HUSSMANN®/CHINO

SGB

SUMMIT HIGH-VOLUME SERVICE BAKERY CASE

Installation & Operation Manual

REV. 0217

HUSSMANN®

SGB
SUMMIT HIGH-VOLUME SERVICE BAKERY CASE

INSTALLATION & OPERATION GUIDE

1. General Instructions

HUSSMANN®/CHINO

A publication of HUSSMANN® Chino
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This Booklet Contains Information on the:

Merchandisers listed below. All models are available in either 48", 57 1/2" or 75 1/2" lengths:

SGB-N - Non-refrigerated Summit High-Volume Bakery Case with 4 levels (3 shelves) and lift front glass.

SGB-R - Refrigerated Summit High-Volume Bakery Case with 4 levels (3 shelves) and lift front glass. Remote unit requires separate condenser unit connection.

SGB-S/C - Self-contained Refrigerated Summit High- Volume Bakery Case with 4 levels (3 shelves) and lift front glass.

Shipping Damage

All equipment should be thoroughly examined for shipping damage before and during unloading.

This equipment has been carefully inspected at our factory and the carrier has assumed responsibility for safe arrival. If damaged, either apparent or concealed, claim must be made to the carrier.

Apparent Loss or Damage

If there is an *obvious loss or damage*, it must be noted on the freight bill or express receipt and signed by the carrier's agent; otherwise, carrier may refuse claim. The carrier will supply necessary claim forms.

Concealed Loss or Damage

When loss or damage *is not apparent until after equipment is uncrated*, a claim for concealed damage is made. Make request in writing to carrier for inspection within 15 days, and retain all packaging. The carrier will supply inspection report and required claim forms.

Shortages

Check your shipment for any possible shortages of material. If a shortage should exist and is found to be the responsibility of Hussmann Chino, *notify Hussmann Chino*. If such a shortage involves the carrier, *notify the carrier immediately*, and request an inspection. Hussmann Chino will acknowledge shortages within ten days from receipt of equipment.

Hussmann Chino Product Control

The serial number and shipping date of all equipment has been recorded in Hussmann's files for warranty and replacement part purposes. All correspondence pertaining to warranty or parts ordering must include the serial number of each piece of equipment involved, in order to provide the customer with the correct parts.

Keep this booklet with the case at all times for future reference.

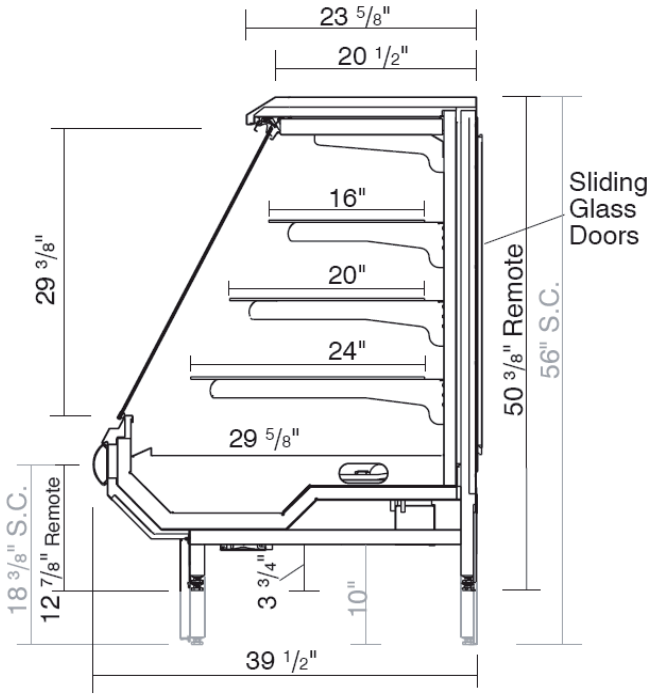
2. Table of Contents

3. Important Information

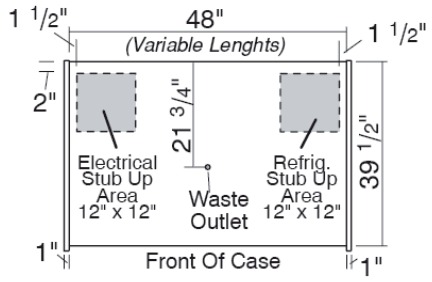
These service-type merchandisers have been specifically designed for bakery departments. The full length, curved glass front provides complete product visibility. The
SGB-N, non-refrigerated model, is designed to display fresh bakery products that have fast turnover and require no refrigeration. The **SGB-R**, and **SGB-S/C**, refrigerated bakery merchandisers are designed for use only in air conditioned stores where temperature and humidity are maintained at or below 75°F dry bulb temperature and 55% relative humidity.

- Review the SGB Technical Data Sheet to verify thermostat setting. Do not set temperature too cold, as this causes product dehydration.
- Temperatures should be achieved by a T-STAT and suction solenoid at each case. Do not use EPR valves, liquid line solenoids or electronic control devices of any kind. **These controls allow temperature swings causing product dehydration and excessive energy consumption.**
- Defrost cycles should be set according to the SGB technical data sheet.
- Work and rotate product - not to exceed a four (4) hour period.

4. Cut and Plan Views



SGB
Straight Glass Service Bakery Case
Scale = 1/2"



SGB
Plan View
Scale = 1/4"

5. Installation

Location

Like other open merchandisers, these are sensitive to air disturbances. Air currents passing around merchandisers will seriously impair their operation. Do NOT allow air conditioning, electric fans, open doors or windows, etc., to create air currents around the merchandisers.

Installation (Cont'd)

Bumper Installation Instructions

Step 1: Make sure the aluminum channel and end caps are installed.

Step 2: Use silicone lubricant to help the bumper slide into the channel.

Step 3: Starting on one end: while inserting the bumper, push it up against the end cap to prevent the bumper from shrinking after installation (when it gets cold).

Step 4: As you insert the bumper into the channel with one hand, pull the bumper toward you with the other to open the inside lips. Slowly apply pressure by rolling the bumper into the track.

6. Shipping Braces

(Note to all Merchandisers)
Move the fixture as close as possible to its permanent location and then remove all packaging. Check for damage before discarding packaging. Remove all separately packed accessories such as kits and shelves.

WARNING

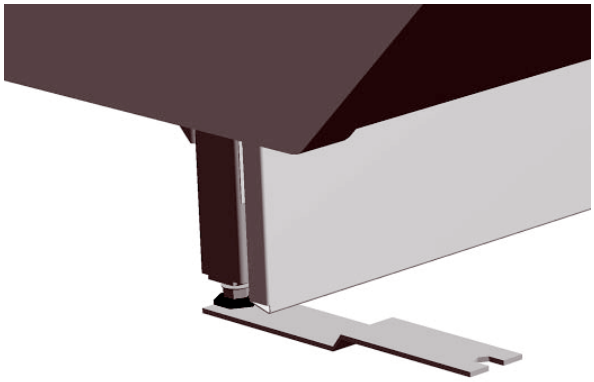
Do NOT remove shipping braces until the merchandisers are properly anchored to the floor. Merchandisers are top heavy and could tip over causing serious injury. Merchandisers must be braced before removing the lag bolts.

Bag Rack Shipping Brace
On non-refrigerated cases, the shipping braces in the middle should be removed. Its purpose is to protect the bag rack during shipment.

Leveling

Merchandisers must be installed level to ensure proper operation of the refrigeration system and to ensure proper drainage of defrost water. Place prybar under metal base and lift. DO NOT LIFT END PANEL. Turn leveler, with supplied wrench, (one wrench per order) clockwise to raise, counter clockwise to lower. Repeat process with other levelers until case is level.

NOTE: To avoid removing concrete flooring, begin lineup leveling from the highest point of the store.



7. Joining

Merchandisers are of sectional construction which means that two or more may be joined in line yielding one long continuous display requiring only one pair of ends. Joint kits and instructions are shipped separately.

8. Exterior Loading

Do **NOT** walk on top of merchandiser or damage to the merchandiser and serious personal injury could occur. **They are not structurally designed to support excessive external loading such** as the weight of a person.

9. Plumbing

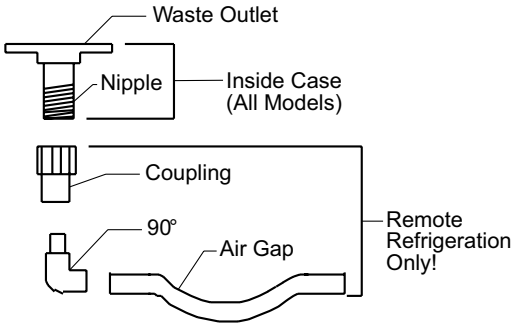
Waste Outlet and Water Seal

On refrigerated merchandisers, remote and self-contained, the waste outlet is centrally located and accessible from the rear of the case.

For remote refrigerated merchandisers, field install the water seal/90 elbow assembly and coupling, and attach 3/4" PVC drip piping in the desired orientation. See illustration. The self-contained merchandiser empties into an evaporator pan.

Installing Drip Piping

NOTE: PVC-DWV solvent cement is recommended. Follow the Hussmann's instructions.

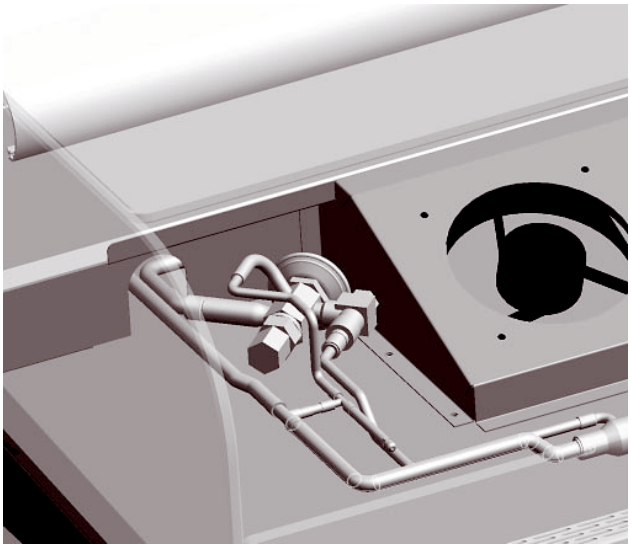


Poorly or improperly installed condensate drains can seriously interfere with the operation of this refrigerator and result in costly maintenance and product losses. Please follow the recommendations listed below when installing drip pipes to insure a proper installation:

1. Never use drip piping smaller than the nominal diameter of the pipe or water seal supplied with the merchandiser.
2. When connecting drip piping, the "water seal" must be used as part of the drip piping to prevent air leakage or insect entrance. Never use two water seals in series in any one drip pipe. **Double water seals in series will cause an air lock and prevent draining.**
3. Pitch the drip piping in the direction of flow. There should be a minimum pitch of 1/8" per foot.
4. Avoid long runs of drip piping. Long runs make it impossible to provide the pitch necessary for good drainage.
5. Provide a suitable air break between flood rim of the floor drain and outlet of drip pipe.
6. Prevent condensate drains from freezing:
   a. Do not install drip pipes in contact with non-insulated suction lines. Suction lines should be insulated with a nonabsorbent insulation material.
   b. Where drip pipes are located in dead air spaces, such as between merchandisers or between a merchandiser and a store wall, provide means to prevent freezing.

It is the contractor's responsibility to install case(s) according to local construction and health codes.

10. Refrigeration



Refrigerant Type

Unless otherwise specified on the factory order, remote and self-contained merchandisers are equipped for operation on R-404A refrigerant. The correct type of refrigerant will be stamped on each merchandiser's serial plate located inside the merchandiser.

Refrigeration Piping

Liquid	Suction
3/8" O.D.	5/8" O.D.

The refrigerant line connections are behind the rear close-off panel, underneath the drain tub, on the left hand end of the merchandiser as viewed from the rear. After connections have been made, seal this outlet thoroughly. Seal both inside and the outside. We recommend using an aerosol dispensed urethane type of insulation. See SGB technical data sheet for proper duration and frequency. Self contained cases have individual defrost time clocks. When power has been applied, set the time clock to the proper duration and frequency.

The time clock is located behind the front panel under the case. Turn the clock dial counterclockwise until the pointer is directed to the current time of day.

Multiplexing - Piping of merchandisers operating on the same refrigeration system may be run from merchandiser to merchandiser through the end frame saddles provided for this purpose. **DO NOT RUN REFRIGERANT LINES THROUGH MERCHANDISERS THAT ARE NOT THE SAME REFRIGERATION SYSTEM** as this may result in poor refrigeration control and compressor failure.

Line Sizing - Refrigerant lines should be sized as shown on the refrigeration legend that is furnished for the store (not furnished by Hussmann). If a legend has not been furnished, refer to the Hussmann Application Engineering Manual for guidance.

Oil Traps - P-TRAPS (oil traps) must be installed at the base of all suction line vertical risers.

Pressure Drop - Pressure drop can rob the system of capacity. To keep the pressure drop to a minimum, keep the refrigerant line run as short as possible using a minimum number of elbows. Where elbows are required, use long radius elbows only.

I**nsulation -** The suction and liquid lines should be clamped or taped together and insulated for a minimum of 30' from the merchandiser. Additional insulation is recommended wherever condensation drippage is objectionable.

Refrigeration Data

See Specification Sheet

Physical Data

Merchandiser Drip Pipe (in.)	1½
Merchandiser Liquid Line (in.)	3/8*
Merchandiser Suction Line (in.)	5/8*

4ft	1.2
5ft	1.5
6ft	1.8

*Dependent on case length and refrigerant type.

Refrigeration (Cont'd)

Glycol Requirements

	GPM	PSI
4ft	0.8	2.3
5ft	1.0	3.3
6ft	1.2	5.2

11. Controls and Adjustments

The objective of the controls and settings listed in this section is to maximize product shelf life. Not complying with these instructions will increase spoilage rate due to drying of the product and could cause sweating on the front glass if operated too cold.

Allow bakery products to reach store ambient conditions after preparation just prior to display. This is essential to maximize the shelf life of perishables.

12. User Information

Stocking

In order to maximize product life, maintain a constant and proper product temperature from the time the product is received through storage, preparation and display.

Products should not be placed in merchandisers until all refrigeration controls have been adjusted and merchandisers are at proper operating temperature. Care should be taken to place the bakery trays all the way to the front of the shelf. This avoids blocking the rear refrigerated air discharge. The load limit decals are affixed to the interior of the merchandiser. Again, **air discharge and return air flow must be unobstructed at all times to provide proper refrigeration.**

There is also a row of vents located at the base of the front glass, just above the front rub rail. These vents allow a gentle air flow across the front glass from the ambient fans that prevents any condensation on the glass. **Do Not place any signs or other restrictive objects on the front of the merchandiser that will block these vents.**

Care and Cleaning

Long life and satisfactory performance of any equipment is dependent upon the care it receives. To ensure long life, proper sanitation and minimum maintenance costs, merchandisers should be thoroughly cleaned, all debris removed and the interiors washed down, weekly.

Do Not use HOT water on COLD glass surfaces. This can cause the glass to shatter and could result in personal injury. Allow glass fronts, ends and service doors to warm before applying hot water.

Exterior Surfaces -The exterior surfaces must be cleaned with a mild detergent and warm water to protect and maintain their attractive finish. **Never use abrasive cleansers or scouring pads.**

Front Glass - DO NOT use the front glass as a support during cleaning. Removal of the glass is NOT recommended.

Interior Surfaces -The lower display decks are removable by sliding open rear drawer and lifting them up and out. The interior surfaces may be cleaned with most domestic detergents, ammonia based cleaners and sanitizing solutions with no harm to the surface.

CAUTION
Shut off fan during cleaning

Important Steps

1. For temperature settings, please see the SGB technical data sheet.
2. Temperature control should be by means of a

T-STAT and Suction Stop Solenoid at each case. Do not use EPR valves, Liquid Line Solenoids or electronic control devices of any kind, as these allow temperature swings causing dehydration and excessive energy consumption.

3. Product should be worked and rotated on a regular basis, not to exceed a 4-hour period.
4. At night, turn off case lights and cover the product with a damp (not wet) cloth similar to cheese cloth (etc.). This should be washed out in the morning and kept in a walk-in box during the day so that it is cool and moist when covering the product.
5. Discharge air temperature should be approximately 26°F, with between 150-200 FPM air velocity. Do not display product directly within the air discharge.
6. Clean Humidity system a minimum of every 90 days for proper system operation.

Case Cleaning

CAUTION

CLEANING PRECAUTIONS

When cleaning:

- **Do not use high pressure water hoses**
- **Do not introduce water faster then waste outlet can drain**
- **NEVER INTRODUCE WATER ON SELF CONTAINED UNIT WITH AN EVPORATOR PAN**
- **NEVER USE A CLEANING OR SANITIZING SOLUTION THAT HAS AN OIL BASE (these will dissolve the butyl sealants) or an AMMONA BASE (this will corrode the copper components of the case)**
- **TO PRESERVE THE ATTRACTIVE FINISH:**
- **DO USE WATER AND A MILD DETERGENT FOR THE EXTERIOR ONLY**
- **DO NOT USE A CHLORANITED CLAENER ON ANY SURFACE**
- **DO NOT USE ABRASIVES OR STEEL WOOL SCOURING PADS (these will mar the finish)**

Do Not Use:

- Mineral oil based solutions, as these will dissolve the butyl sealants used in the construction of the merchandisers.
- Abrasive cleansers and scouring pads, as these will mar the finish.

Do:

- Remove the product and all loose debris to avoid clogging the waste outlet.
- Thoroughly clean all surfaces with soap and hot water. **Do NOT use steam or high water pressure hoses to wash the interior.** These will destroy the merchandisers' sealing causing leaks and poor performance.
- Rinse with hot water, but do NOT flood. Never introduce water faster than the waste outlet can remove it.

NOTE: Self-contained Models

The evaporator pan must be monitored for overflow conditions. Provide drainage if necessary. After cleaning and rinsing, purge the pan of any standing water.

- Care should be taken to minimize direct contact between fan motors and cleaning or rinse water.
- Allow the merchandisers to dry before resuming operation.
- When cleaning lighted shelves, wipe down with a damp sponge or cloth so that water does not enter the light channel. **Do NOT use a hose or submerge shelves in water.**

Stainless Steel Cleaning and Care

There are three basic things, which can break down your stainless steel's passivity layer and allow corrosion.

1. **Mechanical Abrasion**
   Mechanical Abrasion means those things that will scratch the steels surface. Steel Pads, wire Brushes, and Scrapers are prime examples.
2. **Water**
   Water comes out of our tap in varying degrees of hardness. Depending on what part of the country you live in, you may have hard or soft water. Hard water may leave spots. Also, when heated, hard water leaves deposits behind that if left to sit, will break down the passive layer and rust your stainless steel. Other deposits from food preparation and service must be properly removed.
3. **Chlorides**
   Chlorides are found nearly everywhere. They are in water, food and table salt. One of the worst perpetrators of chlorides can come from household and industrial cleaners.

Don't Despair! Here are a few steps that can help prevent stainless steel rust.

1. **Use the Proper Tools**
   When cleaning your stainless steel products, take care to use non-abrasive tools. Soft Clothes and plastic scouring pads will NOT harm the steel's passive layer. Stainless steel pads can also be used but the scrubbing motion must be in the same direction of the manufacturer's polishing marks.
2. **Clean With the Polish Lines**
   Some stainless steels come with visible polishing lines or "grain". When visible lines are present, you should ALWAYS scrub in a motion that is parallel to them. When the grain cannot be seen, play it safe and use a soft cloth or plastic scouring pad.
3. **Use Alkaline, Alkaline Chlorinated or Non-chloride Containing Cleaners**
   While many traditional cleaners are loaded with chlorides, the industry is providing an ever increasing choice of non-chloride cleaners. If you are not sure of your cleaner's chloride content

contact your cleaner supplier. If they tell you that your present cleaner contains chlorides, ask for an alternative. Also, avoid cleaners containing quaternary salts as they also can attack stainless steel & cause pitting and rusting.

4. **Treat your Water**
   Though this is not always practical, softening hard water can do much to reduce deposits. There are certain filters that can be installed to remove distasteful and corrosive elements. Salts in a properly maintained water softener are your friends. If you are not sure of the proper water treatment, call a treatment specialist.
5. **Keep your Food Equipment Clean**
   Use alkaline, alkaline chlorinated or non-chlorinated cleaners at recommended strength. Clean frequently to avoid build-up of hard, stubborn stains. If you boil water in your stainless steel equipment, remember the single most likely cause of damage is chlorides in the water. Heating cleaners that contain chlorides has a similar effect.
6. **RINSE, RINSE, RINSE**
   If chlorinated cleaners are used you must rinse, rinse, rinse and wipe dry immediately. The sooner you wipe off standing water, especially when sit contains cleaning agents, the better. After wiping the equipment down, allow it to air dry for the oxygen helps maintain the stainless steel's passivity film.
7. **Never Use Hydrochloric Acid (Muriatic Acid) on Stainless Steel**
8. **Regularly Restore/Passivate Stainless Steel**

13. Electrical

Wiring Color Code

STANDARD CASE WIRE COLOR CODE
CODIGO DE COLORES DE LOS ALAMBRES PARA LAS VITRINAS ESTANDAR
CODE COULER POUR FILS DE BOITIER NORMALISE

COLOR DESCRIPTION	DESCRIPCION	DESCRIPTION
GROUND	TIERRA MASA	MASSE
ANTI-SWEAT	ANTICONDENSACION	ANTI-SUINTEMENT
LIGHTS	LUCES	ECLAIRAGE
RECEPTACLES	ENCHUFES	PRISE DE COURANT
T-STAT/SOLENOID 230VAC	TERMOSTATO/SOLENOIDE (230VAC)	SOUPAPE A SOLENOID (230 VAC)
T-STAT/SOLENOID 115VAC	TERMOSTATO/SOLENOIDE (115VAC)	SOUPAPE A SOLENOID (115 VAC)
T-STAT/SOLENOID 24VAC	TERMOSTATO/SOLENOIDE (24VAC)	SOUPAPE A SOLENOID (24 VAC)
FAN MOTORS	VENTILADORES	VENTILATEUR
BLUE CONDENSING UNIT	UNIDAD DE CONDENSACION	UNITE DE CONDENSATION

USE COPPER CONDUCTORS ONLY
UTILISEZ LES CONDUCTEURS DE CUIVRE SEULEMENT
UTILICE LOS CONDUCTORES DE COBRE SOLAMENTE
430-01-0338 R101003

Rear Close-off Panel

To perform electrical and refrigeration work, remove the rear closure panel by loosening the sheet metal screws. Replace when work is complete.

Note: Self-contained Models - Do NOT block the vent openings on the rear closure panel. These allow intake and exhaust air for the condensing unit. Vents only appear on self-contained models.

Electrical

Self-Contained Model Installation - Medium temperature merchandisers need only to be connected to a 120V/60 Hz electrical supply. Low temperature merchandisers need to be connected to both a 120V/60 Hz and 220V/60 Hz electrical supply.

Connections - All wiring must be in compliance with NEC and local codes. All electrical connections for the nonrefrigerated model are to be made in the electrical panel. Electrical connections for refrigerated models are made in the electrical box on the back of the case behind the rear close-off panel.

Field Wiring - Field wiring must be sized for components amperes stamped on the serial plate. Actual ampere draw may be less than specified. **Always check the serial plate.**

Post Construction Clean-up - After the first two weeks of a major store remodel or new store operation, the grill should be removed and the condensing unit and condenser face cleaned due to the accumulated dirt and debris generated during construction.

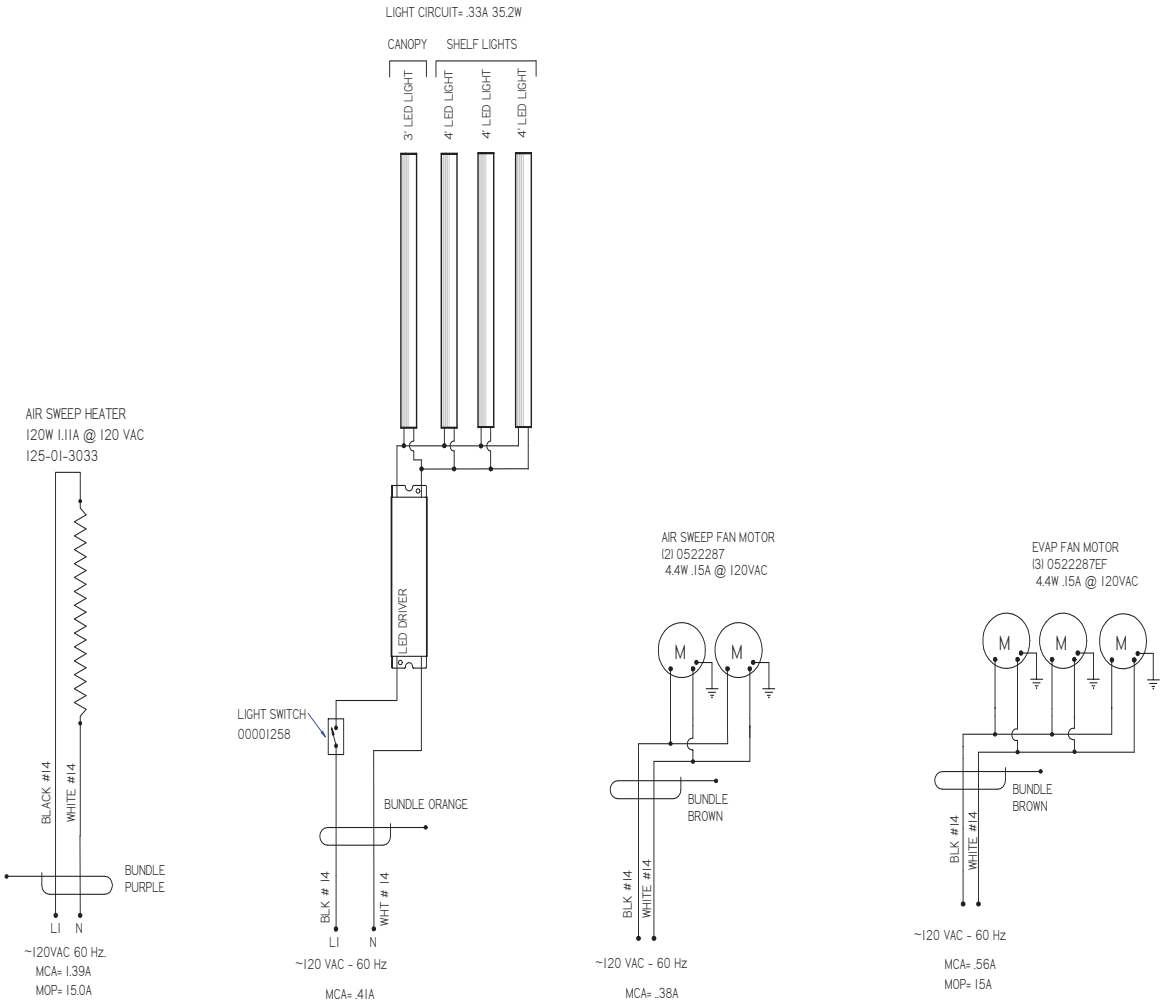
14. Electrical Wiring Diagrams

SGB	**SGB-4-R-48"**	4'	3016175
	SGB-5-R-57 1/2"	5'	3016176
	SGB-6-R-75 1/2"	6'	3016177
	SGB-8-R-96"	8'	3016178
	SGB-12-R-144"	12'	3016184

CIRCUIT #1
LOADING

	120V	
L1	2.2	

REVISION HISTORY						
REV.	ECN	DATE	REVISION DESCRIPTION	REV BY	CHKD BY	APPR BY
A	ECN-CAP-0004533	2016/09/29	RELEASED TO PRODUCTION	CB	CB	CB
B	ECN-CAP-0006455	2017/02/07	CHANGED EVAP. FAN MOTOR	CB	CB	CB



NOTES:
CASE MUST BE GROUNDED
WHEN PASSING WIRES THROUGH METAL HOLES A GROMMET MUST BE USED

MATERIAL - N/A		HUSSMANN
DATE DRAWN - 9-29-16		DIAGRAM-SGB-4-R 48"
DRAWN BY -CRAIG BOOREY	ECN-CAP-0004533	
REVIEWED BY -CRAIG BOOREY	REF -	
APPROVED BY - CRAIG BOOREY	SHEET 1 OF 1	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.		
TOLERANCES ARE: DECIMALS .XX ±.03, .XXX ±.010 ANGLES ± 2°	THIRD ANGLE PROJECTION	3016175 B

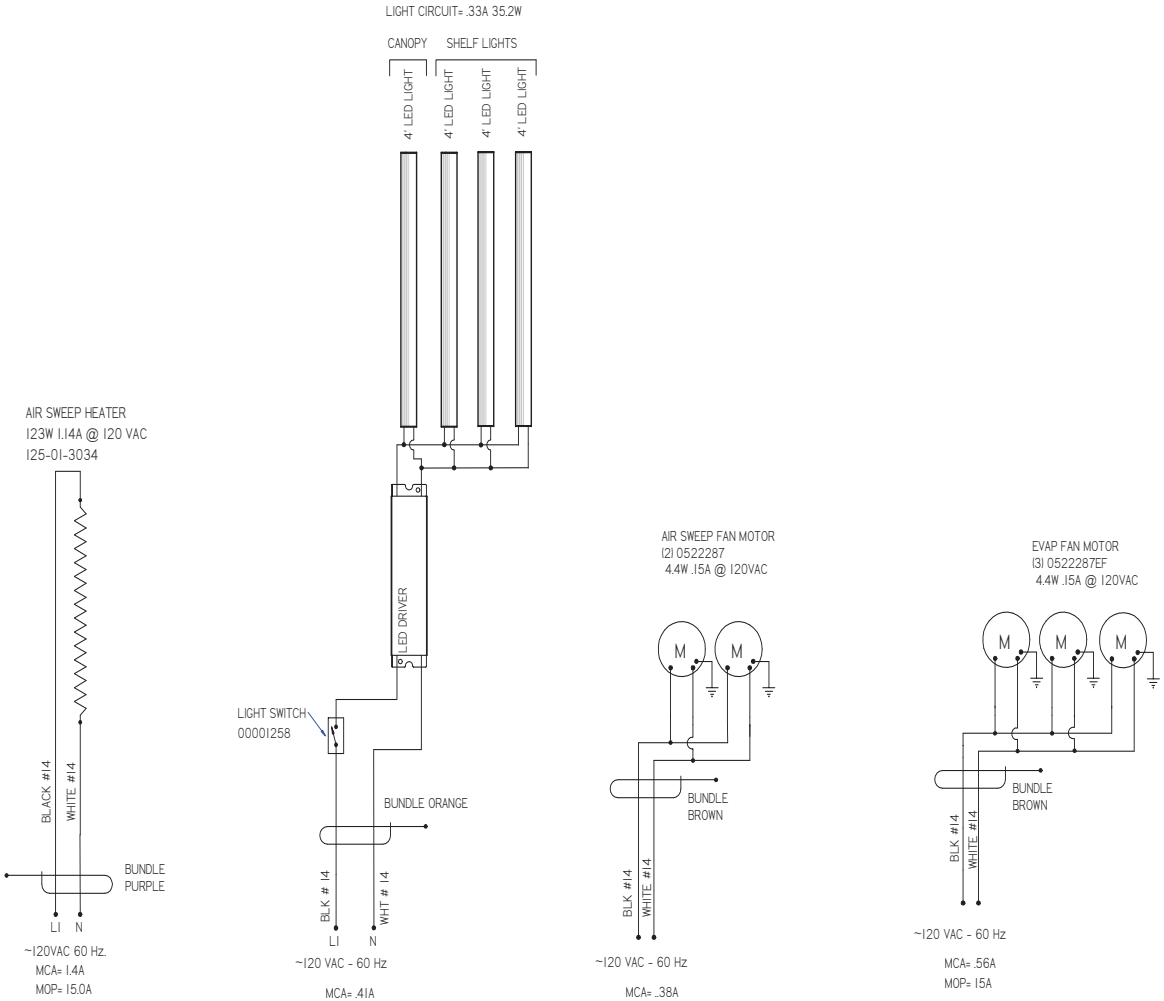
HUSSMANN_LGDF_11 SHEET SIZE D

Wiring Diagrams (Cont'd)

CIRCUIT #1
LOADING

	120V	
L1	2.2	

REVISION HISTORY						
REV.	ECN	DATE	REVISION DESCRIPTION	REV BY	CHKD BY	APPR BY
A	ECN-CAP-0004533	2016/09/29	RELEASED TO PRODUCTION	CB	CB	CB
B	ECN-CAP-0006455	2017/02/07	CHANGED EVAP FAN MOTOR	CB	CB	CB



NOTES:
CASE MUST BE GROUNDED
WHEN PASSING WIRES THROUGH METAL HOLES A GROMMET MUST BE USED

MATERIAL - N/A		HUSSMANN
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DRAWN BY -CRAIG BOOREY	ECN-CAP-0004533	
REVIEWED BY -CRAIG BOOREY	REF -	
APPROVED BY - CRAIG BOOREY	SHEET 1 OF 1	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.		
TOLERANCES ARE: DECIMALS .XX ±.03, .XXX ±.010 ANGLES ± 2°	THIRD ANGLE PROJECTION	3016176 B

HUSSMANN_GDF_11 SHEET SIZE D

Wiring Diagrams (Cont'd)

CIRCUIT #1
LOADING

	120V	
LI	2.8	

REVISION HISTORY						
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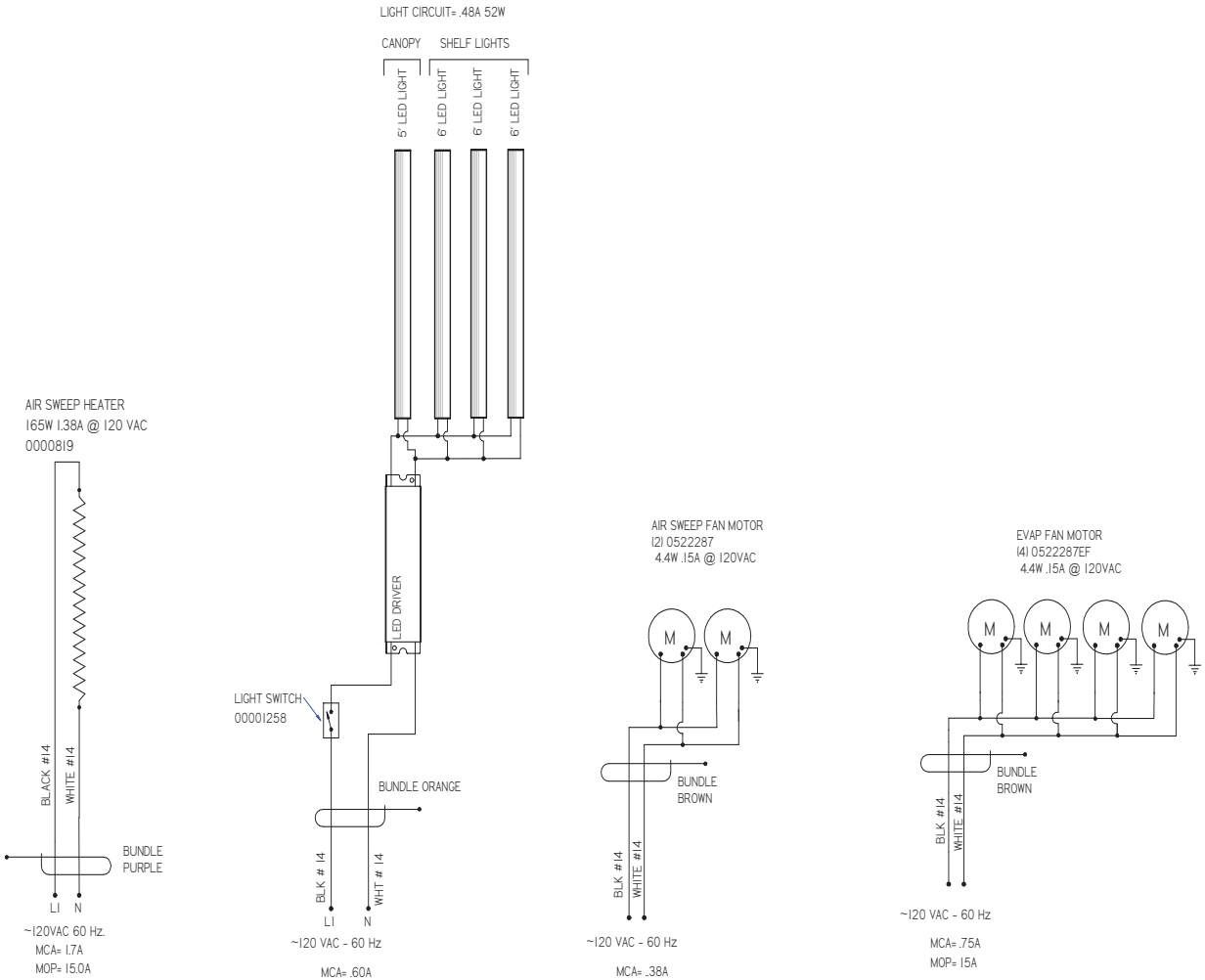
B	ECN-CAP-0006455	2017/02/07	CHANGED EVAP FAN MOTOR	CB	CB	CB



NOTES:
CASE MUST BE GROUNDED
WHEN PASSING WIRES THROUGH METAL HOLES A GROMMET MUST BE USED

MATERIAL - N/A	HUSSMANN
DATE DRAWN - 9-29-16	
DRAWN BY -CRAIG BOOREY	ECN-CAP-0004533
REVIEWED BY -CRAIG BOOREY	REF -
APPROVED BY - CRAIG BOOREY	SHEET 1 OF 1
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.	DIAGRAM-SGB-6-R 75.5"
TOLERANCES ARE: DECIMALS .XX ±.03, .XXX ±.010 ANGLES ± 2°	THIRD ANGLE PROJECTION
	3016177 B

HUSSMANN_GDF_11 SHEET SIZE D

Wiring Diagrams (Cont'd)

CIRCUIT #1
LOADING

	120V	
LI	4.2	

REVISION HISTORY						
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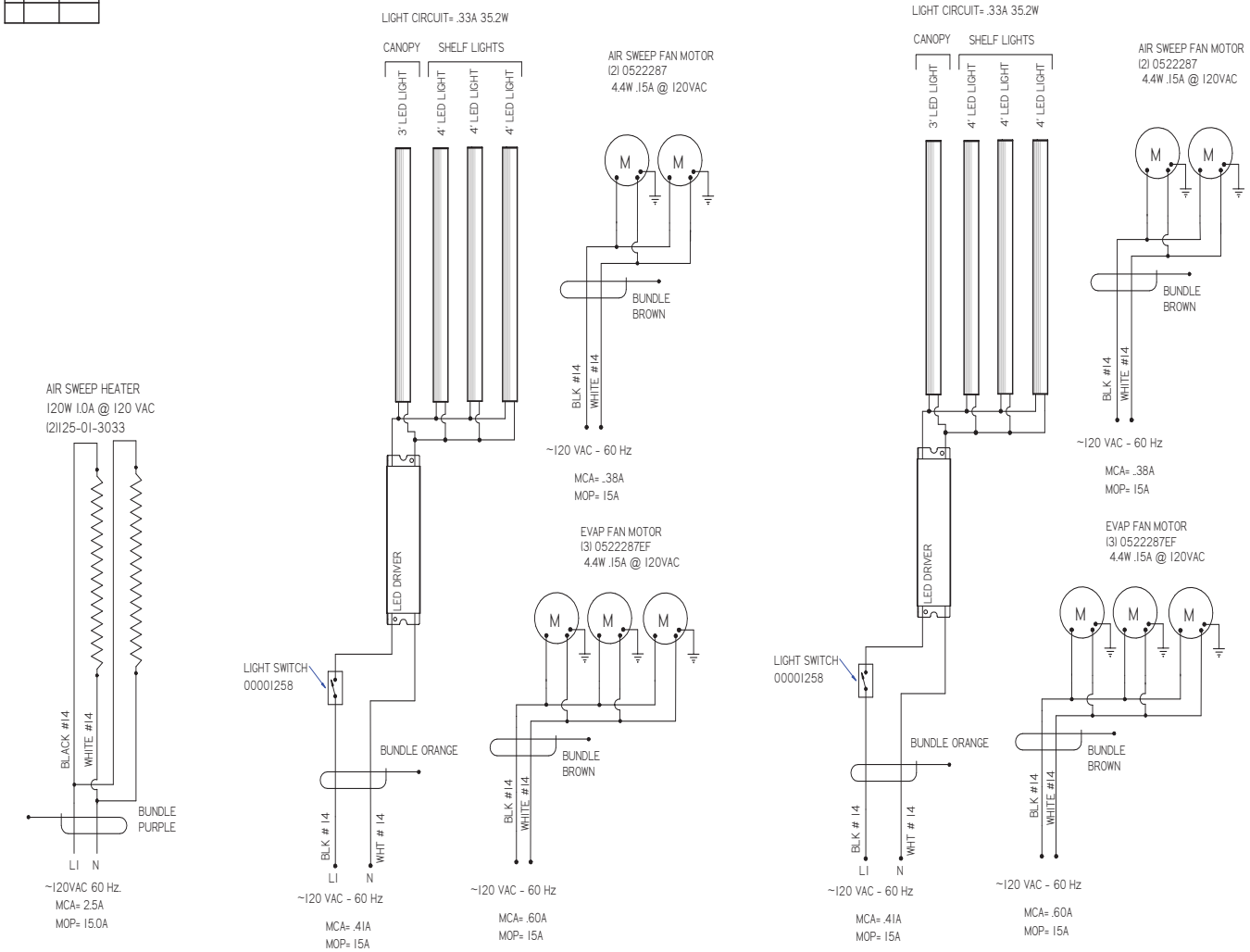
B	ECN-CAP-0006455	2017/02/07	CHANGED EVAP FAN MOTOR	CB	CB	CB



NOTES:
CASE MUST BE GROUNDED
WHEN PASSING WIRES THROUGH METAL HOLES A GROMMET MUST BE USED

MATERIAL - N/A	
DATE DRAWN - 9-29-16	
DRAWN BY -CRAIG BOOREY	ECN-CAP-0004533
REVIEWED BY -CRAIG BOOREY	REF -
APPROVED BY - CRAIG BOOREY	SHEET 1 OF 1
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.	
TOLERANCES ARE: DECIMALS .XX ±.03, .XXX ±.010 ANGLES ± 2°	THIRD ANGLE PROJECTION

HUSSMANN

DIAGRAM-SGB-8-R
96"

3016178 B

HUSSMANN_GDF_11 SHEET SIZE D

Wiring Diagrams (Cont'd)

CIRCUIT #1
LOADING

	120V	
L1	6.1	

REVISION HISTORY						
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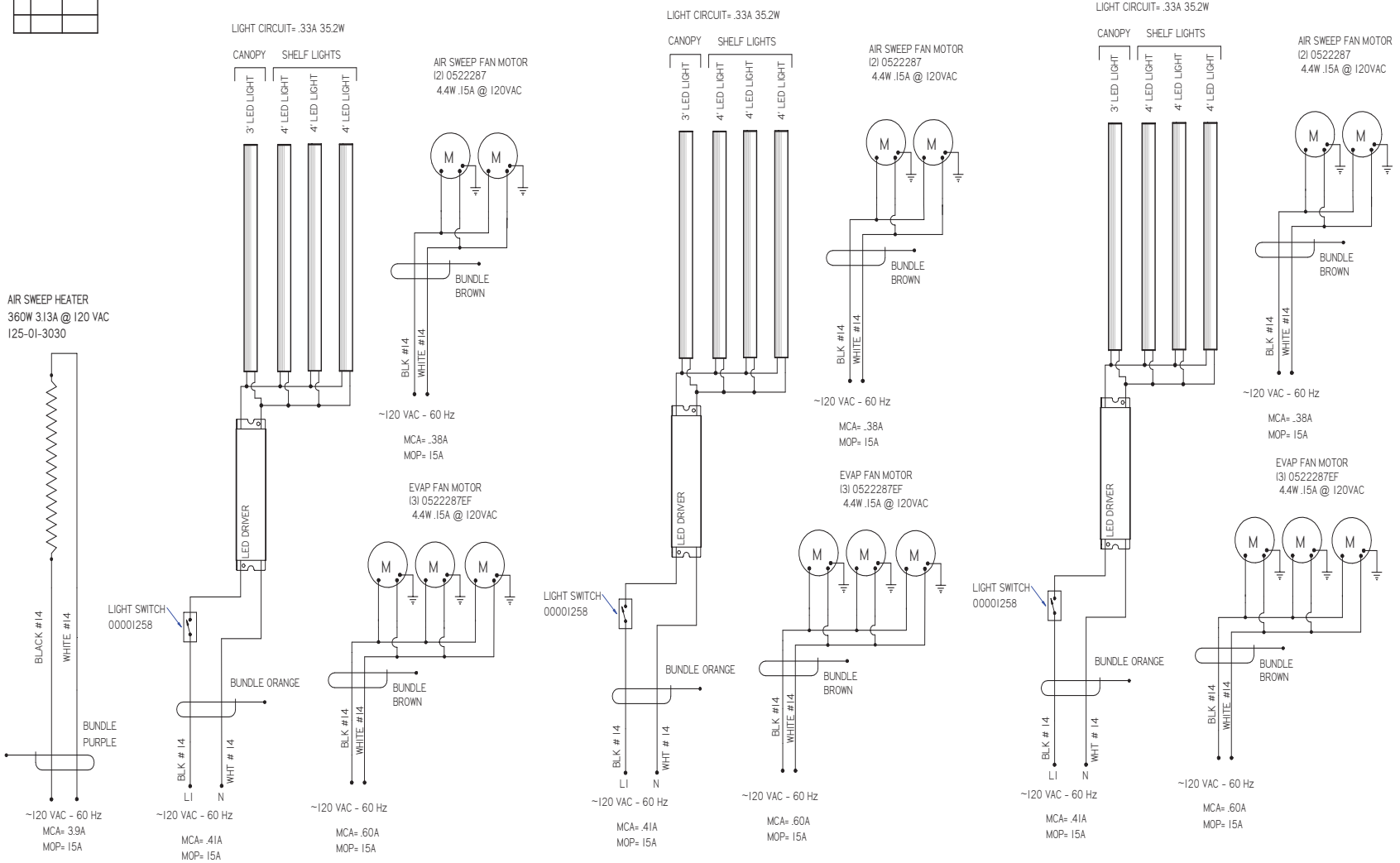
A	ECN-CAP-0004533	2016/09/29	RELEASED TO PRODUCTION	CB	CB	CB
B	ECN-CAP-0006455	2017/02/07	CHANGED EVAP FAN MOTOR	CB	CB	CB



NOTES:
CASE MUST BE GROUNDED
WHEN PASSING WIRES THROUGH METAL HOLES A GROMMET MUST BE USED

MATERIAL - N/A		HUSSMANN
DATE DRAWN - 9-29-16		DIAGRAM-SGB-12-R 144"
DRAWN BY -CRAIG BOOREY	ECN-CAP-0004533	
REVIEWED BY -CRAIG BOOREY	REF -	
APPROVED BY - CRAIG BOOREY	SHEET 1 OF 1	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.		
TOLERANCES ARE: DECIMALS .XX ±.03, .XXX ±.010 ANGLES ± 2°	THIRD ANGLE PROJECTION	3016184 B

HUSSMANN_GDF_11 SHEET SIZE D

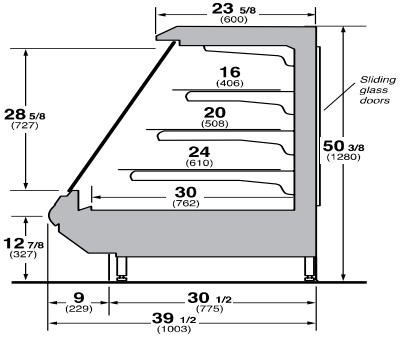
SERVICE CAKE REVISION DATE 01/10/17

HUSSMANN - SGB (CHINO)

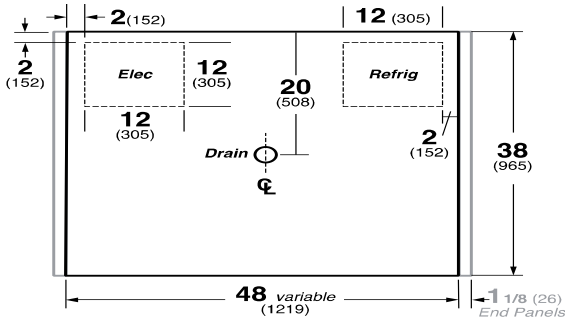
DOE 2017 Energy Efficiency Compliant

Hussmann refrigerated merchandisers configured for sale for use in the United States meet or surpass the requirements of the DOE 2017 energy efficiency standards.

SGB Service Bakery Straight Glass



SGB Plan View



REFRIGERATION DATA:

CASE LENGTHS (INCHES)	CASE USAGE	CAPACITY *** (BTU/HR/FT)		TEMPERATURE (ºF)			VELOCITY (FT/MIN)
		RATING CONDITION		EVAPORATOR		DISCHARGE AIR ** (ºF)	
		NSF 7	AHRI 1200	NSF 7	AHRI 1200	NSF 7	NSF 7
48, 57.5, 75.5, 96	BAKERY	535	490	20	22	27~30	300~350

CASE LENGTHS	EST. REFG. CHRG. 404A (LBS)	20°F GLYCOL 6° RISE	
		GPM	PSI
48"	0.5	0.8	2.3
57.5"'	0.7	1.0	3.5
75.5"	0.9	1.2	1.6
96"	1.1	1.5	1.7

****FRONT DISCHARGE AIR MEASURED INSIDE AIR CURTAIN HONEYCOMB**

*****REFRIGERATION NOTES:**

1) BTU'S INCLUDE CANOPY LIGHTS. ADD 10 BTUS/SHELF/FT FOR EACH SHELF (LIGHT)
2) AHRI 1200 RATING POINT FOR ENERGY CONSUMPTION COMPARISON ONLY
3) USE DEW POINT FOR HIGH GLIDE REFRIGERANTS. CARE SHOULD BE TAKEN TO USE THE DEW POINT IN P/T TABLES FOR MEASURING AND ADJUSTING SUPERHEAT. ADJUST EVAPORATOR PRESSURE AS NEEDED TO MAINTAIN THE DISCHARGE AIR TEMPERATURE SHOWN.
4) RATING CONDITION IS NSF TYPE I, 75°F/55% RH

REFRIGERATION DATA CONTINUED:

ELEC. THERMOSTAT / AIR SENSOR SETTINGS		DEFROST TYPE	TIME (MIN)	DEFROST FREQUENCY (#/DAY)	TERM. TEMP (°F) COIL ONLY	DRIP TIME	DEFROST WATER (LBS/DAY/FT)
USAGE	CUT IN (ºF)	CUT OUT (ºF)					
BAKERY	31	28	OFF TIME	30	6	45	N/A	2.5

END PANEL WIDTH KEY		
# OF END PNLS	END PNL WIDTH (IN.)	TOTAL ADDED LENGTH (IN.)
1	1.125	1.125
2	1.125	2.25

ELECTRICAL DATA:

STANDARD FANS, LED LIGHTS (115 VOLT)

CASE LENGTH	EVAPORATOR FANS					AIRSWEEP FANS			CANOPY LIGHTS LED		OPTIONAL LED SHELF LIGHTS		MAX. LED LOAD (W/ ALL OPTIONS)	
	# OF EVAP FANS	BLADE DIA. (IN.)	BLADE PITCH	AMPS	WATTS	# OF FANS	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS
48"	3	4	N/A	0.12	14	2	0.08	9	0.07	8	0.27	31	0.34	39
57.5"	3	4	N/A	0.12	14	2	0.08	9	0.09	10	0.34	39	0.43	49
75.5"	4	4	N/A	0.16	19	2	0.08	9	0.11	13	0.40	46	0.51	59
96"	6	4	N/A	0.25	28	4	0.16	19	0.13	15	0.54	62	0.67	77

OPTIONAL HIGH OUTPUT LED LIGHTS (115 VOLT)

CASE LENGTH	CANOPY LIGHTS H.O. LED		OPTIONAL SHELF		MAX. H.O. LED LOAD	
	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS
48"	N/A	N/A	N/A	N/A	N/A	N/A
57.5"	N/A	N/A	N/A	N/A	N/A	N/A
75.5"	N/A	N/A	N/A	N/A	N/A	N/A
96"	N/A	N/A	N/A	N/A	N/A	N/A

STANDARD HEATERS, OPTIONAL OUTLETS

ANTI-SWEAT HEATERS (ON FAN CIRCUIT)		CONVENIENCE OUTLETS (OPTIONAL)		
AMPS	WATTS	# OUTLET	VOLTS	AMPS
1.04	120	1	115	15
1.07	123	1	115	15
1.43	165	1	115	15
2.09	240	1	115	15

17. Troubleshooting Guide

Problem	Possible Cause	Possible Solution
Case temperature is too warm.	Ambient conditions may be affecting the case operation.	Check case position in store. Is the case located near an open door, window, electric fan or air conditioning vent that may cause air currents? Case must be located minimum 15 Ft away from doors or windows. Cases are designed to operate at 55% Relative humidity and a temperature of 75°F.
	Discharge air temp is out of spec.	Check evaporator fan operation. Check electrical connections and input voltage.
		Fans are installed backwards. Check airflow direction.
		Fan blades are installed incorrectly. Make sure fan blades have correct pitch and are per specification.
		Check to see that fan plenum is installed correctly. It should not have any gaps.
		Check suction pressure and insure that it meets factory specifications.
	Case is in defrost.	Check defrost settings. See Technical Specifications section.
	Product load may be over its limits blocking airflow.	Redistribute product so it does not exceed load level. There is a sticker on the inside of the case indicating what the maximum load line is.
	Coil is freezing over.	Return air is blocked, make sure debris is not blocking the intake section.
		Coil close-offs are not installed. Inspect coil to make sure these parts are on the case.
	Condensing coil or evaporator coil is clogged or dirty.	Clean coil.
Case temperature is too cold.	The t-stat temp is set too low.	Check settings. See Technical Specifications section.
	Ambient conditions may be affecting the case operation.	Check case position in store. Is the case located near an open door, window, electric fan or air conditioning vent that may cause air currents? Case must be located minimum 15 Ft away from doors or windows. Cases are designed to operate at 55% Relative humidity and a temperature of 75°F.
Condensation on glass.	Ambient conditions may be affecting the case operation.	Check case position in store. Is the case located near an open door, window, electric fan or air conditioning vent that may cause air currents? Case must be located minimum 15 Ft away from doors or windows. Cases are designed to operate at 55% Relative humidity and a temperature of 75°F.
	Inadequate air circulation.	Check if air sweep fans are functioning, check electrical connections.
	There is not enough heat provided in the airflow.	Check if air sweep heater is functioning, check electrical connections.
	There are glass gaps on the side of the case.	See glass adjustment section.
	Glass is not completely shut.	Close glass correctly.

Troubleshooting Guide (Cont'd)

Problem	Possible Cause	Possible Solution
Water has pooled under case.	Case drain is clogged.	Clear drain.
	PVC drains under case may have a leak.	Repair as needed.
	Case tub has unsealed opening.	Seal as needed.
	If the case is in a line-up, case to case joint is missing or unsealed.	Install case to case joint and seal as needed.
	Evaporator pan is overflowing (if applicable).	Check electrical connection to evaporator pan. Check float assembly, it should move freely up and down the support stem. Clear any debris.
Case is not draining properly.	Case is not level.	Level the case.
	Drain screen is plugged.	Clean drain screen and remove any debris.
	Drain or P-trap is clogged.	Clear any debris.
Frost or ice on evaporator coil.	Evaporator fans are not functioning.	Check electrical connections.
	Defrost clock is not functioning.	Case should be serviced by a qualified service technician.
	Coil is freezing over.	Return air is blocked, make sure debris is not blocking the intake section.
		Coil close-offs are not installed. Inspect coil to make sure these parts are on the case.
Large gap is visible on bottom of front glass or glass can't be opened because it is too low.	Glass Height adjusters need to be adjusted.	See Glass Adjustment section.
Large gaps are visible in between glass panels or glass rubs against end panel.	Glass/glass clamp assembly needs to be adjusted.	See Glass Adjustment section.
Front glass does not stay open and falls closed.	Glass shock/piston may need to be replaced.	Case should be serviced by a qualified service technician.
Lights do not come on.	LED Driver/light socket wiring.	Check electrical connections. See Electrical Section and check wiring diagram.
	LED Driver needs to be replaced.	Case should be serviced by a qualified service technician. See Electrical Section.
	Lamp socket needs to be replaced.	Case should be serviced by a qualified service technician.
	Lamp needs to be replaced.	See Maintenance Section.
	Light Switch needs to replaced.	Case should be serviced by a qualified service technician.

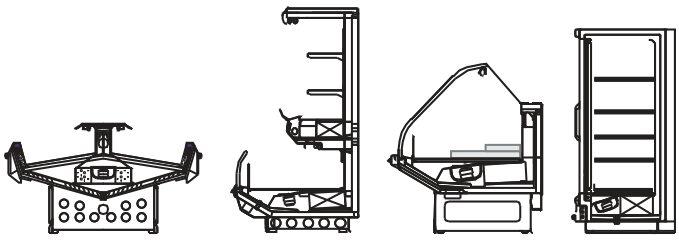
18. Appendices

Appendix A. - Temperature Guidelines

The refrigerators should be operated according to the manufacturer's published engineering specifications for entering air temperatures for specific equipment applications. Table 1 shows the typical temperature of the air entering the food zone one hour before the start of defrost and one hour after defrost for various categories of refrigerators. Refer to Appendix C for Field Evaluation Guidelines.

Table 1

Type of Refrigerator	Typical Entering Air Temperature
I. OPEN DISPLAY	
A. Non frozen:	
1) Meat	28°F
2) Dairy/Deli	32°F
3) Produce	
a. Processed	36°F
b. Unprocessed	45°F
B. Frozen	0°F
C. Ice Cream	-5°F
II. CLOSED DISPLAY	
A. Non frozen:	
1) Meat	34°F
2) Dairy/Deli	34°F
3) Produce	
a. Processed	36°F
b. Unprocessed	45°F
B. Frozen	0°F
C. Ice Cream	-5°F



Single Deck Multi Deck Service Case Reach-In

I. Open Display Styles ***II. Closed Display Styles***

Appendix B. - Application Recommendations

1.0 Temperature performance is critical for controlling bacteria growth. Therefore, the following recommendations are included in the standard. They are based on confirmed field experience over many years.

1.1 The installer is responsible for following the installation instructions and recommendations provided by Hussmann for the installation of each individual type refrigerator.

1.2 Refrigeration piping should be sized according to the equipment manufacturer's recommendations and installed in accordance with normal refrigeration practices. Refrigeration piping should be insulated according to Hussmann's recommendations.

1.3 A clogged waste outlet blocks refrigeration. The installer is responsible for the proper installation of the system which dispenses condensate waste through an air gap into the building indirect waste system.

1.4 The installer should perform a complete start-up evaluation prior to the loading of food into the refrigerator, which includes such items as:

a) Initial temperature performance, Coils should be properly fed with a refrigerant according to manufacturer's recommendations.

b) Observation of outside influences such as drafts, radiant heating from the ceiling and from lamps. Such influence should be properly corrected or compensated for.

c) At the same time, checks should be made of the store dry-bulb and wet-bulb temperatures to ascertain that they are within the limits prescribed by Hussmann.

d) Complete start-up procedures should include checking through a defrost to make certain of its adequate frequency and length without substantially exceeding the actual needs. This should include checking the electrical or refrigerant circuits to make sure that defrosts are correctly programmed for all the refrigerators connected to each refrigeration system.

e) Recording instruments should be used to check performance.

Appendix C. - Field Recommendations

Recommendations for field evaluating the performance of retail food refrigerators and hot cases

1.0 The most consistent indicator of display refrigerator performance is temperature of the air entering the product zone (see Appendix A). In practical use, the precise determination of return air temperature is extremely difficult. Readings of return air temperatures will be variable and results will be inconsistent. The product temperature alone is not an indicator of refrigerator performance.

Appendices (Cont'd)

NOTE: Public Health will use the temperature of the product in determining if the refrigerator will be allowed to display potentially hazardous food. For the purpose of this evaluation, product temperature above the FDA Food Code 1993 temperature for potentially hazardous food will be the first indication that an evaluation should be performed. It is expected that all refrigerators will keep food at the FDA Food Code 1993 temperature for potentially hazardous food.

1.1 The following recommendations are made for the purpose of arriving at easily taken and understood data which, coupled with other observations, may be used to determine whether a display refrigerator is working as intended:

a) INSTRUMENT - A stainless steel stem-type thermometer is recommended and it should have a dial a minimum of 1 inch internal diameter. A test thermometer scaled only in Celsius or dually scaled in Celsius and Fahrenheit shall be accurate to 1°C (1.8°F). Temperature measuring devices that are scaled only in Fahrenheit shall be accurate to 2°F. The thermometer should be checked for proper calibration. (It should read 32°F when the stem is immersed in an ice water bath).

b) LOCATION - The probe or sensing element of the thermometer should be located in the airstream where the air first enters the display or storage area, and not more than 1 inch away from the surface and in the center of the discharge opening.

c) READING - It should first be determined that the refrigerator is refrigerating and has operated at least one hour since the end of the last defrost period. The thermometer reading should be made only after it has been allowed to stabilize, i.e., maintain a constant reading.

d) OTHER OBSERVATIONS - Other observations should be made which may indicate operating problems, such as unsatisfactory product, feel/appearance.

e) CONCLUSIONS - In the absence of any apparent undesirable conditions, the refrigerator should be judged to be operating properly. If it is determined that such condition is undesirable, i.e., the product is above proper temperature, checks should be made for the following:

1. Has the refrigerator been loaded with warm product?
2. Is the product loaded beyond the “Safe Load Line” markers?
3. Are the return air ducts blocked?
4. Are the entering air ducts blocked?
5. Is a dumped display causing turbulent air flow and mixing with room air?
6. Are spotlights or other high intensity lighting directed onto the product?
7. Are there unusual draft conditions (from heating/air-conditioning ducts, open doors, etc.)?
8. Is there exposure to direct sunlight?
9. Are the coils of the refrigerator iced up?
10. Is the store ambient over 75°F, 55% RH as set forth in ASHRAE Standard 72 and ASHRAE Standard 117?
11. Are the shelf positions, number, and size other than recommended by Hussmann?
12. Is there an improper application or control system?
13. Is the evaporator fan motor/blade inoperative?
14. Is the defrost time excessive?
15. Is the defrost termination, thermostat (if used) set too high?
16. Are the refrigerant controls incorrectly adjusted?
17. Is the air entering the condenser above design conditions? Are the condenser fins clear of dirt, dust, etc.?
18. Is there a shortage of refrigerant?
19. Has the equipment been modified to use replacements for CFC-12, CFC-502 or other refrigerant? If so, have the modifications been made in accordance with the recommendations of the Hussmann equipment? Is the refrigerator charged with the proper refrigerant and lubricant? Does the system use the recommended compressor?

Appendix D. - Recommendations to User

1.0 Hussmann Corporation provides instructions and recommendations for proper periodic cleaning. The user will be responsible for such cleaning, including the cleaning of low temperature equipment within the compartment and the cooling coil area(s). Cleaning practices, particularly with respect to proper refrigerator unloading and warm-up, must be in accordance with applicable recommendations.

Appendices (Cont'd)

1.1 Cleaning of non frozen food equipment should include a weekly cleaning of the food compartment as a minimum to prevent bacteria growth from accumulating. Actual use and products may dictate more frequent cleaning. Circumstances of use and equipment design must also dictate the frequency of cleaning the display areas. Weekly washing down of the storage compartment is also recommended, especially for equipment subject to drippage of milk or other liquids, or the collection of vegetable, meat, crumbs, etc. or other debris or litter. Daily cleaning of the external areas surrounding the storage or display compartments with detergent and water will keep the equipment presentable and prevent grime buildup.

1.2 Load levels as defined by the manufacturer must be observed.

1.3 The best preservation is achieved by following these rules:

a) Buy quality products.
b) Receive perishables from transit equipment at the ideal temperature for the particular product.
c) Expedite perishables to the store's storage equipment to avoid unnecessary warm-up and prolonged temperature recovery. Food store refrigerators are not food chillers nor can they reclaim quality lost through previous mishandling.
d) Care must be taken when cross merchandising products to ensure that potentially hazardous vegetable products are not placed in non refrigerated areas.
e) Display and storage equipment doors should be kept closed during periods of inactivity.
f) Minimize the transfer time of perishables from storage to display.
g) Keep meat under refrigeration in meat cutting and processing area except for the few moments it is being handled in processing. When a cut or tray of meat is not to be worked on immediately, the procedure should call for returning it to refrigeration.
h) Keep tools clean and sanitized. Since mechanical equipment is used for fresh meat processing, all such equipment should be cleaned at least daily and each time a different kind of meat product comes in contact with the tool or equipment.
i) Make sure that all refrigeration equipment is installed and adjusted in strict accordance with the manufacturer's recommendations.
j) See that all storage and refrigeration equipment is kept in proper working order by routine maintenance.

For further technical information, please log on to http://www.hussmann.com/products/SGB.htm

Service Record

Last service date: **By:**

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

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The *MODEL NAME* and *SERIAL NUMBER* is required in order to provide you with the correct parts and information for your particular unit.
They can be found on a small metal plate on the unit.
Please note them below for future reference.

MODEL:

SERIAL NUMBER: