FORM NUMBER: M-1
DATE: 9/25/79
REVISED:

WARREN//SHERER

INSTALLATION & OPERATION MANUAL

MODEL:

MIA (G)
MEAT MERCHANDISERS
(AIR DEFROST)

THIS REFRIGERATOR CONFORMS TO THE COMMERCIAL REFRIGERATOR MANUFACTURERS ASSOCIATION HEALTH AND SANITATION STANDARD.
CRS-SI-78

WARREN//SHERER
DIVISION OF KYSOR INDUSTRIAL CORPORATION
1600 ROCKDALE INDUSTRIAL BLVD., CONYERS, GEORGIA 30207/404•483•5600

INSTALLATION AND OPERATING INSTRUCTIONS

FOR

MODEL M1A MEAT MERCHANDISER

(FRESH MEAT)

APPLICATION:

This meat merchandiser was designed to display fresh packaged meats under proper storage temperature. They are designed for use in an air conditioned store where temperatures and humidity are maintained @ 75° dry bulb and not higher than 64° wet bulb (55% relative humidity).

Your meat merchandiser should be installed and operated according to the instructions contained in this manual to insure proper performance.

GENERAL:

These meat merchandisers are a self service merchandiser. They can be installed in a continuous line-up consisting of several 8-foot and 12-foot sections by using a joint trim kit.

When the line-up is operated on two (2) or more units it is necessary to use a plexiglass divider between the separate refrigeration systems.

The merchandiser can also be installed individually. Ends are removable so additional sections may be added.

MODEL:	DESCRIPTION	SERIAL NUMBER DESIGNATION
M1A	Meat merchandiser single duty. "AIR DEFROST"	737 A
M1AG	Meat merchandiser single duty with glass front. "AIR DEFROST"	738 A

SHIPPING DAMAGE:

All equipment should be examined for shipping damage before and during unloading. If there is any damage, the carrier should be notified immediately and an inspection requested. The delivery receipt "must" be noted that the equipment was received damaged. If damage is of a concealed nature you must contact the carrier immediately or no later than three (3) days following delivery. A claim must be filed with the carrier by the consignee for all damage.

NOTE: Your equipment, when delivered, will have a sticker attached advising what must be done to report any damage.

LEVELING:

Your new refrigerator must be perfectly level to insure proper operation of the refrigeration system and also to insure proper drainage after defrost.

Proper leveling when multiplexing can be accomplished by finding the highest point on the floor at the location of the line-up

LEVELING: by using a level and a chalk line. Place a refrigerator at this point and use shims as needed to line the other refrigerators to this high point. Be sure sufficient shims are employed so as to prevenet settling of the refrigerators.

STORE DRAFTS: Room air currents or drafts will seriously affect the operation of any open-type fixture. Be sure fans, space heaters, or air conditioning grilles do not produce currents sufficent to more air across the fixtures. Air movements across an open fixture will cause the case temperature to be high and create defrosting difficulties. This will result in an increase of operating costs.

JOINING: Two or more fixtures of like models can be joined together to form a continuous line-up. Instruction for joining fixtures are included in the joint kit and this manual.

WASTE OUTLET CONNECTIONS: These cases are equipped with a 1-1/2" (nominal 2") FPT waste outlet connection which terminates in the center of the refrigerator below insulated bottom. An open drip space in drip pipe between case and sewer connection is recommended. A 1-1/2" (nominal 2") in line water seal and street ell is furnished with each fixture for field installation. This assembly must be installed directly to the fixture waste outlet. CAUTION: Do not install a second water seal or drain trap as this will cause a double trap and drainage problems.

INSTALLING DRIP PIPE: Improperly installed drip pipes can seriously effect the operation of this equipment and result in maintenance cost and proper installation.

1. Never use a pipe smaller than the size pipe or water seal supplied with the equipment.
2. Always provide as much fall as possible in drip pipe (1-1/8" per foot in the minimum.)
3. Avoid long runs in drip pipe which make it impossible to provide minimum fall in pipe.
4. Provide a drip space between drip pipe and floor drain or sewer connection.
5. Do not allow drip pipe to come in contact with uninsulated suction lines, which will cause the condensation from your refrigerator to freeze.

CLEANING: The bottom display well is sectional so pans can be removed for easy cleaning. The fan plenum is hinged for access to waste outlet.

CLEANING:(cont'd.) To insure minimum maintenance cost, cabinet should be thoroughly emptied and washed inside at least every three months (3). The exterior should be washed down weekly. A mild soap and water solution is recommended for painted surfaces of the cabinet. Do not use cleaners containing abrasive materials which will scratch or dull finish. The waste outlet should be flushed with a bucket of water following each cleaning.
Caution: Never introduce water into the fixture faster than the waste outlet can carry it away.
Be sure refrigeration is shut-off and all electrical is off before washing your refrigerator.

LOADING: Merchandise should not be placed in the fixture until all controls have been adjusted and the refrigerator is at proper temperature.

At no time should the fixture be stacked beyond the load line located on the top of the back baffle and each end of the refrigerator.

For proper operation, you must not stack merchandise above the load lines. In doing so, you will seriously affect the performance, which will result in higher temperatures.

LOAD LINES: For proper operation, you must not stack merchandise above the air return grilles. In doing so, you will seriously affect the performance of the refrigerator, which will result in higher temperature of the merchandise stored within. Therefore, IT IS ESSENTIAL THAT MERCHANDISE IS NOT STORED ABOVE THIS POINT.

IMPORTANT: Before loading the refrigerator, be sure to check all access plates and be sure they are thoroughly sealed, and the rubber on the bottom of the plenum chamber is sealed firmly to the bottom.

ELECTRICAL: All field installed wiring must comply with the National Electrical Code and Local Codes.

ELECTRICAL CONNECTIONS: Be sure proper voltage is supplied to your refrigerator. Check refrigerator serial plate for fan and anti-condensate volts. ALL REFRIGERATORS MUST BE GROUNDED.

When multiplexing refrigerators to one 115V electrical source, the total case fan and anti-condensate amperes must be added together, and proper wire size and branch circuit fuse or circuit breaker as required by the National Electric Code must be employed. THIS CIRCUIT MUST BE RUN CONTINUOUSLY AND MUST BE MARKED sufficiently to prevent the fan motors and anti-condensate from being turned off accidentally.

ELECTRICAL RACEWAY:

An electrical raceway is furnished with each refrigerator for running the fan, anti-condensate, lighting, and control circuits from case to case without using conduit. This applies, of ~~couse~~ course, when the front panel is properly secured into position. This is approved by the Underwriters Laboratories and may or may not comply with local codes.

MODEL	EVAPORATOR FAN AMPS. @ 115 VOLTS	ANTI-CONDENSATE AMPS. @ 115 VOLTS	DEFROST AMPS.
M1A-8	.6	~~.35~~ .40	None
M1A-12	.9	.70	None
M1AG-8	.6	~~.75~~ .70	None
M1AG-12	.9	1.1	None

FAN MOTORS:

The fan motors employed are permanently oiled for the life of the motor and require no periodic maintenance. These are to be wired according to the enclosed wiring diagram. Case fans run continuously; they do reverse during the defrost cycle when using "AIR DEFROST". The case fan blade will turn counterclockwise when looking into the refrigerator. The case fan blade must have it's rib facing up for proper operation. A label on the blade will also advise you if they are properly installed.

ANTI-CONDENSATE HEATERS:

These heaters are placed in the fixture to eliminate sweat from forming on certain areas of the fixture. The cross-section of fixture shows location of the heaters.

REFRIGERATION EXPANSION VALVE:

The expansion valve furnished with your refrigeratior has been carefully sized and set for maximum coil efficiency. This bulb is located on the outlet of the coil. This location MUST NOT BE CHANGED. Due to local conditions, adjustment of the thermostatic expansion valve may be necessary after a minimum of 6 hours operation. Do not adjust the expansion valve at this point until you have checked the inlet strainer. If adjustment is necessary, adjust valve to give frost line to ferrule hole where suction line exits the refrigerator. Adjust expansion valve 1/4 turn and wait for 30 minutes before making final check.

REFRIGERATION LINES:

On Warren/Sherer meat merchandisers, the liquid and suction lines are located to the right of case center in the bottom area. The suction line is 5/8"OD for M1, and the liquid line is 3/8"OD. The tubing faces forward so that an elbow may be used, or if multiplexing a tee can be used. Be sure all refrigerant lines lie as close to the refrigerator bottom as possible so as not to obstruct the return-air section of the refrigerator.

REFRIGERANT: Refrigerant R-502 is optional. Refrigerant R-12 is standard. The customer's order must specify the refrigerant to be employed so the proper expansion valve can be supplied with refrigerator.

HEAT EXCHANGER: The heat exchanger incorporated in the refrigerator was sized to give maximum efficiency to the refrigeration system.

The heat exchanger uses the heat of the incoming liquid refrigerant to raise the temperature of the return suction gas temperature.

The heat exchanger increases the over-all capacity of the refrigeration system and aids in the evaporation of any liquid refrigerant entrained in the suction gases, thereby preventing "flood-back" to the compressor.

OPERATION: The M1 meat merchandisers, either a thermostat or low-pressure control can be used to obtain proper temperature. When a condensing unit is subjected to low ambients during the winter months, a thermostat must be used. The thermostat bulb should be mounted above the evaporator coil.

The chart below shows approximate setting for the M1 meat merchandisers. Since many variables are present in each installation, such as store temperature, length of tubing runs, temperature desired in refrigerator, etc., the below is only a guide for the installer. Final adjustments should be made to meet the local conditions and requirements.

APPROXIMATE CONTROL SETTINGS:

REFRIGERANT		LOW PRESSURE CUT-OUT	LOW PRESSURE CUT-IN	THERMOSTAT CUT-OUT	THERMOSTAT CUT-IN	HIGH-PRESSURE CUT-OUT-MAXIMUM
Fresh Meat	R-12	13 Psi	27 Psi	26°	34°	200 Psi
	R-502	39 Psi	63 Psi	26°	34°	340 Psi

When using thermostats, lower the low pressure control cut-out below the setting above, so as to make sure the thermostat is the controlling devise.

DEHYDRATION OF REFRIGERATION SYSTEM:

PLEASE READ CAREFULLY BEFORE PLACING SYSTEM INTO OPERATION

1. After laying refrigerant lines, they should be blown out before making final connection at fixture or condensing unit. Use either carbon dioxide or dry nitrogen to prevent any foreign matter being left in the lines. Keep pressure below 250 pounds.

DEHYDRATION OF REFRIGERATION SYSTEM:

2. To prevent scaling due to brazing, dry nitrogen should be allowed to flow through lines while brazing operations are taking place.

3. After installation is complete and checked for leaks, pump a deep vacuum using a vacuum pump. DO NOT USE THE CONDENSING UNIT FOR THIS PURPOSE.

4. Break vacuum on system by releasing refrigerant through a dehydrator until pressure gauge reads above zero pounds. Repeat steps three and four.

5. A dehydrator should be used in the charging line when adding refrigerant.

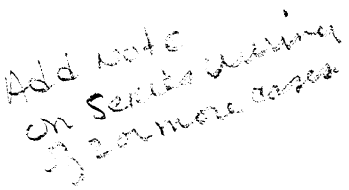
6. A dehydrator of sufficient capacity must be installed in the liquid line before placing system into operation.

DEFROSTING: This Warren/Sherer meat merchandiser (M1) has "AIR DEFROST" as standard. The evaporator fans run continuously during the refrigeration cycle. These same fans reverse during the defrost cycle, which is initiated by the time clock. The time clock (normally open circuit) energizes the relay at the case, which reverses the fans and pulls store air into the honeycomb at the refrigeration outlet and thru the air ducts, evaporator coil, and discharges the air out the return grills.

One (1) thermo-disc located on the evaporator coil terminates the defrost cycle. The thermo-disc is non-adjustable and are set @ 45°F. The thermo-disc is located at the bottom right-hand of the evaporator coil. It is necessary to remove the valve access plate on fan housing to see or service this control.

The time clock should be set @ a failsafe setting of 45 minutes and for three (3) defrost per day (every 8 hours). When high humidity exists, it may be necessary to increase to four per day (every 6 hours).

DEFROST CONTROLS: The defrost is initiated by a time clock at the condensing unit control panel which energizes the relay at the case to reverse the fans. A 208/230 volt control circuit from time clock to the relay @ the case is required. Defrost is terminated by the therm-o-disc (45°) attached to the evaporator coil. Control wiring from the therm-o-disc to time clock should be wired as shown on the wiring diagram.



HOT GAS DEFROST (ACCESSORY): Reverse cycle defrost kits are offered as an accessory and are installed at the factory. Reverse cycle hot gas defrost is not recommended above air defrost but may be specified when using Dual-Metic type condensing units. Control settings are the same as for air defrost.

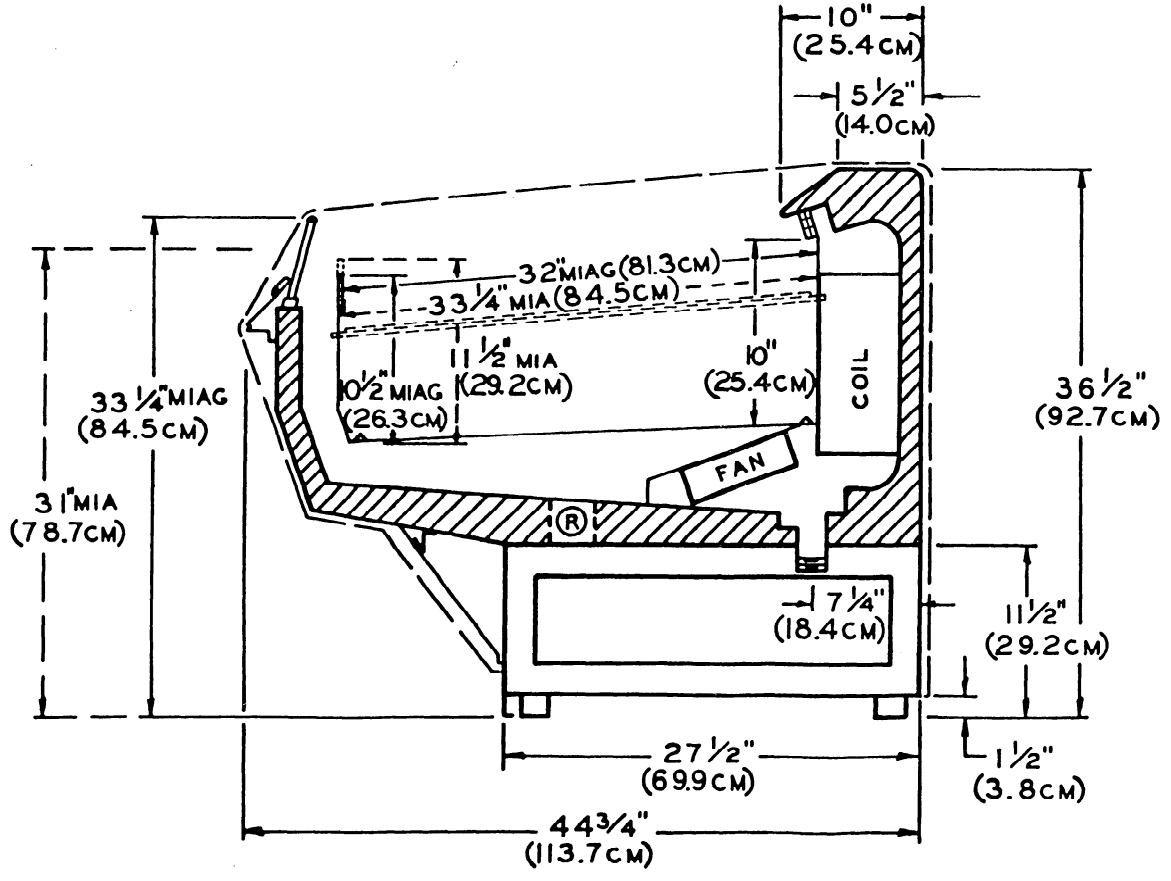
PART DESCRIPTION	REF. NO.	M1A(G) 8'	12'
Honeycomb (Plastic)		13A15-12	13A15-12
Discharge Air Grille		54P16-207	54P16-208
Expansion Valve		3A10-22	3A11-23
Evaporation Coil		5A20-32	5A20-33
Heat Exchanger Ass'y.		88C10-131	88C10-131
Thermostat Therm-o-disc		8A11-26	8A11-26
Motor W/Fasteners		9A10-38	9A10-38
Fan Blade		9B10-13	9B10-13
Wiring Harness (Fan)		10M10-128	10M10-128
Thermopane Anti-Sweat Heater *		81A12-34	81A14-34
Thermopane Glass *		14D10-29	14D10-30
Capacitor/Relay Box Ass'y.		82E13-65	82E13-62
Relay		8E11-38	8E11-38
Relay Base		8E11-37	8E11-37
Terminal Block		10H12-13	10H12-13
Terminal Block End		10H12-14	10H12-14
Capacitor		10K14-55	10K14-55
Drain Trap (External)		60N11-48	60N11-48
Expansion Valve (R-502)		3A10-26	3A11-25

* Glass Front Model Only

PART DESCRIPTION	REF. NO.	M1A(G) 8'	12'
3-1/2" Price Tag Moulding		62J17-30	62J17-31
Thermopane Cap		15J11-43	15J11-44
Thermopane Base		15J11-47	15J11-48
Bumper Trim		15J11-49	15J11-50
Upper Front Panel		51A12-85	51A14-75
Lower Front Panel		51A12-86	51A14-74
Kickplate (Painted)		51A12-88	51A14-77
(Stainless Steel)		55A32-74	55A32-75
Colorband (Painted)		51A17-33	51A19-33
(Vinyl)		53E10-41	53E10-42
(Gold Anodized)		62J20-31	62J20-33
Front Baffle *		54G28-74	54G28-74
Front Baffle		54G28-73	54G28-73
Rear Baffle		54H28-141	54H30-73
Deck Pan		56J13-11	56J13-11
Adjustable Wire Rack		28G19-130	28G19-130
Bottle glass			

* Glass Front Model Only

S/N/D 737A-738A



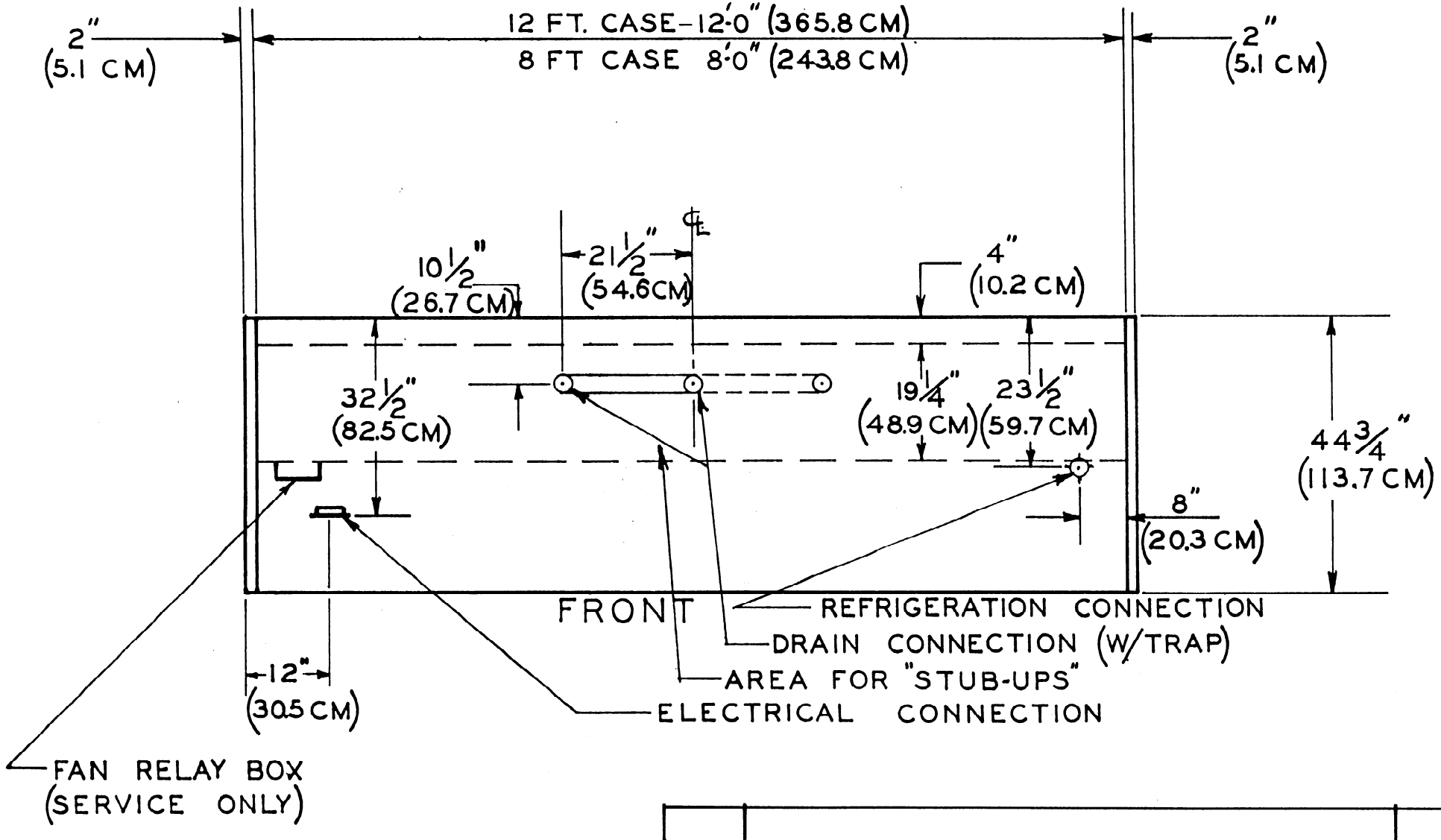
LETTER	REVISED	DATE	BY

DATE 2-17-78
SCALE 1/8" = 1"
DRAWN
APPD.

TITLE
CROSS SECTION
MODEL MIAG

KYSOR | WARREN / SHERER DIVISION OF KYSOR INDUSTRIAL CORPORATION

DRAWING NUMBER
SB-78508



LETTER	REVISED	DATE	BY

DATE 6-8-79

SCALE 1/2 = 1'-0"

DRAWN mav

APPD.

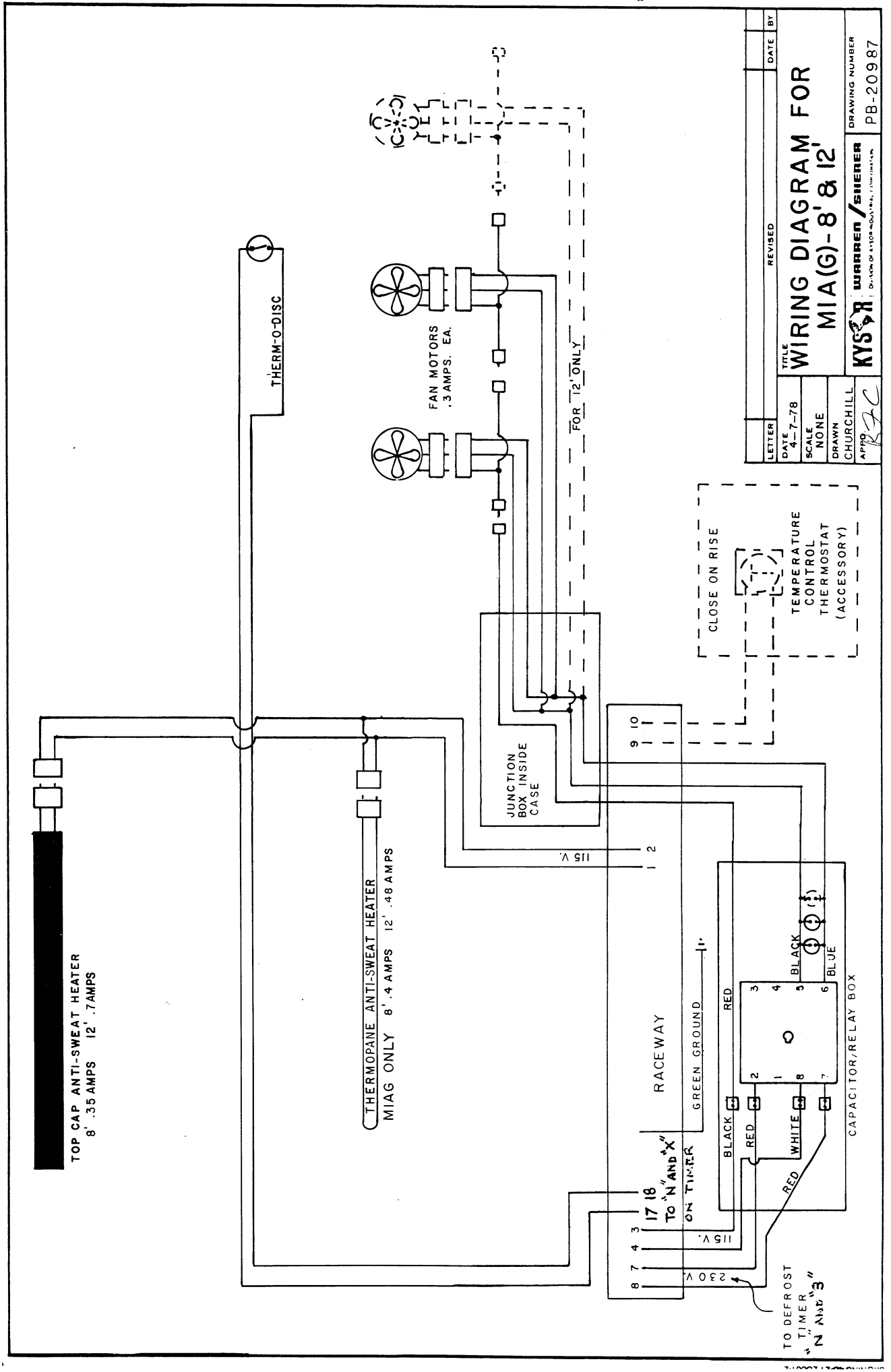
TITLE

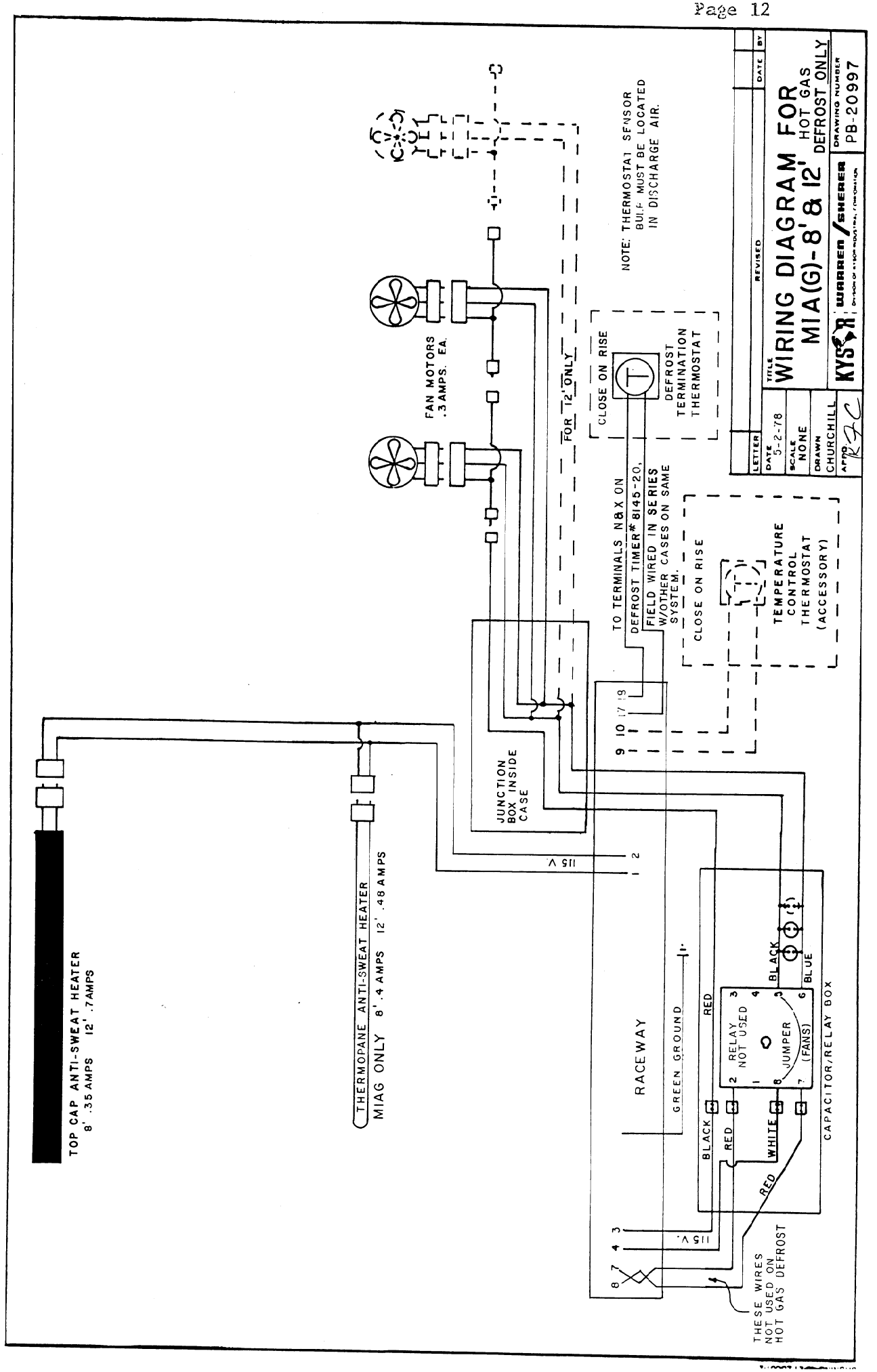
PLAN VIEW MODEL MIA (G)

KYSOR | WARREN / SHERER
DIVISION OF KYSOR INDUSTRIAL CORPORATION

DRAWING NUMBER SA 79005

BRUNING 40-21 28081-1


TOP CAP ANTI-SWEAT HEATER
8' .35 AMPS 12' .7AMPS
THERM-O-DISC
THERMOPANE ANTI-SWEAT HEATER
MIAG ONLY 8' .4 AMPS 12' .48 AMPS
FAN MOTORS
.3 AMPS. EA.
FOR 12' ONLY
JUNCTION
BOX INSIDE
CASE
CLOSE ON RISE
TEMPERATURE
CONTROL
THERMOSTAT
(ACCESSORY)
115 V.
RACEWAY
GREEN GROUND
BLACK
RED
WHITE
BLUE
CAPACITOR/RELAY BOX
TO "N" AND "X"
ON TIMER
TO DEFROST
TIMER
"N" AND "3"
LETTER
REVISED
DATE
BY
DATE 4-7-78
SCALE NONE
DRAWN CHURCHILL
APPD
TITLE
WIRING DIAGRAM FOR
MIA(G)-8' & 12'
KYS'R
WARREN/SHERER
DRAWING NUMBER
PB-20987


TOP CAP ANTI-SWEAT HEATER
8' .35 AMPS 12' .7AMPS
THERMOPANE ANTI-SWEAT HEATER
MIAG ONLY 8' .4 AMPS 12' .48 AMPS
FAN MOTORS .3AMPS. EA.
JUNCTION BOX INSIDE CASE
115 V
1 2
9 10 17 19
TO TERMINALS N&X ON DEFROST TIMER* 8145-20, FIELD WIRED IN SERIES W/OTHER CASES ON SAME SYSTEM.
CLOSE ON RISE
TEMPERATURE CONTROL THERMOSTAT (ACCESSORY)
FOR 12' ONLY
CLOSE ON RISE
DEFROST TERMINATION THERMOSTAT
NOTE: THERMOSTAT SENSOR BULB MUST BE LOCATED IN DISCHARGE AIR.
RACEWAY
GREEN GROUND
BLACK
RED
WHITE
RED
BLACK
BLUE
RELAY NOT USED
JUMPER (FANS)
CAPACITOR/RELAY BOX
8 7 4 3
115 V.
THESE WIRES NOT USED ON HOT GAS DEFROST
LETTER
REVISED
DATE
BY
DATE 5-2-78
SCALE NONE
DRAWN CHURCHILL
APPD RJC
TITLE
WIRING DIAGRAM FOR MIA(G)-8' & 12' HOT GAS DEFROST ONLY
KYSOR
WARREN/SHERER
DRAWING NUMBER
PB-20997

MP# 82E13-65-

DESCRIPTION WIRING - FAN MOTOR ASSY

SUBJECT M1(G), M4(G) - 8"

ROUTE D-U

MATL. ASSY

DATE 3-23-78 BY SWC CK'D. BY Wayne

BLANK ASSY

SHEAR ± 1/32 BRAKE, PUNCH ± 1/16 FINISH NONE

REQ'D. 1/CASE

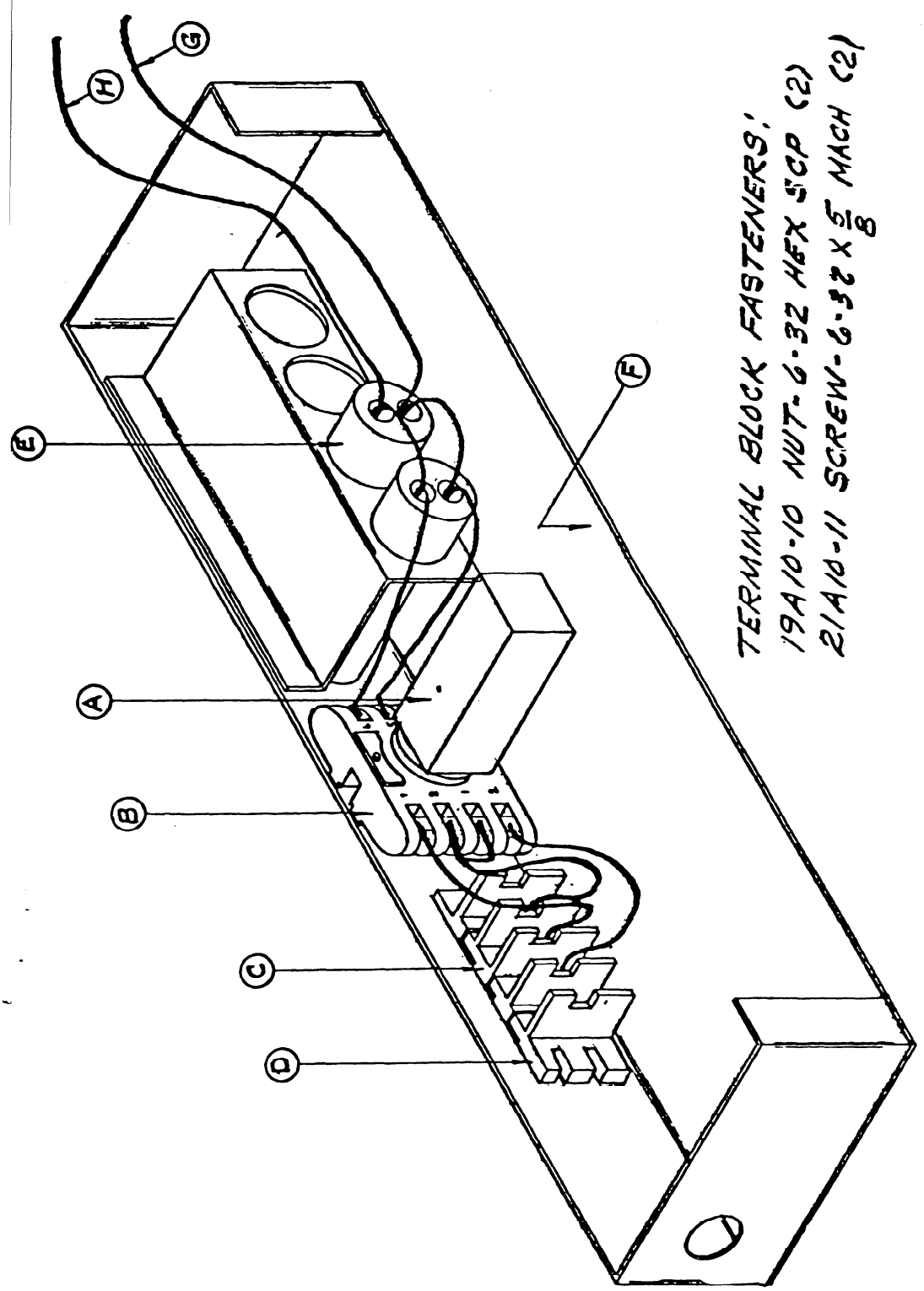
PART OF ASSY#

PP#

REVISED

PT# GAL.

PR# GAL.



TERMINAL BLOCK FASTENERS:
19A10-10 NUT-6-32 HEX SCP (2)
21A10-11 SCREW-6-32 X 5/8 MACH (2)

ITEM	PART NO.	DESCRIPTION	REQ'D
A	8E11-38	RELAY	1
B	8E11-37	BASE	1
C	10H12-73	TERMINAL BLOCK	4
D	10H12-14	TERMINAL BLOCK END	1
E	10K14-55	CAPACITOR	2
F	54U20-124	DRAWER - ELECTRICAL RELAY SUB-ASSY.	1
G	83J12-20	WIRING HARNESS (BLACK)	1
H	83J12-21	WIRING HARNESS (BLUE)	1
I			

MP# 82E13-62 REV. A.

DESCRIPTION WIRING - FAN MOTOR ASSY

SUBJECT WTL(1) A 8', M1(G)-M4(G) 12'

ROUTE D-V

MATL. ASSY

DATE 3-2078 BY TLA CK'D. BY DICKE

BLANK ASSY

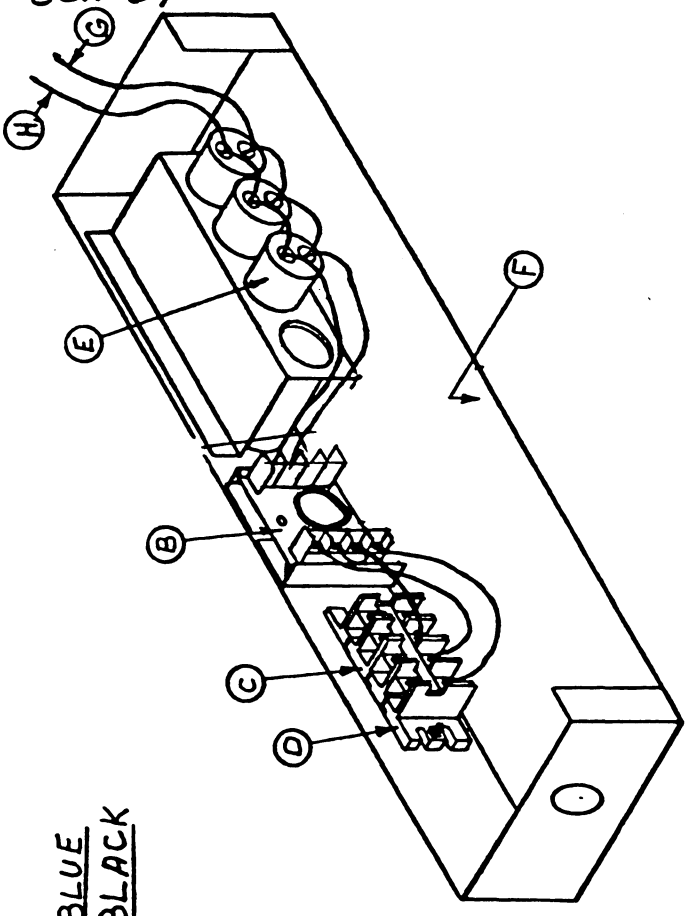
SHEAR ±1/32 BRAKE, PUNCH ±1/16 FINISH NONE

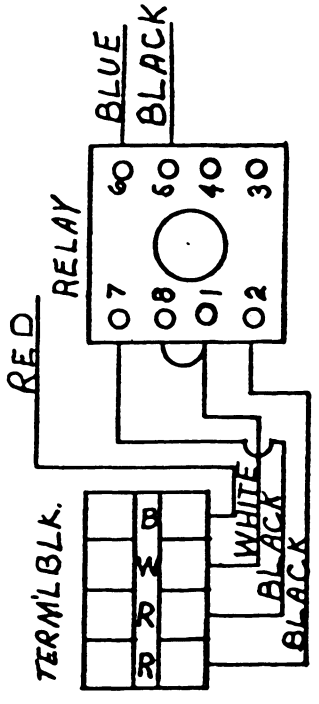
REQ'D. 1/CASE

PART OF ASSY# PP#

REVISED A PRO 4-14-78 REDRAWN, ADDED M1(G)-M4(G) 12 TO SUBJ, REMOVED (1) 8E11-37 PT# GAL.

PR# GAL.





ITEM	PART NO.	DESCRIPTION	REQ'D
A			
B	8E11-37	BASE	1
C	10H12-13	TERMINAL BLOCK	4
D	10H12-14	TERMINAL BLOCK END	1
E	10K14-55	CAPACITOR	3
F	54U20-124	DRAWER-ELECTRICAL RELAY SUB-ASSY	1
G	83J12-18	WIRING HARNESS (BLACK)	1
H	83J12-19	WIRING HARNESS (BLUE)	1
-	19A10-10	NUT-6-32 HEX SCP	(2)
-	21A10-11	SCREW 6-32 x 5/8 MACH	(2)