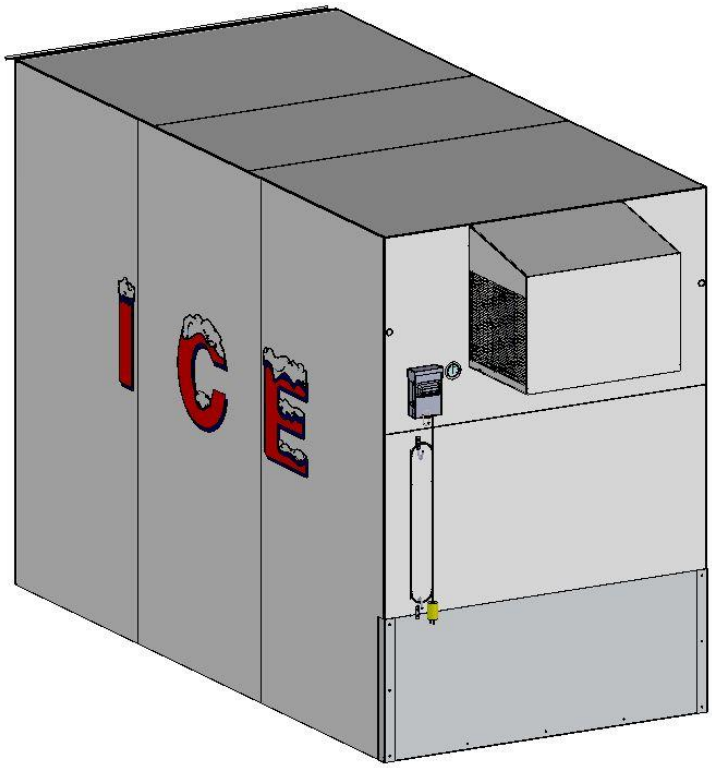


4 X 8, 5 X 10 TRANSPORT BODY
INSTALLATION, OPERATION AND SERVICE MANUAL

1070605R1 10-22

Leer, Inc.
206 Leer Street
P.O. Box 206
New Lisbon, WI 53950
1-800-766-5337
www.leerinc.com

This manual provides information and procedures to safely operate and maintain your LEER product. For your own safety and protection from physical injury, carefully read, understand, and observe the safety instructions described in this manual. Keep a copy of this manual with the unit at all times. Additional copies are available from LEER, Inc. or can be found by scanning the QR code on the unit or the front cover of this manual. The information contained in this manual was based on equipment in production at the time of publication. LEER, Inc. reserves the right to change any portion of this information without notice.

UNIT MODEL NUMBER:_____

UNIT SERIAL NUMBER:_____

Leer, Inc. is a 100% Employee Owned company so your business matters to each and every one of us. We build our products in the USA with your satisfaction in mind and we work hard to ensure a quality product is delivered every time!

Our Mission

To partner with our customers to design and develop the highest quality, innovative, temperature-controlled storage solutions to meet their ever-changing needs and to provide our customers exceptional quality and outstanding customer service at every stage of every interaction.

WARNING: This product can expose you to chemicals including nickel, which is known in the State of California to cause cancer or birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Contents

Section 1 – Safety and General Information

1.1 Safety Rules

Study these SAFETY RULES carefully before set-up, operation or service of the unit. Become familiar with this operating manual and the unit itself. The unit can operate safely, efficiently and reliably only if it is properly setup, operated and maintained. Many accidents are caused by failure to follow simple and fundamental rules or precautions.

This manual contains DANGERS, WARNINGS, CAUTIONS and NOTES which must be followed to prevent the possibility of improper service, damage to the equipment, personal injury or death.
The following formatting options will apply when calling the reader's attention to the DANGERS, WARNINGS, CAUTIONS and NOTES.

DANGER: Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

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

CAUTION: Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury AND could result in property or equipment damage.

NOTE: Notes contain additional information important to a procedure and will be found within the regular text body of this manual.

1.2 Safety Symbols

This equipment has been supplied with numerous safety and operating decals. These decals provide important operating instructions and warn of dangers and hazards. Replace any missing or hard-to-read decals and use care when washing or cleaning the unit. Decal placement and part numbers can be obtained by contacting Leer direct at **1-800-766-5337**.

All safety decals are available free of charge with a valid model and serial number.

Below is a summary of the intended meanings for the symbols used on the decal. Some or all of these symbols may be part of your Leer product:

	**WARNING! MOVING PARTS** Moving fan blade. Do not operate the unit with the compressor cover removed or missing. Contact with a rotaing fan blade can cause severe injury.
	**WARNING! ELECTRICAL SHOCK HAZARD** This unit operates on voltages that can cause injury if contact is made with terminals or bare wires while energized. Disconnect power before performing any maintenance tasks.

	**WARNING! HOT SURFACES** Some parts may become hot during operation and contact with them could cause injury. Do not operate the unit with the compressor cover removed or missing.
	**DO NOT ENTER - ENTRAPMENT HAZARD!** Do not climb into unit and keep doors locked when in use. Remove the doors before disposal of unit.
	**DO NOT REMOVE COVER** Do not operate unit with compressor cover removed. Contact with moving parts, live electrical terminal or wiring or hot parts may cause severe injury. Keep cover secured with the OEM hardware.
	**NO UNAUTHORIZED SERVICE** Only a trained and certified refrigeration technican should perform any service work on the refrigeration system.
	**UNPLUG UNIT BEFORE SERVICE** ALWAYS disconnect unit from the source receptacle before performing any service or maintenance work AFTER moving the power switch to the off position.
	**KEEP DOORS LOCKED** ALWAYS keep the doors closed and locked when in use to prevent accidental entrapment. Remove the doors before disposal of the unit.
	**READ THE INSTRUCTIONS BEFORE USE** ALWAYS read the included operating instruction before operating this unit. If you need replacement manuals, contact Leer, Inc at 1-800-766-5337 or scan the QR code on the wiring diagram decal.

Section 2 - Specifications

2.1 System Specifications

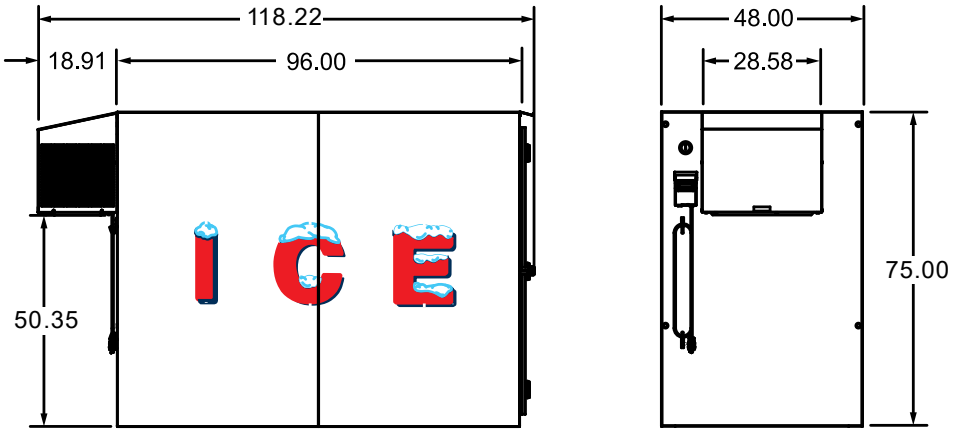
Transport Models		
MODEL	Model 4 X 8	Model 5 X 10
Auto Defrost - R404a	4X8 AD	5X10 AD
General Specifications		
7 lb Bags - Auto Defrost	390	520
20 lb Bags - Auto Defrost	150	200
Interior Space - cu/ft (cu/m)	140 (3.96)	285 (8.07)
Door Opening - in (cm)	38 x 63.88 (96.5 x 162.2)	50.5 x 78.5 (128.3 x 199.4)
Exterior - in (cm)	48 x 96 x 75	54 x 114 x 80.75
	(121.9 x 243.8 x 190.5)	(137.2 x 289.6 x 205.1)
Auto Defrost weight - lb (kg)	1150 (521.6)	1370 (621.4)
Temperature and Controls		
Degrees F (Degrees C)	-4 to 40 (-20 to 4.4)	-4 to 40 (-20 to 4.4)
Control Type	Electronic	Electronic
Electrical Specifications		
Voltage (V/Hz)	120/60	120/60
Minimum Circuit (Amps)	20	20
Auto Defrost (Amps)	8	8
230V/50Hz	Available	Available
Refrigeration Specifications		
Compressor hp (kw)	1 (.8568)	1 1/4 (.93)
Refrigerant	R404a	R404a
Certifications	UL, cUL, CE	UL, cUL, CE
NSF Certification	Available Upon Request	Available Upon Request

2.2 Optional Trailer Specifications

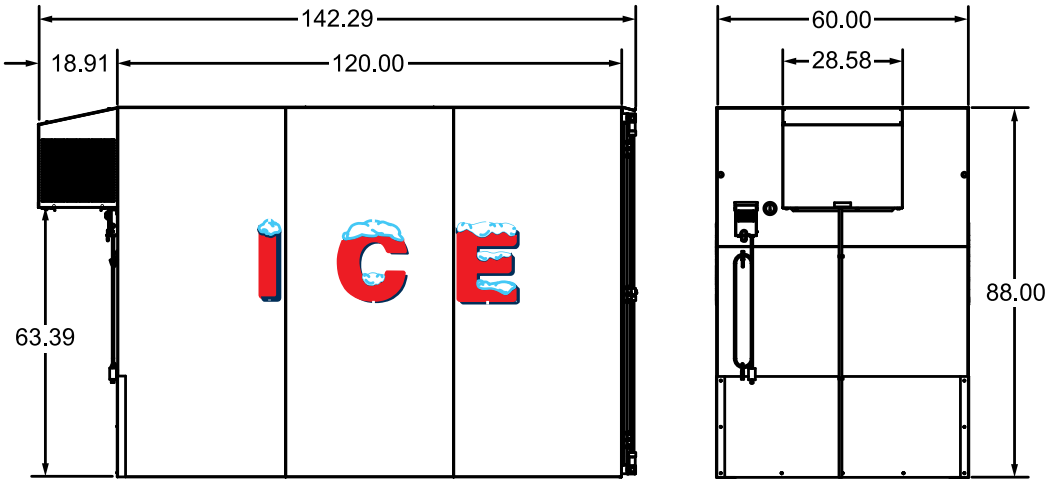
Optional Trailer Information		
MODEL	Model 4 X 8	Model 5 X 10
Trailer Type	Steel frame with dual torsion axles	
Trailer Size (L x W)	N/A	183.87 x 86. (467.02 x 128.44)
Trailer Weight Empty lb (kg)	N/A	1370 (621.4)
Trailer Weight w/Transport body lb (kg)	N/A	2740 (1242.8)
Optional Generator Weight Dry/Wet lb (kg)	N/A	180/237 (81.6/107.5)
Trailer GVWR	N/A	9990 (4531.4)
Trailer Weight w/Full Load	N/A	Approx, 7000 (3175.1)
Axle rating each lb. (kg)	N/A	5200 (2358.7)
Brake type	Electric drum brakes with battery back up	
Hitch Type	2 5/16" ball, height adjustable	
Tire size/type	225/75R15 Load Range E	
Tire Inflation Pressure	55 PSI	

2.3 Exterior Dimensions

Refer to Figures 2-1 and 2-2 for the exterior dimensions of the transport models and the data tag location.



4 X 8 DIMENSIONS



5 X 10 DIMENSIONS

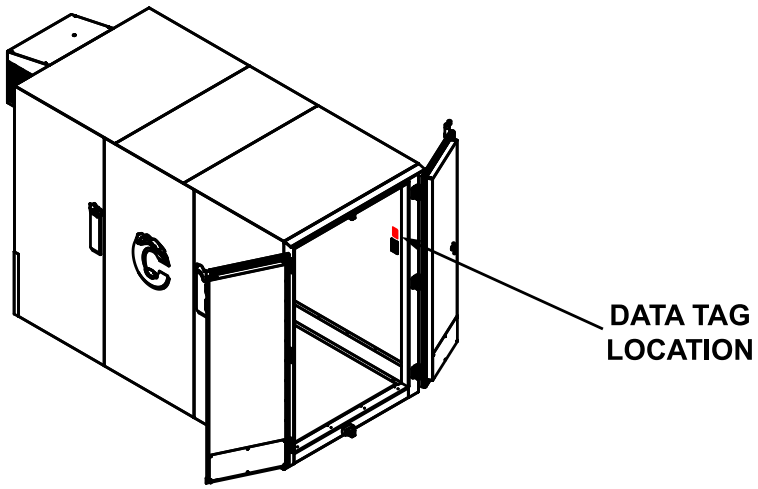
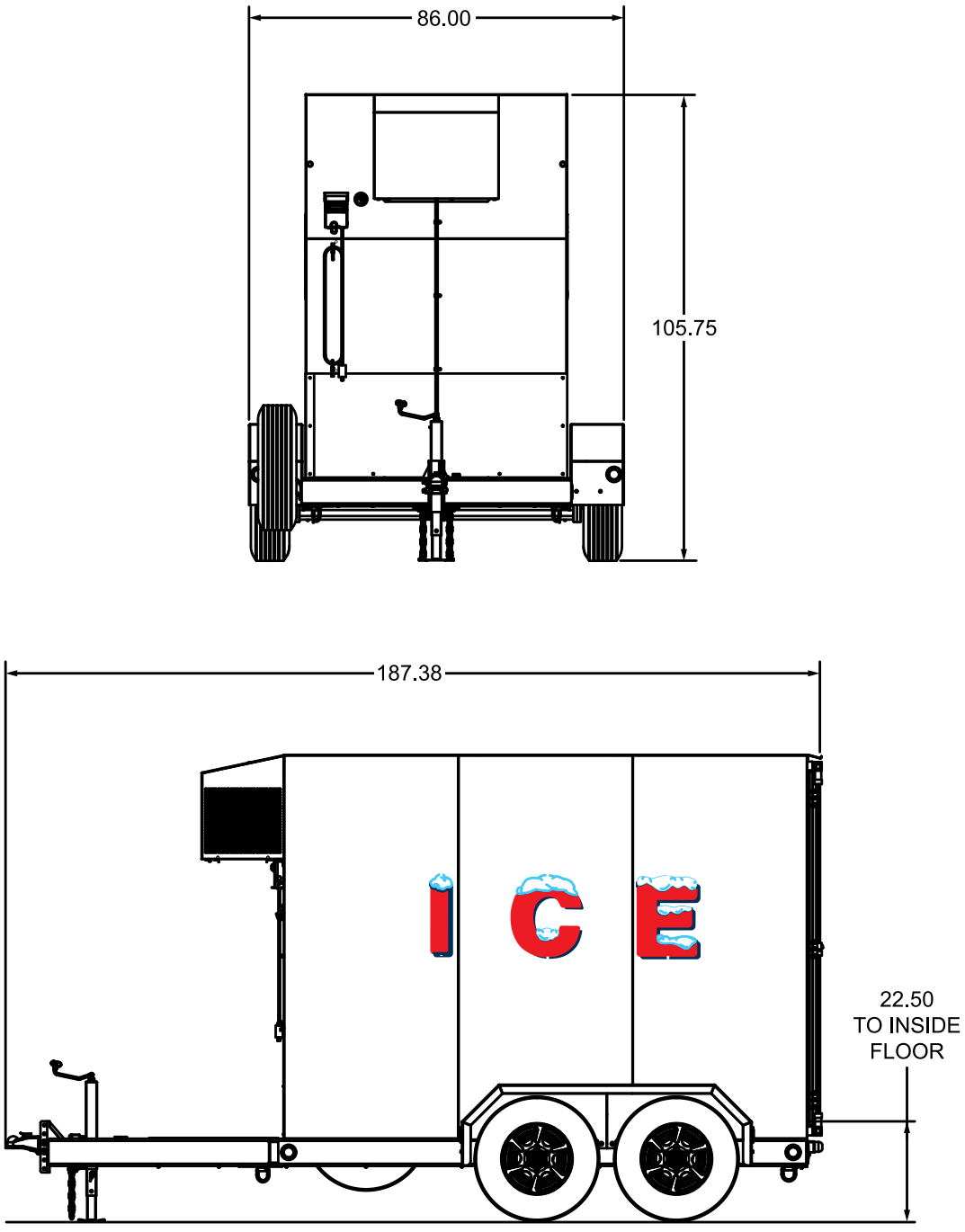


Figure 2-1



5 X 10 WITH OPTIONAL TRAILER DIMENSIONS

Figure 2-2

2.4 Transport Model Component Locations

Refer to Figure 2-3 for the location of components on transport units

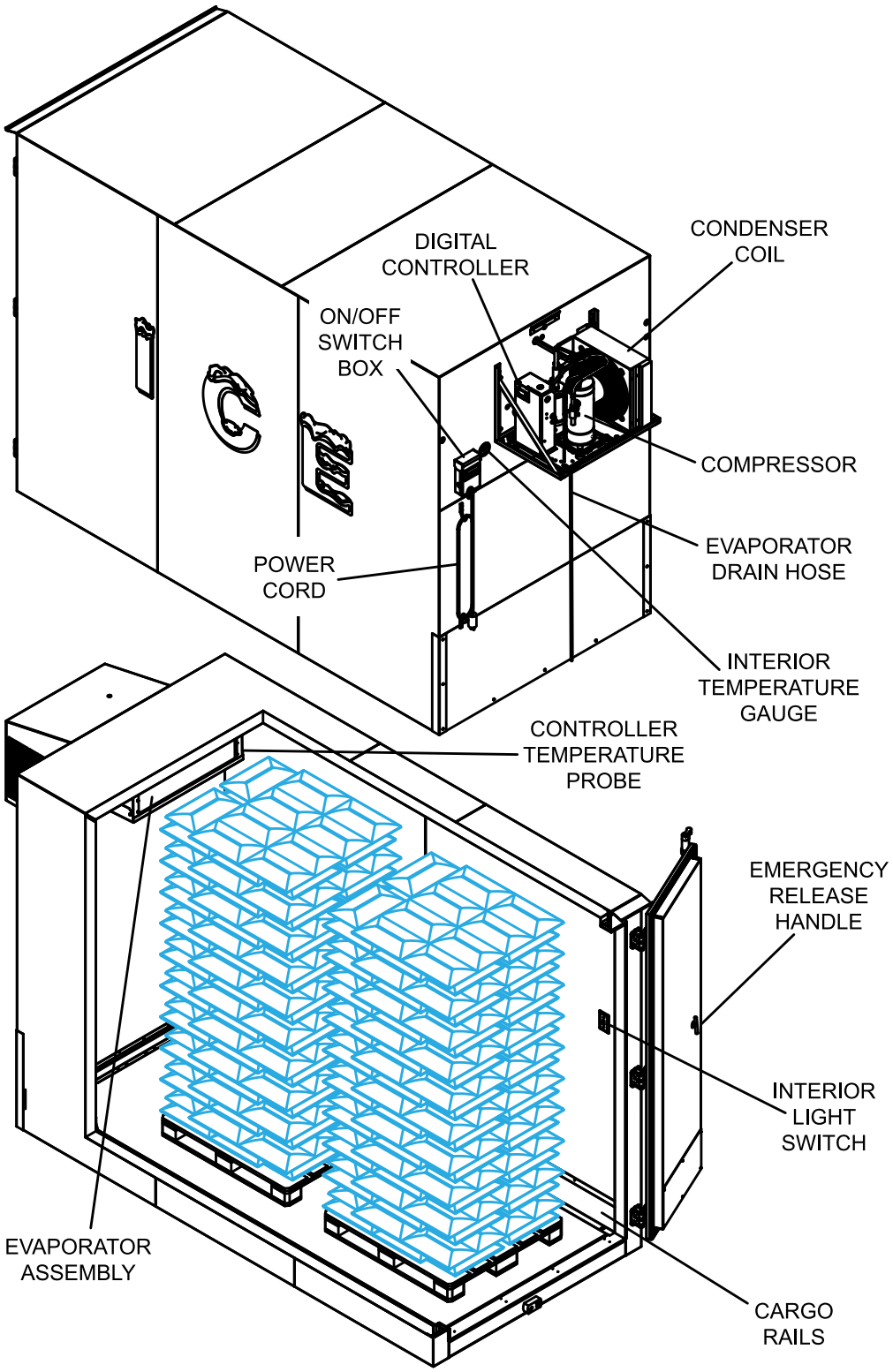


Figure 2-3

Digital controller: the controller operates the refrigeration system on a programmed cycle whenever the power cord is connected to a source and the ON/OFF switch is in the “ON” position.

Compressor and condenser coil: exterior parts of the refrigeration system, refer to section 5.4 for maintenance instructions.

Drain line: drain for melt water from the evaporator assembly on Auto-Defrost models.

Interior temperature gauge: analog display of the temperature inside the transport box.

Power cord: Electrical power cord with a plug configured for a 120V/60Hz, 20 Amp power source.

ON/OFF switch box: circuit breaker equipped switch for turning the power supply to the refrigeration system and interior light on or off.

Controller temperature probe: digital controller probe for the evaporator temperature – do not block with ice or relocate the probe.

Emergency release handle: used to open the door from the inside of the transport in case of accidental closure. Turn the t-handle counter-clockwise; this will release the latch hardware on the outside of the door, push the door to open.

Interior light switch: switch for the LED interior light.

Cargo rails: used to keep the loaded pallets centered in the transport and to prevent stacking directly against the walls.

Evaporator assembly: interior parts of the refrigeration system, refer to section 5.5 for maintenance instructions.

2.5 Optional Trailer Components

Refer to Figure 2-4 for locations of optional trailer components.

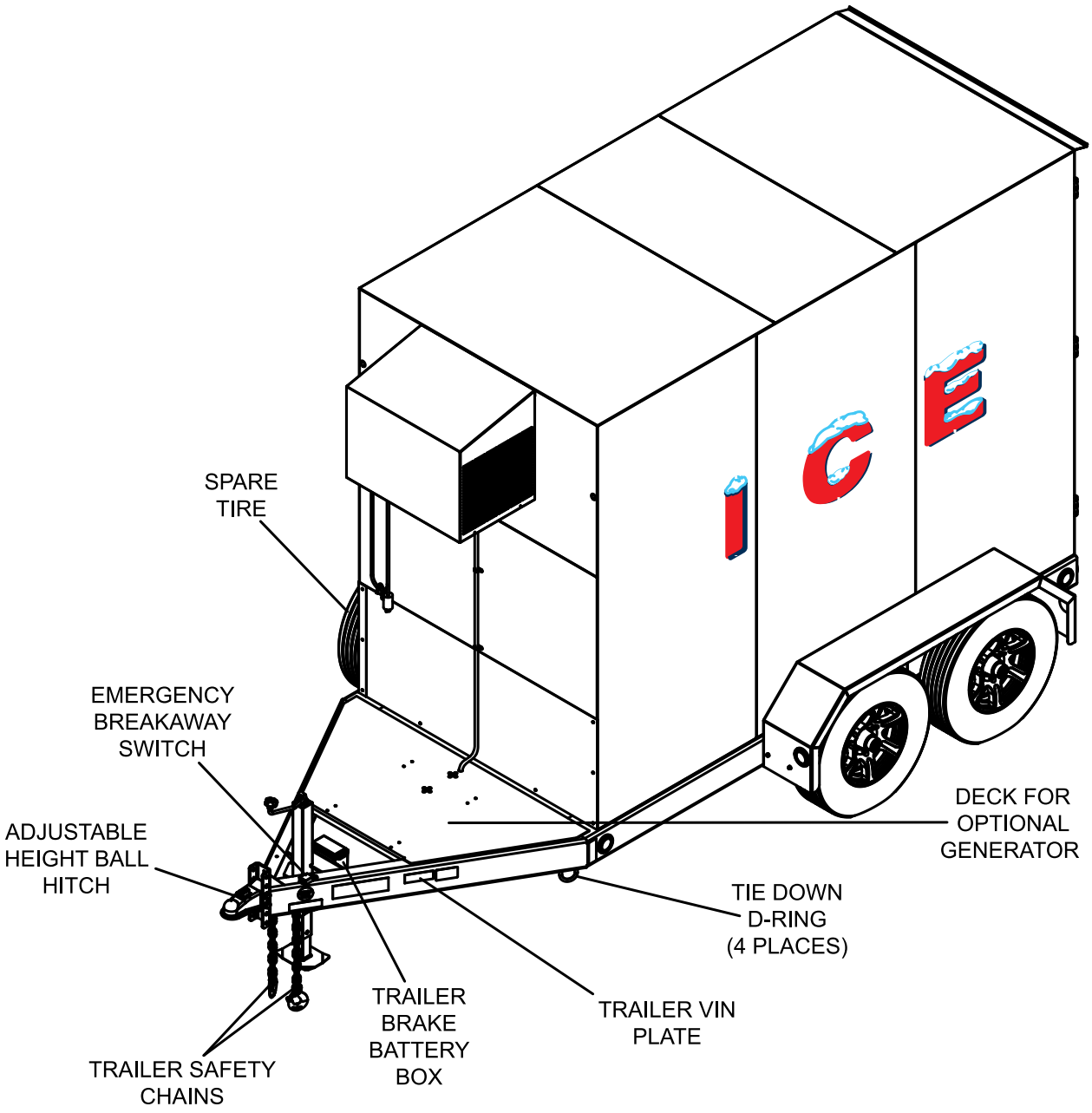


Figure 2-4

Spare tire: Spare tire and wheel assembly for the trailer.

Emergency breakaway switch: the switch will activate the trailer brakes in the event of a hitch or coupling failure and the trailer separating from the tow vehicle. The switch lanyard must be connected to the rear bumper of the tow vehicle before moving the trailer.

Adjustable height ball hitch: the hitch requires a 2 5/16-inch hitch ball on the tow vehicle. The hitch may be raised and lowered.

Trailer safety chains: chains keep the trailer from rolling free in the event of a hitch or coupling failure.

Trailer brake battery box: the battery will supply power to the electric brakes in the event of a hitch or coupling failure and the trailer separating from the tow vehicle.

Trailer VIN Plate: location of trailer Vehicle Identification Number.

Tie down D-ring: used for tying the trailer down for shipping.

Deck for optional generator: predrilled holes allow for mounting of a portable generator and securing it with chain and a padlock as well.

2.6 Emergency Release Handle

Using the emergency release handle: In the case of accidental entrapment inside the transport box the door can still be opened from the inside.

On 4 x 8 models, locate the plunger on the door, lift it and push outwards to trip the handle and open the door, refer to Figure 2-5.

On 5 x 10 models, locate the T-handle on the door and turn the handle counterclockwise. This unscrews the latch hardware from the door on the outside of the box, allowing the latch to fall free and the door may be pushed open by hand.

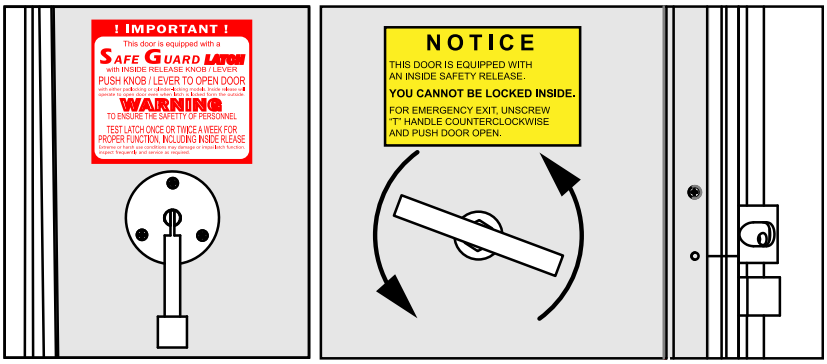


Figure 2-5

Section 3 - Transport, Unpacking, & Installation

3.1 Transporting the Unit

When unloading and moving the Leer transport box from the truck to the permanent location, a few things will need to be performed and considered:

- Make sure the load size is considered when unloading the shipment and verify the lifting device being used can support the shipment's weight. Weights and dimensions can be found in Section 2 of this manual.
- Make sure the fork tines of the forklift are long enough and positioned wide enough to provide adequate support of the shipment. **FORKLIFT FROM THE SIDES OF THE TRANSPORT BOX ONLY**, refer to Figure 3-1.
- If lifting straps are required, verify the load capacity of the straps and that the maximum capacity will not be exceeded.
- A thorough inspection of the unit must take place to make sure that no damage has occurred during the shipping process.

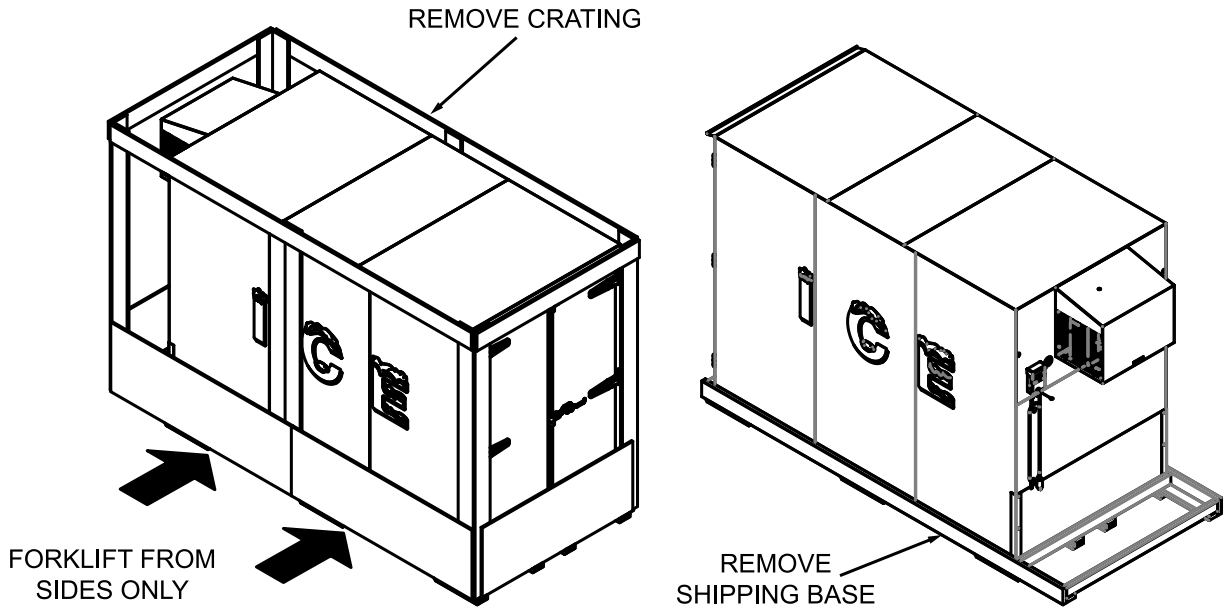


Figure 3-1

3.2 Unpacking the Unit

NOTE: Thoroughly inspect this unit before and after uncrating for possible damage that may have occurred during the shipping process. If damage is apparent, note damage on the delivery receipt before driver leaves. Damage claims not noted on the delivery <u>WILL NOT</u> be assessed.

Remove the outer wrapping and the crating from the sides of the shipment first, then remove the shipping base from the bottom, refer to Figure 3-1. Optional items may be included in

separate boxes that are shipped inside the transport box. Be sure to remove and inventory these items as well as check for possible shipping damage to the optional items and the inside of the unit.

3.3 Installation

Mounting the unit to a truck or trailer: When attaching the transport to a truck or trailer body or frame, it must be securely bolted to at a minimum of six (6) for the 5X10 or four (4) for the 4X8 structural support locations. Use the carriage bolts recommended below. Install one bolt at each corner of the door wall and one bolt at each corner of the compressor wall. Due to truck structure and variations on make and model, mounting locations may vary.

NOTE: Buyer is responsible to select the correct size and weight of truck or trailer and to securely bolt the transport to their truck or trailer frame.

Extra structural support has been added internally to the transport bodies that will allow bolt attachments at multiple locations. Figures 3-3 and 3-4 will show the locations of the reinforcing blocks that are internal to the transport body.

CAUTION!

Due to different placement of truck and fuel tanks, extreme care must be taken when drilling bolt holes to prevent perforating the fuel tank(s) or fuel/brake line(s). Leer Inc. is not responsible for any damages caused by modification of equipment.

Recommended bolt size is at least .5" X 6.5"

When attaching the transport body**:**

- Remember to hold the drill perpendicular (at 90 degrees) to the transport floor to ensure the hole is straight.
- At a minimum, use new locking hardware (such as nylon insert nuts) and large flat washers to secure the transports. The use of a thread locking compound is recommended on all fasteners.

Always seal any holes for fasteners with NSF approved caulk on both sides of the hole to reduce any water entry to the transport structure.

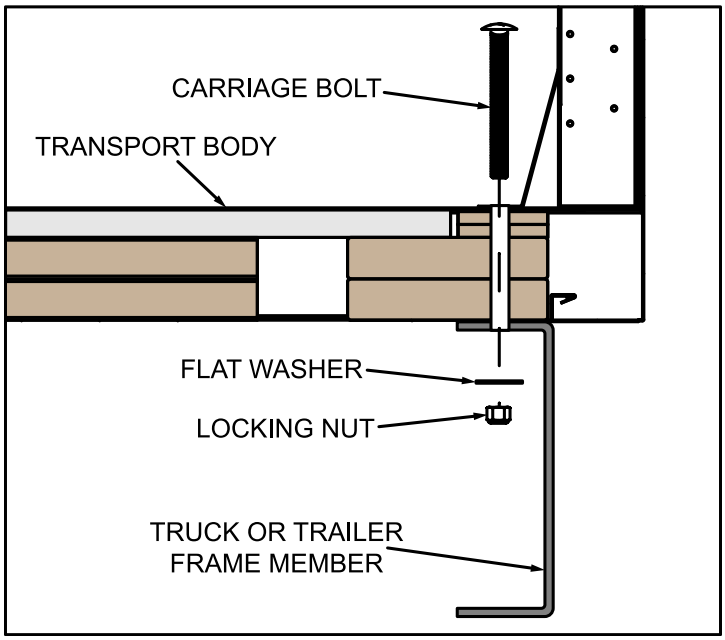
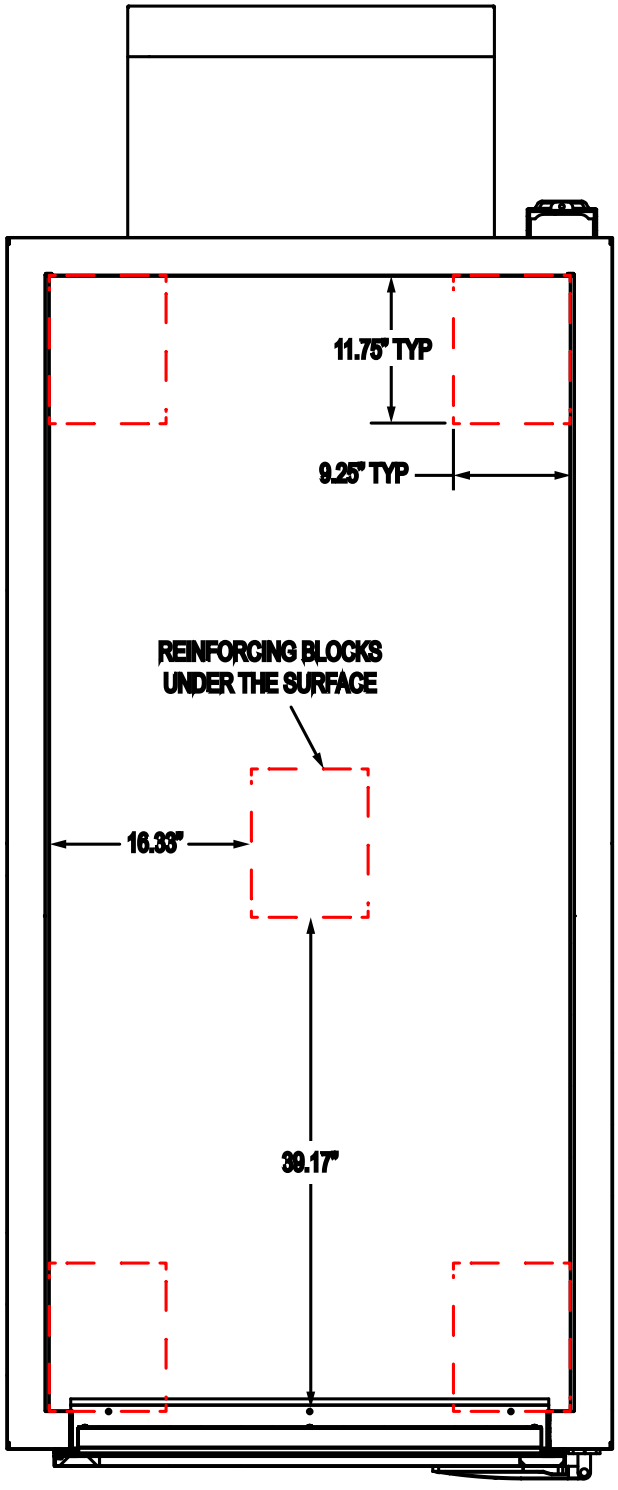
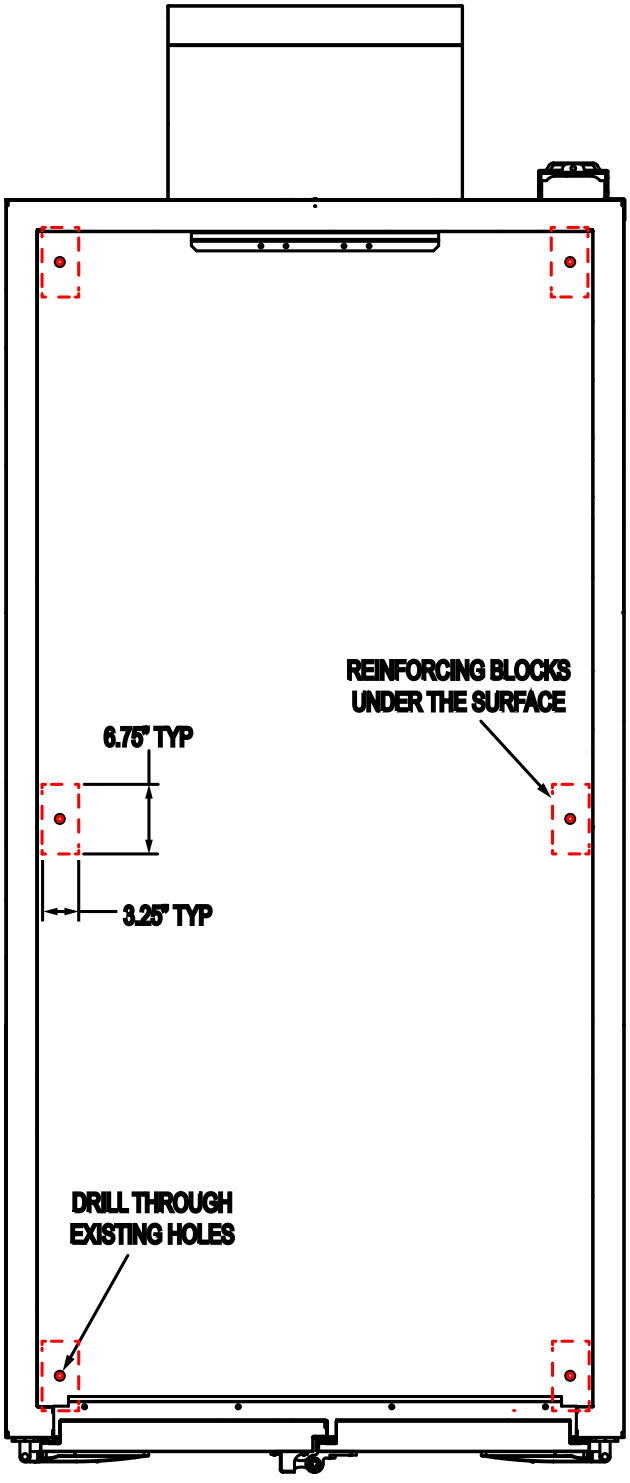


Figure 3-2



MOUNTING BLOCK LOCATIONS OF 4 X 8 TRANSPORT

Figure 3-3



MOUNTING BLOCK LOCATIONS
OF 5 X 10 TRANSPORT

Figure 3-4

Electrical connections: Electrical service connections must be in accordance with the National Electrical Code, state and any local codes that may apply. The electrical voltage and frequency must coincide with the transport serial tag. All transports are pre-wired with a polarized electrical cord with 3-prong NEMA 5-20P plug.

WARNING!
Improper use or removal of the grounding plug can result in a risk of electrical shock.

The transport refrigeration unit must be connected to a dedicated 120-volt, 60 Hz grounded electrical outlet with a 20-amp circuit breaker or fuse.

NOTE: DO NOT use standard extension cords! An extension cord must have adequate wire size (AWG or American Wire Gauge) for safety. The smaller the gauge number of the wire, the greater the capacity of the cable, that is, 10 gauge has more capacity than 14 gauge. An undersized cord will decrease the voltage to the refrigeration unit and ultimately cause the compressor to fail prematurely. Only use heavy-duty extension cords with a wire size of 10 AWG, with a total length of 50 feet or less.

The power cord is permanently hard-wired to a heavy duty on-off switch. The switch is in a water-resistant housing with a flip up cover.

NOTE: Buyer must provide electrical box locking device for safety and secure closure, refer to Figure 3-5.

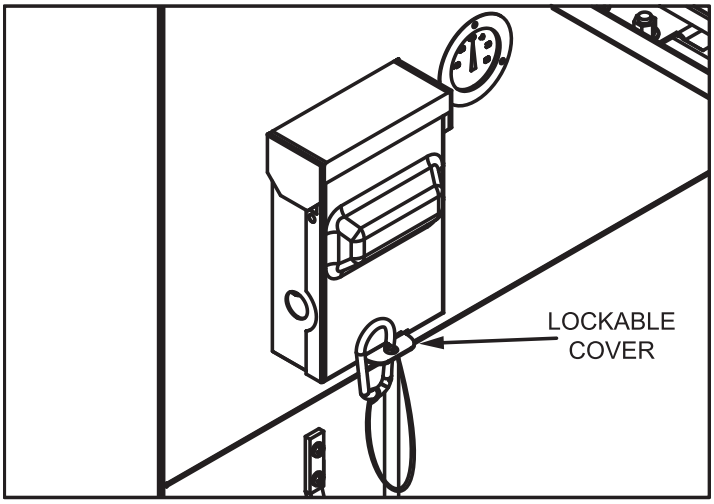


Figure 3-5

3.4 Towing a Trailered Unit

If your transport box is mounted on a trailer, either your own or the optional trailer purchased from Leer, Inc., driving a vehicle that is pulling a trailer is very different than normal operation. Acceleration, maneuverability, and braking are affected by pulling a trailer and adjustment to normal driving habits will need to be made. You will need to spend time adjusting to the different feel and maneuverability of the tow vehicle with a loaded trailer and you are responsible for keeping your vehicle and trailer in control. For these reasons the maximum towing capacity of your towing vehicle should not be exceeded. The towing capacity of your tow vehicle, in terms of maximum Gross Trailer Weight (GTW) and maximum Gross Combined Weight Rating (GCWR) can be found in the tow vehicles Owner's Manual.

WARNING!
Use of a tow vehicle with a towing capacity less than the load rating of the trailer or a hitch with a load rating less than the load rating of the trailer can result in loss of control and may lead to death or serious injury! Be sure your hitch and tow vehicle are rated for the Gross Vehicle Weight Rating of your trailer!

Note: The maximum weight of the trailer, transport body and any product loaded must not exceed 9,990 pounds.

When towing a trailer, you will have an increased turning radius (which means you must make wider turns to keep from hitting curbs, vehicles, and anything else that is on the inside corner).

Additionally, the trailer will make the tow vehicle more sensitive to steering inputs and more likely to be pushed around in windy conditions or when being passed by large vehicles. In addition, you will need a longer distance to pass, due to slower acceleration and increased length. The tow vehicle operator should always:

- Be alert for slippery conditions. You are more likely to be affected by slippery road surfaces when driving a tow vehicle with a trailer, than driving a tow vehicle without a trailer.
- Anticipate the trailer "swaying." Swaying can be caused by excessive steering, wind gusts, roadway edges, or by the trailer reaction to the pressure wave created by passing trucks and busses.
- When encountering trailer sway take your foot off the gas, and steer as little as possible in order to stay on the road. Use small "trim-like" steering adjustments. Do not attempt to steer out of the sway; you'll only make it worse. Also do not apply the tow vehicle brakes to correct trailer swaying.
- Check rearview mirrors frequently to check the trailer and observe traffic.
- Use a lower gear when driving down steep or long grades. Use the engine and transmission as a brake. Do not ride the brakes, as they might overheat.
- Be aware of your trailer height, especially when approaching bridges, roofed areas and around trees.

3.5 Attaching a Leer Trailered Unit

The optional trailer used by Leer for the transport body uses a 2 5/16-inch ball type hitch. Proper selection and condition of the coupler and hitch are essential to safely towing a trailer. A loss of coupling may result in death or serious injury. Hitch size must ALWAYS match coupler size. Be sure hitch load rating is equal to or greater than load rating of the coupler.

Be sure all hitch components are tight before coupling trailer to tow vehicle. Inspect the hitch for wear, corrosion and cracks before coupling. Replace worn, corroded or cracked hitch components before coupling trailer to tow vehicle. An improperly coupled trailer can result in death or serious injury. Do not move the trailer until:

- Coupler is secured and locked to hitch.
- Safety chains are secured to tow vehicle.
- The trailer jack is fully retracted.
- All tires and wheels are checked.
- The trailer brakes are checked for operation
- The breakaway switch cable is connected to the tow vehicle.
- The trailer lights are connected and checked.

To adjust the height of the ball hitch, refer to Figure 3-6 and follow the steps below:

1. Back the tow vehicle up to the trailer, making sure the hitch on the trailer is lined up with the tow vehicle so the height difference can be easily compared – the trailer should be kept as level as possible to ensure good weight distribution across all four tires.
2. Remove the locking nuts on the trailer hitch. Save the flat washers for re-installation.

Note: Do not re-use nylon insert locking nuts. ALWAYS discard them and replace them with new hardware.

3. While hold the ball hitch, pull the bolts and flat washers free.
4. Adjust the hitch to the desired height and install BOTH bolts removed in step 3.
5. Secure the bolts with the flat washers removed in step 2 and NEW locking nuts. Tighten the nuts to 138 lb-ft of torque.

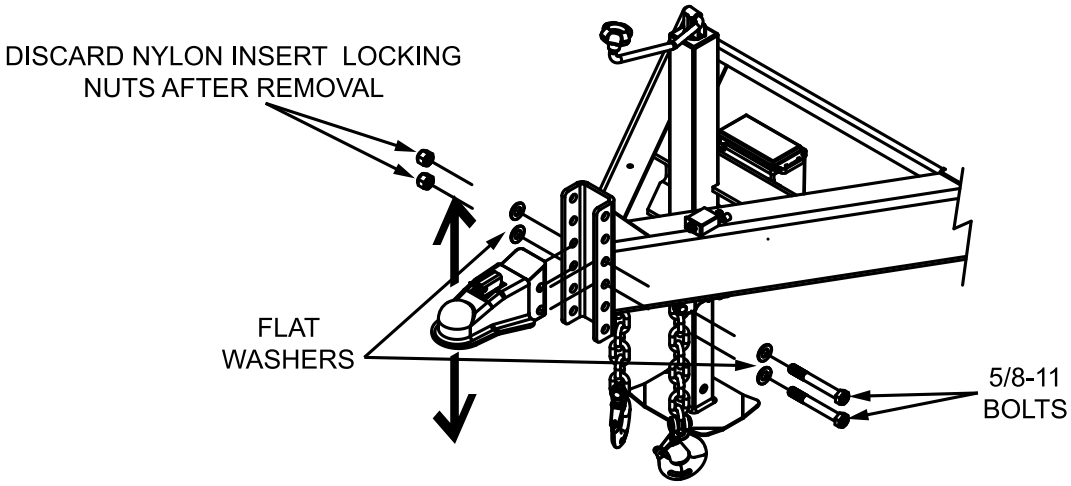


Figure 3-6

Once the hitch has been adjusted to the correct height, the trailer can be coupled to the tow vehicle. A film of grease on the hitch ball will extend coupler life and eliminate squeaking. Wipe the coupler clean and apply fresh grease each time the trailer is towed. Make sure the hitch is unlocked before lowering it onto the ball, making sure it snaps into the locked position when done, refer to Figure 3-7.

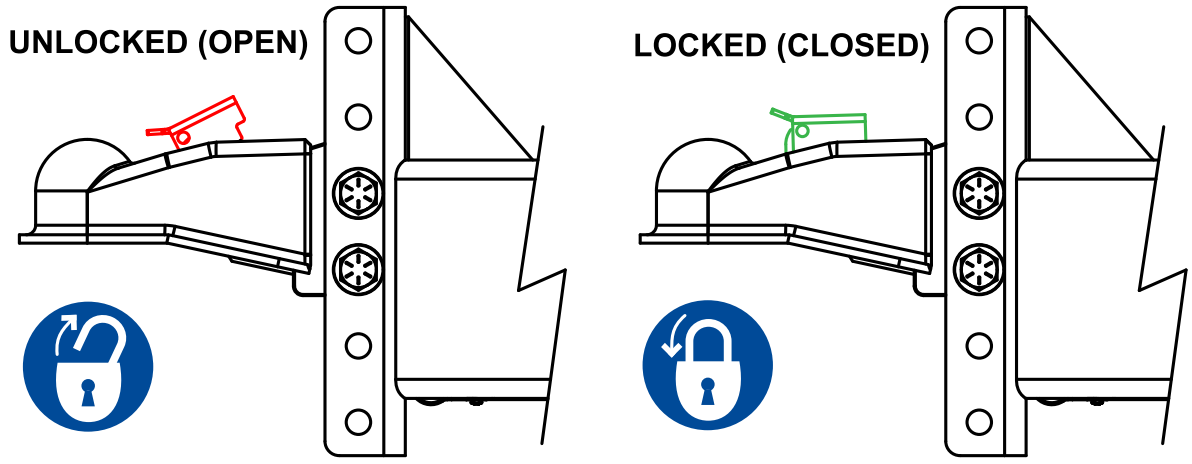


Figure 3-7

To check if the hitch is properly locked, use the trailer jack to raise the tongue of the trailer – if locked correctly you should be able to raise the rear of the tow vehicle slightly when extending the jack.

Lower the trailer tongue onto the tow vehicle and observe the amount travel once the trailer weight is fully settled on the tow vehicle – adjust the hitch height if the tongue weight exceeds 10-15% of the empty trailer weight. Raise the trailer jack completely and then raise the jack foot by pulling the pin at the bottom and securing the foot again once it's fully raised.

Attach the safety chains on the trailer to the tow vehicle by crossing then under the trailer tongue and connecting them to anchors specifically designed tow chain hooks. Make sure the hooks are attached and the spring-loaded clip on the hook is closed and that the chains do not contact the ground. Attach the 7-blade RV trailer brake and lighting connector to the tow vehicle and then attach the emergency brake lanyard to the bumper, refer to Figure 3-8.

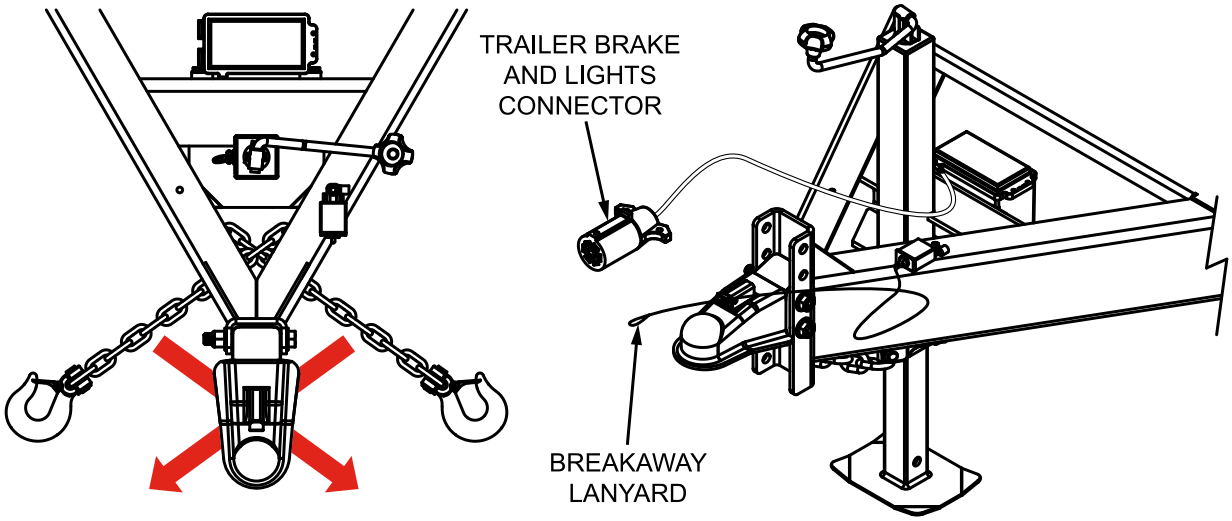


Figure 3-8

3.6 Towing Safety

Before you start towing the trailer, read and understand all of the instructions for inspection, testing, loading and coupling. Also, before you start towing, adjust the tow vehicle mirrors so you can see the trailer as well as the area to the rear of it. Before towing the trailer on the road make sure that:

- Coupler is secured and locked to hitch.
- Safety chains are secured to tow vehicle.
- The trailer jack is fully retracted.
- Trailer brakes are checked, including the charge of the breakaway battery.
- Tires and wheels are checked.
- Breakaway switch is connected to tow vehicle.
- The trailer lights are connected and checked.

Drive slowly at first, 5 mph or so, and turn the wheel to get the feel of how the tow vehicle and trailer combination responds, turning with a trailer attached requires more room. If the tow vehicle is equipped with a trailer brake controller, try using different combinations of trailer/electric brake and tow vehicle brake. Note the effect that the trailer brakes have when

they are the only brakes used. When properly adjusted, the trailer brakes will come on just before the tow vehicle brakes.

Additional information on the trailer and towing properly can be found in the trailer manufacturers owner's manual.

3.7 Tire Safety

The National Traffic Safety Administration (NHTSA) has published a brochure (DOT HS 809 361) that discusses all aspects of Tire Safety, as required by CFR 575.6. This brochure is reproduced in part below. It can be obtained and downloaded from NHTSA, free of charge, from the following web site:

http://www.nhtsa.dot.gov/cars/rules/TireSafety/ridesonit/tires_index.html

Studies of tire safety show that maintaining proper tire pressure, observing tire and vehicle load limits (not carrying more weight in your vehicle than your tires or vehicle can safely handle), avoiding road hazards, and inspecting tires for cuts, slashes, and other irregularities are the most important things you can do to avoid tire failure, such as tread separation or blowout and flat tires. These actions, along with other care and maintenance activities, can also:

- Improve vehicle handling.
- Help protect you and others from avoidable breakdowns and accidents.
- Improve fuel economy and increase the life of your tires.

This booklet presents a comprehensive overview of tire safety, including information on the following topics:

- Basic tire maintenance.
- Uniform Tire Quality Grading System.
- Fundamental characteristics of tires.
- Tire safety tips.

Use this information to make tire safety a regular part of your vehicle maintenance routine. Recognize that the time you spend is minimal compared with the inconvenience and safety consequences of a flat tire or other tire failure.

To prevent tire damage, slow down if you have to go over a pothole or other object in the road. Do not run over curbs or other foreign objects in the roadway and try not to strike the curb when parking.

Tire Safety Checklist:

- Check tire pressure regularly (at least once a month), including the spare.
- Inspect tires for uneven wear patterns on the tread, cracks, foreign objects, or other signs of wear or trauma.
- Remove bits of glass and foreign objects wedged in the tread.
- Make sure your tire valve stems have valve caps.
- Check tire pressures before going on a long trip.
- Do not overload your tow vehicle OR trailer.
- Check the Tire Information and Loading Placard or User's Manual for the maximum recommended load for the vehicle.

- Check the tires for cupping or uneven wear – this may be an indication of broken or bent trailer or axle components.

3.8 Reporting Trailer Defects

If you believe that your trailer has a defect that could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying the trailer manufacturer, located on the VIN tag on the trailer tongue.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, the trailer manufacturer, or Leer, Inc.

To contact NHTSA, you may either call the Vehicle Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424- 9153), go to http://www.nhtsa.gov; or write to:

Administrator, NHTSA
1200 New Jersey Ave. SE.
Washington, DC 20590.

You can also obtain other information about motor vehicle safety from http://www.nhtsa.gov.

Section 4 – Operation

4.1 How the System Works

There are four main elements to a refrigeration system:

- The Compressor
- The Condenser
- The Metering/Expansion Device
- The Evaporator

As with any refrigeration system, it cannot make cold – it can only remove heat. If a system is operating at 0°F and the interior of the transport body is 20°F, the 0-degree temperature is lower than the 20-degree temperature, so the heat is transferred (absorbed into the cold) from the higher temperature to the lower one until an equilibrium is achieved.

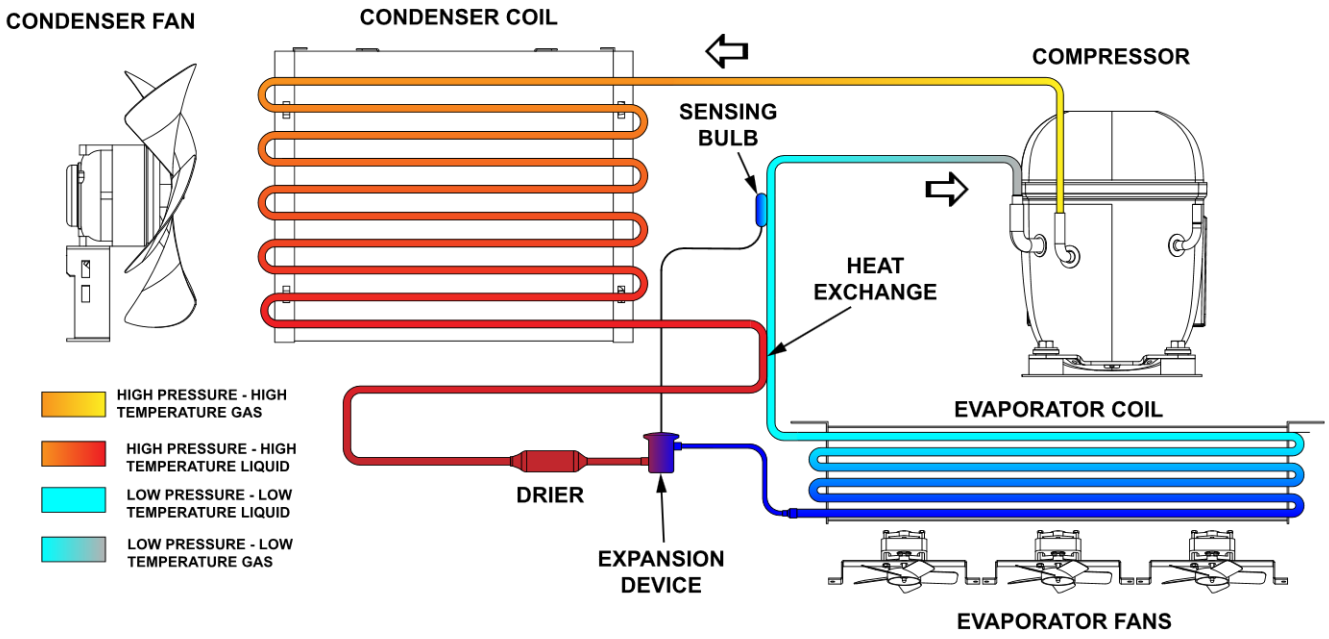


Figure 4-1

The compressor: Compression is the first step in a refrigeration cycle. A motor driven compressor is used to convert the refrigerant medium from an incoming low-pressure, low-temperature gas to an outgoing high-pressure, high-temperature gas.

The condenser: The condenser (or condenser coil) is one of two types of heat exchangers used in a refrigeration cycle. The high-pressure, high-temperature gas from the compressor is routed through the coil and a fan removes heat from the hot refrigerant vapor gas vapor until it condenses into a saturated liquid state. The medium is now a high-pressure, high-temperature liquid.

The metering/expansion device: When the refrigerant enters a thermostatic expansion valve (TXV) or thermal expansion valve, a pressure drop occurs. This pressure drop will cause some

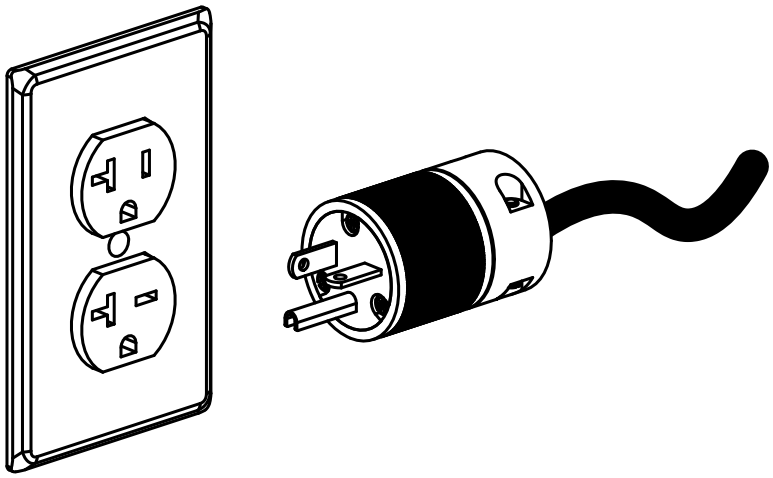
of that refrigerant to quickly boil, creating a two-phase mixture (liquid and gas). This phase change is called flashing and the medium is now a low-pressure, low-temperature liquid.

The evaporator: The evaporator is the second heat exchanger in a standard refrigeration circuit, and it absorbs the heat form the interior of the transport body. Remember, even 20°F air has heat in it - if the evaporator has 0-degree (20 degrees colder) refrigerant, the heat will move from warm to cold.

On auto defrost models an evaporator coil has fans pushing air across the coil to remove the heat in the air as it passes over the colder coil. As the heat is absorbed the refrigerant is returned to the compressor as a low-pressure, low-temperature gas. The cycle continues until the thermostat tells the system an equilibrium has been achieved, refer to Figure 4-1.

4.2 Powering Up

All transports are pre-wired with a polarized electrical cord with a 20-amp, 3-prong plug. The transport refrigeration unit must be connected to a dedicated 120-volt, 60 Hz grounded electrical outlet with a circuit breaker. A 20-amp circuit is required, due to the shape of the cord plug, see Figure 4-2. The condensing unit data plate will indicate the maximum circuit breaker size required. Any electrical service connections must be in accordance with the National Electrical Code, state, and any local codes that may apply.



20 AMP PLUG AND RECEPTACLE

Figure 4-2

WARNING!
Improper use or removal of the grounding plug can result in a risk of electrical shock and injury!

NOTE: DO NOT use standard extension cords! An extension cord must have adequate wire size (AWG or American Wire Gauge) for safety. The smaller the gauge number of the wire, the greater the capacity of the cable, that is, 10 gauge has more capacity than 14 gauge. An undersized cord will decrease the voltage to the refrigeration unit and ultimately cause the compressor to fail prematurely. Only use heavy-duty extension cords with a wire size of 10 AWG, with a total length of 50 feet or les.

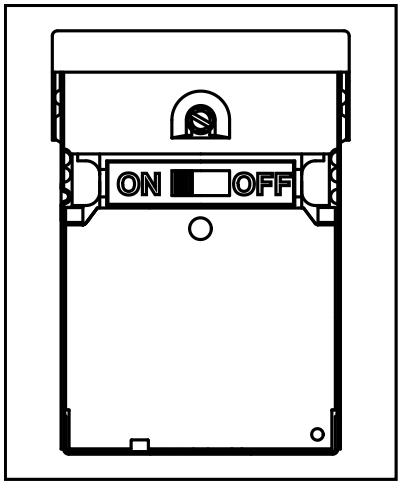


Figure 4-3

Open the electrical box on the front of the transport and slide the switch to the OFF position. Plug the power cord into the electrical outlet and slide the switch to ON, refer to Figure 4-3. After a 2-minute delay, the compressor and the condenser fan should start, and the evaporator fans will start as well on Auto-Defrost models. The condensing unit will continue to run until the temperature set by the controller is achieved.

NOTE: If a defrost cycle is needed at start up the controller will enter a defrost cycle after the initial 2 minute delay. Normal refrigeration will start once the defrost cycle has been completed.

4.3 Using a Portable Generator

The transport refrigeration system can be powered by a portable generator if regular electrical service is not available. Use a 120-volt, 60 Hz generator with a peak capacity of at least 7,500 watts and a running output of at least 5,500 watts, to ensure that there is enough power to start the refrigeration compressor, and it must be equipped with a 20-amp receptacle to receive the power cord.

NOTE: Do not modify the power cord if the generator does not have a 20-amp circuit.

Attach the generator to the front deck of the trailer, using the holes provided, and U-bolts with locking hardware sized to fit the generator frame, refer to Figure 4-4. Check the hardware every three months for wear, corrosion, loose or missing parts.

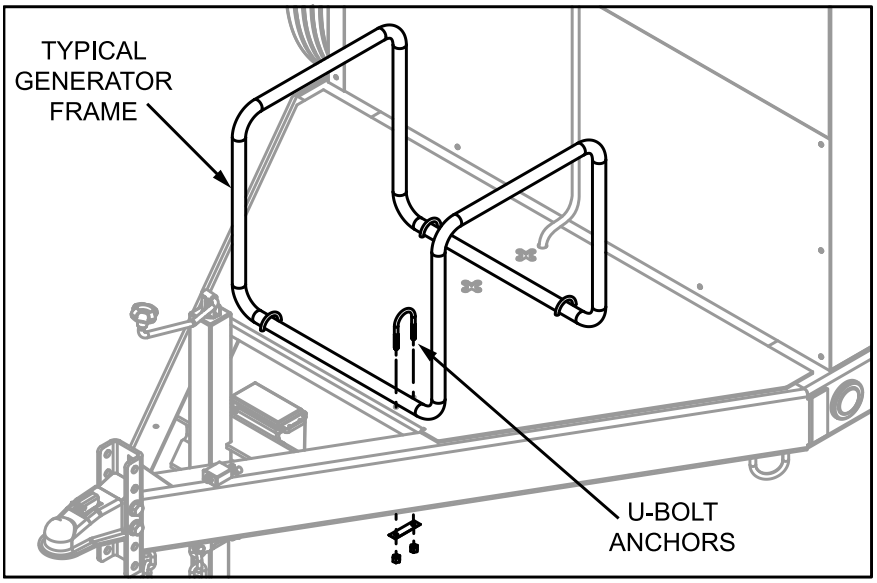


Figure 4-4

4.4 Setting the Temperature

The transport controller is located under the compressor cover on the front of the unit, refer to Figure 2-1. The controller features are described below, refer to Figure 4-5.

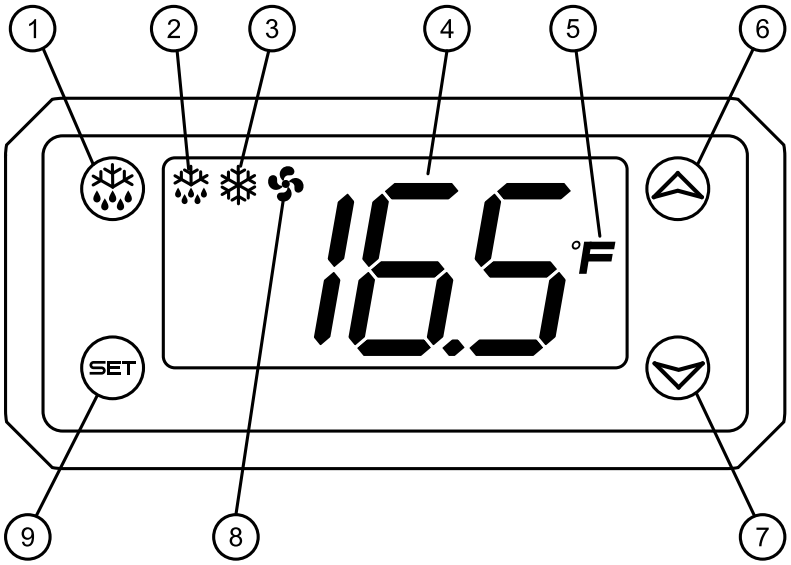


Figure 4-5

1. **Defrost button:** Used to initiate defrost cycle – see controller manual.
2. **Defrost mode:** Defrost enabled when on.
3. **Compressor mode:** Compressor operating when on, flashing when delaying between cycles.
4. **Temperature display:** Display of current temperature, temperature setpoints.
5. **Temperature units (°F/°C):** Temperature in degrees Fahrenheit or Celsius.
6. **UP arrow:** Used to display parameter codes or increase the displayed value.
7. **DOWN arrow:** used to display parameter codes or decrease the displayed value.
8. **Fan Operation:** Fan operating when on, flashing when delayed after defrost.
9. **Set button:** Used to display target set point and the real set point; in programming mode it selects a parameter or confirms an operation.

The control also offers monitoring of the operational status of the transport via the icon and digital temperature display. The controller has been programmed by Leer to operate within the design parameters of the refrigeration system. The condensing unit will continue to run until the air temperature in the cabinet reaches the factory set point temperature of +16°F, with a differential of 6°F (16 to 22 degrees Fahrenheit).

The Auto-Defrost contains two thermocouple probe wires. Both probe wires are routed through the cabinet evaporator line hole and into the evaporator assembly, which is mounted to the interior ceiling of the cabinet. The Red Air Sensing Probe (“P1”) routes through the evaporator and has its sensing bulb secured to the outer wall of the evaporator. Probe “P1” monitors the air temperature in the transport at that location. During normal operation of the control, the digital display will show the transport temperature at the probe “P1” location.

The Black Probe “P2” is inserted into the finned section of the evaporator coil, near the top of the evaporator assembly. This probe monitors the temperature of the evaporator coil during the defrost cycle.

4.6 Loading the Transport

NOTE: The transport should be pre-chilled to its working temperature before loading any product. Allow the transport to run until it reaches 16°F for full temperature saturation.

Refer to the specifications table in Section 2 for the capacity of your specific model. When loading the transport:

1. Make sure the product going into the transport is cold and at storage temperature. This will allow the transport to operate more efficiently since it will not have to run to remove heat from the product being loaded.
2. Keep door openings to a minimum. Fewer door openings help keep the refrigerated air inside and allow for less warm air to enter the box, especially in warmer climates or on hot days.
3. Avoid “shoving” the pallets across the transport floor. Use a pallet jack to move product from the door opening to the end of the transport or use a forklift with longer tines. Shoving one pallet deeper into the transport with another can damage the pallets or the floor of the transport.
4. Allow for air circulation. Do not overfill the transport with product or stack it directly against the walls. The transport needs air circulation inside to maintain temperature, refer to Figure 4-6.
5. Keep product 12” away from the evaporator fans. The evaporator uses heat to defrost the coils and placing product too close could cause it to thaw or melt. Also, blocking off the fans may restrict the even distribution of cold air throughout the transport which may result in warm spots developing within the cabinet.

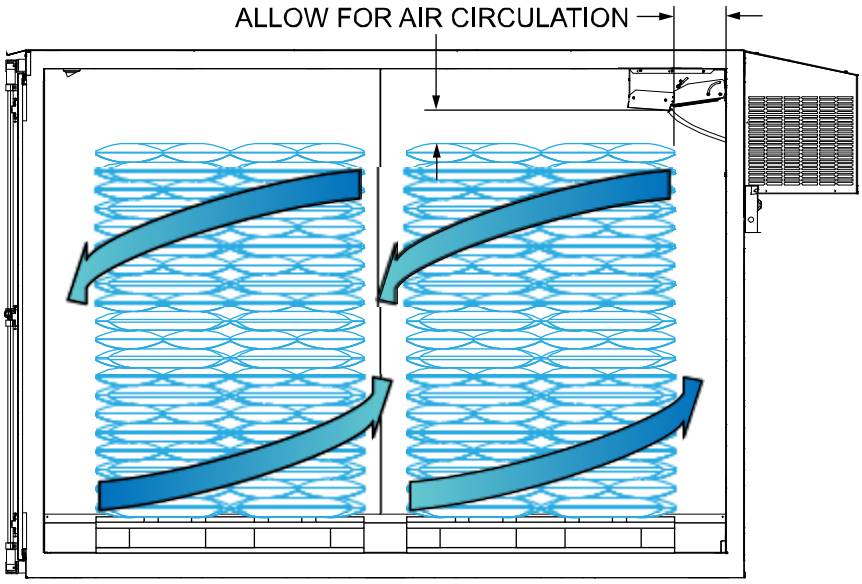


Figure 4-6

4.7 Changing the Operating Temperature

To change the operating temperature of the transport body, remove the compressor cover on the front of the unit and locate the controller. The unit can be set to operate at a maximum low temperature of -4°F to a maximum high temperature of +44°F; to view the current set point press the “SET” button on the controller. To change the temperature, refer to Figure 4-7.

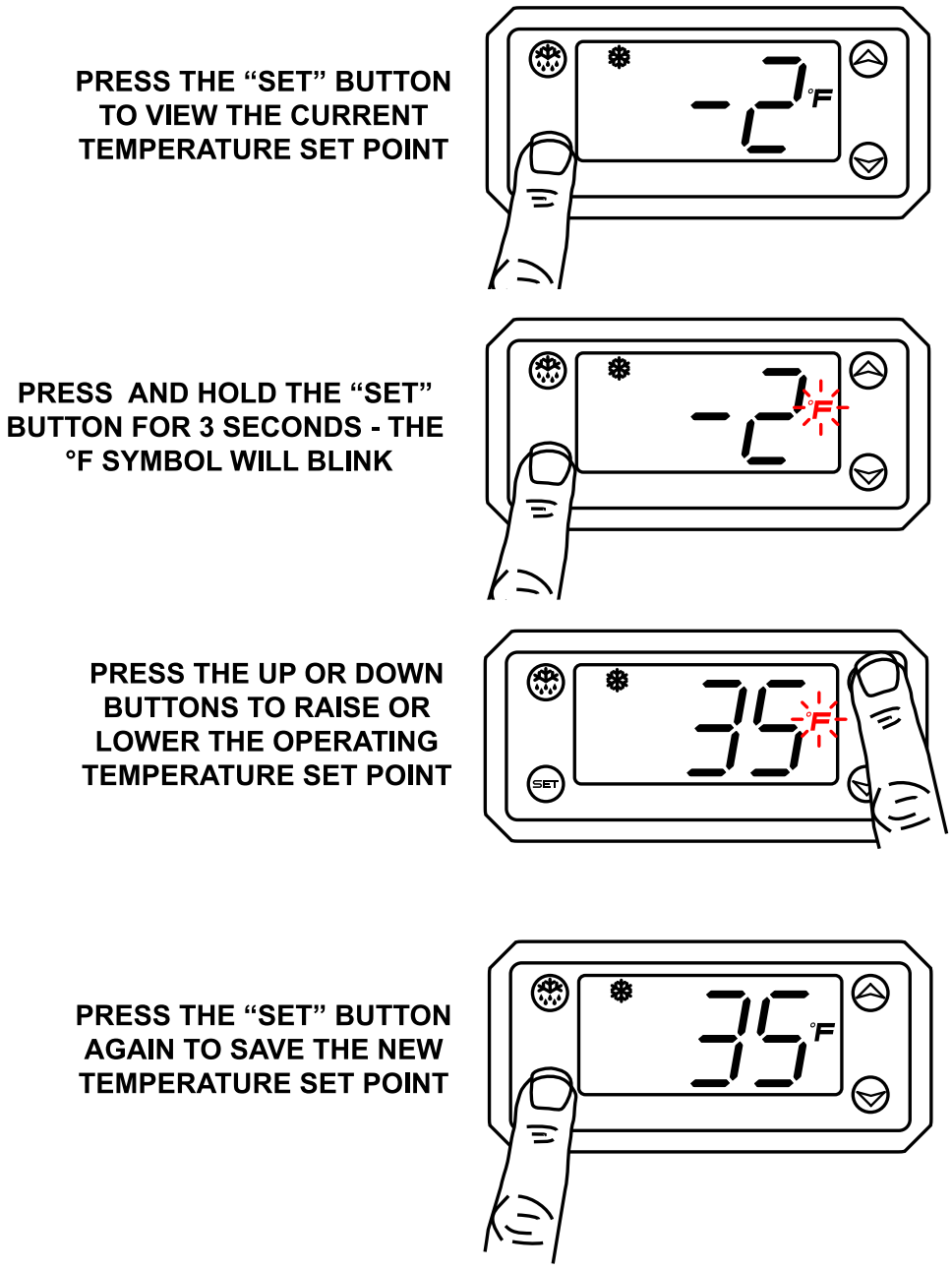


Figure 4-7

Section 5 - Maintenance

5.1 General Information

Regular service and upkeep will keep your transport operating efficiently. Visually inspect the transport for damage or obvious failure before use each time.

WHEN THE UNIT IS IN OPERATION:	EVERY DAY	EVERY 3 MONTHS	EVERY 6 MONTHS	EVERY YEAR	AS NEEDED
Verify operation on the electronic display	■				
Check interior temperature via exterior gauge	■				
Verify the doors close tight and there are no gaps in the door gaskets	■				
Verify drain line is open and free of ice	■				
Remove compressor cover and inspect for leaks or damage		■		■	
Clean condenser coils and fan		■		■	■
Verify evaporator heater is working on Auto-Defrost models		■		■	
Clean the evaporator coils, fans and drain pan		■		■	■
Check for leaks/broken caulk lines, repair as needed			■	■	■
Check door hinges for worn or missing components, repair as needed			■	■	■
Perform defrost and clean the interior and door gaskets			■	■	■
Check compressor cut-in and cut-out temperatures				■	
Check interior temperature and perform calibration				■	
Clean the exterior			■	■	■

WHEN THE UNIT IS ON A TRAILER:	EVERY DAY	EVERY 3 MONTHS	EVERY 6 MONTHS	EVERY YEAR	AS NEEDED
Check the trailer tires for proper inflation, wear, damage, or foreign objects	■				
Inspect hitch components for wear, broken or missing components	■				
Verify wheel lug nut tightness	■				
Test breakaway battery charge level, Inspect lanyard and switch	■				
Inspect safety chains and hooks for wear, broken or missing components	■				
Verify the doors close tight and there are no gaps in the door gaskets	■				
Verify drain line is open and free of ice	■				
Remove compressor cover and inspect for leaks or damage		■		■	
Clean condenser coils and fan		■		■	■
Verify evaporator heater is working on Auto-Defrost models		■		■	
Clean the evaporator coils, fans and drain pan		■		■	■
Check for leaks/broken caulk lines, repair as needed			■	■	■
Check door hinges for worn or missing components, repair as needed			■	■	■
Perform defrost and clean the interior and door gaskets			■	■	■
Check compressor cut-in and cut-out temperatures				■	
Check interior temperature and perform calibration				■	
Clean the exterior			■	■	■

NOTE: Component parts shall only be replaced with like components. Maintenance and repair of the electrical and refrigeration systems should only be done by trained and qualified personnel. Disconnect power before performing service, certain models may contain multiple voltages.

5.2 Cleaning the Transport

The transport should be cleaned semi-annually. In corrosive environments such as coastal regions and areas where deicing chemicals and road salts are used, more frequent cleaning is recommended. Clean the transport only when the unit is unplugged from a power source and the start switch is set to OFF.

For the interior: When cleaning the interior of the transport, use household dishwashing detergents with low or no odor, dilluted in warm water followed with a clear water rinse. DO NOT use detergents with strong odors (i.e. citrus based cleaners and any form of solvent based cleaners) or abrasive cleaners. They may leave objectionable odors inside the cabinet which may be absorbed by the product being stored in the transport. Rinse and allow the unit to dry with the doors open before returing it to service, refer to Figure 5-1.

NOTE: Do not use bleach or ammonia to clean inside of unit as it may cause damage to the evaporator coil aluminum fins

Door gaskets: Door gaskets may mildew and stiffen over time. The gasket is made of a soft, flexible rubber-like material that can be cleaned using most kitchen and bath cleaners designed for mildew removal. Review manufacturer information and instructions on any cleaning agent prior to use to determine the cleaner's compatability with the surface being cleaned, refer to Figure 5-1.

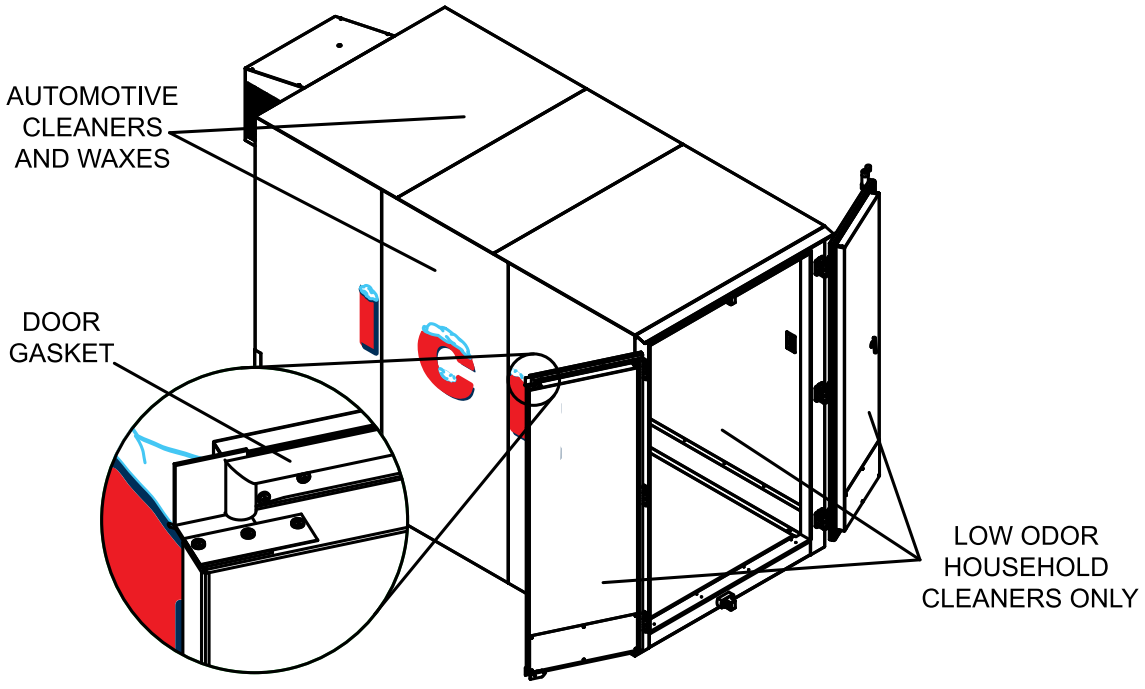


Figure 5-1

For the exterior: Visually inspect the transport for damage, corrosion or loose or missing hardware. If the unit is mounted on a trailer with the optional portable generator, be sure to cover the generator before washing.

The exterior of the transport can be cleaned with the use of household automotive detergents dilluted in warm water followed with a clear water rinse. Take extreme care to avoid spraying water into the condensing unit and electrical controls.

The exterior paint is capable of withstanding the use of automotive polishing compounds and most solvents. If using stronger cleaning agents, they should be tested on a small, inconspicuous areas prior to application onto visible surfaces of the transport, refer to Figure 5-1.

5.3 Defrosting the Transport

The transport body should be defrosted semi-annually to prevent the buildup of ice or frost that may cause odors or problems with product loading. The Auto-Defrost transport is designed to be self-defrosting but ice buildup on the doors or floor will need to be done manually.

Auto-Defrost models: Auto-Defrost models are designed to be self-defrosting and enter defrost mode once every three hours on a programmed cycle. During the defrost operation, power is sent to the defrost circuit heating coil and the condensing unit and evaporator fans do not run.

The heat generated by the defrost heater element will melt the ice buildup on the evaporator coil and the resulting water will drain through a tube out of the front wall of the transport. It is recommended to check the operation and condition of the evaporator coil and for signs of excessive ice buildup every 3 months.

For a full defrost prior to cleaning, product will need to be emptied from the interior and the power to the transport disconnected. This will raise the interior surfaces of the transport above freezing to melt any remaining buildup of ice from the interior surfaces. On trailer mounted units the tongue should be elevated to help meltwater drain from the rear of the cabinet.

The defrost process can be accelerated with the addition of warm air being circulated into the transport box with a fan or small heater. As the ice buildup softens, a plastic ice scraper may be utilized to aid in the removal of ice from the walls of the transport if necessary.

WARNING:
DO NOT use metal ice scrapers, ice picks, or hammers as these tools may inadvertently penetrate through the wall of the cabinet, puncture the evaporator tubing or wiring, and cause irreparable damage.

5.4 Refrigeration System Maintenance

Cleaning the condenser coils: Dirty or clogged condenser coils will cause poor performance of the refrigeration system by not allowing efficient heat transfer to take place, causing the compressor to run for longer periods of time. The condenser fan and coils should be cleaned every three months to ensure proper operation, more if operating in very dusty conditions. To clean the coils follow the steps below and refer to Figure 5-2:

WARNING:

Wear PPE (safety glasses and respirator or dust mask) when cleaning the condenser coils. Fine particles may be released into the air that could cause personal injury.

1. Move the transport outdoors if possible.
2. Move the power switch to the OFF position and once the unit is powered down, disconnect the power cord from the source receptacle.
3. Remove the the screws securing the compressor cover to the unit (6 places, 3 per side).
4. Lift the cover straight up and then pull forward to remove – there is a tab mounted on the transport body that secures the rear edge of the cover.
5. Blow the coils and fan clean with compressed air in the opposite direction as the airflow when the unit is operating, refer to Figure 5-2.
6. Inspect the condenser coils for any signs of refrigerant leaks or damage.
7. Check the fan for any loose blades and make sure it turns easily.
8. Inspect the mounting hardware for the brackets, replace any loose or missing hardware.
9. Install the cover and secure it with the screws removed in step 3.

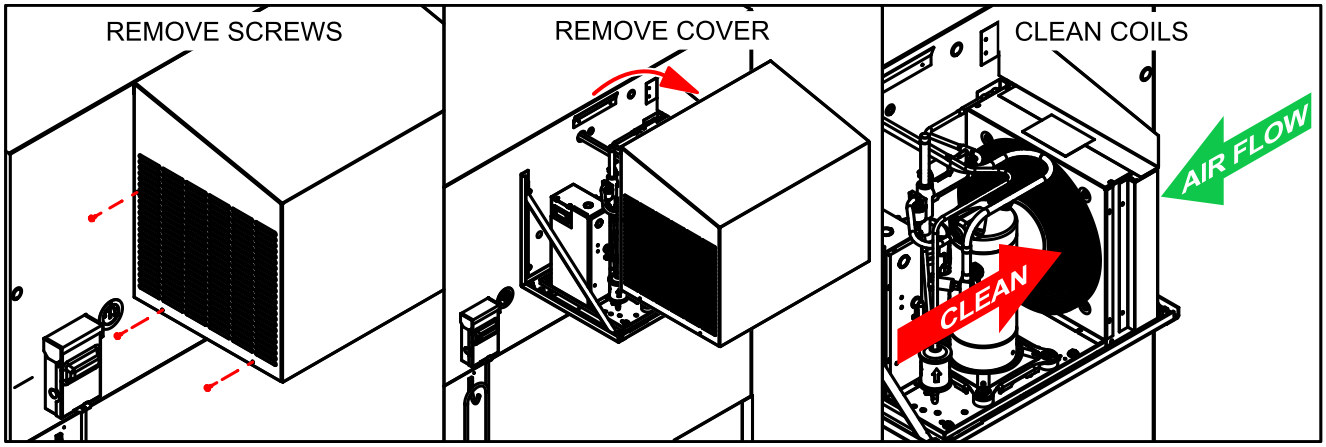


Figure 5-2

Calibration of the temperature gauge: The temperature gauge is located next to the power switch box. It reads the ambient air temperature in the box via a probe that is mounted to the front wall. Thermometers are factory tested for accuracy; however, they may change during shipment or after maintenance procedures are done. To check the accuracy of the gauge:

1. Remove the temperature probe from the p-clip securing it to the front wall of the transport.
2. Fill a large (32 oz.) cup with ice and then fill it with cold water.
3. Insert the temperature probe into the cup until it is fully submerged.
4. Wait 30 seconds and then check the reading on the gauge; it should read 32 degrees with a high and low tolerance of two degrees. Calibration is not required if test results are within this range.

If the gauge reads TOO LOW (below 32°F): If the indicated temperature needs to be HIGHER, remove the gauge cover as shown in Figure 5-3. Gently hold the pointer in place and turn the hub/needle assembly counterclockwise. Release the needle and adjust it again until the desired reading is indicated. Replace the gauge cover by pressing it into place.

If the gauge reads TOO HIGH (above 32°F): If the indicated temperature needs to be LOWER, remove the gauge cover as shown in Figure 5-3. Gently hold the pointer in place and turn the hub/needle assembly clockwise. Release the needle and adjust it again until the desired reading is indicated. Replace the gauge cover by pressing it into place.

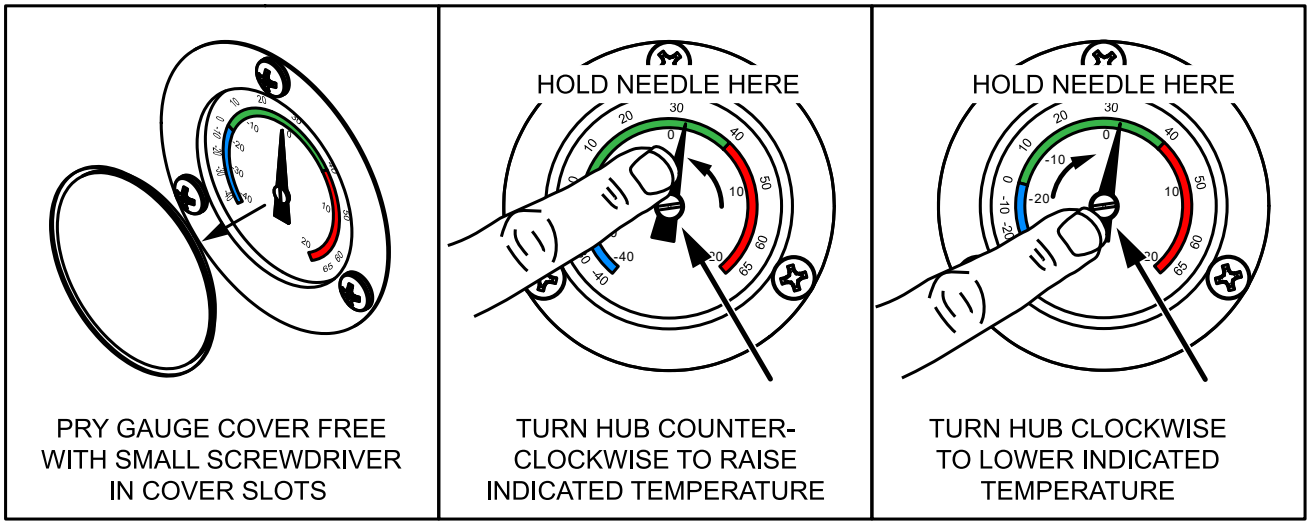


Figure 5-3

Cleaning the evaporator assembly: Dirty or clogged evaporator coils will cause poor performance of the refrigeration system by not allowing efficient heat transfer to take place inside the transport box. Clogged evaporator coils will not allow cold air to circulate freely, causing uneven temperatures and possible thawing/melting of product.

1. Move the power switch to the OFF position and once the unit is powered down, disconnect the power cord from the source receptacle.

2. Disconnect the drain hose from the evaporator pan. Remove the the screws securing the evaporator pan to the evaporator assembly (4 places, 2 per side) and lower the pan down, refer to Figure 5-4.

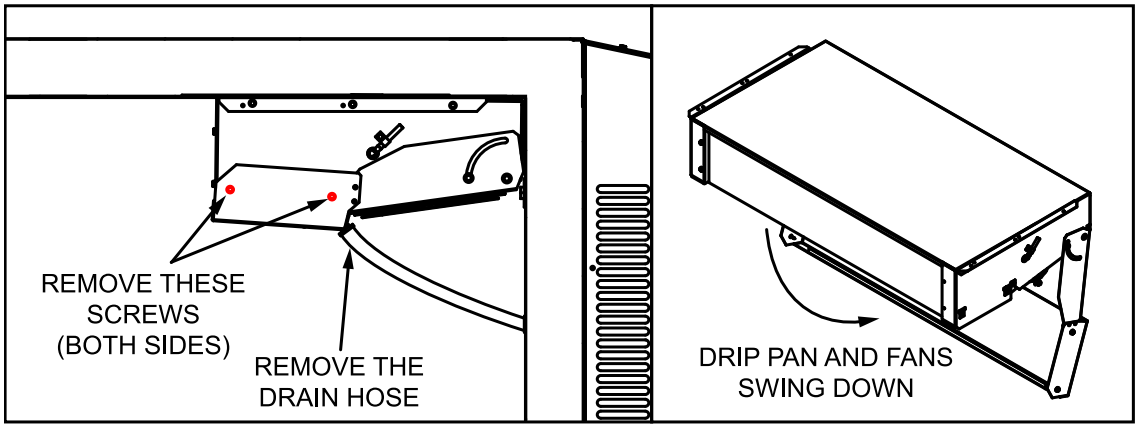


Figure 5-4

3. Check the drain pan for ice, which may be a sign of a blocked drain hose or the heater coil not functioning properly. Remove any buildup and check the drain hose that is on the outside of the transport as well for blockage, refer to Figure 5-5.
4. Inspect the evaporator coil for dust and dirt; clean the coils with compressed air if necessary. Make sure the evaporator fans spin freely and check them for loose blades or hardware, repair or replace as necessary.

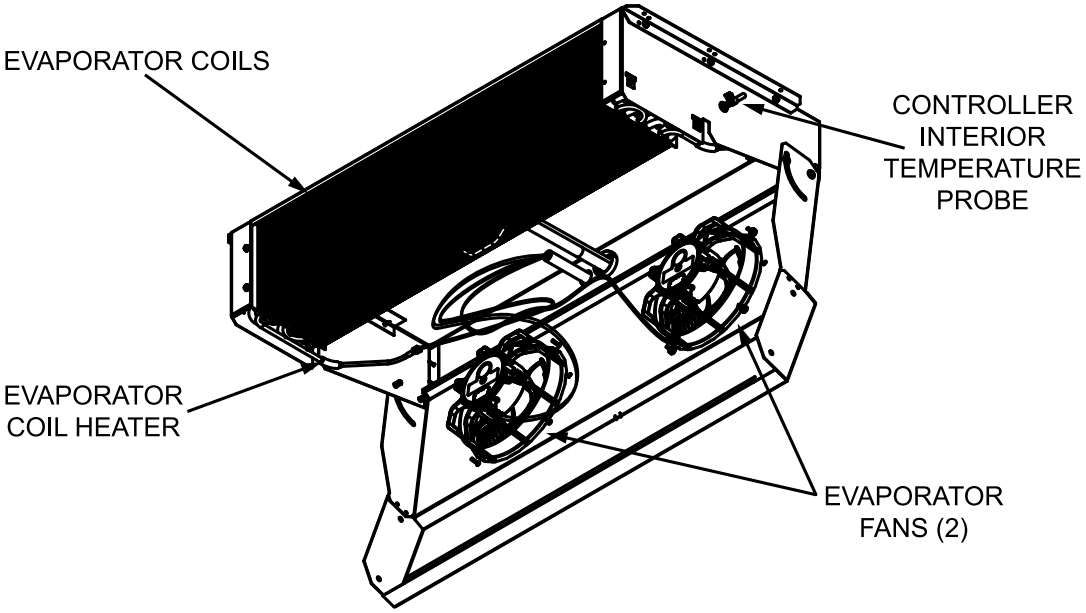


Figure 5-5

Checking the evaporator coil heater operation: The evaporator coil heater is the main component that makes Auto-Defrost models possible. The heater operates at pre-set intervals, usually every 3 hours, to melt any accumulated frost on the evaporator coil assembly. The compressor and evaporator fans will stop, the heater element will warm up, and the resulting melt water will drain out of the transport box via the drain tube. Excessive ice buildup can be an indication of a faulty heater, a blocked drain, or both. To check the coil heater operation:

1. Remove the compressor cover to gain access to the electronic controller. Initiate a defrost cycle by pressing the defrost button and the display will show a dripping snowklake, refer to Figure 5-6.

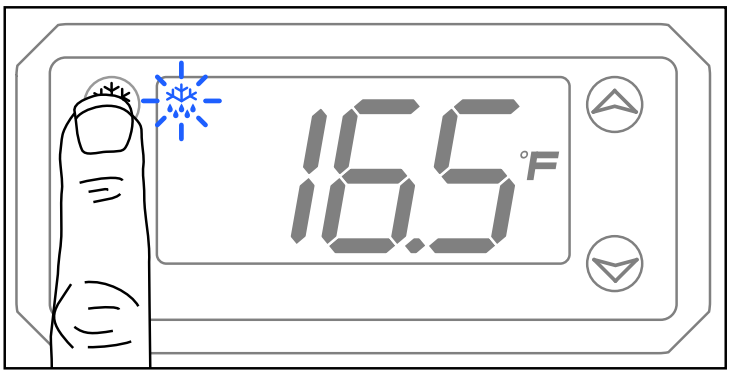


Figure 5-6

NOTE: Probe "P2" (inserted into the finned section of the evaporator coil) must be below the termination temperature set on the controller.

2. Inside the transport box lower the evaporator pan and see if the defrost heater is warming the evaporator coils.

WARNING:

ELECTRIC SHOCK HAZARD. This unit operates on electrical voltages that may cause injury or death. Use extreme care when servicing the electrical components of this unit.

3. If the heating element is not getting warm, check for voltage at the yellow wire (position 7) on the back of the digital XR06 controller, it should reflect the incoming line volatge (120 VAC) when in defrost mode. If the voltage is not present, the controller should be replaced.
4. Check for voltage before and after the defrost termination safety switch when in defrost mode. The termination switch must be below 70°F – if the temperature is higher the switch will remain open and not send voltage to the coil heater, refer to Figure 5-7.
5. If voltage is present after the termination switch, the heating element itself may be faulty. Move the power switch to the OFF position and once the unit is powered down, disconnect the power cord from the source receptacle.
6. Locate the spade terminals on each end of the coil heater. Unplug the connectors and use a multimeter set to Ohms to measure the resistance of the coil heater, refer to Figure 5-8. It should be at 18 ohms at 70°F, with a tolerance range of +/- 10% (19.8 - 16.2 Ohms). If the reading is not within the specified range the coil heater must be replaced.

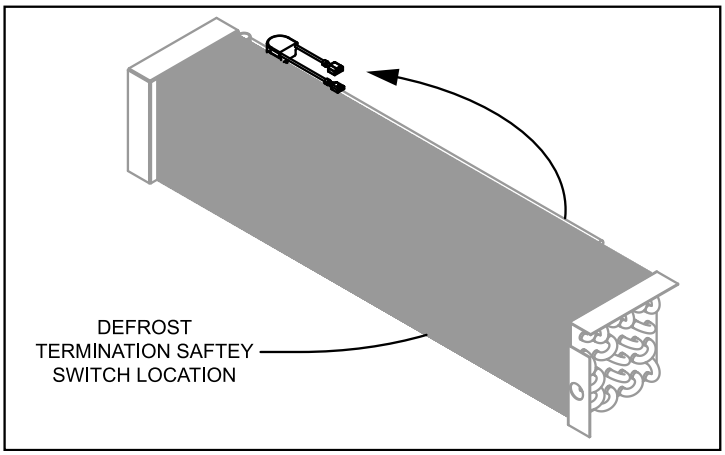


Figure 5-7

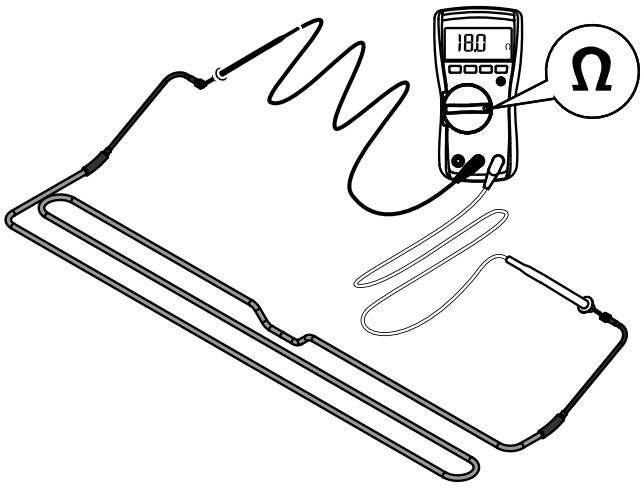


Figure 5-8

Section 6 - Troubleshooting

6.1 Troubleshooting Tables

Many issues with a Leer transport can be solved by using the troubleshooting table. Use extreme care when diagnosing the unit if the cover on the compressor is removed; very hot or very cold parts may be in close proximity to hands or arms.

WARNING:
ELECTRIC SHOCK HAZARD. This unit operates on electrical voltages that may cause injury or death. Use extreme care when servicing the electrical components of this unit.

If a problem cannot be resolved after consulting the table call Leer technical service at **1-800-766-5337.**

Problem	Possible Cause	Action
Transport box not operating.	Power switch located on the front switch box turned off.	Turn power switch on.
	Power cord unplugged.	Plug in power cord.
	Fuse blown / circuit breaker tripped.	Replace fuse/reset circuit breaker.
	dF showing on controller display (if equipped).	At initial startup the controller will check to see if a defrost cycle is needed by the P2 probe temperature.
	Receptacle for power cord not working.	Check receptacle for power with power meter.
	Improper voltage supplied to cabinet / overload of power circuit.	Remove extension cords or other equipment on the same circuit. Check receptacle voltage with power meter.
Transport not getting cold but compressor is operating.	Ambient temperature is too high from other sources (exhaust fans or similar).	Try to shield transport from heat sources.
	Door not closing properly.	Level the unit/trailer. Check door gasket condition. Check the door latch mechanism.
	Condenser clogged with dust/debris.~~Refrigerant leak.~~	Clean Condenser (see maintenance section).~~Contact a certified refrigeration technician to evaluate the unit.~~
	Improper or low input voltage.	Check power source and verify line voltage is 115-120VAC 60 Hz
	Refrigerant leak.~~Condenser clogged with dust/debris.~~	Contact a certified refrigeration technician to evaluate the unit.~~Clean Condenser (see maintenance section).~~
Electronic control blank, flashing, or displaying incorrect characters.	Wires disconnected at back of electronic control.	Check wiring to controller.

Problem	Possible Cause	Action
Condensing unit operating for a prolonged period or continuously.	Transport loaded with excessive amount of warm product.	Allow enough time for product to cool down.
	Prolonged door opening or door ajar.	Close door when not in use. Avoid prolonged door openings.
	Door not closing properly.	Level the unit. Check door gasket condition. Check the door latch mechanism.
	Condenser clogged with dust/debris.	Clean Condenser (see maintenance section).
	Evaporator coil blocked with ice or frost.	Defrost manually if required (see maintenance section).
Transport cabinet temperature too high.	Electronic control set too high.	Adjust control setting.
	Poor air circulation in cabinet.	Follow instructions for product loading.
	Insufficient clearance around cabinet or ambient temperature too high.	Keep at least 6”(15.24cm) free space around all sides of the transport. Make sure the air flow to the compressor is not blocked.
	Condenser clogged with dust/debris.	Clean Condenser (see maintenance section).
Door does not close tight.	Transport is not leveled.	Level the unit/trailer.
	Hinges are loose / not adjusted.	Adjust / tighten the hinge screws.
	Gasket is out of the groove.	Check gasket condition. Adjust position or replace gasket.
	Ice or frost in door opening or latches.	Check door for ice buildup or obstructions.
	Door hinge pins or bushings worn.	Check and repair door pins/bushings.
Evaporator fan does not run.	Unit in defrost cycle.	Fans do not operate during defrost cycles.
	Fan wire disconnected.	Check wiring.
	Fans blocked by ice.	Defrost manually if required (see maintenance section).
	Defrost probe not attached to the evaporator coil.	Check the location of defrost probe (see section 5.4~~4.3~~).
Evaporator cabinet is noisy.	Part(s) loose.	Locate and tighten loose part(s).
	Tubing vibrating.	Ensure tubing is not in contact with other tubing or components.

Excessive ice buildup inside unit	Transport is not leveled.	Level the unit; slight angle toward compressor is desirable.
	Door hinges are loose / not adjusted.	Adjust / tighten the hinge screws.
	Gasket is out of the groove.	Check gasket condition. Adjust position or replace gasket.
	Defrost probe not attached to the evaporator coil.	Check the location of defrost probe (see section 5.4~~4.3~~).
	Ambient humidity too high.	To prevent condensation, limit the amount of door openings.
	Evaporator fans not working.	Check fan wiring. Fans blocked with ice from clogged drain tube, defrost manually. Failed timer cycle, check controller programming.
	Evaporator coil blocked with ice or frost.	Check evaporator heat coil for operation (see maintenance section). Defrost manually if required (see maintenance section).
	Evaporator drain pan hose blocked with ice or frost.	Defrost manually if required (see maintenance section).
Electronic Display Fault Codes.	P1	Air Probe failure: The control will override the “P1” functions and cycle the compressor at 5-minute intervals, until the probe fault can be corrected.
	P2	Evaporator Probe failure: The control will override the “P2” function and operate with a timed defrost cycle, until the probe fault can be corrected.
	HA	Maximum Temperature Alarm: The cabinet air temperature has exceeded programmed temperature for a period exceeding 15 minutes. The alarm will continue to display until the cabinet temperature drops below the set maximum levels.
	LA	Minimum Temperature Alarm: The cabinet air temperature has dropped below the programmed minimum. This alarm will continue to display until the cabinet temperature rises above the minimum level.
LED lighting not working.	Light switch is off.	Check if the light switch is on.
	Faulty LED lamp.	Replace the LED lamp.

If the unit is mounted on the optional Leer trailer, the following table will help address some of the common problems that could occur during ownership. For more comprehensive information, see the manual that was supplied by the trailer manufacturer.

Problem	Possible Cause	Action
No trailer brakes.	No power to bakes	Verify trailer cord connected to tow vehicle. Check for DC voltage with power meter on tow vehicle connector. Verify good ground between tow vehicle and trailer. Check for broken connector or wiring on trailer or tow vehicle.
	Fuse blown / circuit breaker tripped.	Replace fuse / reset circuit breaker.
	Worn or defective brake solenoids/magnets.	Inspect operation of brake solenoids/magnets, replace as needed.
	Faulty brake controller in tow vehicle (if equipped).	Verify correct operation brake controller, consult controller manual.
	Brakes are not adjusted.	Inspect and adjust brakes.
Dragging trailer brakes.	Faulty brake controller in tow vehicle (if equipped).	Verify correct operation brake controller, consult controller manual.
	Worn or corroded brake components.	Inspect brakes for wear/corrosion, repair as necessary.
	Broken brake shoe return spring.	Inspect brakes for wear/corrosion, repair as necessary.
Noisy brakes.	Brakes are not adjusted.	Inspect and adjust brakes.
	Worn or contaminated brake shoes.	Inspect brake shoes for wear/contamination, clean and replace as needed.
	Bent brake baking plate.	Inspect brake backing plates, replace as needed.
	Broken brake shoe return spring.	Inspect brakes for wear/corrosion, repair as necessary.
	Trailer wheel bearings worn or adjusted incorrectly.	Inspect trailer wheel bearings, adjust or replace as needed.
	Worn or defective brake solenoids/magnets.	Inspect operation of brake solenoids/magnets, replace as needed.

Problem	Possible Cause	Action
Weak or ineffective brakes.	Trailer is overloaded.	Check trailer load, reduce weight if necessary.
	Worn or defective brake solenoids/magnets.	Inspect operation of brake solenoids/magnets, replace as needed.
	Faulty brake controller in tow vehicle (if equipped).	Verify correct operation brake controller, consult controller manual.
	Brakes are not adjusted.	Inspect and adjust brakes.
	Worn or contaminated brake shoes.	Inspect brake shoes for wear/contamination, clean and replace as needed.
	Bent brake baking plate.	Inspect brake backing plates, replace as needed.
	Broken brake shoe return spring.	Inspect brakes for wear/corrosion, repair as necessary.
	Worn brake drums.	Inspect brake drums, replace as necessary.
	Defective trailer wiring.	Check for broken connector or wiring on trailer or tow vehicle
Intermittent, grabbing or surging brakes.	Brake drums out-of-round.	Inspect and replace brake drums as needed.
	Worn or defective brake solenoids/magnets.	Inspect operation of brake solenoids/magnets, replace as needed.
	Defective trailer wiring.	Check for broken connector or wiring on trailer or tow vehicle
	Loose or broken trailer wheel bearings.	Inspect trailer wheel bearings, adjust or replace as needed.
	Worn or contaminated brake shoes.	Inspect brake shoes for wear/contamination, clean and replace as needed.
	Brakes are not adjusted.	Inspect and adjust brakes.
	Faulty brake controller in tow vehicle (if equipped).	Verify correct operation brake controller, consult controller manual.

Section 7 – Wiring Diagrams

7.1 Wiring Diagram Transport Auto Defrost

The 4 x 8 and 5 x 10 models use the same wiring diagram, refer to Figure 7-1

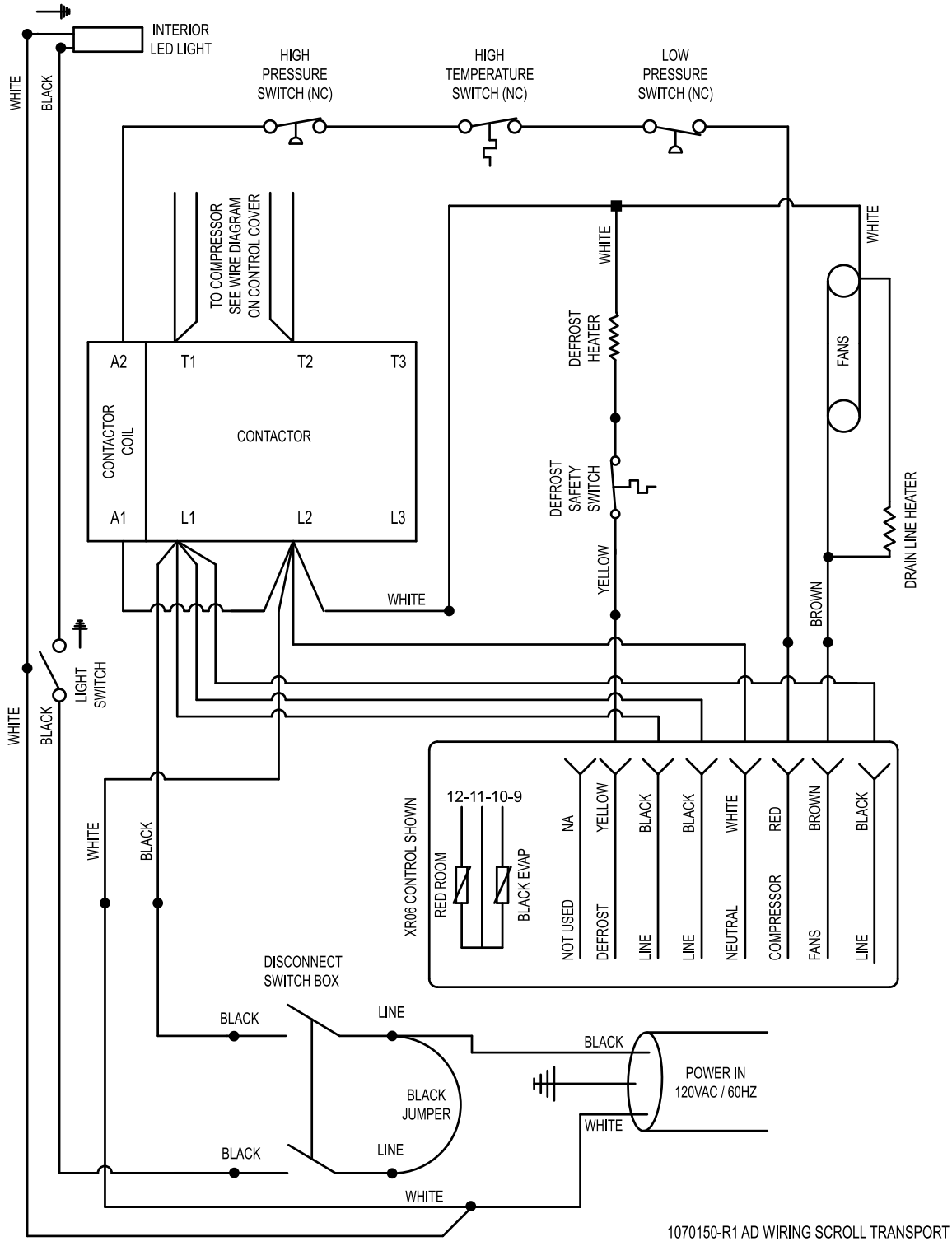


Figure 7-1

Warranty

Refrigerated Transports & Truck Bodies: Seller warrants the transport under normal use and service, for one (1) year for the component parts (to be shipped by seller), and ninety (90) days for repair labor from the date of original shipment. The transport compressor motor is warranted for five (5) years from the date of original shipment. SELLER MUST BE CONTACTED AND PROVIDED TRANSPORT SERIAL NUMBER FOR WARRANTY CLAIM. This applies only to goods installed in the United States, Canada or Mexico. Seller's obligation under this warranty shall be limited to repair (subject to the limitations below) or replacement of any part(s), F.O.B. Seller's factory, which prove(s) defective within the applicable warranty period. Seller reserves the right to inspect defective part(s) and may at Seller's discretion require return of part(s) to Seller's factory for inspection. The determination as to whether any defect exists shall be made in Seller's sole judgement.

GENERAL PROVISIONS APPLICABLE TO ALL WARRANTIES AND PRODUCTS: Seller shall not be liable for any breach of any express warranty set forth above unless Seller is informed immediately upon the discovery of defective part(s). The warranties described above are not assignable and shall operate only in favor of the original buyer/user. In event of any claim for breach of express warranty, Seller shall be responsible for labor charges for repair or replacement of any defective part(s) or assembly only for defects reported to Seller within ninety (90) days after the date of installation. ALL LABOR CHARGES SHALL BE AUTHORIZED OR APPROVED BY SELLER PRIOR TO THE REPAIR OR REPLACEMENT OF PART(S). In all other events, Seller shall not be responsible for any labor charges. Labor charges shall only include standard straight time labor hours at the site of product installation, and shall exclude charges for travel time, mileage, or other premium charges. These warranties shall not apply to any goods, or any part thereof, which may have been subject to any damage in transit, accident, negligence, abuse or misuse, unauthorized alteration or repair, acts of nature or failure to follow any of the Seller's manuals or instructions, if in Seller's sole judgement, such act, omission or event has detrimentally affected the physical condition, use or operating qualities of the product.

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