin loading with the top shelf. Move it to the loading position. The height spacing for items is greatest in this shelf and the tallest bagged items should be placed there. Soft items, such as pastry, pies, etc., should be placed in the lowest snack shelf, making the drop distance as short as possible.

◆ **IMPORTANT:** Product must not be forced into the spiral spaces but should fit freely. If the product is too tight, use a larger pitch spiral. The bottom of the product should be placed on top of the spiral wire that rests on the shelf surface (see Figure 2). The width of the product must be greater than the diameter of the snack spiral. If it is smaller, the product may fall through when it is in the front, ready to vend position.

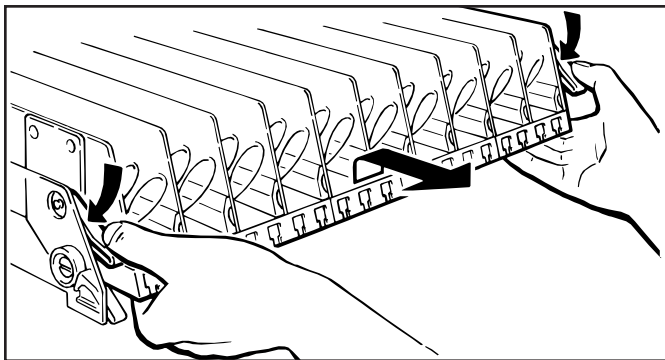


Figure 1: Moving shelf to loading position.

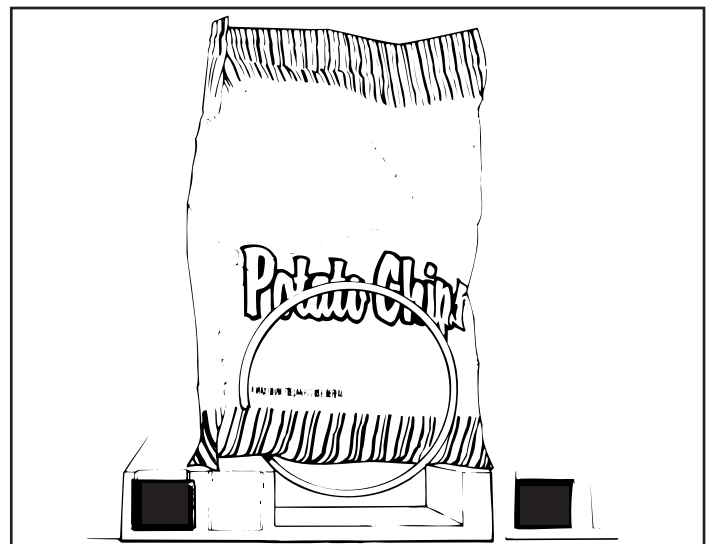


Figure 2: Placement of product on main product snack shelves and front end position of spiral.



# installation

## Adjusting the Stopping Position of the Spiral.

One primary difference that distinguishes the new motors from previous motors is the presence of an eight sided star at the drive hub of the motor. This permits the stopping position of the spiral to be customized by the operator to ensure the best possible delivery of product. To change the stopping position of the spiral, remove the spiral lock from the motor by pinching the shaft of the spiral lock from the back side of the motor and pulling forward on the front side of the spiral lock. The spiral lock can be reinstalled in any of eight different positions by turning the spiral lock to the position desired and pushing the shaft of the spiral lock through the eight sided star at the drive hub of the motor.

## Removal of Spiral

Grasp the front of the spiral and turn it clockwise. Lift the spiral up and off of the spiral lock. When replacing a spiral attach it around the tab on the spiral lock and turn the spiral counterclockwise to lock it in place. Be sure the front end of the spiral is positioned properly (with the front end of the spiral pointing downward on the left side) (see figure 3). Give a light pull on the front of the spiral to see that it is locked in place.

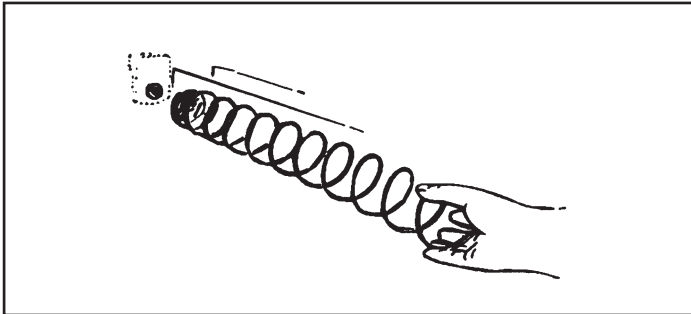


Figure 3: Removing and installing spiral.

## Product Spacers-5 Selection Shelf

### Shelf

A product spacer is used to reduce the width of the product area and should be used on any 5-selection snack shelf where the product width is 4" or less. Spacers should fit within 1/8" of the product but should not fit tight against the product. There are four positions in each snack space where these spacers can be placed. To install the spacer, align the lock ears (on the lower edge of the spacer) with one of the three sets of slot (one front and one rear). (See Figure 4). Push the spacer to the rear to allow the ears to enter the slots, then allow the spacer to move forward. Be sure the ears are in the same set of slots, front and rear. (See Figure 4). Continue

loading all spirals adjust with spacers where needed in the top shelf. Return the top shelf to the vend position and following this procedure load the remainder of the large spiral shelves. The shelf divider separating the right (lock side) column from the next column is movable to allow vending of products wider than 5" in the second column. If this is used the right column must be used to vend a narrower product.

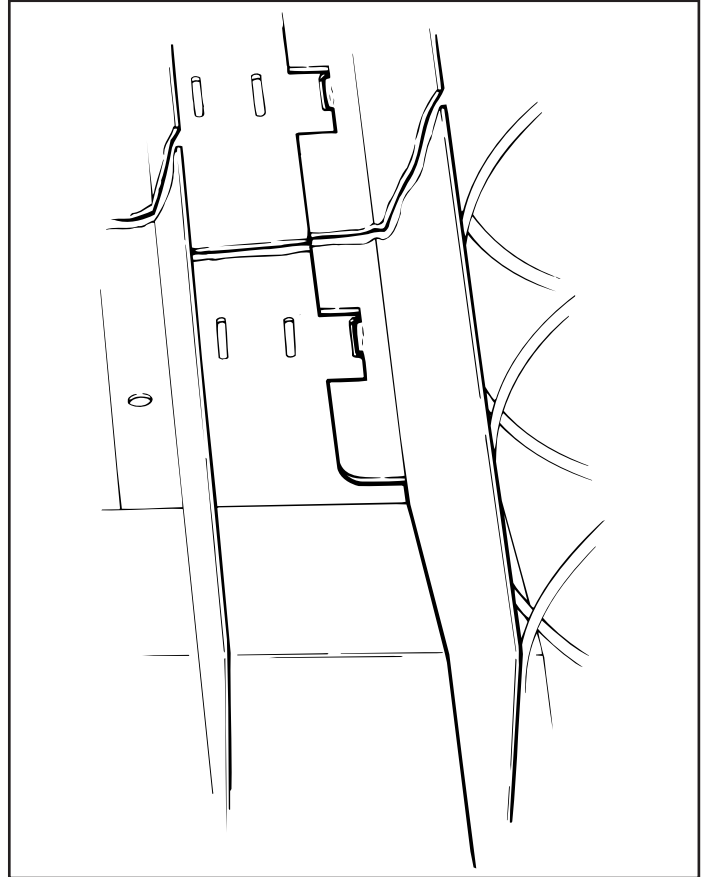
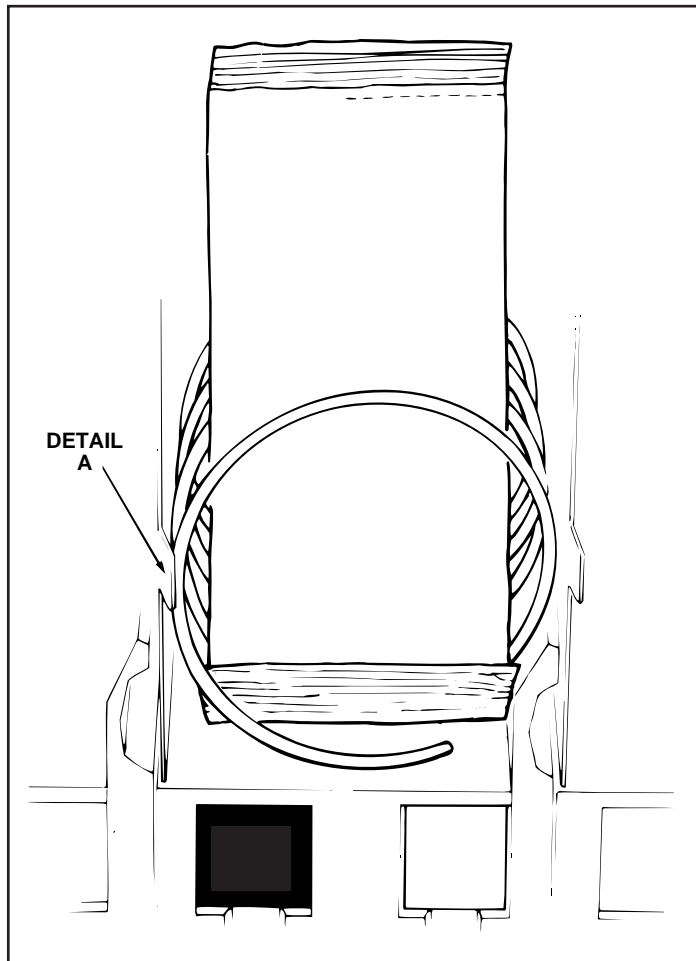


Figure 4: Alignment of movable product spacers.

**Loading Main Product Candy Shelves**

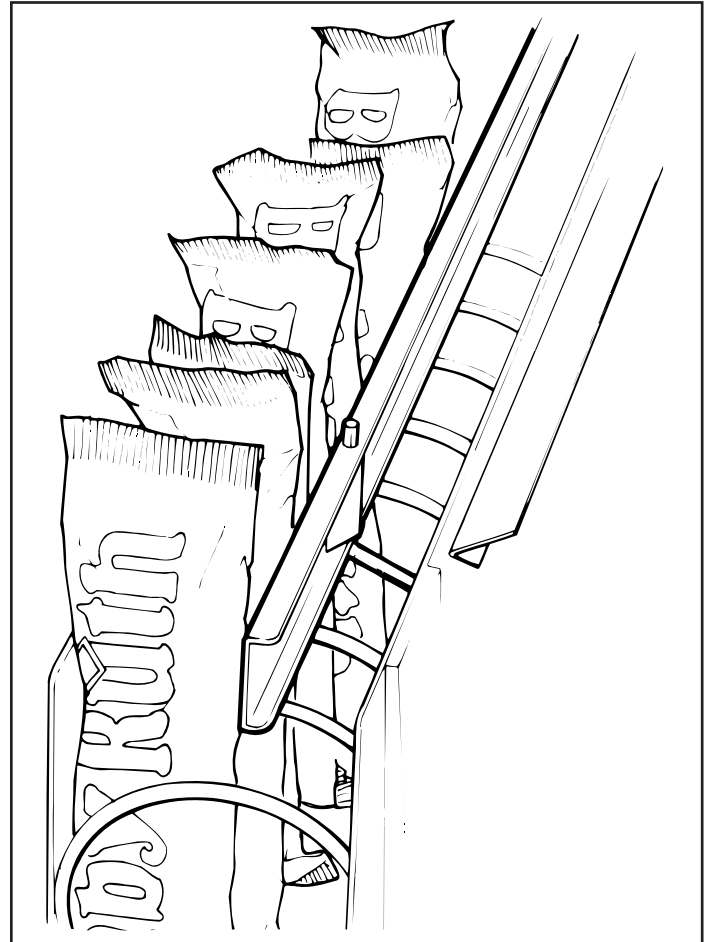
The 10-selection (candy type) shelves are loaded similar to the 5-selection shelves except that the bottom of the product sits on the shelf in front of the spiral wire (see Figure 1.5) that rests on the shelf. These products must also fit properly product in the spiral space; do not force product into spiral. These spirals are removed and installed the same as the large spiral (see Figure 3), except that the front end position is different (approximately 5 o'clock)(see Figure 5) and the front left side of the spiral must be behind the small tab located on the left side of the product space side wall (see Figure 1.5, Detail A).



**Figure 5: Placement of product on candy shelves and front end position of spiral.**

**Product Spacers-10 Selection Shelf**

The 10-selection shelves are equipped with a product spacer (see Figure 1.6) that can be pivoted from the right side of every other product space. These spacers should be pivoted out to hold the product upright, but not tight against the product. Leave about 1/8" clearance between the spacer and the product.



**Figure 6: Candy shelf product spacer positioned to hold candy upright.**

# installation

## Product Pushers

Included with the machine are enough pushers for you to install a pusher on each candy spiral. This plastic part is designed to push the top of the product forward while it is vending, helping it fall from the shelf. It can also be used with products that have the wrapper end flap on the outside of the package. In this case, the pusher prevents these products from hanging on the spiral by spreading the flap. The pusher is installed approximately 210 degrees from the front end of the spiral with the tab extending forward (see Figure 7). Locate the pusher in its proper position, hold it against the spiral wire and push the semi-circular part around the spiral wire. Note: Not every selection spiral will need a product pusher. (Example - Box Items.)

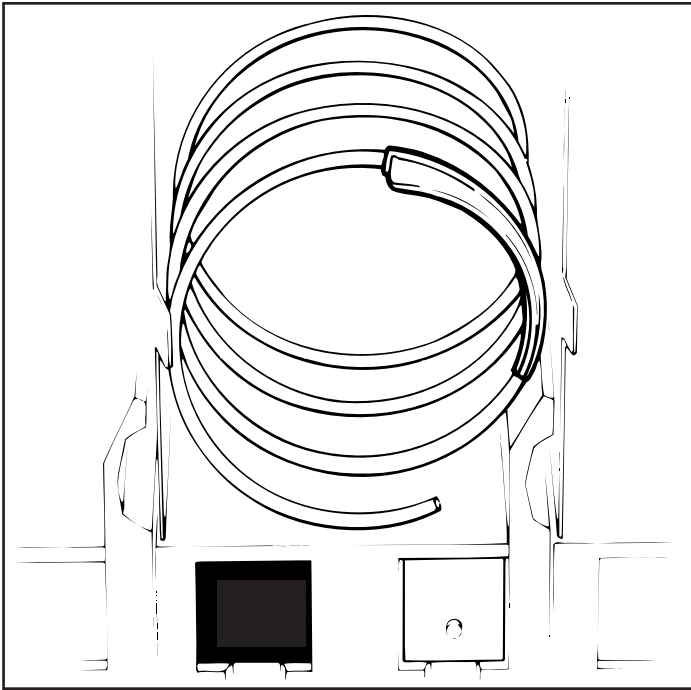


Figure 7: Location of product pusher on spiral.

**Bagged or Boxed Items:** In the 10-selection shelves if not loaded properly could be a problem. The sealed edge of the bag may get under the spiral wire causing the product to hang up after it has been vended. It is recommended that the lower edge of these types of product be folded forward and up (see Figure 8) next to the product before inserting into the spiral space. It is also recommended to use an 18 count spiral for bagged items because of the product setting to the bottom of the package.

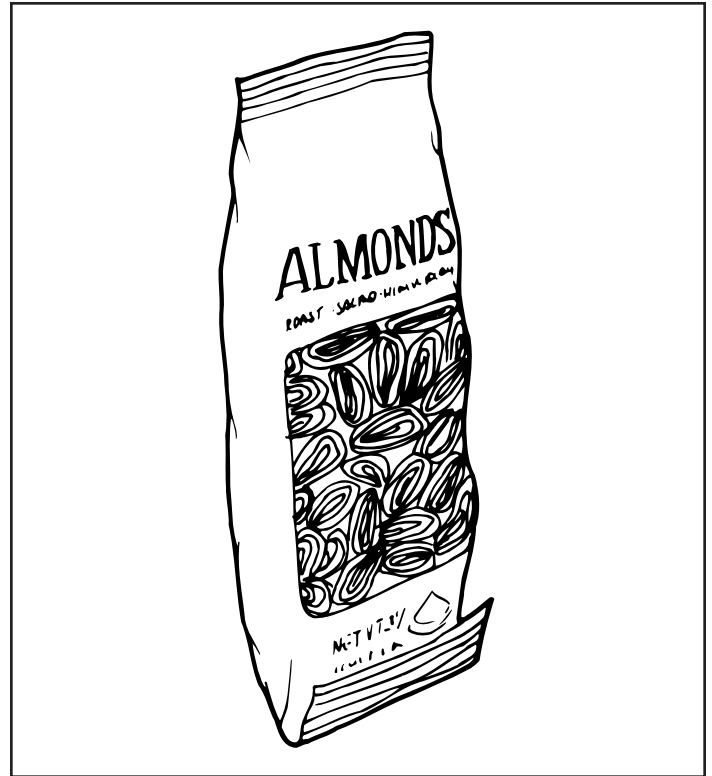


Figure 8: Fold bagged items bottom edge forward and up.

## CIGARETTE VENDING FROM THE STUDIO SERIES.

Cigarettes can be vended from the candy shelves using a (15 capacity) spiral for the soft pack regular, king, 100 MM or 120 MM packs. A (12 capacity) spiral should be used for (box) packs.

**LOCK PRODUCT SHELVES.** After all the product has been loaded be sure all shelves are returned to their vend position behind the front roller guide.

**INSTALL PRICE TABS** into price tab holder for each selection. (See Figure 9)

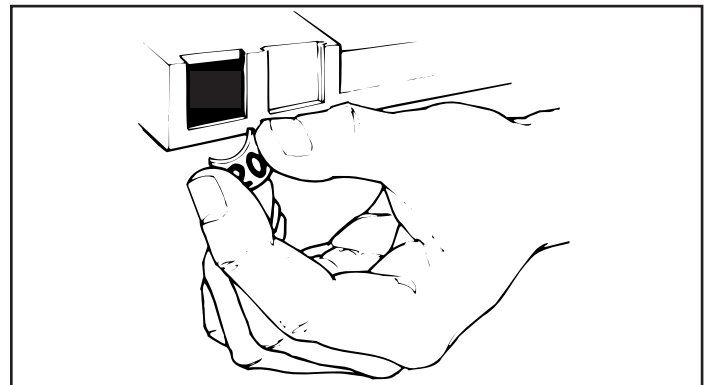


Figure 9: Installing price tabs.

**Loading Gum and Mints:**

The Gum and Mint shelf is located below the lowest Snack Shelve (optional). Unlatch the shelf by pulling forward the two metal latches located to the right and left of the shelf and pull forward. The cover can be pushed back to the rear for easy loading. The shelf contains four individual selections.

The first selection on the left contains two fillers for use with thin mints. (Roloids - Certs, etc.). These fillers can be removed for standard gum or mints.

The two selections on the right of the Gum and Mint shelf also have fillers. These selections can be used for standard size gum and mints or the fillers may be removed for larger gum and mint products.

Each selection has a display hinge assembly that should be adjusted after the shelf is loaded. To adjust the display hinge, loosen the wing nut and slide the spring hinge of the flipper over the second product and fasten tightly.

◆ Be sure to close the cover on the gum and mint shelf before pushing the shelf back to its home position.

◆ The gum and mint shelf can be used as a loading platform while filling the machine. The maximum load of the gum and mint shelf is 35 pounds.

## optional equipment

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### **Ventilating Fan:** (Part #7501202-4 =120 Volts) (Part #750102-5 = 240 Volts) **Export**

The ventilating fan keeps a steady flow of air moving through the vendor cabinet. Installation of the fan takes only a few minutes. All vendors are wired with a fan plug on the junction box for easy installation.

### **Base Kits:**

Base kits are available to make the vendor compatible with other manufacturers.

### **Gum and Mint:**

Gum and Mint units are available as an option with Studio series vendors. For information pertaining to loading or servicing gum and mint unit, refer to this service manual for loading instructions and service instructions.

### **Dual Spiral Shelf:**

Snack shelves can be set up to have dual spirals per selection on the shelf. The dual spirals will help vend specialty items better.

### **Half Cycle Motors**

The half cycle motors are used to vend thin items. This motor is used with a product divider that is positioned down the center of the coil. The product is placed on both the left and right hand side of the coil. When the motor turns, it turns only 180 degrees (half revolution) rather than 360 degrees (full revolution).

### **Special Spirals (Studio 2,3,& 4 ONLY):**

Special candy spirals are available for use in the four (4) and five (5) selection snack shelves. For the sake of identification, the back end of these spirals are colored RED and should never be used in the eight (10) selection candy shelves.

These spirals allow vending products that are too wide for the standard candy columns but may be too thin for the regular snack spirals. A product pusher and spacer should be used where required. Part numbers for these special spirals are as follows:

400139-1	12 count special spiral
400140-1	15 count special spiral
400141-1	18 count special spiral
400142-1	24 count special spiral
400143-1	30 count special spiral
400151-1	20 count special spiral

**NOTE:** The difference between the standard candy spiral and the special candy spiral used in the wide snack columns is in the overall length of the spiral. The special spiral is shorter than the standard candy spirals.

**CAUTION: Do not attempt to use the special candy spirals in an ten selection shelf.**

### **Soup Dispenser Studio 2,3,4: (Kit 750083)**

A canned soup dispenser is available as an option for use in the four/five selection snack shelves. The dispenser is easy to install and holds up to nine cans in the unit.

### **Delivery Bin Cushion**

A delivery bin cushion is available for use when vending heavy items.

### **Lexan Window**

A Lexan window is available as a direct replacement for tempered glass.

### **Golden Eye™**

The optional Golden Eye™ Bin Sensor ensures a positive vend every time. The sensor is installed in the delivery bin and senses that a product has been delivered. If no product was delivered, the spiral will turn make up to, two more attempts. If the product is not delivered after three attempts, the make another selection led will flash and the machine will allow the customer to make another selection or press the coin return and receive their change back.

## Studio 1,2,3 Chiller

### The Chiller Unit

The Chiller Unit is comprised of a 1/3 horsepower compressor and is a hermetically sealed system. (no service ports). The compressor assembly is easily removed by taking out two screws and pulling the unit forward out the front of the cabinet. There is a wedge shaped insulator above the evaporator that mates with a matching wedge in the cabinet to ensure a tight seal. The refrigerant used in the refrigeration system is 134a and the charge is 9 ounces. The refrigeration system is controlled by the Refrigeration Driver Board. The Studio series glass front merchandisers are designed to operate at ambient temperature of 55°F to 100°F (13°C to 38°C). Chilled machines use a special insulated cabinet and a thermal pane window.

**Note: The chiller can NOT be added at a later date.**

## Studio 4 & 5 Chiller

### The Chiller Unit

There are two different refrigeration units used in the Studio 4 & 5 merchandisers. The first refrigeration unit is used in machines where only the can compartment is cooled. This is referred to as an ambient machine. The other refrigeration unit is used in a machine that both the can and the snack compartment are chilled, this machine is referred to as a chilled machine. The chilled machine has a separate 24 Vdc blower that circulates chilled air into the snack area of the machine. The blower speed can be changed on the Refrigeration Driver Board to regulate the temperature of the snack area. The Studio 4 & 5 machines are designed to operate at ambient temperature of 55°F to 100°F (13°C to 38°C). **Note: The Chiller Option can NOT be installed at a later date.**

### Ambient Studio 4 & 5 Refrigeration

This refrigeration unit is comprised of a 1/4 horsepower compressor and is a hermetically sealed system (no service ports). The refrigerant used in the refrigeration system is R134a and the charge is 9.5 ounces.

### Chilled Studio 4 & 5 Refrigeration

This Refrigeration unit is comprised of a 1/3 horsepower compressor and is a hermetically sealed system (no service ports). The refrigerant used in the refrigeration system is R134a and the charge is 10.3 ounces.

### Refrigeration Processing:

The Refrigeration Driver Board maintains the temperature as measured by the solid state temperature sensor. The chiller unit will be turned on at the set temperature plus 2°F and will be turned off at the set temperature minus 2°F. A minimum of 1 minute is required for both the cycle on and cycle off time of the relay. This insures the compressor is not cycled on and/or off to rapidly. Independent of the temperature, the relay, therefore the compressor, will be off 7 minutes every hour for a defrost cycle. The power for the Evaporator fan motor is constant and is not switched by the relay.

The temperature probe in the Studio 1,2,3 is mounted in cabinet below the bottom shelf on the right hand side, just above the intake air of the evaporator. In the Studio 4 & 5 the temperature probe is located in the can compartment directly behind selection 55.

## Studio Refrigeration (All)

### Refrigeration Driver Board (RDB)

The Refrigeration Driver Board is located in the power supply box. The Refrigeration Driver Board contains a digital display and two programming buttons. There is a window toward the bottom of the power supply box that allows you to view the current temperature in the chilled compartment. Located below the display window are the two programming buttons. Power to operate the is supplied via the MDB connector on the logic board using communications cable. Power to operate the refrigeration unit is supplied to the Refrigeration Driver Board immediately after the EMI filter and is switched on and off by a relay on the Refrigeration Driver Board. For a complete pin out of the Refrigeration Driver Board see the troubleshooting section of this manual.

### Settable Temperature Range:

The settable temperature range is from 35°F to 70°F (1°C to 20°C). The recommended temperature for the Studio 4 & 5 machine is 42°F (6°C). The recommended temperature for the Studio 1,2 & 3 machine is 65°F (18°C). The Refrigeration Driver Board will maintain the temperature as measured by the temperature probe (P/N 13600001-01). The harness for the probe is plugged onto the Refrigeration Driver Board at the connector marked JP3. An unplugged or open temperature sensor probe will display as -9°F (-9°C). A shorted probe will display as 99°F (37°C).

### Setting the target temperature:

1. Pressing both buttons on the RDB at the same time will toggle the display between °F (Fahrenheit), °C (Celsius) and FA (Fan Adjustment). Releasing the buttons when the display prompts °F or °C or respectively allows the target temperature to be set and displayed in Fahrenheit or Celsius. Releasing the buttons when the display says FA (see Below) allows the Fan speed to be set for the Snack area only in the Studio 4 & 5 machines. **NOTE: When in the programming mode there will be a black square (decimal point) in the bottom left corner of the display, during standby the current temperature is displayed.**
2. Pressing the left Programming button will increase the set temperature shown on the display.
3. Pressing the right Programming button will decrease the set temperature shown on the display.
4. When you reach the desired temperature, releasing the programming button for 2 seconds will lock it in and the programming decimal point will disappear and the set temperature will be locked.

### Setting the Fan Speed on a Digital Temperature Control: Studio 4 & 5 with a Chilled Snack Area Only)

Pressing both programming buttons at the same time will toggle the display between °F (Fahrenheit), °C (Celsius) and FA (Fan Adjustment). Releasing both buttons when FA is displayed will show the current fan speed.

1. Pressing the left Programming button will increase the set fan speed shown on the display.
2. Pressing the right Programming button will decrease the set fan speed shown on the display.
3. When you reach the desired fan speed (settable from .1 - .10, .5 is the default) releasing the programming button for 2 seconds will lock in the new fan speed.

## Power Supply

The 120 VAC power cord from the wall outlet comes into the machine and plugs into the back of the main junction box located on right side of the cabinet. The voltage outputs from the junction box to the board are 24 volts and 8 volts and plugs into the (P3 position) of the Logic Board.

## Lighting System

There is only one fluorescent lamp in the Studio series. The lamp is located on the top of the door and lights up the main product area. The starter is located on the hinge side of the lamp. The ballast and line filter is located on the top front left shelf support.

## Main Product Shelves:

There are five or six main product shelves per machine. Each selection has its own motor mounted to the back of the shelf. Every shelf has its own harness and plug for connecting to the remainder of the circuit through the cabinet receptacle, located in the rear right of the cabinet. The motors are the same on either shelf. It is possible in to exchange a five selection shelf with a ten selection shelf or visa versa. You also have the capability to gain one inch either up or down on any shelf. To do this the shelf should be removed and the cabinet back harness receptacle lowered or raised along with the right & left shelf tracks.

**Note:** When exchanging the shelves, you will not need any parts but you will have to reprogram the machines prices.

## Removal of Product Shelf:

- A. Lift up and push the lock levers toward the back of cabinet.
- B. Pull the shelf to its loading position.
- C. Grasp shelf in front and rear center. Lift front of shelf up above horizontal and pull shelf forward while lifting.
- D. To install shelf, reverse above procedure.

## Delivery Bin:

This is located below the display window on the door and is mechanically operated. Should the door become difficult to operate, place a small amount of grease on the arm tracks.



## Removal of Delivery Bin:

Remove the screws from the left and right side of the delivery bin. These screws fasten into the lower door brace. Remove the two screws and brackets at the top of the delivery bin.

Grasp delivery bin on both sides and lift up and pull back. Should the bin be tight, rock it by lifting on one end, then the other.



## Replacement of Delivery Bin:

Locate lip on front edge of delivery bin over lower edge of opening in door and behind trim. Press down along lip to make sure it is fully engaged between door and trim. Install the four screws and two brackets, to secure bin to door.



## Removal of Gum And Mint Motor:

Disconnect the two wires going to the motor and remove the four screws holding it to the shelf. The components attached to the front base can also be replaced. These consist of the gum and mint shelf front (Price tabs and selection), gum and mint shelf front base, gum and mint display front stop (plastic) and the gum and mint ejector.

**Note:** Before replacing the gum and mint motor it is helpful to tap the motor first with the screws. Assemble the four components together and mount them to the motor making sure that the head crank of the motor is inserted into the ejector. Replace the four screws and test vend that selection for proper operation.

## Removal of Gum and Mint Shelf:

Under the gum and mint shelf remove the two screws holding the gum and mint receptacle harness bracket. Loosen the other two screws on each end of the gum and mint pusher stop strap and disengage it from the cabinet. Grasp the shelf and pull the shelf straight out. With the shelf out you can replace the gum and mint pusher by removing the screw.



Reverse the procedure to replace the shelf. Pay special attention when you put the gum and mint pusher stop strap back on that all the gum and mint pushers have spring tension and are behind the strap.

**Vend Motors**

The vend motors used in the Studio Series machines have been specifically developed to operate with the APi Control System. One primary difference that distinguishes the new motors from previous motors is the presence of an eight sided star at the drive hub of the motor. This permits the stopping position of the spiral to be customized by the operator to ensure the best possible delivery of product. Motors are of the fast trac style, with all electronics required to correctly operate the motor contained inside the gear case or the motor housing and no external control board. Each of the motors used with the Studio Control System will have two terminals. The two terminals continue to be used to identify the shelf and column (selection) to be vended.

**SHELF WIRING DIAGRAM**

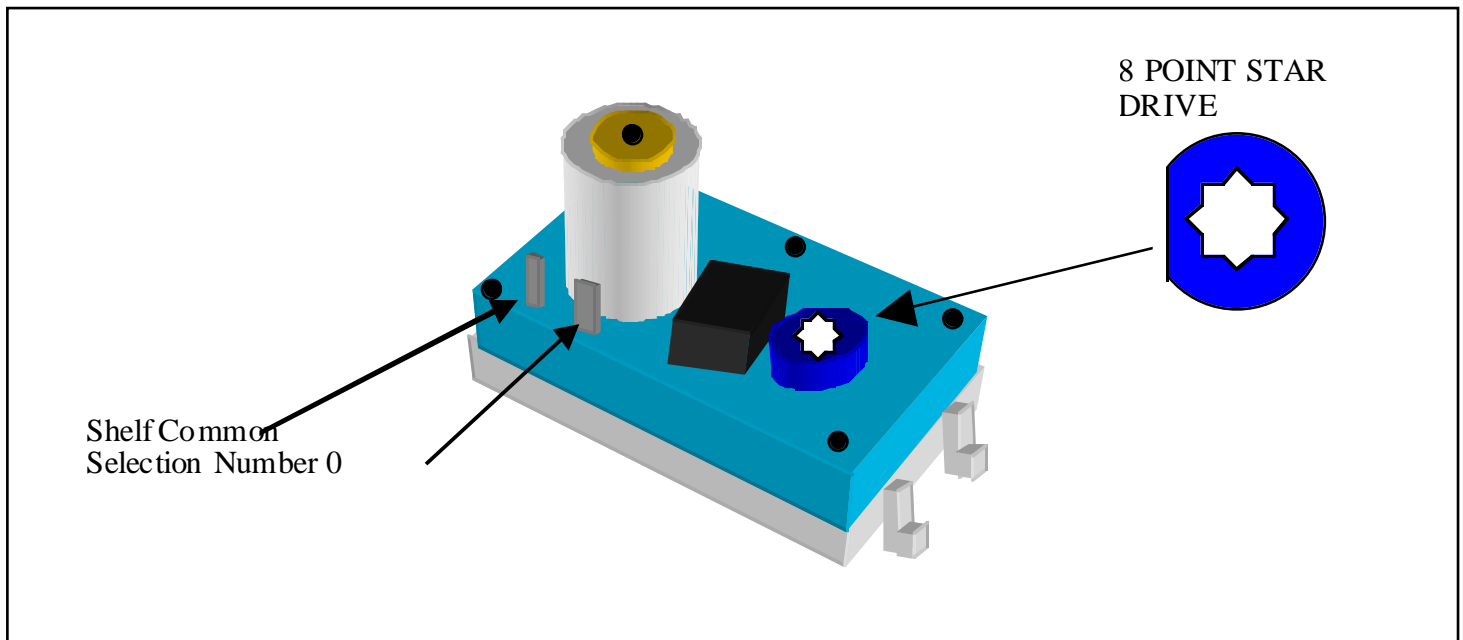


0	1	2	3	4	5	6	7	8	9	Selection Wire Number
12	12	12	12	12	12	12	12	12	12	Shelf Common Number

Each motor requires two wires to operate correctly. These wires are: shelf common, and selection.

Each selection on a shelf has the same common shelf wire - all shelf harness use the wire #12 as a shelf common. This corresponds to the selected shelf wire in the cabinet harness. The terminal for the shelf common in the harness is the smallest of the two.

Selection numbers are assigned from left to right, starting with selection 0. Each selections number corresponds to the number of the wire for that selection. Selection numbers in the Studio Series Machines support a two digit selection system. The first digit indicates the shelf number and the second digit the selection wire shown above that is attached to the motor.





# components

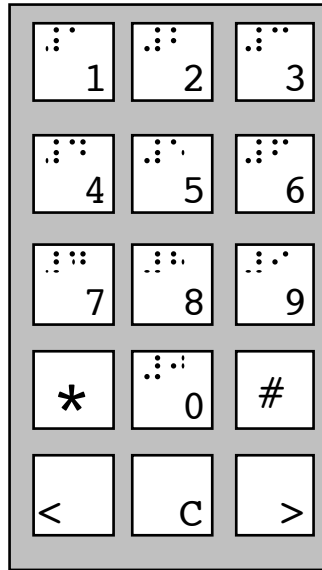
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## Logic Board & Display

The control board contains all of the decision-making control and the display. All peripherals plug into the controller. The display on the controller has indicates; Credit, Price of the Product, Diagnostic Information and Options (In Service Mode). The display is socketed so that it can be replaced in the field. In addition, there are (2) LED's that indicate Make Another Selection and Check Selection Price.

## Keypad

The Selection keypad (pictured below) is located on the front of swing out panel directly below the selection keypad. The Selection Keypad is used as an input source for settable data when in Service Mode. The keypad is only active for service functions when the door is open, so even in the event of vandalism to the control bezel; no access to the control functions is permitted.



## Coin Mechs, Validators and Card Readers:

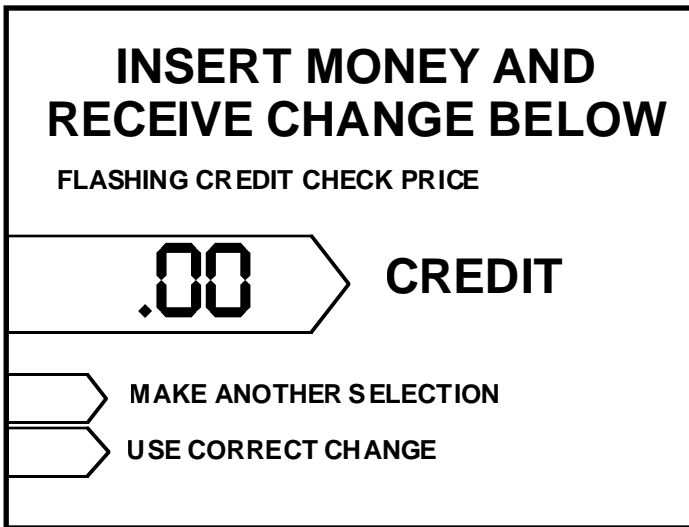
The Studio Series Machines support MDB protocol only.

	MDB Coin Mechanism	MDB Bill Validator
<b>Mars</b>	TRC-6510 TRC-6512 VN-4510	VN2502-U5M VN2512-U5M
<b>CoinCo</b>	9302-GX, USQ-G701 USQ-G703 USQ-L701	BA32SA BA32R
<b>Conlux</b>	USLZ-004-01F CCM 5 G	USLZ-004-01F

The Studio Series will automatically determine at power up which peripherals are connected and configure itself accordingly.

**Power Up State**

Following a power-up or reset condition, the display will show "----" until a credit device is identified. If the controller fails to identify a credit device in 10 seconds the display is blanked.

**Operate Mode**

Upon closing the door the display will show the firmware revision level perform a diagnostic routine that will scan and home the motors determining what motors exist in the configuration. Upon completion of the diagnostic routine the display will show the first row of motors missing.

**Standby**

In Stand by, zeros will be shown along with the designated decimal point. Accumulated credit will be shown until a selection is made.

**Keypad echo**

When the first numeric key is pressed the display will show the selection number in the second leftmost digit. This character will remain for 5 seconds or until another key is pressed. If a second numeric key is entered, the pair will be

shown on the display for one second and then the associated price for the product will display. If the selection is disabled or shut down (using the Shutdown pin) the display will show "d". and flashes the " Make Another Selection " LED. Note, if the selection is enabled but not functioning properly (not present or not home) the " Make Another Selection " LED is flashed but the display will continue to display the selection for 5 seconds.

**Credit Accumulation**

Credit may be accumulated through a coin changer, bill acceptor or card reader. Card reader credit cannot be mixed with coin and/or bill credit during a single transaction or vend. Credit acceptance will be disabled when the accumulated credit equals or exceeds the highest priced item. Credit accumulation from any source is disabled or escrowed if change is not available. If the amount of card reader credit available exceeds the maximum displayable credit, the maximum credit will be displayed.

**Vend process**

After a keypad entry is made the logic board determines if sufficient credit is available for the selection attempted. If the credit is greater than or equal to the selection price, a vend attempt will be made for that selection. During this time, the selection will be shown on the display. If credit is less than the selection price, the price will be displayed and the Use Correct Change LED will flash for 5 seconds or until a new selection key is pressed.

**Change payment**

Change will be returned during the vend process as soon as it is determined that the motor has moved off of the home position. The amount of change to be returned will be displayed until all coinage is paid back. The least amount of coins available will be paid back for all credit returns.

**Use Correct Change LED**

If the level of the changer's least value coin tube is below the lowest sensor, the "Use Correct Change" LED will be illuminated continuously. If the machine is unable to vend the selected item because of low change, the "Use Correct Change" LED will flash 5 times.

**Make Another Selection LED**

If the machine is unable to vend the selected item, the " Make Another Selection " LED will be flash 5 times. Token Vends Following the acceptance of a token, the display will show "FrEE" as the accumulated credit. Further credit acceptance is disabled and a single item may be selected.

# operating system

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## Token Vends

Following the acceptance of a token, the display will show "FrEE". Further credit acceptance is disabled and a single item may be selected to vend for the token credit. See the programming section of this manual for instructions on setting up and choosing which selections will work with tokens.

## Accountability Information

All MIS data is stored as both resettable and non-resettable with the exception of Machine Identification Number, Machine Serial Number, Software Version Number, Number of MIS Resets, Number of Machine Resets, Door Open History, and Value of Coins in Tubes which shall be stored as non-resettable only. All vend counters will roll over at 7 digits (9,999,999). All cash counters will roll over at 8 digits including the decimal point (999,999.99).

Vend accounting (MIS) is updated as follows:

\* Indicates which field is updated for a given vend type.

Field	Vend Type			
	Token	Vend	Testved	Freevend
#VENDS	*	*		*
\$VENDS (Sale Price)	0	*		0
#/PROD	*	*		*
\$/PROD (Sale Price)	0	*		0
#/TESTVEND			*	
# /FREE				*
\$ /FREE				*
# /TOKEN	*			
\$ /TOKEN	*			

**Table 1: MIS Field Update Chart**

## DEX/UCS

The Studio series supports DEX/UCS Communications Protocol - NAMA Vending Industry Data Retrieval Standard. The machine will automatically recognize the DEX/UCS device when it is plugged into the control board and will recognize when the device initiates the communication protocol. The transmission/reception of data to the device will then take place automatically. See the next page of this manual for definitions of the DEX/UCS download protocol.

## SHUTDOWNS

The Control Board on Studio Series Machine can be Shutdown by creating a closed circuit between pin 3 & pin 7 on the service connector (P2). This will shut down all selections in the machine. When in shutdown mode and a selection is attempted the display will prompt "d" on the far left side of the display. The Studio Control Board does not have a built in time clock so if a timed shutdown is desired you will need to provide your own timer or key switch.



**Caution: Do not apply Voltage to these pins! Damage to the Board will result!**



## Service Modes (quick reference)

See the following pages for more detailed information on the service modes listed below.

To access the Service Mode press the mode button on the board, the display will prompt Sr or scroll through a list of errors (if any). The last error will remain on the display until a Service mode is entered. To access the service modes, enter one of the mode numbers below.

MODE NUMBER	
01	Price Assignment
02	Test Vend
03	Multiple Vend Setup
04	Bill Escrow Setup
05	Force Vend Setup
06	Free Vend Setup
07	Free Vend Coupon Setup
08	Historical Total Value of Sales
09	Historical Total # of Vends
10	Historical Value of Can Sales
11	Historical # of Can Vends
12	Historical Value of Sales By Selection
13	Historical # of Vends By Selection
14	Set Payback type
15300	Allows setting a 20 numeric character serial number.
17200	Allows setting a 20 numeric character Machine ID.
18400	Allows setting a 20 numeric character location ID
1923456780	Starts a factory test.
20	Golden Eye set up.
21	Number of missed golden eye vends

## Service Mode Numbers

### 01 - Price Assignment

The display will prompt **Prc.**

Enter the price to be set using the numeric keypad.

Press **#** and the display will prompt **"S"** for Selection.

Enter all the selection numbers to be set at the price entered in the previous step.

Press **#** to enter another price or **C** to lock in and go back to the service mode.

### 02 - Test Vend

The display will prompt **SL.**

Enter the selection numbers to be tested.

Press **C** or close door to exit.

### 03 - Multiple Vend Setup

The display will prompt **nul n.**

Use **#** to toggle between **n** (no) & **Y** (yes).

Press **C** or close door to exit.

### 04 - Bill Escrow Setup

The display will prompt **ESc n.**

Use **#** to toggle between **n** (no), **F** (first bill) or **L** (last bill).

Press **C** or close door to exit.

### 05 - Force Vend Setup

The display will prompt **Fu n.**

Use **#** to toggle between **n** (no) & **Y** (yes).

Press **C** or close door to exit.

### 06 - Free Vend Setup

The display will prompt **Fr n.**

Use **#** to toggle between **n** (no) & **Y** (yes).

Press **C** or close door to exit

### 07 - Free Vend Coupon Setup

The display will prompt **FC**

The display will show in sequence the shelves set to work with a coupon.

To add selections, press the selection numbers to be added.

To remove a shelf, press the **#** key while the shelf number is being displayed.

Press **C** or close door to exit

### 08 – 11 Accountability

The first four digits are displayed for two seconds followed by the second four digits.

Press **C** to exit.

### 08 - Historical Total Value of Sales.

### 09 - Historical Total # of Vends.

### 10 - Historical Value of Can Sales.

### 11 - Historical # of Can Vends.

### 12 - Historical Value of Sales by Selection.

The display will prompt **HuSS.**

Enter a selection number and the display will show the value of vends for each selection number pressed.

Press **C** or close door to exit.

### 13 - Historical Number of Vends by Selection

Display will prompt **HnSS.**

Enter a selection number and the display will show the value of vends for each selection number pressed.

### 14 - Set Payback Type

Use the **{#}** key to toggle the "Change Payback" option

between **"CHL"**(Least Coin Change Payback) and **"CH3"** (MDB Level 3 Change Payback)

### 15300 - Allows Setting a Serial Number.

The display will go blank.

Enter in up to a 20 digit numeric serial #

Press **C** or close door to exit.

### 17200 - Allows Setting a Machine ID.

The display will go blank.

Enter in up to a 20 digit numeric serial #

Press **C** or close door to exit.

### 18400 - Allows Setting a Location ID

The display will go blank.

Enter in up to a 20 digit numeric serial #

Press **C** or close door to exit.

### 1923456780 - Starts a Factory Test.

The test will stop and the display will prompt each motor that fails or is not present.

Press the # button to continue the test after each invalid motor.

## Service Mode Quick Reference Continued

### 20 - Golden Eye set up.

The display prompts the selections enabled for Golden Eye. Press <or> keys to scroll through the selection set to work with Golden Eye. To add selections press the number of the selection to be added. To remove an entry press the [#] key while the selection number is being displayed. The default is all selections turned on.

### 21 - Number of missed golden eye vends

The display shows the # of Missed Golden Eye Vends. The seven digits are broken into two, displays. First are the lower four digits followed by the upper three digits.

### Service Mode (detailed)

The Service Modes allow you to update all the prices and options in the machine. Upon opening the machine door and depressing the Service button located on the top left corner of the board, the controller enters the Service mode. If a period of no activity occurs for 5 minutes, the controller will automatically revert to the Operate mode. Entrance to the Service mode clears any current credit. In addition, entering the Service mode, will display diagnostic information until an additional Service mode function has been selected. If more than 1 error is present, each error may be scrolled through using the arrow keys. Diagnostics information includes Multi-Drop Bus errors and defective or jammed motor codes. All errors are cleared upon exiting the service mode. The following table lists the errors that may be displayed in the diagnostics mode. If no errors are present the display will Prompt **Sr** for service.

Error	Display
Vend motor (T)ime(O)ut	"toXX"
Vend motor (O)ver (C)urrent	"OcXX"
Vend motor (N)ot (H)ome	"nhXX"
3 Items missed by the Golden EYE Sensor	"giE"

**Table 3: Fault Chart**

# programming

---

Entering one of the service mode numbers below allows access to that service mode. **Example: entering 01 will take you into price assignment.**

## Service Mode Numbers

### 01 - Price Assignment

Upon entering the price assignment mode 01 the controller will display "**Prc**" for 2 seconds and then " . ".

Enter the price to be set using the numeric keypad.

Press **#** and the display will prompt "**S**" for Selection.

Enter all the selection numbers to be set at the price entered in the previous step.

Press **#** to enter another price or C to lock in and go back to the service mode.

The maximum price is that can be set at \$99.99 due to the display limitations. (The display format is dependent upon scale factor and decimal point position provided by the credit peripherals connected.)

### 02 - Test Vend

Upon entering the Test Vend mode 02 the controller will display "**SL**".

Enter the selection number to be tested. Once the selection is entered, a vend will be attempted. If the vend is successful, the controller display "**SL**" again. If the selected motor fails, the controller will display "FAiL" for 2 seconds and then display "**SL** " and wait for another selection to be entered. Test Vend will be turned off automatically on door closure.

Press **C** or close door to exit.

### 03 - Multiple Vend Setup

Upon entering the "multi-vend" set up mode 03 the display shows the current "Multi-vend" state. Use **#** key to toggle the "Multi-vend" option between "**nul n**", n = disabled or "**nul Y**" = enabled. Multi-vend enabled (nul Y) allows the customer to make additional selections as long as sufficient credit exists to purchase the lowest priced item in the machine. The customer may establish additional credit at any time when in this mode. If the customer presses the Coin Return Lever, the amount of available credit drops below the lowest priced item in the machine (by set price) or a 30 second time-out expires, change is returned regardless of the state of Multiple Vend. Multi-vend disabled ("nul n") will cause the change to be paid back immediately.

Press **C** or close door to exit.

Multi-Vend State	Display
Multi-vend enabled	" <b>MULy</b> "
Multi-vend disabled	" <b>MULn</b> "

### 04 - Bill Escrow Setup

Upon entering the "Bill escrow" set up mode 04 the display shows the current "Bill escrow" state. The **#** key is used to toggle the "Bill escrow" option between FIRST/LAST/OFF. When Escrow FIRST is enabled the unit shall hold the first bill deposited in escrow until a vend is initiated. Once a vend is initiated the bill must be stacked before the product is dispensed. In this mode only one bill maybe used per vend. With this feature set to LAST all bills are stacked until credit is above the highest vend price if change is available. With escrow OFF all bills accepted will be stacked immediately.

Press **C** or close door to exit.

Bill Escrow State	Display
Bill escrow first	" <b>EScF</b> "
Bill escrow last	" <b>EScL</b> "
Bill escrow disabled	" <b>EScn</b> "

## 05 - Force Vend Setup

Upon entering the "Force vend" set up mode 05 the display shows the current "Force vend" state. Use the **#** key to toggle the "Force vend" option between ON/OFF. When the force vend option is enabled, once credit has reached the lowest vend price set in the machine, the customer must purchase at least one item prior to requesting that any remaining credit be returned. Force Vend does not apply when debit cards are used or if all coins/bills are held in tubes/escrow. Press **C** or close door to exit.

Force Vend State	Display
Force vend enabled	"Fu Y"
Force vend disabled	"Fu n"

## 06 - Free Vend Setup

Upon entering the "Free vend" set up (mode 06) the display shows the current "Free vend" state. Use the **#** key to toggle the Free vend option between Y (ON) and N (OFF). When the "Free vend" option is enabled, the machine can be vended without credit. **NOTE: If free vend is enabled it will stay enabled until it is disabled. Press **C** or close door to exit.**

Free Vend State	Display
Free vend enabled	"Fr Y"
Free vend disabled	"Fr n"

## 07 - Free Vend Coupon Setup

Upon entering the Free Vend Coupon Option code 07 the display shows "Fc\_\_". You can add individual selections by entering the selection numbers on the keypad or entire shelves by entering the shelf number and the \* key. Each selection enabled by a coupon is shown in sequence by pressing the **< or >** keys. To remove an entry press the **#** key while the shelf number is being displayed. Press **C** or close door to exit.

## 08 – Historical Total Value of Sales

Upon entering the Historical Total Value of Sales the display shows the sales displayed as an eight digit number. The eight digits are broken into two, four digit displays. First displayed, are the upper four digits for 2 seconds followed by the lower four (with decimal point location) for 2 seconds. These two fields will alternate every 2 seconds until this mode is exited. Press **C** or close door to exit.

## 09 - Historical Total # of Vends

Upon entering the Historical Total # of Vends the display shows the vends displayed as an eight digit number. The eight digits are broken into two, four digit displays. First displayed, are the upper four digits for 2 seconds followed by the lower four (with decimal point in the right most digit) for 2 seconds. These two fields will alternate every 2 seconds until this mode is exited. Press **C** or close door to exit.

## 10 - Historical Value of Can Sales


Upon entering the Historical Total Value of Can Sales the display shows the can sales displayed as an eight digit number. The eight digits are broken into two, four digit displays. First displayed, are the upper four digits for 2 seconds followed by the lower four (with decimal point location dependant on the MDB peripherals) for 2 seconds. These two fields will alternate every 2 seconds until this mode is exited. Press **C** or close door to exit.

## 11 - Historical # of Can Vends


Upon entering the Historical Total # of Can Vends the display shows the can vends displayed as an eight digit number. The eight digits are broken into two, four digit displays. First displayed, are the upper four digits for 2 seconds followed by the lower four (with decimal point in the right most digit) for 2 seconds. These two fields will alternate every 2 seconds until this mode is exited. Press **C** or close door to exit.



## 12 - Historical Value of Sales by Selection

Upon entering Historical Value of Sales by Selection the controller displays "HuSS" and waits for a selection to be entered. Once the selection is entered the Historical Value of Sales for that selection is displayed as an eight digit number. The eight digits are broken into two, four digit displays. First displayed, are the upper four digits for 2 seconds followed by the lower four (with decimal point location) for 2 seconds. These two fields will alternate every 2 seconds until this mode is exited or another selection is entered. Press  or close door to exit.

## 13 - Historical # of Vends by Selection


Upon entering the Historical # of Sales by Selection the controller displays "HnSS" and waits for a selection to be entered. Once the selection is entered the Historical # of Sales for that selection is displayed as an eight digit number. The eight digits are broken into two, four digit displays. First displayed, are the upper four digits for 2 seconds followed by the lower four (with decimal point in the right most digit) for 2 seconds. These two fields will alternate every 2 seconds until this mode is exited or another selection is entered. Press  or close door to exit.

## 14 - Set Payback type



Upon entering the "Change Payback" set up mode the display shows the current "Change Payback" state. The # key may then be used to toggle the "Change Payback" option L/3. When the "Change Payback" option is "3", the coin changer decides how to payback the change. If "L" is selected a least coin payback algorithm is used in the Studio Controller.

Change Payback State	Display
3 Change Payback	"3"
Change Payback	"L"


## 15300 - Set Serial Number

Upon entering the set Serial Number mode the existing Serial Number is shown if one is programmed. Use the < or > keys to scroll through the existing Serial Number. If a number on the keypad is pressed the display is cleared and the board is ready to accept a new 20 digit Serial Number. Once the Serial Number is entered Press # to lock it in. Press  or close door to exit.



## 17200 - Set Machine ID

Upon entering the set Machine ID mode the existing Machine ID is shown if one is programmed. Use the < or > keys to scroll through the existing Machine ID. If a number on the keypad is pressed the display is clear and the board is ready to accept a new 20 digit Machine ID. Once the Machine ID is entered. Press # to lock it in. Press  or close door to exit. Press  or close door to exit.


## 18400 - Set Location ID

Upon entering the set Location ID mode the existing Location ID is shown if one is programmed. Use the < or > keys to scroll through the existing Location ID. If a number on the keypad is pressed the display is clear and the board is ready to accept a new 20 digit Location ID. Once the Location ID is entered. Press # to lock it in. Press  or close door to exit.

## 1923456780 Factory Test

Upon entering the Factory Test, the machine will start testing vend motors in sequence. If a vend motor in sequence is not present or bad the test will stop and the display will flash the bad motor. To continue the test the  key must be depressed. Once the factory test is complete all options and prices will be reset to factory defaults. Press  or close door to exit.

## 20 - Golden Eye set up.

Upon entering the Golden Eye Enable Setup code the display shows "giXX". "XX" is the selection enabled for Golden Eye. Each selection effected by a Golden Eye is shown in sequence by depressing the <or> keys. To add selections press the number of the selection to be added to the list. To remove an entry press the  key while the selection number is being displayed. The default is all selections turned on.

## 21 - Number of missed golden eye vends

Upon entering this mode the display shows the Historical Total # of Missed Golden Eye Vends displayed as seven digit number. The seven digits are broken into two, displays. First displayed, are the lower four digits for 2 seconds followed by

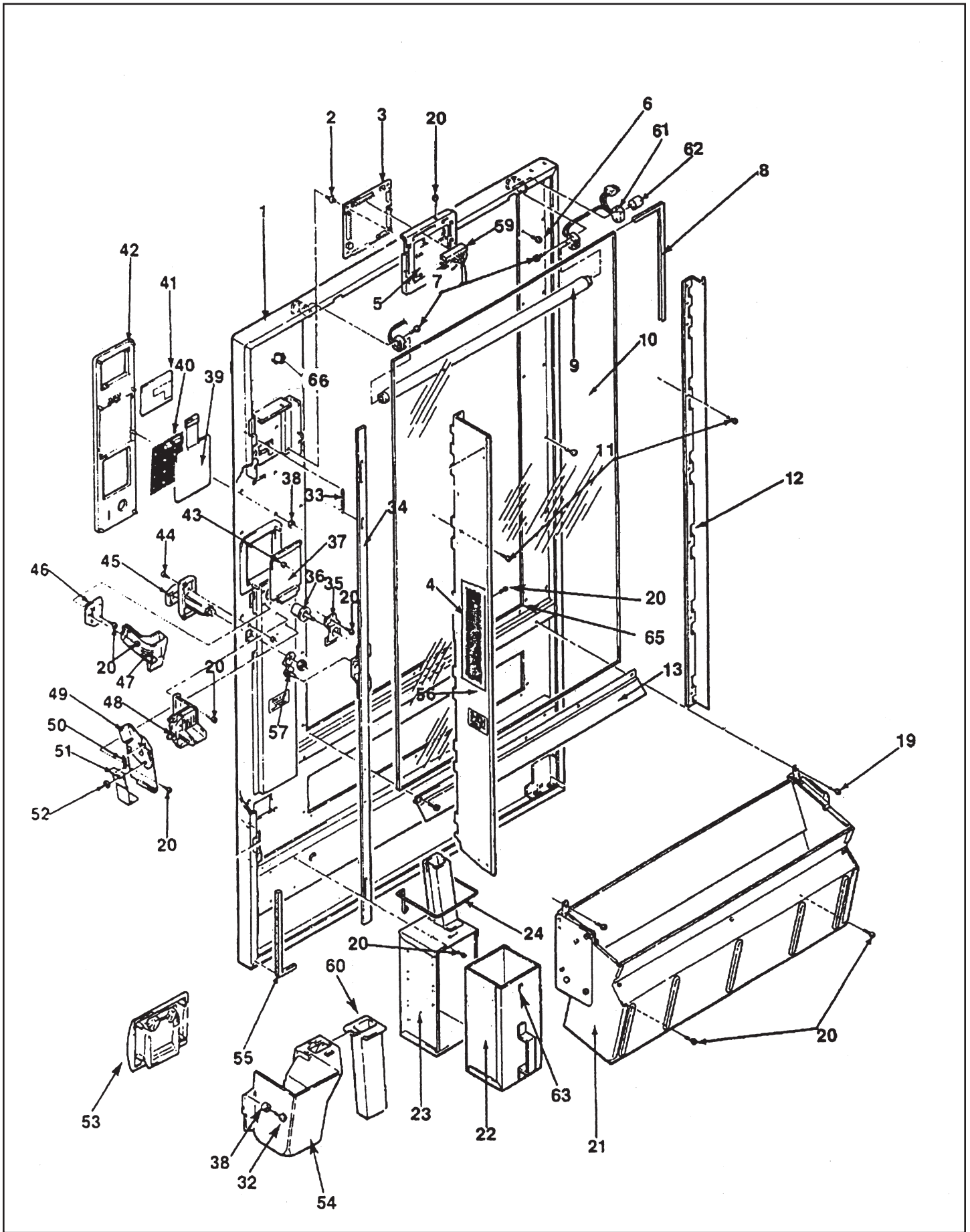
### **Setting Temperatures on Chilled Machines**

All machines with a Factory chiller have a Refrigeration Driver Board (RDB) installed in the Power box. This board has two programming buttons and a digital display. In standby the display shows the current temperature in the refrigerated compartment. To set the target temperature, follow the instruction below:

1. Pressing both buttons on the RDB at the same time will toggle the display between °F (Fahrenheit), °C (Celsius) and **FA** (Fan Adjustment). Releasing the buttons when the display prompts °F or °C respectively allows the target temperature to be set and displayed in Fahrenheit or Celsius. Releasing the buttons when the display says **FA** allows the Fan speed to be set for the Snack area only in the Studio 4 & 5 machines. **NOTE: When in the programming mode there will be a black square (decimal point) in the bottom left corner of the display, during standby the current temperature is displayed.**
2. Pressing the left Programming button will increase the set temperature shown on the display.
3. Pressing the right Programming button will decrease the set temperature shown on the display.
4. When you reach the desired temperature, releasing the programming button for 2 seconds will lock it in and the programming decimal point will disappear and the set temperature will be locked.

For more information on the refrigeration system see the Refrigeration Section of this manual.

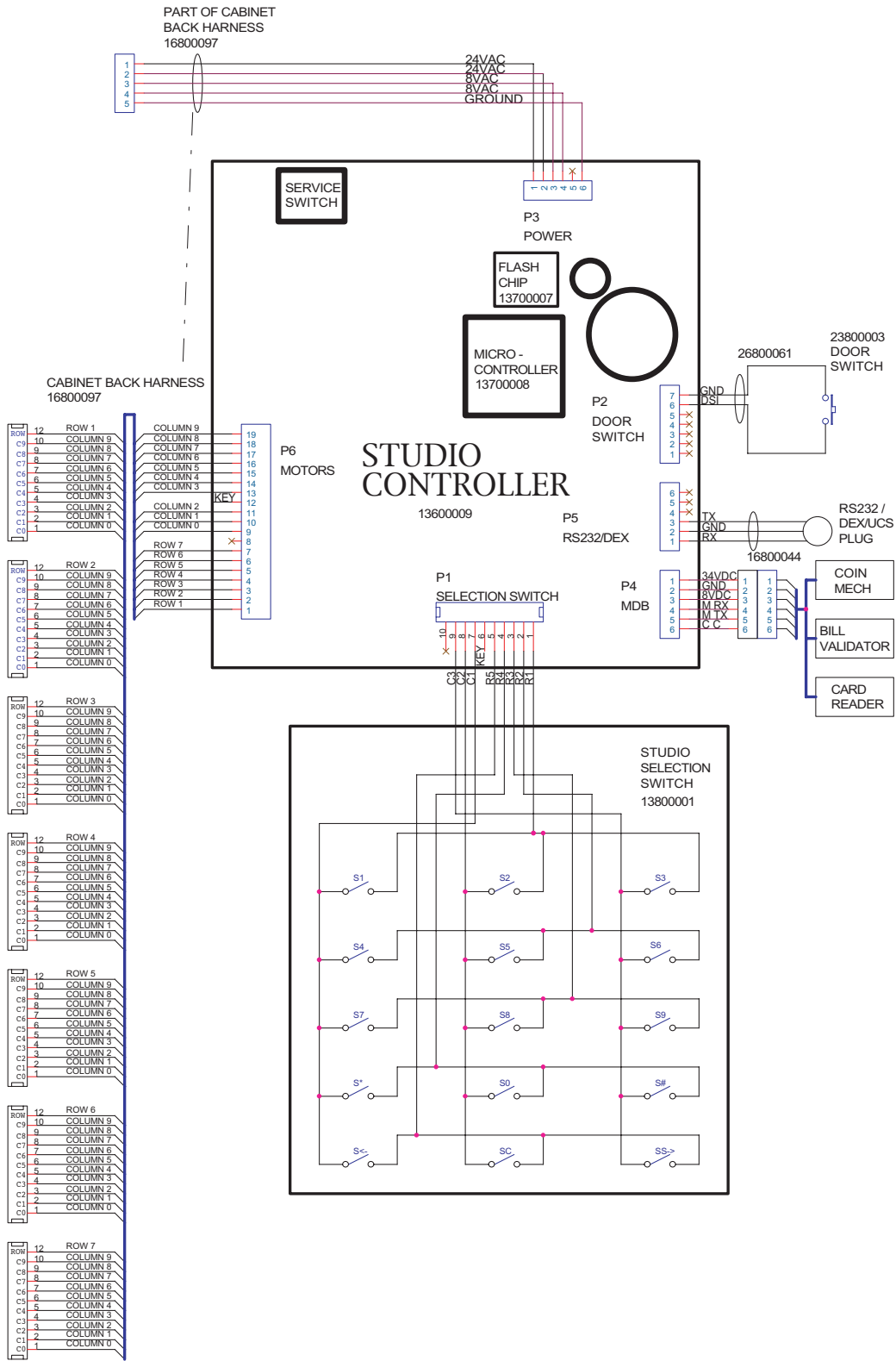
door - inside front



Item No.	Part No.		Description	Item No.	Part No.		Description
	Studio 1,2,5	Studio 3,4			Studio 1,2,5	Studio 3,4	
1	16000040 600822	16000018 16000014	Door Weld, Specify Color. Door Weld Euro, Specify Color.	42	16600266	16600266	Assembly Complete, Selector Bezel, Black.
	16000070 46000069	16000067 16000068	Door Weld, Square, Chilled, Specify Color. Door Weld Euro, Chilled, Specify Color.		16600267	16600267	Assembly Complete, Selector Bezel, Gray.
	16000040 600822-4	16000018 16000014-06	Door Weld Square, W POS, Specify Color. Door Weld Euro, W POS, Specify Color.		14400034	14400034	Selector Bezel Only, Black.
	16000070 16000069-04	16000067 16000068-04	Door Weld, Square, Chilled, W POS. Door Weld Euro, Chilled, W POS.	43	404-8	404-8	Nut, Hex Head (#8-32)
	16000040-02 600822-2	16000018-02 16000014-04	Door Weld, Square, W Guard. Door Weld Euro, W Guard.	44	118-10-8	118-10-8	Bolt, Carriage (10-24 x 1/2)
2	17100003	17100003	Stand Off, Control Board.	45	166000254-01	166000254	Lock Handle w/Lock Complete.
3	13600009	13600009	Control Board.	46	201712	201712	Coin Chute Bracket.
4	17400116	17400116	Decal Only.	47	440311	440311	Coin Chute, Plastic.
5	16600269 12000412 17400115	16600269 12000412 17400115	Control Board Cover with Decal. Control Board Cover Only. Decal Only.	48	660488	660488	Assembly, Coin Chute Plastic.
6	201-6R7	201-6R7	Screw, Round Hd Phillips (6-18 x 7/16).	49	660367	660367	Assembly Complete, Coin Return.
7	420062-1	420062-1	Screw, Round Hd. Machine, (4-36 x 3/4).	50	400007	400007	Spring.
8	460436	460436	Rubber Insulation, 143", Order by inch. Insulation Thermal Window	51	201703	201703	Coin Return Link.
9	380022-5	380022-5	Lamp, Fluorescent (F18T8 CWK24)	52	751-25	751-25	Retaining Ring (1/4)
10	750141-1	750141	Front Window Ambient Snack Area: (44-5/8 x 21-9/16 x 1/8)(44-5/8 x 26-7/8 x 1/8)	53	660581	660581	Coin Cup Front Assembly, Black
11	201-6R11	201-6R11	Screw, Round Head, Phillips, (6-20 x 11/16)		660581-1	660581-1	Coin Cup Front Assembly, Gray
12	201381-3	281381-3	Shield & Window Clamp Hinge Side. (Ambient Snack Area)		440411	440411	Trim, Coin Cup, Black
	16000049	16000049	Shield & Window Clamp Hinge Side, Thermal Window. (Chilled Snack Area)		440411-1	440411-1	Trim, Coin Cup, Gray
13	201385	201384	Window Clamp Bottom Ambient.	54	440412	440412	Coin Cup Door (not shown)
	12000126	12000086	Window Clamp Bottom, Chilled.		440413	440413	Coin Cup All, No Striker.
19	217-8R10	217-8R10	Screw, Pan Head, (#8 x 5/8).		<b>16600170</b>	<b>16600170</b>	<b>Coin Cup, Security, No Striker.</b>
20	276-8R6	276-8R6	Screw, (8-32 x 3/8).		<b>660570</b>	<b>660570</b>	<b>Assembly, Coin Cup With Striker.</b>
21	16600268-03	16600268-02	Assembly Complete, Delivery Bin (Black) <b>See Page 6.04 for itemized parts.</b>		<b>202432</b>	<b>202432</b>	<b>Striker Door Switch, Export.</b>
22	600179-1 12000088	600179-1 12000088	Cash Box. Cash Box Stop (not shown).		<b>300184</b>	<b>300184</b>	<b>Shoulder Bushing (2) Export.</b>
23	600714	600714	Cash Box Mounting Bracket.		<b>276-8R6</b>	<b>276-8R6</b>	<b>Screw, Pan Head (8-32 X 3/8)(2)</b>
24	400180	400180	Cash Box Retainer.		<b>400188</b>	<b>400188</b>	<b>Spring, Sticker Door Switch Export.</b>
32	305-7R8	305-7R8	Screw, Pan Hd., Plastite. (#7 x 1/2)	55	460061	460061	Insulation, Foam (Order by inch).
33	400112	400112	Spring, Locking Bar.	56	12000388	12000388	Window Shield, Lock Side, Ambient.
34	600432-3		Locking Bar Only		12000388-01	12000388-01	Window Shield, Lock Side, Chilled.
35	201660	201660	Coin Return Bracket	57	640131	640131	Lock Arm Only.
36	440289	440289	Coin Return Button, Black.	58	404-10	404-10	Nut, Hex Head (10-24).
	440289	440289	Coin Return Button, Gray	60	440414	440414	Coin Cup Chute.
37	466058	466058	Validator Filler Plate Assembly, Black.	61	680512	680512	Harness, Lamp.
	466058-1	466058-1	Validator Filler Plate Assembly, Gray.		680456-1	680456-1	Light Cord (Not Shown).
38	420144	420144	Ferrule	62	380023	380023	Starter (FS-25).
39	13800001	13800001	Selection Switch Keypad.		<b>380023-4</b>	<b>380023-4</b>	<b>Starter (FS-11).</b>
40	14400033	14400033	Selection Buttons, Dark Gray	63	750097	750097	Lock for Cash Box. w/2 keys.
	14400033-01	14400033-01	Selection Buttons, Light Gray	64	17400116	17400116	Decal, Set up instructions.
41	17400131	440390	Instruction Glass.	65	201-6R11	201-6R11	Screw, Round HD. (6-18 x 11/16's).
	<b>17400131-03</b>	<b>17400131-03</b>	<b>Instruction Glass, French.</b>		201-6R17	201-6R17	Screw, Chilled,(6-20 x 1 and a 1/16).
	<b>17400131-04</b>	<b>17400131-04</b>	<b>Instruction Glass, Spanish.</b>	66	23800003	23800003	Door Switch Only.
	<b>17400131-01</b>	<b>17400131-01</b>	<b>Instruction Glass, Dutch.</b>		680632	680632	Harness Only, Door Switch w/o Golden Eye
	<b>17400131-02</b>	<b>17400131-02</b>	<b>Instruction Glass, German.</b>		16800102	16800102	Harness Only, Door Switch with Golden Eye
	<b>17400131-05</b>	<b>17400131-05</b>	<b>Instructions Glass, Italian.</b>				
	<b>17400005</b>	<b>17400005</b>	<b>Instruction Glass, Russia.</b>				
	<b>17400007</b>	<b>17400007</b>	<b>Instruction Glass, Hungary.</b>				

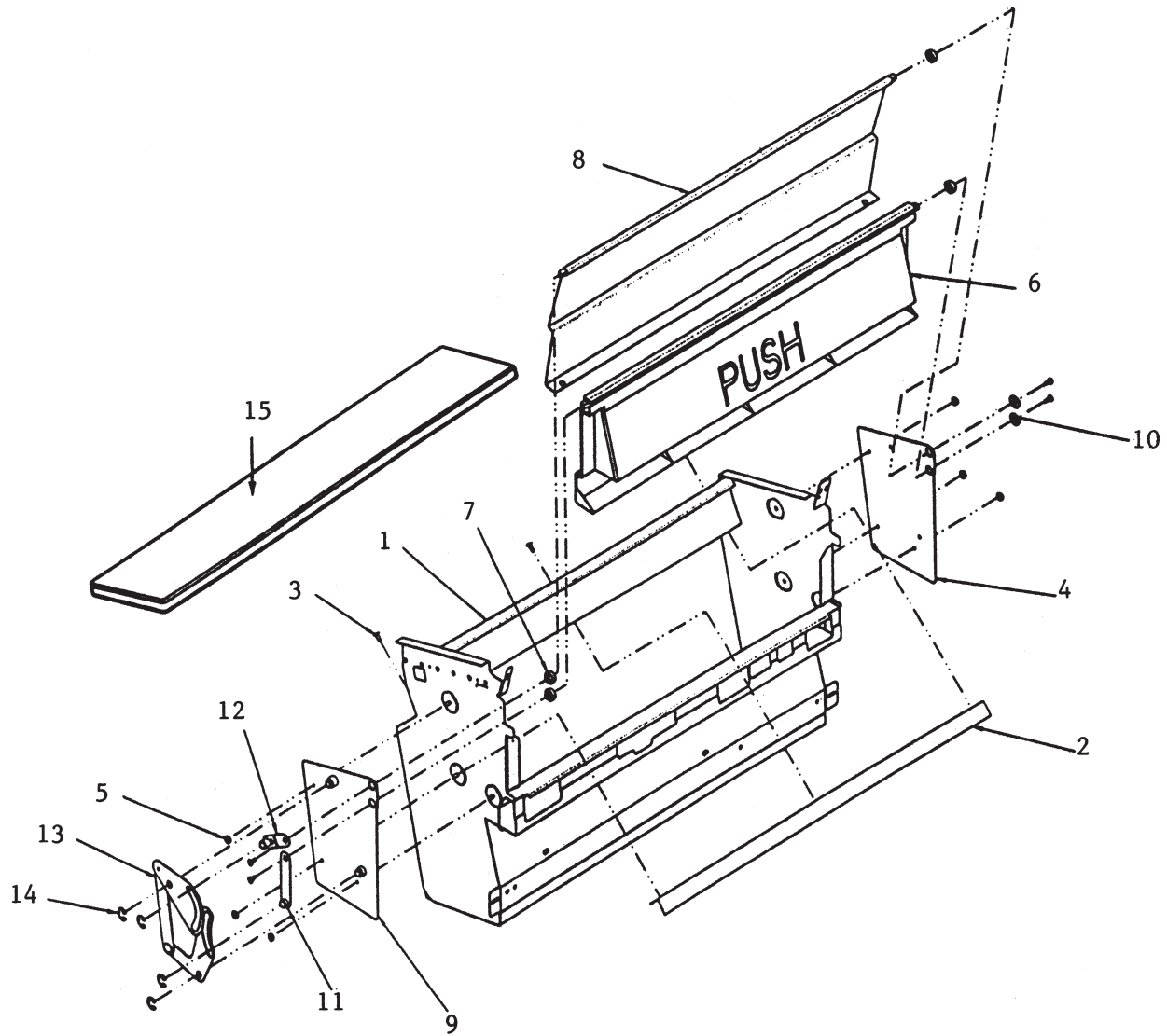
# studio logic board

A



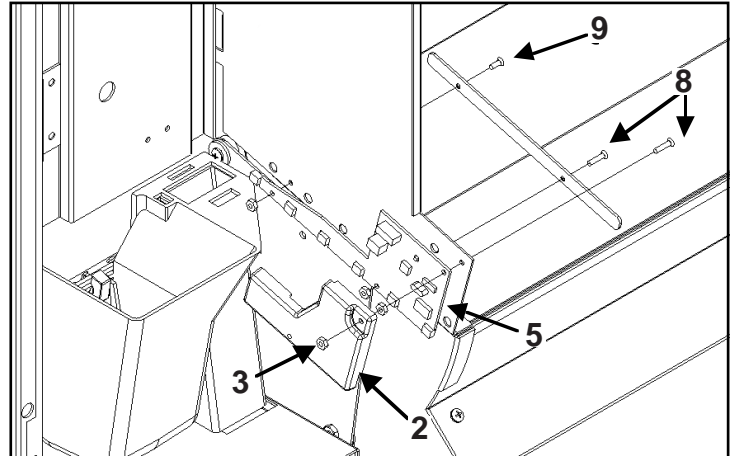
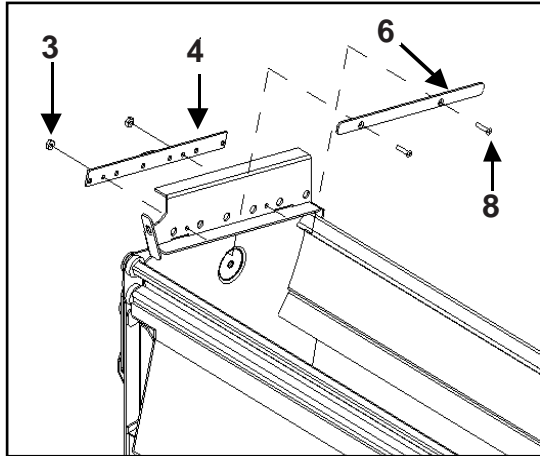
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# studio delivery bin assembly



Item No.	Description	Studio 1,2 & 5	Studio 3 & 4
1	Delivery Bin Assembly, Complete, Black.	16600268	16600268-02
	Delivery Bin Assembly, Complete, Gray.	16600268-01	16600268-03
2	Rear Bib Barrier.	200902-1	20090
3	Screw, (8-32 X 3/8)	276-8R6	276-8R6
4	Arm Mounting Bracket. (Lock Side)	440373-3	440373-2
5	8-32 Nut.	438-8	438-8
6	Door, Delivery Bin, Black.	440373-1	440373
	Door, Delivery Bin, Gray.	440373-3	440373-
7	Door Bearing.	440129	440129
8	Inner Door.	200763-1	200763
	Inner Door, Steel.	200763-4	200763-3
9	Arm Mounting Bracket.	640230	640230
10	Bin Door Washer.	420282	420282
11	Door Drive Arm.	640097	640097
12	Inner Bin Arm.	640098	640098
13	Bin Door Drive Assembly.	640100-1	640100-1
14	Retaining Ring # 37	751-37	751-37
15	Delivery Bin Pad Assembly for can Dispenser.	660238-1	660238

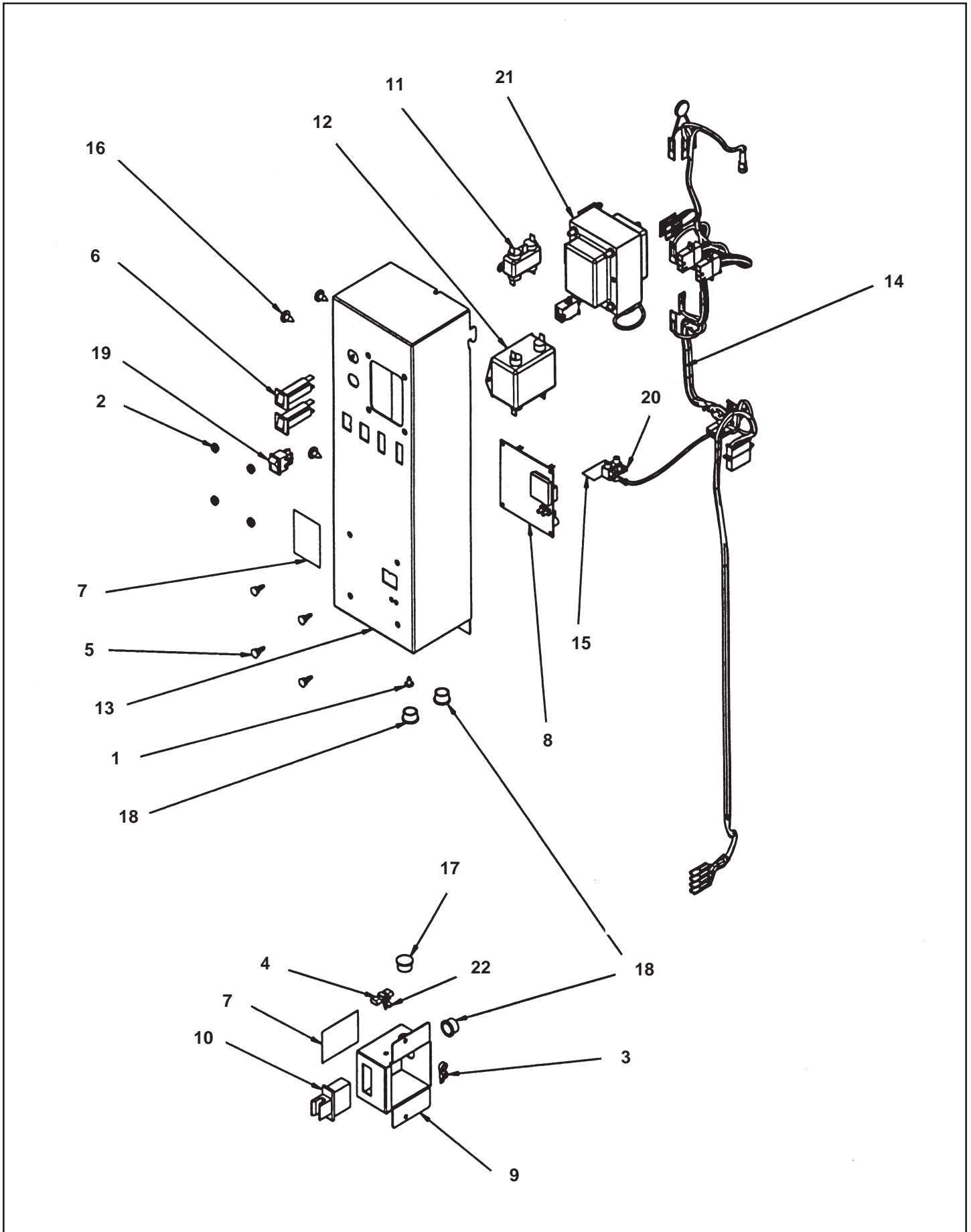
# Studio Golden Eye Sensor Assembly



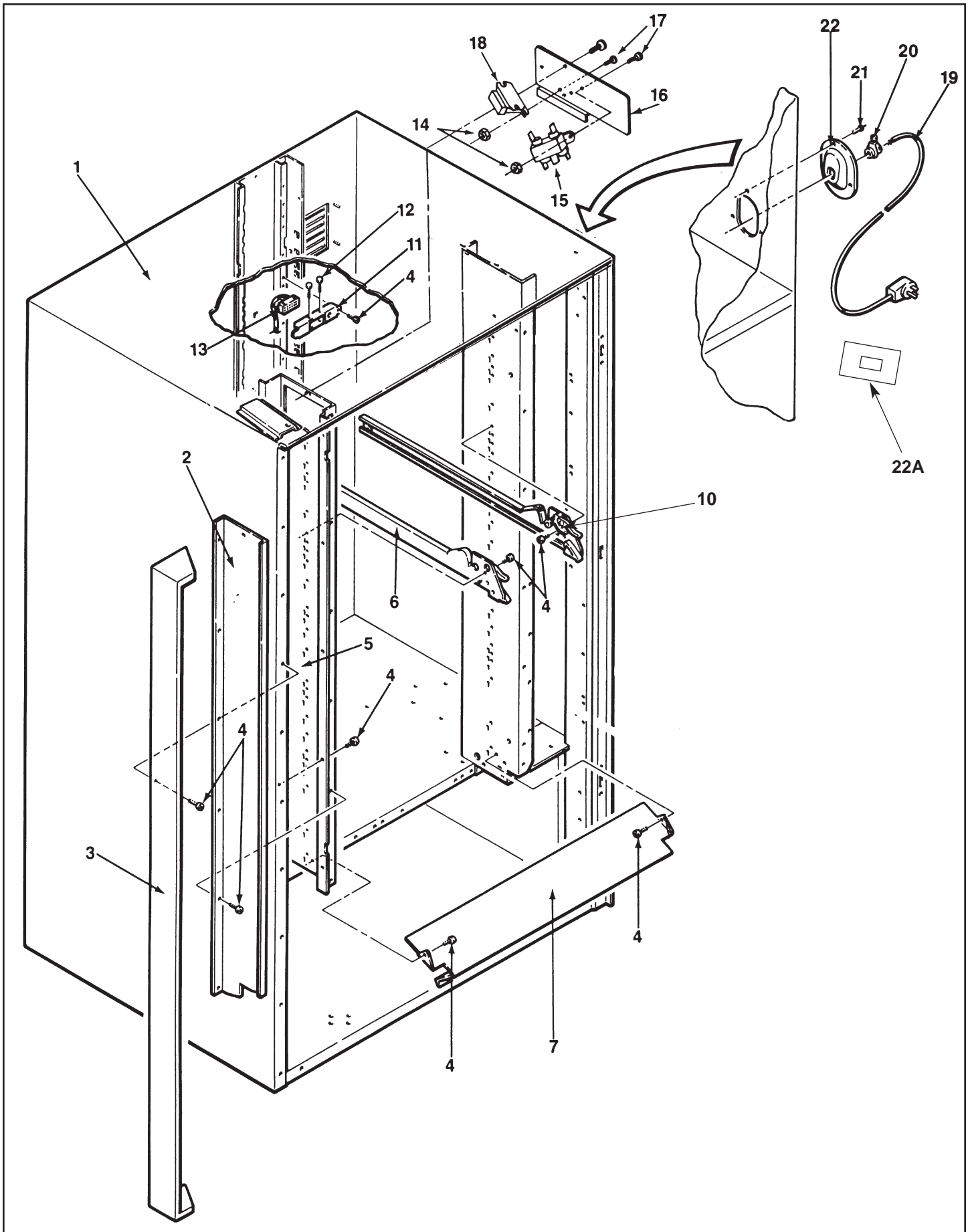
Studio Golden Eye Bin Sensor Parts		
1	Add on kit complete (includes all parts listed below).	17500028
2	Sensor Cover	14400039
3	Nylon Stop Nut (#4-40). (Hinge & Lock Side)	13100028
4	Printed Circuit Board Only, Hinge Side.	13600011
5	Printed Circuit Board Only, Lock Side.	13600010
6	Red Lens, Hinge Side Only.	14400038-01
7	Red Lens, Lock Side Only.	14400038
8	Screw, #4 – 40 X 1/2 Flat Head .	13100027
9	Screw, #4 – 40 X 3/8 Flat Head .	13100027-01
10	Harness, Golden Eye to Control Board. (not shown)	16800102
11	Harness, Sensor Board to Sensor Board. (not shown)	16800101
12	Decal, Golden Eye (not shown)	17400133



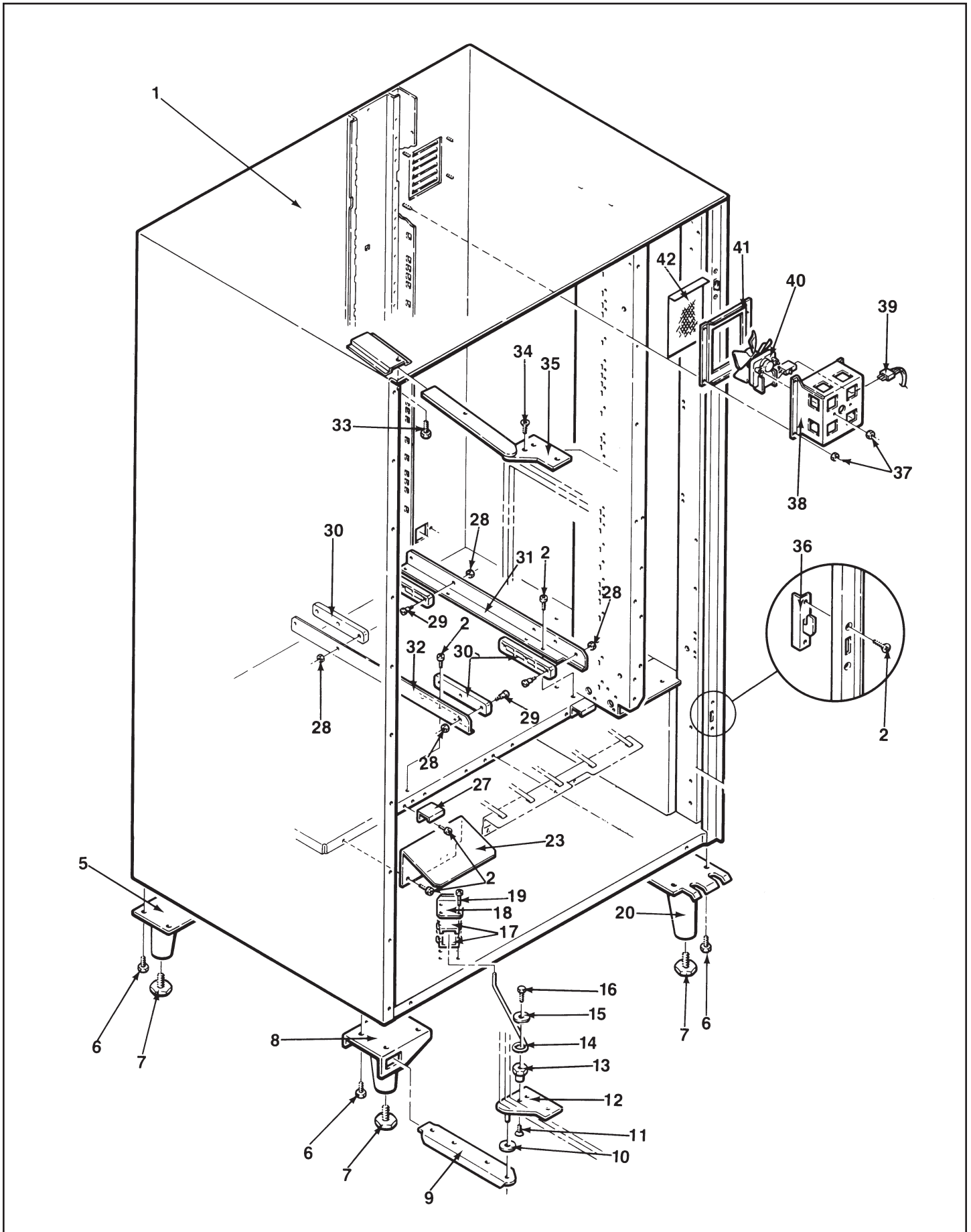
# power box



Item No.	Description	Studio 1	Studio 2	Studio 3	Studio 4	Studio 5
	Junction Box Complete, 117 V Ambient.	16600271	16600271	16600271	N/A	N/A
	Junction Box Complete, 117 V Chilled.	16600273	16600273	16600273	16600273	16600273
	<b>Junction Box Complete, 230 V Ambient Export.</b>	16600272	16600272	16600272	N/A	N/A
	<b>Junction Box Complete, 230 V Chilled Export.</b>	16600275	16600275	16600275	16600275	16600275
	<b>Junction Box Complete, 117 V Chilled Export</b>	16600274	16600274	16600274	16600274	16600274
1	#8 X 3/8 Screw	210-8R6	210-8R6	210-8R6	210-8R6	210-8R6
2	8-32 Nut	438-8	438-8	438-8	438-8	438-8
3	Cable Tie	380078	380078	380078	380078	380078
4	<b>Interlock Cheat Tool</b>	<b>380263</b>	<b>380263</b>	<b>380263</b>	<b>380263</b>	<b>380263</b>
5	Circuit Board Standoff	17100002	17100002	17100002	17100002	17100002
6	Circuit Breaker 3 Amp	380241	380241	380241	380241	380241
7	Decal, Voltage	460642	460642	460642	460642	460642
8	Digital Temp Control Assembly, Used in Chilled Machines Only. Includes Board and Probe	13600001	13600001	13600001	13600001	13600001
	Temp Control, Board Only	13600001-01	13600001-01	13600001-01	13600001-01	13600001-01
	Probe Only	13600001-02	13600001-02	13600001-02	13600001-02	13600001-02
9	Door Switch Box	12000122	12000122	12000122	12000122	12000122
10	Door Switch	380262	380262	380262	380262	380262
11	RFI Filter	380303	380303	380303	380303	380303
12	RFI Filter	380304	380304	380304	380304	380304
13	Weldment, Junction Box	12000099	12000099	12000099	12000099	12000099
14	Junction Box Harness 117V, Ambient.	16800031	16800031	16800031	16800031	16800031
	Junction Box Harness 117V, Chilled.	16800022	16800022	16800022	16800022	16800022
	<b>Junction Box Harness 117V, Ambient, Export.</b>	16800030-01	16800030-01	16800030-01	16800030-01	16800030-01
	<b>Junction Box Harness 230V, Ambient, Export.</b>	16800030	16800030	16800030	16800030	16800030
	<b>Junction Box Harness 230V, Chilled, Export.</b>	16800015	16800015	16800015	16800015	16800015
15	Mylar Insulation	440465	440465	440465	440465	440465
16	Screw 1/4 X 2	216-41R8	216-41R8	216-41R8	216-41R8	216-41R8
17	Snap Bushing / Hole Plug	420040-1	420040-1	420040-1	420040-1	420040-1
18	Snap Bushing / Hole Plug	420040-2	420040-2	420040-2	420040-2	420040-2
19	Rocker Switch	380243	380243	380243	380243	380243
20	<b>Terminal Block</b>	380285	380285	380285	380285	380285
21	Transformer, 117V	13900003-01	13900003-01	13900003-01	13900003-01	13900003-01
	<b>Transformer, 230V</b>	13900004-01	13900004-01	13900004-01	13900004-01	13900004-01
22	Clip for Interlock Switch Tool	380321	380321	380321	380321	380321
23	Power Box Mounting Panel	12000103	12000103	12000103	12000103	12000103

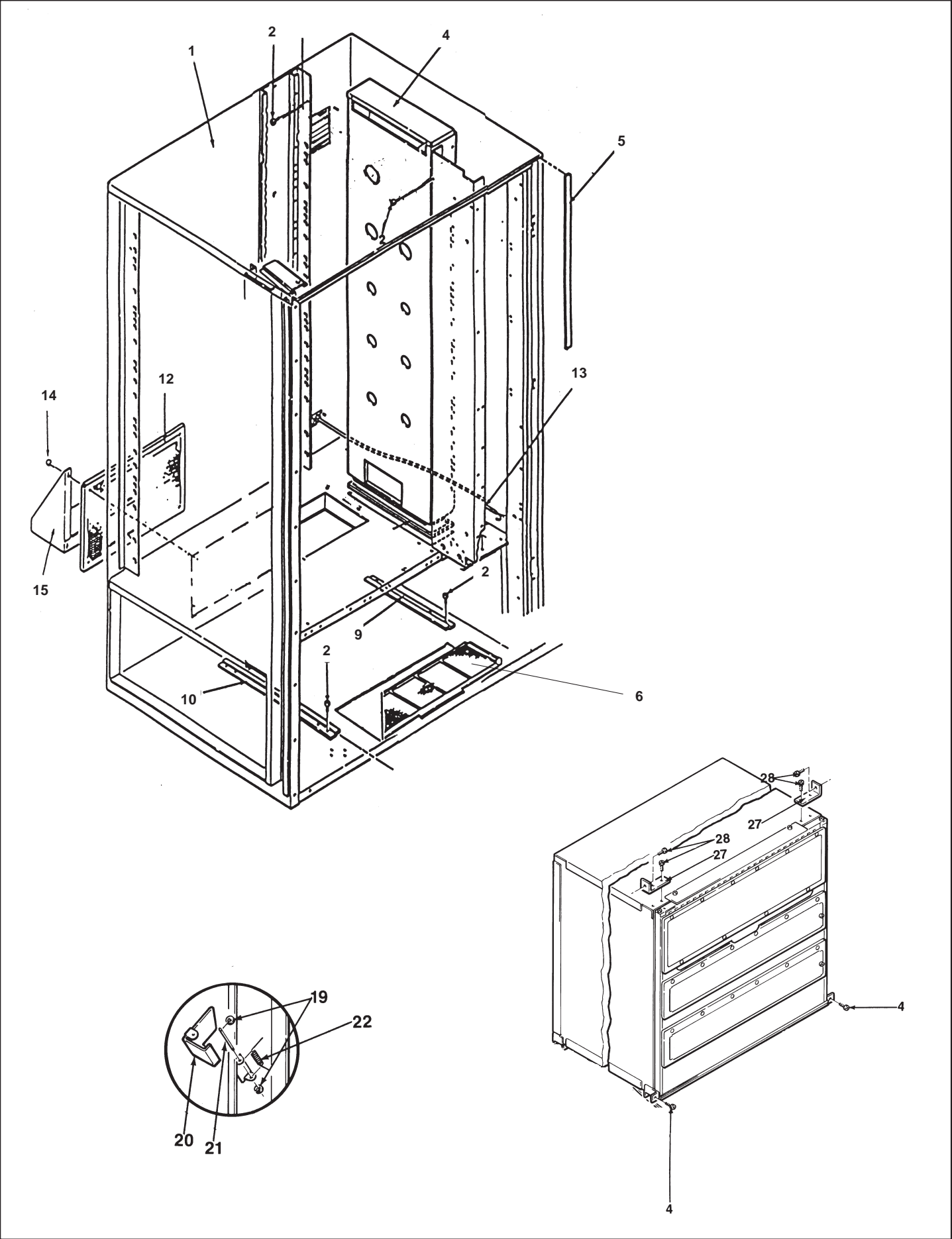


Key	Description	Studio 1	Studio 2	Studio 3	Studio 4	Studio 5
1	Cabinet Assembly Complete, with Legs. Specify Color.	17500025	17500025-01	17500025-02	17500025-03	17500025-04
	Chilled Machine Cabinet Assembly Complete, with Legs. Specify Color. (chilled snack area on Studio 4 & 5)	17500025-05	17500025-06	17500025-07	17500025-08	17500025-09
2	Filler Plate, Left Front.	12000246	12000246	12000246	16600137	16600137
3	Door Filler, Specify Color,	N/A	N/A	600310	600310	N/A
4	Screw Pan Head, (8-32 X 3/8)	276-8R6	276-8R6	276-8R6	276-8R6	276-8R6
5	Shelf Support, Front Left	120000391	120000391	120000391	12000405	12000405
6	Assembly, Shelf Cabinet Track, Left	202090-2	202090	202090	202090	202090-02
7	Gum & Mint Filler Panel, for use with no Gum & Mint	12000121-03	12000121-03	12000121-01	N/A	N/A
10	Assembly, Shelf Cabinet Track, Right.	640177-3	640177-1	640177-1	640177-1	640177-3
11	Cabinet Receptacle Mounting Bracket Only	12000173	12000173	12000173	12000173	12000173
13	Cabinet Back Harness, Assembly Complete.	16600258	16600258	16600258	16600259	16600259
14	Nut Hex Head (6-32)	404-6	404-6	404-6	404-6	404-6
15	Line Filter	380303	380303	380303	380303	380303
16	Assembly Complete, Light Ballast & Filter, 117 Volt.	16600092	16600092	16600092	16600092	16600092
	<b>Assembly Complete, Light Ballast &amp; Filter, 230 Volt.</b>	<b>16600092-03</b>	<b>16600092-03</b>	<b>16600092-03</b>	<b>16600092-03</b>	<b>16600092-03</b>
17	Screw, Pan Head, (6-32 X 3/8)	276-6R6	276-6R6	276-6R6	276-6R6	276-6R6
18	Ballast only, 117 Volt.	680514	680514	680514	680514	680514
	<b>Ballast only, 230 Volt.</b>	<b>680513-2</b>	<b>680513-2</b>	<b>680513-2</b>	<b>680513-2</b>	<b>680513-2</b>
19	Power Inlet Cord Only, Domestic.	16800052	16800052	16800052	16800052	16800052
	<b>Power Inlet Cord with Plate, Domestic.</b>	<b>16600098</b>	<b>16600098</b>	<b>16600098</b>	<b>16600098</b>	<b>16600098</b>
	<b>Power Inlet Cord with Plate, Europe.</b>	<b>16600099</b>	<b>16600099</b>	<b>16600099</b>	<b>16600099</b>	<b>16600099</b>
	<b>Power Inlet Cord with Plate, Australia.</b>	<b>16600099-01</b>	<b>16600099-01</b>	<b>16600099-01</b>	<b>16600099-01</b>	<b>16600099-01</b>
	<b>Power Inlet Cord with Plate, Israel</b>	<b>16600099-02</b>	<b>16600099-02</b>	<b>16600099-02</b>	<b>16600099-02</b>	<b>16600099-02</b>
	<b>Power Inlet Cord with Plate, UK.</b>	<b>16600099-03</b>	<b>16600099-03</b>	<b>16600099-03</b>	<b>16600099-03</b>	<b>16600099-03</b>
	<b>Power Inlet Cord with Plate, India.</b>	<b>16600099-04</b>	<b>16600099-04</b>	<b>16600099-04</b>	<b>16600099-04</b>	<b>16600099-04</b>
	<b>Power Inlet Cord with Plate, 120 Volt Export.</b>	<b>16600099-05</b>	<b>16600099-05</b>	<b>16600099-05</b>	<b>16600099-05</b>	<b>16600099-05</b>
20	Strain Relief Bushing.	380052-3	380052-3	380052-3	380052-3	380052-3
21	Pop Rivet	420078-1	420078-1	420078-1	420078-1	420078-1
22	Cord Plate, Power Inlet.	202070	202070	202070	202070	202070
22A	Expander Mounting Plate.	12000336	12000336	12000336	12000336	12000336



Key	Description	Studio 1	Studio 2	Studio 3	Studio 4	Studio 5
1	Cabinet Assembly Complete, with Legs. Specify Color.	17500025	17500025-01	17500025-02	17500025-03	17500025-04
	Chilled Machine Cabinet Assembly Complete, with Legs. Specify Color. (chilled snack area on Studio 4 & 5)	17500025-05	17500025-06	17500025-07	17500025-08	17500025-09
2	Screw, Pan Head, (8-32 X 3/8)	276-8R6	276-8R6	276-8R6	276-8R6	276-8R6
5	Leg Assembly Rear, Specify Color.	600195	600195	600195	600195	600195
6	Screw, Hex Head, (5/16 – 18 X _)	420187	420187	420187	420187	420187
7	Leg Leveler.	300103	300103	300103	300103	300103
8	Front Leg Assembly, Pivot Side, Specify Color.	600195	600195	600302	600302	600195
9	Lower Hinge Support, Specify Color.	201773	201773	202088	202088	201773
10	Washer (1-1/4).	420010-22	420010-22	420010-18	420010-18	420010-22
11	Screw, Flat Head (1/4 – 20 X _)	420003	420003	420003	420003	420003
12	Lower Door Plate Assembly	640157	640157	640154	640154	640157
13	Door Stop Anchor	300151	300151	300156	300156	300151
14	Door Stop Rod	400090	400090	400095	400095	400090
15	Washer	420010-10	420010-10	420010-10	420010-10	420010-10
16	Screw, Hex Head Machine, (1/4-20 X _)	114-41-8	114-41-8	114-41-8	114-41-8	114-41-8
17	Friction Pad	440204	440204	440204	440204	440204
18	Door Stop Plate	200940	200940	201042	201042	200940
19	Screw, Pan Head, Self Tap, (10-32 X 1)	277-10R16	277-10R16	277-10R16	277-10R16	277-10R16
20	Front Leg Assembly, Lock Side.	600197	600197	600197	600197	600197
23	Plate, Gum & Mint Deflector.	12000038-01	12000038-01	12000038	N/A	N/A
27	Gum & Mint Tray Catch	12000006	12000006	12000006	N/A	N/A
28	Nut (1/4 - 28)	437-41	437-41	437-41	437-41	437-41
29	Screw, Shelf Roller.	300137	300137	300137	300137	300137
30	Gum & Mint Tray Slide	440278	440278	440278	N/A	N/A
31	Assembly Complete, Gum & Mint Support, Right.	16600039-02	16600039	16600039	N/A	N/A
31a	Rail, Gum & Mint Support, Right.	12000061-02	12000061	12000061	N/A	N/A
32	Assembly Complete, Gum & Mint Support, Right.	16600039-03	16600039-01	16600039-01	N/A	N/A
32a	Rail, Gum & Mint Support, Right.	12000061-03	12000061-01	12000061-01	N/A	N/A
33	Screw, Hex Head, (5/16 – 18 X 3/8)	N/A	N/A	164-51-7	164-51-7	N/A
33a	Nut, Keps, (1/4 – 20)	438-41	438-41	N/A	N/A	438-41
34	Screw, Flat Head, (1/4-20 X _).	420003-01	420003-01	420003-01	420003-01	420003-01
35	Upper Hinge Assembly	640150	640150	640107-1	640107-1	640150
36	Door Catch Assembly	600433	600433	600433	600433	600433
37	Hex Nut (8-32).	404-4	404-4	404-4	404-4	404-4
38	Kit, Fan add on 117 Volt. Includes items 37-43.	750102-4	750102-4	750102-4	750102-4	750102-4
	Kit, Fan add on 240 Volt. Includes items 37-43.	750102-5	750102-5	750102-5	750102-5	750102-5
	Fan Housing only	202072	202072	202072	202072	202072
39	Harness, Fan.	680456	680456	680456	680456	680456
40	Fan Motor Only, 117 Volt.	360122-2	360122-2	360122-2	360122-2	360122-2
	Fan Motor Only, 230 Volt.	360122-3	360122-3	360122-3	360122-3	360122-3
41	Screen Bracket	202070	202070	202070	202070	202070
42	Screen	202071	202071	202071	202071	202071
43	Louver	640178	640178	640178	640178	640178
	Cover Plate (used with no fan), Not Shown.	16400024	16400024	16400024	16400024	16400024

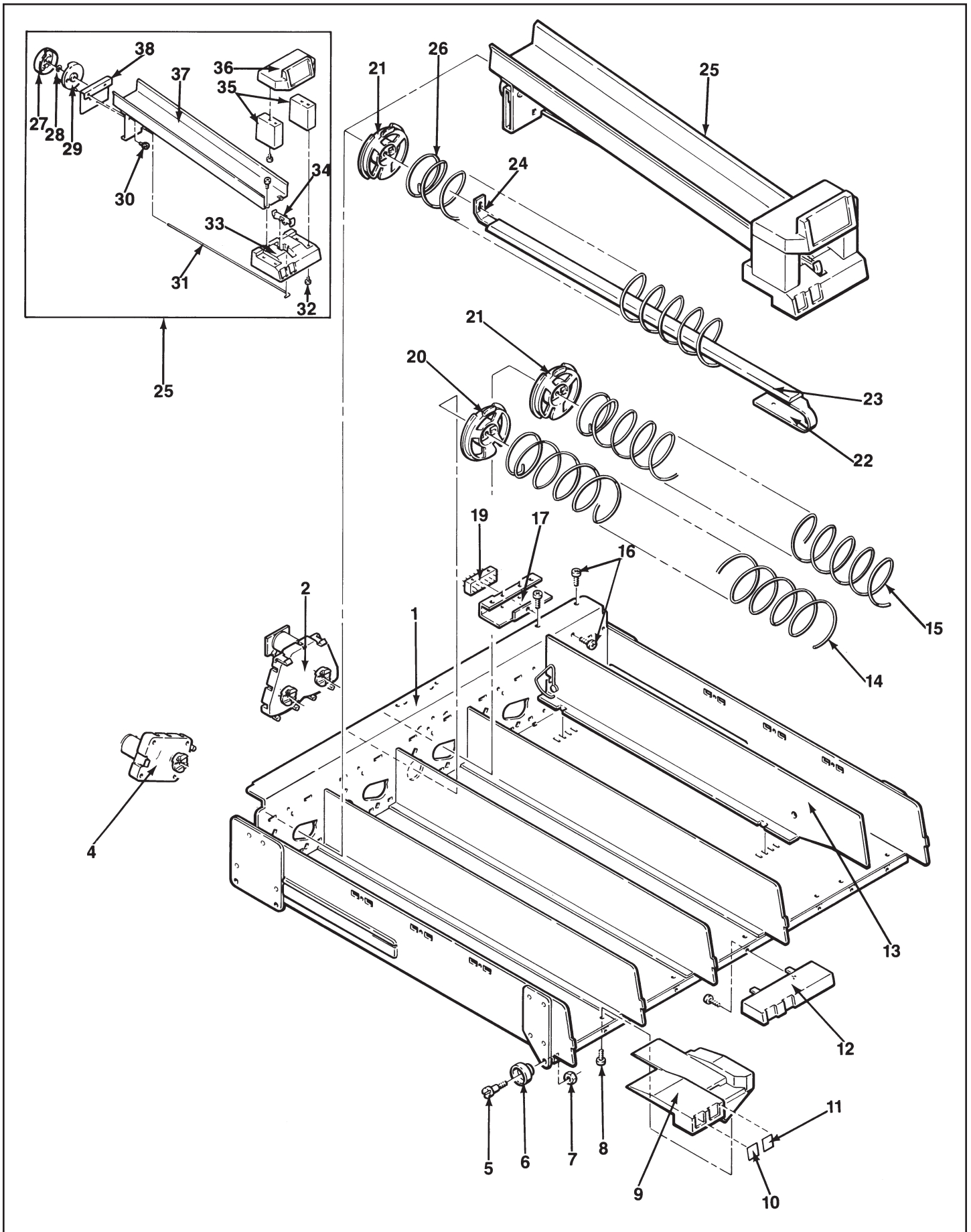
chilled cabinet supplement



Key	Description	Studio 1	Studio 2	Studio 3	Studio 4	Studio 5
1	Cabinet Assembly Complete, with Legs. Specify Color.	17500025	17500025-01	17500025-02	17500025-03	17500025-04
	Chilled Machine Cabinet Assembly Complete, with Legs. Specify Color. (chilled snack area on Studio 4 & 5)	17500025-05	17500025-06	17500025-07	17500025-08	17500025-09
2	Screw, Pan Head, (8-32 X 3/8)	276-8R6	276-8R6	276-8R6	276-8R6	276-8R6
4	Air Duct	12000087	12000087	12000087	N/A	N/A
5	Door Gasket, Order by Inches.	460468	460468	460468	460468	460468
6a	Front Vent Screen chilled snack area only	12000401	12000401	12000401	12000401	12000401
6b	Front Vent Screen chilled can area, snacks ambient	12000401-01	12000401-01	12000401-01	12000401-01	12000401-01
6c	Front Vent Screen chilled can and snacks	12000401	12000401	12000401	12000401	12000401
8	Door Gasket, Order by Inches.	460468	460468	460468	460468	460468
9	Right Retainer	202145	202145	202145	N/A	N/A
10	Left Retainer	202144	202144	202144	N/A	N/A
13	Power Inlet Cord Only, Domestic.	16800052	16800052	16800052	16800052	16800052
	<b>Power Inlet Cord with Plate, Domestic.</b>	<b>16600098</b>	<b>16600098</b>	<b>16600098</b>	<b>16600098</b>	<b>16600098</b>
	<b>Power Inlet Cord with Plate, Europe.</b>	<b>16600099</b>	<b>16600099</b>	<b>16600099</b>	<b>16600099</b>	<b>16600099</b>
	<b>Power Inlet Cord with Plate, Australia.</b>	<b>16600099-01</b>	<b>16600099-01</b>	<b>16600099-01</b>	<b>16600099-01</b>	<b>16600099-01</b>
	<b>Power Inlet Cord with Plate, Israel</b>	<b>16600099-02</b>	<b>16600099-02</b>	<b>16600099-02</b>	<b>16600099-02</b>	<b>16600099-02</b>
	<b>Power Inlet Cord with Plate, UK.</b>	<b>16600099-03</b>	<b>16600099-03</b>	<b>16600099-03</b>	<b>16600099-03</b>	<b>16600099-03</b>
	<b>Power Inlet Cord with Plate, India.</b>	<b>16600099-04</b>	<b>16600099-04</b>	<b>16600099-04</b>	<b>16600099-04</b>	<b>16600099-04</b>
	<b>Power Inlet Cord with Plate, 120 Volt Export.</b>	<b>16600099-05</b>	<b>16600099-05</b>	<b>16600099-05</b>	<b>16600099-05</b>	<b>16600099-05</b>
14	Screw, Pan Head, (#8-23 X _).	276- 8R8	276- 8R8	276- 8R8	276- 8R8	276- 8R8
15	Air Deflector	202471	202471	202471	202471	202471
19	Retaining Ring.	751-9	751-9	751-9	751-9	751-9
20	Latch	202376	202376	202376	202376	202376
21	Pivot Pin.	300211	300211	300211	300211	300211
22	Spring.	400182	400182	400182	400182	400182
27	Mounting Bracket.	202400	202400	202400	202400	202400
28	Screw (#8 X 3/8).	210-8R6	210-8R6	210-8R6	210-8R6	210-8R6



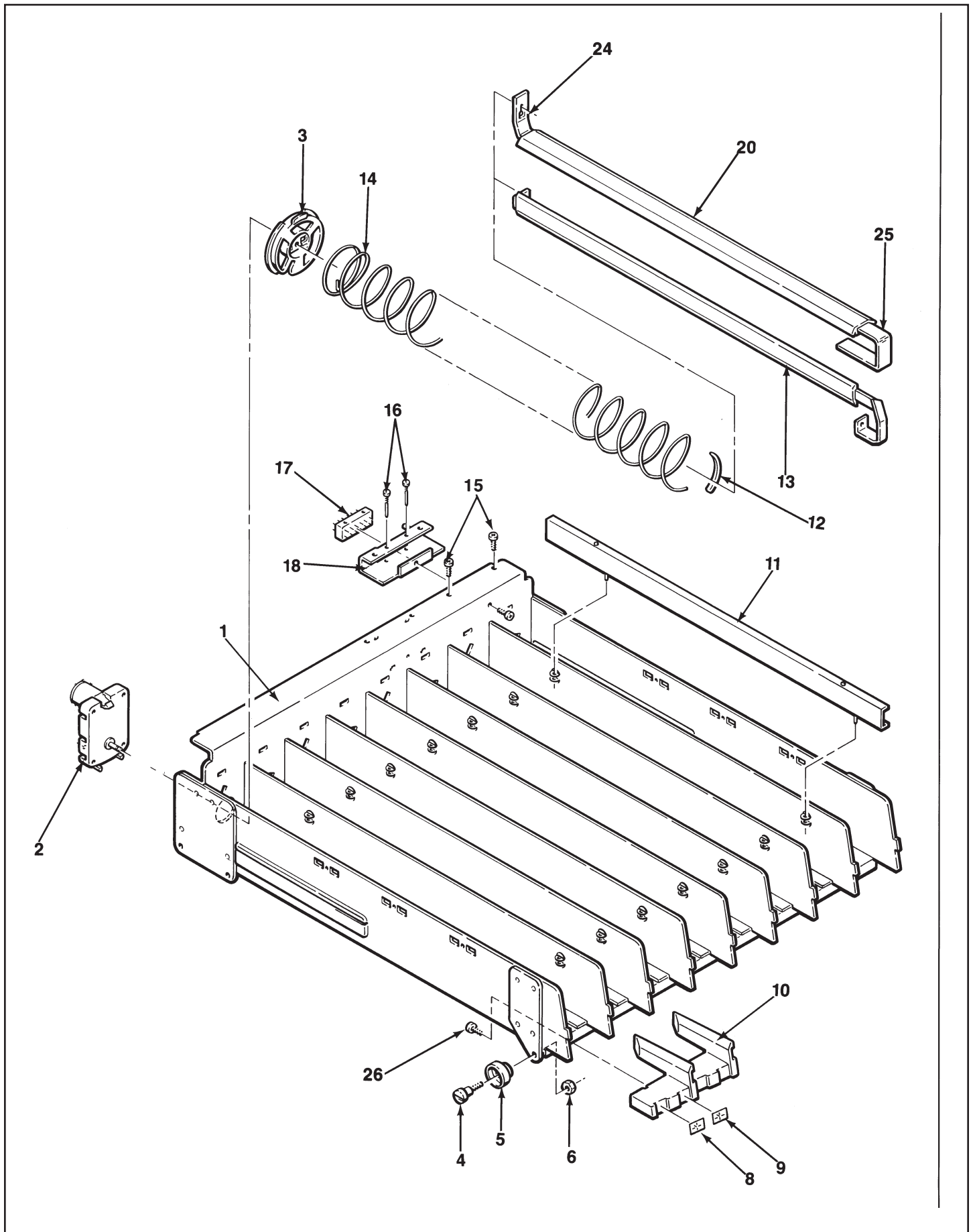
# snack shelf



Key	Description	Studio 1 & 5	Studio 2	Studio 3 & 4
1	Snack Shelf w/o Spirals, Complete, including motors and harness.	750121-13	750121-14	750121-15
	Dual Snack Shelf w/o Spirals, Complete, including motors and harness.	750162-15	750162-14	750162-1
	Snack Shelf Only. (Weldment)	6008191	6000114	600761
2	Dual Spiral Motor Only, White/Blue.	360240	360240	360240
	Kit, Dual Spiral Add on.	750159-2	750159-2	750159-2
4	Vend Motor Complete, White/Blue	360275	360275	360275
5	Screw, Shelf Roller.	300203	300203	300203
6	Roller, Shelf.	440362	440362	440362
7	Nut, Keps. (1/4 X 28)	437-41	437-41	437-41
8	Screw, Pan Head, Phillips, Plastite. (8-16 X 3/8)	305-8R6	305-8R6	305-8R6
9	Price and Selection Tab Holder. (Single Spiral)	440285	440285	440285
10	Item Tabs	17400118	17400118	17400018
11	Price Tabs. <b>See Chart on Page 6.20.</b>			
12	Dual Spiral Pastry Shelf Front.	440367	440367	440367
13	Spacer, Snack Shelf	640101-1	640101	640101
14	Left Hand Dual Spirals, <b>See Chart at bottom of page.</b>			
15	Right Hand Dual Spirals, <b>See Chart at bottom of page.</b>			
16	Screw, Pan Head. Self Tap (8-32 X 3/8)	276-8R6	276-8R6	276-8R6
17	Bracket only	16000083	16000083	16000083
18	Pin, Shelf Plug.	420046-4	420046-4	420046-4
19	Assembly Complete, Harness Plug and Bracket	660435-9	660435-9	660435-7
	Harness only, no Bracket.	16800073	16800073	16800049
20	Spiral Retainer, Left Hand. Gray	440406	440406	440406
21	Spiral Retainer, Right Hand. White	440405	440405	440405
22	Front Rail Support Only	201534	201534	201534
23	Product Rail Assembly, for use with Single Pastry Spiral.	660330-3	660330-2	660330-2
24	Rear Bracket Only	200913	200913	200913
25	Single Snack Spirals, See Chart at bottom of page.			750083
26	Kit, Can Dispenser	750083-1	750083	
27	Drive Cam Rear	440201	440201	440201
28	Retaining Ring # 31	751-31	751-31	751-31
29	Drive Cam, Front.	440200	440200	440200
30	Shoulder Bushing.	300184	300184	300184
	Screw Type # 23.	277-10R8	277-10R8	277-10R8
31	Actuator Wire.	400094	400094	400094
32	Screw. Plastite. (8-16 x 3/8)	305-8R6	305-8R6	305-8R6
33	Price & Selection Trim.	440196	440196	440196
34	Stop Leveler.	440199	440199	440199
35	Leg, Top Can Guide & Sign Trim.	440198	440198	440198
36	Top Can Guide & Sign Trim.	440197	440197	440197
37	Can Dispenser, Trough Only.	600308	600308	600308
38	Cam, Mounting Bracket & Spring Assembly	640109	640109	640109

	Single Snack Spirals		Left Hand Dual Spirals		Right Hand Dual Spirals	
	Studio 1 & 5	Studio 2,3 & 4	Studio 1 & 5	Studio 2,3 & 4	Studio 1 & 5	Studio 2,3 & 4
3 Space	N/A	N/A	400186-1	N/A	400185-1	N/A
4 Space	460165-1	14000002-01	400184-1	N/A	400183-1	N/A
6 Space	400124-1	400162-1	400174-1	14000003-01	400173-1	400167-1
7 Space	N/A	400153-1	N/A	400178-1	N/A	400164-1
8 Space	400125-1	N/A	400175-1	N/A	400116-1	N/A
9 Space	N/A	N/A	N/A	400179-1	N/A	400166-1
10 Space	400126-1	400127-1	400176-1	400169-1	400117-1	400168-1
12 Space	N/A	400128-1	N/A	400170-1	N/A	400120-1
15 Space	N/A	400129-1	N/A	400171-1	N/A	400121-1
30 Space	N/A	400136-1	N/A	N/A	N/A	N/A
40 Space	N/A	400137-1	N/A	N/A	N/A	N/A

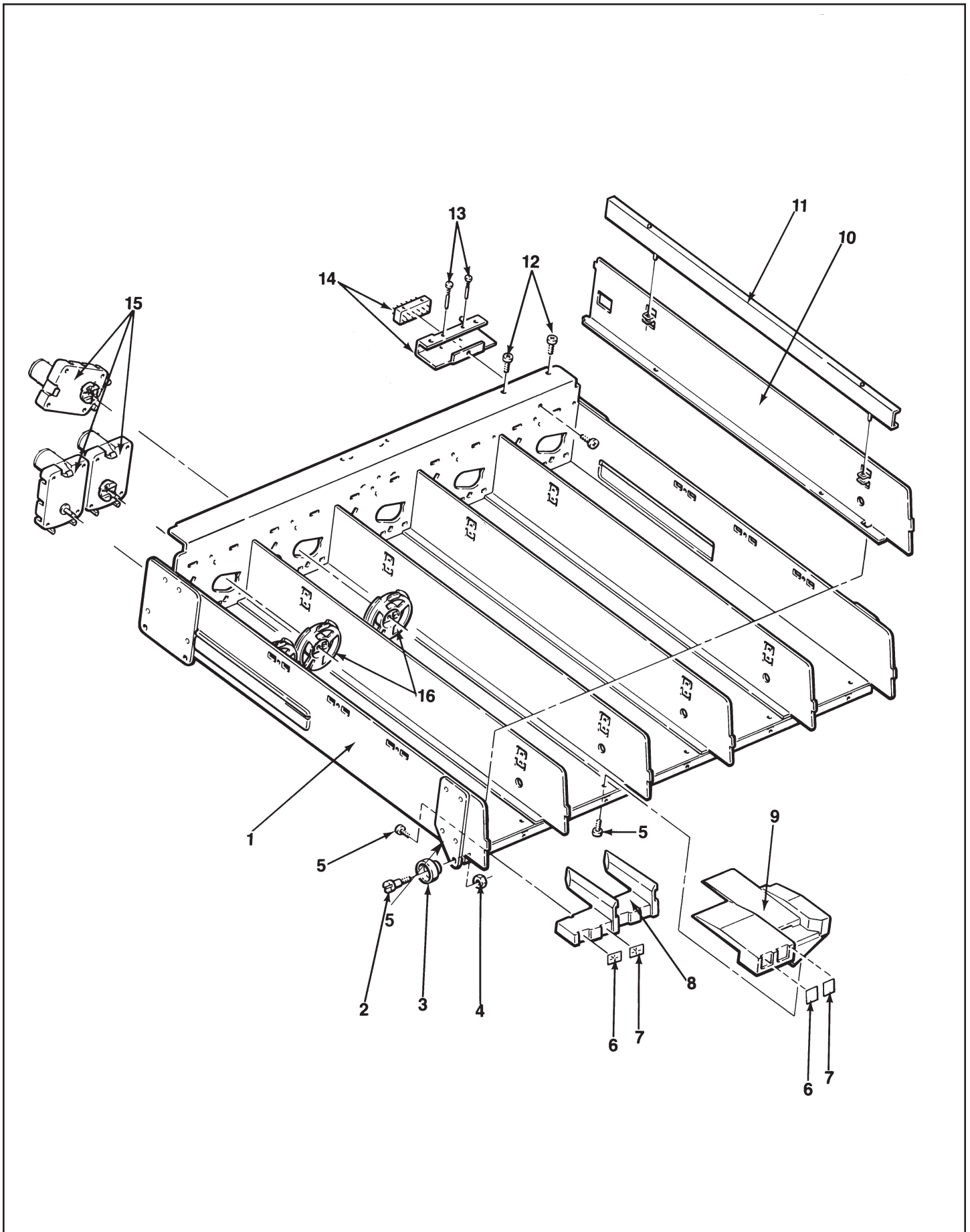
# candy shelf



Key	Description	Studio 1 & 5	Studio 2	Studio 3 & 4
1	<b>Candy Shelf Complete with Fixed Dividers, w/o Spirals.</b>	<b>750122-14</b>	<b>750122-15</b>	<b>750122-16</b>
	<b>Fixed Candy Shelf Only. Weld Assembly</b>	<b>600820</b>	<b>16000115</b>	<b>600762</b>
2	Vend Motor Complete, White/Blue.	360275	360275	360275
	Vend Motor Half Cycle, Brown/White	360241	360241	360241
	Kit, 2 Selection Add-On.	750150-4	750150-4	750150-4
	Kit, Dual Spiral Add on w/o Spirals. (one per selection)	750159-2	750159-2	750159-2
	Kit, Half Cycle Add -On.	750136-2	750135-2	750135-2
3	Spiral Lock, White	440405	440405	305-8R6
4	Screw, Shelf Roller.	300203	300203	300203
5	Shelf Roller.	440362	440362	440362
6	Nut. (1/4 – 28)	437-41	437-41	437-41
8	Item Tabs.	17400118	17400118	17400018
9	Price Tabs <b>See Chart on Page 6.20.</b>			
10	Price & Selection Tab Holder, Candy.	440262	440262	440262
11	Assembly, Candy Spacer.	660178-2	660178	660178
	Assembly, Candy Spacer. For use with Half Cycle Motor.	600178-3	60178-4	60178-4
12	Product Pusher	440141-1	440141-1	440141-1
13	Product Guide Assembly, For use with Half Cycle Motor Domestic.	660503-1	660503	660503
	<b>Half Cycle Rail Export.</b>	660669-1	660669	66066
	Small Product Guide for use with Thin Mints.	660296-1	660296	660296
	Product rail for use with Kit Kat.	660191-6	660191-8	660191-8
14	Candy Spirals, <b>See Chart at Bottom of Page.</b>			
15	Screw, Pan Head. (8-32 x 3/8)	276-8R6	276-8R6	276-8R6
16	Shelf Plug Pin.	N/A	N/A	N/A
17	Harness, Candy Shelf with Bracket.	660435-10	660435-10	660435-8
	Harness Only.	16800074	16800074	16800050
18	Bracket Only	16000083	16000083	16000083
20	Product Rail Assembly, For use with a Candy Spiral. Includes 18,18a & 18b.	660191-2	660191	660191
	Plastic Rail Only	440148-2	440148-1	440148-1
	Product Rail for use with 12 oz. Cans.	600618-1	600618	600618
24	Rear Support Bracket Only.	200913	200913	200913
25	Front Support Bracket Only.	201258	201258	201258
26	Screw, Plastite. (8-16 X 3/8)	305-8R6	305-8R6	305-8R6

Candy Spirals	Studio 1 & 5	Studio 2,3 & 4
3 Space	400185-1	N/A
4 Space	400183-1	N/A
5 Space	N/A	14000004-01
6 Space	400174-1	400167-1
7 Space	N/A	400164-1
8 Space	400116-1	N/A
9 Space	N/A	400166-1
10 Space	400117-1	400168-1
12 Space	N/A	400120-1
15 Space	N/A	400121-1
16 Space	400119-1	N/A
18 Space	N/A	400122-1
20 Space	400134-1	N/A
24 Space	N/A	400123-1
30 Space	N/A	400135-1
40 Space	N/A	400138-1

# convertible shelf



Key	Description	Studio 1 & 5	Studio 2	Studio 3 & 4
1	Convertible Candy Shelf Complete, w/o Spirals. (All Candy Selections)	750148-16	750149-19	16600125-02
	Convertible Pastry Shelf Complete, w/o Spirals. (All Pastry/Snack Selections)	16600123-01	16600201-01	16600125-01
	Convertible Shelf Only. Weld Assembly	600819	16000114	600761
2	Screw, Shelf Roller.	300203	300203	300203
3	Shelf Roller.	440362	440362	440362
4	Nut. (1/4 – 28)	437-41	437-41	437-41
5	Screw, Plastite. (8-16 X 3/8)	305-8R6	305-8R6	305-8R6
6	Item Tabs.	17400118	17400118	17400018
7	Price Tabs, <b>See Chart at Bottom of Page.</b>			
8	Price & Selection Tab Holder, Candy.	440262	440262	440262
9	Price and Selection Tab Holder, Snack.	440285	440285	440285
10	Shelf Divider, Candy.	200753-6	200753-2	200753-2
11	Assembly, Candy Spacer.	660178-2	660178	660178
12	Screw, Pan Head. (8-32 x 3/8)	276-8R6	276-8R6	276-8R6
13	Pin, Shelf Plug.	N/A	N/A	N/A
14	Harness, Candy Shelf with Bracket.	660435-10	660435-10	660435-8
	Harness Only.	16800074	16800074	16800050
15	Vend Motor Complete, White/Blue.	360275	360275	360275
	Vend Motor Half Cycle, Brown/White	360241	360241	360241
	Kit, 2 Selection Add-On.	750150-4	750150-4	750150-4
	Kit, Dual Spiral Add on w/o Spirals. (one per selection)	750159-2	750159-2	750159-2
	Kit, Half Cycle Add -On.	750136-2	750135-2	750135-2
16	Spiral Lock, White	440405	440405	440405

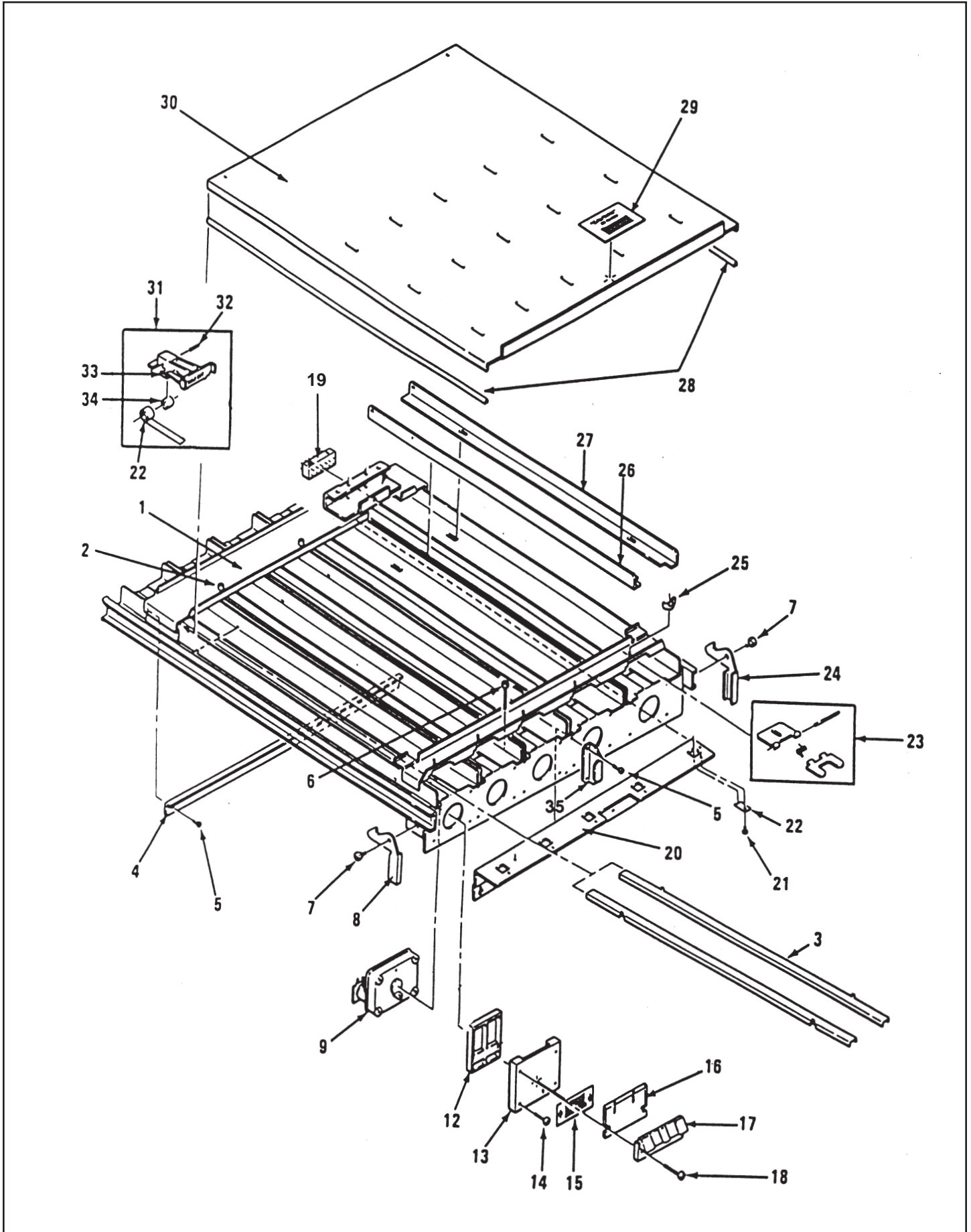
price tabs

460347	Price Tabs Ass't 25¢ - \$1.50
460740	Price Tabs Ass't &.75 - \$1.25
460602	Price Tabs Ass't \$3.10 - \$4.05
14600010	Price Tabs Ass't \$3.25 - \$5.50
460347-1	Price Tabs, All \$.30 - \$.35
460347-2	Price Tabs, All \$.40 - \$.45
460347-3	Price Tabs, All \$.50 - \$.55
460347-4	Price Tabs, All \$.60 - \$.65
460347-5	Price Tabs, All \$.70 - \$.75
460347-6	Price Tabs, All \$.80 - \$.85
460347-7	Price Tabs, All \$.90 - \$.95
460347-8	Price Tabs, All \$1.00 - \$1.05
460347-9	Price Tabs, All \$1.10 - \$1.15
460347-10	Price Tabs, All \$1.20 - \$1.25
460347-11	Price Tabs, All \$1.30 - \$1.35

460347-12	Price Tabs, All \$1.40 - \$1.45
460347-13	Price Tabs, All \$1.50 - \$1.55
460347-14	Price Tabs, All \$1.60 - \$1.65
460347-15	Price Tabs, All \$1.70 - \$1.75
460347-16	Price Tabs, All \$1.80 - \$1.85
460347-17	Price Tabs, All \$1.90 - \$1.95
460347-18	Price Tabs, All \$2.00 - \$2.05
460347-19	Price Tabs, All \$2.10 - \$2.15
460347-20	Price Tabs, All \$2.20 - \$2.25
460347-21	Price Tabs, All \$2.30 - \$2.35
460347-22	Price Tabs, All \$2.40 - \$2.45
460347-23	Price Tabs, All \$2.50 - \$2.55
460347-24	Price Tabs, All \$2.60 - \$2.65
460347-25	Price Tabs, All \$2.70 - \$2.75

460347-26	Price Tabs, All \$2.80 - \$2.85
460347-27	Price Tabs, All \$2.90 - \$2.95
460347-28	Price Tabs, All \$3.00 - \$3.05
<b>460529</b>	<b>Price Tabs, French. Ass't.</b>
<b>460540</b>	<b>Price Tabs, Mexico. Ass't.</b>
<b>14600013</b>	<b>PriceTabs,Mexico\$1.00-\$7.50</b>
<b>460561</b>	<b>PriceTabs,Spanish.35pts-125pts</b>
<b>460644</b>	<b>Price Tabs, UK. 10 – 75p</b>
<b>460727</b>	<b>Price Tabs, Italian. 100 - 600</b>
<b>17400135</b>	<b>Price Tabs UK 15p - 1.20</b>
<b>14600022</b>	<b>Price Tabs, Italian. 300-2000</b>
<b>14600023</b>	<b>Price Tabs, Italian. 500-3000</b>
<b>460777</b>	<b>Price Tabs, Myl rm.60-rm2.00</b>
<b>460775</b>	<b>Price Tabs, Aus. \$1.20-\$1.60</b>
<b>460776</b>	<b>Price Tabs, Aus. \$1.70-\$2.50</b>

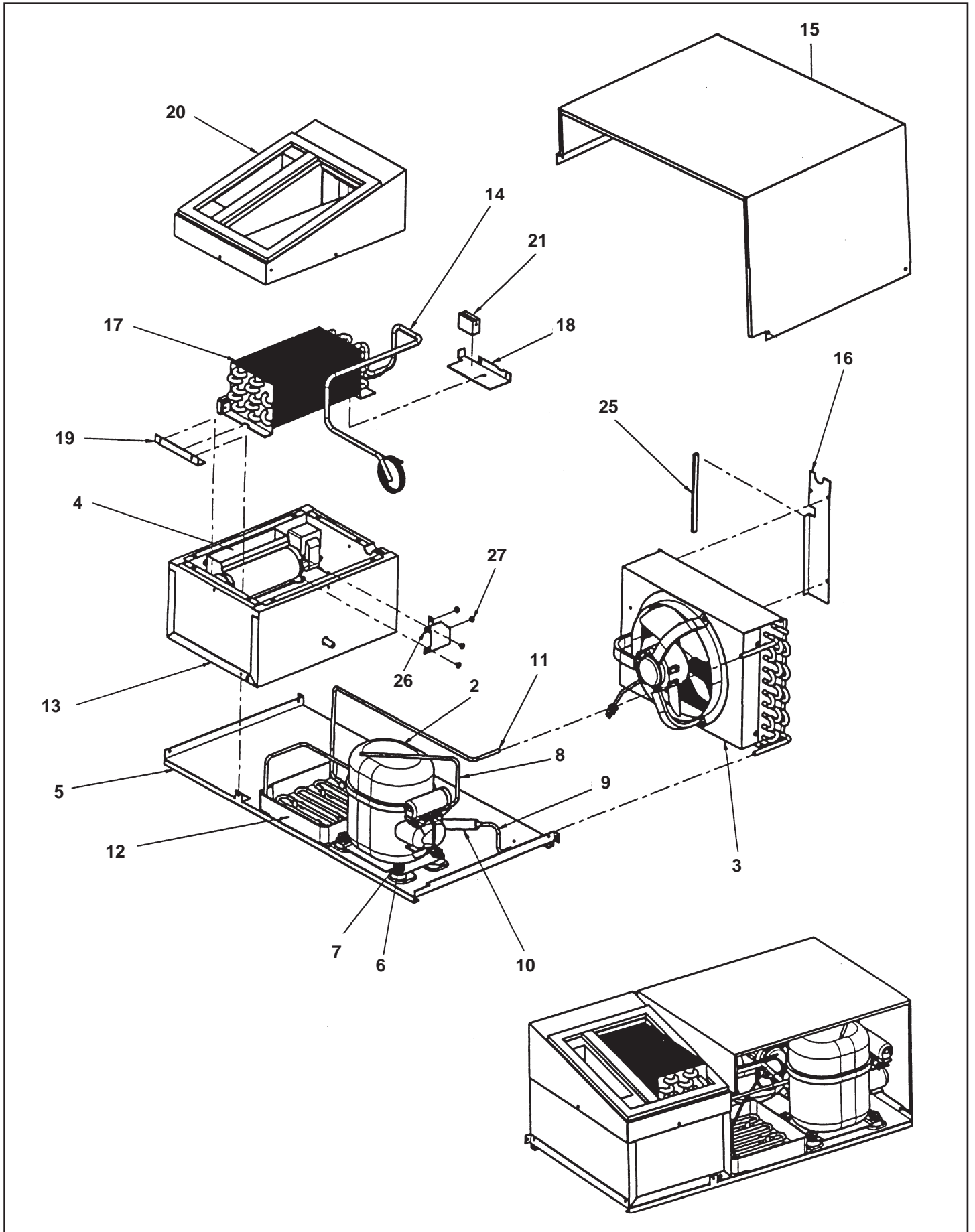
# gum & mint shelf



Key	Description	Studio 1	Studio 2	Studio 3
1	Assembly Complete, G & M Domestic	16600192	16600195	16600198
	Add on Kit, G & M Domestic	750165-30	750163-33	750165-36
	Shelf only, G & M Domestic	16000002	1600003	16000004
	<b>Assembly Complete, G &amp; M Export</b>	16600194	16600197	16600200
	<b>Add on Kit, G &amp; M Export</b>	750165-31	750165-34	750168-38
	<b>Shelf only, G &amp; M Export</b>	16000005	16000006	16000007
	<b>Assembly Complete, G &amp; M Australia</b>	16600193	16600196	16600199
	<b>Add on Kit, G &amp; M Australia</b>	750165-32	750165-35	750165-37
	<b>Shelf only, G &amp; M Australia</b>	16000005	16000006	16000007
2	Snap Bushing	420040-9	420040-9	420040-9
3	Thin Mint Adapter	201412-1	201412	201412
4	G & M Rear Pusher Stop, Domestic	201458-1	201458-1	201458-1
	<b>G &amp; M Rear Pusher Stop, Export.</b>	201458-3	201458-3	201458-3
5	Screw (8-32 X 3/8), Pan Head, Self Tap.	276-8R6	276-8R6	276-8R6
6	Screw (1 3/8), Pan Head, Phillips.	217-8R22	217-8R22	217-8R22
7	Shoulder Bushing	300184	300184	300184
8	G & M Shelf Latch, Left Side.	12000032-01	12000032-01	12000032-01
9	G & M Motor, White	360105	360105	360105
10	Screw (6-32 X _), Flat Head.	Not Used	Not Used	Not Used
11	G & M Mounting Bracket	Not Used	Not Used	Not Used
12	G & M Ejector	440267	440267	440267
13	G & M Front Shelf Base	440266	440266	440266
14	Screw (#8 X 1"), Pan Head	218-8R16	218-8R16	218-8R16
15	Decal, G & M Shelf Latch	460352	460352	460352
16	Display Stop, Column Front.	440270	440270	440270
17	G & M Shelf Front	440273	440273	440273
18	Screw (#8 X 1 3/8), Pan Head.	218-8R22	218-8R22	218-8R22
19	Harness with Bracket, Domestic	16600177	16600178	16600179
	<b>Harness W Bracket, Export &amp; Australia.</b>	16600180	16600181	16600182
	Harness only, no Bracket, Domestic	16800075	16800076	16800077
	<b>Harness only, no Bracket, Export &amp; Aus.</b>	16800078	16800079	16800080
20	Strap, G & M Pusher Stop, Domestic	12000002-03	12000002-03	12000002-02
	<b>Strap, G &amp; M Pusher Stop, Export &amp; Aus.</b>	12000002-01	12000002-01	12000002
21	Screw (6-32 X 5/16), Flat Head.	262-6R5	262-6R5	262-6R5
22	Spring, G & M Pusher Return.	400106	400106	400106
23	G & M Display Hinge Assy. Domestic & Export except Australia	660314	660314	660314
	<b>G &amp; M Display Hinge Assy, Australia only.</b>	660314-1	660314-1	660314-1
24	G & M Shelf Latch, Right Side.	12000032	12000032	12000032
25	Wing Nut (8 X 32)	420023	420023	420023
26	Column Spacer, Left	201411-3	201411-1	201411-1
27	Column Spacer, Right	201411-2	201411	201411
28	Shelf Grommet. (NGS #122)	420296	420296	420296
29	Caution Decal, G & M Shelf	460351	460351	460351
30	Cover, G & M Shelf. Domestic	201409-1	201409-2	201409-2
	<b>Cover, G &amp; M Shelf. Export &amp; Aus.</b>	201530-1	201530-2	201530-2
31	Assembly Complete, Pusher & Spring.	660313	660313	660313
32	Roll Pin	801C125-12	801C125-12	801C125-12
33	Pusher Only	440265	440265	440265
34	Roller, G & M Pusher	440274	440274	440274
35	Shelf Closer	201691	201691	201691



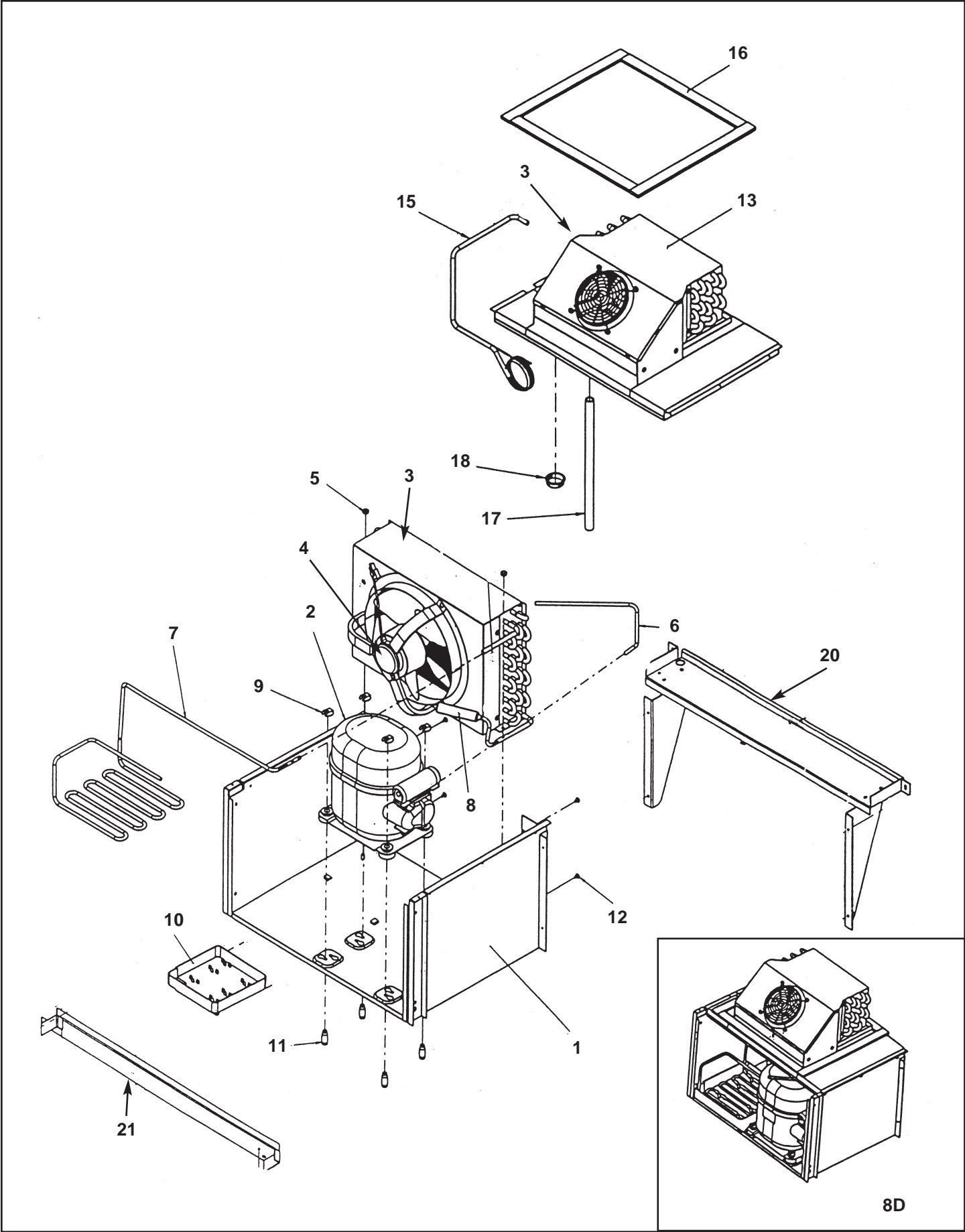
# chill machine supplement



## studio 1,2,& 3 chiller assembly

Key	Description	117V, 60 Hz Domestic	230V, 50 Hz Export	220V, 60 Hz Brazil
	Chiller Assembly Complete	16600041	<b>16600041-01</b>	16600108
1	#8 x 3/8 Screw (All Screws)	210-8R6	<b>210-8R6</b>	210-8R6
2	Compressor Complete w/Start Components	360270	<b>360271</b>	16700004
2A	Compressor Only	360270-1	<b>360271-1</b>	16700004-01
2B	Start Capacitor	360270-2	<b>360271-2</b>	16700004-08
2C	Capacitor End Cap	360270-5	<b>360271-3</b>	16700004-09
2D	Thermal Overload Switch	360270-8	<b>360271-8</b>	16700004-04
2E	Start Relay	360270-11	<b>360271-11</b>	16700004-10
2F	Compressor Foot	360270-4	<b>360271-4</b>	16700004-05
3G	Electrical Cover	360270-14	<b>360270-14</b>	360270-14
3H	Clip, Electrical Cover	360270-9	<b>360270-9</b>	360270-9
3	Condenser Coil Complete w/Fan and Motor	660720	<b>660720-1</b>	660720-1
3A	Condenser Coil Only	420422	<b>420422</b>	420422
3B	Condenser Fan with Housing	360269	<b>360269-1</b>	360269-1
3C	Condenser Shroud	202879	<b>202879</b>	202879
4	Evaporator Fan Motor	16700003	<b>16700003-01</b>	17600003-01
5	Refrigeration Mounting Plate	12000063	<b>12000063</b>	12000063
6	Compressor Mounting Plate	300225	<b>300225</b>	300225
7	Compressor Mounting Clip	420426	<b>420426</b>	420426
8	Tube, Process	12100001	<b>12100001-01</b>	121000007
9	Tube Condenser Outlet	420428	<b>420428</b>	420428
10	Drier	420427	<b>420427</b>	420427
11	Tube, Compressor Discharge	12100001	<b>12100001-01</b>	121000007
12	Evaporator Pan	440459	<b>440459</b>	440459
13	Evaporator Housing	16400002	<b>16400002</b>	16400002
14	Capillary/Suction Line	12100004	<b>12100004</b>	12100020
15	Cover, Condensing Unit	12000065	<b>12000065</b>	12000065
16	Bracket Condensing Unit Cover	12000064	<b>12000064</b>	12000064
17	Evaporator Coil Assembly	16600062	<b>16600062</b>	16600062
18	Evaporator Bracket Rear	12000070	<b>12000070</b>	12000070
19	Evaporator Bracket Front	12000071	<b>12000071</b>	12000071
20	Evaporator Housing, Top Assembly	16600040	<b>16600040</b>	16600040
21	Evaporator Air Block	13300005	<b>13300005</b>	13300005
25	Gasket, 1/4 x 5/16	13000001	<b>13000001</b>	13000001
26	Evaporator Motor Bracket	202893	<b>202893</b>	202893
27	Hex Nut, 8-32	404-08	<b>404-08</b>	404-08
28	Harness, Compressor (not shown)	16800028	<b>16800028</b>	16800058

refrigeration assembly



## studio 4 & 5 refrigeration assembly

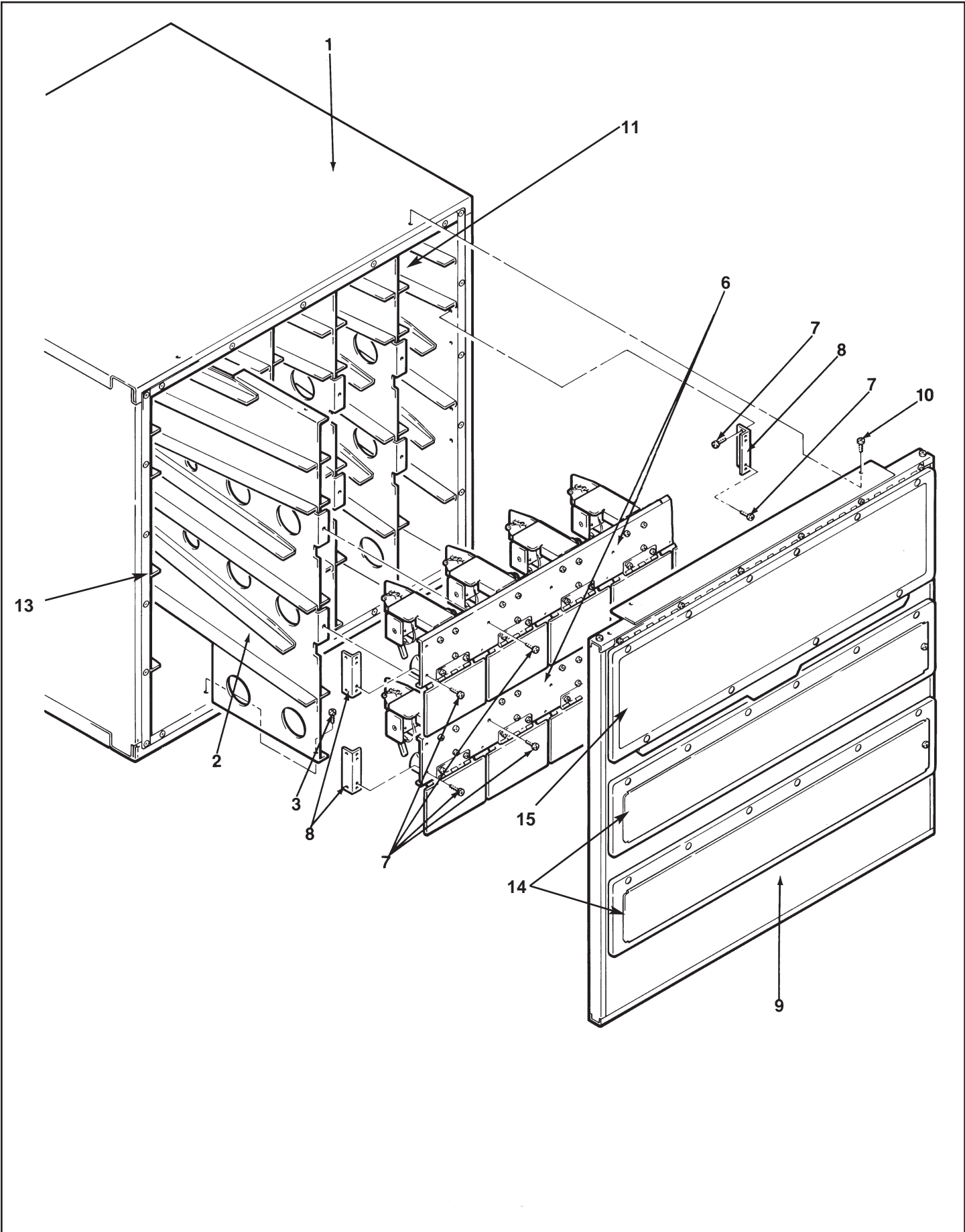
Key	Description	117V Ambient	117V Chilled	230V, 50 Hz Ambient	230V, 50 Hz Chilled	220V, 60 Hz Chilled
	Compressor Assembly Complete	16600101	16600102	16600101-01	16600102-01	16600103
1	Condenser Assembly Only, Complete	16600164-02	16600164	16600164-03	1660164-01	16600164-04
1a	Chassis Weldment	16600105	16600105	16600105	16600105	16600105
2	Compressor Complete w/Start Components	16700001	360270	16700002	360271	16700004
2a	Compressor Only	16700001-01	360270-1	16700002-01	360271-1	16700004-01
2b	Start Capacitor	16700001-02	360270-2	16700002-02	360271-2	16700004-08
2c	Compressor Foot	16700001-04	360270-4	16700002-04	360271-4	16700004-05
2d	Capacitor End Cap	16700001-05	360270-5	16700002-05	360271-3	16700004-09
2e	Thermal Overload Switch	16700001-08	360270-8	16700002-08	360271-8	16700004-04
2f	Start Relay	16700001-11	360270-11	16700002-11	360271-11	16700004-10
3	Condenser Coil Only w/fan and motor	660720	660720	660720-1	660720-1	660720-1
3a	Condenser Coil Only	420422	420422	420422	420422	420422
3b	Condenser Shroud	202879	202879	202879	202879	202879
4	Condenser fan w/housing	360269	360269	360269-1	360269-1	360269-1
5	1/4 x 20 Keps Nut	438-41	438-41	438-41	438-41	438-41
6	Tube Process	420425	420425	420425-1	420425-1	12100006
7	Tube, Compressor Discharge	12100001-02	12100001	12100001-01	12100001-01	12100007
8	Drier	12100021	12100021	12100021	12100021	12100021
9	Compressor Mounting Clip	420426	420426	420426	420426	420426
10	Condensation Pan	440459	440459	440459	440459	440459
11	Compressor Mounting Pin	300225	300225	300225	300225	300225
12	#8 x 3/8 Pan Head Screw	210-8R6	210-8R6	210-8R6	210-8R6	210-8R6
13	Evaporator Assembly Complete, w/fan	16600029	660715	16600029-01	660715-1	660715-1
13a	Evaporator Coil	12100002	12100002	12100002	12100002	12100002
13b	Evaporator Pan Assembly	660719	660719	660719	660719	660719
14	Evaporator Fan Assembly	16600027	660716	16600027-01	660716-1	660716-1
14a	Evaporator Fan Motor	360202	360202	360202-1	360202-1	360202-1
14b	Evaporator Fan Guard	400196	400196	400196	400196	
15	Capillary/Suction Line Assembly	420423-2	420423	420423-1	420423	12100008
16	Foam Adhesive Back (67 Inches)	420391	420391	420391	420391	420391
17	Drain Tube	440318-4	440318-4	440318-4	440318-4	440318-4
18	Open/Close Bushing	420318	420318	420318	420318	420318
19	Timer Bypass Harness (Not Shown)	16800089	16800089	16800089	16800089	16800089
20	Front Cooler Support Only 128	600833	600833	600833	600833	600833
20a	Front Cooler Support Only 129	16000012	16000012	16000012	16000012	16000012
21	Rear Bracket Support Only 128	202880	202880	202880	202880	202880
21a	Rear Bracket Support Only 129	12000019	12000019	12000019	12000019	12000019
22	Harness, Compressor (Not Shown)	680651	680651	680651	680651	16800027

**Note 1: Complete Compressor Assemblies do not include Item Numbers 20 or 21, Remove these parts before sending in a Compressor Assembly for repair.**

**Ambient Machines=only the can compartment is cooled.**

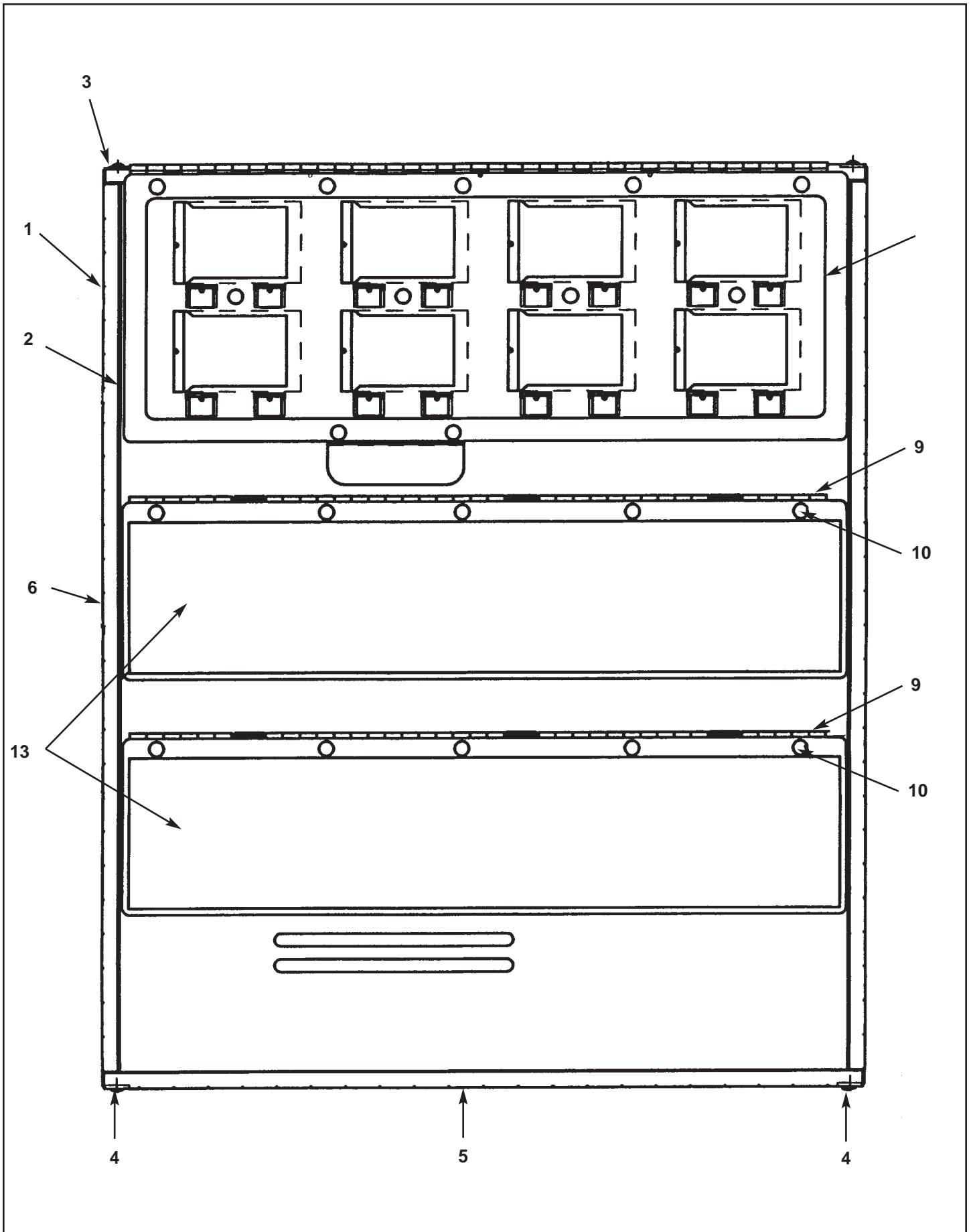
**Chilled Machines=both the can and the snack compartment are chilled.**

can cooler assembly





# cooler front assembly



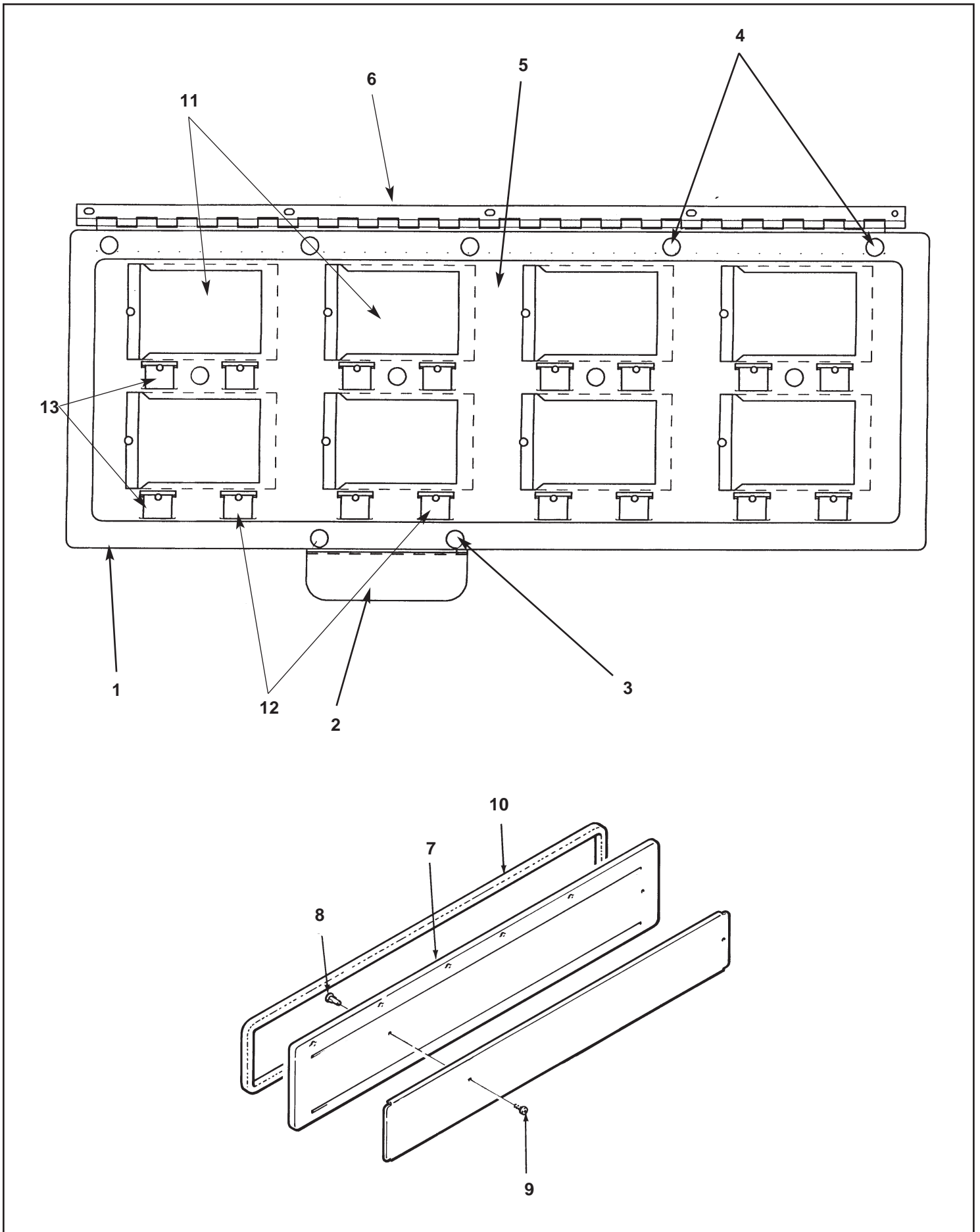
# studio 4 & 5 cooler front assembly

Key	Part No.		Description
	Studio 5	Studio 4	
1	660710-3	660713-1	Cooler Front Assembly, Ambient
	660710-2	660714-1	Cooler Front Assembly, Chilled
2	440457-1	440395	Frame, Plastic. Ambient
	440457	440441	Frame, Plastic. Chilled
3	420431	420431	Gasket
4	600831	600697	Top Weldment Support, Cooler Front
5	210-8R6	210-8R6	Screw, Truss Head (#8 x 3/8)
6	202871-1	202393-1	Bottom Support, Cooler Front
7	202394	202394	Side Support, Cooler Front
8	660707-1	660709-1	Service Door Assembly, See Page 5.28
9	460770	460677	Hinge Assembly
10	217H6R8	217H6R8	Screw (6 x 1/2)
	217H6R5	217H6R5	Screw (6 x 5/16)
12	440398	440398	Shoulder Nut Plastic 31/32 (Not Shown)
	440398-1	440398-1	Shoulder Nut Plastic 11/32 (Not Shown)
13	660706	660708	Vend Door Assembly. See Page 5.25
	440456	440445	Vend Door with Gasket
	420429	420346	Vend Door Gasket

Key	Part No.		Description



# service door assembly

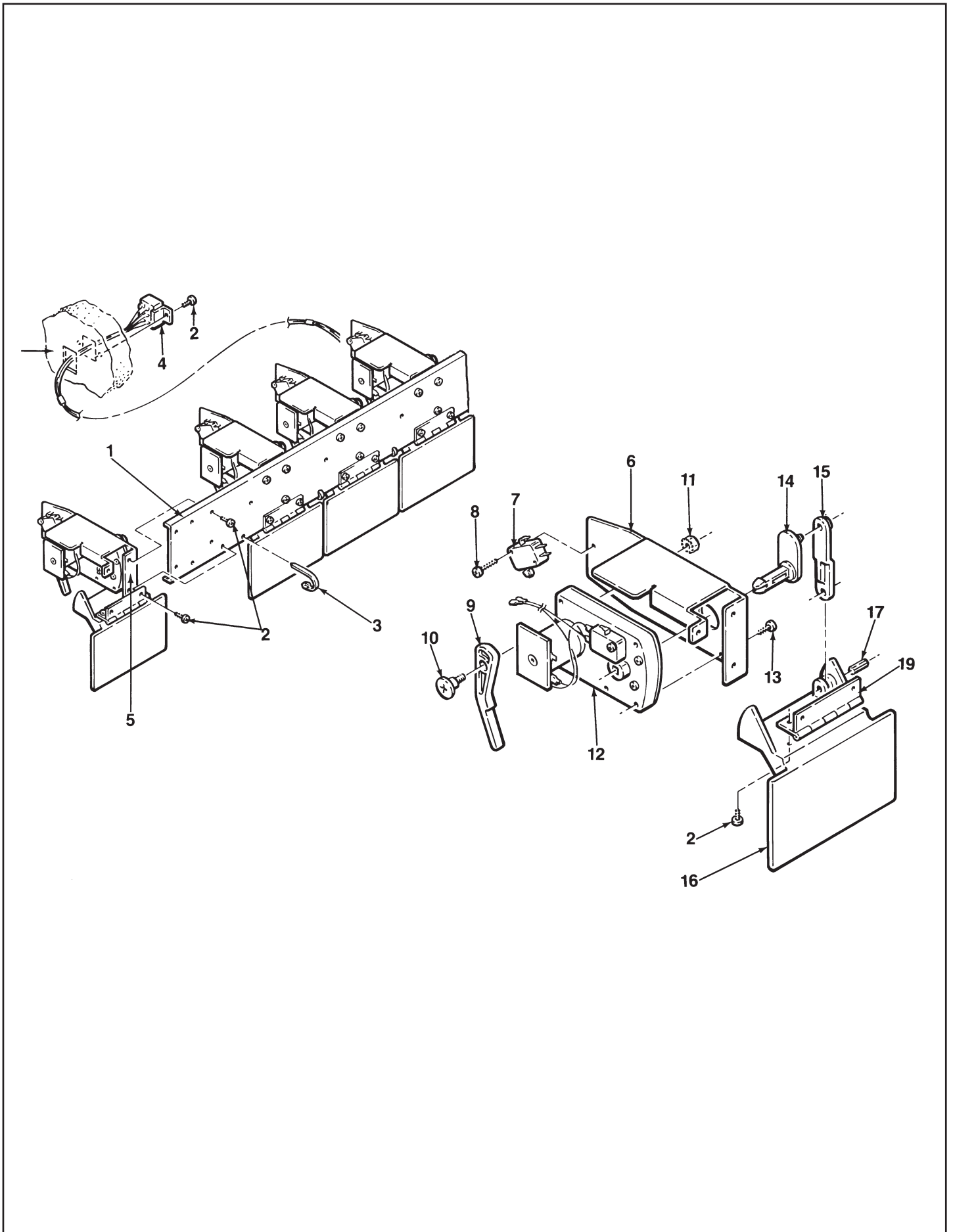


# studio service door assembly

Key	Part No.		Description
	Studio 5	Studio 4	
1	660707	660709	Service Door Assembly (Includes Items 1-8)
	440454	440453	Service Door Only
	440458-1	440458	Trim Frame, Price and Selection
	420430	420430	Gasket (63" Not Shown)
2	202848	202848	Handle, Service Door
3	440398-1	440398-1	Shoulder Nut, Plastic (21/32)
4	217H6R5	217H6R5	Screw, Pan Head (#6 x 5/16)
5	460771	460771-1	DecalCooler Front (splash)
	460765	460635	Decal, Product Loading Diagram (not shown)
6	460769	460769	Hinge
7	660706	660708	Vend Door Assembly
	440456	440455	Vend Door with Gasket
	420429	420346	Vend Door Gasket
8	440398	440398	Shoulder Nut, Plastic (3/4)
9	217H6R6	217H6R6	Screw, Pan Head (#6 x 1/2)
10	420429	420429	Gasket
11	660551	660551	Lables
12	460347	460347	Price Tabs Assorted 25¢ - \$1.50
	460602	460602	Price Tabs Assorted \$3.10 - \$4.05
	14600010	14600010	Price Tabs Assorted \$3.25 - \$5.50
	460740	460740	Price Tabs Assorted \$.75 - \$1.25
	460347-1	460347-1	Price Tabs All \$.30 - \$.35
	460347-2	460347-2	Price Tabs All \$.40 - \$.45
	460347-3	460347-3	Price Tabs All \$.50 - \$.55
	460347-4	460347-4	Price Tabs All \$.60 - \$.65
	460347-5	460347-5	Price Tabs All \$.70 - \$.75
	460347-6	460347-6	Price Tabs All \$.80 - \$.85
	460347-7	460347-7	Price Tabs All \$.90 - \$.95
	460347-8	460347-8	Price Tabs All \$1.00 - \$1.05
	460347-9	460347-9	Price Tabs All \$1.10 - \$1.15
	460347-10	460347-10	Price Tabs All \$1.20 - \$1.25
	460347-11	460347-11	Price Tabs All \$1.30 - \$1.35
	460347-12	460347-12	Price Tabs All \$1.40 - \$1.45
	460347-13	460347-13	Price Tabs All \$1.50 - \$1.55
	460347-14	460347-14	Price Tabs All \$1.60 - \$1.65
	460347-15	460347-15	Price Tabs All \$1.70 - \$1.75
	460347-16	460347-16	Price Tabs All \$1.80 - \$1.85
	460347-17	460347-17	Price Tabs All \$1.90 - \$1.95
	460347-18	460347-18	Price Tabs All \$2.00 - \$2.05
	460347-19	460347-19	Price Tabs All \$2.10 - \$2.15
	460347-20	460347-20	Price Tabs All \$2.20 - \$2.25
	460347-21	460347-21	Price Tabs All \$2.30 - \$2.35
	460347-22	460347-22	Price Tabs All \$2.40 - \$2.45
	460347-23	460347-23	Price Tabs All \$2.50 - \$2.55
	460347-24	460347-24	Price Tabs All \$2.60 - \$2.65
	460347-25	460347-25	Price Tabs All \$2.70 - \$2.75
	460347-26	460347-26	Price Tabs All \$2.80 - \$2.85
	460347-27	460347-27	Price Tabs All \$2.90 - \$2.95
	460347-28	460347-28	Price Tabs All \$3.00 - \$3.05
	<b>460529</b>	<b>460529</b>	<b>Price Tabs, French</b>
	<b>460540</b>	<b>460540</b>	<b>Price Tabs, Mexico</b>
	<b>460561</b>	<b>460561</b>	<b>Price Tabs, Spanish</b>
	<b>460644</b>	<b>460644</b>	<b>Price Tabs, English</b>
	<b>460727</b>	<b>460727</b>	<b>Price Tabs, Italian</b>

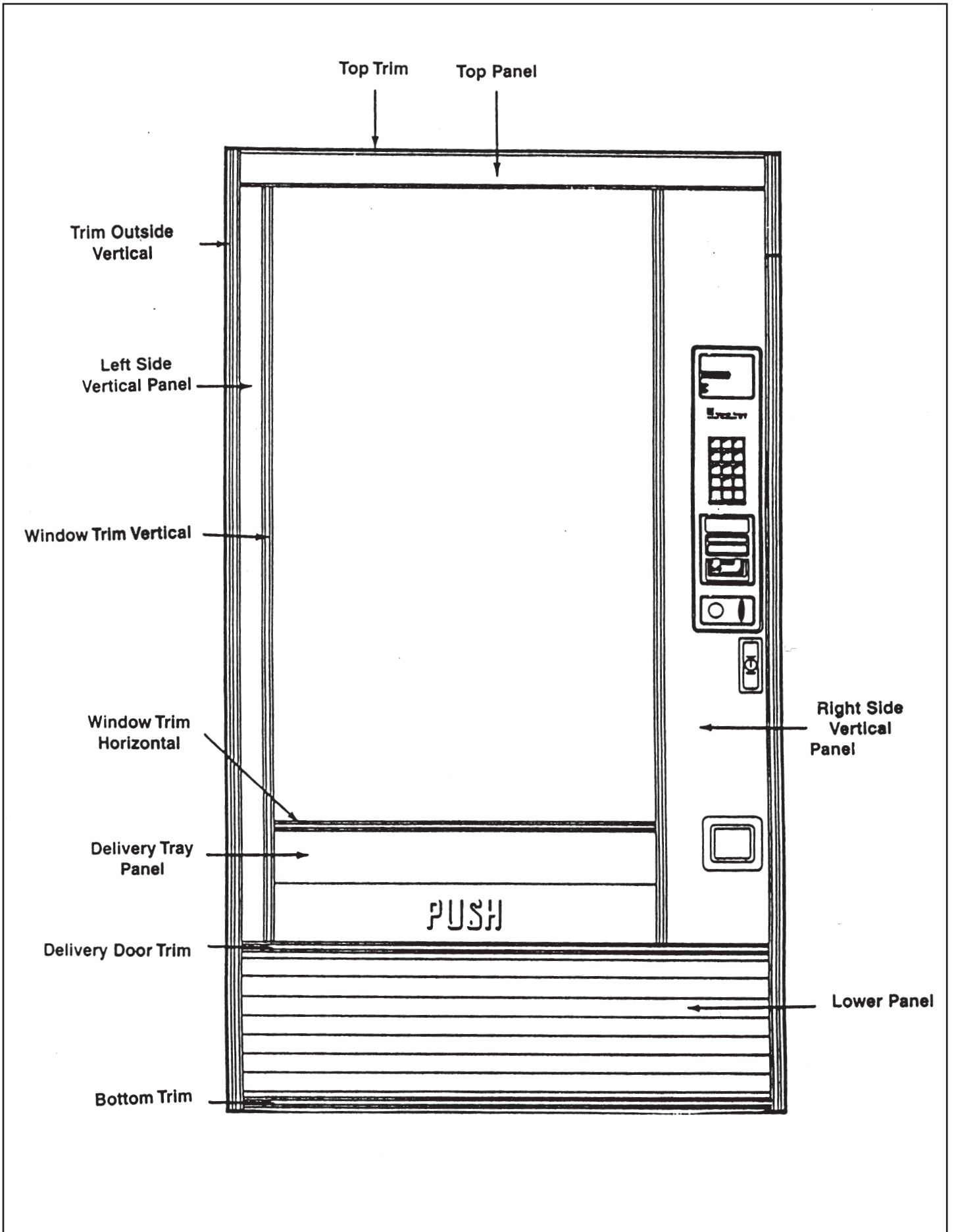
Key	Part No.		Description
	Studio 5	Studio 4	

# vend motor rack assembly





# panels - trim



**Studio 1,2 & 5  
PANELS**

		VIP, Pres Wal	VIP, Black Hide	Vantage, Dove Grey	Vantage, Sterling Royce	CP3, Pres Wal	CP3, Black Hide Plain	CP3, Black pica	CP3, Black pica, Sterling	CP3, Slate	CP3, Dove Grey	CP3, Port Au Prince, Pres Wal	Sterling/Mis Bsn Black, Morocco Grey	Sterling/Mis, Slate Pewter	Sterling, Bison Black, Misson	Tron, Dove Grey	Tron, Black pica	Tron, Slate	Tron, Black Hide Plain	Tron, Sterling Royce	Genesis, Slate	Genesis, Black Hide, Stripe	Genesis, Black Hide, No Stripe	Genesis, Black pica, All Black	Aramark, Dove Grey	Aramark, pica	Aramark, Slate	Aramark, Pres Wal	Aramark, Black Hide	Aramark, Sterling Royce	Aramark, Trendline Grey	Apollo	Euro Black	Euro Grey																				
Lower pnl	Part #																																				Dimensions																	
Presidential Walnut	200296-11	X				X						X																								10.437 X 32.187																		
Presidential Walnut	200296-11																																				10.906 X 32.187																	
Black pica	201692-57																							X		X											10.906 X 32.187																	
Black pica	202296-57						X	X									X																				10.437 X 32.187																	
Slate	202296-65									X								X																			10.437 X 32.187																	
Dove Grey	202296-10										X					X																					10.437 X 32.187																	
Bison Black	201692-52												X		X																						10.906 X 32.187																	
Slate	201692-36													X							X						X										10.906 X 32.187																	
Sterling Royce	200296-55																			X																	10.437 X 32.187																	
Sterling Royce	201692-39																																	X			10.906 X 32.187																	
Black Hide	200296-59		X				X												X																		10.437 X 32.187																	
Black Hide W Stripe	201692-47																					X															10.906 X 32.187																	
Black Hide No Stripe	201692-54																						X						X								10.906 X 32.187																	
Dove Grey	201692-50																								X												10.906 X 32.187																	
TrendLine Grey	201692-40																																	X			10.906 X 32.187																	
Black Hide Plain Euro	201692-15			X	X																														X		10.906 X 21.500																	
Paint	201692-45																																		X	X	10.906 X 22.500																	
<b>Top Panel</b>																																																						<b>Dimensions</b>
Presidential Walnut	200526-30	X																																			2 5/8 X 31.887																	
Presidential Walnut	201417					X						X																									3.00 X 32.187																	
Black Hide	200526-10		X										X									X	X														2 5/8 X 31.887																	
Black Hide	201417-23						X											X																			3.00 X 32.187																	
Black pica	201417-18							X	X								X																				3.00 X 32.187																	
Black pica	200526-45																							X													2 5/8 X 31.887																	
Slate	201417-25									X								X																			3.00 X 32.187																	
Slate	200526-47																					X															2 5/8 X 31.887																	
Dove Gray	201417-21										X																										3.00 X 32.187																	
Bison Black	200526-38												X		X																						2 5/8 X 31.887																	
Dove Grey	201417-2															X				X																	3.00 X 32.187																	
Black Hide Van	201690-2			X	X																																1 43/64 X 21.312																	
Black Hide	201690-7																																		X	X	1 43/64 X 21.538																	
Paint	201690-9																																			X	1 43/64 X 21.538																	
Snacks	201555-5																								X	X	X	X	X	X	X	X					1 21/32 X 31.887																	
<b>Delivery Tray Panel</b>																																																						<b>Dimensions</b>
Presidential Walnut	201356-8	X				X						X																									3.687 X 21.500																	
Black Hide	201356-2		X	X	X		X												X										X						X	X	3.687 X 21.500																	
Black pica	201356-41							X	X									X						X		X											3.687 X 21.500																	
Slate	201356-29									X									X			X						X									3.687 X 21.500																	
Dove Grey	201356-37										X															X											3.687 X 21.500																	
Morocco Gray	201356-39												X																								3.687 X 21.500																	
Pewter Sterling	201356-10													X																							3.687 X 21.500																	
TrendLine Grey	201356-25																																		X		3.687 X 21.500																	
Sterling Royce	201356-35															X				X		X	X											X		3.687 X 21.500																		
Bisson Black	201356-44														X																						3.687 X 21.500																	
Paint	201356-14																																			X	3.687 X 21.500																	



**Studio 3 & 4  
PANELS**

		VIP, Pres Wal	VIP, Black Hide	Vantage, Dove Grey	Vantage, Sterling Royce	CP3, Pres Wal	CP3, Black Hide Plain	CP3, Black pika	CP3, Black pika, Sterling	CP3, Slate	CP3, Dove Grey	CP3, Port Au Prince, Pres Wal	Sterling/Mis Bsn Black, Morocco Grey	Sterling/Mis, Slate Pewter	Sterling, Bison Black, Misson	Tron, Dove Grey	Tron, Black pika	Tron, Slate	Tron, Black Hide Plain	Tron, Sterling Royce	Genesis, Slate	Genesis, Black Hide, Stripe	Genesis, Black Hide, No Stripe	Genesis, Black pika, All Black	Aramark, Dove Grey	Aramark, pika	Aramark, Slate	Aramark, Pres Wal	Aramark, Black Hide	Aramark, Sterling Royce	Aramark, Trendline Grey	Apollo	Euro Black	Euro Grey				
Lower panel	Part #																																					Dimensions
Presidential Walnut	202296-36	X				X						X																									10.437 X 37.187	
Presidential Walnut	201692-2																																					10.906 X 37.187
Black Pika	201692-58																							X		X												10.906 X 37.187
Black Pika	200296-56							X	X								X																					10.437 X 37.187
Slate	202296-64									X								X																				10.437 X 37.187
Dove Grey	200296-9										X					X																						10.437 X 37.187
Bison Black	201692-51												X		X																							10.906 X 37.187
Slate	201692-6													X							X						X											10.906 X 37.187
Sterling Royce	200296-54																			X																		10.437 X 37.187
Sterling Royce	201692-19																																		X			10.906 X 37.187
Black Hide	200296-58		X				X												X																			10.437 X 37.187
Black Hide W Stripe	201692-46																				X																	10.906 X 37.187
Black Hide No Stripe	201692-53																					X													X			10.906 X 37.187
Dove Grey	201692-49																								X													10.906 X 37.187
TrendLine Grey	201692-21																																		X			10.906 X 37.187
Black Hide Plain Euro	201692-1			X	X																															X		10.906 X 26.843
Paint	201692-44																																			X	X	10.906 X 27.878
Top Panel	Part #																																					Dimensions
Presidential Walnut	200526-2	X																																				2 5/8 X 36.875
Presidential Walnut	201417					X						X																										3.00 X 37.187
Black Hide	200526-10		X										X									X	X															2 5/8 X 36.875
Black Hide	201417-23						X											X																				3.00 X 37.187
Black Pika	201417-18							X	X								X																					3.00 X 37.187
Black Pika	200526-45																								X													2 5/8 X 36.875
Slate	201417-25									X								X																				3.00 X 37.187
Slate	200526-47																					X																2 5/8 X 36.875
Dove Gray	201417-21										X																											3.00 X 37.187
Bison Black	200526-38												X		X																							2 5/8 X 36.875
Dove Grey	201417-2															X					X																3.00 X 37.187	
Black Hide Van	201690-2			X	X																																	1 43/64 X 26.878
Black Hide	201690-7																																			X	X	1 43/64 X 26.878
Paint	201690-9																																			X		1 43/64 X 26.878
Snacks	201555-5																								X	X	X	X	X	X	X	X						1 21/32 X 36.875
Delivery Tray Panel	Part #																																					Dimensions
Presidential Walnut	201356	X				X						X																										3.687 X 26.843
Black Hide	201356-1		X	X	X		X												X																	X	X	3.687 X 26.843
Black Pika	201356-40							X	X									X						X		X												3.687 X 26.843
Slate	201356-28									X								X			X						X											3.687 X 26.843
Dove Grey	201356-36										X															X												3.687 X 26.843
Morocco Gray	201356-38												X																									3.687 X 26.843
Pewter Sterling	201356-9													X																								3.687 X 26.843
TrendLine Grey	201356-24																																			X		3.687 X 26.843
Contemporary Oak	202535-9																																					3.687 X 26.843
Sterling Royce	201356-34															X					X		X	X													3.687 X 26.843	
Bisson Black	201356-45														X																							3.687 X 26.843
Paint	201356-6																																				X	3.687 X 26.843





Studio 1,2 & 5 Trim		VIP	AP II	Vantage	Aramark	Award	CP3	Sterling, Mission	Tron	Genesis	Apollo	Euro - Grey	Euro - Black	
		Part #												
<b>Top Trim</b>	<b>Part #</b>													<b>Dimensions</b>
Silver, use with insert	340042-13	1				1				1				2 3/4 x 31.887
Black, use with insert	340044-15		1											2 3/4 x 31.887
Black, use with insert	340044-10			1										Length 31.887
Black, use with insert	340042-14							1						2 3/4 x 31.887
Black, use with insert	340044-16				1									1.798 x 31.887
Black	340055-27								1					Length 31.887
Silver w Black tape	660231-24						2		1					Length 31.887
Black, use with insert	340044-14												1	1.798 x 21.657
Silver, use with insert	340044-13										1	1		1.798 x 26.997
<b>Trim Outside Vertical</b>	<b>Part #</b>													<b>Length</b>
Silver	340057	2	2			2	2			2				65 39/64
Black	340057-2			2				2	2					65 39/64
Silver Taped	660231-20				2									65 39/64
<b>Window Trim Horizontal</b>	<b>Part #</b>													<b>Length</b>
Silver	340058-1	1	1		1	1	1		1					26.721
Black	340058-12							1		1				26.721
Black	340062-5										1		1	26.997
Black	340058-12			1										21.357
Clear	340062-4											1		26.697
<b>Window Trim Vertical</b>	<b>Part #</b>													<b>Length</b>
Silver	340058-7	2				2								51.531
Silver	340058-2		2		2									52.468
Silver	340058-4						2							50.937
Black	340058-6							2		2				51.531
Black	340058-8								2					50.937
Silver	340062										2	2		65.406
	340058-46			2										65.406
Black	340062-1												2	65.406
<b>Delivery Door Trim</b>	<b>Part #</b>													<b>Length</b>
Silver	340055-29				1	1								31.89
Black	340055-27							1		1				31.89
Silver w Black tape	660231-3	1												31.89
Silver w Black tape	660231-24						1		1					31.89
Black	340062-5										1		1	26.997
Black	340058-12			1										21.375
Clear	340062-4											1		26.997
<b>Bottom Trim</b>	<b>Part #</b>													<b>Length</b>
Silver w Black tape	660231-3	1												31.89
Silver w Black tape	660231-34						1							31.89
Black, Square	340055-27								1					31.89
Door Vinyl Edge Trim	201678-4										1	1	1	27 3/16
Door Vinyl Edge Trim	201678-2			1	1	1		1		1				37 57/64
Silver	340055-29		1											36.89

# studio 3 & 4 trim

Studio 3 & 4 Trim		VIP	AP II	Vantage	Aramark	Award	CP3	Sterling, Mission	Tron	Genesis	Apollo	Euro - Grey	Euro - Black	
		Part #												Dimensions
<b>Top Trim</b>	<b>Part #</b>													
Silver, use with insert	340042-8	1				1				1				2 3/4 X 36.890
Black, use with insert	340042-18													2 3/4 X 35.937
Black	340055-9								1					Length 36.890
Black, use with insert	340042-10							1						2 3/4 X 36.890
Black, use with insert	340044-9			1										1.798 X 26.997
Black, use with insert	340044-5		1											1.798 X 36.890
Silver, use with insert	340044-4				1									1.798 X 36.890
Silver w Black tape	660231-3						2							Length 36.890
Silver, use with insert	340044-11										1	1	1	1.798 X 26.997
<b>Trim Outside Vertical</b>														
<b>Trim Outside Vertical</b>	<b>Part #</b>													<b>Length</b>
Silver	340057	2	2			2	2			2				65 39/64
Black	340057-2			2				2	2					65 39/64
Silver Taped	660231-20				2									65 39/64
<b>Window Trim Horizontal</b>														
<b>Window Trim Horizontal</b>	<b>Part #</b>													<b>Length</b>
Silver	340058	1	1		1	1	1		1					26.721
Black	340058-5			1					1	1				26.721
Black	340062-3										1		1	26.997
Clear	340062-2											1		26.697
<b>Window Trim Vertical</b>														
<b>Window Trim Vertical</b>	<b>Part #</b>													<b>Length</b>
Silver	340058-7	2				2								51.531
Silver	340058-2		2		2									52.468
Silver	340058-4						2							50.937
Black	340058-6							2		2				51.531
Black	340058-8								2					50.937
Black	340058-46			2										65.406
Silver	340062										2	2		65.406
Black	340062-1												2	65.406
<b>Delivery Door Trim</b>														
<b>Delivery Door Trim</b>	<b>Part #</b>													<b>Length</b>
Silver	340055-3		1		1	1								36.89
Black	340055-9							1		1				36.89
Silver w Black tape	660231-3	1					1							36.89
Black	340062-3										1		1	26.997
Clear	340062-2											1		26.997
Black	340058-5			1										26.721
<b>Bottom Trim</b>														
<b>Bottom Trim</b>	<b>Part #</b>													<b>Length</b>
Silver w Black tape	660231-3	1					1		1					36.89
Black, Square	340055-3		1											36.89
Door Vinyl Edge Trim	201678-5										1	1	1	27 3/16
Door Vinyl Edge Trim	201678			1	1	1		1		1				37 57/64

**LCB BOARD CONNECTIONS**

**P1 KEYPAD SWITCH LINES**

- 1 ROW 1
- 2 ROW 2
- 3 ROW 3
- 4 ROW 4
- 5 ROW 5
- 6 KEY
- 7 COL 1
- 8 COL 2
- 9 COL 3
- 10 COL 4

Switch #	Connection A	Connection B
1	PIN 1	PIN 7
2	PIN 1	PIN 8
3	PIN 1	PIN 9
4	PIN 2	PIN 7
5	PIN 2	PIN 8
6	PIN 2	PIN 9
7	PIN 3	PIN 7
8	PIN 3	PIN 8
9	PIN 3	PIN 9
*	PIN 4	PIN 7
0	PIN 4	PIN 8
#	PIN 4	PIN 9
<-	PIN 5	PIN 7
C	PIN 5	PIN 8
->	PIN 5	PIN 9

- 1 **34VDC**
- 2 **WINNER RELAY/ GOLDEN EYE ENABLE**
- 3 **SHUTDOWN**
- 4 **GOLDEN EYE IN**
- 5 **KEY**
- 6 **DOOR SW**
- 7 **GND**

**P3 POWER**

- 1 24 VAC
- 2 24 VAC
- 3 8 VAC
- 4 8 VAC
- 5 KEY
- 6 EARTH GROUND

**P4 MDB+**

- 1 34VDC
- 2 PWR GND
- 3 8 VDC
- 4 MASTER RXD
- 5 MASTER TXD
- 6 COMMUNICATION COMMON

**P5 RS232 SERIAL INTERFACE**

- 1 MASTER RECEIVE DATA
- 2 GND
- 3 MASTER TRANSMIT DATA
- 4 KEY
- 5 NO CONNECTION
- 6 +5 VOLTS

**P6 DC MOTOR DRIVE**

- 1 ROW 1 +
- 2 ROW 2 +
- 3 ROW 3 +
- 4 ROW 4 +
- 5 ROW 5 +
- 6 ROW 6+
- 7 ROW 7 +
- 8 ROW 8 +
- 9 COL 0 -
- 10 COL 1 -
- 11 COL 2 -
- 12 KEY
- 13 COL 3 -
- 14 COL 4 -
- 15 COL 5 -
- 16 COL 6 -
- 17 COL 7 -
- 18 COL 8-
- 19 COL 9 -

**P7 GOLDEN EYE / CHIP**

- 1 INPUT/OUTPUT LINE
- 2 N/C
- 3 KEY
- 4 GND



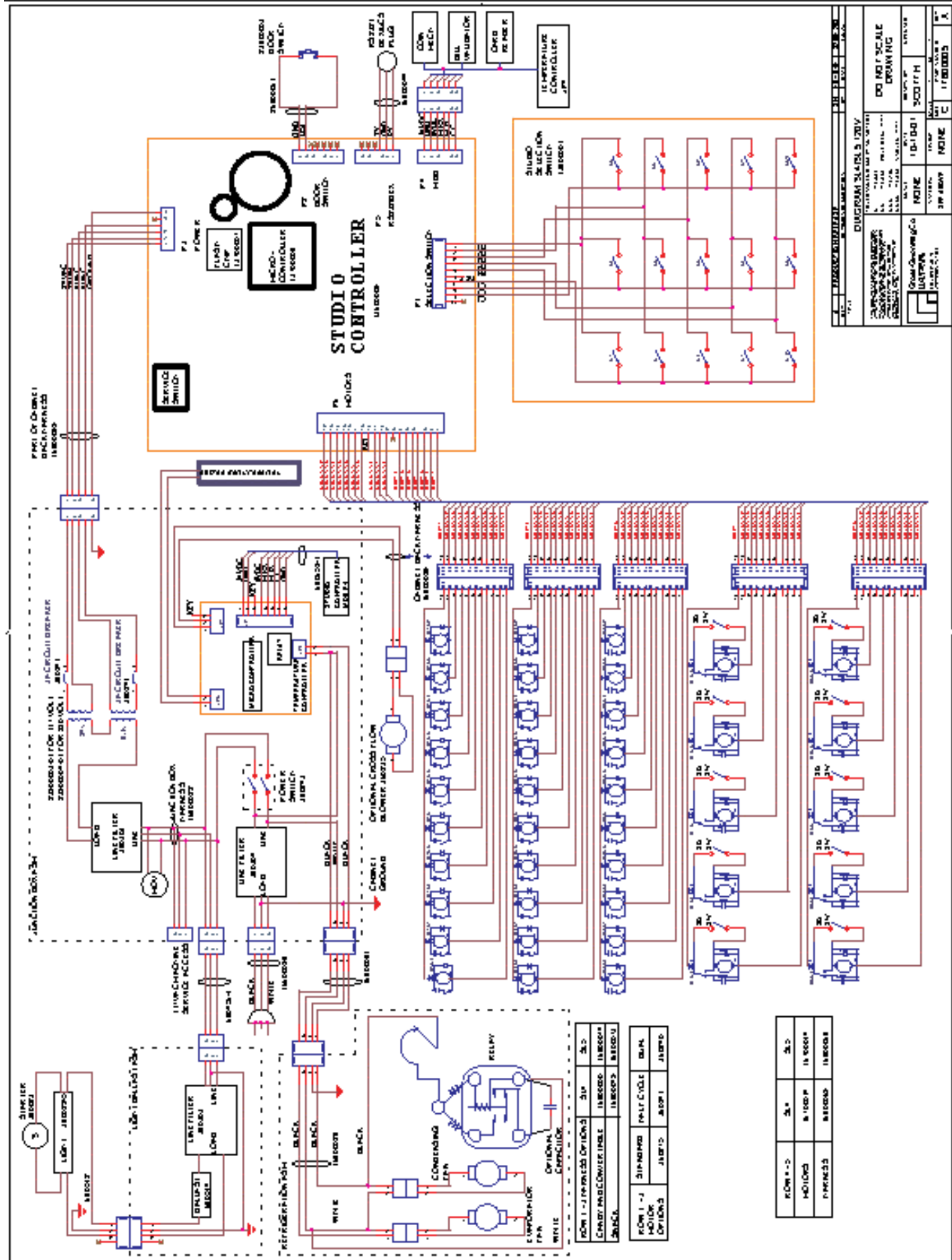








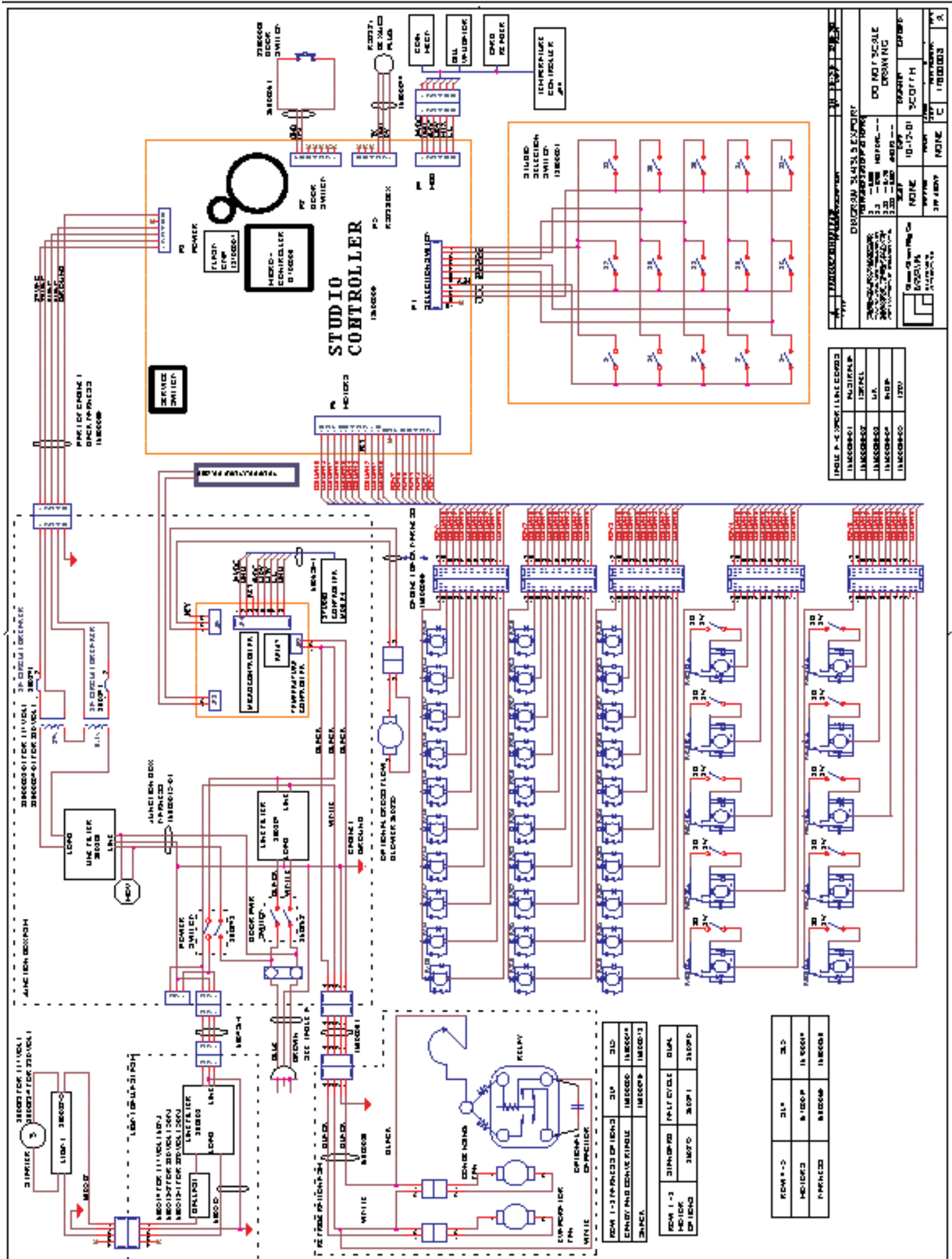




<b>REVISIONS</b> NO. 1 DATE 11/10/63 BY J. W. B.		DRAWN BY J. W. B.	CHECKED BY J. W. B.	APPROVED BY J. W. B.
<b>DESCRIPTION</b> STUDIO 0 CONTROLLER		PROJECT NO. 101-101	SHEET NO. 17-100003	TOTAL SHEETS 17-100003
<b>SCALE</b> AS SHOWN		DRAWN BY J. W. B.	CHECKED BY J. W. B.	APPROVED BY J. W. B.
<b>DATE</b> 11/10/63		DRAWN BY J. W. B.	CHECKED BY J. W. B.	APPROVED BY J. W. B.

ROW 1 - 1	OPTIONAL CONNECTION	31P	31S
ROW 1 - 2	OPTIONAL CONNECTION	31P	31S
ROW 1 - 3	OPTIONAL CONNECTION	31P	31S
ROW 1 - 4	OPTIONAL CONNECTION	31P	31S
ROW 1 - 5	OPTIONAL CONNECTION	31P	31S
ROW 1 - 6	OPTIONAL CONNECTION	31P	31S
ROW 1 - 7	OPTIONAL CONNECTION	31P	31S
ROW 1 - 8	OPTIONAL CONNECTION	31P	31S
ROW 1 - 9	OPTIONAL CONNECTION	31P	31S
ROW 1 - 10	OPTIONAL CONNECTION	31P	31S
ROW 1 - 11	OPTIONAL CONNECTION	31P	31S
ROW 1 - 12	OPTIONAL CONNECTION	31P	31S
ROW 1 - 13	OPTIONAL CONNECTION	31P	31S
ROW 1 - 14	OPTIONAL CONNECTION	31P	31S
ROW 1 - 15	OPTIONAL CONNECTION	31P	31S
ROW 1 - 16	OPTIONAL CONNECTION	31P	31S
ROW 1 - 17	OPTIONAL CONNECTION	31P	31S
ROW 1 - 18	OPTIONAL CONNECTION	31P	31S
ROW 1 - 19	OPTIONAL CONNECTION	31P	31S
ROW 1 - 20	OPTIONAL CONNECTION	31P	31S

ROW 1 - 21	OPTIONAL CONNECTION	31P	31S
ROW 1 - 22	OPTIONAL CONNECTION	31P	31S
ROW 1 - 23	OPTIONAL CONNECTION	31P	31S
ROW 1 - 24	OPTIONAL CONNECTION	31P	31S
ROW 1 - 25	OPTIONAL CONNECTION	31P	31S
ROW 1 - 26	OPTIONAL CONNECTION	31P	31S
ROW 1 - 27	OPTIONAL CONNECTION	31P	31S
ROW 1 - 28	OPTIONAL CONNECTION	31P	31S
ROW 1 - 29	OPTIONAL CONNECTION	31P	31S
ROW 1 - 30	OPTIONAL CONNECTION	31P	31S



# STUDIO I/O CONTROLLER

<b>TABLE 1 - 4-CHANNEL LINE LOGIC</b> 1A ADDRESS: 1A000001 1B ADDRESS: 1A000002 1C ADDRESS: 1A000003 1D ADDRESS: 1A000004		<b>TABLE 2 - 4-CHANNEL LINE LOGIC</b> 2A ADDRESS: 1A000005 2B ADDRESS: 1A000006 2C ADDRESS: 1A000007 2D ADDRESS: 1A000008	
<b>TABLE 3 - 4-CHANNEL LINE LOGIC</b> 3A ADDRESS: 1A000009 3B ADDRESS: 1A000010 3C ADDRESS: 1A000011 3D ADDRESS: 1A000012		<b>TABLE 4 - 4-CHANNEL LINE LOGIC</b> 4A ADDRESS: 1A000013 4B ADDRESS: 1A000014 4C ADDRESS: 1A000015 4D ADDRESS: 1A000016	

<b>TABLE 5 - 4-CHANNEL LINE LOGIC</b> 5A ADDRESS: 1A000017 5B ADDRESS: 1A000018 5C ADDRESS: 1A000019 5D ADDRESS: 1A000020		<b>TABLE 6 - 4-CHANNEL LINE LOGIC</b> 6A ADDRESS: 1A000021 6B ADDRESS: 1A000022 6C ADDRESS: 1A000023 6D ADDRESS: 1A000024	
<b>TABLE 7 - 4-CHANNEL LINE LOGIC</b> 7A ADDRESS: 1A000025 7B ADDRESS: 1A000026 7C ADDRESS: 1A000027 7D ADDRESS: 1A000028		<b>TABLE 8 - 4-CHANNEL LINE LOGIC</b> 8A ADDRESS: 1A000029 8B ADDRESS: 1A000030 8C ADDRESS: 1A000031 8D ADDRESS: 1A000032	

<b>TABLE 9 - 4-CHANNEL LINE LOGIC</b> 9A ADDRESS: 1A000033 9B ADDRESS: 1A000034 9C ADDRESS: 1A000035 9D ADDRESS: 1A000036		<b>TABLE 10 - 4-CHANNEL LINE LOGIC</b> 10A ADDRESS: 1A000037 10B ADDRESS: 1A000038 10C ADDRESS: 1A000039 10D ADDRESS: 1A000040	
<b>TABLE 11 - 4-CHANNEL LINE LOGIC</b> 11A ADDRESS: 1A000041 11B ADDRESS: 1A000042 11C ADDRESS: 1A000043 11D ADDRESS: 1A000044		<b>TABLE 12 - 4-CHANNEL LINE LOGIC</b> 12A ADDRESS: 1A000045 12B ADDRESS: 1A000046 12C ADDRESS: 1A000047 12D ADDRESS: 1A000048	

<b>TABLE 13 - 4-CHANNEL LINE LOGIC</b> 13A ADDRESS: 1A000049 13B ADDRESS: 1A000050 13C ADDRESS: 1A000051 13D ADDRESS: 1A000052		<b>TABLE 14 - 4-CHANNEL LINE LOGIC</b> 14A ADDRESS: 1A000053 14B ADDRESS: 1A000054 14C ADDRESS: 1A000055 14D ADDRESS: 1A000056	
<b>TABLE 15 - 4-CHANNEL LINE LOGIC</b> 15A ADDRESS: 1A000057 15B ADDRESS: 1A000058 15C ADDRESS: 1A000059 15D ADDRESS: 1A000060		<b>TABLE 16 - 4-CHANNEL LINE LOGIC</b> 16A ADDRESS: 1A000061 16B ADDRESS: 1A000062 16C ADDRESS: 1A000063 16D ADDRESS: 1A000064	

DO NOT SCALE  
 DRAWING  
 DATE: 10-17-01  
 DRAWN BY: SCOTT H.  
 CHECKED BY: JIM ARBY  
 SCALE: NONE  
 SHEET: 1 OF 1  
 PROJECT: 10000000



# Studio Series - Software Update Instructions

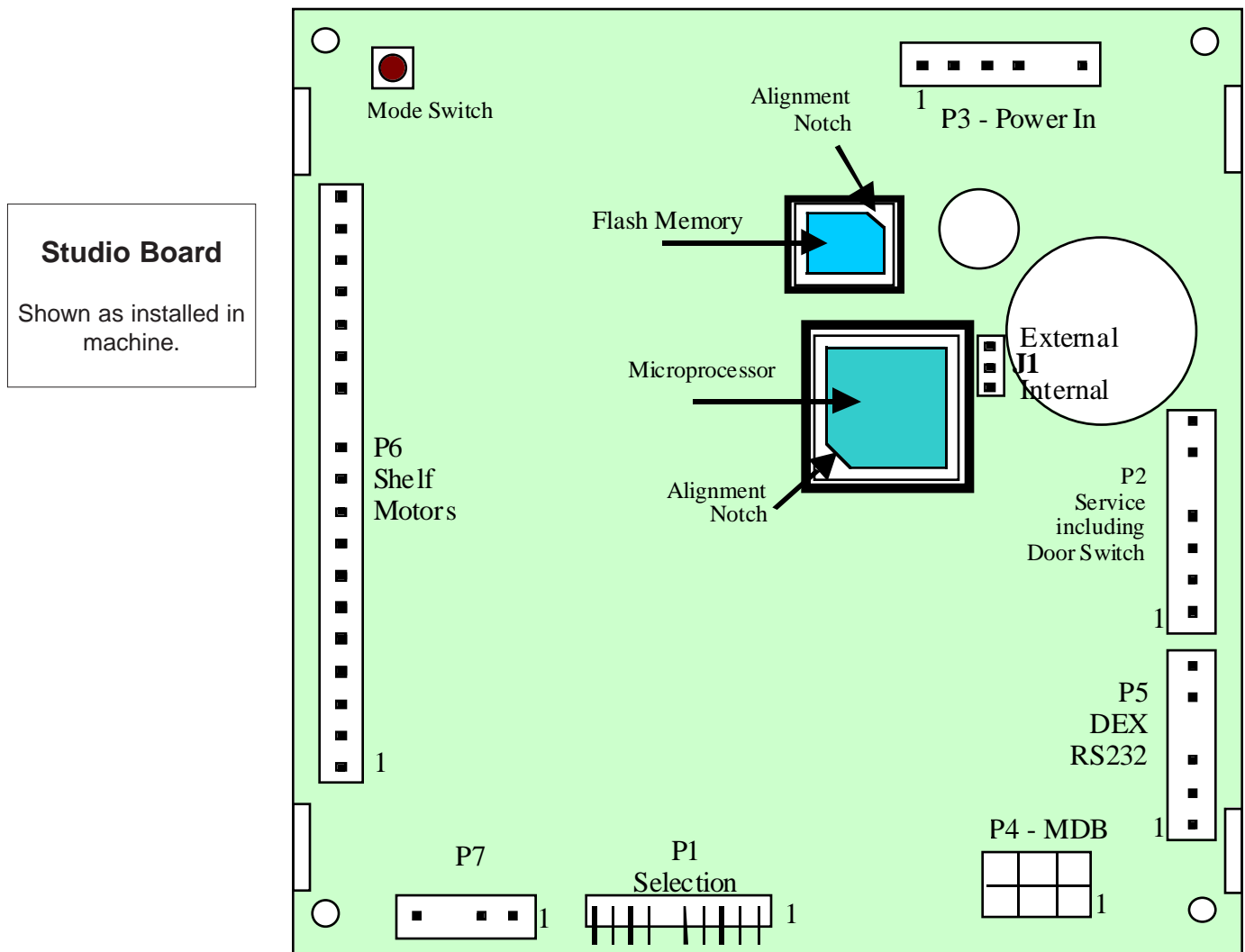
## Using a new Flash Memory Chip

1. Note any required meter readings or options set.
2. Turn the power switch off.
3. Use a ground strap and proper anti-static procedures to avoid Electro Static Dis charge (ESD) that could damage components on the board.
4. Remove all harnesses from the board except the ribbon cable to the Selection Switches (P1).
5. Remove the ones screw from board cover located on the top horizontal edge on the board cover.
6. Remove the board cover by lifting the board cover upward over the latches and pulling forward.
7. Identify the empty Flash Memory Socket, and install the revised software.

**Note: Pay special attention to the alignment notch when installing the chip to prevent damage to either the chip or the socket!** Three of the corners have square edges and one edge is cut at an angle, the angled corner lines up with the alignment notch as shown. Press the Flash Memory chip firmly into the socket.

8. Locate the J1 jumper adjacent to the larger Microprocessor socket. Using a pair of needlenose pliers carefully remove the jumper from its current position by pulling straight out from the board - jumper is connecting the bottom and center pin. Install the jumper in the "External" position, connecting the top and center pins.
9. Re-install the board cover and all harnesses.
10. Turn the power switch back on.
11. Set prices, options, and test.

**If the board already has an unlabeled chip in the Flash Memory socket, it should be removed and returned for credit!**











## components

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the upper three for 2 seconds. These two fields will alternate every 2 seconds until this mode is exited.

