INSTALLATION, SERVICE, AND MAINTENANCE MANUAL

For

SHIPBOARD COLD STORAGE SPACE

Cospolich Inc.
Destrehan, LA 70079 USA
800-423-7761

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Table 1.1 – Leading Particulars

Manufacturer:	Cospolich, Inc. Norco, Louisiana 70079
Type:	Marine, Remote Arctic Safe Freezer
Model Number:	Arctic Safe Freezer
Refrigerant:	R404A
Purpose:	Storage of Frozen Food Items
Power Supply:	440VAC, 3-Phase AC
Operating Current:	6 Amps
Maximum Power Demand:	15 Amps
Drain Requirements:	Deck Drains
Shipping Weight:	2400 lbs.
Operating Weight:	2150 lbs.
Volume (crated):	430 Cu. Ft.

COSPOLICH

INSTALLATION MANUAL

Equipment: Arctic Safe Marine Cold Storage Space

Foreword: The Cospolich Arctic Safe Cold Storage Room is engineered and built for the specific requirements of the marine environment. In its design special consideration has been given to compensate for and accommodate the vibrations, movements and rough duty which is normal in this application.

It was also important in the design that the Arctic Safe has the capability of being disassembled in the future with the ability of being reassembled.

Note: This equipment was completely assembled and tested in the Cospolich facility prior to shipment. All components were guaranteed to be within our specification. Controls were also adjusted during testing.

Installation Materials Furnished:

1. Silicone Caulking (Aluminum and clear)
2. Fastener Cap Screws
3. Cam Wrench (5/16")
4. Vinyl Caps (Gray)
5. Caulking Gun

Note: Caulking should be kept at between 75 to 90 degrees so that they can be more easily applied.

Panels Furnished:

1. Wall
2. Corner
3. Tee (in cooler/freezer applications)
4. Door Section
5. Floor
6. Ceiling

Equipment Furnished:

1. Equipment Stand
2. Condensing Unit
3. Electrical Controls Panel
4. Electrical Disconnect
5. Transformer
6. Evaporator Coil
7. Refrigerant Line Set
8. Electrical Harness
9. Drain Line (Evaporator Coil)

Accessories Furnished:

1. Shelving (Shipped loose)
2. Floor Grating (Shipped loose)
3. Interior Light (Installed in panel)
4. On/Off Light Switch (Installed in panel)
5. LED Temperature Indicator (Installed in panel)
6. Heated Pressure Relief Vent (Installed in panel)
7. Door Frame Heater (Installed in door section)

A. Preparing the Deck

1. Prior to installation, the deck must be inspected and determined free of obstructions. Even though the Arctic Safe can accommodate moderately untrue decks, those with excessive irregularities should be adjusted by either floating true or shimming.

Note: When installing the floor, it is necessary to begin at the highest point on the floor. This allows you to shim as required during installation.

B. Fastening System

Note: One important aspect of the design of the Arctic Safe System is the panel fasteners. These fasteners have individual locking capacities of 2,000 pounds.

1. A 5/16" hex wrench, which is provided with the installation tools, operates the panel fastener locks. Inserting the tool and turning the wrench in a clockwise direction will draw in and lock panel fastener. Should the lock not engage the pin, reset by first rotating

in the counterclockwise direction until the cam tongue is fully extended. Then, repeat the clockwise rotation.

2. With the panels in place, you may now remove the protective plastic coating. Simply peel from the stainless.

C. Installation of the Floor Panels

1. All floor panels are identified by letters (Example F1) which relate to those on the installation drawing.

2. The first floor end panel should be placed into position. Apply the clear silicone sealer as described under *"Panel Sealing"*.

3. Place the second panel into place and secure together with the panel fasteners. Follow the same process with the remaining panels.

D. Installation of Wall Sections and Ceiling

Reminder: It is necessary on each section to place a continuous bead of the clear silicone sealer.

1. Place the first panel in the appropriate position and the place the adjacent wall panel next to it. Fully lock only the center vertical panel fastener and only one of each panel fastener to the floor.

   Make certain that the panels are aligned and even at the top and bottom. As little as 1/16" difference in height can create difficulty with follow up panels.

2. Proceed by placing wall sections in the assembly order marked on the panel, locking the middle panel fastener only and hooking only the top and bottom panel fasteners. Lay the first ceiling into place but do not lock it. Depending on how tight the working quarters are, sections of the ceiling may need to be assembled prior to completely installing the vertical wall sections.

   Note: Special attention should be given to the door section to make certain that it is in proper alignment.

3. Once all panels have been installed and the unit is deemed to be in proper alignment, it is then necessary to proceed with locking all the panel fasteners.

E. Sealing the Panels

1. A seven step procedure has been developed in order to insure that the wall and ceiling panels are airtight and do not leak.

1st Step: **Panel Rail** – Place a continuous bead of the silicone in the grove of the female portion of the panel rail. When you come upon a camlock strike, continue around then come back and place a bead on the other side. This extra step isolates the mechanism from moisture.

Note: It is not necessary to have a bead of silicone greater than ¼".

2nd Step: **Panel Flanges** – Place a similar bead of silicone on the one inch metal flange.

3rd Step: **Protective Plastic** – With the panels in place, you should now remove the PVC plastic which protects the stainless steel surfaces. This is accomplished by simply peeling it from the stainless.

Note: Never use any type of scraper or tool to remove plastic coating as it may scratch the surface.

4th Step: **Panels Seams (Optional)** – For reasons of cosmetics, you may wish to apply the aluminum sealant to the finished panel seam. This is left to the installer's discretion.

5th Step: **Access Holes** – Into each panel fastener wrench access, fill with the silicone. This insures that the mechanism will remain dry.

6th Step: **Fastener Cap Screws** – Neoprene gasketed cap screws are provided to seal the floor fastener access openings. Using a large blade standard screwdriver, install a fastener in each floor camlock hole.

7th Step: **Vinyl Caps** – Vinyl caps are provided for the walls and ceiling. In most instances you can apply by only pressing into place with your thumb. If required, a hammer may be used to tap the cap into place.

F. Equipment Stand

1. The Equipment Stand, which will contain the condensing unit and electrical components, is to be installed on the exterior ceiling/wall opposite the door. Locate the placement area as well as the fasteners to be used in securing the stand to the cooler.

2. The stand is shipped in two parts to allow it to be more easily handled and transported to the installation area.

3. When installing the stand you may choose to either assemble both components prior to placement on the cooler or individually.

4. With the stand in place secure and adequately tighten all fasteners.

G. Condensing Unit

1. Place the condensing unit on the equipment stand with the condenser facing out board of the cabinet.

2. Using the fasteners provided, secure the condensing unit to the stand.

H. Electrical Control Panel, Disconnect, and Transformer

1. Locate and install, with the fasteners furnished, the control panel and disconnect on the backplane that is attached to the equipment stand. See drawing for specific placement.

2. You may now place the transformer the equipment stand. There is a shelf adjacent to the condensing unit. Secure using the fasteners furnished.

3. Electrical harnesses, marked with the proper termination points, are provided and may be connected at this time.

4. The ship's electrical service to the equipment shall be 440Volts 3 Phase. The connection will be make into the disconnect. Additionally, a 115Volt service will need to be provided to the junction box adjacent to the door on the interior of the cooler. This is to power the light, LED, and door heater.

I. Evaporator Coil (Unit Cooler)

1. Locate the mounting holes (4) on the interior of the ceiling panel.

2. With two installers holding the evaporator coil in place and use the bolts furnished to secure the equipment.

J. Refrigeration Line Set

Note: The complete refrigeration system is pre-charged and the line set, as well as the condensing unit and evaporator coil, have quick connect fittings to simplify installation. Also, it is not necessary to add any additional refrigerant unless a leak occurs. The adding of any refrigerant must be done by a qualified service technician.

1. Holding the line set correctly orient it with relation to the condensing unit and the evaporator coil. Use the wrenches provided to make the appropriate connections.

2. Once in place leak check to determine that the connection is correct.

K. Electrical Harness

1. The electrical harness terminates in both the evaporator as well as the electrical control panel located on the equipment stand.

Equipment Description

The unit consists of the following parts:

a. Storage compartment – The insulated food storage compartment is clear storage area. Included in this area are the adjustable shelves, an interior light, heated pressure relief vent, floor grating, and the cooling coil.

b. Door – Access to the storage compartment is through a hinge-mounted, insulated door. The door is fully "gasketed" to provide a tight seal. Additionally, it has an inside safety release to allow the exit of anyone who may find themselves in the cooler with the door closed.

c. Condensing Unit – The condensing unit is located on an equipment stand that is mounted to the cold storage space. Additionally, the stand contains electrical components including disconnect, controls enclosure, and a transformer.

d. Evaporator Coil – The evaporator coil is located in the storage compartment and is responsible for distributing the cold air associated with the refrigeration system.

e. Refrigeration and Electrical Lines- Pre charged lines with quick connect fittings are furnished on the refrigeration line sets. In addition, the appropriate electrical cabling is provided.

f. Cabinet – The cabinet is the insulated enclosure in which all of the above mentioned items are housed.

g. Shelving- Shipboard shelving is furnished. The vertical supports extend from floor to ceiling. Shelves are slotted for free air, are adjustable vertically, and are provided with ledges on all sides.

h. Grating- Floor grating is furnished to cover the entire floor area.

Operation

Introduction

This model is a heavy-duty piece of equipment designed for continuous use. It incorporates automatic controls to regulate the cycling of the refrigeration system.

Controls and Indicators

Table 1 – Controls and Indicators

Name	Type	Function
Low Pressure Switch	Contact Points	Cycles the refrigerator system (automatic)
Suction Valve	Manual Plunger Valve	Isolate suction at the compressor
Discharge Valve	Manual Plunger Valve	Isolate discharge line at receiver
Power Control Switch (On/Off)	Contact Points	Terminates all of the electrical into and past the supply cord
Light Switch	Manual Rocker Type	Activates the interior lighting
Thermostat	Contact Points	Cycles the refrigerator system (automatic)
Defrost Timer [1]	Contact Points	Controls scheduled evaporator coil defrosting
Solenoid Valve [1]	Automatic Plunger	Shuts off refrigerant flow

[1] Freezers

Table 2 – Start-up Procedure (Refrigerated Storage)

Operation	Results
1. Connect refrigeration to cabinet and power to refrigeration. Turn on power.	Compressor(s) should immediately come on line along with the condenser fan(s) and the evaporator fan(s).
2. Locate liquid refrigerant indication glass mounted on the receiver.	Once the system has been operating for two minutes, the glass should appear clear and full of liquid refrigerant.
3. Wait 15 minutes	The temperature in the storage area should begin to approach the desired set point of the thermostat.
4. Wait 3 hours	Once the operating temperature has been reached, stocking of the containment area can begin.

Shut-Down Procedure

Table 3 – Shut Down Procedures

Operation	Results
1. Fully close discharge valve at the receiver	Compressor will pump liquid refrigerant from system to receiver
2. Fully close suction valve at the compressor	This will isolate the refrigerant between the two valves
3. Disconnect power supply	De-energizes the system
4. Clean and wipe dry the food storage compartment	This will reduce the odor buildup during shut down

To shut down, disconnect the electrical and open the door(s) allowing the interior cabinet temperature to equalize with the room temperature. A mild detergent diluted in warm water should be used to wash down the interior and exterior surfaces of the cabinet.

WARNING:

Prior to any cleaning of the system involving placing hands in areas with moving parts, the system should be deactivated by disconnecting from power.

Preparation for an Extended Period of Inactivity

This unit is designed for continued use at automatically cycled intervals. However, in the event of an extended shut down, both the mechanical refrigeration system and the food storage compartment system must be serviced.

Table 4 – Shut Down Procedures for an Extended Period

Operation	Results
1. De-energize the system.	Once the system is de-energized, the condenser fan and the evaporator fan will cease operation.

Scheduled Maintenance

Introduction

To ensure the longest and most trouble free operation of the unit, a thorough maintenance schedule is required to be adhered to periodically. The maintenance system should be designed to maximize the efficient use of maintenance personnel, reduce down time, and provide the orderly acquisition of spare parts support.

The Cospolich refrigeration cabinet will generally be in operation in a facility where scheduled maintenance is performed according to Maintenance Index Plans. Your unit is no exception to required maintenance. This chapter of the manual is intended as an alternative to any standard maintenance program that may pre-exist. The preventive maintenance schedule is based upon similar maintenance requirements for commercial refrigeration equipment.

Preventive Maintenance Action Index

If you do not have a Maintenance Index Plan, one is included for you in Table 5.

Preparation for Maintenance

Since many areas affected by the maintenance schedule are electrically supplied, it is recommended that the system be de-energized prior to making the inspections.

Maintenance

Weekly Inspection

a. The unit should first be de-energized.

b. Using a vacuum or small hand broom, brush the condenser in a vertical motion to remove any dust or debris that may have accumulated.

Monthly Inspection

a. Check the evaporator drain line(s) at both the inlet and outlet ends to make certain that there are no obstructions (forced air evaporator models only). It is not recommended to use any chemicals in clearing

a clogged drain. The preferred method of unstopping an obstructed drain is to use compressed air. Approximately 60 lbs. should be sufficient. Simply remove the drain line at the evaporator coil and attach an air-line to it.

b. With the unit in a cooling cycle, use a flashlight and locate the refrigerant sight glass. If the compressor has been running for three minutes there should be no visible bubbles.

c. If bubbles are present:
   i. Determine if there is a leak by using a halide or electronic leak detector.
   ii. Repair leak(s).

WARNING:
The system should be de-energized when checking for leaks.

1. If a leak is found on a flared fitting, it can often be repaired by simply tightening the brass flare nut ¼ of a turn. If tightening does not repair the leak, it may be necessary to reflare the tubing.
2. If a leak is found on a brazed joint, it will be necessary to pump down the system's refrigerant charge to remedy the problem.
3. To pump the refrigerant into the receiver, you must first connect service gauges to the system at the suction valve on the compressor and the liquid valve on the receiver. Purge the gauges before opening the system's valves to avoid contamination. Run the receiver (liquid or high pressure) valve all of the way in to stop the refrigerant from exiting the receiver. Start the unit and allow it to run until the suction or low-pressure gauge reads 5 lbs. When it reaches 5 lbs., de-energize the system.
4. Once pumped down, the necessary repairs can be made.

d. Using a mild non-abrasive detergent and soft cloth, wipe the interior lining beginning with the top and working down. Also, wipe the gasket and where it sits on the cabinet exterior.

e. With the unit de-energized, check the condenser fan motor and make certain that it is not loose. Inspect the fan for cracks and make sure that it is tight on the motor.

f. To inspect the evaporator motor, first turn the unit off. Then, remove the drain line from the evaporator pan. Loosen the four screws that

hold the shroud. Lower the shroud and disconnect the polarized electrical connection. With the shroud out of the cabinet, proceed to inspect the motor mounting bolts and the fan for cracks or excessive play. [2]

g. Using a mild detergent and water, clean the gasket. Make certain to remove any mildew or residue.

h. Using a mild, non-abrasive detergent and warm water, wipe the cabinet exterior. When cleaning always follow the grain of the stainless steel to prevent scratching or marring of the finish surface.

Annual Maintenance

a. Check all refrigerant lines for leaks or fatigue. Make certain that no exposed copper tubing is in contact with any other metal surface. If there is contact, install an insulating material between the two metal components.

b. With the breaker at the main panel "OFF", inspect the system's wiring. Look for a tight fit of all connections and make certain that the wire restraining devices are tight. Inspect all wires and cords, paying particular attention to nicks or age cracks in the insulation.

c. Visually inspect the outer panel and components of the cabinet. Check screws and bolts to make certain that they are tight. Also, make sure that the bolts that secure the base frame to the deck are tight.

Three Year Frequency

a. Replace the door gasket(s). Remove the original gasket and all leftover glue residue. Clean as much as possible. Install new gasket by removing paper backing and adhering to door perimeter. It may be necessary to add additional glue to reinforce the adhesion.

b. Inspect all motors and shafts for both noise and wear. If they show age, replace them.

c. With the main power off, remove the cover from the controls and check them to make certain that they are operational and do not show signs of wear.

d. Inspect the operation of the door latch assembly. Look into the latch to make certain that the moving parts do not show any signs of wear. Make sure that the screws are tight on the latch and strike. To check the hinges, open the

[2] On forced air evaporator systems only.

door at a 90-degree angle to the cabinet. With a little pressure, lift up the outer edge of the door. If there is an upward movement of ½ of an inch or more, replace the hinges.

Table 5 – Preventative Maintenance Action Index

1.	Weekly	a. Inspect condenser coil[1] to make certain that air flow is not hampered and that it is clear of dust and debris.
2.	Monthly	a. Inspect and clear drain line. b. Check the liquid refrigerant sight glass[1] to make certain that the system is completely charged. c. Clean the interior of the cabinet with a mild soap and warm water solution. Be certain to dry thoroughly. d. Check both the condenser fan motor[1] and the evaporator fan motor to make certain that they are operational and that the fans are tight and secure (evaporator motor on ADS models and forced air evaporator units only). e. Clean door gaskets and breaker strips with a damp cloth. f. Clean exterior of cabinet with mild soap and warm water. Dry thoroughly.
3.	Annually	a. Check all joints and fittings for any signs of leaks or fatigue. b. Inspect electrical connections to confirm that there is good contact and that wires are neither weakened nor frayed. c. Check the integrity of the cabinet.
4.	Three-year Frequency	a. Replace door gasket(s). b. Inspect motor shafts[1] for noise or wear. c. Inspect electrical controls and wiring. d. Inspect door latch(s) and hinges. e. Recalibrate thermometer.

[1] Applicable on units with condensing unit included.

Table 6 – Cleaning

NOTE: It is highly recommended that the unit be turned off and disconnected from power prior to all cleaning.

Detail	Solution	Frequency
Spills - Clean all spills promptly to avoid staining and odors.	Warm, soapy water	Immediately
Cabinet - Remove all contents. Wipe cabinet interior, exterior, and doors (drawers) with solution.	1-2 tablespoons of baking soda per 1 quart of warm water	Weekly
Gasket(s) - Clean gasket(s) thoroughly with solution. Clean sealing surface and the surface behind the flap.	1-2 tablespoons of baking soda per 1 quart of warm water	Weekly
Shelving/*Drawers - Remove from cabinet. Clean thoroughly.	1-2 tablespoons of baking soda per 1 quart of warm water OR hot water at high pressure	Monthly
Condenser coils - Brush coils in direction of fins. Vacuum dust and debris from fins.	Coil brush, vacuum	Monthly
Fan blades - Wipe evaporator and condensing unit fan blades clean.	Warm water	Monthly
Drain lines - Clean all drain lines (evaporator, cabinet).	Warm water and bleach	Monthly

*Applicable only on cabinets equipped with drawer assemblies.

PARTS LIST- CABINET

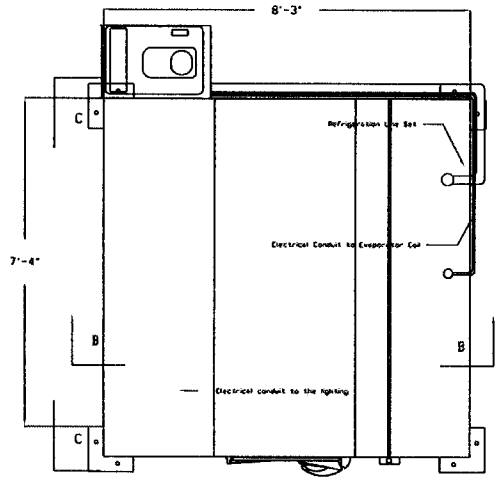
ITEM	DESCRIPTION	QTY.	COSPOLICH PART #	OEM	OEM PART #
C1	LATCH	1	HXLH03	KASON	K55
C2	HINGE	3	HXHE03	KASON	1251
C3	GASKET	1	GX4215EU	N/A	
C4	HEATER	1	L1HA208	N/A	
C5	PRESSURE RELIEF VENT	1		KASON	1830
C5	LIGHT	1	LRSK08	KASON	
C6	PANEL, LED/LIGHT	1		N/A	
C7	VINYL STRIP CURTAIN	1		KASON	34X76

PARTS LIST- REFRIGERATION

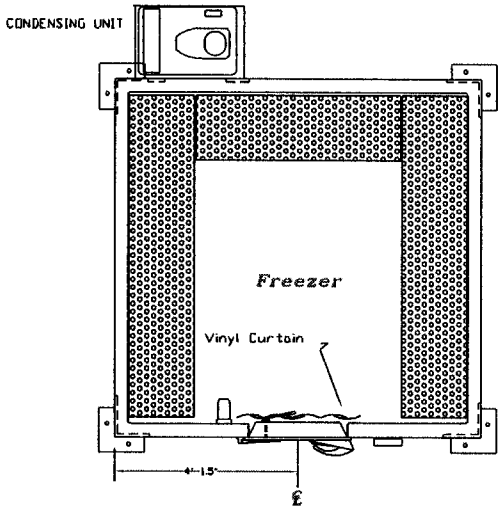
ITEM	DESCRIPTION	QTY.	COSPOLICH PART#	OEM	OEM PART #
R1	CONDENSING UNIT	1		COPELAND	CJAL-0200-TAD
R2	COMPRESSOR	1		COPELAND	EAVA-201E-TAD-800
R3	MOTOR	1		COPELAND	050-0250-01
R4	FAN	1		COPELAND	083-0056-00
R5	HI/LO PRESSURE CONTROL	1		COPELAND	9850CP2M-7A
R6	CONTACTOR	1		COPELAND	012-1401-02
R7	SIGHT GLASS	1		SPORLAN	SA14S
R8	DRYER, SHELL	1		SPORLAN	C485-G
R9	DRYER, CORE	1		SPORLAN	RC-4864
R10	VALVE, SOLENOID	2	RWSV06	SPORLAN	E6S140
R11	COIL, SOLENOID	2	RWSC02	SPORLAN	MKC-1
R12	DISCONNECT	1		SQUARE D	H361
R13	FUSES	3		TRI-ONIC	TRS15R
R14	DEFROST TIMER	1	RWDT01	RANCO	8145-00
R15	TRANSFORMER	1		SQUARE D	5S1F
R16	EVAPORATOR COIL	1	RWE064	HEATCRAFT	LET065M
R17	MOTOR	2	RWE5008S	HEATCRAFT	5008SS
R18	FAN	2	RWE5140C	HEATCRAFT	5140C
R19	EXPANSION VALVE	1		SPORLAN	FSE1-Z
R20	HEATER, DEFROST	2	RWE103		
R21	HEATER, PAN	1	RWE103		
R22	HEATER, DRAIN LINE	1			
R23	FAN CONTROL	1			
R24	DEFROST TERMINATOR	1			
R25	THERMOSTAT	1	RWTT01	HONEYWELL	T6054
R26	QUICK CONNECT FITTING	2	RWQI1412-7/8		
R27	QUICK CONNECT FITTING	2	RWQS0088-1/2		

RECOMMENDED SPARES

ITEM	DESCRIPTION	QTY.	COSPOLICH PART #	COST PER UNIT	
C3	GASKET	1	GX4215EU	$ 99.00	
C4	HEATER	1	L1HA208	$ 51.30	
R2	COMPRESSOR	1	EAVA-201E-TAD-800	$ 1,839.00	
R3	MOTOR	1	050-0250-01	$ 315.70	
R4	FAN	1	083-0056-00	$ 99.60	
R5	HI/LO PRESSURE CONTROL	1	9850CP2M-7A	$ 125.80	
R6	CONTACTOR	1	012-1401-02	$ 110.32	
R9	DRYER, CORE	1	RC-4864	$ 76.77	
R10	VALVE, SOLENOID	2	RWSV06	$ 103.50	
R11	COIL, SOLENOID	2	RWSC02	$ 68.85	
R13	FUSES	3	TRS15R	$ 122.88	
R14	DEFROST TIMER	1	RWDT01	$ 216.00	
R17	MOTOR	2	RWE5008S	$ 185.18	
R18	FAN	2	RWE5140C	$ 66.22	
R19	EXPANSION VALVE	1	FSE1-Z	$ 137.77	
R20	HEATER, DEFROST	2	RWE103	$ 166.50	
R23	FAN CONTROL	1	RWE5708L	$ 49.50	
R24	DEFROST TERMINATOR	1	RWE5709L	$ 75.60	
R25	THERMOSTAT	1	RWTT01	$ 182.12	



TOP VIEW



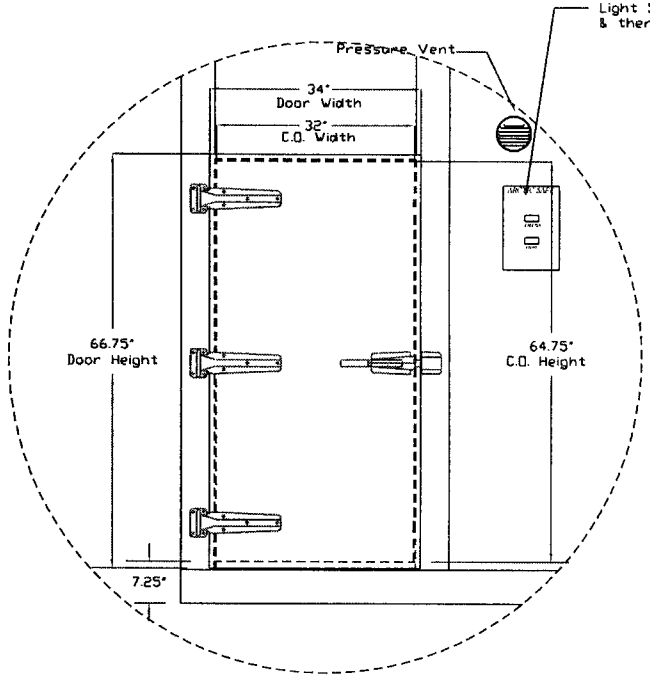
HORIZONTAL SECTION

- NOTES -

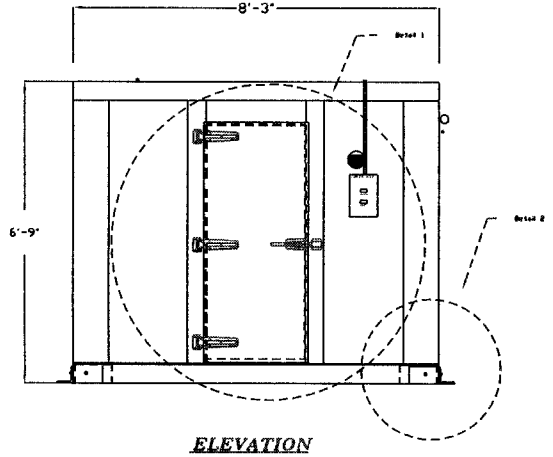
1. Interior floor is seamless with deck grating.
2. Stainless steel shipboard shelving
3. Material is as follows:
   Floor (interior): 16 ga. 304 S/S
   Walls & ceiling (int. & ext.): 20 ga. 304 S/S
   Door (int. & ext.): 16 ga. 304 S/S
4. Evaporator coil not shown

REVISIONS

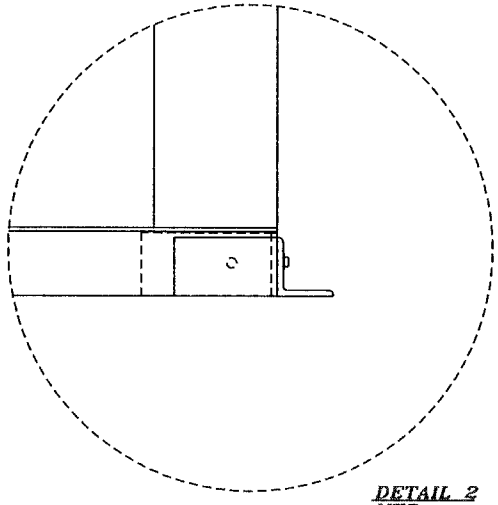
REV.	DESCRIPTION	DATE	APP.
A	Changed height from 7' to 6' 9". Moved door to center of cabinet Corrected door height in Detail 1	11/24/04	
B	Set to scale	12/4/03	
C	Modified with from 9' to 8'-3"	12/8/03	
D			
E	Added front and rear backing steel and angle.	1/26/04	
F	Changed door hinge side from right to left	1/26/04	



DETAIL 1
NTS



ELEVATION

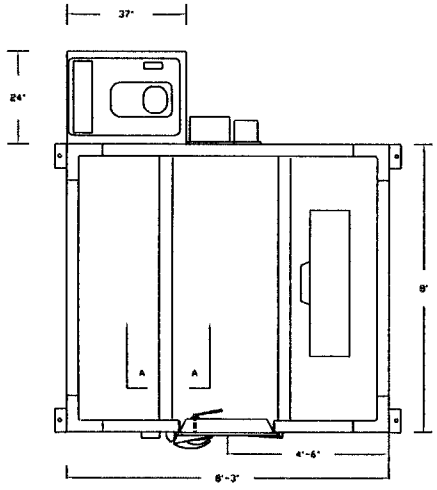


DETAIL 2
NTS

ITEM	SHIPBOARD MODULAR WALK-IN FREEZER		
PROJECT	SMR		DWG 91126
DATE	9/01/02	SCALE 1:1	DWN. BY TW
COSPOLICH INC. NORCO, LOUISIANA			REV. F

- NOTES -

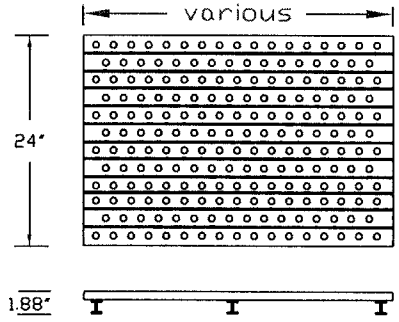
REVISIONS			
REV.	DESCRIPTION	DATE	APP
A	Add "TBA" reference and added condensing unit mounting bracket.	07/23/03	
B	Scale plan view	08/13/03	
C	Adjust dimensions	012/31/03	



Floor grating and shelving not shown for clarity

PLAN VIEW

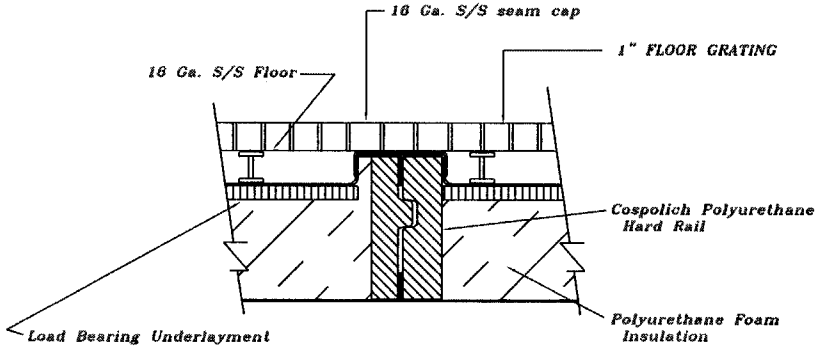
1:1 Scale



Material: ALuminum

FLOOR GRATING

N.T.S.

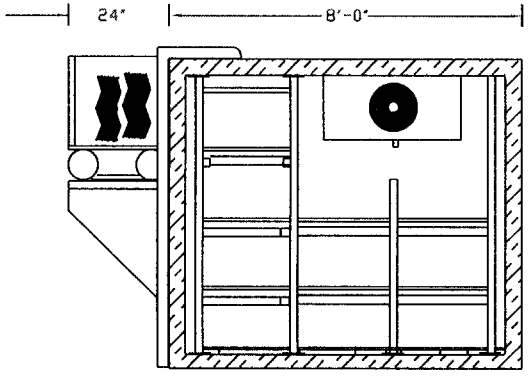


SECTION "A-A"

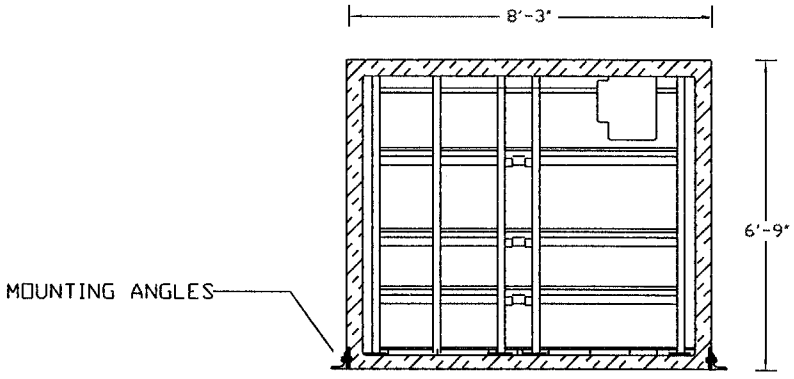
N.T.S.

ITEM	WALK IN FREEZER/THAW CABINET - Floor Grating Detail		
PROJECT	SMR	DWG	91126-1
DATE	8/20/02	SCALE As Noted	DWN. BY TW
COSPOLICH INC. NORCO, LOUISIANA			REV. C

REVISIONS			
REV	DESCRIPTION	DATE	APP
A	Set to scale	12/2/03	
B	Changed width from 10" to 8'-3"	12/22/03	
C	Changed cond. unit position	12/31/03	

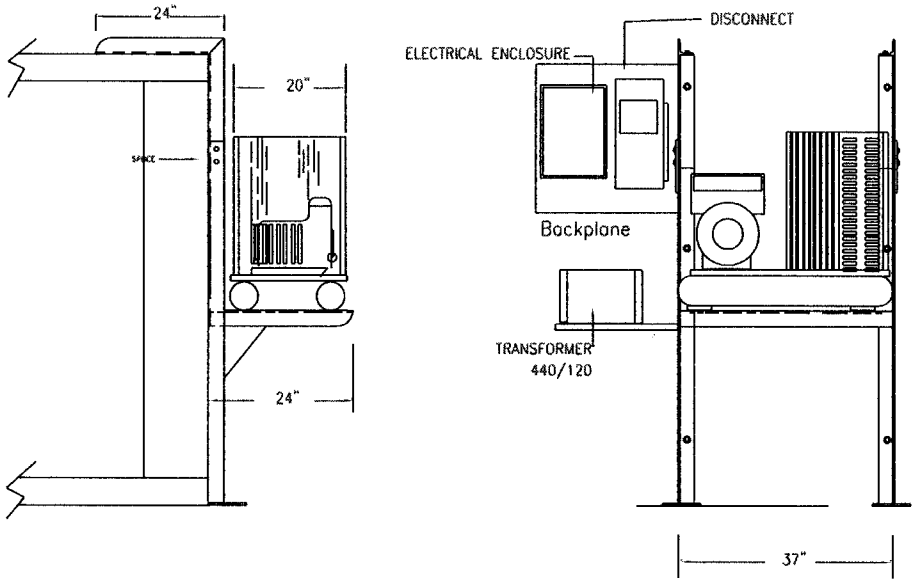


DETAIL C–C



DETAIL B–B

ITEM ARCTIC SAFE FREEZER			
PROJECT SMR		DWG 91126-2	
DATE 08-20-02	SCALE 1:1	DWN. BY CW	
COSPOLICH REFRIGERATOR CO. INC. NORCO, LOUISIANA			REV. C



BILL OF MATERIALS

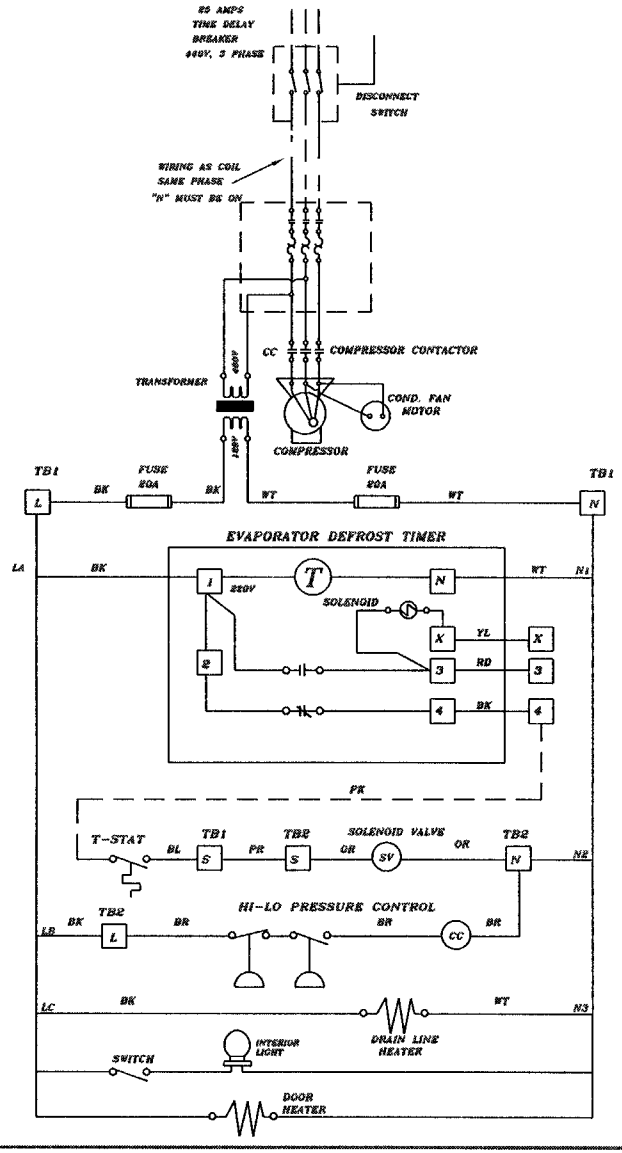
ITEM	DESCRIPTION	QUANTITY	SOURCE
Finish, Exterior	20 ga. Stainless Steel		
Finish, Interior	20 ga. Stainless Steel		
Floor Interior	16 ga. Stainless Steel		
Floor Exterior	20 ga. Stainless Steel		
Floor Type	Seamless		
Grating	Aluminum		
Door	Typical Shipboard	1 ea.	
Latch	K-55	1 ea.	Kason
Hinge	1251	3 ea.	Kason
Gasket	Neoprene		
Heater, Door	Aluminum Braid 208" 115V	1 ea.	RHS
LED Panel	Typical	1 ea.	
Vapor Proof Light		1 ea.	
Pressure Relief		1 ea.	Kason
Vinyl Curtain	34"w x 67"h	1 ea.	Kason
Backing Steel (curtain)	.25" 4"x 34" Mild Steel	1 ea.	
Mounting Angles	.38" 4"x4"x 8" Aluminum	8 ea.	
Bolts, Mounting	.38" x 1" Stainless	8 ea.	
Backing Steel	.38" x 4"x 8" Mild Steel	4 ea.	
Condensing Unit Stand	.38" x 3"x 3" Mild Steel	1 ea.	
Backing Steel, C.U.	3" ms channel with 3/8" nuts	8 ea.	
Backplane	.25" x 24"x 24" Mild Steel	1 ea.	
Bolts, Mounting	.38" x 1" Stainless	8 ea.	

CONDENSING UNIT
CJAL-0200-TAD
201 LBS.

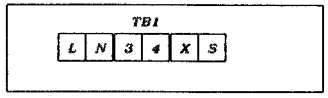
REVISIONS: (12-30-03) Add transformer & oddjust dimensions
(02-17-04)Change condensing unit m/n

ITEM *CABINET*		DWG # *91126-3C*
PROJECT *SMR*		REV.
DATE *07/02/03*	SCALE *N.T.S.*	DWN. BY *CW*
COSPOLICH, INC.		NORCO, LOUISIANA

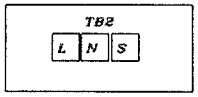
REVISIONS			
REV	DATE	DESCRIPTION	REVISED BY
A	03/09/04	Change drawing orientation	CW
B	04/27/04	Add exterior panel and door heater	EPL
C	05/03/04	Change breaker size from 20A to 25A	EPL



CONTROL PANEL



ELECTRICAL ENCLOSURE AT CONDENSING UNIT



FACTORY WIRING

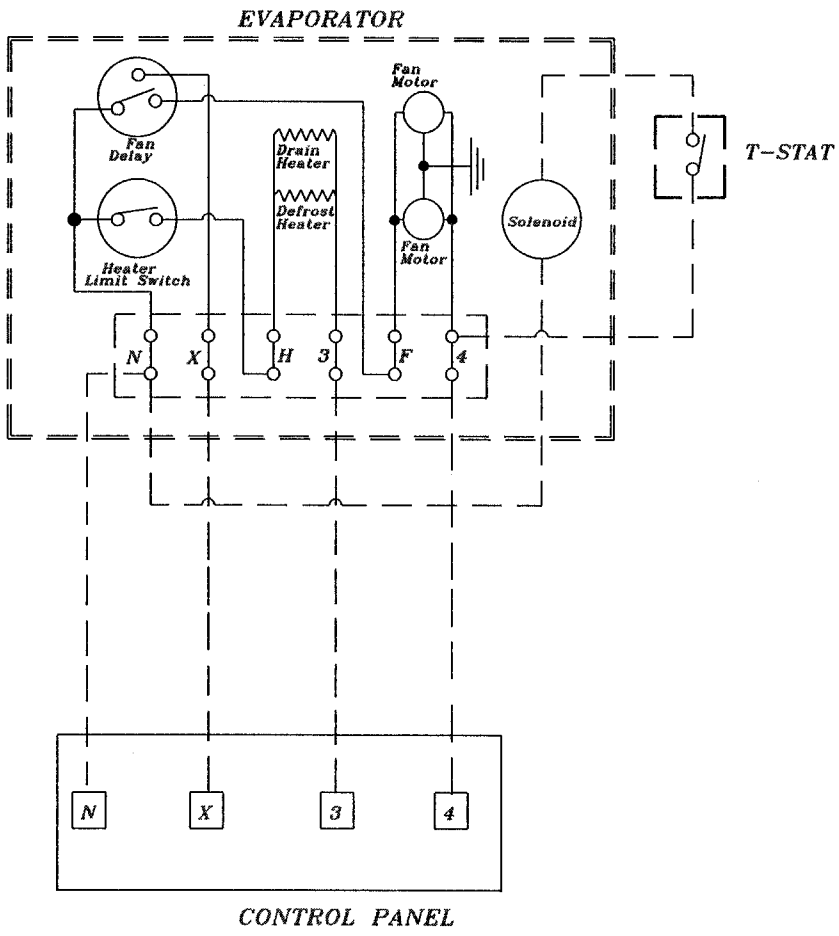
FIELD WIRING

COLOR CODES	
YL	YELLOW
BK	BLACK
BL	BLUE
BR	BROWN
OR	ORANGE
PK	PINK
PR	PURPLE
RD	RED
WT	WHITE

ELECTRICAL: 460VAC, 3 PHASE, 60hz (CONDENSING UNIT)
ELECTRICAL: 120VAC, 60hz (EVAPORATOR COIL)

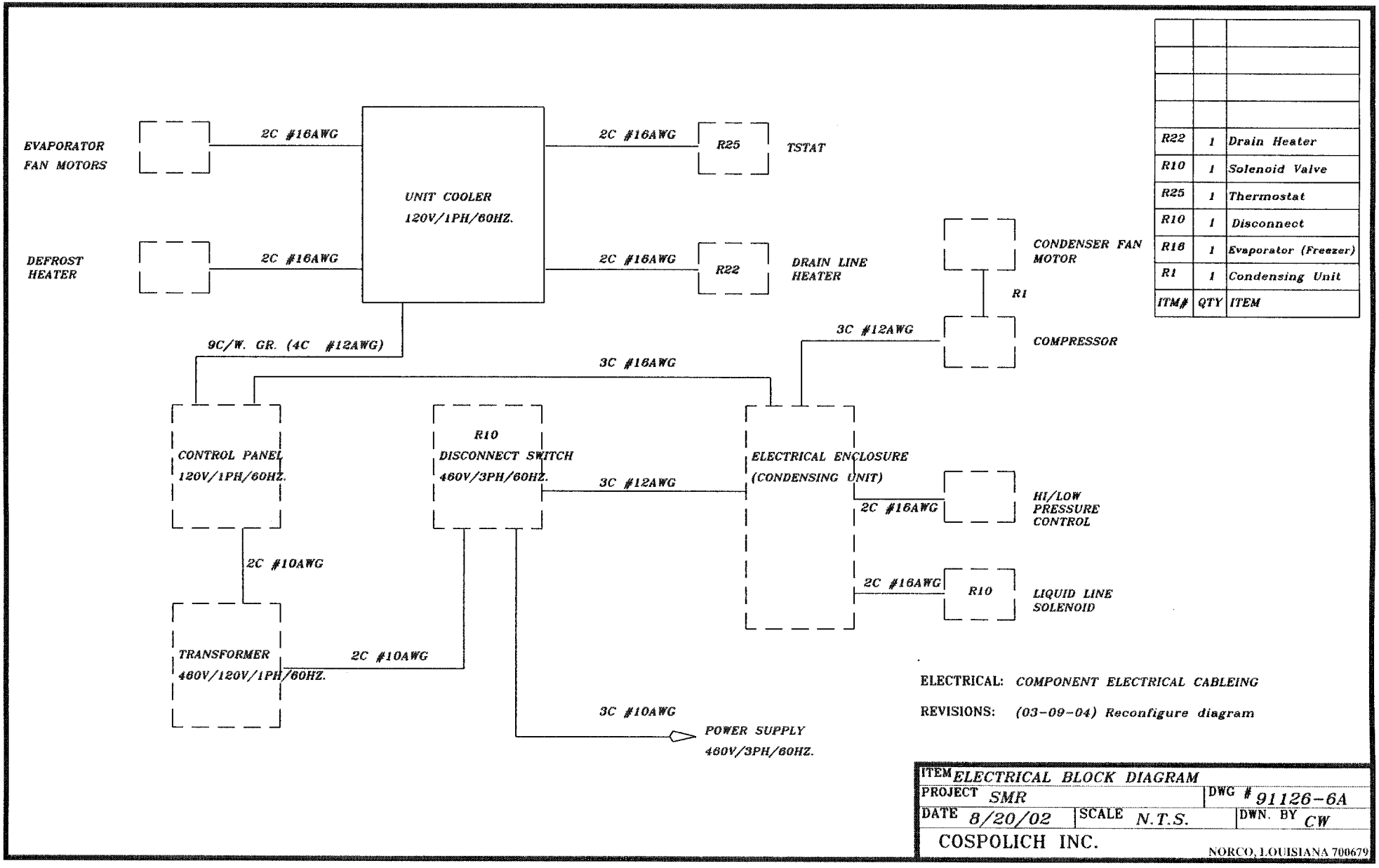
SHIPBOARD WALK IN (FREEZER)

ITEM ELECTRICAL SCHEMATIC			REV. C
PROJECT			DWG # 91126-4
DATE 08-20-02	SCALE N.T.S.	DWN. BY CW	
COSPOLICH INC.	NORCO, LOUISIANA		



– – – – – – Denotes field wiring

ITEM *ELECTRICAL SCHEMATIC – ARCTIC SAFE FREEZER*		
PROJECT *ARCTIC SAFE*		DWG # *91126–5C*
DATE *4/2/03*	SCALE *N.T.S.*	DWN. BY *TW*
COSPOLICH INC.	NORCO, LOUISIANA	



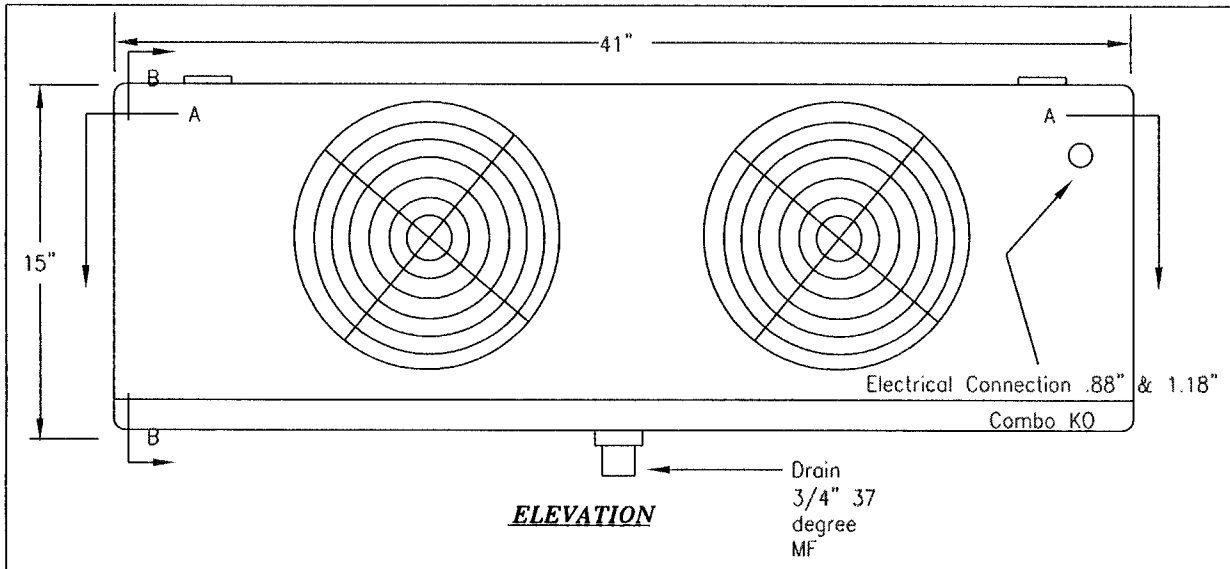
R22	1	Drain Heater
R10	1	Solenoid Valve
R25	1	Thermostat
R10	1	Disconnect
R16	1	Evaporator (Freezer)
R1	1	Condensing Unit
ITM#	QTY	ITEM

ELECTRICAL: *COMPONENT ELECTRICAL CABLEING*

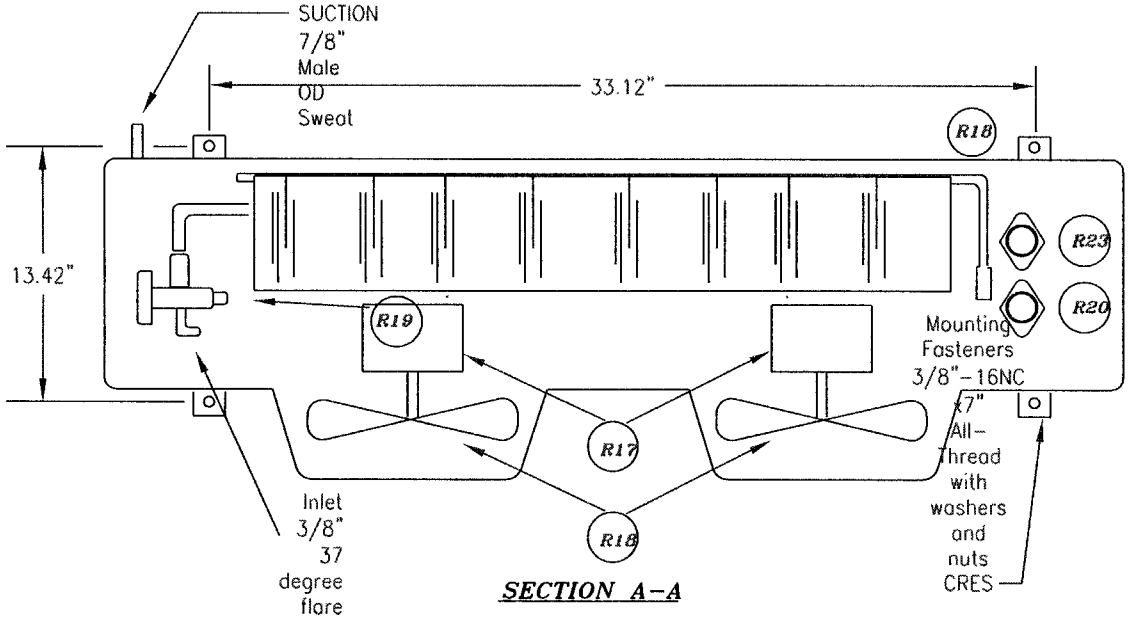
REVISIONS: *(03-09-04) Reconfigure diagram*

ITEM *ELECTRICAL BLOCK DIAGRAM*		
PROJECT *SMR*		DWG # *91126-6A*
DATE *8/20/02*	SCALE *N.T.S.*	DWN. BY *CW*

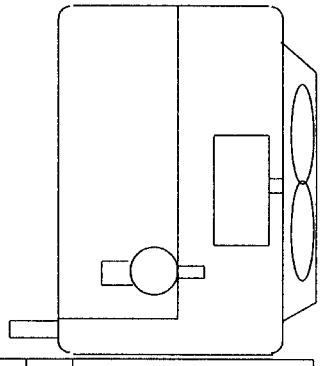
COSPOLICH INC. NORCO, LOUISIANA 700679



ELEVATION



SECTION A-A



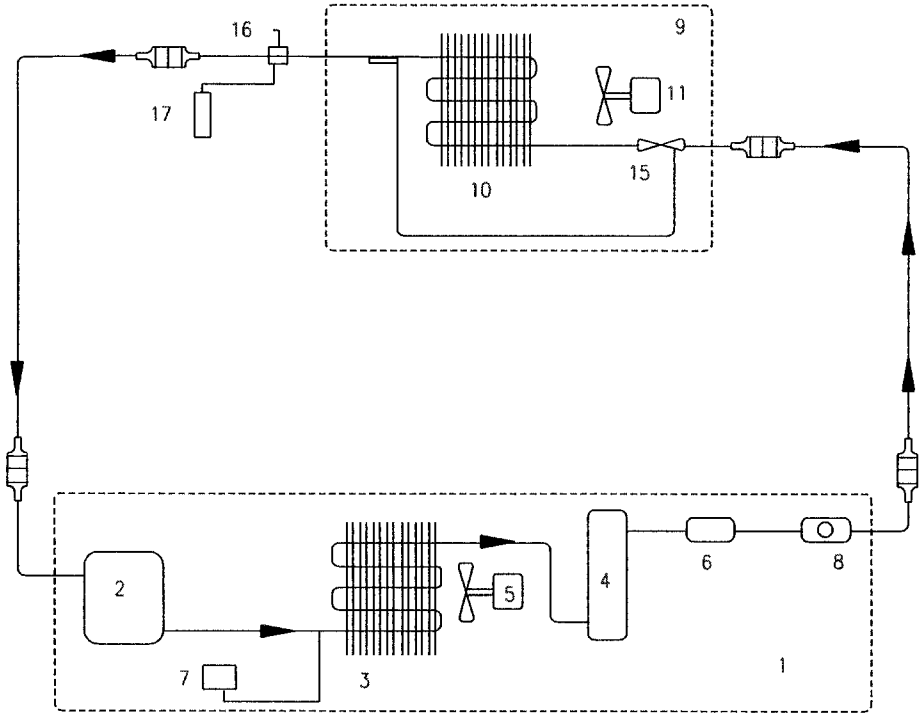
SECTION B-B

ITM#	QTY	ITEM
R19	1	Expansion Valve
R23	1	Fan Control
R24	1	Terminator, Defrost
R20	4	Heater, Defrost
R17	2	Motor
R18	2	Fan
R16	2	Evaporator, complete

MODEL *LET065M*
ELECTRICAL: *120VAC, 1 PHASE, 60 hz 18 amps*
PERFORMANCE: *1680 CFM and 6500 btu's @ 10 degree TD*
WEIGHT: *48 lbs.*
REVISIONS:

ITEM *FREEZER-UNIT COOLER*			**REV.** *A*
PROJECT		**DWG #** *91126-8*	
DATE *08-20-02*	**SCALE** *N.T.S.*	**DWN. BY** *CW*	

COSPOLICH, INC. NORCO, LOUISIANA 70047



BILL OF MATERIALS

ITEM	DESCRIPTION	PART NUMBER	QTY.	Cosp. Part #
1	Cond. Unit	CJAL-0200-TAD	1	
2	Compressor			
3	Condenser			
4	Receiver			
5	Fan			
6	Dryer	C-487	1	
6a	Core	RC-4864	1	
7	Pressure Switch	1549	1	
8	Sight Glass	SA14S	1	
9	Evaporator Coil	LET065M (115V)	1	
10	Coil			
11	Fan			
12	Motor	5008SS	2	
13	Heater, defrost	54-286	3	DWG # 00132
14	Heater, pan	54-286	1	DWG # 00132
15	Expansion Valve	FSE-1Z	1	
16	Solenoid Valve	E6S140 & MKC-1 115v.	1	
17	Thermostat	T6054	1	
	Quick Connect	7/8"	2	
	Quick Connect	1/2"	2	

REVISIONS:

ITEM	*MECHANICAL PIPING*		DWG # *91126-9*
PROJECT	*SMR*		REV.
DATE	*07/02/03*	SCALE *N.T.S.*	DWN. BY *CW*

COSPOLICH, INC. NORCO, LOUISIANA