

## **OWNER'S MANUAL**

12', 16', 22', & 28' Versa-Max Ramp Trailers





Featuring FLOE's exclusive Versa-Track System™

P/N 500-95510-00 10/2:

## Congratulations!



Dear Customer,

We appreciate your business and hope you are proud of your new Floe aluminum trailer – a pride that will continue throughout the years. If you shopped trailers before deciding on the Floe, you probably concluded that our trailer has numerous features not commonly found on others.

At FLOE INTERNATIONAL, we take great pride in providing the highest quality trailer, with the latest state-of-the-art features, at an affordable price. Each year we implement improvements to our product lines to ensure that we are on the "leading edge" and providing the best available trailer.

We are confident your Floe trailer will provide you with years of trouble free trailering, and that if you decide to buy another trailer, it is because you want another Floe model.

Please take the time to read and understand this owner's manual before towing your new trailer. The information offered here will have a direct impact on your safety, the safety of others, and the dependability of your trailer.

Thank you for choosing Floe.

Sincerely,

Wayne Floe

CEO, Floe International

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# **Safety Information**

### **READ THIS INFORMATION BEFORE USING TRAILER!**

It is the owner's/operator's responsibility to check the following items each time before towing trailer:

- Wheel bearings are properly tightened and oiled.
- Tires are inflated to correct pressure.
- Lug nuts on each wheel are tight.
- Trailer is level with tow vehicle and load is positioned to apply equal weight to all tires.
- Bed locking system (tilt clamp) is properly secured.
- Ensure safety chains cross each other and open end of "S" hook faces the trailer.
- Ensure any cables are secure.
- Trailer coupler is properly adjusted and securely attached to the hitch ball.
- If equipped, brake system is working properly and breakaway cable is securely attached.
- Trailer electrical connector is properly connected and all lights are operating correctly.
- Load is secure. Monitor load at regular intervals once underway.
- Trailer capacity and tongue weight are not exceeded.
- The width of the trailer in proportion to your vehicle. Take mental note if trailer width exceeds that of your towing vehicle and drive accordingly.
- No structural damage to trailer exists. Do not use if damaged.

- IMPORTANT- -

Whether you are using your trailer for hauling snowmobiles, ATVs or other items, it is important that you take simple safety precautions every time you use your trailer.



Failure to follow this manual's instructions may result in damage to your trailer or vehicle, and could cause severe or fatal injury to you or others.

## **Reporting Safety Defects**

If you believe that your trailer has a defect which 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 FLOE INTERNATIONAL, INC. at 1-800-336-6337.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153); go to http://www.safercar.gov; or write to: NHTSA, US Department of Transportation, 1200 New Jersey SE, Washington, D.C. 20590. You can also obtain other information about motor vehicle safety from http://www.safercar.gov.

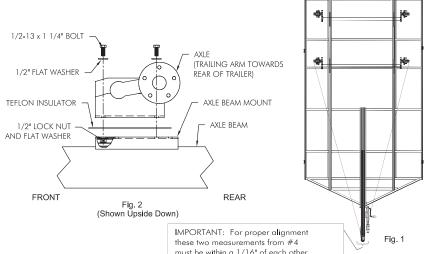
## **LUG NUTS ON NEW WHEELS MUST BE RE-TORQUED** AFTER THE FIRST 50 TO 100 DRIVING MILES

THIS SHOULD BE DONE AS CLAMPING LOADS CAN CHANGE FOLLOWING THE INITIAL INSTALLATION DUE TO THE METAL COMPRESSION/ELONGATION OR THERMAL STRESSES AFFECTING THE WHEELS AS THEY ARE BREAKING IN, AS WELL AS TO VERIFY THE ACCURACY OF THE ORIGINAL INSTALLATION.

## **Procedure for**

# **Axle Assembly**

- 1. Place teflon insulators on the axle beam mount and line up holes. Some trailers will have two sets of holes with the front set as the standard location. The rear set can be used to add tongue weight.
- 2. Set axle(s) on top of Teflon insulators so trailing arm taper is to the rear of trailer. Start each of the four bolts but do not snug up yet. See Fig. 1 and Fig. 2
- 3. Pick a point on the outer edge of the axle(s) that can be easily measured to on both sides. Measure from the center of the coupler to these points (fig. 3). Adjust axles so these two measurements are equal to within 1/16". If mounting more than one axle, start with the rear and work forward.
- 4. Tighten all four bolts to 75 ft/ Ibs. Recheck alignment.





wear and reduced braking power.

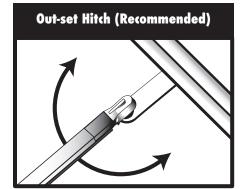
# **Hitch Selection**

When selecting a hitch, there are four important things to keep in mind:

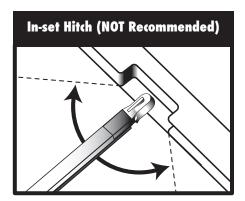
- **Ball size** -- All FLOE tilt trailers use 2" couplers.
- Load capacity -- Load should never exceed the load capacity of your hitch.
- **In-set or out-set hitch --** FLOE recommends an out-set or receiver-type hitch (See below).
- **Hitch Height** -- Hitch should be set so the trailer is level.

----- IMPORTANT-----

Pulling a trailer that is not level could greatly affect the trailer's performance and create an uncomfortable and dangerous situation while towing. It could also create excessive or negative tongue weight which can cause either tongue or axle damage.



These illustrations show that a trailer's turning radius is significantly reduced when towed by vehicles equipped with an "in-set" hitch. To reduce the risk of damage, we recommend the use of an "out-set" or "receiver-type" hitch.



# $\triangle$

## **WARNING**



When connecting your trailer to the towing vehicle, it is important that your hitch coupler is adjusted with the correct amount of force for both smooth and safe trailer performance. A loose connection may cause the coupler to disconnect or to rattle. An over-tight coupler will make it difficult to connect and disconnect. This can also transmit unnecessary vibration to your towing vehicle.



## **CAUTION**



When turning or backing up, the towing vehicle operator must exercise good judgement. The manufacturer will not be responsible for damage from "jackknifing". Jackknifing is damage that results from the tongue or trailer coming in contact with towing vehicle!

# Hitch Coupler Adjustment

All FLOE models have a lever lock hitch coupler. On the lever lock coupler, the amount of locking force can be adjusted to the diameter of the hitch ball. To change the amount of locking force against the hitch ball:

- 1. Release the hitch coupler locking lever (to its straight up position).
- 2. Locate the adjustment nut on the bottom of the hitch coupler.
- 3. Rotate the nut on the threaded shaft clockwise to increase tightness, or counter-clockwise to decrease tightness.
- 4. Re-mount the trailer coupler on the hitch ball.
- 5. Push down the hitch coupler locking lever to its original locking position.
- 6. Repeat steps 1 through 5 until a snug fit is obtained. (If you are unfamiliar with how tight to adjust your coupler, consult your FLOE dealer.)

# Proper Loading & Unloading

- Loads should be placed on the trailer so that proper weight is applied to the tongue. Increase or decrease the tongue weight by moving the load forward or backward.
- Unlike many trailers, the advanced design of your FLOE trailer requires very little tongue weight in order to minimize sway and to track smoothly behind your tow vehicle.
- When possible, loads should also be placed to distribute equal weight to all tires to prevent poor towing, axle damage, and unequal or premature tire wear. See the diagrams on the next page for suggested load placement and tongue weight.

Use this information and common sense for placing loads. Tongue weights are recommended ranges that work well for the illustrated loads. Exceeding the maximum tongue weight or load capacity may damage your trailer, void your warranty, and cause a serious or fatal accident.



## CAUTION

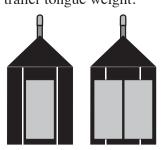


Failure to follow the steps below when loading or unloading could result in damage to your trailer, tow vehicle, snowmobile, and/or cause possible severe or fatal injury to yourself and others.

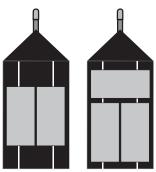
- 1. Never load or unload your trailer unless it is properly connected to your tow vehicle.
- 2. It is imperative that your tow vehicle and trailer are parked on level, even ground. Loading while parked on an incline or uneven ground could cause your trailer bumper to be at an improper angle. This could catch your ski and cause damage to your trailer, snowmobile and/or cause severe or fatal injury.
- 3. Never drive items onto trailer at high speeds.
- 4. Ensure the trailer is fully tilted (if loading a tilt trailer) and that it will stay in the tilted position until loaded.
- 5. After loading, make sure the tilt clamp (if applicable) is secure and will not work itself loose while being towed. Make sure the safety pin is attached.
- 6. Always test your footing before walking on the trailer's deck. It may get very slippery in cold, wet and snowy weather.

# Ideal Equipment Placement

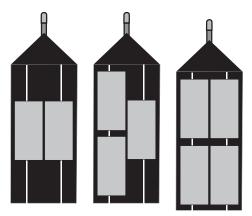
Minimum tongue weight is the empty trailer. Loaded tongue weight should never be less than the empty trailer tongue weight.



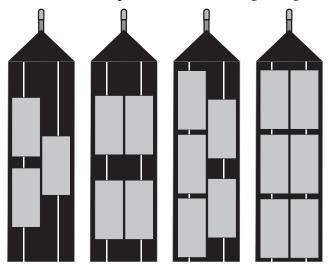
- 10' Ramp Max tongue weight: 150
- 12' Ramp no brakes with 1 axle Max tongue weight: 220
- 12' Ramp no brakes with 2 axles Max tongue weight: 300
- 12' Ramp with brakes Max tongue weight: 300



**14' & 16' Ramp no brakes** - Max tongue weight: 220 **14' & 16' Ramp with brakes** - Max tongue weight: 300



**20' Ramp** - Max tongue weight: 300 **22' Ramp** - Max tongue weight: 300

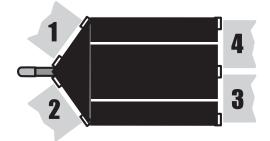


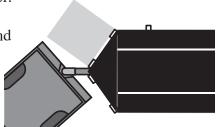
28' Ramp - Max tongue weight: 300

# Ramp Use

The ramp can be placed at four different locations on the FLOE trailer. See Illustration below for placement options. Place the ramp on the desired ramp handles and push the ramp forward to hook the ramp and keep it from becoming disconnected.

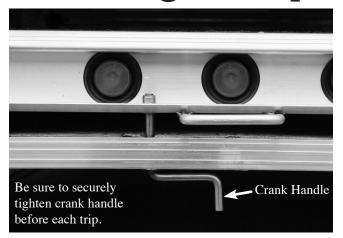
Maximum weight capacity is 1500lbs.





Towing vehicle should be angled away from trailer so there is plenty of clearance to unload.

# **Securing Ramp**



# <u>^</u>

## WARNING



Failure to firmly secure the ramp by tightening the crank handle may result in the trailer ramp becoming loose and falling out.

Be sure that you tighten the crank handle firmly in place each time you travel and each time the ramp is put into it's storage position.

# Securing The Load

Although your FLOE trailer is equipped with certain load securing features, it is the responsibility of the operator to decide what is necessary to properly secure the load for the travel conditions.



## **WARNING**

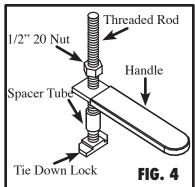


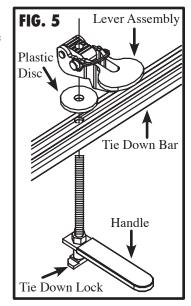
Failure to read the Versa-Lock use instructions prior to using it could result in severe damage to the cargo it is meant to hold, cause a road hazard, or even death.

#### VERSA-LOCK ASSEMBLY INSTRUCTIONS

- 1. Slide spacer tube and handle over threaded rod. Thread 1/2" nut down to handle and tighten so handle is perpendicular (90°) to tie down lock. Torque to 60 ft. lbs. See Fig. 4
- 2. Insert threaded rod through tie down bar from the bottom. The tie down lock and handle assembly should be on the bottom (flat) side of bar. Slide the plastic disc over rod. Apply a liberal amount of anti-seize lubricant onto the threaded rod. Screw the lever assembly onto the rod until 1" of thread is sticking out the top of lever assembly. See Fig. 5.
- 3. Before using the Versa-Lock to secure a load, read and understand the instructions on how to use it.

Anti-seize lubricant MUST be applied on the threaded rob of the Versa-Lock when assembling for the first time and annually or as needed to provide peak performance.

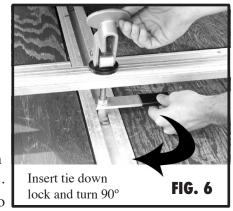


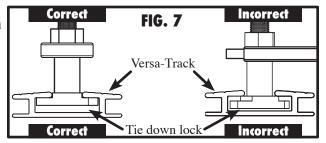


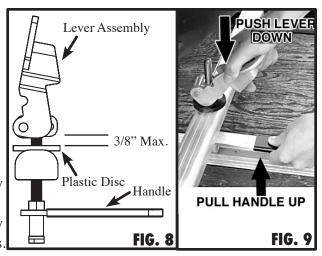
# Securing The Load

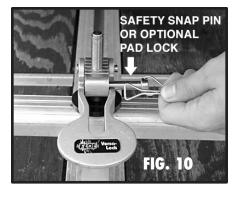
#### **VERSA-LOCK USE INSTRUCTIONS**

- 1. With the snowmobile loaded on the trailer, place the tie-down bar on the skis, insert the tie-down lock into the Versa-Track™ on the trailer and turn handle 90°. See Fig. 6. The handle should be parallel (in line) with Versa-Track and directly below the lever assembly. Ensure tie-down lock is properly seated as shown in Fig. 7, by lifting handle and moving from side to side until lock is completely square across track.
- 2. Crank the lever assembly down until it is a maximum of 3/8" from the plastic disc (Fig. 8) when the tie-down bar is sitting on the skis.
- 3. To clamp tie down bar in place, pull up on handle and move side to side to make sure tie down lock is seated properly in Versa-Track (Fig. 7). Use your other hand to push down on lever assembly while still pulling up on handle. Pulling the handle up keeps the tie-down assembly in vertical position and allows it to clamp down much easier. See Fig. 9. If more or less holding pressure is desired, simply lift lever up and turn clockwise to tighten or counter clockwise to loosen.
- 4. With the Versa-Lock in the clamped position, insert the safety snap pin to hold the lever assembly down (Fig. 10). A padlock (not included) may be used instead of the snap pin for added security. Failure to insert the safety snap pin or padlock will result in the load becoming unsecured.
- 5. A recommended Tie-Down and strap for rear tie-down is shown in Fig. 11. Fig 12 shows a properly installed Versa-Lock with tie-down bar. Note: If the Versa-Lock is used on a different snowmobile, it may need to be adjusted up or down for varying ski heights.

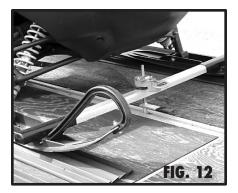












# **Securing The Load**

## **CAUTION**



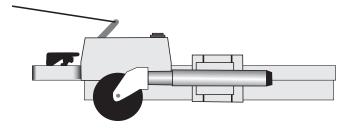
As with any tie-down system, the ultimate responsibility for ensuring that the load is adequately secured lies with the driver. At a minimum, FLOE recommends the use of a properly tensioned tie-down bar and a means to secure the rear of the snowmobile (as shown in Figs. 11 & 12). You may choose to do more or less, based on road conditions and your specific situation. Always use discretion when determining load-securing measures, and periodically check your load to ensure security is maintained.

#### **TIE-DOWN INSTALLATION**

Lubricate the threads of the bolt with Anti-seize. Insert the D-Ring (shown) or Tie-Down plate assembly into the Versa-Track. Rotate the cam until the insert catches in the Versa-Track. While pulling up on the tie-down, tighten until insert stays engaged with slot. Slide the tie-down to the desired location and finish tightening the bolt. Whether Tie-Down plates or D-Rings are being used, they should be installed so that the pull is as close to perpendicular as possible.



# **Brake Systems**



#### **ELECTRIC BRAKE (OPTION)**

If you have selected the electric brake option, please follow the instructions below:

- 1. Equip your towing vehicle with a quality electric brake actuator.
- 2. If you are unfamiliar with the proper installation process, have the unit installed and tested by a certified professional.
- 3. Your trailer is equipped with a break-away battery and a built-in charger that charges the battery when the 7-way plug is attached to your tow vehicle. The break-away switch must be attached to your tow vehicle with the supplied cable in order to function.

#### 

A break-away safety cable (with "S" hook) is provided on both brake options. The break-away system should only operate after both the trailer coupling and safety chains have failed! WHEN USING YOUR TRAILER, THIS SAFETY CABLE SHOULD ALWAYS BE CONNECTED TO THE TOWING VEHICLE!

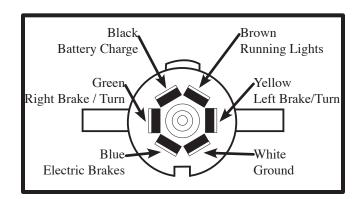
#### **SURGE BRAKE (OPTION)**

Surge brakes utilize hydraulic brake fluid and are activated by the surge (or push) against your hitch ball as your vehicle braking occurs. The surge brake system consists of a brake actuator, master cylinder, hydraulic brake lines, wheel cylinders and brake shoes.

For maintenance instruction and schedules, refer to your Surge Brake Owner's Manual. For surge brake replacement parts, refer to your Surge Brake Owner's Manual or your Axle Operation/Maintenance/Service Manual.

# **Brake Systems**

The diagram at the right shows the proper electric brake system color code. If you are unfamiliar with the proper installation process, have unit installed by a certified professional.



Safety

# **Trailer Lighting System**

Special emphasis has been placed on the design of your FLOE trailer's lighting and wiring system to ensure that it is long-lasting and maintenance-free. FLOE uses high quality lights that are commonly found on commercial over-the-road trailers.

#### **SIDE MARKER LIGHTS (Amber and Red)**

- Shock-mounted (on replaceable rubber grommets)
- Waterproof sealed units (for longer life)
- Easy to replace
- Small enough to carry spares

#### REAR TAIL/BRAKE/TURN SIGNAL LIGHTS

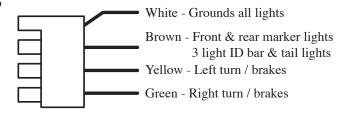
- Standard size
- Easy to replace and to carry spares

# REAR ID MARKER LIGHTS, FRONT/REAR CLEARANCE LIGHTS

- Standard size
- Easy to replace and to carry spares

#### TONGUE CONNECTOR AND HARNESS

- Electrical connector has a molded harness for long lasting durability. Your trailer is equipped with a plug-in receptacle to keep the electrical connector protected when not in use.
- Tongue portion of wiring harness can be replaced without having to splice or replace the remaining wiring harness.
- Wire harness is run through the trailer frame to keep it protected from the elements.
- To ensure trouble-free use, periodically inspect all connections for tight, corrosion-free contact and apply an electrical grease as necessary to prevent future corrosion.



The wiring diagram provides the information needed for wiring the towing vehicle harness/connector. It is important that the proper connections be made and that the system is tested before using your trailer.

# Care & Maintenance

#### ----- IMPORTANT-----

It is very important to read and follow these maintenance procedures to help avoid trailer failure. Any trailer failure resulting from improper maintenance may void your warranty.

| COMPONENT                      | INSPECTIONS & MAINTENANCE  | AVOID   |
|--------------------------------|--|---|
| Structure/Frame                | a) Do a visual check to ensure that none of the structural components are bent or cracked before towing. If damage does exist do not use the railer until it has been repaired by an authorized repair service.          | <ul><li>a) Loading the trailer in an unbalanced fashion (heavy on one side).</li><li>b) Exceeding capacities of trailer and tongue.</li></ul> |
| Axle                           | a) Inspect trailing arms to make sure they are straight.   | a) Leaving loaded for long periods  |
| Tires                          | a) Keep tires properly inflated.     b) Inspect periodically. (Replace when necessary)   | a) Leaving loaded for long periods     b) Driving with worn tires.  |
| Aluminum<br>Surfaces           | <ul><li>a) Rinse periodically with water, particularly if driven on "salted" roadways.</li><li>b) Remove grease, oil and dirt by scrubbing with soft bristle brush and mild detergent. Rinse with clean water.</li></ul> | a) Harsh, abrasive cleaners.     b) Bolting or hard-mounting dissimilar metals to aluminum surfaces.  |
| Electrical System<br>Connector | a) Periodically check for build-up of oxidation or corrosion and clean when necessary. Use electrical grease in all wire and bulb connections to help prevent corrosion.   | a) Using harsh chemicals or solvents  |
| Decking Surface                | a) Rinse periodically to remove surface dirt especially when driving on "salted" roadways.   |   |

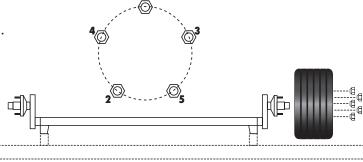
## > HUB & AXLE MAINTENANCE <

A COMPLETE INSPECTION AND LUBRICATION OF THE WHEEL HUBS IS REQUIRED EVERY 3,000 MILES OR 6 MONTHS. TO LUBRICATE THE WHEEL HUBS, REMOVE THE RUBBER PLUG, PLACE GREASE THROUGH THE EXPOSED GREASE FITTING, AND REPLACE THE RUBBER PLUG. USE EXXON RONEX MP LITHIUM COMPLEX GREASE OR EQUIVALENT.

FOR DETAILED AXLE SERVICE AND MAINTENANCE, GO TO WWW.FLOEINTL.COM, CLICK ON "MANUALS & INFORMATION" IN THE TOP MENU, AND GO TO THE "TRAILERS" > "HOW-TO VIDEOS AND GUIDES" SECTION.

# **Changing Tires**

- 1. Start all lug nuts by hand to prevent crossthreading and to ensure proper nut-to-rim seal.
- 2. Tighten bolts in the sequence detailed in diagram in stages, first tighten to 25 ft./lbs., then 60 ft/lbs., and finally 80 ft./lbs.
- 3. Inflate tires to proper PSI.



Page 12 P/N 500-95510-00

This portion of the User's Manual contains tire safety information as required by 49 CFR 575.6.

Section 2.1 contains "Steps for Determining Correct Load Limit - Trailer".

Section 2.2 contains "Steps for Determining Correct Load Limit - Tow Vehicle".

Section 2.3 contains a Glossary of Tire Terminology, including "cold inflation pressure", "maximum inflation pressure", "recommended inflation pressure", and other non-technical terms.

Section 2.4 contains information from the NHTSA brochure entitled "Tire Safety - Everything Rides On It". This brochure This brochure, as well as the preceding subsections, describes the following items;

- Tire labeling, including a description and explanation of each marking on the tires, and information about the DOT Tire Identification Number (TIN).
- Recommended tire inflation pressure, including a description and explanation of:
  - A. Cold inflation pressure.

  - B. Vehicle Placard and location on the vehicle.C. Adverse safety consequences of under inflation (including tire failure).
  - D. Measuring and adjusting air pressure for proper inflation.
- Tire Care, including maintenance and safety practices.
- Vehicle load limits, including a description and explanation of the following items:
  - A. Locating and understanding the load limit information, total load capacity, and cargo capacity.
  - B. Calculating total and cargo capacities with varying seating configurations including quantitative examples showing / illustrating how the vehicles cargo and luggage capacity decreases as combined number and size of occupants' increases. This item is also discussed in Section 3.
  - C. Determining compatibility of tire and vehicle load capabilities.
  - D. Adverse safety consequences of overloading on handling and stopping on tires.

#### 1.1. Steps for Determining Correct Load Limit - Trailer

Determining the load limits of a trailer includes more than understanding the load limits of the tires alone. On all trailers there is a Federal certification/VIN label that is located on the forward half of the left (road) side of the unit. This certification/VIN label will indicate the trailer's Gross Vehicle Weight Rating (GVWR). This is the most weight the fully loaded trailer can weigh. It will also provide the Gross Axle Weight Rating (GAWR). This is the most a particular axle can weigh. If there are multiple axles, the GAWR of each axle will be provided.

If your trailer has a GVWR of 10,000 pounds or less, there is a vehicle placard located in the same location as the certification label described above. This placard provides tire and loading information. In addition, this placard will show a statement regarding maximum cargo capacity. Cargo can be added to the trailer, up to the maximum weight specified on the placard. The combined weight of the cargo is provided as a single number. In any case, remember: the total weight of a fully loaded trailer can not exceed the stated GVWR.

For trailers with living quarters installed, the weight of water and propane also need to be considered. The weight of fully filled propane containers is considered part of the weight of the trailer before it is loaded with cargo, and is not considered part of the disposable cargo load. Water however, is a disposable cargo weight and is treated as such. If there is a fresh water storage tank of 100 gallons, this tank when filled would weigh about 800 pounds. If more cargo is being transported, water can be off-loaded to keep the total amount of cargo added to the vehicle within the limits of the GVWR so as not to overload the vehicle. Understanding this flexibility will allow you, the owner, to make choices that fit your travel needs.

When loading your cargo, be sure it is distributed evenly to prevent overloading front to back and side to side. Heavy items should be placed low and as close to the axle positions as reasonable. Too many items on one side may overload a tire. The best way to know the actual weight of the vehicle is to weigh it at a public scale. Talk to your dealer to discuss the weighing methods needed to capture the various weights related to the trailer. This would include the weight empty or unloaded, weights per axle, wheel, hitch or king-pin, and total weight.

# Safety Tire Safety

Excessive loads and/or underinflation cause tire overloading and, as a result, abnormal tire flexing occurs. This situation can generate an excessive amount of heat within the tire. Excessive heat may lead to tire failure. It is the air pressure that enables a tire to support the load, so proper inflation is critical. The proper air pressure may be found on the certification/VIN label and/or on the Tire Placard. This value should never exceed the maximum cold inflation pressure stamped on the tire.

#### 1.1.1. TRAILERS 10.000 POUNDS GVWR OR LESS

| ( )   | The weight of  | cargo should never exce | 2401011<br>ed 907 kg. or 2000 lb |
|-------|----------------|-------------------------|----------------------------------|
| TIRE  | SIZE           | COLDTIRE PRESSURE       | SEE OWNER'S                      |
| FRONT | 20.5x8.0-10(E) | 621kPA or 90PSI         | MANUAL FOR                       |
| REAR  |                |                         | ADDITIONAL                       |
| SPARE |                |                         | INFORMATION                      |

Tire and Loading Information Placard - Figure 1-1

- 1. Locate the statement, "The weight of cargo should never exceed XXX kg or XXX lbs.," on your vehicle's placard. See figure 1-1.
- 2. This figure equals the available amount of cargo and luggage load capacity.
- 3. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity.

The trailer's placard refers to the Tire Information Placard attached adjacent to or near the trailer's VIN (Certification) label at the left front of the trailer.

## 1.1.2. <u>Trailers Over 10.000 Pounds GVWR (Note: These trailers are not required to have a tire information placard on the vehicle)</u>

- 1. Determine the empty weight of your trailer by weighing the trailer using a public scale or other means. This step does not have to be repeated.
- 2. Locate the GVWR (Gross Vehicle Weight Rating) of the trailer on your trailer's VIN (Certification) label.
- 3. Subtract the empty weight of your trailer from the GVWR stated on the VIN label. That weight is the maximum available cargo capacity of the trailer and may not be safely exceeded.

#### 1.2. Steps for Determining Correct Load Limit - Tow Vehicle

- 1. Locate the statement, "The combined weight of occupants and cargo should never exceed XXX lbs.," on your vehicle's placard.
- 2. Determine the combined weight of the driver and passengers who will be riding in your vehicle.
- 3. Subtract the combined weight of the driver and passengers from XXX kilograms or XXX pounds.
- 4. The resulting figure equals the available amount of cargo and luggage capacity. For example, if the "XXX" amount equals 1400 lbs. and there will be five 150 lb. passengers in your vehicle, the amount of available cargo and luggage capacity is 650 lbs. (1400-750 (5 x 150) = 650 lbs.).
- 5. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage capacity calculated in Step # 4.
- 6. If your vehicle will be towing a trailer, load from your trailer will be transferred to your vehicle. Consult the tow vehicle's manual to determine how this weight transfer reduces the available cargo and luggage capacity of your vehicle.

#### 1.3. GLOSSARY OF TIRE TERMINOLOGY

#### **Accessory weight**

The combined weight (in excess of those standard items which may be replaced) of automatic transmission, power steering, power brakes, power windows, power seats, radio and heater, to the extent that these items are available as factory-installed equipment (whether installed or not).

#### Bead

The part of the tire that is made of steel wires, wrapped or reinforced by ply cords and that is shaped to fit the rim.

#### **Bead separation**

This is the breakdown of the bond between components in the bead.

#### Bias ply tire

A pneumatic tire in which the ply cords that extend to the beads are laid at alternate angles substantially less than 90 degrees to the centerline of the tread.

#### **Carcass**

The tire structure, except tread and sidewall rubber which, when inflated, bears the load.

#### Chunking

The breaking away of pieces of the tread or sidewall.

#### Cold inflation pressure

The pressure in the tire before you drive.

#### Cord

The strands forming the plies in the tire.

#### **Cord separation**

The parting of cords from adjacent rubber compounds.

#### Cracking

Any parting within the tread, sidewall, or inner liner of the tire extending to cord material.

#### СТ

A pneumatic tire with an inverted flange tire and rim system in which the rim is designed with rim flanges pointed radially inward and the tire is designed to fit on the underside of the rim in a manner that encloses the rim flanges inside the air cavity of the tire.

#### **Curb weight**

The weight of a motor vehicle with standard equipment including the maximum capacity of fuel, oil, and coolant, and, if so equipped, air conditioning and additional weight optional engine.

#### Extra load tire

A tire designed to operate at higher loads and at higher inflation pressures than the corresponding standard tire.

#### Groove

The space between two adjacent tread ribs.

#### **Gross Axle Weight Rating**

The maximum weight that any axle can support, as published on the Certification / VIN label on the front left side of the trailer. Actual weight determined by weighing each axle on a public scale, with the trailer attached to the towing vehicle.

#### **Gross Vehicle Weight Rating**

The maximum weight of the fully loaded trailer, as published on the Certification / VIN label. Actual weight determined by weighing trailer on a public scale, without being attached to the towing vehicle.

#### **Hitch Weight**

The downward force exerted on the hitch ball by the trailer coupler.

#### Innerliner

The layer(s) forming the inside surface of a tubeless tire that contains the inflating medium within the tire.

#### Innerliner separation

The parting of the innerliner from cord material in the carcass.

#### Intended outboard sidewall

The sidewall that contains a white-wall, bears white lettering or bears manufacturer, brand, and/or model name molding that is higher or deeper than the same molding on the other sidewall of the tire or the outward facing sidewall of an asymmetrical tire that has a particular side that must always face outward when mounted on a vehicle.

#### Light truck (LT) tire

A tire designated by its manufacturer as primarily intended for use on lightweight trucks or multipurpose passenger vehicles.

#### Load rating

The maximum load that a tire is rated to carry for a given inflation pressure.

#### **Maximum load rating**

The load rating for a tire at the maximum permissible inflation pressure for that tire.

#### Maximum permissible inflation pressure

The maximum cold inflation pressure to which a tire may be inflated.

#### Maximum loaded vehicle weight

The sum of curb weight, accessory weight, vehicle capacity weight, and production options weight.

#### Measuring rim

The rim on which a tire is fitted for physical dimension requirements.

#### Pin Weight

The downward force applied to the 5<sup>th</sup> wheel or gooseneck ball, by the trailer kingpin or gooseneck coupler.

#### Non-pneumatic rim

A mechanical device which, when a non-pneumatic tire assembly incorporates a wheel, supports the tire, and attaches, either integrally or separably, to the wheel center member and upon which the tire is attached.

#### Non-pneumatic spare tire assembly

A non-pneumatic tire assembly intended for temporary use in place of one of the pneumatic tires and rims that are fitted to a passenger car in compliance with the requirements of this standard.

#### Non-pneumatic tire

A mechanical device which transmits, either directly or through a wheel or wheel center member, the vertical load and tractive forces from the roadway to the vehicle, generates the tractive forces that provide the directional control of the vehicle and does not rely on the containment of any gas or fluid for providing those functions.

#### Non-pneumatic tire assembly

A non-pneumatic tire, alone or in combination with a wheel or wheel center member, which can be mounted on a vehicle.

#### Normal occupant weight

This means 68 kilograms (150 lbs.) times the number of occupants specified in the second column of Table I of 49 CFR 571.110.

#### Occupant distribution

The distribution of occupants in a vehicle as specified in the third column of Table I of 49 CFR 571.110.

#### Open splice

Any parting at any junction of tread, sidewall, or innerliner that extends to cord material.

#### **Outer diameter**

The overall diameter of an inflated new tire.

#### Overall width



The linear distance between the exteriors of the sidewalls of an inflated tire, including elevations due to labeling, decorations, or protective bands or ribs.

#### Ply

A layer of rubber-coated parallel cords.

#### Ply separation

A parting of rubber compound between adjacent plies.

#### Pneumatic tire

A mechanical device made of rubber, chemicals, fabric and steel or other materials, that, when mounted on an automotive wheel, provides the traction and contains the gas or fluid that sustains the load.

#### **Production options weight**

The combined weight of those installed regular production options weighing over 2.3 kilograms (5 lbs.) in excess of those standard items which they replace, not previously considered in curb weight or accessory weight, including heavy duty brakes, ride levelers, roof rack, heavy duty battery, and special trim.

#### Radial ply tire

A pneumatic tire in which the ply cords that extend to the beads are laid at substantially 90 degrees to the centerline of the tread.

#### Recommended inflation pressure

This is the inflation pressure provided by the vehicle manufacturer on the Tire Information label and on the Certification / VIN tag.

#### Reinforced tire

A tire designed to operate at higher loads and at higher inflation pressures than the corresponding standard tire.

#### Rim

A metal support for a tire or a tire and tube assembly upon which the tire beads are seated.

#### Rim diameter

This means the nominal diameter of the bead seat.

#### Rim size designation

This means the rim diameter and width.

#### Rim type designation

This means the industry of manufacturer's designation for a rim by style or code.

#### Rim width

This means the nominal distance between rim flanges.

#### Section width

The linear distance between the exteriors of the sidewalls of an inflated tire, excluding elevations due to labeling, decoration, or protective bands.

#### Sidewall

That portion of a tire between the tread and bead.

#### Sidewall separation

The parting of the rubber compound from the cord material in the sidewall.

#### Special Trailer (ST) tire

The "ST" is an indication the tire is for trailer use only.

#### **Test rim**

The rim on which a tire is fitted for testing, and may be any rim listed as appropriate for use with that tire.

#### Tread

That portion of a tire that comes into contact with the road.

#### Tread rib

A tread section running circumferentially around a tire.

#### Tread separation

Pulling away of the tread from the tire carcass.

#### Treadwear indicators (TWI)

The projections within the principal grooves designed to give a visual indication of the degrees of wear of the tread.

#### Vehicle capacity weight

The rated cargo and luggage load plus 68 kilograms (150 lbs.) times the vehicle's designated seating capacity.

#### Vehicle maximum load on the tire

The load on an individual tire that is determined by distributing to each axle its share of the maximum loaded vehicle weight and dividing by two.

#### Vehicle normal load on the tire

The load on an individual tire that is determined by distributing to each axle its share of the curb weight, accessory weight, and normal occupant weight (distributed in accordance with Table I of CRF 49 571.110) and dividing by 2.

#### Weather side

The surface area of the rim not covered by the inflated tire.

#### Wheel center member

In the case of a non-pneumatic tire assembly incorporating a wheel, a mechanical device which attaches, either integrally or separably, to the non-pneumatic rim and provides the connection between the non-pneumatic rim and the vehicle; or, in the case of a non-pneumatic tire assembly not incorporating a wheel, a mechanical device which attaches, either integrally or separably, to the non-pneumatic tire and provides the connection between tire and the vehicle.

#### Wheel-holding fixture

The fixture used to hold the wheel and tire assembly securely during testing.

#### 1.4. TIRE SAFETY - EVERYTHING RIDES ON IT

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

#### http://www.nhtsa.dot.gov/cars/rules/TireSafety/ridesonit/tires\_index.html

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

- Improve vehicle handling
- Help protect you and others from avoidable breakdowns and accidents
- Improve fuel economy
- 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.

#### 1.5. 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.

#### 1.5.1. 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 trailer near the left front.

#### 1.5.2. 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.

#### 1.5.3. 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.

#### 1.5.4. 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.

#### 1.5.5. 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.

#### 1.5.6. 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.

#### 1.5.7. 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. These adjustments require special equipment and should be performed by a qualified technician.

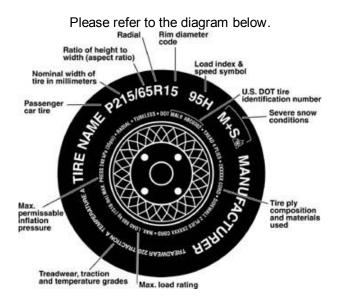
#### 1.5.8. TIRE REPAIR

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.

#### 1.5.9. 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.

#### 1.5.9.1. Information on Passenger Vehicle Tires



#### Ρ

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.

#### 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.

#### Tire Safety Information

| Letter Rating | Speed Rating |
|---------------|--------------|
| Q             | 99 mph       |
| R             | 106 mph      |
| S             | 112 mph      |
| T             | 118 mph      |
| U             | 124 mph      |
| Н             | 130 mph      |
| V             | 149 mph      |
| W             | 168* mph     |
| Y             | 186* mph     |

<sup>\*</sup> 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.

#### 1.5.9.2. 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 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 Letter**

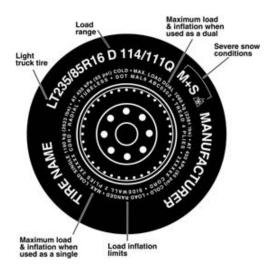
This letter indicates a tire's resistance to heat. The temperature grade is for a tire that is inflated properly and not overloaded. Excessive speed, underinflation or excessive loading, either separately or in combination, can cause heat build-up and possible tire failure. From highest to lowest, a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

# LUG NUTS ON NEW WHEELS MUST BE RE-TORQUED AFTER THE FIRST 50 TO 100 DRIVING MILES

THIS SHOULD BE DONE AS CLAMPING LOADS CAN CHANGE FOLLOWING THE INITIAL INSTALLATION DUE TO THE METAL COMPRESSION/ELONGATION OR THERMAL STRESSES AFFECTING THE WHEELS AS THEY ARE BREAKING IN, AS WELL AS TO VERIFY THE ACCURACY OF THE ORIGINAL INSTALLATION.

#### 1.5.9.3. Additional Information on Light Truck Tires

Please refer to the following diagram.



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 or trailers.

#### ST

An "ST" is an indication the tire is for trailer use only.

#### 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.

#### 1.6. 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**

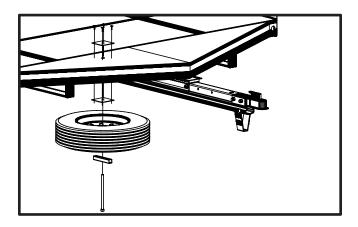
- Check tire pressure regularly (at least once a month), including the spare.
- Inspect tires for uneven wear patterns on the tread, cracks, foreign objects, or other signs of wear or trauma
- Remove bits of glass and foreign objects wedged in the tread.
- Make sure your tire valves have valve caps.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

## Extra

# Accessories

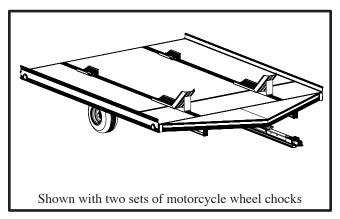
#### **SPARE TIRE CARRIER**

Mounts under trailer for an easy to access place to store a spare tire for your trailer.



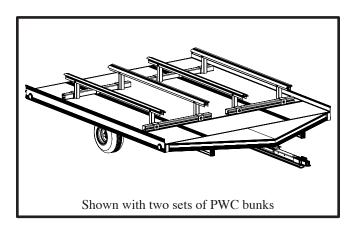
#### **MOTORCYCLE WHEEL CHOCK**

Versa-Track accessory that offers extra security when motorcycles are hauled on a FLOE trailer.



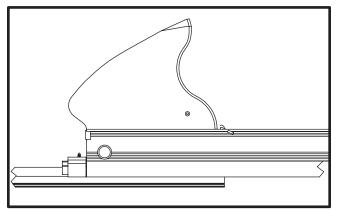
#### **PWC BUNKS**

Versa-Track accessory that allows PWC to be loaded and hauled on a standard FLOE trailer.



#### **SALT SHIELD**

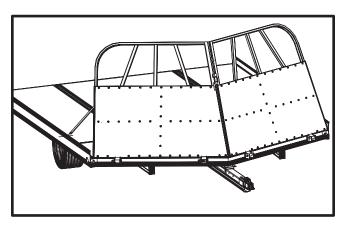
Mounts to the front of a FLOE trailer to help keep road grime off trailer load. Also improves aerodynamics and reduces wind resistance of trailer.



# Accessories

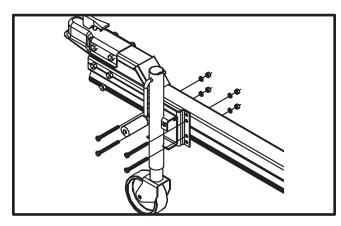
#### RAMP / SALT SHIELD COMBINATION

Attaches to the front of a V-Front trailer to help keep road grime of trailer load. Each side quickly folds down allowing for easy unloading of vehicles from trailer.



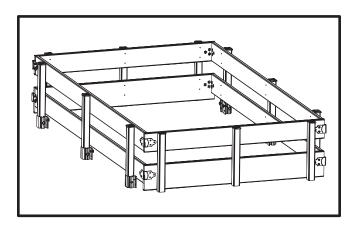
#### **TONGUE JACK**

Attaches to trailer tongue to keep trailer level and the tongue off the ground when not attached to a vehicle. Quickly pivots out of the way for travel.



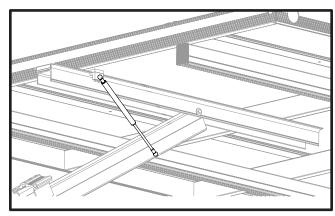
### SIDE KIT FOR ALL-TERRAIN PRO (8' & 10')

Easy on and off side kit with tail gate that provides side panels for All-Terrain Pro trailers.



#### **TILT ASSIST**

Assists in keeping the trailer in a tilted position while driving recreational vehicles on.



## **Trouble Shooting**

# **Questions & Answers**

# WHAT CAN CAUSE VIBRATION IN MY TOW VEHICLE?

- 1. Over tight hitch coupler -- Refer to Coupler Adjustment Section of this manual.
- 2. Loose wheels -- Refer to Changing the Tire section of this manual.
- 3. New tires -- It is possible that the new tires are out of round. Once they are inflated to the proper PSI and used for a short period of time on a loaded trailer, they should work themselves round. New tires that are still out of round after an ample break in period may be defective and need to be replaced. Call the tire manufacturer or your local FLOE dealer for replacement.
- 4. Unbalanced wheel hubs -- If your tires are balanced and not out of round this may be the problem. Replace if necessary.

#### WHY DOES MY TRAILER SWAY OR WHIP?

- Trailer is not being towed level -- Refer to Proper Loading and Unloading section of this manual.
- 2. Not enough tongue weight -- Refer to Proper Loading and Unloading section of this manual.
- 3. Overloaded trailer -- Refer to Proper Loading and Unloading section of this manual.
- 4. Too much tongue weight -- Refer to Proper Loading and Unloading section of this manual.

#### WHY ARE MY TIRES WEARING UNEVENLY?

- 1. Unequal side-to-side loading -- Refer to Proper Loading and Unloading section of this manual.
- 2. Axle is not aligned properly -- Refer to Axle Assembly section of this manual.
- 3. Tires not inflated to proper PSI
- 4. Wheel bearings are not properly tightened & oiled.

#### CAN I REPLACE MY TIRES WITH LARGER ONES?

1. Yes, if you maintain a minimum of 3 inches of clearance between your tire and the trailer frame or bed.

# WHY DO I KEEP BLOWING FUSES WHEN I CONNECT OR USE MY TRAILER LIGHTS?

- 1. Wrong amperage fuse -- Replace with proper size.
- 2. A wire is cut or bare and is shorting out -- Visually locate and repair or replace.

#### WHY DO MY LIGHTS BLINK ON AND OFF?

- 1. Corrosion on wire connections -- Check all connections for corrosion, clean and apply electrical grease to prevent future corrosion.
- 2. Improper ground to tow vehicle -- This may cause all lights to blink or cause your marker lights to blink when you turn on your turn signals.

# WHAT KIND OF GREASE SHOULD I USE IN MY HUBS?

Turbo Lube hubs do not use grease. Fill the clear caps to the "max level" line with 50w (min.) 90w (max.) oil.

# WHAT SHOULD I DO IF I GET ICE IN MY VERSA TRACK?

Simply use a screwdriver or any other suitable object to clear it.

#### 

For additional information, please contact your Authorized Floe Dealer, visit our website at www.floeintl.com or call: 1-800-336-6337 to locate the dealer nearest you.

# **Specifications Chart**

|  |                 |                 |                          |                    |                    | Tires*     | . s.        |            |             | -  ;       |            |             |                              |             |                          |              |
|--|-----------------|-----------------|--------------------------|--------------------|--------------------|------------|-------------|------------|-------------|------------|------------|-------------|------------------------------|-------------|--------------------------|--------------|
|  |                 |                 |                          |                    |                    | ″ -C       | ′ -C        | " -C Mag   | ′ -C        | " -E       | l          |             |                              | ck          | enclosure<br>*           | ngth         |
| Model  | GVWR<br>lbs/kgs | GAWR<br>lbs/kgs | Cargo Load***<br>lbs/kgs | Net Wt.<br>lbs/kgs | Axle(s)<br>lbs/kgs | 20.5 x 10" | B78 x 13" - | 5.30 x 12" | B78 x 13" - | 20.5 x 10" | 13" radial | 13" alum. r | Max.<br>tongue wt<br>lbs/kgs | Tongue jack | Optional en<br>weight*** | Trailer Leng |
| 10' Versa-Max <sup>TM</sup> Ramp                             | 1055/3001       | 1990 /959       | 1990 /690                | 577/357            | 000/ 0000          | • [        |             |            | •           | • ]        |            |             | 150 / 69                     | PF .        | <u>.</u>                 | N<br>A       |
| 19/ Varra Maxim Pamp   | 1/33/000        | 1000/072        | 130//000                 | 700/ 22/           | (1) 2200/ //0      | ſ          |             |            | Ī           |            |            |             | 120/00                       | -           | NA.                      | MA           |
| • Single Axle - No Brakes                                    | 7288/1037       | 2200/997        | 1600/795                 | 688/319            | (11) 2200 /998     |            | •           |            |             | •          | •          | •           | 220/100                      | 9           | 370                      | 915-5/8"     |
| • Tandem Axle - No Brakes                                    | 2999/1360       | 4400/1996       | 2328/1056                | 821/372            | (2) 2200/998       |            | •           |            |             | •          | •          | •           | 300/136                      | 율           | 370                      | 215-5/8"     |
| 14′ Versa-Max™ Ramp  |                 |                 |                          |                    |                    | ĺ          | ĺ           | Ì          | ĺ           |            |            |             |                              |             |                          |              |
| • Tandem Axle - No Brakes                                    | 2999/1360       | 4400/1996       | 2183/990                 | 966/438            | (2) 2200/998       |            | •           |            |             | •          | •          | •           | 220/136                      | ST          | 420                      | 239-5/8"     |
| • Tandem Axle - Brakes on 1                                  | 2999/1360       | 4400/1996       | 2138/970                 | 1011/459           | (2) 2200/998       |            | •           |            |             |            | •          | •           | 300/136                      | ₩           | 420                      | 239-3/8"     |
| • Tandem Axle - Brakes on 2                                  | 4522/2051       | 4400/1996       | 3631/1647                | 1041/472           | (2) 2200/998       |            | •           |            |             |            | •          | •           | 300/136                      | ₩           | 420                      | 239-3/8"     |
| 16′ Versa-Max™ Ramp  |                 |                 |                          |                    |                    |            |             |            |             |            |            |             |                              |             |                          |              |
| • Tandem Axle - No Brakes                                    | 2999/1360       | 4400/1996       | 2121/962                 | 1023/464           | (2) 2200/998       |            | •           |            |             | •          | •          | •           | 220/136                      | ST          | 470                      |              |
| <ul><li>Tandem Axle - Brakes on 1</li></ul>                  | 2999/1360       | 4400/1996       | 2078/943                 | 1071/486           | (2) 2200/998       |            | •           |            |             |            | •          | •           | 300/136                      | aTS         | 470                      |              |
| • Tandem Axle - Brakes on 2                                  | 4522/2051       | 4400/1996       | 3571/1620                | 1101/499           | (2) 2200/998       |            | •           |            |             |            | •          | •           | 300/136                      | ars         | 470                      |              |
| 22' Versa-Max™ Ramp<br>• Tandem Axle - Brakes on 2           | 4522/2051       | 4400/1996       | 3302/1498                | 1370/621           | (2) 2200/998       |            | •           |            |             |            | •          | •           | 300/136                      | OTS         | 570                      |              |
| 28' Versa-Max <sup>TM</sup> Ramp<br>• Tri-Axle - Brakes on 3 | 6000/2721       | 6600/2994       | 4370/1982                | 1780/807           | (3) 2200/998       |            | •           |            |             |            | •          | •           | 300/136                      | S S         | 740                      |              |

<sup>\*\*</sup>Minimum tongue weight is required to reach rated cargo loads listed. Minimum tongue weight is the empty trailer. Loaded tongue weight should never be less than the empty trailer tongue weight.

\*\*\*The "cargo load" of your trailer will be reduced by the weight of the enclosure.

TRAILER LOAD CAPACITY: Each trailer model has a maximum load capacity. It is important that this capacity is not exceeded.

If upgrading 10' ramp trailers to 13" tires, spacer blacks must be used.

# FLOE INTERNATIONAL, INC. VERSA-MAX RT TRAILER 10 YEAR LIMITED WARRANTY EFFECTIVE NOVEMBER 2017

FLOE International warrants, to the original purchaser, FLOE Versa-Max trailers, Cargo Max and Pro-Tektor enclosures to be free from original defects in materials and workmanship under the conditions and loads for which designed and from date of purchase as follows:

#### ALUMINUM TRAILER STRUCTURES, ULTRA BODY™ (IF EQUIPPED), LIGHTING SYSTEM

FLOE INTERNATIONAL will repair or replace, at its option, any portion of the aluminum structure and lighting system (excluding light bulbs and lenses,) which fails as a result of a defect in material or workmanship during the first year after purchase. Thereafter, FLOE INTERNATIONAL will repair or replace any portion of the aluminum structure or lighting system which fails as a result of a defect in material or workmanship at a cost to the purchaser of a proportion of the existing manufacturer's suggested retail price as follows:

|             | % TO YOU OF CURRENT |
|-------------|---------------------|
| YEARS OWNED | RETAIL PRICE        |
| 0-2         | 0%                  |
| 3-4         | 30%                 |
| 5-6         | 50%                 |
| 7-8         | 70%                 |
| 9-10        | 90%                 |

#### **TORSION AXLE**

A full five (5) years is extended on axle suspension.

Hubs, drums, brakes, bearings and seals are covered for a period of one (1) year from the date of purchase when installed, used and maintained by the purchaser. Warranty is provided by the manufacturer "Dexter".

#### **TIRES**

Warranty is provided by the tire manufacturer. For model year 2010 and earlier, the manufacturer is Green Ball Corp (1-800-946-9412). For model year 2011 and newer trailers, the tire manufacturer is either Green Ball (see above), Kenda Tires (1-800-225-4714), or Badger Tires (920-922-7972). Manufacturer name is listed on the tire.

Your trailer tires are warranted against failures due to factory defective material for four years from date of manufacture. Contact manufacturer for any warranty issues on tires.

#### **DECKING**

Warranty is provided by plywood manufacturer. Warranty does not cover inherent wood characteristics such as checking, leafing, splitting and broken grain.

- Trailers purchased up to 2010 1 year warranty.
- Trailers purchased after 2010 a lifetime warranty against damage as a result of fungal decay or rot as well as against damage caused by termites or other wood eating insects.

This warranty covers only the cost of replacement of materials due to defects in materials or workmanship and represents the only warranty authorized by us. In order to receive performance under this warranty, all warranty repairs must be authorized in advance by Floe International. Floe International will not be responsible for any costs incurred for unauthorized repairs! Unauthorized repairs may void the warranty on items repaired! This warranty does not cover deck replacement labor, nor any possible damages due to overloading of trailer, damage resulting from road hazards, damage caused by wear rods or traction products, jackknifing, misuse, or negligence. This warranty covers personal use and does not apply to commercial or rental uses. The manufacturer is not responsible for damage where repairs have been made or attempted by others. Items purchased by FLOE INTERNATIONAL are warranted by the original manufacturer and warranty is extended to the original purchaser. FLOE INTERNATIONAL reserves the right to inspect and perform rework at its main facility (F.O.B.) McGregor, Minnesota. Freight is the responsibility of the consumer. Specifications may change without notice or obligation. To receive performance under this warranty, contact your authorized Floe Dealer.

THERE ARE NO OTHER EXPRESSED WARRANTIES OR ANY IMPLIED WARRANTIES.

Our obligations under this warranty are limited to repair or replacement at our discretion,

AND WE SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND.

This warranty gives you specific legal rights and you may have other rights which may vary from state to state.

# FLOE INTERNATIONAL, INC. TRAILER 5 YEAR LIMITED WARRANTY

Defects in material and workmanship of certain accessories and components of FLOE Trailers are covered under a five-year pro-rated warranty. This pro-rated parts warranty begins after the two-year parts and labor warranty. Items covered in this five-year pro-rated warranty include quick loops, salt shields, tie down bars, PWC bunks, motorcycle chocks and Versa track.

The pro-rated schedule of these items is as follows:

| YEARS OWNED | CONSUMER PORTION OF CURRENT RETAIL PRICE |
|-------------|--|
| 0-2         | 0%                                       |
| 2-3         | 50%                                      |
| 3-4         | 55%                                      |
| 4-5         | 60%                                      |

This warranty covers only the cost for replacement of materials due to defects in materials or workmanship, and represents the only waranty authorized by us. In order to receive performance under this warranty, all warranty repairs must be authorized in advance by FLOE International, Inc.

Thank you for purchasing a quality FLOE trailer. Understanding the information in this manual should help you to keep your trailer in optimal working condition for many years of worry-free enjoyment.

Please take the time to record this important information for future reference:

Model Number:\_\_\_\_

Date of Purchase:

NOTE: Not all trailers will be identified with a serial number. It is a good idea to save your receipt from the dealer.

# FLOE manufactures an extensive line of other products



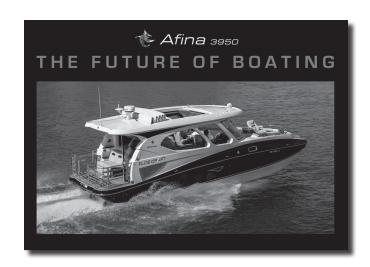
FLOE open and enclosed trailers are available in many styles and sizes to accommodate your needs. FLOE trailers have an aluminum frame that resists corrosion and never rusts. Aluminum construction allows for a light trailer while still offering the strength you need.



The Cargo Max XRT Trailer is a world-class combination of style, durability and simplicity. The trailer is engineered with a high-strength extruded aluminum frame and an ultra-rugged high-density polyethylene trailer body. It can haul and be towed by ATVs, and is great for yard work, hunting, camping, cabin travel, construction, rental, shopping and almost any other use imaginable.



PWC, BOAT & PONTOON LIFTS (Featuring FLOE's exclusive Easy-Level™ leveling leg): With FLOE, you get a long-lasting, low-maintenance lift system. They are engineered with custom extruded aluminum components and stainless steel leveling cables. FLOE lifts are designed for easy installation and removal.





MODULAR SECTIONAL DOCKS – FLOE's Sectional Docks are a great value and ideal for lake lots with minimal space or hilly terrain where roll-in systems won't work. The docks sections break down in seconds with no tools for easy stacking storage.

Your authorized FLOE Dealer:



# FLOE INTERNATIONAL, INC. 48473 STATE HIGHWAY 65 • McGREGOR, MN 55760 www.floeintl.com