INSTALLATION & SERVICE MANUAL

6’ × 8’

6’ × 12’

6’ × 16’

Seamless Fiberglass Refrigerated Trailers

4410 New Haven Ave. Fort Wayne, IN 46803
Phone: 866-586-2051
www.polarkingmobile.com

To Our Customers:

Thank you for purchasing a Polar King® Mobile trailer to fill your refrigerated storage requirements.

Your trailer has been designed and engineered to provide years of trouble-free service.

All Polar King® Mobile trailers are factory constructed using space-age materials and state-of-the art manufacturing techniques. Every unit receives numerous quality inspections and is pre-tested prior to delivery. The finished product is the best and most efficient trailer available on the market.

However, should you experience a service problem, please contact our customer service department. They will work with you on resolving the problem and insure your continued satisfaction.

Again, thank you for selecting a Polar King® Mobile trailer. Should you require future refrigerated storage, we would appreciate the opportunity to serve you.

Register your new Polar King® Mobile trailer online in our Resource Center at *www.polarkingmobile.com*

This manual is also available online in our resource center.
www.polarkingmobile.com

All diagrams are available in larger format online in our resource center at www.polarkingmobile.com

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A General Unit Information Sheet is included with this manual for your convenience. This sheet contains detailed information on your walk-in. Please have this information available when requesting service.

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INTRODUCTION

The information contained in this manual covers a basic refrigerated trailer. **It is IMPORTANT you READ, FOLLOW and UNDERSTAND the instructions given by the trailer, tow vehicle and trailer hitch manufacturers.**

ALL manuals and materials provided with your trailer should be stored in a safe place.

Inserts with information on axles and tire warranty are provided with this manual. Please keep for future reference.

Consult Polar King Mobile if you have any questions regarding the information contained in this manual.

Please have your unit serial number available when contacting Polar King Mobile Mobile. Your unit serial number is normally located on the front left side of the trailer.

Please write your unit serial number in the space below for future use.

SAFETY PRECAUTIONS

Safety

This Refrigerated Trailer Owner's Manual provides general information and cannot provide specifics for every situation. You must read, understand and follow all towing instructions for the vehicle used to pull the trainer and the Trailer hitch being used, as well as the instructions in this manual.

This trailer is constructed with components from various manufacturers. Refer to these separate instructions, when indicated. If you do not have access that those instructions, contact Polar King Mobile.

There is specific Safety Information given in this manual.

This symbol is used as an alert. It means **PAY ATTENTION! SAFETY INFORMATION!**

There are 4 levels of safety alerts used in this manual:

DANGER

DANGER – This means there is a hazardous situation that WILL cause serious injury or death if not avoided.

WARNING

WARNING – This means that a hazardous situation exists and COULD cause serious injury or death if not avoided.

CAUTION

CAUTION – This means that a hazardous situation exists and COULD cause minor or moderate injury if not avoided.

NOTICE

NOTICE – This means that a situation exists that could cause damage to the equipment or other property.

Hazards

⚠ DANGER

Improper towing of this trailer may cause loss of control that can cause death or serious injury.

The following is a list of common cause for the loss of control of the trailer and/or Tow vehicle.

- Traveling at excessive speed for road conditions
- Overloading and improper balancing
- Tow vehicle improperly sized for trailer
- Loose lug nuts on wheels
- Improper tire pressure
- Incorrect coupling of trailer to hitch
- Failure to adjust driving when towing, i.e. baking distance, lane changes, etc.
- Improper steering and/or braking when trailer is swaying

Sizing the Tow Vehicle to the Trailer

⚠ DANGER

The incorrect tow vehicle will cause stability problems when towing the trailer and can result in serious or fatal accidents.

NOTICE

Increased strain on the tow vehicles drive train and/or braking system can result in serious maintenance problems.

Never exceed the maximum towing capacity of the tow vehicle being used. The information regarding the Gross Trailer Weight (GTW) and maximum Gross Combined Weight Rating (GCWR) is located in the tow vehicle's owner's manual.

⚠ DANGER

Danger – Never use and hitch, ball or tow vehicle that is under-rated for the trailer. This can lead to a loss of control while towing and cause death or serious injury.

Improper Speeds – Driving too Fast

The maximum recommended speed for safely towing a trailer is 55 MPH (≈90 KPH) under ideal road conditions. Driving at excessive speeds can cause the trailer to sway, which may cause loss of control. Excessive speeds may also cause tire to overheat. This increases the likelihood of a blowout.

⚠ WARNING

Do not drive too fast for the road conditions. This can cause loss of control which can lead to death or serious injury

Lower your speed when towing

Adjusting Your Driving Behavior When Towing a Trailer

Keep in mind that when towing a trailer your stopping distances increase dramatically. You will also have an increased turning radius, as well as decreased acceleration. Towing a trailer changes the way your tow vehicle handles and makes it more responsive to steering changes. A trailer is more likely to be affected by wind or when being overtaking by larger vehicles, such as semi-trucks. You will need greater distances to overtake other vehicles because of the decreased acceleration and increased overall length.

Tips for Safe Towing

- Check your mirrors often to watch the trailer and surrounding vehicles
- If the trailer starts to sway, take your foot off the gas pedal and use small steering adjustments. (Just enough to stay in your lane of travel.) Do not make large steering adjustments,. This can increase the swaying. Do not apply the brakes of the tow vehicle. However, you may apply the trailer brakes alone (if so equipped), especially when going downhill. Allow the tow vehicle to pull the trailer straight until the swaying stops.
- Keep the trailer's height in mind when passing under roofed structures, tree limbs, low bridges and overpasses, especially if it is taller than the tow vehicle.
- Pay attention to the road surface conditions. Wet and/or icy conditions will adversely affect your ability to maintain control while towing.
- Use a lower gear when descending steep or long grades. The engine and transmission of the tow vehicle will create a braking action. Riding the brakes, while going down steep or long grade can cause them to overheat and lose their effectiveness.

Trailer Coupling

It is critically important that the trailer is coupled to the hitch correctly and the safety chains and breakaway brake lanyard are attached properly. An uncoupling at highway speeds can lead to death or serious injury.

⚠ WARNING

The correct selection and condition of the coupler, hitch ball and receiver are critical to towing a trailer safely.

Uncoupling while towing can cause damage to property, serious bodily injury or death.

The hitches ball size must match that of the coupler. Never attempt to tow a trailer when the ball and coupler are mismatched.

Ensure that the load rating of the hitch is equal to or greater than that of the coupler.

Make sure the coupler is connected correctly and tightened to the hitch ball before attempting to moving the tow vehicle and trailer.

Inspect all hitch and coupler components before making the connection of coupler to hitch-ball. Replace worn, corroded or cracked components before coupling the trailer to the tow vehicle.

Coupling Check List

- Coupler is secured to hitch ball and locked in place
- Safety chains are connected to the tow vehicle and not dragging
- Breakaway brake lanyard is correctly connect to the tow vehicle
- The load is secured securely fastened to the trailer
- Check all tires and wheels on both tow vehicle and trailer
- Check the trailer brakes. Make sure they are working properly
- Retract the trailer jack(s)
- Connect trailer lights and make sure they work properly

⚠ WARNING

Before towing, make sure all tires are properly inflated to the correct pressure as stated in the Certification / VIN Label.

Make sure all wheel lug nuts are tight. Make sure the wheels are seated correctly on the hub. Normal use can cause the wheel rim to loosen over time. Inspect/tighten before towing.

Lug nuts tend to loosen after first being tightened (such as after a re-mounting). Inspect/tighten all lug nuts after the first few miles driven and before each tow after that.

A wheel that becomes loose can cause loss of control and can lead to death or serious injury.

Safety Chains

Safety chains are provided trailer control can be maintained in the event the trailer becomes loose from the hitch.

⚠ WARNING

Make sure to connect the trailer's safety chains to the tow vehicle's frame or hitch correctly. Improper rigging can cause the loss of control of the trailer and/or tow vehicle and, if the trailer becomes uncoupled while towing, lead to death or serious injury.

Chains should be crossed below the trailer's coupler and tow vehicle's hitch loosely enough to permit turning, but tight enough to hold the trailer tongue up should it uncouple while towing.

Do not attach safety chains to the tow vehicle's hitch unless loops or holes specifically designed for that purpose have been provided.

Breakaway Lanyard

⚠ WARNING

An inoperative trailer breakaway braking system and lead to a runaway trailer, which can result in death or serious injury.

Trailer equipped with brakes will also be equipped with a breakaway brake system. This system will apply the trailers brakes in the event of a trailer uncoupling while towing. This system must be checked before towing. This system, including the battery, must be kept in working order and correct attached to the tow vehicle to be effective.

Connect the breakaway lanyard to the tow vehicle itself and not hitch.

Test the function of this system each time before towing the trailer.

Trailer Coupling and Hitch Ball

⚠ WARNING

The Trailer is equipped with a (Size) Coupling. The Hitch Ball must be the same size. Improper sizing of the hitch ball can lead to uncoupling, leading to death or serious injury.

Make sure the tow vehicle and hitch are rated for the Gross Vehicle Weight Rating (GVWR) of the trailer. Using a hitch with a lower load rating than the trailer, can cause loss of control and may result in death or serious injury. Using a tow vehicle with a towing capacity lower than the load rating of the trailer, can cause loss of control and may result in death or serious injury.

Tires, Wheels & Lug Nuts

It's important to inspect the condition of the tire each time before towing. Excessive tire wear, as evidenced by bald spots or cords showing, or damage, such as cuts, cracks or bulging mean the tire is not safe and must be replaced before towing.

Too little tread will not provide the friction needed to maintain control of the trailer on wet roads.

Uneven tread wear may be caused by several factors, such as improper inflation, unbalanced tires or a axle damage or misalignment. Employ the assistance of a trailer service center to correct the problem.

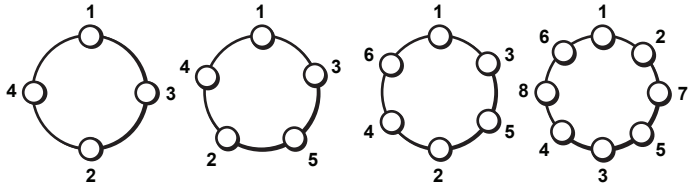
The correct tire pressure is given on the Certification / VIN label found at the front left side of the trailer. Tire pressures should be check and corrected before towing.

⚠ WARNING

Improper tire pressure can result in a tire blowout causing loss of control, which may lead to death or serious injury.

Make sure all wheel rims are undamaged and in good condition. A bent of otherwise damaged wheel can cause you to lose control and result in death or serious injury.

Inspect and/or tighten all lug nuts before towing. Lug nut should be tightened to a torque in three stages. Using a Star-Pattern, as shown in this diagram, tighten each lug first to 20 to 25 ft/lbs. Then following the same pattern tighten each lug to 50 to 60 ft/lbs. Finally, tighten each lug to 90 to 120 ft/lbs.



⚠ WARNING

Wheel rims and lug nuts may loosen over time. This may cause a wheel to come off while towing and could result in death or serious injury. Tighten all lug nuts every time before towing.

Tighten all lug nuts after the first 10, 25 and 50 miles of towing after any wheel has been remounted.

Loading the Trailer

The weight of the trailer plus the weight you load on it must not exceed the Gross Vehicle Weight Rating GVWR. A commercial scale can tell you the GVWR. You must also distribute the weight correctly so as not to exceed the weight of an axle. This called the Gross Axle Weight Rating (GAWR). The GVWR and GAWR are listed on the Certification / VIN Label located at the front left side of the trailer.

⚠ WARNING

Do Not Overload the trailer. Overloading can cause loss of control and can result in death or serious injury. Never exceed the weight for tire rating. Never exceed the Gross Vehicle Weight Rating GVWR or the Gross Axle Weight Rating (GAWR)

Never transport explosive, flammable, poisonous or other materials that may be dangerous in your trailed, with the exception of a fuel tank in a piece of equipment being hauled.

Load Distribution

The distribution of the load is very important to the stability of the trailer while towing. Having too much weight in front of the axel(s) will cause the tongue weight to be too great. Conversely, having too much weight behind the axle will cause tongue weights that are too low. Either condition will cause the trailer or tow vehicle to be unstable while towing.

The loaded trailer weight should be distributed correctly to achieve the correct tongue weight. As a “Rule of Thumb” the tongue weight should be 10 to 15% of the loaded weight of the trailer. So for a 5,000 pound loaded weight there should be 500 to 750 lbs. of tongue weight on the hitch.

This is just an example and the specific weights will depend on the loaded weight of your trailer.

Depending on the tow vehicle being used, a weight distribution system may be needed.

Be certain the trailer is evenly loaded left / right and the axles aren't overloaded. Uneven distribution may cause tire, wheel, axle or structural failure.

Specific questions regarding the actual percent of tongue weight for the trailer, contact the manufacturer.

⚠ WARNING

Make sure tongue weight is within the allowable range. Improper tongue weight (load distribution) can cause you to lose control of the trailer and result in death or serious injury.

Load Distribution Check List

- Check the following each time before towing:
- Even distribution left / right
- Keep the center of gravity low.
- Even front-to-rear load distribution providing proper tongue rate.

Cargo

It's important to secure the cargo being transported while towing. Make sure that any cargo is not allowed to shift during braking, acceleration or turning.

⚠ WARNING

Load shifting can result in damage or loss of control. This can lead to death or serious injury. Any load must be secured properly.

Do not transport cargo that the trailer is not designed to haul. Never transport people, hazardous or flammable substances.

Transporting people in your trailer is dangerous and can cause death or serious injury. It is also illegal.

Never transport explosive, flammable, poisonous or other hazardous materials. The exception is the fuel in a fuel tank of a piece of equipment.

Brakes and Lights

If your trailer is equipped with electric brakes, your tow vehicle must have a brake controller that can operate those brakes. To verify that the brake system is connected and working correctly, you must test them before each tow.

To test the trailer brake system, with the trailer coupled to the tow vehicle and all connection made correctly and the trailer ready to be towed, begin pulling the trailer at a low speed (5 MPH recommended). Manually activate the trailer brake control in the tow vehicle. If the brakes are working properly you should feel a resistance from the trailer.

If the trailer is equipped with hydraulic surge brakes, test by pulling the emergency breakaway lanyard.

Before towing the trailer you must be certain that the brakes and all lights are properly connected via the multi-pin plug and working correctly.

⚠ WARNING

An incorrect connection of the brakes and/or lights between the trailer and the tow vehicle will not allow the brakes and/or lights to function. This can cause a collision, which can lead to death or serious injury. Verify that the trailer brakes are working by testing them before towing. Also check that all lights as well as turn indicators are functioning.

Mirrors

The tow vehicle must be equipped with mirrors that allow visibility to approaching traffic. A proper field of vision must be provided for the sides and rear of the trailer being towed.

Modifications

Alterations to the trailer or trailer's structure can make the trailer unsafe and void your warranty. Before modifying the trailer, contact Polar King and discuss any alterations before making them.

Towing Guide

There is a big difference between how the tow vehicle handles with and without a trailer. Braking, maneuverability and acceleration are all reduced. You will need more time and distance to stop, more room to turn and overtake other vehicles, and more time to speed up.

You must adjust your driving behavior to tow a trailer safely. Driving risks and hazards are increased when towing. You are responsible for keeping the tow vehicle and trailer under control and any damage caused by the loss of control.

Practice towing in an open area with no traffic. Start by doing the pre-towing inspection and adjust the mirrors so you can see the sides of the trailer and the area behind. Begin towing at a very slow speed. Make turns to get used to how the tow vehicle and trailer reacts to the steering inputs. Apply the brakes a few times and note how the tow vehicle and trailer feel. Apply only the trailer brakes (If equipped with electric brakes) and see how the trailer responds.

Practice backing up with the trailer to learn how it reacts. Before backing up, exit the vehicle and check for obstacles or use another person as a spotter. Backing up with a trailer requires a lot of practice before one becomes proficient.

Safe Towing Check List

Check the following each time before towing:

- Perform the coupling check list
- Inspect/Tighten all lug nuts
- Check that load is secured properly
- Check that the coupler is properly engaged on the hitch ball and tightened
- Test the trailer brakes
- Check that your mirrors are properly adjusted.

While towing :

- Use your mirrors before changing lanes or merging into traffic.
- Use your turn indicators to indicate your intention to turn or change lanes.
- Allow adequate distance when stopping
- Downshift your tow vehicle to use lower gears when ascending or descending grades
- When descending grades, do not continually apply the brakes this will cause then to over-heat and become less effective. This could cause a loss of control.
- If the trailer begins to sway, apply only the trailer brakes lightly to correct. Do not apply only the tow vehicle brakes to correct trailer swaying.
- Slow down for bumps or uneven pavement.
- Avoid braking while in a curve if possible. Slow down before entering the curve instead.
- Do not drive at speeds which may cause the trailer to sway. Generally drive the posted speed limit or 55 MPH, whichever is less
- Allow adequate room of for overtaking another vehicle. Increase distance 4 times as compared to driving when not towing a trailer.

At each stop:

- Inspect the coupler to ensure it is secured and locked to the hitch.
- Ensure the electrical connection is secured.
- Make sure there is adequate slack in the safety chains, that they are connected properly and not dragging.
- Check the breakaway brake system lanyard. Make sure it is connected to the tow vehicle and has adequate slack and is not dragging.
- Inspect the tires for signs of low tire pressure or damage.
- Make sure the cargo is secured.

Safety Warning Labels

⚠ WARNING

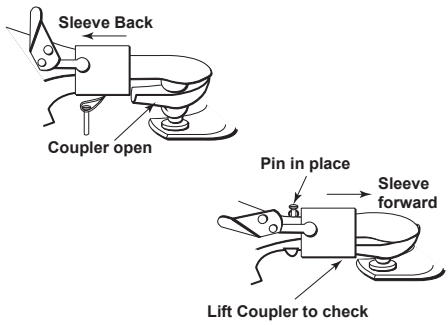
Make sure all warning labels are present and legible. This protects you and other against death or serious injury.

If any of the labels cannot be read or are missing, contact Polar King for replacements.

⚠ WARNING

Uncoupling will cause trailer to come loose from tow vehicle. You must:

1. **CHECK that ball LOAD RATING is same as or greater than coupler LOAD RATING.**
2. **CHECK that ball SIZE is same as coupler.**
3. **CLOSE COUPLER CLAMP on ball.**
4. **LIFT coupler upwards to test that it will not separate from ball.**
5. **LOCK sleeve with pin or padlock.**



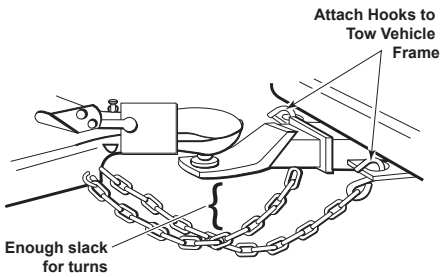
⚠ WARNING

ALWAYS use safety chains.

Chains holds trailer if connection fails.

You must:

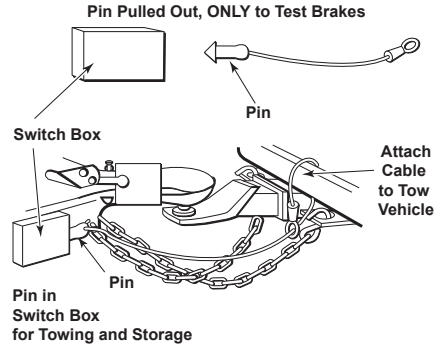
1. **CROSS chains underneath coupler.**
2. **ALLOW slack for trailer to turn.**
3. **ATTACH chain hooks securely to tow vehicle frame.**



⚠ WARNING

Trailer can roll if it comes loose.
Electric safety brake applies when cable pulls pin out of switch box.

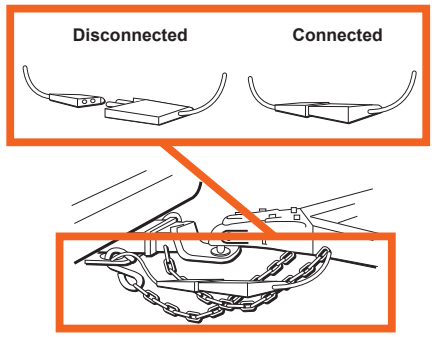
1. **PULL hard to get pin out of switch box.**
2. **CHECK brake by PULLING TRAILER with tow vehicle.**
3. **ATTACH pin CABLE to tow vehicle so pin will be pulled out if trailer separates.**
4. **Promptly REPLACE pin in switch box.**



WARNING

Light can prevent trailer from being hit by other vehicles. You must:

1. CONNECT trailer and low vehicle electrical connectors.
2. CHECK all lights: tail lights, turn signal, and brake lights.
3. DO NOT TOW if lights are not working.

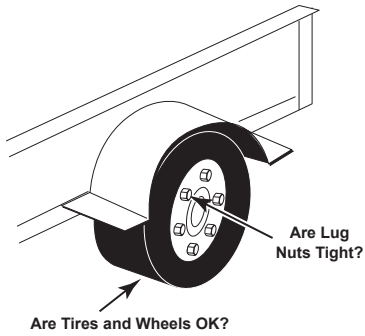


WARNING

Tire, wheel or lug nut failure can cause loss of control. Before towing, you must CHECK:

1. Tire pressure and tread.
2. Tires and wheels for damage.
3. Lug nuts for tightness.

   For new and remounted wheels, re-tighten lug nuts at the first 10, 25 and 50 miles of driving.



WARNING

OVERLOAD HAZARD

RISK OF DEATH DUE TO LOSS OF CONTROL

NEVER EXCEED GROSS VEHICLE WEIGHT RATING (GVWR).

- BEFORE LOADING THE TRAILER FOR THE FIRST TIME, YOU MUST VERIFY ITS CARGO CAPACITY.

1. You MUST WEIGH the EMPTY TRAILER.
2. Subtract the weight of the EMPTY TRAILER from the MAXIMUM LOADED TRAILER WEIGHT (GVWR).
3. DO NOT LOAD TRAILER BEYOND VERIFIED CARGO CAPACITY.

MAXIMUM LOADED TRAILER WEIGHT (GVWR) = EQUALS

MAXIMUM CARGO WEIGHT

+ PLUS

WEIGHT OF EMPTY TRAILER

Reporting Safety Defects

If you believe that your vehicle 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 Polar King Mobile.

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, your dealer, or Polar King Mobile.

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.safercar.gov*; or write to:

Administrator
NHTSA
1200 New Jersey Avenue S.E.
Washington, DC 20590

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

TIRE SAFETY PRECAUTIONS

Tire Safety

This manual contains information on tire safety as required by 49 CFR 575.6 from the National Highway Traffic Safety Administration (NHTSA), Department of Transportation.

This manual contains:

- Information on Trailer Tires
- Information on The Correct Load Limit for Trailers
- Information on the Correct Load Limit for Tow Vehicles
- A Glossary of Tire Terms
- A Section from the National Traffic Safety Administration's Brochure "Tire Safety – Everything Rides on It".

This brochure includes information on:

- Tire Size
- Tire Tread
- Tire Balance and Wheel Alignment
- Tire Repair
- Tire Fundamentals
- Information of Passenger Tires
- Tire Safety Tips

Trailer Tires

Because they carry a lot of weight, even when not in use, trailer tires may be unsafe even if they still show plenty of tread depth.

In fact, a tire is designed to roll down the road not sit idle. Because of that, it's better for a tire to be used rather than to sit idle. While running a tire heats up and the rubber compounds release lubricants that are designed to increase tire life. Sitting idle creates flat spots and promotes dry rot.

The number one cause of tire failure is incorrect inflation. Check the trailer tires while cold weekly. The term "cold" means at the same temperature as the ambient air surrounding the tire. The trailer's Certification / VIN Label or tire placard will give the manufacturer's recommended tire pressure when the trailer is loaded to its gross vehicle weight rating (GVWR) in pounds per square inch (PSI).

Under-inflation or loading the trailer to weights exceeding the gross vehicle weight rating (GVWR) can dramatically reduce the load capacity of the tires. Over-inflation can adversely affect the handling characteristics of the tow vehicle and/or trailer. Refer to the tow vehicle's owner's manual or talk to Polar King if you have any questions about tire inflation.

Tire can lose pressure over time. In fact, 1 to 3 PSI per month is normal. A drop in tire pressure can result in heat build-up due to over-loading and suffer internal damage.

Towing in Hot Conditions at a high rate of speed will degrade tires greatly. When excessive heat builds up in a tire, its internal structure breaks down and the overall strength of the tire is compromised. Driving at moderate speeds may help preclude excessive heat build-up and extend the life of your tires.

National statistics show that the average life of a tire, that is properly inflated and maintained, is around 5 years. Replacement should be considered every 3 years, even if the tires show good tread. A tire that is 5 years old is considered worn out and should be replaced.

When storing a trailer for an extended time period, ensure the tires are inflated to the maximum rated pressure and store it away from direct sunlight, preferably in a cool dry place like a garage. If you must store your trailer outside, use covers to protect the tires from the effects of the sun.

Correct Load Limit for Trailer

There is more to determining the load limits of a trailer than just those of the tires alone. Every trailer has a Certification / VIN label located at the front left side. This label contains information on the trailers Gross Vehicle Weight Rating (GVWR) as well as the Gross Axle Weight Rating (GAWR) for multi-axle trailers. For trailers with a Gross Vehicle Weight Rating (GVWR) equal to or less than 10,000 pounds, a vehicle placard will be located in the same place. This placard contains information on tires and trailer loading, as well as maximum cargo weight.

TIRE AND LOADING INFORMATION

The weight of cargo should never exceed XXX kg. or XXX lbs.

TIRE	SIZE	COLD TIRE PRESSURE	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION
FRONT	20.5 × 8.0-1.0OD	621 kPa, 90 PSI	
REAR			
SPARE	NONE		

The maximum cargo weight plus the weight of the trailer must not exceed the stated Gross Vehicle Weight Rating as shown on the Certification / VIN Label.

Weight distribution is also very important. Unbalanced loads, either front to back or side to side, can cause unstable towing and/or tire overloading.

Use a commercial scale to determine various weights that relate to your trailer.

For trailers rated over 10,000 pounds, no vehicle placard is required and may not be installed.

To determine the maximum cargo weight, use a commercial scale to determine the empty weight of your trailer. Subtract that amount from the Gross Vehicle Weight Rating (GVWR) on the trailers Certification / VIN Label. The resulting number is the maximum cargo weight.

Tow Vehicle Load Limit

The choice of a tow vehicle is important in safely towing your trailer. The combined weight of the vehicle, all passengers and vehicle cargo (such as luggage) in addition to the loaded weight of the trailer, must be taken into consideration.

Consult your tow vehicle’s owner’s manual to determine if it is appropriate to tow your trailer.

Tire Safety (NHTSA)

The National Highway Traffic Safety Administration (NHTSA) has published a brochure on tire safety (DOT HS 809 361). It can be obtained, free of charge from their website:

https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/one.pdf

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
- 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.

Safety First–Basic Tire Maintenance

Properly maintained tires improve the steering, stopping, traction, and load-carrying capability of your vehicle. Underinflated tires and overloaded vehicles are a major cause of tire failure.

Therefore, as mentioned above, to avoid flat tires and other types of tire failure, you should maintain proper tire pressure, observe tire and vehicle load limits, avoid road hazards, and regularly inspect your tires.

Finding Your Vehicle's Recommended Tire Pressure and Load Limits

Tire information placards and vehicle certification labels contain information on tires and load limits. These labels indicate the vehicle manufacturer's information including:

- Recommended tire size
- Recommended tire inflation pressure
- Vehicle capacity weight (VCW–the maximum occupant and cargo weight a vehicle is designed to carry)
- Front and rear gross axle weight ratings
  (GAWR – the maximum weight the axle systems are designed to carry).

Both placards and certification labels are permanently attached to the vehicle door edge, door post, glove-box door, or inside of the trunk lid. You can also find the recommended tire pressure and load limit for your vehicle in the vehicle owner's manual.

Understanding Tire Pressure and Load Limits

Tire inflation pressure is the level of air in the tire that provides it with load-carrying capacity and affects the overall performance of the vehicle. The tire inflation pressure is a number that indicates the amount of air pressure – measured in pounds per square inch (psi)–a tire requires to be properly inflated. (You will also find this number on the vehicle information placard expressed in kilopascals (kPa), which is the metric measure used internationally.)

Manufacturers of passenger vehicles and light trucks determine this number based on the vehicle's design load limit, that is, the greatest amount of weight a vehicle can safely carry and the vehicle's tire size. The proper tire pressure for your vehicle is referred to as the "recommended cold inflation pressure." (As you will read below, it is difficult to obtain the recommended tire pressure if your tires are not cold.)

Because tires are designed to be used on more than one type of vehicle, tire manufacturers list the "maximum permissible inflation pressure" on the tire sidewall. This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

Remember, however, that the vehicle manufacturer, not the tire manufacturer, determines the correct tire pressure for the tires on your vehicle.

Checking Tire Pressure

It is important to check your vehicle's tire pressure at least once a month for the following reasons:

- Most tires may naturally lose air over time.
- Tires can lose air suddenly if you drive over a pothole or other object or if you strike the curb when parking.
- With radial tires, it is usually not possible to determine underinflation by visual inspection.

For convenience, purchase a tire pressure gauge to keep in your vehicle. Gauges can be purchased at tire dealerships, auto supply stores, and other retail outlets.

The recommended tire inflation pressure that vehicle manufacturers provide reflects the proper psi when a tire is cold. The term cold does not relate to the outside temperature. Rather, a cold tire is one that has not been driven on for at least three hours. When you drive, your tires get warmer, causing the air pressure within them to increase. Therefore, to get an accurate tire pressure reading, you must measure tire pressure when the tires are cold or compensate for the extra pressure in warm tires.

Steps for Maintaining Proper Tire Pressure

Step 1: Locate the recommended tire pressure on the vehicle's tire information placard, certification label, or in the owner's manual.

Step 2: Record the tire pressure of all tires.

Step 3: If the tire pressure is too high in any of the tires, slowly release air by gently pressing on the tire valve stem with the edge of your tire gauge until you get to the correct pressure.

Step 4: If the tire pressure is too low, note the difference between the measured tire pressure and the correct tire pressure. These "missing" pounds of pressure are what you will need to add.

Step 5: At a service station, add the missing pounds of air pressure to each tire that is underinflated.

Step 6: Check all the tires to make sure they have the same air pressure (except in cases in which the front and rear tires are supposed to have different amounts of pressure).

If you have been driving your vehicle and think that a tire is underinflated, fill it to the recommended cold inflation pressure indicated on your vehicle's tire information placard or certification label. While your tire may still be slightly underinflated due to the extra pounds of pressure in the warm tire, it is safer to drive with air pressure that is slightly lower than the vehicle manufacturer's recommended cold inflation pressure than to drive with a significantly underinflated tire. Since this is a temporary fix, don't forget to recheck and adjust the tire's pressure when you can obtain a cold reading.

Tire Size

To maintain tire safety, purchase new tires that are the same size as the vehicle's original tires or another size recommended by the manufacturer. Look at the tire information placard, the owner's manual, or the sidewall of the tire you are replacing to find this information. If you have any doubt about the correct size to choose, consult with the tire dealer.

Tire Tread

The tire tread provides the gripping action and traction that prevent your vehicle from slipping or sliding, especially when the road is wet or icy. In general, tires are not safe and should be replaced when the tread is worn down to 1/16 of an inch. Tires have built-in treadwear indicators that let you know when it is time to replace your tires. These indicators are raised sections spaced intermittently in the bottom of the tread grooves. When they appear "even" with the outside of the tread, it is time to replace your tires. Another method for checking tread depth is to place a penny in the tread with Lincoln's head upside down and facing you. If you can see the top of Lincoln's head, you are ready for new tires.

Tire Balance and Wheel Alignment

To avoid vibration or shaking of the vehicle when a tire rotates, the tire must be properly balanced. This balance is achieved by positioning weights on the wheel to counterbalance heavy spots on the wheel-and-tire assembly. A wheel alignment adjusts the angles of the wheels so that they are positioned correctly relative to the vehicle's frame. This adjustment maximizes the life of your tires and prevents your car from veering to the right or left when driving on a straight, level road. These adjustments require special equipment and should be performed by a qualified technician.

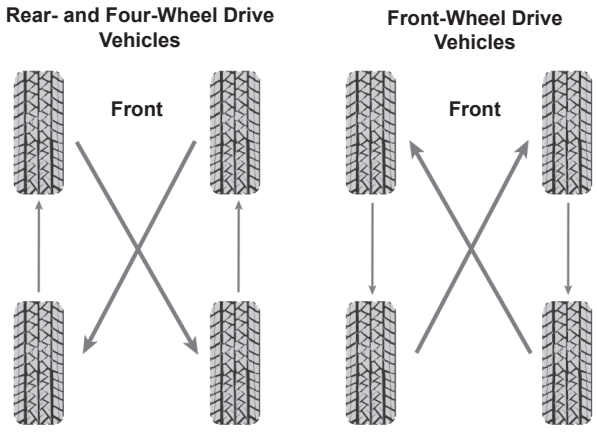
Tire Rotation

Rotating tires from front to back and from side to side can reduce irregular wear (for vehicles that have tires that are all the same size). Look in your owner's manual for information on how frequently the tires on your vehicle should be rotated and the best pattern for rotation.

Tire Rotation Examples

For maximum mileage, rotate your tires every 5,000 miles.

Follow the correct tire rotation patterns.



Tire Repair

The proper repair of a punctured tire requires a plug for the hole and a patch for the area inside the tire that surrounds the puncture hole. Punctures through the tread can be repaired if they are not too large, but punctures to the sidewall should not be repaired. Tires must be removed from the rim to be properly inspected before being plugged and patched.

Uniform Tire Quality Grading System (UTQGS)

To help consumers compare a passenger car tire's treadwear rate, traction performance, and temperature resistance, the federal government requires tire manufacturers to grade tires in these three areas. This grading system, known as the Uniform Tire Quality Grading System, provides guidelines for making relative comparisons when purchasing new tires. You also can use this information to inquire about the quality of tires placed on new vehicles.

Although this rating system is very helpful when buying new tires, it is not a safety rating or guarantee of how well a tire will perform or how long it will last. Other factors such as personal driving style, type of car, quality of the roads, and tire maintenance habits have a significant influence on your tire's performance and longevity.

Treadwear grades are an indication of a tire's relative wear rate. The higher the treadwear number is, the longer it should take for the tread to wear down. For example, a tire grade of 400 should wear twice as long as a tire grade of 200.

Traction grades are an indication of a tire's ability to stop on wet pavement. A higher graded tire should allow you to stop your car on wet roads in a shorter distance than a tire with a lower grade. Traction is graded from highest to lowest as "AA", "A", "B", and "C".

Temperature grades are an indication of a tire's resistance to heat. Sustained high temperature (for example, driving long distances in hot weather), can cause a tire to deteriorate, leading to blowouts and tread separation. From highest to lowest, a tire's resistance to heat is graded as "A", "B", or "C".

Tire Fundamentals

Federal law requires tire manufacturers to place standardized information on the sidewall of all tires. This information identifies and describes the fundamental characteristics of the tire and also provides a tire identification number for safety standard certification and in case of a recall.

Information on Passenger Vehicle Tires

Please refer to the diagram below.

P

The "P" indicates the tire is for passenger vehicles.

Next number

This three-digit number gives the width in millimeters of the tire from sidewall edge to sidewall edge. In general, the larger the number, the wider the tire.

Next number

This two-digit number, known as the aspect ratio, gives the tire's ratio of height to width. Numbers of 70 or lower indicate a short sidewall for improved steering response and better overall handling on dry pavement.

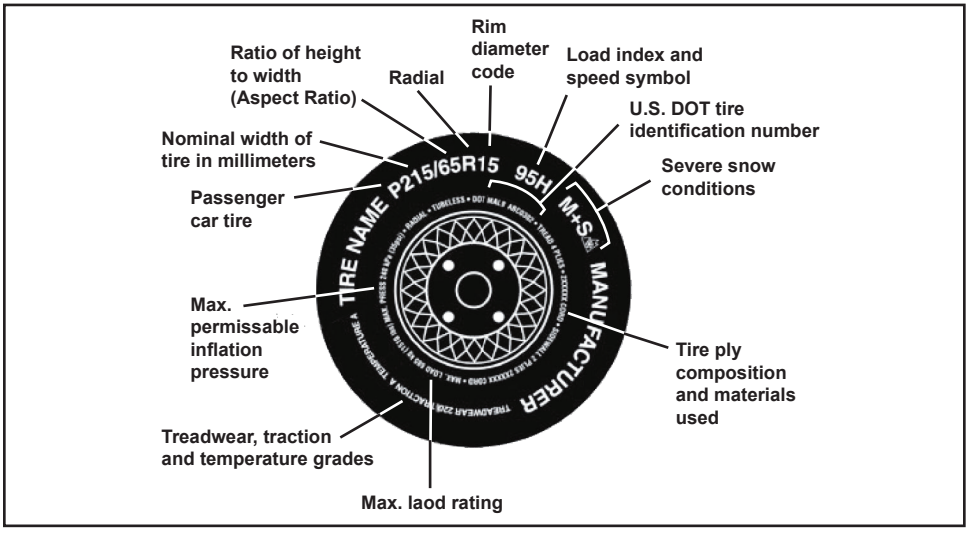
R

The "R" stands for radial. Radial ply construction of tires has been the industry standard for the past 20 years.

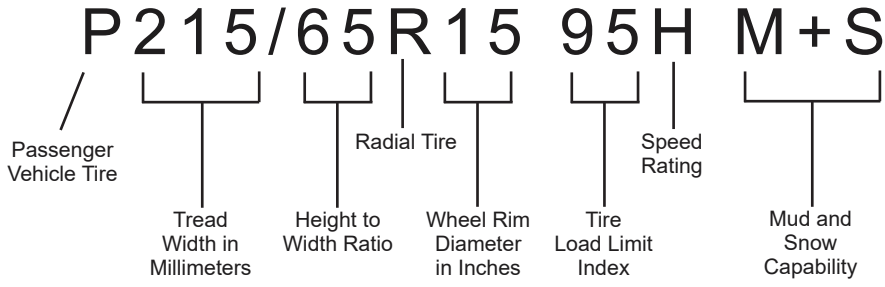
Next number
This two-digit number is the wheel or rim diameter in inches. If you change your wheel size, you will have to purchase new tires to match the new wheel diameter.

Next number
This two- or three-digit number is the tire's load index. It is a measurement of how much weight each tire can support. You may find this information in your owner's manual. If not, contact a local tire dealer.

Note: You may not find this information on all tires because it is not required by law.



In this example the passenger tire size is shown as:



M+S
The "M+S" or "M/S" indicates that the tire has some mud and snow capability. Most radial tires have these markings; hence, they have some mud and snow capability.

Speed Rating

The speed rating denotes the speed at which a tire is designed to be driven for extended periods of time. The ratings range from 99 miles per hour (mph) to 186 mph. These ratings are listed below. Note: You may not find this information on all tires because it is not required by law.

Rating	Speed	Rating	Speed
Q	99 mph	H	130 mph
R	106 mph	V	149 mph
S	112 mph	W	186 mph*
T	118 mph	Y	186 mph*
U	124 mph		

* For tires with a maximum speed capability over 149 mph, tire manufacturers sometimes use the letters ZR. For those with a maximum speed capability over 186 mph, tire manufacturers always use the letters ZR.

U.S. DOT Tire Identification Number

This begins with the letters “DOT” and indicates that the tire meets all federal standards. The next two numbers or letters are the plant code where it was manufactured, and the last four numbers represent the week and year the tire was built. For example, the numbers 3197 means the 31st week of 1997. The other numbers are marketing codes used at the manufacturer’s discretion. This information is used to contact consumers if a tire defect requires a recall.

Tire Ply Composition and Materials Used

The number of plies indicates the number of layers of rubber-coated fabric in the tire. In general, the greater the number of plies, the more weight a tire can support. Tire manufacturers also must indicate the materials in the tire, which include steel, nylon, polyester, and others.

Maximum Load Rating

This number indicates the maximum load in kilograms and pounds that can be carried by the tire.

Maximum Permissible Inflation Pressure

This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

UTQGS Information

Treadwear Number

This number indicates the tire’s wear rate. The higher the treadwear number is, the longer it should take for the tread to wear down. For example, a tire graded 400 should last twice as long as a tire graded 200.

Traction Letter

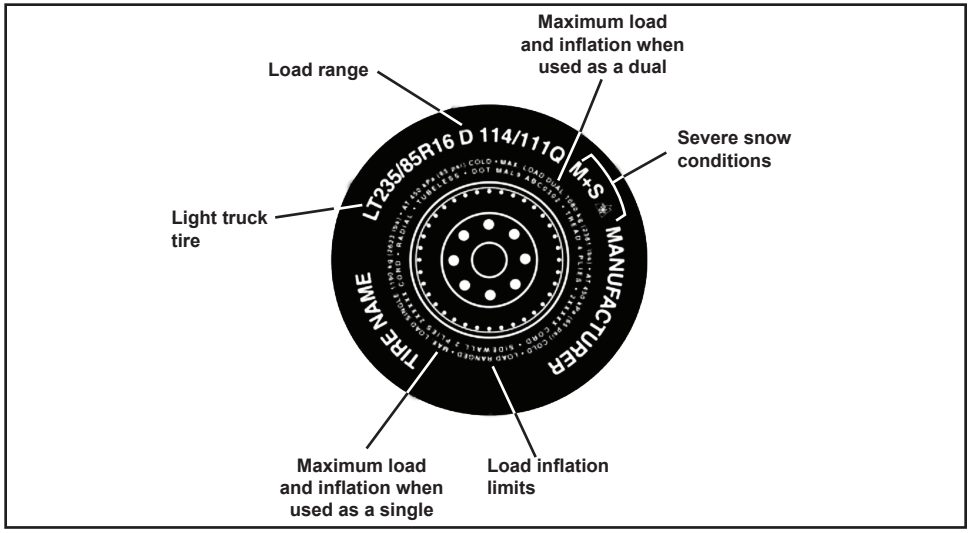
This letter indicates a tire’s ability to stop on wet pave ment. A higher graded tire should allow you to stop your car on wet roads in a shorter distance than a tire with a lower grade. Traction is graded from highest to lowest as “AA”,”A”, “B”, and “C”.

Temperature Letter

This letter indicates a tire’s resistance to heat. The temperature grade is for a tire that is inflated properly and not overloaded. Excessive speed, underinflation or excessive loading, either separately or in combination, can cause heat build-up and possible tire failure. From highest to lowest, a tire’s resistance to heat is graded as “A”, “B”, or “C”.

Additional Information on Light Truck Tires

Please refer to diagram below.



Tires for light trucks have other markings besides those found on the sidewalls of passenger tires.

LT

The “LT” indicates the tire is for light trucks.

Max. Load Dual kg(lbs) at kPa(psi) Cold

This information indicates the maximum load and tire pressure when the tire is used as a dual, that is, when four tires are put on each rear axle (a total of six or more tires on the vehicle).

Max. Load Single kg(lbs) at kPa(psi) Cold

This information indicates the maximum load and tire pressure when the tire is used as a single.

Load Range

This information identifies the tire’s load-carrying capabilities and its inflation limits.

Snow Tires

In some heavy snow areas, local governments may require true snow tires, those with very deeply cut tread. These tires should only be used in pairs or placed on all four wheels. Make sure you purchase snow tires that are the same size and construction type as the other tires on your vehicle.

Tire Safety Tips

Preventing 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 other foreign objects wedged in the tread.
- ✓ Make sure your tire valves have valve caps.
- ✓ Check tire pressure before going on a long trip.
- ✓ Do not overload your vehicle. Check the tire information placard or owner's manual for the maximum recommended load for the vehicle.
- ✓ If you are towing a trailer, remember that some of the weight of the loaded trailer is transferred to the towing vehicle.

For more information, visit www.nhtsa.gov or call 1-888-327-4236

COUPLING TRAILER TO TOW VEHICLE

⚠ DANGER

If the tow vehicle and hitch are not sufficiently rated for the trailer, loss of control may occur leading to an accident causing serious injury or death.

Make sure the tow vehicle and hitch are rated for the Gross Vehicle Weight Rating (GVWR) of the trailer.

The trailer's information appears on the Certification / VIN label located at the front left side of the trailer. It contain information such as the manufacture's name, date of manufacture, Gross Vehicle Weight Rating, Gross Axle Weight Rating, Tire Size, Wheel Rim Size, Tire Pressure, Vehicle Identification Number, Model or Style of Trailer, and Trailer Certification Statement.

The choice of tow vehicle is very important. Refer to the vehicle's owner's manual to find the maximum towing capacity, as well as the Gross Cargo Weight Rating. Even if the trailer will couple to the vehicle, that does not mean that the vehicle is capable of towing the trailer safely.

Familiarize yourself with these parts, they couple the trailer to the tow vehicle.

⚠ WARNING

Make sure the coupling is securely fastened to the tow vehicle's hitch. Accidental uncoupling while towing can result in serious injury or death.

Coupling: The mechanism that connects to the trailer hitch. This includes the clamping/ locking mechanism that captures the hitch ball.

Hitch: The assembly of parts affixed to the tow vehicle including the ball, draw bar, and receiver. For bumper hitches, this includes the bumper itself.

Safety Chains: These chains are affixed to the trailer permanently and, if properly connected can keep the trailer tongue from digging into the road surface should an uncoupling occur.

Lightning and Braking Connector: This is an electrical connection, typically a plug and receptacle, where the power and control to the lighting and electric brakes of the trailer are coupled to the tow vehicle.

Breakaway System: When the connecting lanyard is disconnected in an uncoupling event, this system will apply the trailer brakes. This system utilizes power from a battery on the trailer to apply the brakes should the trailer accidently uncouple from the tow vehicle. The charge of this battery is important and should be checked regularly.

Tongue Jack: This is a lifting device mounted on the trailer's tongue used to raise or lower the tongue

⚠ WARNING

A trailer that uncouples while towing can result in serious injury or death.

Coupling Check List

- Coupler is secured to hitch ball and locked in place
- Safety chains are connected to the tow vehicle and not dragging
- Breakaway brake lanyard is correctly connect to the tow vehicle
- The load is secured on/in the trailer
- Check all tires and wheels on both tow vehicle and trailer
- Check the trailer brakes. Make sure they are working properly
- Retract the trailer jack(s)
- Connect trailer lights and make sure they work properly

Ball Hitches: A Ball Hitch coupler attached to a hitch ball mounted under or on the tow vehicle's rear bumper. The trailer is equipped with a coupler that is rated for the weight and size of the trailer. You must provide a ball; that is the same size as that coupler. A ball that is too small will not connect securely and may uncouple. Conversely, a ball that is too large will not allow the coupler to fit over the ball.

⚠ WARNING

An incorrectly sized ball can result in the trailer uncoupling and cause serious injury or death.

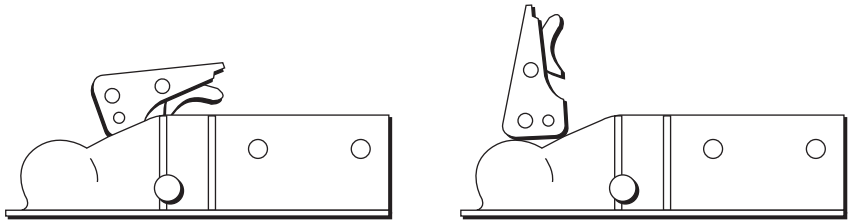
It is critical that the ball and coupling sizes match.

The Hitch and Ball must have a rated towing capacity that is greater than or equal to the trailer's Gross Vehicle Weight Rating (GVWR).

The required ball size and rated load capacity are marked on the hitch.

Coupling the Trailer to the Tow Vehicle

- Verify that the size and rating of the ball and the size and rating of the coupler match.
- Remove any debris or residue from the ball.
- Inspect the ball for damage and wear.
- Make sure the ball is secured to the hitch.
- Clean the inside of the coupler.
- Inspect the coupler for wear and damage.
- Make sure the coupler is secured to the trailer tongue.
- Lubricate the ball and coupler with bearing grease.
- Raise the bottom of the coupler higher than the ball.
- Back the tow vehicle until the ball is directly below and aligned with the coupler.
- Open the coupler and lower the tongue so the coupler fully engages the ball.
- Close the latching mechanism of the coupler and insert the safety pin.



Engaged **Released**

- Test the engagement by raising the jack to see if it will raise the rear of the tow vehicle.
- If the coupler cannot be made secure, do not attempt to tow the trailer. Contact Polar King for assistance.
- Lower the tongue jack until the trailer's tongue weight rests on the hitch.
- Retract the jack fully.

⚠ WARNING

Never attempt to tow your trailer using a worn, damaged or corroded hitch ball and/or coupler. Either may fail while towing and could cause serious injury or death.

Make sure the hitch ball is secure fastened to the hitch. A loose hitch ball can cause uncoupling and result in serious injury or death.

NOTICE

When testing the coupling with the tongue jack, do not raise the rear of the tow vehicle more than 1 inch. It can be damaged by overloading.

Safety Chains

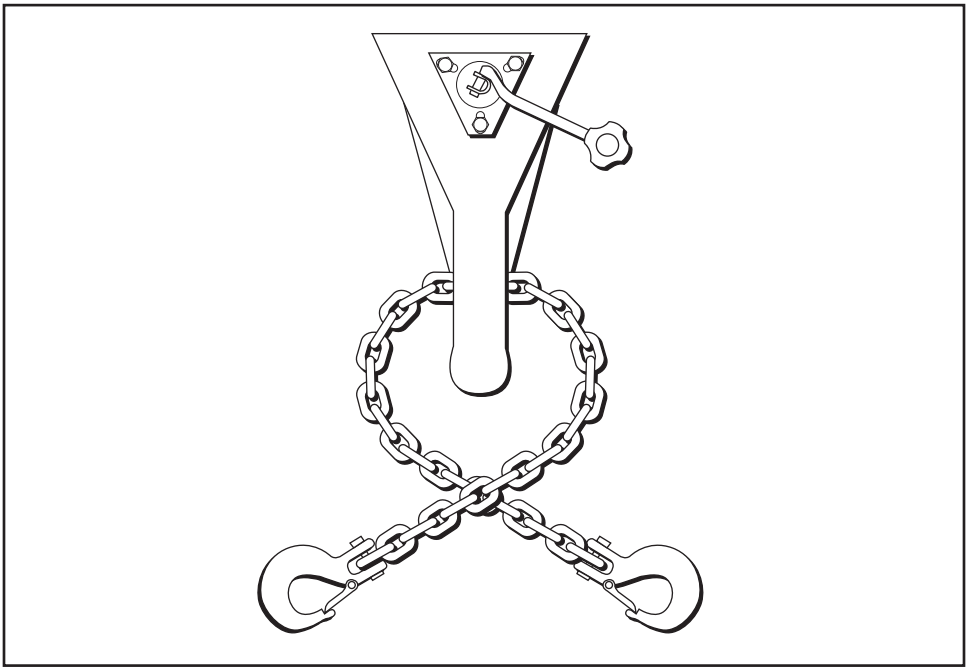
Before connecting the safety chains and hooks, visually inspect them for wear or damage. Replace them if worn or damaged.

In order to hold up the trailer's tongue in the event of an uncoupling, the chains must cross under the coupler.

Loop the chains around a frame member of the tow vehicle or attach them to holes or loops in the hitch, if specifically provided for that purpose. The chains must be attached to something secured to the tow vehicle and not a removable part such as a draw bar.

Attach the hooks from the underside of a hole or loop. **Do not** attach from the top.

Make sure there is enough slack to allow tight turns but not so much as to drag the pavement. They should be tight enough the hold up the trailer tongue in the event of an uncoupling.



⚠ WARNING

Make certain the safety chains are secured properly. Loss of control of the trailer and / or tow vehicle in the event of an uncoupling can result in serious injury or death.

Safety chains must cross under the hitch and coupler with enough slack to allow turning and to hold up the trailer tongue if the trailer uncouples.

Electrical Connections

The trailer provides a cable with a plug to attach the lighting and braking system to the tow vehicle. The tow vehicle must have a corresponding receptacle or mating plug. Connect the cable.

Check all lights to make sure they are working properly. Do not tow when the trailer lights are not working. Repair/replace any lights that are not working.

Check the electric brakes using the tow vehicle's brake controller.

⚠ WARNING

Trailer lights that do not work can lead to a collision. Check all lights, including brake lights and turn indicators, before towing.

Breakaway Brake Lanyard

In the event of an uncoupling, a properly functioning breakaway break system will apply the trailer's brakes. The Safety chains will keep the trailer attached to the tow vehicle and the tow vehicle/trailer can come to a controlled stop.

The Breakaway Brake Lanyard must be attached to the tow vehicle so that it will be engaged before all to the safety chain slack is taken up.

Do not attach this lanyard to the draw bar, hitch ball or safety chains. Should these parts fail and cause the uncoupling the breakaway brake system would not activate.

Testing the Electric Brake System

If your trailer is equipped with electric brakes, your tow vehicle must be equipped with a controller that sends electrical power to the trailer's brake system. You must test the brake each time the before towing the trailer.

To test, with a properly coupled and connected trailer, begin towing at a low rate of speed, about 5 MPH. Manually operate the tow vehicle's brake controller. When the trailer brakes are applied, you should feel a pull or resistance from the trailer. This means the trailer brakes are functioning properly. If the trailer brakes fail to operate, first check the electrical connection and test again. If they still fail to work you must determine the reason and correct it before towing. Contact a qualified trailer mechanic for assistance.

Testing the Hydraulic Surge Brake System

The Hydraulic Surge Brake System will apply the trailer brakes by the motion of the tongue. A special controller is not required in the tow vehicle. It can be difficult to determine if the system is working properly. Follow these steps to test the Hydraulic Surge Brake System.

1. Move the trailer to a flat and level area.
2. Pull forward several feet. This will ensure trailers equipped with free backing brakes are in the normal operating position.
3. Uncouple the trailer and jack up the tongue until level.
4. Loop and connect the safety chains below the actuator cylinder.
5. Keep the breakaway lanyard connected to the tow vehicle.
6. Place wheel chock about 2 feet behind the trailer wheel to prevent a roll-away trailer.
7. With a board about 4 feet long (a 2 × 4 works well) place the end through the safety chain loop and against the actuator cylinder.
8. If the system is working correctly the trailer brakes will apply and prevent you from rolling the trainer.

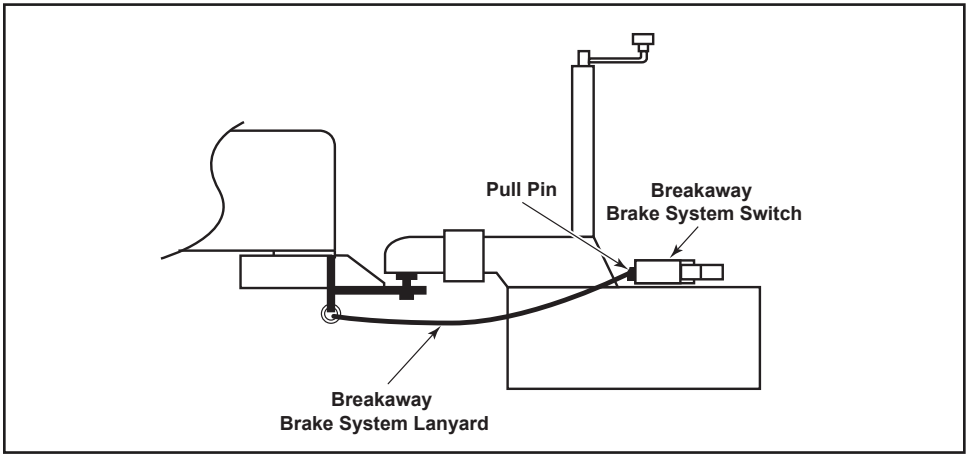
⚠ CAUTION

This test will only indicate if the trailer brakes are engaging, not how efficiently they operate. Regular inspection and maintenance are required to keep the hydraulic surge brakes system working properly.

Testing the Breakaway Brake System

This system includes a lanyard, pull pin, switch, battery and controller.

Most trailers are set up to charge the breakaway brake system battery when connected to the tow vehicle. However, some do not. If your vehicle does not provide charging power to this battery, you must charge it periodically with a separate battery charger.



⚠ CAUTION

Cold weather conditions can prevent the battery in this system from sending adequate voltage to the brakes system causing it not to function properly. Always check the battery's charge before towing.

Never tow a trailer when the battery needs to be charged. This system requires adequate voltage to activate the braking system if the trailer uncouples from the tow vehicle.

To test, remove the pull pin from the switch. Attempt to tow the trailer. The trailer will resist being towed even if the trailer wheels are not locked. If the brakes fail to engage, do not tow the trailer until the brakes and/or battery are repaired.

Replace the pull pin when done testing; the battery will continue to discharge when the pull pin is removed from the switch.

Do not tow the trailer while the breakaway brakes are engaged. This will lead to overheating and eventual brake failure.

⚠ WARNING

Never tow a trailer with a malfunctioning breakaway brake system. This can lead to loss of control and may result in serious injury or death.

Connect the breakaway brake system lanyard to the tow vehicle and not the tow bar, hitch ball or safety chains.

Do not tow the trailer with the breakaway brakes system engaged. This can result in brake damage, which can lead to loss of control causing serious injury or death.

When storing your trailer for more than 3 months, remove and store the battery indoors and charge it regularly. Replace the battery according to the manufacturer's recommendations.

Surge Brake Instructions

Tongue Weight

A portion of the trailer's weight must be carried by the tow vehicle for proper control. Too much or too little tongue weight can cause loss of traction or steering control.

Tool little tongue weight can cause:

- Loss of traction by the tow vehicle on rear wheel drive vehicles
- Trailer instability at towing speeds

Too much tongue weight can cause:

- Loss of steering control by the tow vehicle
- Loss of Loss of traction by the tow vehicle on front wheel drive vehicles

A percentage of 10 to 15% of tongue weight as compared to the loaded weight of the trailer is average. This is an example only. Contact Polar King for specific tongue weight to trailer weight percentages.

⚠ WARNING

Too much or too little tongue weight can cause loss of control and result in death or serious injury.

Make certain the cargo weight is distributed evenly left to right and that centers of gravity are kept as low as possible.

To determine the tongue weight, take your trailer to a commercial scale and weigh the uncoupled trailer by itself. Recouple the trailer to the tow vehicle and pull the trailer so only the trailer wheels are on the scale. Subtract the second number from the first and that is your tongue weight.

While doing this it is a good idea to get the combined weight of the tow vehicle and trailer. This weight should be lower than the Gross Combined Weight Rating of the tow vehicle.

Hitch Height

It is important that the trailer rides level when coupled to the intended tow vehicle. Draw bars with different offset heights are available to adjust the ball height. Adjustable hitches are also available.

If using a bumper mounted ball, an offset coupler may be available.

⚠ WARNING

Overloaded tires, blowout and loss of control can be caused by improper hitch height. This can result in death of serious injury. Make sure the hitch height is correct so the loaded trailer will ride level.

Park the tow vehicle and trailer on a level surface. Visually verify that the trailer is level. If the front of the trailer is lower than the rear, the hitch must be raised. If the front of the trailer is higher than the rear, the hitch must be lowered.

LOADING AND UNLOADING

Improper trailer loading causes many accidents and deaths. To safely load a trailer, you must consider:

• Overall load weight.

• Load weight distribution.

• Proper tongue weight.

• Securing the load properly.

Many accidents are caused by improper loading of trailers. The weight of the cargo plus the empty weight of the trailer must not exceed the Gross Vehicle Weight Rating (GVWR) as shown on the Certification / VIN Label at the front left side of the trailer.

The trailers axles will carry the majority of the trailer's weight, with the remainder carried by tow vehicle's hitch. The tongue and tow weights must be correctly balanced in order for the trailer to tow safely.

Keep the centers of gravity of all cargo as low as possible. A high center of gravity can cause instability in turns and curves.

Do not transport cargo that the trailer is not designed to haul. Never transport people, hazardous or flammable substances.

⚠ WARNING

Transporting people in your trailer is dangerous and can cause serious injury or death. It is also illegal.

Never transport explosive, flammable, poisonous or other hazardous materials. The exception is the fuel in a fuel tank of a piece of equipment.

Loading the Trailer

Before loading the trailer, park the tow vehicle and trailer on a firm, level surface. Make sure the area around the trailer is clear. Inspect the floor for any damage. Verify that any tie downs or track systems are in good shape and undamaged.

⚠ WARNING

Never load a trailer unless it is coupled to a tow vehicle on a firm, level surface with wheels block and parking brake set. Shifting during loading can cause loads to move suddenly or topple causing serious injury or death.

⚠ CAUTION

Use proper lifting techniques to avoid injury.

Load the cargo with approximately 60% of the weight in front of the axle(s) and 40% behind the axle(s). Secure the load with tie-downs strap, chains and tensioning mechanisms.

Once the trailer is loaded and the load is secured, remove the wheel blocks.

Securing Cargo

⚠ WARNING

Shifting cargo can result in loss of control of the trailer and can lead to serious injury or death.

Tie down all loads with proper sized fasteners, chains, straps, etc.

Refer to www.fmcsa.dot.gov for regulations regarding cargo securement rules.

PRE-TOW CHECKLIST

Pre-Tow Checklist

Before towing, double-check all of these items:

- Tires, wheels and lug nuts. See “Breaking In A New Trailer” section of this manual.
- Tire Pressure. Inflate tires on trailer and tow vehicle to the pressure stated on the Certification / VIN label.
- Coupler secured and locked. See “Coupling To Tow Vehicle” section of this manual.
- Safety chains properly rigged to tow vehicle, not to hitch or ball. See “Coupling To Tow Vehicle” section of this manual.
- Test Tail, Stop, and Turn Lights.
- Test trailer brakes.
- Safety breakaway lanyard fastened to tow vehicle, not to safety chains. See “Coupling To Tow Vehicle” section of this manual.
- Cargo properly loaded, balanced and tied down. See the appropriate “Loading And Unloading” section of this manual.
- Tongue weight and weight distribution set-up.
- Ramps secured for travel.
- Fire extinguisher.
- Flares and reflectors.

Make Regular Stops

After each 50 miles, or one hour of towing, stop and check the following items:

- Coupler secured.
- Safety chains are fastened and not dragging.
- Cargo secured.

BREAKING IN A NEW TRAILER

Re-Tighten Lugs

Retighten the lugs after the first 10, 25 and 50 miles. Lugs can become loose after first being assembled. Use a torque wrench to insure correct torque on each lug.

⚠ WARNING

Lug nuts tend to loosen after first being tightened (such as after a re-mounting). Inspect/tighten all lug nuts after the first 10, 25 and 50 miles driven and before each tow after that.

Adjust Trailer Brakes

New brake shoes and drums will wear rapidly until they can seat properly. This is normal. However, that means you must adjust the brakes after the initial 200 miles of towing. Thereafter adjust the brakes every 3,000 miles.

Some axles are fitted with automatic adjusters. Follow the instructions in your axle and brake manual for adjustment instructions. If you do not have the axle and brake manual, contact Polar King.

Pairing Brake Systems

It is important that the brakes of the trailer and tow vehicle work together. When the two systems are paired, or synchronized, they work with each other to slow both tow vehicle and trailer at the same time. If when braking, the tongue of the trailer rises or dives sharply, the systems are not paired and must be adjusted. Read and follow the instruction in your axle and brake manual and/or brake controller manual for instructions. If you do not have either of these manuals, contact Polar King.

⚠ WARNING

If the tow vehicle and trailer brakes do not work in unison, death or serious injury may result. Always test brakes in a safe area away from other traffic at low speeds (<30 MPH) before towing.

ACCESSORIES

Basic information is provided in this section for the safe operation of accessories.

You must read and follow these instructions before using the accessory. If you are uncertain whether you have all of the instructions, contact Polar King before operating the accessory.

Accessory Battery

Your trailer may be equipped with an accessory battery that operates the tilt deck.

The battery may be kept charged either by the tow vehicle, by an auxiliary charger or by using an on-board battery maintainer/charger (if equipped). If the trailer is used daily, it is recommended that the battery charger be plugged in after each days use. The battery may be located in a tongue mounted battery box or a side mounted box.

The accessory battery must be kept in a charged condition during storage. The battery could freeze and break if it becomes discharged.

If the battery is not fully charged, the hydraulic pump will lose pressure which may cause hydraulic fluid to flow back into the hydraulic reservoir, overfilling the reservoir and ejecting fluid into the battery box.

⚠ WARNING

Risk of battery exploding.

Battery box prop rod may contact battery terminals, which may result in the battery exploding, causing serious injury or death.

Place battery box lid prop rod in retaining clip.

INSPECTION & SERVICE SCHEDULE

Insect and Service Before Each Tow

Item/System	Service/Inspect
Breakaway Brakes	Check operation
Breakaway Battery	Terminal clean, fully charged
Trailer Brakes	Check operation
Brake shoes/drums	Adjust after 200 miles/ then every 3,000 miles
Safety Chains/Hooks	Inspect for damage/wear
Coupler	Inspect for damage/wear
	Grease
	Inspect locking device for function/wear
Hitch Ball	Inspect for damage/wear
	Grease
Tires	Check cold pressures/inlfate as needed
	Inspect for damage/wear
Wheels	Inspect for damage/wear
	Tighten all lugs.

Insect and Service every 6 months

Item/System	Service/Inspect
Trailer Brakes	Check wear and current draw
	Check operation
	Adjust shoes
Brake Controller	Check voltage and current output (See Mfgr's Manual)
Tires	Inspect tread and sidewalls
	Rotate every 5,000 miles
Safety Chains/Hooks	Inspect for damage/wear
Coupler	Inspect for damage/wear
	Grease
	Inspect locking device for function/wear
Hitch Ball	Inspect for damage/wear
	Grease

Insect and Service every 12 months or 12,000 miles

Item/System	Service/Inspect
Trailer Brakes	Remove drums, inspect for scoring/excessive wear. Replace per manufacturer's specifications
Tongue jack	Inspect for damage. Grease gears.
Frame	Inspect all frame members, bolts, nus and rivets. Repair or replace as needed.
	Inspect all welds. Repair as needed
Wheels	Disassemble, inspect, repack bearings.
	Inspect rims for cracks and dents. Replace if needed.
Structure	Checked by Dealer.

How To Inspect and Service Your Trailer

In order to inspect and/or service the trailer properly, it must be jacked up.

⚠ DANGER

Crushing hazard.

The tow vehicle engine must be off, ignition key removed and parking brakes set before performing any task in the area under the trailer. The tow vehicle and trailer could inadvertently move or drop causing severe injury or death.

⚠ WARNING

Worn or broken suspension parts can cause loss of control of the trailer, serious injury or death.

Never enter the area under a trailer unless it is on firm, level ground and resting on properly placed and secured jack stand.

Never preform any tasks in the area under a trailer while it is coupled to a tow vehicle, unless the engine is off with the ignition key removed and the parking brakes set.

You must use jack stands when jacking up a trailer for inspection/service. Jacks and jack stands must be placed so that they are clear of any electrical wires, brake lines and suspension parts (springs, torsion bars, etc.). Jacks and jack stands must be placed under the outer frame that the axle(s) is/are connected. Jack stands must be placed so that the trailer is stable and as level as possible.

Have trailer professionally inspected annually and after any impact.

Washing the Trailer

Use a power washer with detergent solution to wash the body and structural members of the trailer as needed.

Screws, Bolts, Nuts & Rivets

Regularly inspect all fasteners and frame members for damage, corrosion, excessive wear of other failure. Replace any damaged fasteners, in kind. You may prefer to have this inspection/service performed by Polar King.

⚠ WARNING

Failure due to broken of damaged fasteners may result in personal injury and/or equipment damage.

Welds

Any weld can fail over time and when subjected to heavy stress such as heavy loads of cargo shifting. Inspect all welds anytime you believe the trailer has been subjected to these types of stresses. Failed weld can cause severe damage to the trailer and/or cargo.

Inspect all welds at least once each year. If you discovered a cracked or other weld failure, have it repaired by a qualified welder or contact Polar King for assistance.

⚠ WARNING

Cracked, broken of otherwise failed welds can cause death or serious injury. Insect all weld at least once a year of if you suspect damage. Have all failed weld repaired by a qualified welder.

Never attempt to repair a failed weld unless you have the equipment and skill to do so properly. An improper weld repair will result in an early failure to the trailer's structure and can cause serious injury or death.

Trailer Brakes

Shoes & Drums

Correctly functioning brakes are critic al to the safe operation of your trailer. An inspection by Polar King or qualified trailer mechanic every 12,000 miles or oven a year is very important.

Replacement of or adjustments to the brakes shoes is not covered under the trailer's axle warranty.

Automatic Adjustment

Brakes must be adjusted after the first 200 miles of trailer use and every 3,000 afterward. For trailers with an automatic adjustment mechanism, hard braking in reverse will tighten the brakes shoes a notch at a time. These instructions will be in your brake and axle owner's manual. If you do not have this manual, contact Polar King.

Manual Adjustment

Some trailers are not equipped an automatic adjustment mechanism. For those trailers the brakes will need to be adjusted manually.

Before beginning a manual brake adjustment, read understand and follow the instructions in your brake and axle manual. If you do not have this manual, contact Polar King.

- Use a properly sixed jack to raise the trailer high enough so the wheels turn freely.
- Secure the trailer on jack stands.
- On the inward side of the brake backing plate, remove the adjustment hole plug.
- With a brake spoon or large flat bit screwdriver, rotate the star wheel on the adjuster screw.
- Continue adjusting until the brakes shoes push against the brake drum and the wheel is difficult to turn.
- Back the star wheel off to loosen the brake shoes until the wheel turns with only a very slight drag.
- Replace the adjustment hole plug.
- Repeat for each wheel.
- Using safe jacking technique, remove the jack stands and lower the trailer to the ground.
- Test the brakes with the tow vehicle. An adjustment to the tow vehicle trailer brake controller may be necessary in order to synchronize the brakes with the trailer.

Electric Brakes

There may be two brakes systems on trailer with electric brakes:

- Normal Brakes – which are engaged when the tow vehicle brakes are applied or when manually applied with the brake controller.
- Breakaway Brakes – which are applied when if the trailer uncouples and the breakaway pin is pulled and triggers the breakaway brake switch.

⚠ CAUTION

Cold weather can adversely affect battery output and performance. Always check the battery's charge before towing.

Battery (Breakaway Brake System)

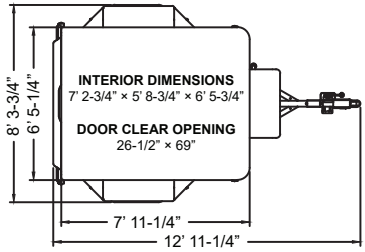
Trailers with electric brakes employ an on-board battery to supply power to operate the brakes should the trailer come uncoupled. This battery must be maintained to keep the critical safety system functioning properly. Some systems use the tow vehicle's power to keep this battery charged. Others systems require that the battery be charged by an external battery charger. Always follow the battery's manufacture instructions when charging this battery.

MOBILE TRAILER SPECIFICATIONS

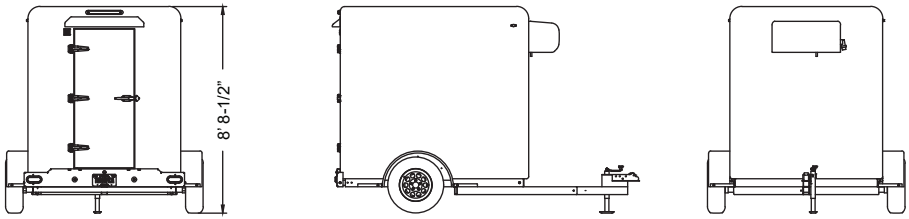
GOVI ARKTIK 2000US
– THERMOMETER
– LIGHT SWITCH

4” WALLS & ROOF
HEAVY DUTY FLOOR
STRIP CURTAINS
LED LIGHTING
7 BLADE CONNECTOR
2-5/16” COUPLER
E-TRACK READY

GVWR: 3,500 LBS.
TRAILER: 2,000 LBS.
CAPACITY: 1,500 LBS.



ROOM TEMP: 0 °F to 50 °F
INTERIOR VOLUME: 268 cu. ft.
HORESPOWER: 3/4 hp.
REFRIGERANT: R-452A
ELEC. SUPPLY: 115V
PHASE: Single
CYCLE: 60 Hz
AMPERAGE: 15.0 MCA
R-VALUE: R-28

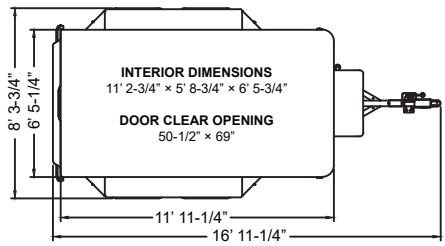


2020 2D-PKM68 Dimensions (2020-2021)

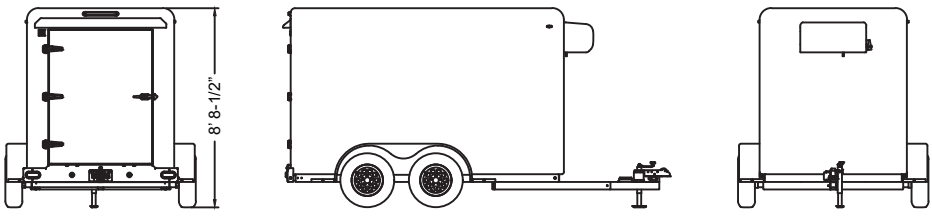
GOVI ARKTIK 2000US
– THERMOMETER
– LIGHT SWITCH

4” WALLS & ROOF
HEAVY DUTY FLOOR
STRIP CURTAINS
LED LIGHTING
7 BLADE CONNECTOR
2-5/16” COUPLER
E-TRACK READY

GVWR: 7,000 LBS.
TRAILER: 2,660 LBS.
CAPACITY: 4,340 LBS.



ROOM TEMP: 0 °F to 50 °F
INTERIOR VOLUME: 416 cu. ft.
HORESPOWER: 3/4 hp.
REFRIGERANT: R-452A
ELEC. SUPPLY: 115V
PHASE: Single
CYCLE: 60 Hz
AMPERAGE: 15.0 MCA
R-VALUE: R-28

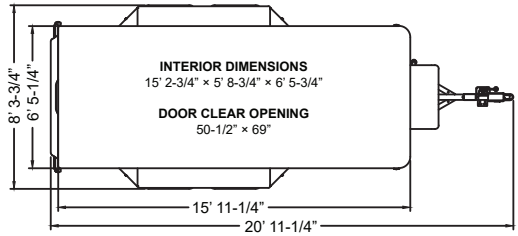


2D-PKM612 Dimensions (2020)

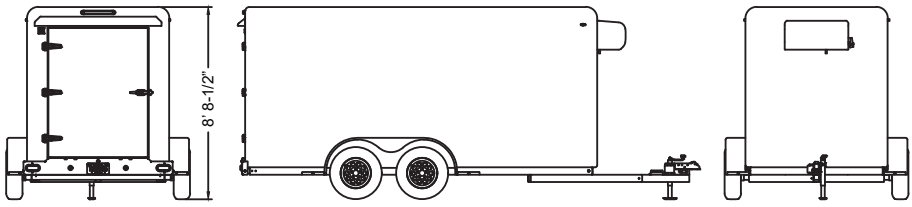
GOVI ARKTIK 2000US
– THERMOMETER
– LIGHT SWITCH

4" WALLS & ROOF
HEAVY DUTY FLOOR
STRIP CURTAINS
LED LIGHTING
7 BLADE CONNECTOR
2-5/16" COUPLER
E-TRACK READY

GVWR: 9,990 LBS.
TRAILER: 3,210 LBS.
CAPACITY: 6,780 LBS.



ROOM TEMP: 0 °F to 50 °F
INTERIOR VOLUME: 564 cu. ft.
HORESPOWER: 3/4 hp.
REFRIGERANT: R-452A
ELEC. SUPPLY: 115V
PHASE: Single
CYCLE: 60 Hz
AMPERAGE: 15.0 MCA
R-VALUE: R-28

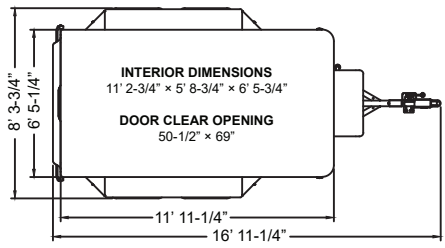


2D-PKM616 Dimensions (2020)

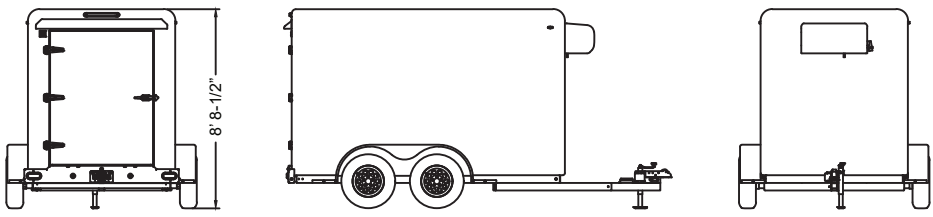
GOVI ARKTIK 2000US
– THERMOMETER
– LIGHT SWITCH

4" WALLS & ROOF
HEAVY DUTY FLOOR
STRIP CURTAINS
LED LIGHTING
7 BLADE CONNECTOR
2-5/16" COUPLER
E-TRACK READY

GVWR: 7,000 LBS.
TRAILER: 2,700 LBS.
CAPACITY: 4,300 LBS.



ROOM TEMP: 0 °F to 50 °F
INTERIOR VOLUME: 416 cu. ft.
HORESPOWER: 3/4 hp.
REFRIGERANT: R-452A
ELEC. SUPPLY: 115V
PHASE: Single
CYCLE: 60 Hz
AMPERAGE: 15.0 MCA
R-VALUE: R-28

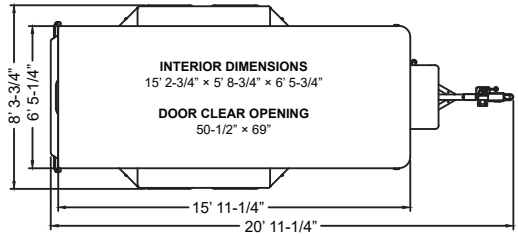


2D-PKM612 Dimensions (2021)

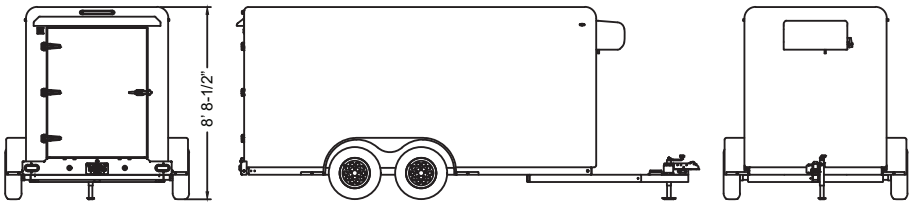
GOVI ARKTIK 2000US
– THERMOMETER
– LIGHT SWITCH

4” WALLS & ROOF
HEAVY DUTY FLOOR
STRIP CURTAINS
LED LIGHTING
7 BLADE CONNECTOR
2-5/16” COUPLER
E-TRACK READY

GVWR: 9,990 LBS.
TRAILER: 3,300 LBS.
CAPACITY: 6,690 LBS.



ROOM TEMP: 0 °F to 50 °F
INTERIOR VOLUME: 564 cu. ft.
HORESPOWER: 3/4 hp.
REFRIGERANT: R-452A
ELEC. SUPPLY: 115V
PHASE: Single
CYCLE: 60 Hz
AMPERAGE: 15.0 MCA
R-VALUE: R-28



2021 2D-PKM616 Dimensions (2021)

REFRIGERATION BASICS

Modern refrigeration has many applications. The first, and probably the most important, is the preservation of food because most foods kept at room temperature spoil rapidly. However, when kept cold most foods will keep much longer.

Before looking at the operation of mechanical refrigeration, it is important to understand the physical and thermal properties of the mechanisms and substances used to extract heat. Removing heat from the inside of the refrigerated trailer is somewhat like removing water from a leaking boat. A sponge may be used to soak up the water and then held over the side, squeezed, and the water released overboard. The operation may be repeated as often as necessary to transfer the water from the boat back into the lake.

In a refrigerated trailer, heat instead of water is transferred. Inside the refrigerated trailer heat is absorbed by the liquid refrigerant in the evaporator as the refrigerant changes from a liquid to a vapor. After the refrigerant has absorbed heat and turned it into a vapor, it is pumped into the condensing unit located outside the refrigerated space and then compressed. The heat is “squeezed” out by high temperature and then cooled in the condenser. This cycle repeats until the desired temperature is obtained.

Cold is a relative term used to describe low temperature, it is not something that is produced. Rather, the removal of heat results in a condition termed “cold”. A refrigerator produces a condition called “cold” by removing heat from inside the refrigerator and the stored content within it. You have probably felt the heat on the floor as you walked by your refrigerator in your home. The principle of heat removal is the same for your refrigerated trailer cooler and/or freezer.

The fact that bacteria are present in most foods calls for it to be preserved in some fashion. Exposing the food to cold or low temperatures slows the growth of these bacteria preventing foods from spoiling as quickly. A cooler temperature slows the activity of all organisms, thus the growth of bacteria on refrigerated food slows dramatically.

The spoiling of food is actually the growth of bacteria. If the bacteria can be kept from increasing, the food will remain edible for a longer period of time. Since most foods contain a considerable amount of water, the food must be kept slightly above freezing temperatures.

If food is frozen slowly, at or near the freezing point of water, large ice crystals will form and break down the food tissues. When such food defrosts, it spoils rapidly and the taste and appearance of the food is greatly compromised. To prevent this problem fast freezing at temperatures between 0°F and -15°F is recommended. By using these low temperatures small crystals form which do not injure the food tissues.

It is always important to keep in mind the difference between refrigerating and freezing. Further, the standard refrigerated trailer cooler is designed to maintain the temperature of the product at 35°F, providing the temperature of the product is within 10°F of this temperature. If the product to be maintained is continually at a higher temperature, additional refrigeration system capacity will probably be required. The same parameters hold true for freezers.

To insure you have adequate refrigeration capacity, be sure to provide your sales consultant with as much information as possible about how you intend to use your cooler and/or freezer.

Heat Load

As we mentioned earlier, the refrigeration system on your refrigerated trailer does not make things cold. The system instead removes heat from the refrigerated trailer structure. Where does the heat come from that must be removed by the refrigeration process? The two most common sources you can control are door openings and product load. Did you know that one 100-watt lamp left on in a refrigerated trailer would generate 8,208 BTU in a 24-hour period? Keep door openings and closings to a minimum to conserve energy. When working inside the refrigerated trailer, close the door behind you. No need to worry, as there is a door opener inside.

Product Load

The main heat source in your refrigerated trailer is the amount of heat that must be removed from the stored product. For example, if you load your refrigerated trailer with 1,500 pounds of product at 0°F, very little heat will have to be removed to obtain a temperature of -10°F. If the same 1,500 pounds of product is delivered from your supplier at +25°F, you must pay to run the refrigeration system to remove this heat from each and every pound of product, until the satisfactory temperature of -10°F is reached. You will have smaller utility bills if you let your supplier remove heat from the product, rather than doing it yourself.

Remember, your unit is designed as either a holding unit (little or no product load) or has been designed to compensate for known product load. It is important to tell your sales consultant how you intend to use your unit. If significant product load occurs in a unit designed for holding, serious temperature problems may occur.

Loading Your Mobile Trailer

Always move product into your refrigerated trailer as soon as you receive it. The longer you wait the more heat it will absorb and the more you will pay to operate the refrigerated trailer. As you load your refrigerated trailer, be sure to allow plenty of airflow around the product because good airflow decreases the amount of time needed to remove heat. Be sure to allow adequate room around the evaporator. As well, never have a product closer than 12 to 16 inches from the evaporator. Remember, the evaporator is hot during defrost and can thaw a product that is too close.

Basic Structure

The structure of your refrigerated trailer is manufactured at our factory in Fort Wayne, Indiana. Four-inch, five-inch, or six-inch, two-pound density foam insulation (the most efficient insulation available) is used in the walls, floor, and ceiling of the unit. The base of the unit has a built-in steel frame providing tremendous strength and allows for easy movement or total portability should your needs require this flexibility.

The unit is completely encased in fiberglass...one continuous surface...which means no seams, no rivet holes, and no air leaks. Unlike other outdoor units, you will never have to caulk splits or metal tears in your Polar King® Mobile refrigerated trailer. No protective roofs or enclosures are required. You won't pay to "cool the outside" with a Polar King® Mobile unit. All the cold air stays in the unit where it belongs. This equates to big dollar savings for you.

Refrigeration

Polar King® Mobile selects the best refrigeration components available for each refrigerated trailer application.

Every system is engineered to provide maximum operating efficiency and years of trouble-free operation. All units are adjusted to the customer's temperature requirements. Trained technicians test and monitor the performance of each unit for 24 hours prior to it leaving our factory.

SAFETY PRECAUTIONS

Safety Messages and Safety Alert Symbols

DANGER!

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

WARNING!

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

CAUTION!

Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

Not Hazard-related Messages

Notice indicate a not hazard-related message.

NOTICE

Indicates information considered important, but not hazard-related (e.g. messages related to property damage).

SAFETY INSTRUCTIONS

Safety Precautions

WARNING!

Do not use a damaged cord, plug or loose socket.

There is risk of electric shock causing property damage, serious personal injury or death.

WARNING!

Never apply heat to the refrigeration unit, it could explode causing serious personal injury and death.

WARNING!

Be careful when working with refrigerant or refrigeration system in any enclosed or confined area with limited air supply (i.e. a trailer, garage, container or similar).

Refrigerant tends to displace air and can cause oxygen depletion which may result in death by suffocation.

WARNING!

Do not remove the safety caps from the end of electrical harness.

Before any work is performed on electrical wiring, be sure to disconnect from power supply by unplugging the main plug.

There is risk of electric shock causing death or serious injury.

WARNING!

 Always use personal protective equipment.

Wear eye protection such as goggles or safety glasses. Refrigerant liquid and refrigeration oil can permanently damage the eyes.

Wear appropriate hand protection, such as work gloves. Exposed coil fins are very sharp and can cause painful lacerations and cuts.

Wear safety shoes. Due to its weight the refrigeration unit can cause painful injuries if it falls down.

WARNING!

 Keep hands away from fans.

Accidental contact with the sharp edges of the fan blades can cause severe personal injury.

WARNING!

 Never drill holes into the refrigeration unit.

Holes drilled into the unit may weaken structural components.

Holes drilled into electrical wiring can cause fire or explosion.

Holes drilled into tubes and coils can cause a leak of refrigeration oil. Direct contact with refrigeration oil can cause painful personal injuries.

WARNING!

 **Never attempt to plug or unplug the refrigeration unit from the power supply when your hands are wet.**

There is risk of electric shock.

WARNING!

 **Avoid fires, electric shock, suffocation or cuts.**

Always unplug the refrigeration unit before removing the main cover. Do Not pull the power cord. Never use a power socket shared with other equipment. No extension cords, 2- or 3-way adapters, etc. No heavy objects on the power cord, no modifications, stretching or excessively bending. If damaged, call a licensed electrician to have the power cord replaced.

No flammable sprays in the vicinity of refrigeration unit.

Leaking refrigerant tends to displace air and can cause oxygen depletion and suffocation. Be especially careful in any enclosed or confined area with limited air supply like a garage, container or building.

Moving parts, like the fan, have sharp edges. Don’t reach in!

WARNING!

 **There is a low-level magnetic field.**

If you have a pacemaker and feel anything abnormal, step away quickly and seek prompt medical attention.

NOTICE

 Keep foreign objects and contaminants from entering the refrigeration unit. If any foreign object (metal or liquid) has fallen in, disconnect from power supply by unplugging the main plug. Then seek immediate technical support.

Safety Precautions Concerning the Refrigerant

Fluorocarbon refrigerants are classified as safe refrigerants, however you must observe certain precautions during the installation process. When released to the atmosphere in the liquid state, fluorocarbon refrigerants evaporate rapidly. This fast evaporation freezes anything in contact with the liquid refrigerant instantaneously. In contact with parts of the human body, it can cause severe frostbites.

First Aid

General provisions in case of frostbite

In the event of frostbite, you should generally protect the affected area from further injury, warm the affected area but Do Not apply heat and observe and maintain respiration.

Frostbite of the eyes:

In case of contact with liquid refrigerant, immediately flush eyes with large amounts of water and get prompt medical attention.

Frostbite of the skin:

Flush the affected area with large amounts of lukewarm water for a long time. Do not apply heat. Remove contaminated clothing and shoes. Loosely bandage frostbite burns with dry, sterile, sizeable dressing to protect from infection or injury. Get medical attention without delay. Wash contaminated clothing before wearing it again.

Environmental considerations

There is no need to handle refrigerants in the installation process.

In case of servicing, service personnel must be aware of federal regulations concerning the use of refrigerants and the certification of technicians. For additional information on regulations and technician certification programs, contact your local dealer or inquire from Polar King® Mobile.

Polar King® Mobile refrigeration units and are shipped with a suitable charge of refrigerant R452A. The refrigerant shall not be vented into the atmosphere. There is risk of severe injuries upon contact with eyes or skin.

In case of fluid leaking out of the refrigeration unit, Do Not continue with the installation process. Contact your dealer for assistance immediately. The fluid may contain substances that need special provisions for a clean environment and may cause injury on contact with skin.

Please read and understand the safety sheet for R452A with the producer‘s description in the *Safety Data Sheet Section* of this manual.

REFRIGERATION UNIT POWER CHECKLIST

GOVI arktik 2000 Series Refrigeration Unit Electrical – Power Checklist

The arktik 2000US sold in North America is a German made 110V/60Hz Refrigeration Unit intended for Mobile (Trailer) and Stationary Applications.

Supply voltage: 115 V / 1 ~ Phase

Frequency: 60 Hz

Refrigeration capacity: 6845 BTU/h [2000 W]

Power consumption: 1428 W

Current consumption:

LRA - **Locked Rotor Amps**: The current you can expect under starting conditions when you apply full voltage is 70 amps. This occurs instantly during start-up.

RLA (FLA) - **Rated Load Amps**: The maximum current a Compressor should draw under any operating conditions is 15 amps

Electric Generators can be used to run unit. 6000 Watts minimum and Inverter (DC to AC) type preferred for clean power.

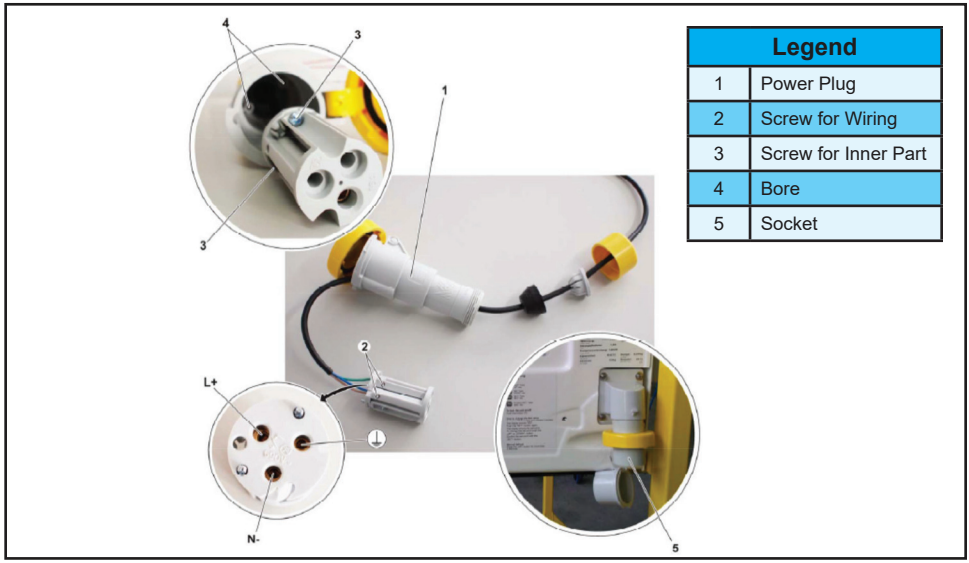
The unit's Electrical Components are protected by a breaker and fuse.

• 16 amp for the Compressor.

• 8 amp for the Stat Controller, Evaporator Fan and Condenser Fan.

Spare Fuse Location

The unit is shipped with a Plug. Customer must provide Power Cord. The factory recommends the unit's power cord to be 12 gauge minimum, Heavy-Duty Outdoor Cord and NEVER exceed 50 feet in length. Extension cords should not be used.



Legend	
1	Power Plug
2	Screw for Wiring
3	Screw for Inner Part
4	Bore
5	Socket

Supplied Plug

The arktik 2000US is a supremely reliable product and will provide years of trouble-free, maintenance-free service. The product is composed of world class component parts and workmanship.

One thing the unit does not like is Low Voltage Electric Current.

The unit needs clean power from a source not being used by other appliances (Dedicated Line). Adequate voltage from the power source must be provided at all times.

Tripped Breaker and Blown Fuse: when the circuit draws more amperage than the fuse is designed to handle. Should the unit blow its fuses 16 or 8 amp when plugged into a power source, the most common reasons are:

Problems with your circuit, and/or your central power supply. The most logical cause of your unit blowing a Fuse when it comes on or while running stems from a problem with the Electrical connection, Power Supply, (voltage drop) or the circuit that powers the system. Fuses are designed to trip or blow when too much voltage is sent through the line. Simply inserting a larger fuse is a recipe for disaster. You need to have a technician get to the root of the problem to prevent any electrical overloads.

An issue with your unit's capacitor. The Capacitor is a part of the Cooling System's Condenser. This small part helps to even out and regulate the electrical current as it flows through the Condenser. A problem with this easy-to-replace part is another reason for blown AC Fuses.

Grounded Compressor. One leading cause of a unit blowing fuses repeatedly is a grounded Compressor. An experienced refrigeration technician will usually use a multimeter with an amp clamp to measure the current being used by specific parts of the system. If the Compressor shows as grounded, it means that the windings inside the Compressor Motor have shorted out. When that happens, it is necessary to replace the Motor.

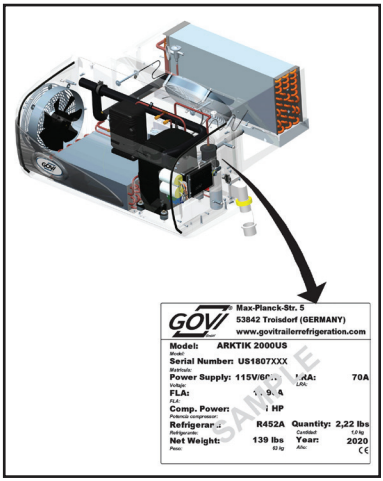
Extreme temperatures, dirty condenser coils or restricted air flow (Plugged Condenser). High demand (i.e. high temperatures) is forcing your system to work harder. This puts extra pressure on the system and will blow the Fuse. It is best to have your system cleaned thoroughly at the beginning of a warm weather season to avoid any such problems and not constrict Condenser fresh air intake.

Loose or Exposed Wires. Inspect the Power Cord and the Electrical Outlet. A loose wire or one that is partially exposed could be touching metal and will cause a short. Check the Plug and Electrical Cord carefully.

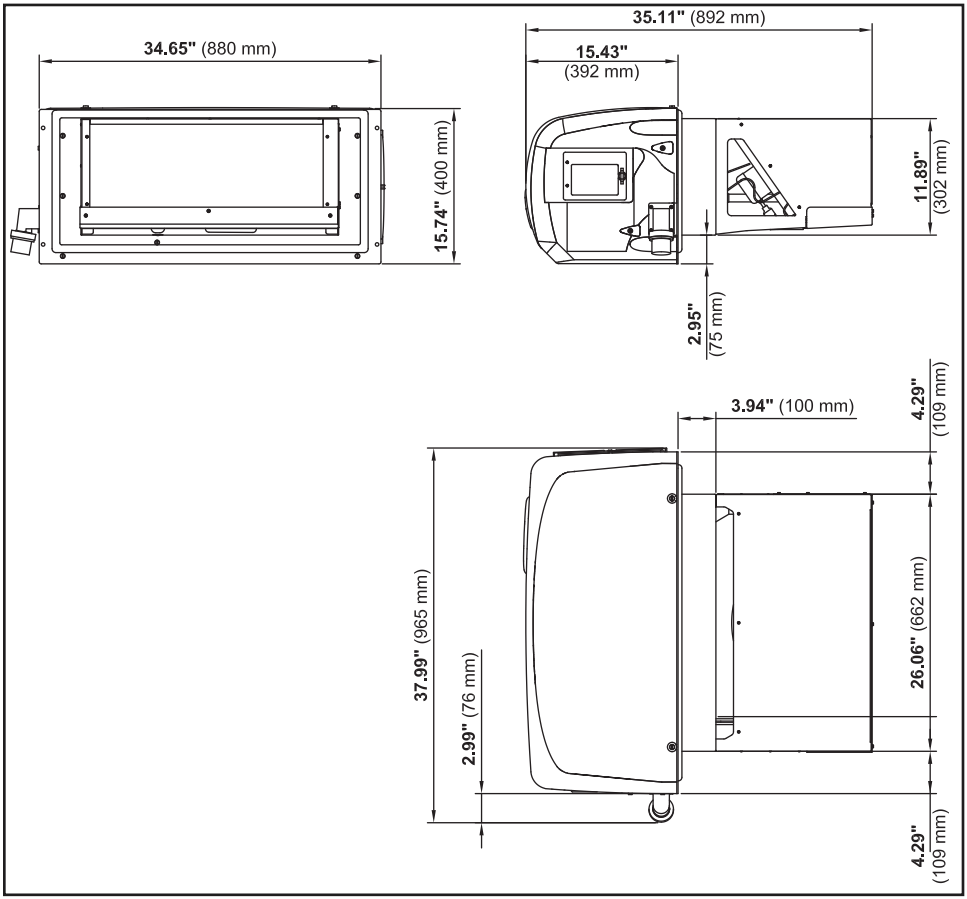
TECHNICAL DATA

You can find the Serial Number of the refrigeration unit and other important technical data on the Name Plate located on the right hand side of the main cover next to the receptacle.

To ensure a prompt and accurate response, please always state the Serial Number of the GOVI Refrigeration unit with any technical inquiry.



Nameplate Location



Dimensions

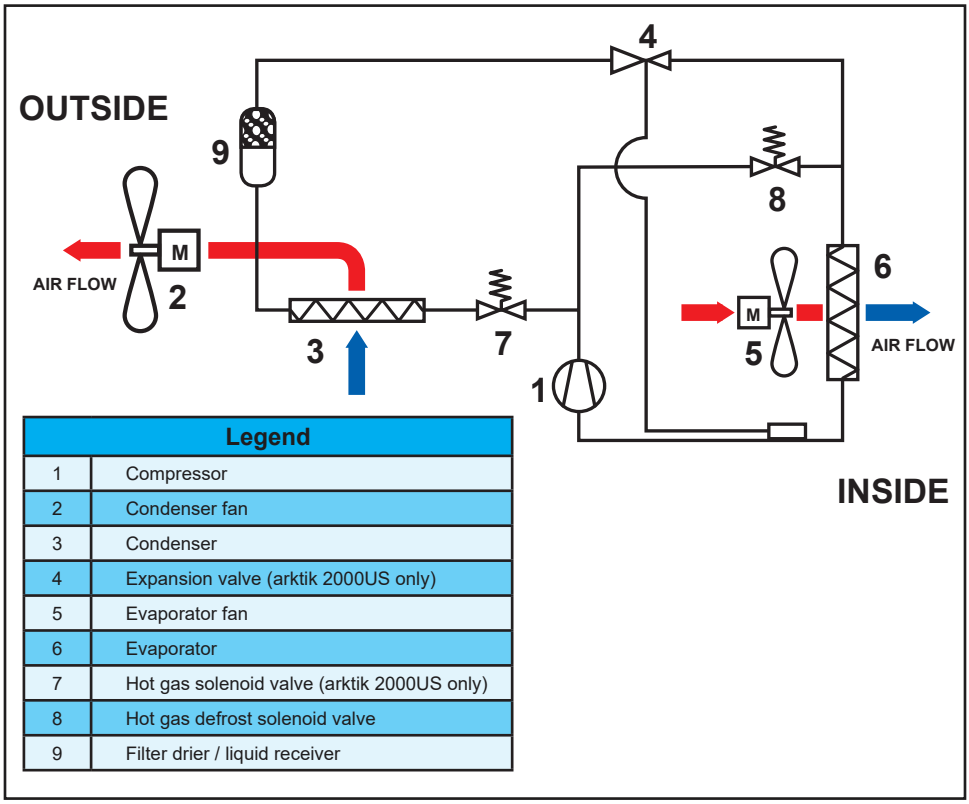
Specifications

Designation	arktik 2000US
Refrigerated trailer internal temperature	TA=35,6°F [2°C]
Supply voltage	115 V / 1 ~ Phase
Frequency	60 Hz
Refrigeration capacity	6845 BTU/h [2000 W]
Power consumption	1570 W
Current consumption LRA	67 A
Current consumption FLA	15 A
Defrost	Automatic hot gas defrost
Evaporator air flow	650 cfm [1100m³/h]
Condenser air flow	650 cfm [1100m³/h]
Protection class, mounting side	IP54
Refrigerant (Chlorine: zero – non ozone depleting)	R452A
Refrigerant quantity	1,65 lbs [0,75kg]
Maximum operating temperature	104°F [40°C]
Dimensions	See Fig. 4. 2
Weight	138 lbs [75kg]
Color	RAL9010

List of Materials

Designation	Material
Structure	Sheet metal, ferrous material
Condenser, evaporator	Aluminium, copper
Electrical components	Copper, PVC, miscellaneous materials
Compressor	Ferrous materials, copper and other materials
Coating	Epoxide compound

SYSTEM DESCRIPTION



Legend	
1	Compressor
2	Condenser fan
3	Condenser
4	Expansion valve (arktik 2000US only)
5	Evaporator fan
6	Evaporator
7	Hot gas solenoid valve (arktik 2000US only)
8	Hot gas defrost solenoid valve
9	Filter drier / liquid receiver

Functional schematic

The refrigeration unit is intended for utilization in refrigerated trailers in temperatures from:

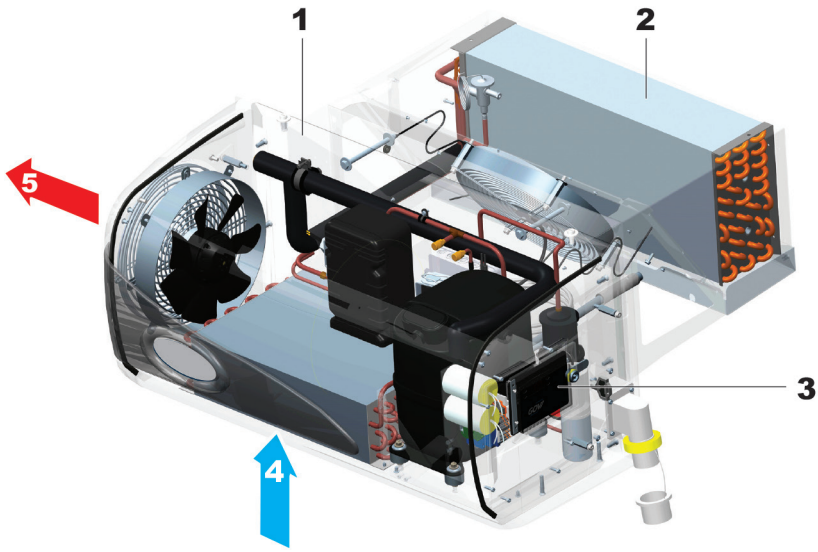
0°F to 50°F (arktik 2000US)

Operation is based on the cooling cycle principle, in that heat transference is by means of a refrigerant which absorbs heat in the evaporator and then releases this in the condenser. All this takes place within a closed loop. The refrigerant is pressurized by an electrically driven compressor, fluidized in the condenser, atomized by means of a throttle valve and evaporated in the evaporator. The evaporator is located inside the trailer, the condenser on the outside.

The refrigeration unit is equipped with forced-ventilated condenser and evaporator and fitted with axial fans; the unit has electronic temperature control.

The refrigeration unit consists of a self-supporting, powder coated, sheet metal chassis and an ABS front cover.

Refrigeration Unit Overview



Legend	
1	Main Cover
2	Evaporator (with refrigerant in the system)
3	Protection Cover
4	Air intake (Do not obstruct!)
5	Air outlet (Do not obstruct!)

Part	Description
Main Cover	The Main Cover (1) covers the outer parts of the refrigeration unit.
Evaporator (with refrigerant in the system)	This is a liquid gas used inside the pipes of a refrigerating unit. Refrigerants usually need special attention in handling. This refrigeration unit works with a hermetic piping system. Under normal conditions there is no need to recharge refrigerant. Some States may have statutory provisions and regulations for disposal of refrigerants. Make sure you know and follow these statutory provisions and regulations when changing or disposing of refrigerants.
Protection Cover and Target Temperature	The Protection Cover (3) is a cover that opens like a window. The lid window shields the control unit from harsh weather and impedes unintended changes of the settings. You need a turn spanner (included in delivery) to open the lid. The Target Temperature is the desired temperature inside the cargo box. You can adjust the Target Temperature by following the instructions according to *Operation Section* in this manual.
Air Intake	Do not obstruct Air Intake!
Air Outlet	Do not obstruct Air Outlet!

OPERATION

Intended Use

This refrigeration unit is designed for cooling refrigerated trailers. Any other use is not permitted resp. needs permission by Polar King

CAUTION!

Do Not Use this refrigeration unit for purposes other than cooling refrigerated trailers.

There is risk of leaking refrigerant causing property damage, severe personal injury or in rare instances death. The refrigeration unit is not designed for use in an explosion hazardous location or a fire hazardous location.

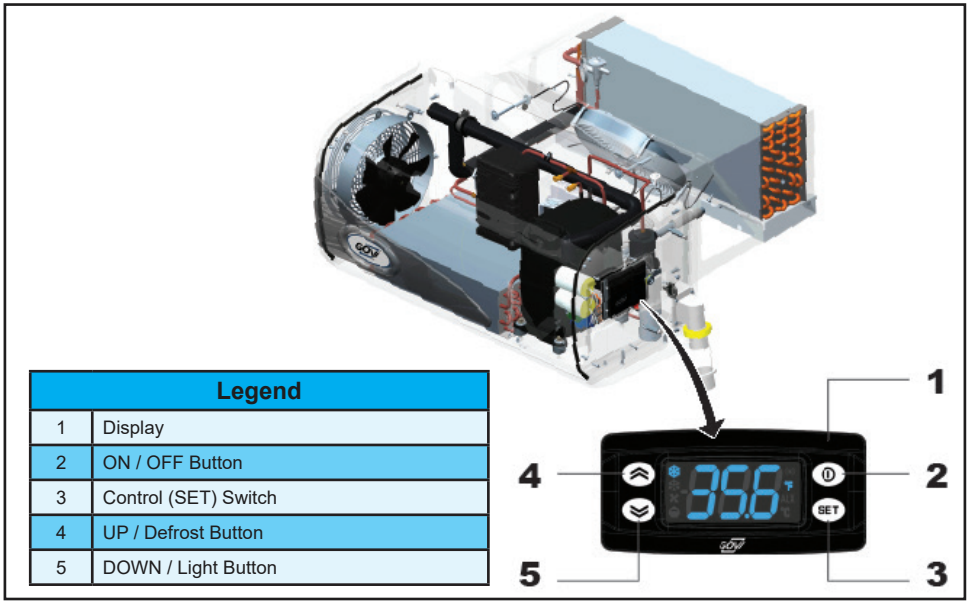
NOTICE

The refrigeration unit is not equipped with reinforced electrical or mechanical components to withstand aggressive atmospheric conditions. Only use the refrigeration unit for refrigerated trailers in normal environments. See *Technical Data Section* of this manual.

NOTICE

The refrigeration unit requires regular maintenance. See *Maintenance Section* of this manual.

Operating Controls



Legend	
1	Display
2	ON / OFF Button
3	Control (SET) Switch
4	UP / Defrost Button
5	DOWN / Light Button

Control Panel Elements

Item No.	Part Name	Description
1	Display	The display serves to choose and to show the nominal temperature.
2	ON / OFF Button	The ON / OFF Button (2) enables the operator to turn the refrigeration unit ON and OFF.
3	Control (SET) Switch	Setting Nominal Temperature.
4	UP / Defrost Button	To increase the temperature / Manual defrost
5	DOWN / Light Button	To lower the temperature / Enable to switch the light ON / OFF.

CAUTION!

You shall immediately unplug the refrigeration unit at the power supply if you detect smoke, unusual smells or strange noises around the refrigeration unit.

Call for service before operating the refrigeration unit again.

NOTICE

Ensure adequate air circulation for the refrigeration unit during the operation process. Do Not obstruct the air intake on the bottom of the refrigeration unit or air outlet on the left side.

Always choose a safe and horizontal parking position for the refrigerated trailer. Allow adequate space from branches of trees and similar items.

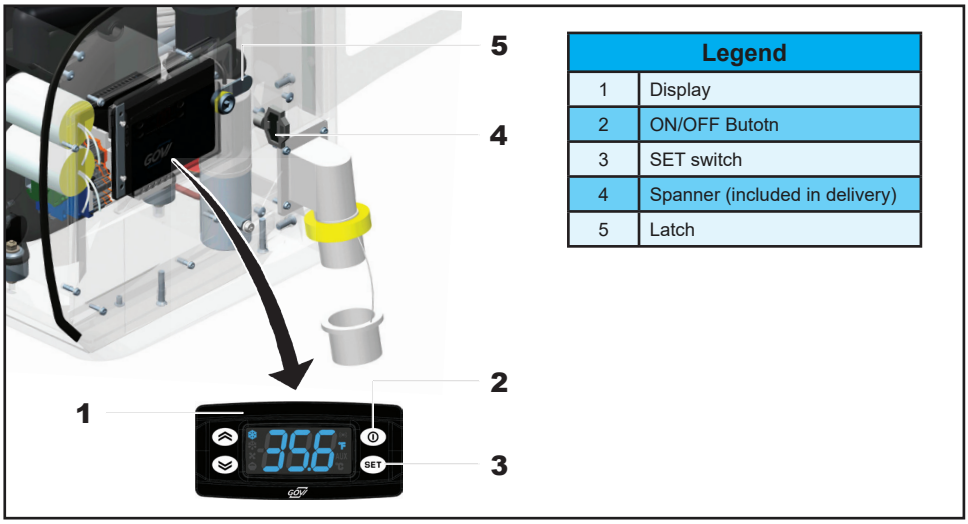
NOTICE

During operation, check regularly for ice buildup on the evaporator inside the cargo box. Icing may inhibit normal operation to a point that the refrigeration unit cannot cool down the cargo box to the set temperature.

There is risk of property damage.

In case of icing, immediately take out all and any perishable merchandise from the cargo box and move it to an appropriate environment. Then start the defrost procedure, See *Maintenance Section* in this manual, to clear the evaporator from icing and restore normal operation conditions.

Unit Controls



Legend	
1	Display
2	ON/OFF Butotn
3	SET switch
4	Spanner (included in delivery)
5	Latch

Unit Control Location

Switching ON/OFF Refrigeration Unit (Initial Startup)

1. Use Spanner (4) to unlock Latch (5) and open the protection cover.
2. Press the ON/OFF Button to activate the trailer refrigeration unit. The current temperature is displayed.
3. Briefly press the button “SET”.
4. The Display (1) shows the preset nominal value already set.
5. To change the nominal value, press the UP or DOWN Button.

CAUTION!

Immediately unplug the refrigeration unit at the power supply if you detect smoke, unusual smells or strange noises around the refrigeration unit.

Call for service before operating the refrigeration unit again.

6. Check that no unusual noises occur such as sheet metal vibrating or rubbing of moving parts.

NOTICE

Ensure adequate air circulation for the refrigeration unit during the operation process. Do not obstruct air intake on the bottom of the refrigeration unit or air outlet on the left side.

Always choose a safe and horizontal parking position for the refrigerated trailer. Allow adequate space to branches of trees and similar objects.

7. Make sure:
   - the Wall Opening of the trailer and the Bore Holes are sealed firmly to prevent moisture or air leakage.
   - neither the Air Outlets nor the Air Intakes of both the Condenser and the Evaporator are obstructed by any material or object.
   - the Main Cover is installed securely on the refrigeration unit and the four (4) Screws are firmly fastened.
   - the Drain Hose is firmly attached to the Drain Outlet.

- the Eye Bolts at the top of the refrigeration unit have been replaced by the Plastic Threaded Bolts.
- all Bolts and Screws are securely fastened.
- the System was checked for leaking fluids or gas.
- the System operates correctly.

8. Unplug the unit from power supply.
9. Complete Installation Checklist in the *Installation Checklist Section* to document the correct installation of the refrigeration unit.

Switching ON/OFF Refrigeration Unit (Normal Use)

1. Use Spanner (4) to unlock Latch (5). Press the ON/OFF button to activate the trailer refrigeration unit.

Setting Target Temperature (Set Point)

1. Use Spanner (4) to unlock Latch (5).
2. Open the protection cover.
3. Switch “ON” the refrigeration unit. See *Switching ON/OFF Refrigeration Unit*.
4. Press SET once quickly. The Display (1) shows “SET” to indicate the change into Set Mode. This allows you to change the target temperature inside the carrier.
5. Press SET again. The Display (1) nows shows the current setting of the Target Temperature.
6. Adjust the Target Temperature by pressing “UP“ for a higher temperature or “DOWN” for a lower temperature. The value changes in steps of 0,1º when you press less than 1 second. When you PRESS and HOLD the button, the value increases or decreases as long as you press or until the maximum of 50ºF or minimum of 10ºF will be reached.
7. Confirm your desired temperature by pressing SET again. SAVE and APPLY the new Target Temperature Setting and leave the Set Mode.

   The Display (1) shows the current temperature inside the carrier.

Manual Defrost

Depending on the temperature settings, the degree of humidity in the air, prolonged operation, constant or repetitive cold air drains, icing may occur on the evaporator inside the carrier. In these instances, energy consumption is likely to increase to extremely high levels while the refrigeration unit might still not cool down the temperature inside the carrier. In case of these instances a manual defrost is recommended to restore normal operation.

NOTICE

Do Not apply force. Do Not deice the evaporator by using any hard or sharp tool to avoid damage to the evaporator fins. With no perishable goods inside the carrier and outside temperatures above freezing it is recommended to open the doors of the carrier while processing manual defrost.

1. Use the Spanner (4) to unlock the Latch (5) and open the protection cover.
2. Press “UP” for more than 5 seconds.
3. The Manual Defrost routine will start.

Switching ON/OFF Lamp in the Carrier

1. Use Spanner (4) to unlock Latch (5).
2. Open the protection cover.
3. Press the “DOWN” button for more than 5 seconds.

MAINTENANCE

NOTICE

Maintain the refrigeration unit

- every six (6) months or
- after a longer period out of operation or
- immediately after operation in a dusty and moist environment.

Deferred maintenance can lead to malfunction and damage the refrigeration unit.

De-Icing

If ice builds up in the refrigeration unit it will not cool properly anymore.

In case of ice buildup on any part of the refrigeration unit inside the carrier defrost manually. See *Manual Defrost Section* in this manual.

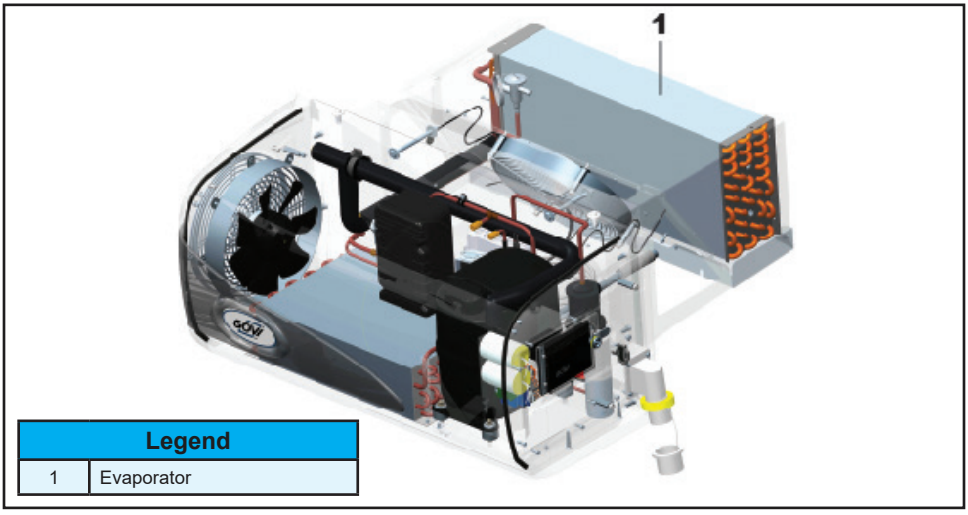
Cleaning

Cleaning Interior Carrier Parts

WARNING!

Never use flammable solvents such as alcohol, benzene or thinners for cleaning. They pose a fire and explosion hazard.

1. Clear the carrier of all goods and merchandise.
2. Disconnect the refrigeration unit by removing the Plug from the main power supply.
3. Open the doors of the carrier wide and fix them securely to prevent the doors from shutting accidentally.
4. Start applying compressed air from an appropriate distance of at least 1 ft before you get closer.



Legend	
1	Evaporator

Interior Carrier Parts Location

Cleaning Exterior Carrier Parts

WARNING!

Avoid electric shock.

Always disconnect the refrigeration unit from power supply before you remove the main cover.

Use a safe working platform during maintenance to avoid injuries from falling.

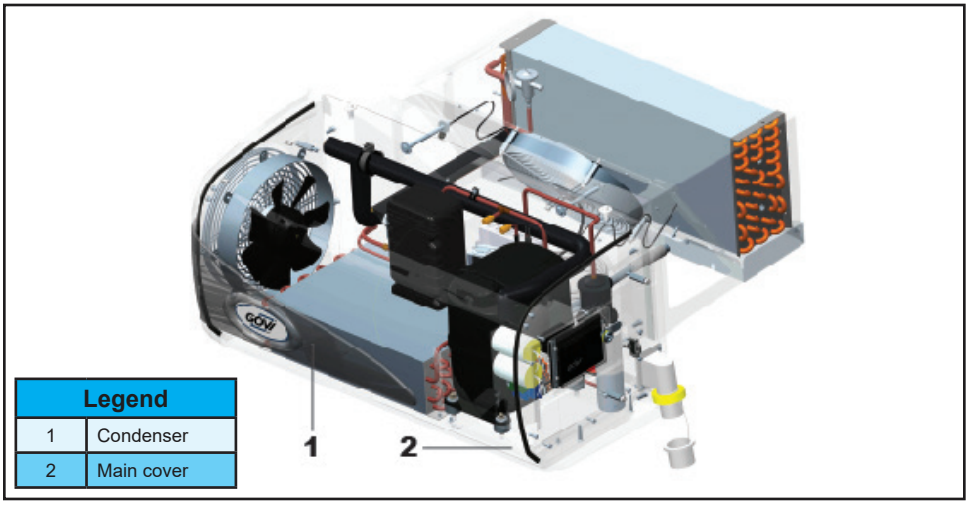
Never use flammable solvents such as alcohol, benzene or thinners for cleaning. They pose a fire and explosion hazard.

Never touch the pipes or any component inside the refrigeration unit. The pipes can easily break or leak refrigerant. Leaking refrigerant can cause severe bodily injuries.

Wear ANSI approved eye protection and working gloves.

Read All First Aid Instructions in the Safety Precautions Section of this manual. Be prepared and know exactly how to react upon accidental contact with leaking refrigerant.

Avoid contact with the sharp edges of the fan or condenser to prevent cuts, scratches or abrasion.



Exterior Carrier Parts Location

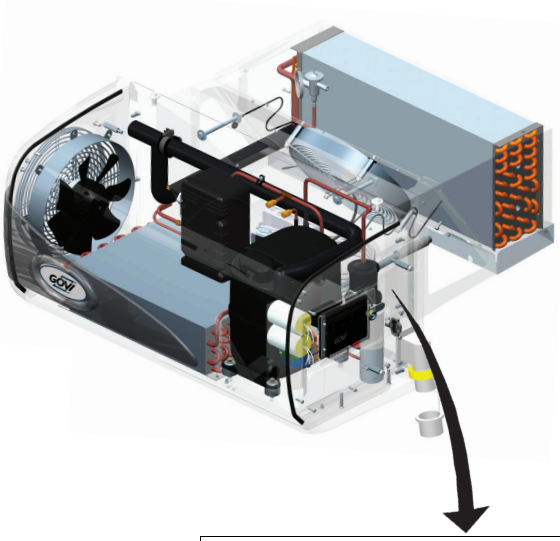
1. Disconnect the refrigeration unit from electricity by pulling the Main Plug.
2. Loosen and remove the four (4) Fastening Screws of the Main Cover (2) by turning them counter-clockwise with a screwdriver.
3. Set the four (4) Fastening Screws aside to reuse them when you are ready to reattach the Main Cover (2).
4. Lift off the Main Cover (2) from the trailer's Wall. Keep it in a clean, dry place for later use.

NOTICE

Always mount Main Cover (2) before operating the refrigeration unit. Do Not operate the refrigeration without Main Cover (2).

5. Clean the Condenser (1) by blowing compressed air top down through the fins. Keep appropriate distance as the fins easily bend and breaks.
6. Attach the Main Cover (2) at the trailer's Wall.
7. Fasten the Main Cover (2) with the four (4) Fastening Screws by turning the Fastening Screws clockwise with a screwdriver.
8. Connect the refrigeration unit to electricity by plugging in the Main Plug.

User Manual



User Manual
Manual de usuario

To turn the unit on/off
Push the button on I/O

Turning on/off the lamp:
Press the "DOWN" – button for more than 5 seconds

How to change the Set value
Push the "SET" – button and release it quickly
The display shows "SEt".
Push the "SET" – button again.
The display shows the set-point.
To change the set-point push the
"UP" – or "DOWN" – button.
Confirm the set-point with the "SET" – button.

Manual defrost
Press the "UP" – button for more than 5 seconds.

Description
Descripciòn

"UP"- key
Tecla "Arriba"

"DOWN"- key
Tecla "Abajo"

"SET"- key
Tecla "SET"

"ESC"- key
Tecla "Función ESC"

Conexión/desconexión del dispositivo
Pluse la Tecla I/O.

Encender/Apagar la lámpara:
Pulse la tecla "Abajo" durante más de 5 segundos.

Ajuste de la temperature ambiente
Pulse vrevemente la Tecla "SET".
En la pantalla aparece "SEt".
Pulse de Nuevo la Tecla "SET".
En la pantalla aparece el valor nominal
Para modificar el valor nominal, pulse la tecla "Arriba" o "Abajo".
Confirme el valor nominal con la tecla "SET".

Instrucciones de desescarche manual
Pulse la tecla "Arriba" durante más de 5 segundos.

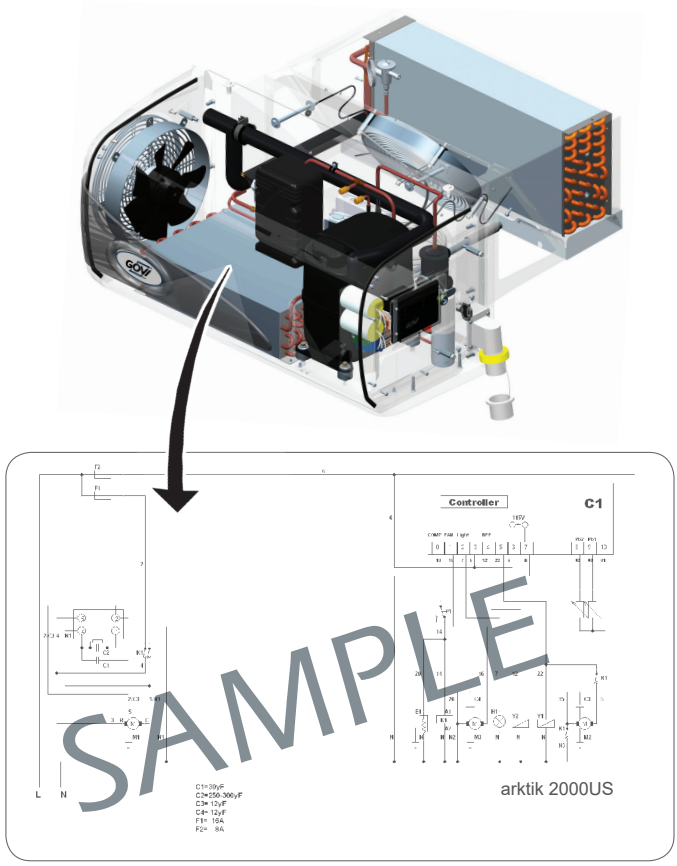
User Manual Location

TROUBLESHOOTING

Symptoms	Problem	Action
The refrigeration unit does not start	No power	1. Check that the Display is ON (ON/OFF). 2. Check the Power Supply.
	Safety Fuse is blown.	Call for service.
The refrigeration unit does not cool, the fan inside the carrier does not turn.	No power	3. Check that the Display is ON (ON/OFF). 4. Check the Power Supply.
The refrigeration unit does not cool, the fan inside the carrier works.	Target Temperature is set too high.	Set Target Temperature to recommended temperature.
	Malfunction of Thermostat	Call for Service.
	High Pressure Switch is tripped.	1. Make sure that the Condenser is clean and that the outer fan is turning. 2. Make sure that the Main Cover is mounted correctly. 3. Call for Service.
The refrigeration unit cools insufficiently.	Ambient temperature exceeds maximum	1. Check for cold air leaks. 2. Choose a colder location.
	Refrigerant is leaking.	Call for Service.
	Condenser is obstructed.	Clean Condenser.
	Malfunction of fans	Call for Service.
	Air circulation of Condenser section is blocked.	1. Ensure sufficient space for air circulation. 2. Remove any objects.
	Circulation of air inside the carrier is impaired.	Check objects in the carrier. Remove objects obstructing the air circulation.
The refrigeration unit switches ON and OFF automatically.	Target Temperature is not set.	Set Target Temperature.
	Defective Temperature Sensor	Call for Service.
Water leaks out of the refrigeration unit.	The drain hose is obstructed.	Remove objects that obstruct the drain hose by using compressed air.
Icing of the evaporator	The Door of the Carrier is open.	Close the Door.
	Defective Fan in the Carrier	Call for Service.
	Malfunction of defrost heating	Call for Service.
No light in the carrier	No power	1. Press the “DOWN” button for more than 5 seconds. 2. Check that the bulb in the refrigeration trailer works. 3. Check the Power Supply to the lights. 4. Call for Service.

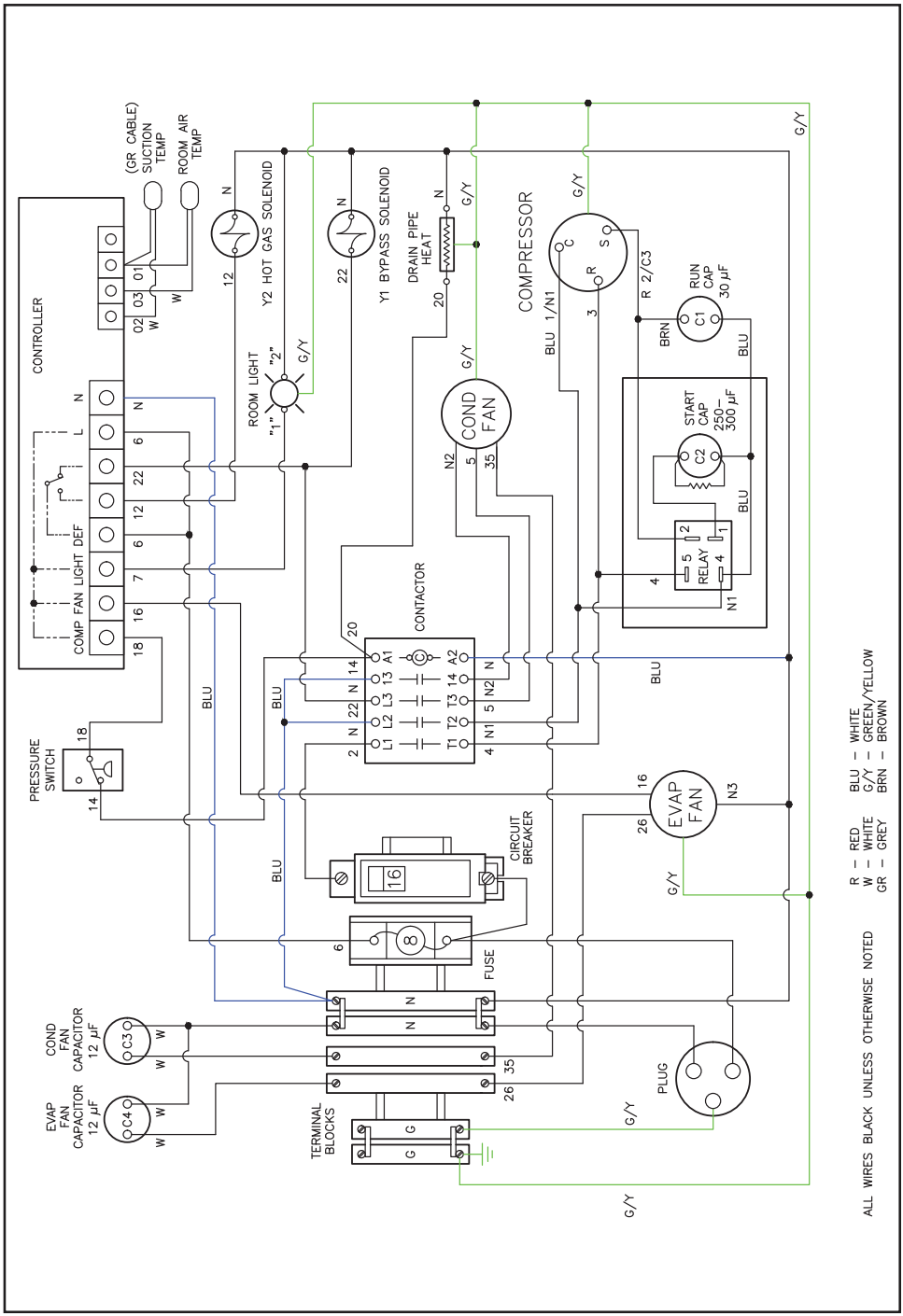
WIRING DIAGRAM

The current wiring diagram is attached on the inside of the main cover.

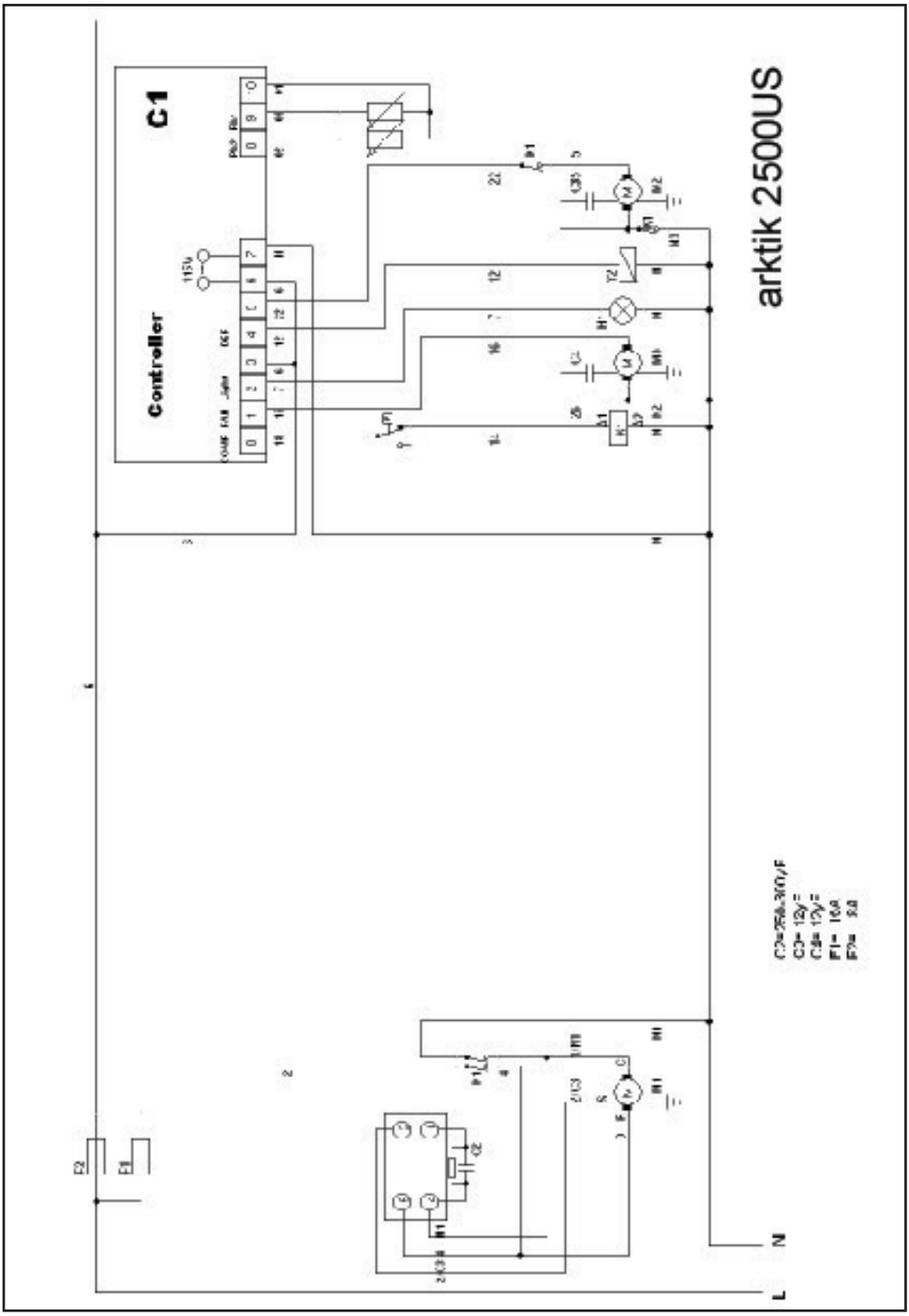


Wiring Diagram Location

Legend					
F1	Main fuse	E1	Drain pipe heating	Pb1	“Room “ probe
F2	Control fuse	K1	Refrigerate relay	H1	Interior lighting
M1	Compressor motor	HP	HP pressure control	Y1	Hot gas solenoid valve
M2	Condenser fan motor	C1	Temperature controller	Y2	Hot gas defrost solenoid valve
M3	Evaporator fan motor	Pb2	“Defrost” probe		



ARKTIK 2000US Wiring Diagram



ARKTIK 2500US Wiring Diagram

SAFETY DATA

Chemours™

Opteon™ XP44 (R-452A) Refrigerant

Version 3.1

Revision Date 08/31/2015 Ref. 130000132272

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Opteon™ XP44 (R-452A) Refrigerant
Tradename/Synonym	:	Opteon (TM) 452A R-452A 452A XP44
Product Grade/Type	:	ASHRAE Refrigerant Number Designation: R-452A
Product Use	:	Refrigerant, For professional users only.
Restrictions on use	:	Consumer use
Manufacturer/Supplier	:	The Chemours Company FC, LLC 1007 Market Street Wilmington, DE 19899 United States of America
Product Information	:	1-844-773-CHEM (outside the U.S. 1-302-773-1000)
Medical Emergency	:	1-866-595-1473 (outside the U.S. 1-302-773-2000)
Transport Emergency	:	CHEMTREC: +1-800-424-9300 (outside the U.S. +1-703-527-3887)

SECTION 2. HAZARDS IDENTIFICATION

Product hazard category
Gases under pressure Liquefied gas

Chemours™

Opteon™ XP44 (R-452A) Refrigerant

Version 3.1

Revision Date 08/31/2015 Ref. 130000132272

Label content
Pictogram :

Signal word : Warning

Hazardous warnings : Contains gas under pressure; may explode if heated.

Hazardous prevention measures : Protect from sunlight. Store in a well-ventilated place.

Other hazards
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing., Rapid evaporation of the liquid may cause frostbite., Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects., May cause cardiac arrhythmia.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Pentafluoroethane (HFC-125)	354-33-6	59 %
2,3,3,3-Tetrafluoropropene (HFO-1234yf)	754-12-1	30 %
Difluoromethane (HFC-32)	75-10-5	11 %

Chemours™

Opteon™ XP44 (R-452A) Refrigerant

Version 3.1

Revision Date 08/31/2015 Ref. 130000132272

SECTION 4. FIRST AID MEASURES

General advice	:	When symptoms persist or in all cases of doubt seek medical advice.
Inhalation	:	Remove from exposure, lie down. Move to fresh air. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary. Consult a physician.
Skin contact	:	Take off contaminated clothing and shoes immediately. Flush area with lukewarm water. Do not use hot water. If frostbite has occurred, call a physician.
Eye contact	:	Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Ingestion	:	Is not considered a potential route of exposure.
Most important symptoms/effects, acute and delayed	:	Anaesthetic effects Light-headedness irregular heartbeat with a strange sensation in the chest, heart thumping, apprehensi on, feeling of fainting, dizziness or weakness
Protection of first-aiders	:	If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Notes to physician	:	Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

SECTION 5. FIREFIGHTING MEASURES

Chemours™

Opteon™ XP44 (R-452A) Refrigerant

Version 3.1

Revision Date 08/31/2015 Ref. 130000132272

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment., Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media	:	No applicable data available.
Specific hazards	:	The product is not flammable.
Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. Wear neoprene gloves during cleaning up work after a fire.
Further information	:	Cool containers/tanks with water spray.

SECTION 6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel)	:	Evacuate personnel to safe areas. Ventilate area, especially low or enclosed places where heavy vapours might collect. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	Should not be released into the environment.
Spill Cleanup	:	Evaporates.
Accidental Release Measures	:	Avoid open flames and high temperatures. Self-contained breathing apparatus (SCBA) is required if a large release occurs.

SECTION 7. HANDLING AND STORAGE

Handling (Personnel) : Avoid breathing vapours or mist. Avoid contact with skin, eyes and clothing.

Provide sufficient air exchange and/or exhaust in work rooms. For personal protection see section 8.
Handle in accordance with good industrial hygiene and safety practice.

Handling (Physical Aspects) : The product should not be mixed with air for leak testing or used with air for any other purpose above atmospheric pressure. Contact with chlorine or other strong oxidizing agents should also be avoided.

Dust explosion class : Not applicable

Storage : Do not drag, slide or roll cylinders. Never attempt to lift cylinder by its cap. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Keep at temperature not exceeding 52°C. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from contamination. Protect cylinders from damage. Keep away from direct sunlight. Store only in approved containers.
The product has an indefinite shelf life when stored properly.

Storage period : > 10 yr

Storage temperature : < 52 °C (< 126 °F)

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls : Ensure adequate ventilation, especially in confined areas.

Personal protective equipment
Respiratory protection : For rescue and maintenance work in storage tanks use self-contained breathing apparatus. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Hand protection : Additional protection: Impervious gloves

Eye protection : Wear safety glasses or coverall chemical splash goggles. Additionally wear a face shield where the possibility exists for face contact due to splashing, spraying or airborne contact with this material.

Skin and body protection : Where there is potential for skin contact have available and wear as appropriate impervious gloves, apron, pants, and jacket.

Exposure Guidelines
Exposure Limit Values

no data available

This product does not contain any exposure limits that require disclosure according to OSHA Hazard Communication Standard 2012.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Physical state : gaseous
Form : Liquefied gas
Color : clear, colourless

Odor : slight, ether-like

Odor threshold : No applicable data available.

pH : neutral

Melting point/range : No applicable data available.

Boiling point/boiling range : Boiling point
< -47.00 °C (-52.60 °F)

Flash point : does not flash

Evaporation rate : > 1
(CCL4=1.0)

Flammability (solid, gas) : The product is not flammable.

Upper explosion limit : Method: None per ASTM E681

Lower explosion limit : Method: None per ASTM E681

Vapor pressure : 13,159 hPa at 25 °C (77 °F)

Vapor density : 3.64 at 25 °C (77 °F)
(Air = 1.0)

Specific gravity (Relative density) : 1.13 at 25 °C (77 °F)

Water solubility : No applicable data available.

Solubility(ies) : No applicable data available.

Partition coefficient: n-octanol/water : No applicable data available.

Auto-ignition temperature : No applicable data available.

Decomposition temperature : No applicable data available.

Viscosity, kinematic : No applicable data available.

Viscosity, dynamic : No applicable data available.

% Volatile : 100 %

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Decomposes on heating.

Chemical stability : The product is chemically stable under recommended conditions of storage, use and temperature.

Possibility of hazardous reactions : Polymerization will not occur.

Conditions to avoid : Avoid open flames and high temperatures.

Incompatible materials : Strong bases
Alkaline earth metals
finely divided metal powders such as, Aluminium, Magnesium, Zinc, or strong oxidizers

Hazardous decomposition products : Decomposition products are hazardous., This material can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrofluoric acid and possibly carbonyl fluoride., These materials are toxic and irritating., Avoid contact with decomposition products

SECTION 11. TOXICOLOGICAL INFORMATION

Opteon™ XP44 (R-452A) Refrigerant
Further information : Avoid skin contact with leaking liquid (danger of frostbite).May cause cardiac arrhythmia.

Pentafluoroethane (HFC-125)
Inhalation 4 h LC50 : > 800000 ppm , Rat

Inhalation No Observed Adverse Effect Concentration : 75000 ppm , Dog
Cardiac sensitization

Inhalation Low Observed Adverse Effect Concentration (LOAEC) : 100000 ppm , Dog
Cardiac sensitization

Skin sensitization : Does not cause respiratory sensitisation., human

Repeated dose toxicity : Inhalation
Rat
-
gas
No toxicologically significant effects were found.

Carcinogenicity : Not classifiable as a human carcinogen.
Overall weight of evidence indicates that the substance is not carcinogenic.

Mutagenicity : Animal testing did not show any mutagenic effects.
Evidence suggests this substance does not cause genetic damage in cultured mammalian cells.
Did not cause genetic damage in cultured bacterial cells.

Reproductive toxicity : No toxicity to reproduction
Animal testing showed no reproductive toxicity.

Teratogenicity : Animal testing showed no developmental toxicity.

2,3,3,3-Tetrafluoropropene (HFO-1234yf)
Inhalation 4 h LC50 : > 405000 ppm , Rat

Inhalation Low Observed Adverse Effect Concentration (LOAEC) : > 120000 ppm , Dog
Cardiac sensitization

Inhalation No Observed Adverse Effect Concentration : 120000 ppm , Dog
Cardiac sensitization

Skin irritation : No skin irritation, Not tested on animals
Not expected to cause skin irritation based on expert review of the properties of the substance.

Eye irritation : No eye irritation, Not tested on animals
Not expected to cause eye irritation based on expert review of the properties of the substance.

Skin sensitization : Not tested on animals
Not expected to cause sensitization based on expert review of the properties of the substance.

There are no reports of human respiratory sensitization.

Repeated dose toxicity : Inhalation
Rat
-
gas
NOAEL: 233 mg/l, 50,000 ppm,
No toxicologically significant effects were found.

Inhalation
Rabbit
-
gas
NOAEL: 2.33 mg/l, 500 ppm,
No toxicological effects warranting significant target organ toxicity classification were seen below the recommended guidance values for

classification.

Inhalation
Mini-pig
-
gas
NOAEL: 50 mg/l, 10,000 ppm,
No toxicologically significant effects were found.

Carcinogenicity : Not classifiable as a human carcinogen.
Sufficient data are available to conclude that the substance is not expected to be carcinogenic.

Mutagenicity : Animal testing did not show any mutagenic effects.
Did not cause genetic damage in cultured mammalian cells.
Experiments showed mutagenic effects in cultured bacterial cells.

Reproductive toxicity : No toxicity to reproduction
Animal testing showed no reproductive toxicity.

Teratogenicity : Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.

Difluoromethane (HFC-32)
Inhalation 4 h LC50 : > 520000 ppm , Rat

Inhalation Low Observed Adverse Effect Concentration (LOAEC) : > 350000 ppm , Dog
Cardiac sensitization

Inhalation No Observed Adverse Effect Concentration : 350000 ppm , Dog
Cardiac sensitization

Skin irritation : No skin irritation, Not tested on animals
Not expected to cause skin irritation based on expert review of the properties of the substance.

Eye irritation : No eye irritation, Not tested on animals
Not expected to cause eye irritation based on expert review of the properties of the substance.

Skin sensitization : Does not cause skin sensitisation., Not tested on animals
Not expected to cause sensitization based on expert review of the properties of the substance.

There are no reports of human respiratory sensitization.

Repeated dose toxicity : Inhalation
Rat
-
No toxicologically significant effects were found.

Mutagenicity : Animal testing did not show any mutagenic effects.
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Reproductive toxicity : No toxicity to reproduction
Animal testing showed no reproductive toxicity.
Information given is based on data obtained from similar substances.

Teratogenicity : Animal testing showed no developmental toxicity.

Carcinogenicity
The carcinogenicity classifications for this product and/or its ingredients have been determined according to HazCom 2012, Appendix A.6. The classifications may differ from those listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or those found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition).

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity
Pentafluoroethane (HFC-125)
96 h LC50 : Oncorhynchus mykiss (rainbow trout) 450 mg/l
Information given is based on data obtained from similar substances.

96 h ErC50 : Algae 142 mg/l
Information given is based on data obtained from similar substances.

72 h NOEC : Pseudokirchneriella subcapitata (green algae) 13.2 mg/l
Information given is based on data obtained from similar substances.

48 h EC50 : Daphnia magna (Water flea) 980 mg/l
Information given is based on data obtained from similar substances.

2,3,3,3-Tetrafluoropropene (HFO-1234yf)
96 h LC50 : Cyprinus carpio (Carp) > 197 mg/l

72 h NOEC : Algae > 100 mg/l

48 h EC50 : Daphnia magna (Water flea) > 100 mg/l

Difluoromethane (HFC-32)
96 h LC50 : Fish 1,507 mg/l

96 h EC50 : Algae 142 mg/l

48 h EC50 : Daphnia (water flea) 652 mg/l

30 d : NOEC Fish (unspecified species) 65.8 mg/l

Environmental Fate
Difluoromethane (HFC-32)
Biodegradability : 5 % OECD Test Guideline 301D
Not readily biodegradable.

Additional ecological information : IPCC - AR4 (Fourth Assessment Report of the Intergovernmental Panel on Climate Change) - 2007

SECTION 13. DISPOSAL CONSIDERATIONS

Waste disposal methods - Product : Can be used after re-conditioning. If re-conditioning is not practicable, dispose of in compliance with local regulations.

Contaminated packaging : Empty pressure vessels should be returned to the supplier.

SECTION 14. TRANSPORT INFORMATION

DOT	UN number	: 1078
	Proper shipping name	: Refrigerant gases, n.o.s. (Pentafluoroethane, 2,3,3,3-Tetrafluoropropene)
	Class	: 2.2
	Labelling No.	: 2.2
IATA_C	UN number	: 1078
	Proper shipping name	: Refrigerant gas, n.o.s. (Pentafluoroethane, 2,3,3,3-Tetrafluoropropene)
	Class	: 2.2
	Labelling No.	: 2.2
IMDG	UN number	: 1078
	Proper shipping name	: REFRIGERANT GAS, N.O.S. (Pentafluoroethane, 2,3,3,3-Tetrafluoropropene)
	Class	: 2.2
	Labelling No.	: 2.2

SECTION 15. REGULATORY INFORMATION

TSCA 5E : This material contains one or more substances which are subject to a TSCA Section 5 Consent Order or Significant New Use Rule (SNUR).

: 2,3,3,3-Tetrafluoropropene
PMN Number: P-07-0601 (Honeywell)

TSCA 12B This material contains one or more substances which requires export notification under TSCA Section 12(b) and 40 CFR Part 707 Subpart D:

2,3,3,3-Tetrafluoropropene
PMN Number: P-07-0601 (Honeywell)

The approved uses are: refrigerant in motor vehicle air conditioning systems.

Processors and users of this substance must also comply with the applicable general SNUR requirements set forth in 40 CFR 721 subpart A, including export notification requirements if applicable (40 CFR 721.20), and the applicable record keeping requirements set forth at 40 CFR 721.125.

Contact your local Chemours sales or technical representative for more information.

SARA 313 Regulated Chemical(s) : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

PA Right to Know Regulated Chemical(s) : Substances on the Pennsylvania Hazardous Substances List present at a concentration of 1% or more (0.01% for Special Hazardous Substances): Difluoromethane

NJ Right to Know Regulated Chemical(s) : Substances on the New Jersey Workplace Hazardous Substance List present at a concentration of 1% or more (0.1% for substances identified as carcinogens, mutagens or teratogens): Difluoromethane

California Prop. 65 : Chemicals known to the State of California to cause cancer, birth defects or any other harm: none known

SECTION 16. OTHER INFORMATION

Before use read Chemours safety information.
For further information contact the local Chemours office or nominated distributors.

Revision Date : 08/31/2015

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may no t be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Significant change from previous version is denoted with a double bar.

APPROVALS & CODE COMPLIANCES

EQUIPMENT APPROVALS / COMPLIANCES

National Sanitation Foundation (NSF)

National Electric Code (NEC)

U.L. Listed, Class I Foam Insulation

U.L. Listed Major Refrigeration Components

U.L. Listed Electrical Components

Miami-Dade Approved (NOA #18-0516.05)

BUILDING CODE GENERAL COMPLIANCES

International Building Code (IBC)

CONDITIONS OF SALE

All sales of goods by Polar King® Mobile, or through its designated representatives (hereinafter referred to as "The Seller") are made subject to the terms and conditions appearing herein.

General

Acceptance of this Proposal is expressly conditioned upon Buyer's assent to the Polar King Mobile (PKM) Conditions of Sale as set forth below and this Proposal may not be assigned. PKM agrees to furnish the equipment and services only upon these conditions. The Proposal and the following conditions shall constitute the entire agreement between PKM and Buyer, not withstanding the terms and conditions of any purchase order of the Buyer. Any changes to this Proposal or to the Conditions of Sale shall be reduced to writing and agreed to by PKM and Buyer.

Delivery

All equipment manufactured, assembled or warehoused in the continental United States is delivered F.O.B. shipping point. Where the scheduled delivery of equipment is delayed by Buyer or by Force Majeure, PKM may deliver the equipment by moving it to storage for the account of and at the risk of Buyer. Shipping dates are based upon prompt receipt of all necessary information and approvals from Buyer. All delivery dates are approximate. Claims for shortages or other errors in delivery must be made in writing to PKM within ten days of delivery. Buyer will be responsible for providing clear access to delivery site for Polar King to unload and set-the-equipment in place. Buyer shall be responsible for additional permitting costs if shipment is delayed or rescheduled by the Buyer. Set in Place fees are included in this Proposal. Delivery site conditions may require additional charges for which PKM, after consulting with Buyer, may require a Change Order to be executed prior to shipment.

Payment - Title

Except as set forth in the proposal for this order or otherwise agreed to by PKM in writing, payment terms are in full before equipment will be shipped or released. If Buyer delays delivery, payment shall become due on the date PKM is prepared to ship. If payments are not made when due, Buyer shall pay a late charge equal to 1 ½% per month (18% per annum) on all such overdue amounts. Buyer shall pay attorney fees and court costs incurred by PKM in collection of overdue payments. Title to the equipment sold shall remain with PKM until fully paid for in cash.

Force Majeure.

PKM shall not be liable for loss, damage, or delay, nor be deemed to be in default from causes beyond its reasonable control or from fire, strikes, floods, tornados, earthquakes, hurricanes, war, terrorism, sabotage, labor difficulties, act or omission of any governmental authority, compliance with import or export regulations, insurrection, riot, embargo, delays or shortages in transportation or inability to obtain necessary labor, materials or manufacturing facilities from usual sources, or from delays in the performance of its suppliers due to any of the foregoing causes. In the event of delay due to any such cause, the time for performance will be extended by a period of time equal to the time lost by reason of such delay and other affected contract provisions shall be equitably adjusted.

Equipment Warranty

The foregoing warranties apply only to the original equipment Buyer and Buyer's Customer. PKM warrants the equipment's materials and labor for a period of one (1) year from the date of delivery to the Buyer's Customer to be free of defects and workmanship for the internal foam insulation, the structure, the roof/floor, the door, the interior/exterior surfaces, the frame, the lighting, the refrigeration system

(including motors, compressors, condensers, evaporators, controls, valves, copper, and insulation). This warranty is in lieu of all other warranties expressed or implied and does not apply to equipment damage, malfunctions attributed to normal wear and tear, accidents, improper installation, abuse, misuse, flood, fire, war, nuclear contamination, improper and/or unauthorized repairs, negligence, or any casualty unforeseen other than an operating defect or failure within the warranty period. In the event the Buyer is renting the equipment or the Buyer's Customer is renting the equipment, the warranty outlined herein shall be 90 days for material and labor. In no event, shall the warranty exceed 12 months from the date of delivery to the Buyer. PKM's obligation herein shall be limited to the current PKM cost to repair or replace any item. In no event shall PKM be liable for any direct, indirect, or consequential damages for loss due to the defects warranted herein including, but not limited to, the loss of contents stored within the unit, lost profits, or revenues. This warranty is non-assignable. This warranty does not cover any products installed outside of the contiguous United States. All warranty service claims made must be made in accordance with the PKM's "Warranty Work Policy".

Limitations Of Liability

In no event shall PKM or its suppliers be liable, whether arising under performance of this contract, breach of this contract, or otherwise, for loss of anticipated profits, loss by reason of service interruptions, product loss, cost of money, loss of use of capital or revenue, or for any special, incidental or consequential loss or damage. PKM's liability on any claim of any kind, including negligence or strict liability, for any loss or damage arising out of, or resulting from this contract, or from its performance or breach, or from the manufacture, sale, delivery, resale, installation, startup or inspection, repair, operation, or use of any equipment covered by or furnished under this contract shall in no case exceed the purchase price allocable to the equipment, part, or service which gives rise to the claim. In no event, regardless of cause, shall PKM assume responsibility for or be liable for penalties or penalty clauses of any kind or for indemnification of customer or others for costs, damages, or expenses each arising out of or related to the goods or services of this order.

Taxes

The Unit Price does not include any federal, state or local property, sales, use, excise, gross receipts, franchise, or other like taxes which may now or hereafter be applicable to the Buyer for this sale. PKM has estimated the sales taxes for this transaction on the Proposal and is required by law to collect these taxes, if applicable, unless the Buyer supplies PKM with an exemption certificate. Buyer agrees to pay or reimburse any such taxes which PKM or its suppliers are required to pay or collect in the event the estimated sales tax is deficient.

Proprietary Information - Confidentiality

Any specifications, design, drawings, plans, notes, technical data or other information of PKM submitted to the Buyer remain the exclusive property of PKM and may not, without its consent, be copied or communicated to a third party.

Cancellation

Any order or contract may be terminated by Buyer only upon written notice and payment of reasonable and proper termination charges, including but not limited to all costs identified to the order or contract incurred up to the later of the date of the notice or PKM's receipt of the notice of termination and all charges incurred by PKM in respect to the termination, plus 10% of the final net selling price.

Partial Invalidity

If any provision herein or portion thereof shall for any reason be held invalid or unenforceable, such invalidity or unenforceability shall not affect any other provisions or portion thereof, but these Conditions of Sale shall be construed as if such invalid or unenforceable provision or portion thereof had never been contained herein.

Choice of Law

The laws of the State of Indiana shall govern this agreement.

Inventions, Patents, Trademarks, Copyrights

PKM warrants that the equipment purchased hereunder shall be delivered free of rightful claims for infringement of any United States patent or trademark, provided however that where equipment is manufactured from patterns, plans, drawings or specifications furnished by Buyer. All right, title and interest in any inventions, developments, improvements or modifications of or for equipment or services furnished to the Buyer shall remain with PKM unless otherwise agreed to in writing between the parties.

Polar King Mobile Limited Trailer Warranty

Polar King Mobile hereinafter referred to as PKM, warrants that trailer refrigeration and freezer units manufactured by Polar King International Inc. are free from any defect in both materials and workmanship under conditions of normal use and service. The obligation of the manufacturer under this warranty shall be limited to the conditions described below. This warranty is not assignable without the express consent of PKM and applies to the original purchaser of trailer units installed and operated within the contiguous United States.

A. One (1) Year Limited Insulation Material Warranty (Seamless Fiberglass Trailer Units)

On trailer units originally purchased from Polar King Mobile, PKM warrants the internal foam insulation for trailer coolers and freezers to be free of defects in both the materials and workmanship for a period of one (1) year from the date of purchase of the unit. This warranty covers only the replacement materials and labor.

B. One (1) Year Limited Structural Warranty (Seamless Fiberglass Trailer Units)

On trailer units originally purchased from Polar King Mobile, PKM warrants the structural integrity for trailer coolers and freezers for a period of one (1) year from the date of purchase of the unit. This covers the structure, roof, doors, floor, interior and exterior surfaces and frame to be free of both defects in material and workmanship. This warranty covers only the replacement materials and labor.

C. One (1) Year Limited Refrigeration System and Components Warranty (Seamless Fiberglass Trailer Units)

On trailer units originally purchased from Polar King Mobile, PKM warrants the refrigeration system and components for trailer coolers and freezers for the period of one (1) year from the date of purchase of the unit. This covers the refrigeration system, motors, compressors, condensers, evaporators, safety and operations controls, electrical components, defrost system, refrigerant specialties, and piping to be free of both defects in material and workmanship. This warranty covers only replacement materials and labor.

D. One (1) Year Limited Miscellaneous Parts and Accessory Items Warranty

On trailer units originally purchased from Polar King Mobile, PKM warrants all miscellaneous parts and accessory items for trailer coolers and freezers for the period of one (1) year from the date of purchase of the unit. This covers all miscellaneous parts and accessory items not manufactured by PKM, but which were attached or otherwise installed by Polar King Mobile at the customer's request, to be free of defects in materials and workmanship. This warranty covers replacement materials and labor only.

E. One (1) Year Limited Trailer Chassis Warranty

The Polar King Mobile trailer chassis is warranted to be free from defects in material and workmanship for a period of 1 year, with the following exclusions:

1) Maintenance items worn through normal use like bearings, brakes, tires, batteries, etc.
2) Axles and suspensions, wheels and tires covered under the original manufacturer’s warranty.
3) Paint
4) Damage or failure resulting from:
    a) Any misuse including overloading, improper loading, negligence, alteration, or accidents.
    b) Inadequate maintenance including loose nuts, bolts, screws, or improperly torqued wheel lug nuts.
    c) Use of underrated or incorrect hitch equipment including the hitch ball, pintle, or improper hitching.
    d) Towing a trailer that exceeds the tow vehicle manufacturer’s specific towing limitations.
5) Overtime labor rates, towing charges, expediting, freight or transportation costs.

NOTE: This warranty is in lieu of all other warranties expressed or implied and does not apply to equipment, damage, or malfunctions attributed to normal wear and tear, accidents, improper installation, abuse, misuse, flood, fire, war, nuclear contamination, improper and/or unauthorized repairs, negligence, or any casualty unforeseen other than an operating defect or failure within the warranty period. Polar King Mobile's obligation hereunder shall be limited to the current Polar King Mobile cost to repair or replace any item. In no event shall Polar King Mobile be liable for any direct, indirect, or consequential damages for loss due to the defects warranted including, but not limited to, the loss of contents stored within the unit, or lost profits or revenues. This warranty is exclusively for trailer cooler and freezer units produced by Polar King Mobile and does not apply to or cover walk-in cooler and freezer units. This warranty does not cover any products installed outside of the contiguous United States.

All warranty service claims made must be made in accordance with the Polar King Mobile "Warranty Work Policy” located on the following page.

WARRANTY WORK POLICY

In the event of a defective part or malfunction in operation of your Polar King Mobile trailer cooler and/or freezer unit, the following steps must be taken to ensure successful warranty coverage.

1. Review Preliminary Checklist

A. Check the power source to your trailer cooler and/or freezer unit. Make certain that the unit is correctly powered on and the power source is on. Check any breaker box or the external power supply.

B. Check the bottom of the evaporator coil. Note if there is heat on the bottom of evaporator coil in the trailer. If this is the case, the unit may be in a defrost cycle. Wait for approximately 30 minutes. If the unit is in a defrost cycle, it should return to proper operation after cycle is completed.

C. Check to see if the thermometer is working properly. If possible, use a secondary thermometer to check the internal temperature of the unit.

After this checklist has been reviewed and operation has not been restored, the following steps must be taken to initiate warranty service and to prevent product damage:

A. Contact the licensed commercial refrigeration company of your choice or contact Polar King Mobile for a recommendation on a local service company.

B. If your Polar King Mobile unit is a cooler, standard ice should be packed around food or other products, in order to maintain proper temperature. Additionally, if possible, limit the number of times the doors are opened as well as the duration of time open.

C. If your Polar King Mobile unit is a freezer, it is very important to limit the number of times the doors are opened as well as the duration of time open. Additionally, do not introduce heat into the freezer and contact a service provider as soon as possible.

D. After problem has been identified by your service provider, have them contact Polar King Mobile for warranty authorization and a work order number.

E. If a problem occurs outside of normal business hours (8 A.M. - 5 P.M. EST) have your service company correct problem and call Polar King Mobile the following day to obtain a work order number.

F. All replaced parts and the repair bill must be sent to Polar King Mobile, (4410 New Haven Avenue, Fort Wayne, IN 46803) freight collect.

All steps and procedures stated in this "Warranty Work Policy" must be followed precisely. Failure to follow the “Warranty Work Policy” may make you responsible for all expenses incurred, since any service call not requiring warrantable item will not be paid for by Polar King Mobile. This warranty is exclusively for trailer cooler and freezer units produced by Polar King and does not cover walk-in cooler and freezer units. This warranty is not assignable without the express consent of Polar King Mobile and applies to the original purchaser of trailer units installed and operated within the contiguous United States.

NO WARRANTY CLAIM WILL BE PAID WITHOUT A WORK ORDER NUMBER ON THE INVOICE AND THE REPLACED PARTS RETURNED TO POLAR KING MOBILE. TO OBTAIN WARRANTY SERVICE AUTHORIZATION PLEASE CALL: TOLL FREE 1-800-223-2017

SEAMLESS FIBERGLASS MOBILE REFRIGERATED TRAILERS

4424 New Haven Ave. Fort Wayne, IN 46803
Phone: 866-586-2051
www.polarkingmobile.com