

Duo-Therm

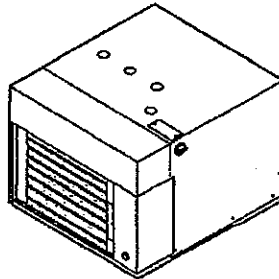
RECORD THIS UNIT INFORMATION FOR FUTURE REFERENCE:

Model Number _____
Serial Number _____
Date Purchased _____

COOL CAT™ **HEAT PUMP**

SELF-CONTAINED HEAT PUMP

ROTARY COMPRESSOR SYSTEM MODEL 41001.511



THIS UNIT IS DESIGNED FOR OEM INSTALLATION
ALL INSTALLATION DESIGNS MUST BE APPROVED BY THE DOMETIC CORPORATION

USA
SERVICE OFFICE
Dometic Corporation
509 So. Poplar St.
LaGrange, IN 46761
260-463-4858

CANADA
Dometic Dist.
866 Langs Dr.
Cambridge, Ontario
CANADA N3H 2N7
519-653-4390

For Service Center
Assistance Call:
800-544-4881



⚠ WARNING

This manual must be read and understood before installation, adjustment, service or maintenance is performed. This unit must be installed and serviced by a qualified service technician. Modification of this product can be extremely hazardous and could result in personal injury or property damage.

⚠ AVERTISSEMENT

Lire et comprendre ce manuel avant de procéder à l'installation, à des réglages, de l'entretien ou des réparations. L'installation de cet appareil doit être effectuée par un réparateur qualifié. Toute modification de cet appareil peut être extrêmement dangereuse et entraîner des blessures ou dommages matériels.

INSTALLATION & OPERATING INSTRUCTIONS

MODEL 41001.511

Form No.3308441.009 6/03
(French 3308487.002)
©2003 Dometic Corporation
LaGrange, IN 46761

**Important: Instructions must
stay with unit. Owner read carefully.**

Dometic

SAFETY INSTRUCTIONS

This manual has safety information and instructions to help users eliminate or reduce the risk of accidents and injuries.

RECOGNIZE SAFETY INFORMATION



This is the safety-alert symbol. When you see this symbol in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating instructions.

UNDERSTAND SIGNAL WORDS

A signal word, **WARNING OR CAUTION** is used with the safety-alert symbol. They give the level of risk for potential injury. **Caution** used without the safety alert symbol indicates a risk for potential property damage.

WARNING: Indicates a potential hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury

CAUTION: Used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

Read and follow all safety information and instructions.

Learn how to operate the Heat Pump Air Conditioner properly.

General Instructions

1. Specifications

MODEL NUMBER	41001.511		
Nominal BTU Cool/Heat	11,500		
Volts/Phase/Hertz*	115/1/60		
FLA Comp/Motor	9.3 / 2.5		
LRA Compressor	54		
Wire Size**	12 AWG Copper Conductor		
Circuit Protection	20 Amp Time Delay Fuse or 20 Amp HACR Circuit Breaker		
Refrigerant	R-22		
System Refrigerant Charge	24.5 oz.		
Size (Inches)	Width	Height	Depth
	22.00	14.50	20.50
Installed Weight	70 Pounds		
Generator***			
1 unit	2.8 KW		
2 units	4.0 KW		

* Maximum unit performance achieved at full rated voltage.
 ** For lengths over 24 ft., consult the National Electrical Code.
 *** Dometic Corporation gives general guidelines for generator requirements. These guidelines come from experiences people have had in actual applications. When sizing the generator, the total power usage of your recreational vehicle must be considered. Also keep in mind generators lose power at high altitudes and from lack of maintenance.

2. Precautions

WARNING
 Improper installation may damage equipment, could endanger life, cause serious injury and/or property damage.

- A. Read installation and operating instructions carefully before attempting to start your heat pump air conditioner.
- B. Dometic Corporation will not be liable for any damages or injury incurred due to failure in following these instructions.
- C. Installation **must** comply with the National Electrical Code and any State or Local Codes or regulations.
- D. **DO NOT** add any devices or accessories to this heat pump air conditioner except those specifically authorized by Dometic.
- E. This equipment must be serviced by qualified personnel and some states require these people to be licensed.

3. General Information

Model 41001 Heat Pump Air Conditioner was designed to be installed and used in small recreational vehicles. The 41001 Heat Pump Air Conditioner allows the O.E.M. to build and ship a complete unit ready for camping. It also reduces the need for heavy duty lift systems (pop-up) required to lift the weight of a roof mounted air conditioner. Most tent campers being fair-weather used, the 41001 will operate to an outside ambient of 40 degrees. At 40 (+/-2) degrees the



outdoor thermostat will turn off the compressor (fan will continue to operate). As the outside temperature returns to 45 degrees, the outdoor thermostat switches the compressor back to on and heating will resume.

Note: The 41001 heat pump air conditioner is not recommended for use below 40 (+/-2) degrees outside temperature.

- A. Helpful hints to make your camping more enjoyable:
1. Do not block air flow with curtains or furniture.
 2. Keep curtains closed during the sunniest part of the day.
 3. Keep the return air filter clean.
 4. Choose a shaded camp site.
 5. Install a Dometic awning with screen room.
- B. Your heat pump air conditioner provides the following functions to make your camping more comfortable.
1. Cools and circulates inside air (*Spring/Summer/Fall*)
 2. Lowers humidity by removing excess moisture (*Spring/Summer/Fall*)
 3. Filters out dust, dirt and other airborne impurities (*Spring/Summer/Fall/Winter*)
 4. Heats and circulates inside air (*Spring/ Fall/ Winter*)

The heat pump air conditioner performs these functions by drawing room air through a filter which traps dust and dirt particles. The air then passes over the indoor conditioning coil which cools and removes excess moisture (*Spring/ Summer/Fall*) and heats the air (*Spring/Fall/ Winter*). The same air is then returned to the living space to keep you comfortable.

Note: The drain tube should be left unplugged during heating operation, storage and any time when traveling after the air conditioner has been operating.

4. Choosing The Proper Location For The Heat Pump Air Conditioner

The heat pump air conditioner system is intended for installation in recreational vehicles where the interior space is essentially one undivided space.

The recreational vehicle manufacturer engineering staff should carefully review each floor plan before starting an installation.

Important: Alternate configurations and methods may be used which still allow the heat pump air conditioner to operate properly. However, these alternate configurations and methods must be approved by Dometic Corporation in writing.

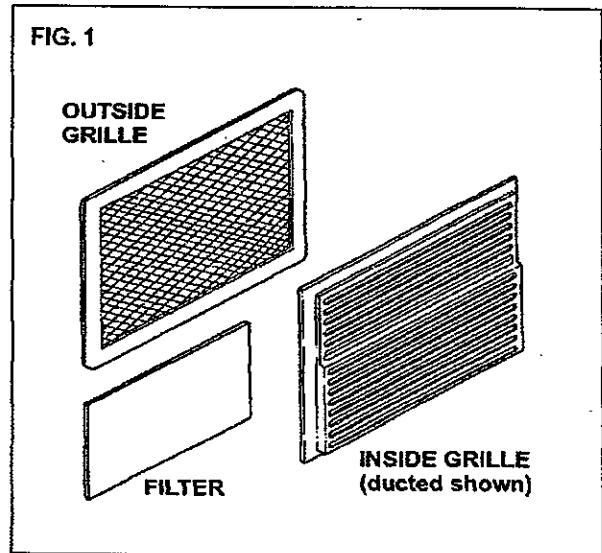
5. Grilles And Registers

Note: Only kits supplied by, or approved by Dometic may be used.

The following accessories are available in various kits to simplify installations. See FIG. 1.

- A. Indoor direct discharge grill alone, with indoor vents.
- B. Indoor direct or ducted discharge grill with outdoor grill.
- C. Indoor direct discharge grill with outdoor grill, indoor vents and adaptor, and outdoor rain shield.

FIG. 1

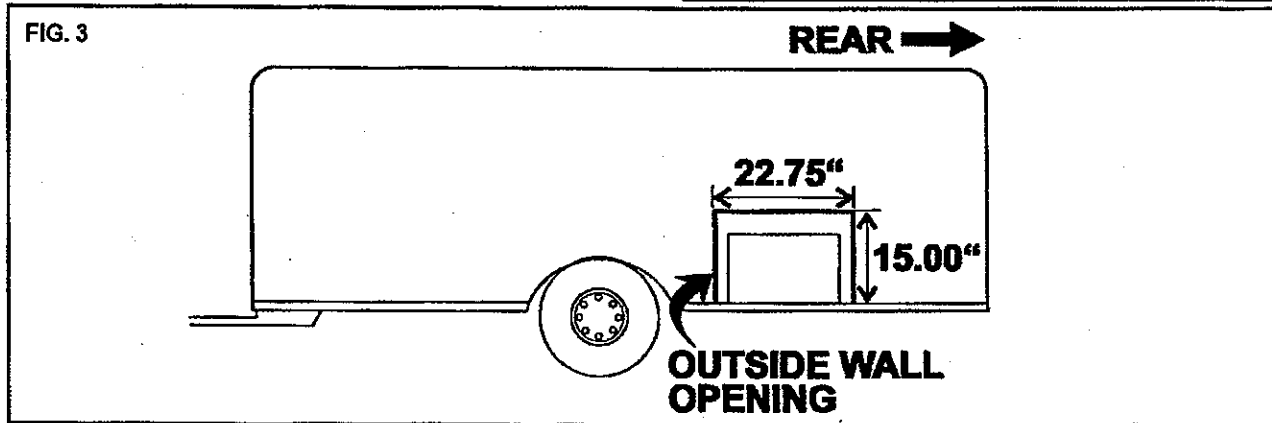
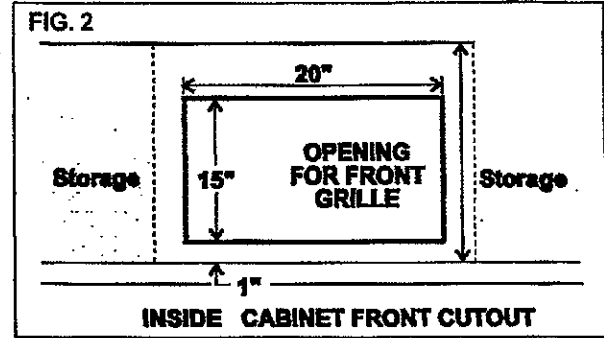


Installation Instructions

NOTE: A dedicated compartment **MUST BE** provided for the heat pump air conditioner installation. This compartment **MUST BE OPEN TO THE OUTSIDE AND AIR SEALED TO THE INSIDE.**

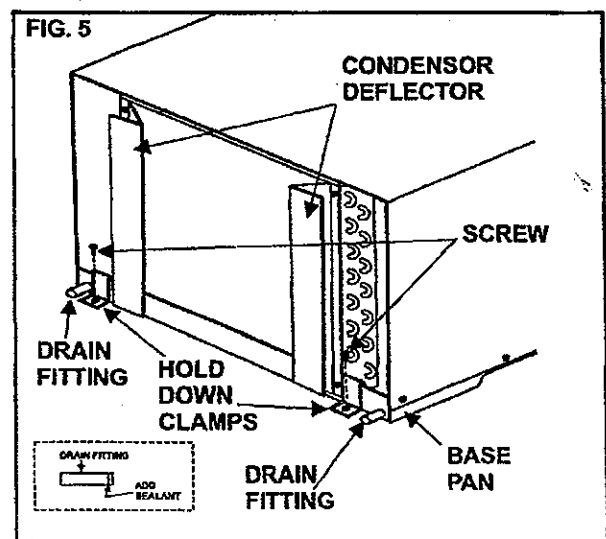
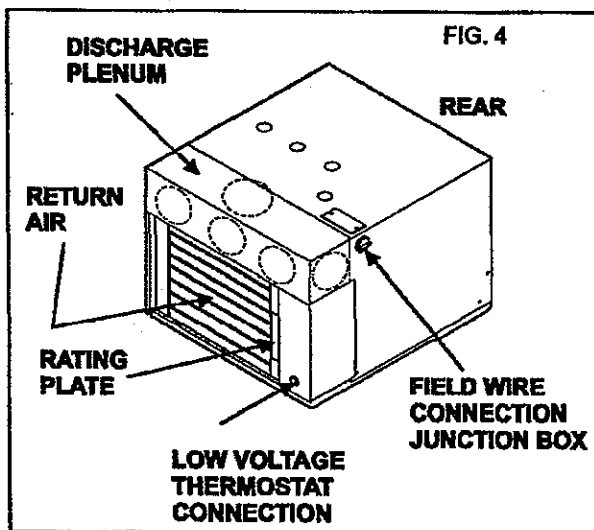
1. Before starting the installation, items that must be checked are:
 - A. Electrical wires in the wall
 - B. Water lines
 - C. LP gas lines
2. Required tools for installation:
 - A. Jigsaw
 - B. Drill and drill bits
 - C. Screw drivers; phillips and slotted
 - D. Silicone sealant
 - E. Socket set
 - F. Utility knife
 - G. Measuring tape
3. Once the floor plan has been reviewed and the compartment has been selected for heat pump air conditioner installation, a 22.75 inch wide by 15.00 inch high opening through the sidewall or outside panel is required. The interior compartment must be at least 20 inches deep. See FIG. 2 and FIG. 3.

Note: When using the minimum cabinet depth of 20.0 inches, the standard Rotary Register must be cut to avoid restricting the air flow.



4. Remove the heat pump air conditioner from its carton. Inspect for shipping damage.
 5. Locate the discharge air plenum. See FIG. 4. Cut the required hole or holes for your installation. The 3 front holes for direct discharge, or the side or top holes for ducted applications.
- Note:** In a travel trailer installation, cabinet or in ceiling, ducting may be required.

6. Access openings should be prepared as shown. See FIG. 2. Cabinet front opening must be 20 inches wide by 15 inches high to provide an opening for the discharge and return air grille. A discharge and return air grille with register option is available to speed up the installation. An electrical service opening is provided by removing the return air grille.
7. Now that your compartment is heat pump air conditioner ready with all holes cut, carefully slide the heat pump air conditioner into position. Using the hold-down clamps supplied, clip the clamps over the base pan flange as shown and secure in place with screws supplied. See FIG. 5.



8. Next, install the drain fittings to the base pan. Sealant must be added around the drain fitting end that is screwed into the base pan. Drain Tube is 3.0 in. long. Your installation may require the tube to be cut so only 1/2" extends beyond the outside grille. See FIG. 5.

9. Install the rain shield. See FIG. 8.

Note The rain shield must have sealant applied to the short flange surfaces to seal the compartment from rainwater and condensation.

10. Seal along the heat pump air conditioner bottom to rain shield.

11. Install the outside grille. The drain tubes should extend through the grille frame holes. Make sure the condenser deflector is against the back of the outside grill. This will decrease recirculation of hot air back into the grill.

12. The outside work is complete.

If your cabinet space is 20"-23.5" deep, the metal duct extension is not needed. Attach the registers to the heat pump air conditioner unit knockout openings. Do not insert the registers more than 1/2" into the unit knockouts. In some installations registers will need to be cut to fit the cabinet space.

After the registers have been installed, install the inside grille to the cabinet front.

Important: When unit is installed with air distribution ducts to carry the conditioned air to remote areas of the interior space, the ducts must be sized to maintain a static pressure at the blower outlet between 0.0 and 0.8 inches of water column.

See figure 8 drawing for the order of installation and installation kit component parts list.

13. Electrical Wiring

Note: All wiring must comply with the National Electrical Code or CSA Standard C22.1, Canadian Electrical Code, Part 1; and local codes.

14. LINE VOLTAGE WIRING

- All 120 volt AC wiring must be at least 12 AWG.
- Two conductors plus a ground must be provided from a supply circuit protected by a 20 amp slow-blow fuse or a 20 amp HACR type circuit breaker to the heat pump air conditioner junction box.
- Remove the junction box cover.
- Route supply wires through the connector and tighten lock nut and clamp screws to ensure against twisting of the wires.
- Connect the white wire in the junction box to the white (neutral) wire from the supply line using an appropriate wire connector.
- Connect the black wire in the junction box to the black (hot) wire from the supply line using an appropriate wire connector.
- Connect the ground wire from the supply line to the ground lead in the junction box and secure with an appropriate wire connector.

H. Install junction box cover.

15. Low Voltage Wiring

- Route a two (2) conductor 16 gauge (fused) cable from the DC power supply to the heat pump air conditioner electrical box.
- Connect the DC positive(+) supply lead to the red wire on the heat pump air conditioner.
- Connect the DC negative (-) supply lead to the black wire on the heat pump air conditioner. The low voltage connection can be made without removing the electrical box cover. The low voltage leads must be tucked back inside of the electrical box.

16. Thermostat Location

of the thermostat is very important to ensure that it will provide a comfortable RV temperature. Observe the following rules when selecting a location.

- Locate the thermostat 54" above the floor.
- Install the thermostat on a partition, not on an outside wall.
- NEVER** expose it to direct heat from lamps, sun or other heat producing items.
- Avoid locations close to doors that lead outside, windows or adjoining outside walls.
- Avoid locations close to supply registers and the air from them.

17. Thermostat Wiring

- Route a seven (7) conductor 16 gauge cable from the thermostat location to the electrical box on the heat pump air conditioner thermostat connection. See FIG. 6.
- Connect the unit red/white wire to the thermostat +7.5 terminal.
- Connect the unit green wire to the thermostat GND terminal.
- Connect the unit yellow wire to the thermostat COOL terminal.
- Connect the unit tan wire to the thermostat FAN terminal.
- Connect the unit blue wire to the thermostat HI FAN terminal.

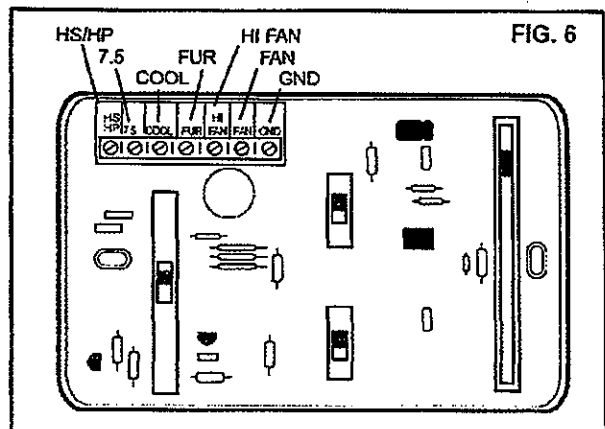


FIG. 6

- G. Connect the unit orange wire to the thermostat HS/HP terminal (if applicable).
- H. Connect the unit white wire to thermostat FUR terminal (if applicable).
- I. Connect the unit blue/white wires to the two furnace control wires (if applicable).

The AC and DC power supply can now be turned on and operation checked.

18. Thermostat Operation (Refer to FIG. 7)

- A. Cooling Operation:
 1. Place the **Temperature Set Lever** to the desired temperature level (located at right side of thermostat).
 2. Select fan speed that best satisfies your needs (switch located at lower center of thermostat).
 - a. **High Speed:** Selected when the maximum cooling and dehumidification are required.
 - b. **Low Speed:** Selected when RV reaches desired comfort level and needs to be maintained. Normally this speed is used for night-time operation
 3. Select **Auto/On Switch** operation as follows:

CAUTION

Wait at least two (2) minutes before restarting the air conditioner after shutting off with either the Cool/Off/Furnace/Heat Pump Switch or the Temperature Set Lever. This allows the refrigerant pressure to equalize and will allow the compressor to restart easily. Failure to follow this instruction may cause compressor overload, circuit breaker or fuses to open.

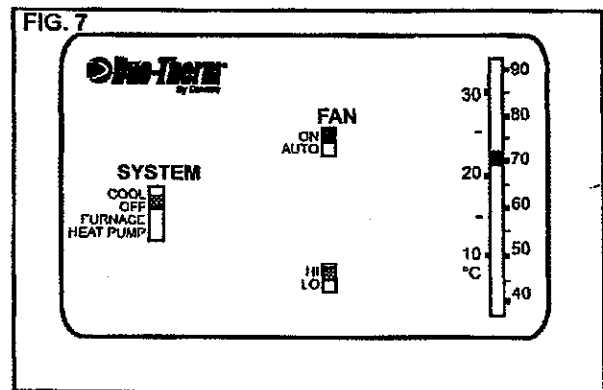
- a. **Auto Position:** Air Conditioner fan runs whenever cooling is required and stops whenever cooling is not required.
 - b. **ON Position:** The fan will run continuously. The compressor will turn ON and OFF to maintain set temperature.
- 4. Set the **System Switch** to cool position (located at the left side of the thermostat). The heat pump air conditioner compressor will now come on when cooling is required and cycle off when the temperature level selected is reached.
- B. Furnace Operation: (If Furnace is connected to Thermostat)
 1. Set the **Temperature Set Lever** to desired temperature level (located on the right of thermostat).
 2. Set the **System Switch** to furnace position (located on the left side of thermostat). The furnace will now come on when heat is required and cycle off when the temperature level selected is reached.

C. Continuous Fan or Fan Only Operation: When Thermostat:

1. **System Switch:** is in the COOL, OFF, FURNACE or HEAT PUMP position and
2. **Auto/On Switch:** is in the ON position, the air conditioner fan will run continuously at selected fan speed to circulate the air inside the RV.

D. Heat Pump Operation:

Note: The outside thermostat will not allow the heat pump to operate when temperatures are below 40° (+/-2) Fahrenheit.



1. Set the **Temperature Set Lever** (located on the right of thermostat) to desired temperature level.
2. Set the **System Switch** (located at the left side of thermostat) to heat pump position. The compressor will now come on when heating is required and cycle off when the temperature level selected is reached. If the outside temperature is below 40° (+/-2) Fahrenheit, the heat pump will not operate. If the RV is equipped with a furnace the System Switch must be set to furnace.

19. Drain Plug And Frost Prevention

Heat pumps have a tendency to frost during operation when the outside temperature is below 50° Fahrenheit with moderate humidity conditions. The drain tube should be left unplugged during heating operation, storage and any time when traveling after the air conditioner has been operating.

20. Maintenance

AIR FILTER: Periodically remove the return air filter, wash the filter with soap and warm water, let air dry and then reinstall.

Note: Never operate the heat pump air conditioner without the return air filter in place. This may plug the unit evaporator coil with dirt and may substantially affect the performance of the unit.

21. Service

A. Unit Will Not Operate:

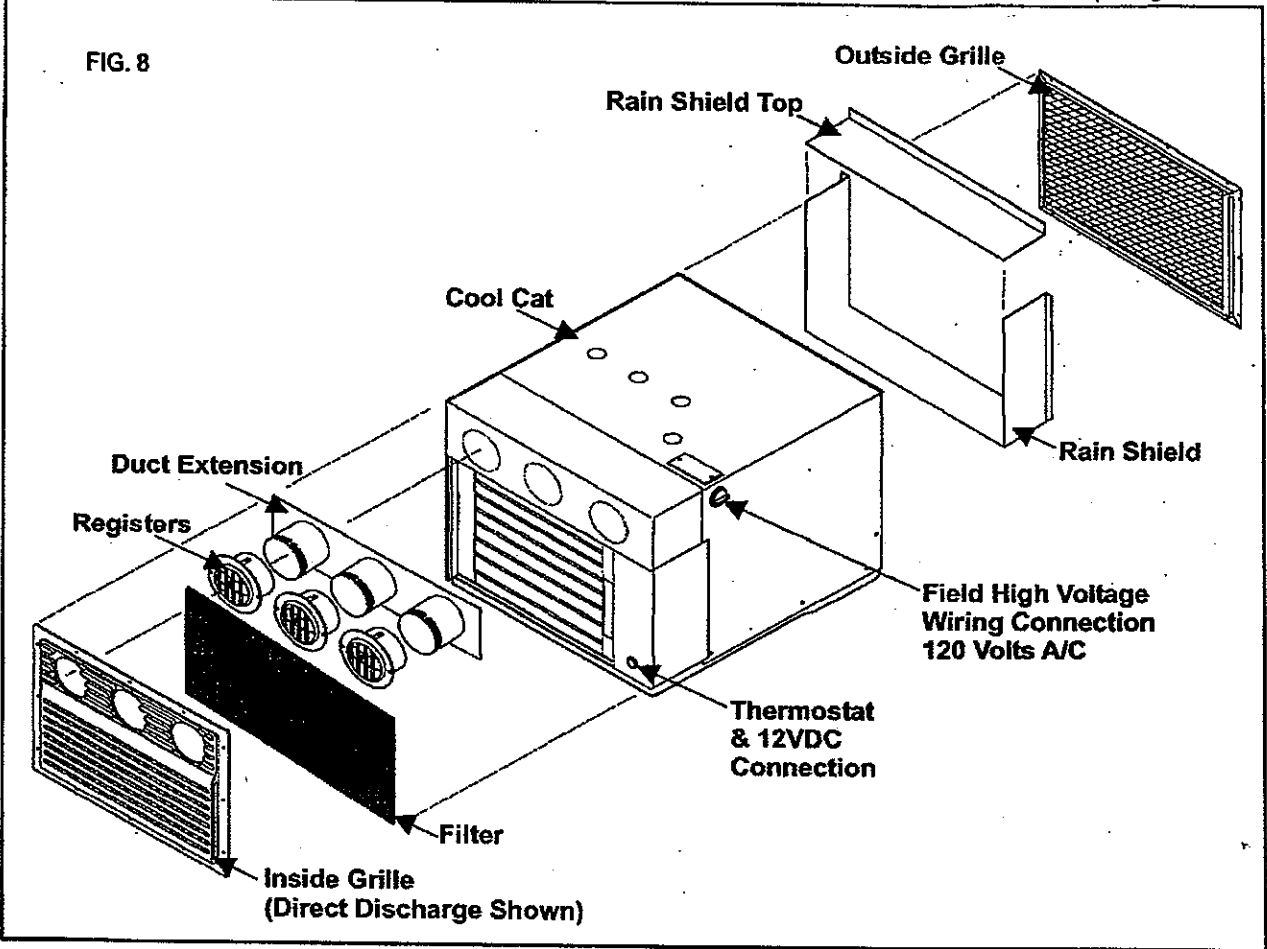
If your unit fails to operate or operates improperly, check the following before calling your service center:

1. If your RV is connected to a motor generator, check to be sure the motor generator is running and producing power.
2. If the RV is connected to power supplied by a land line, check to be sure the line is sized properly to run the heat pump air conditioner load and it is plugged into the power supply.
3. Check your fuse or circuit breaker to see if it is open.
4. Check to be sure your thermostat is turned on.

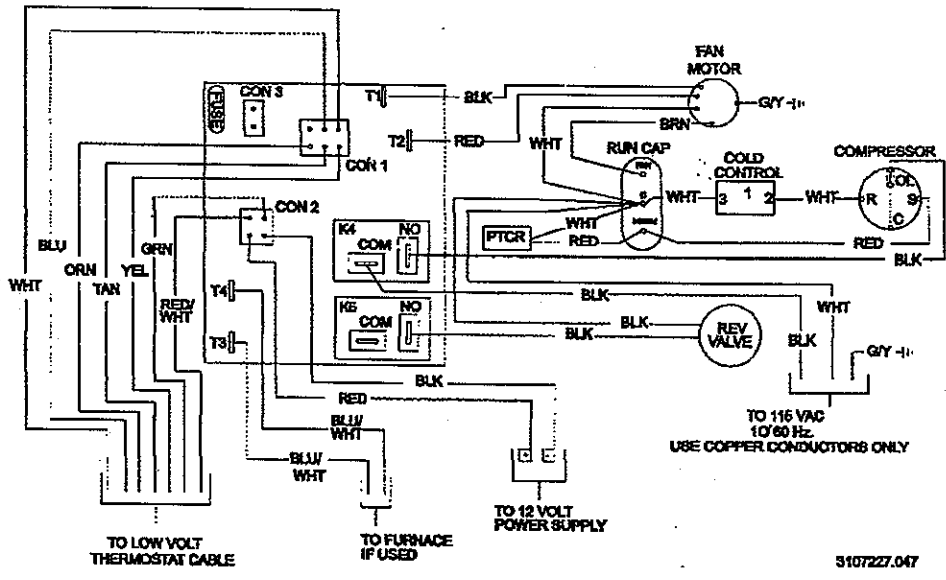
Note: Furnaces are not Dometic products, contact your furnace manufacturers service center for any problems associated with it.

5. After the above check, call your local service center for further help. This unit must be serviced by a qualified service technician only. When calling for service, always give the heat pump model number and serial number. This information can be found on the unit rating plate located next to the electrical box. See FIG. 4.

FIG. 8



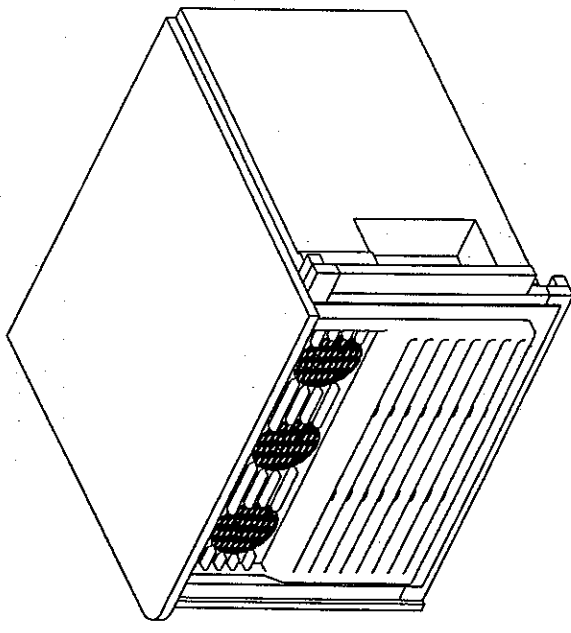
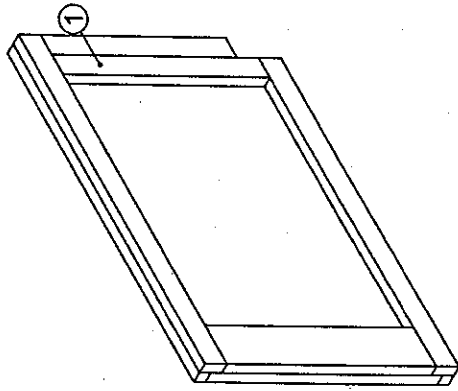
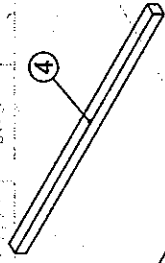
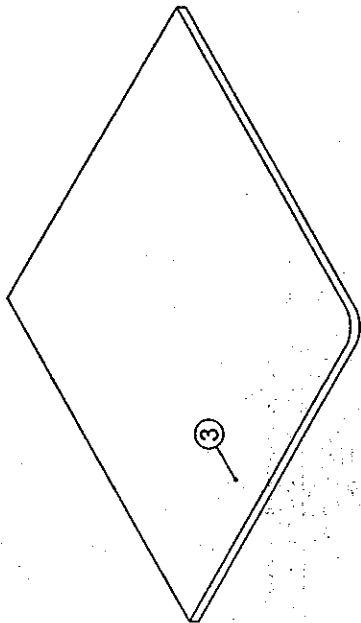
WIRING DIAGRAM



3107227.047

REVISIONS				
REV.	PCN#	DATE	BY	DESCRIPTION
0	2004160	11/19/03	BWO	HEAT PUMP OPTION

ITEM NO.	QTY.	FILE NAME	DESCRIPTION	PART NO#
1	1	HEAT PUMP FACE	HEAT PUMP FRAME	314989
2	1	12MM PANEL 21.25 X 17		
3	1	heat pump countertop		
4	1	CLEAT .75 X .75 X 18.5		

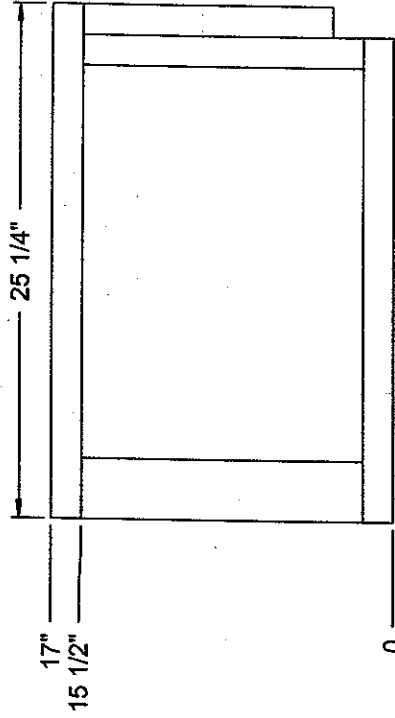
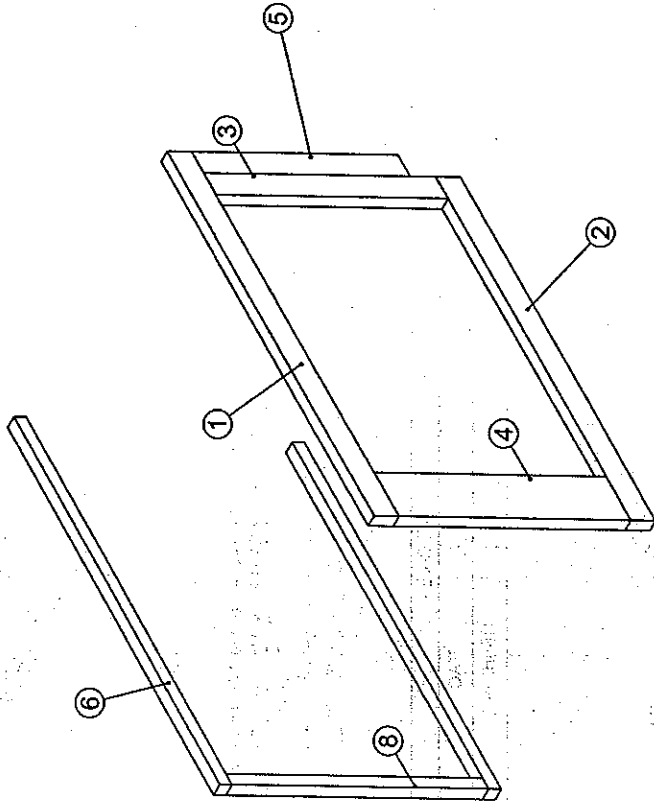


Dutchmen Manufacturing, Inc.			
<small>Goshen, IN 46526 Phone: (574) 534-1224 Fax: (574) 533-3807</small>			
DRAWING NAME	PAGE	OF REV.	DRAWING #
HEAT PUMP CABINET BOM	1	3 0	607979
VERSION		DATE	DRAWN BY:
T16, T16-2, T16-C		11/19/03	BWO

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REVISIONS			
REV.	PCN#	DATE	BY
		See Sheet 1	

ITEM NO.	QTY.	FILE NAME	DESCRIPTION	PART NO#
1	1	1.5 X 18MM STILE 25.25"		
2	1	1.5 X 18MM STILE		
3	1	1.5 X 18MM STILE 14"		
4	1	1.3 X 18MM STILE 14"		
5	1	1.5 X 18MM STILE 12.5"		
6	1	CLEAT .75 X .75 X 25.25		
7	1	CLEAT .75 X .75 X 23.75		
8	1	CLEAT .75 X .75 X 15.5		



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 Goshen, IN 46526
 Phone: (574) 534-1224 Fax: (574) 533-8907

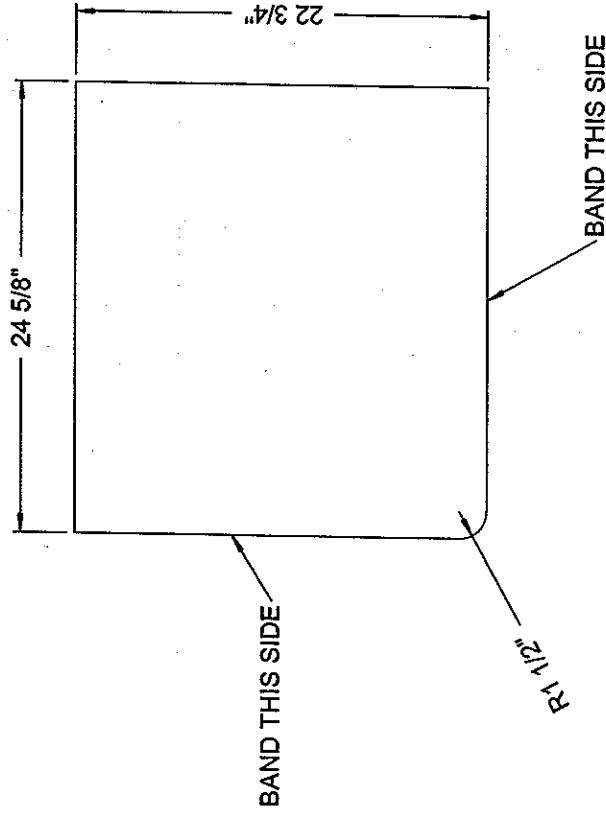
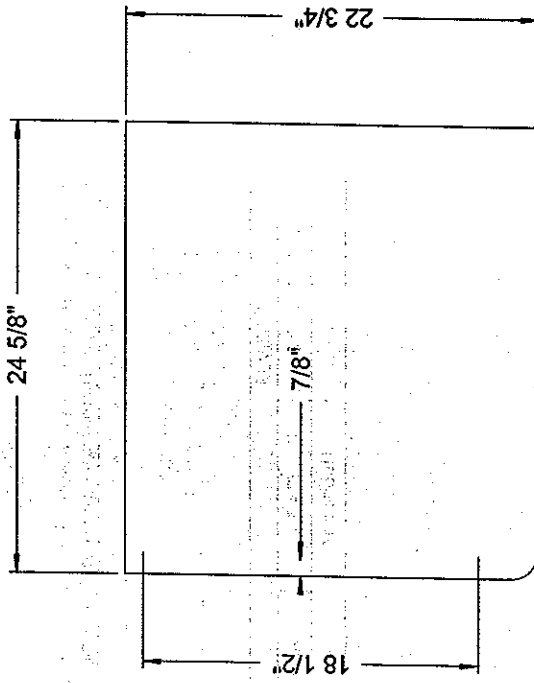
DRAWING NAME	PAGE	OF	REV.
HEAT PUMP FACE FRAME	2	3	

VERSION: T16, T16-2, T16-C DATE: 11/19/03 DRAWN BY: BWO

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		See Sheet 1	

5/8" MATERIAL



Dutchmen Manufacturing, Inc.

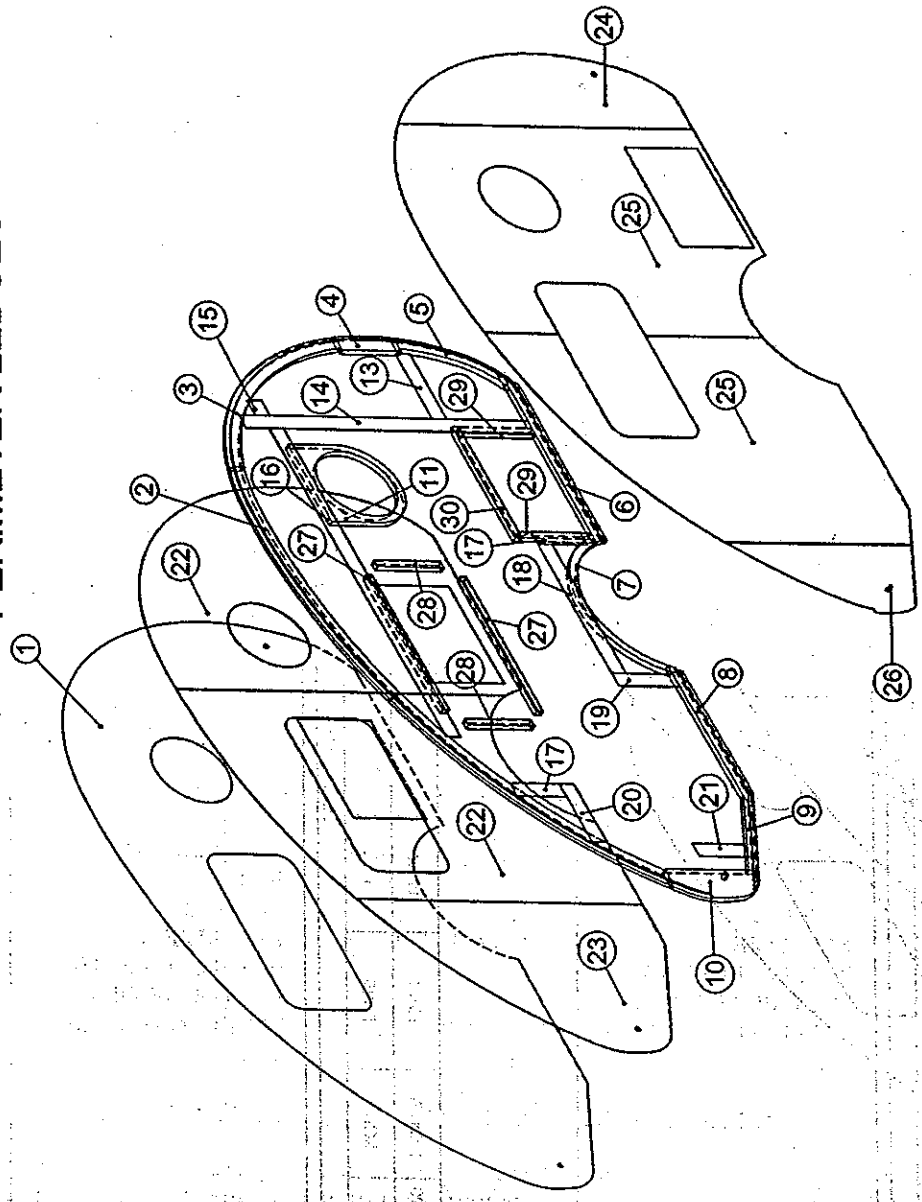
Goshen, IN 46526
 Phone: (574) 534-1224 Fax: (574) 533-3807

DRAWING NAME	PAGE	OF REV.	DRAWING #
HEAT PUMP COUNTERTOP	3	3	607979
VERSION	DATE		DRAWN BY:
T16, T16-2, T16-C	11/19/03		BWO

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REVISIONS			
REV.	PCN#	DATE	DESCRIPTION
2004160	2004160	10/21	ADDED # 29 AND 30 TO BOM
	BWO		

SEE TAB DS SHEET 2 OF 6 FOR PERIMETER LEDGES



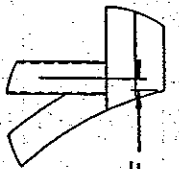
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3	1	TPLY0002ODS
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6	1	TPLY0004ODS
7	1	TPLY0009
8	1	TPLY0005ODS
9	1	TPLY0006ODS
10	1	TPLY0007ODS
11	1	TPLY0011
12	1	TPLY0013ODS
13	1	13in EGS 14.9375"
14	1	13in EGS 59"
15	1	13in EGS 3.5"
16	1	13in EGS 71.75"
17	2	3in EGS 10.25"
18	1	3in EGS 30"
19	1	3in EGS 12.5"
20	1	3in EGS 13.25"
21	1	3in EGS 10"
22	2	2.7M LUAUN 48 X 72.25
23	1	2.7M LUAUN 34.25 X 72.25
24	1	INTERIOR PANEL 18 X 72
25	2	INTERIOR PANEL 48 X 72
26	1	INTERIOR PANEL 16.25 X 72
27	2	1 x 1.5 x .06 ALUM TUBE 31.375"
28	2	1 x 1.5 x .06 ALUM TUBE 13.625"
29	2	1 x 1.5 x .06 ALUM TUBE 15"
30	1	1 x 1.5 x .06 ALUM TUBE 25.75"

Dutchmen Manufacturing, Inc.
 Geoshen, IN 46524
 Phone: (574)534-1224 Fax: (574)533-3907

DRAWING NAME	PAGE	OF REV.	DRAWING #
OFF DOOR SIDEWALL BOM	1	5	1
VERSION	DATE		DRAWN BY:
T16	11/19/03		BWO

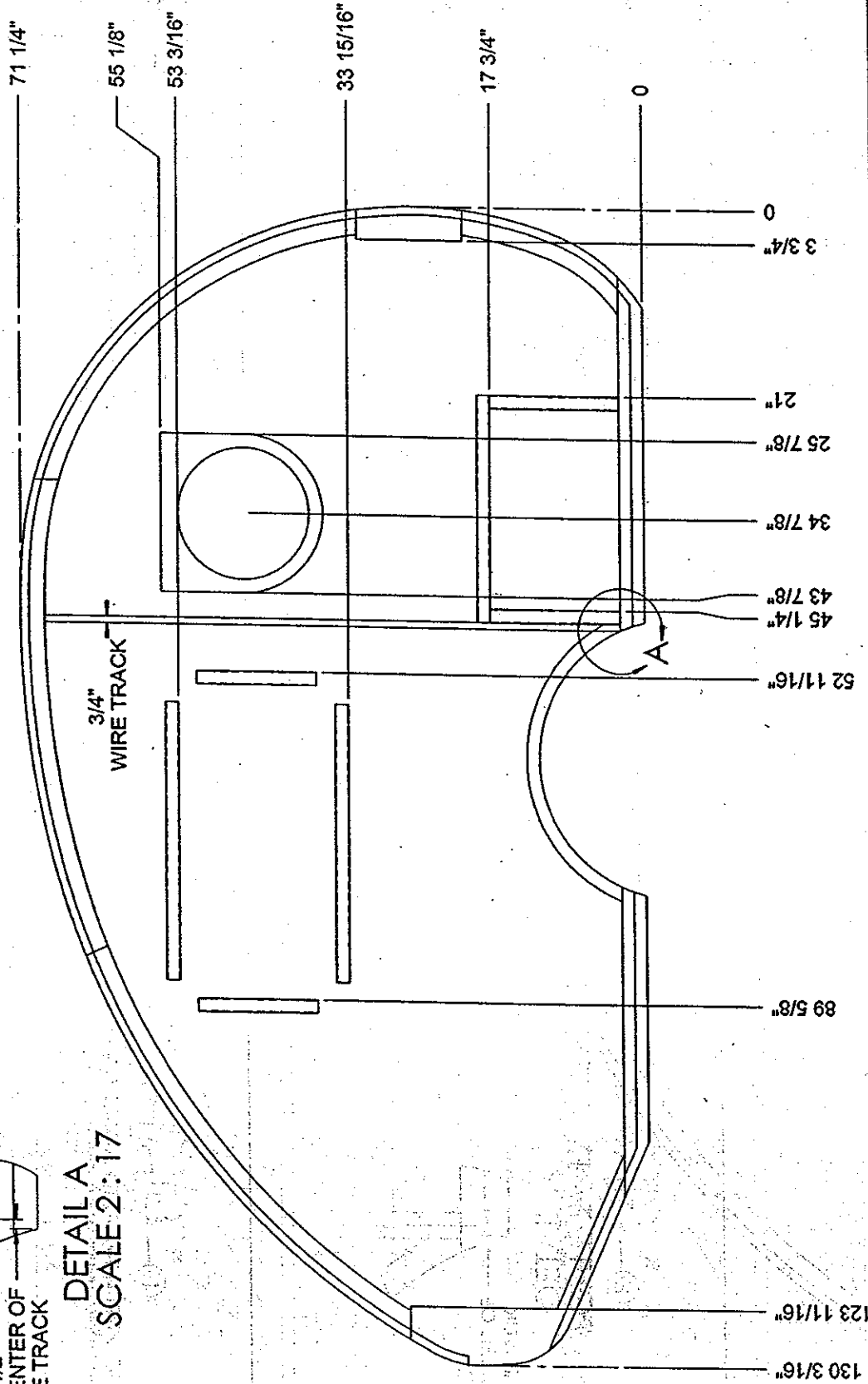
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VIEWED FROM INTERIOR



1/2"
TO CENTER OF
WIRE TRACK

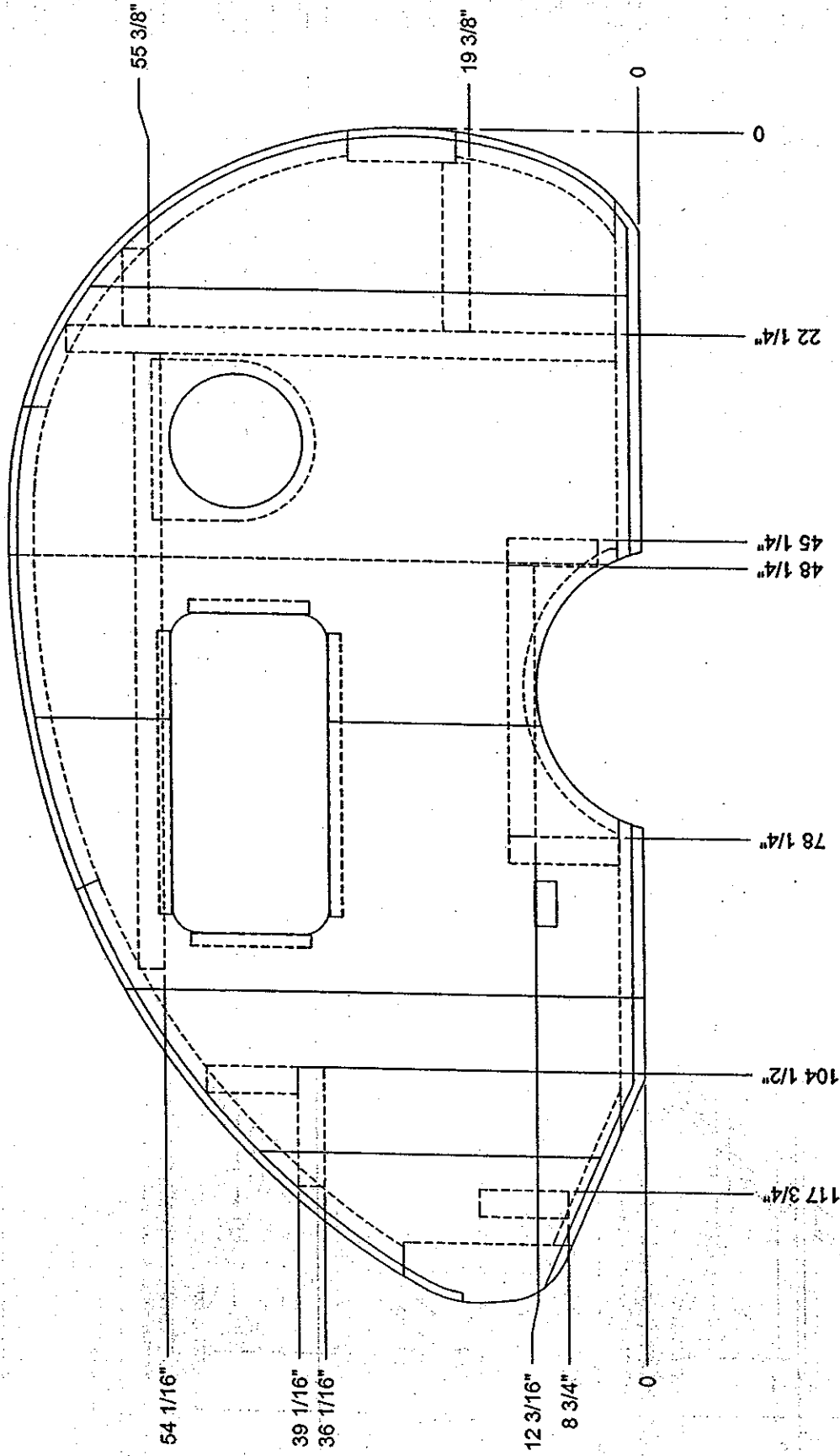
DETAIL A
SCALE 2:17



Dutchmen Manufacturing, Inc.		Goshen, IN 46526		Phone: (574) 534-1224		Fax: (574) 533-3807	
DRAWING NAME	PAGE	OF	REV.	DRAWING #			
OFF DOOR SIDEWALL WOOD/ALUMINUM	2	5		607980			
VERSION	T16		DATE	11/19/03	DRAWN BY:	BWO	

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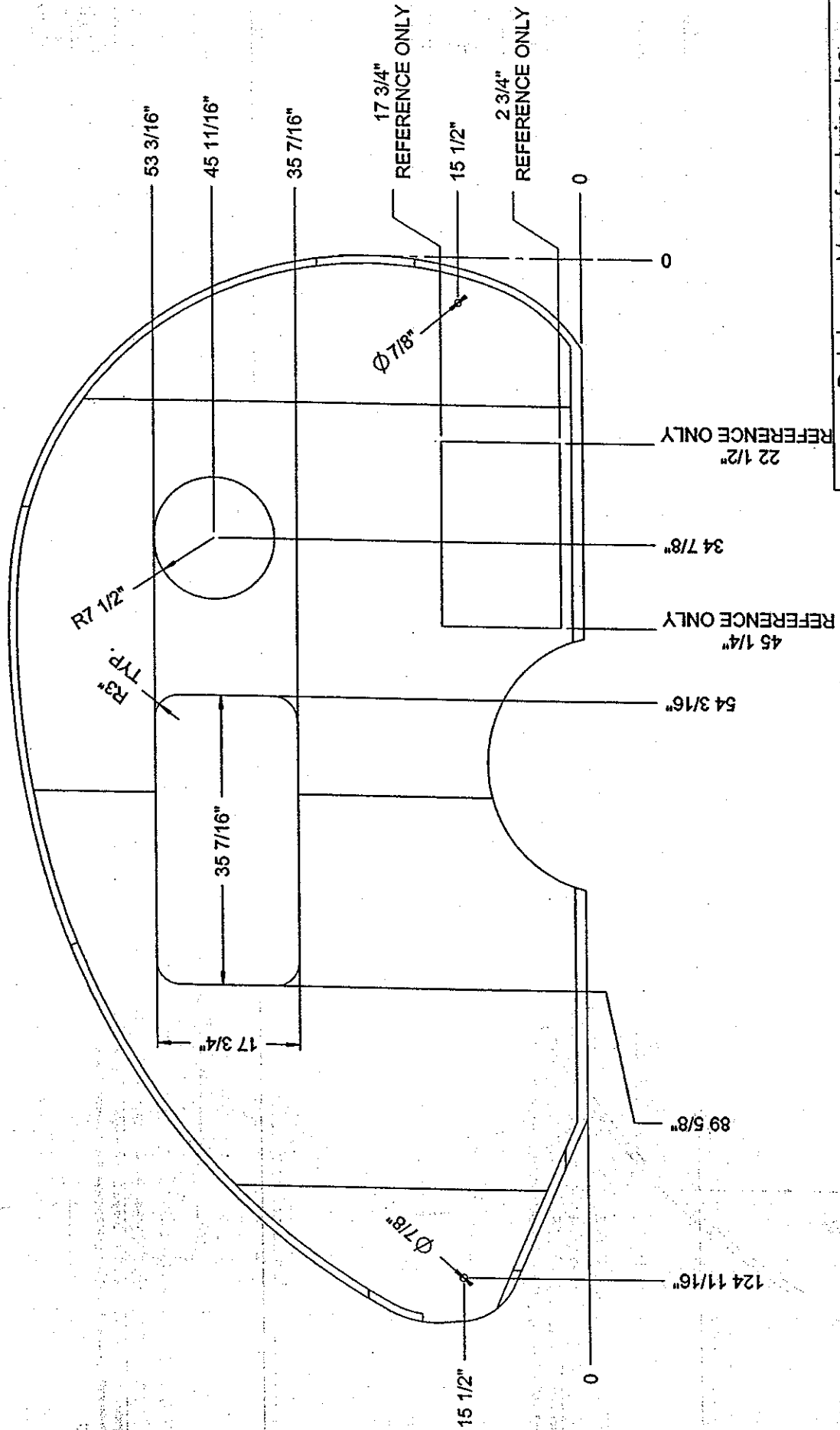
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Dutchmen Manufacturing, Inc.		Goshen, IN 46526		DRAWING #	
Phone: (574) 634-1224		Fax: (574) 633-9807		607980	
DRAWING NAME		PAGE	OF	REV.	DRAWN BY:
OFF DOOR SIDEWALL EGGS BACKER		3	5		BWO
VERSION		DATE		DRAWN BY:	
T16		11/19/03		BWO	

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NOTE:
 Part Name:
 Part Number:
 Part Description:

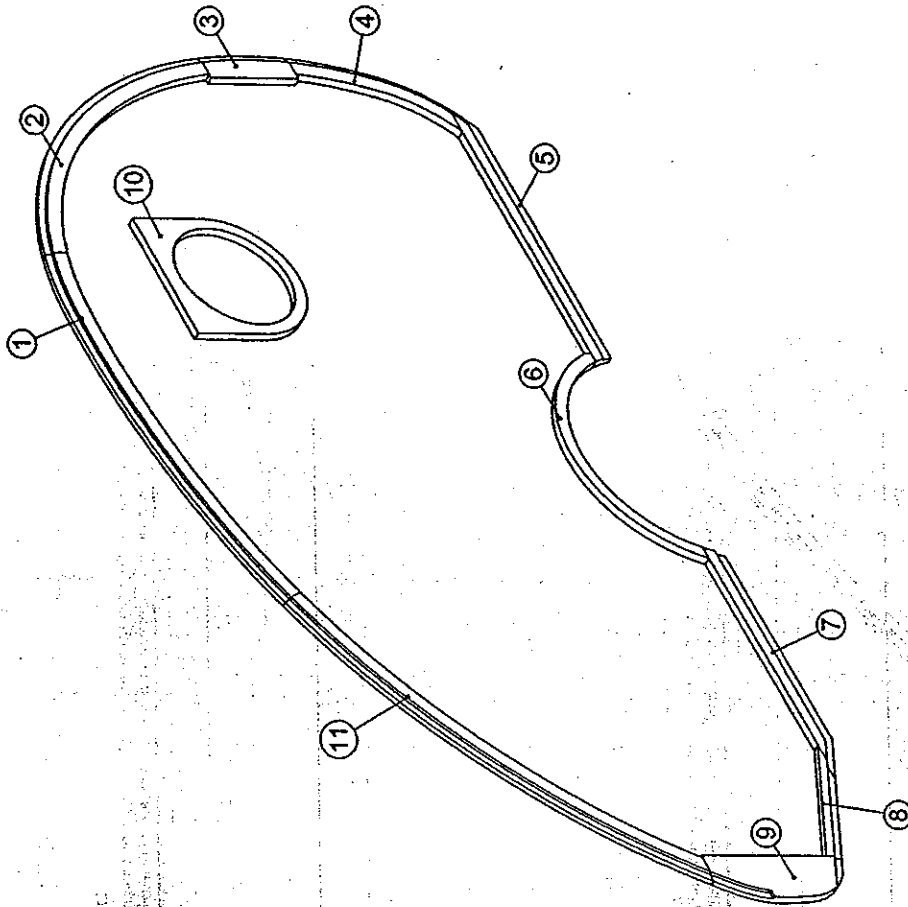
NOTE:
 Part Name:
 Part Number:
 Part Description:

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 Goshen, IN 46526
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DRAWING NAME	OFF DOOR SIDEWALL ROUT	DRAWING #	607980
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VERSION		DATE	11/19/03
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ITEM NO.	QTY.	FILE NAME
1	1	TPLY00010DS
2	1	TPLY00020DS
3	1	TPLY0012
4	1	TPLY00030DS
5	1	TPLY00040DS
6	1	TPLY0009
7	1	TPLY00050DS
8	1	TPLY00060DS
9	1	TPLY00070DS
10	1	TPLY0011
11	1	TPLY00130DS



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