

**TITAN**

**TRAILER**

**MFG., INC.**

**TRAILER USER'S GUIDE**

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**CUSTOMER SERVICE**

**TOLL FREE**

**1-866-294-4514**

**info@titantrailer.com**

# TITAN

***Horses • Stock • Flatbeds • Utility***

## THANK YOU FOR CHOOSING A TITAN TRAILER

You have chosen a quality trailer from the most popular trailer manufacturer in America. Even though Titan trailers are built for the long haul, routine maintenance will assure even more years of trouble-free service.

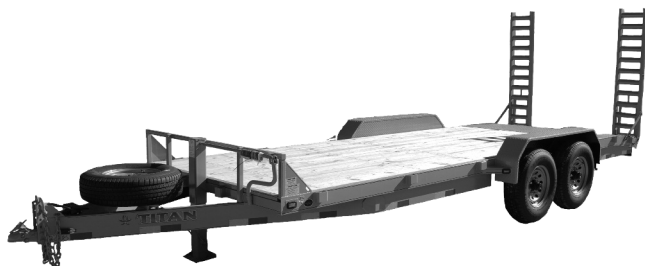
Your complete satisfaction has and will always be our first objective at Titan. Please keep this manual in your trailer or tow vehicle and review the safety checklists before you set out on the road.

Located in Waterville, KS Titan Trailer Mfg., Inc. has been producing trailers since 1986. Titan presently employs 135 people, and continues to grow with the needs of our customers.

Titan's commitment, reputation and high standards of excellence go into every trailer. Titan's employees pride themselves in customer satisfaction. We have made every effort to produce a trailer you will be proud to own.



*Again, thank you for choosing a quality Titan trailer!*

**TITAN**

## GENERAL MAINTENANCE

### BREAKAWAY SYSTEM

DOT regulations require that a trailer's battery keep or hold the trailer from rolling forward for 15 minutes after stopping. Check the battery on

**THE BATTERY SUPPLIED WITH THIS KIT IS RECHARGEABLE AND MUST BE MAINTAINED.**

#### **CAUTION**

- CHECK CONDITION OF BATTERY AND CHARGE PRIOR TO TRIP.
- CHARGE BATTERY PER ENCLOSED INSTRUCTIONS.
- DO NOT EXCEED 1.2 AMPS MAX. CHARGE.

a regular basis for adequate output and charge if necessary. The proper hookup for cable is to loop it around something permanent on the tow vehicle but not the ball hitch insert or hitch. If there is a failure of any of these items, the plug pulls out of the switch and activates brakes. The plug must be pushed in completely

so the brakes are not dragging. This will drain the battery if the pin remains pulled out.

### ROOF VENTS

Roof vents on all Titan trailers are designed to allow light into the trailer during the daytime along with fresh air. Also warm air will escape when the vent is open. However, your roof vent is not designed to be open when traveling. Make sure that all vents are **closed** prior to towing over the road. Pop-up roof vents may remain open during travel though.

### ROOF MAINTENANCE

Inspect the roof coating once a year. Check for shrinking or cracked sealant that will lead to roof leak. Titan uses high quality caulk which is available through Titan local or RV dealers. Wax your Titan roof at least 2 times a year.

### EXTERIOR SKIN MAINTENANCE

Wash regular with mild soap. Use pressure washer but don't exceed 2000 psi. Wax trailer with non-abrasive wax at least twice a year. Use mud flaps on your vehicle to reduce rock chips.

#### **CAUTION**

- ALL FLOOR AND RAMP SURFACES ARE SLIPPERY WHEN COVERED WITH ICE, SNOW OR WET.
- FOR BEST MAINTENANCE OF EXTERNAL FINISH, WASH ROAD SALT OFF TRAILER AFTER EACH USE.

### FLOOR TREATMENT

Titan uses CCA or pressure treated (2" x 8" non-spliced in trailers up to 24') lumber. Clean trailer after every use.



## FRAME MAINTENANCE

Stock and horse trailers take the worst kind of abuse on the underneath, frame side. Anything thrown up by the tow vehicle will chip away at the frame coating. It is suggested that inspections are made periodically and any bare spots be touched up with a matching trailer frame paint.

## SILVER MOD WHEEL MAINTENANCE

Your new wheels do require care to maintain their factory appearance. We strongly suggest you take a few reasonable steps to protect your investment. Typical road soils trap moisture which can cause corrosion over a period of time. Brake dust is also corrosive and can cause pitting of the wheel's finish. These soils must be removed regularly, possibly weekly, depending on your driving habits. After cleaning, always apply a coat of soft non-abrasive cream wax to help prevent surface corrosion. Surface corrosion or rust can be prevented with proper care and is not covered under warranty.

## TIRES, RIMS AND LUGNUTS

This trailer is equipped with quality tubeless tires. The recommended air pressure is found on the tire sidewall. Always replace tires with the same designated type and size. It is extremely important to apply and maintain proper wheel mounting torque on your trailer axle. Torque is a measure of the amount of tightening applied to a fastener (nut or bolt) and is expressed as length x force. For example, a force of 90 pounds applied at the end of wrench one foot long will yield 90 lbs.-ft. of torque. Torque wrenches are the best method to assure the proper amount of torque is being applied to a fastener.

### ⚠ CAUTION

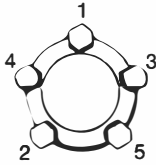
- ON FIRST TRIP, TIGHTEN WHEEL LUGS AT START AND EVERY 50 MILES FOR FIRST 200 MILES. CORRECT TORQUE IS 90 TO 120 FOOT-POUNDS.
- THEREAFTER, CHECK WHEEL LUGS BEFORE EACH TRIP.
- FOLLOWING WINTER STORAGE, CHECK BEFORE BEGINNING A TRIP.
- FOLLOWING EXCESSIVE BRAKING, INSPECT WHEEL LUGS.

*NOTE: Wheel nut or bolts must be applied and maintained at the proper torque levels to prevent loose wheels, broken studs, and possible dangerous separation of wheels from your axle.*

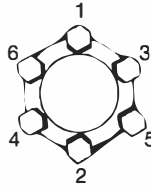
Be sure to always use only the fasteners matched to the cone angle of your wheel (usually 60° or 90°). The proper procedure for attaching your wheels is:

1. Start all bolts or nuts by hand to prevent cross threading.
2. Tighten bolts or nuts in the following sequence.

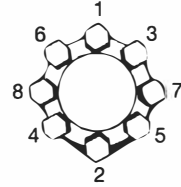
## GENERAL MAINTENANCE (continued)



**5 BOLT**



**6 BOLT**



**8 BOLT**

3. The tightening of the fasteners should be done in stages. Following the recommended sequence, tighten fasteners per wheel torque chart below.

4. Wheel nuts/bolts should be torqued before first road use and after each wheel removal. Check and re-torque after the first 10 miles, 25 miles, and again at 50 miles. Check periodically thereafter.

### TORQUE STAGES

1st Stage	2nd Stage	3rd Stage
20/25 ft. lbs.	55/80 ft. lbs.	Full Torque

### WHEEL TORQUE REQUIREMENTS

AXLE SIZE	WHEEL SIZE	STUD SIZE	STEEL WHEEL TORQUE	ALUMINUM WHEEL TORQUE
3500#	15"	1/2"	90#-120#	80#-100#
6000#	16"	1/2"	90#-120#	95#-115#
7000#	16"	9/16"	90#-120#	95#-115#
8000#	12"-16"	5/8"	90#-120#	N/A
8000#	16"	5/8"	275#-325#	N/A

Warranties on axles and trailer will not apply to damage or injuries caused by loose or improperly tightened lugnuts or broken studs. Inspect wheel stud holes for roundness. If oblong, this is a sure sign that the unit has been run with improperly tightened lugnuts. In these instances, the rim must be replaced.

## DOORS, BARLOCKS AND RAMP HINGES

Door holdbacks are designed to hold doors open when on uneven ground. They are not designed to hold doors open under windy conditions. Lubricate all door and ramp hinges every 3 months with a SAE 30 weight engine oil. WD-40 and similar lubricants will free hinges, however, they will also lose all lubricating qualities within a short period of time. Door hinges are drilled and greased at the factory. Use a cone shaped grease gun tip to apply grease at door hinges. Some models have grease zerks installed in hinges.

## HITCH HEIGHT



*Parallel with ground and tow vehicle*

*Trailer not level, adjust hitch*

You must adjust the hitch ball height to position tag trailers in a level condition. This loads the axle equally and gives a desirable tongue weight. Under these conditions your trailer should ride properly and not sway back and forth.

## COUPLER OPERATION

Check the coupler or Kingpin for fatigue, damage, cracks or missing parts before towing. Test the lock mechanism for complete and correct latching so the trailer will not come unhooked. For ball type couplers, make sure the coupler and ball size match. If you are using a bumper hitch type coupler, it is recommended to put a bolt or similar device through the latch mechanism when hooking to the tow vehicle for safety. It is advised that mini fifth wheel hitches should have a wheel diameter that is close to the width of Titan's Pinbox. A smaller wheel diameter does not get adequate vertical support from the Pinbox and pushes the bottom plate upward.

### **⚠ CAUTION**

**CHECK COUPLER  
PRIOR TO HOOKUP**

## GENERAL MAINTENANCE (continued)

### LOADING TRAILER

You should load 60% of your cargo's weight in the front of the trailer. The desired weight for bumper hitch is 10-15% of total load. The desired weight for a goose neck is 20-25% of total load. If there is insufficient hitch weight the trailer will not tow properly. It could be unstable, difficult to control, and make towing unsafe. Proper weight distribution is imperative and diagramed below. Always secure trailer to tow vehicle when loading or unloading, especially from the rear of trailer.



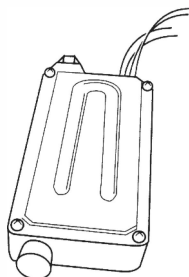
### JUDGING COUPLER WEIGHT

The desired weight for bumper hitch is 10-15% of total load. The desired weight for a goose neck is 20-25% of total load. If scales are not readily available, you may estimate your total loaded hitch weight by comparing a known weight to the hitch weight. The proper way, however, to accurately measure tongue weight is by taking your loaded trailer to a local scale, such as those found at gravel companies or highway weigh station scales.

#### **! CAUTION**

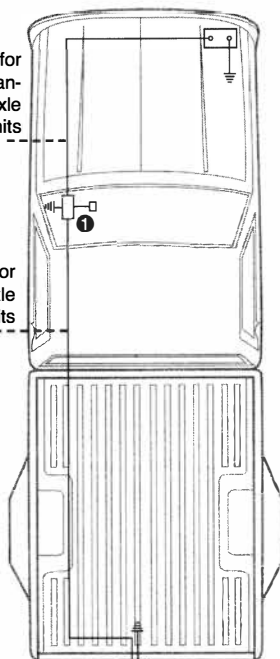
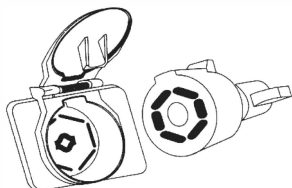
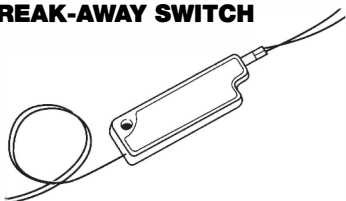
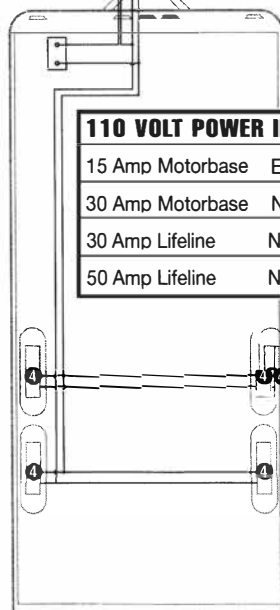
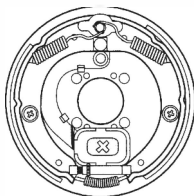
**YOU MUST HOOK TRAILER TO  
TOW VEHICLE WHEN LOADING,  
ESPECIALLY WHEN LOADING  
TRAILER FROM THE REAR.**

## TOW VEHICLE WIRING

**1 BRAKE CONTROLLER**

Use 10ga for  
single & tan-  
dem axle  
units

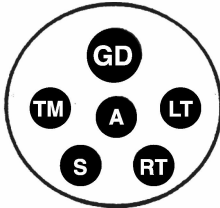
Use 8ga for  
triple axle  
units

**2 TRAILER CONNECTOR****3 BREAK-AWAY SWITCH****4 ROADSIDE BRAKE ASSEMBLY****110 VOLT POWER INLET**

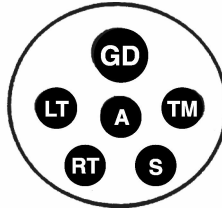
15 Amp Motorbase	Extension Cord
30 Amp Motorbase	NEMA L 530
30 Amp Lifeline	NEMA 3830 Rcpt.
50 Amp Lifeline	NEMA 3894 Rcpt.

## ELECTRICAL AND WIRING

### TYPICAL WIRING DIAGRAM FOR 6-WAY ROUND CONNECTORS



**TRUCK PLUG**



**TRAILER PLUG**

TM	TAIL LIGHTS	BROWN
GD	GROUND	WHITE
LT	LEFT TURN	YELLOW
RT	RIGHT TURN	GREEN
S*	BRAKES	BLUE
A*	ACCESSORY	RED

\* Caution: Some manufacturers use "S" for accessory and "A" for brakes.

Note: Locate wires by function only. Color coding is not standard among all manufacturers.

### ELECTRICAL AND WIRING

Tow vehicles must have the correct plug at the hitch and be connected to the correct tow vehicle circuits using acceptable practices in wire routing and connections. Titan uses two different types of plugs. Trailers that are not

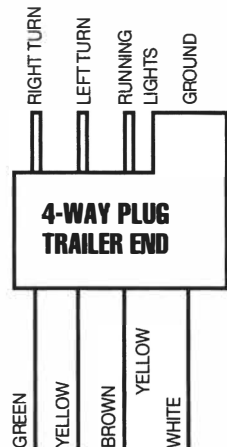
#### ⚠ CAUTION

THIS TRAILER IS EQUIPPED WITH 120 VOLT/60 HZ/AC (HOUSE CURRENT) ELECTRICAL POWER. UL APPROVED NON-METALLIC SHEATHED CABLE (IE. ROMEX) HAS BEEN INSTALLED IN THE WALL/ROOF CAVITY OF THE TRAILER. PROCEED WITH CAUTION WHEN ATTACHING EQUIPMENT TO THE TRAILER OR CUTTING INTO THE ROOF OR WALLS OF THE TRAILER.

equipped with brakes will have the 4-way flat plug like the wiring code pictured at right.

Trailers that

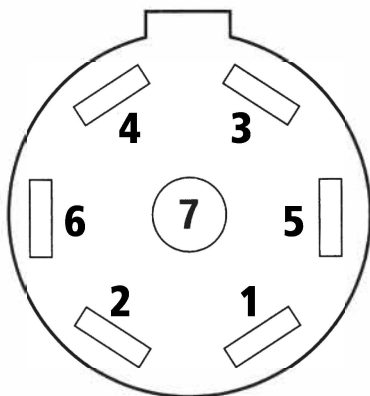
have the larger 7-way plug which accommodates electric brakes and a separate line for inside lights. The inside lights are wired to the #4 post. The auxiliary center post is used for backup lights or other special order/use wiring.



It is important to ground the wiring properly. The ground wire should run from the plug and attach to tow vehicle's frame. Hitches, coupler/ball, safety chains and load leveling equalizer bars will NOT provide an adequate continuous ground and may result in electrical system failure. In addition, any hot line or auxiliary line should be run with an in-line fuse.

If an auxiliary battery is added to the trailer, there must be a fuse installed between the battery and the load.

Titan recommends that a separate fused line be run from the tow vehicle's battery, through a 20 Amp in-line fuse, to an aftermarket toggle switch mounted on the dash. This switch should have a 20 Amp capacity. Wiring should be run from the switch to the #3 post for running lights. Newer vehicles' wiring and headlight switches are many times marginal and do not have the capacity to carry the current required for larger trailers with lots of running lights. If your tow vehicle has amber turn signals, see your hitch & wiring specialist for installation of a relay or "splitter" to operate your trailer turn signals and brake lights. The hot line should have a 15 Amp in-line fuse installed between battery and tow vehicle plug.



#### **TOW VEHICLE RECEPT.**

BLUE	1	BRAKES
WHITE	2	GROUND
YELLOW	6	LEFT TURN
BROWN	4	RUNNING LIGHTS
RED	3	HOT/AUX
GREEN	5	R/H TURN
BLACK	7	AUXIL./BACKUP LIGHTS

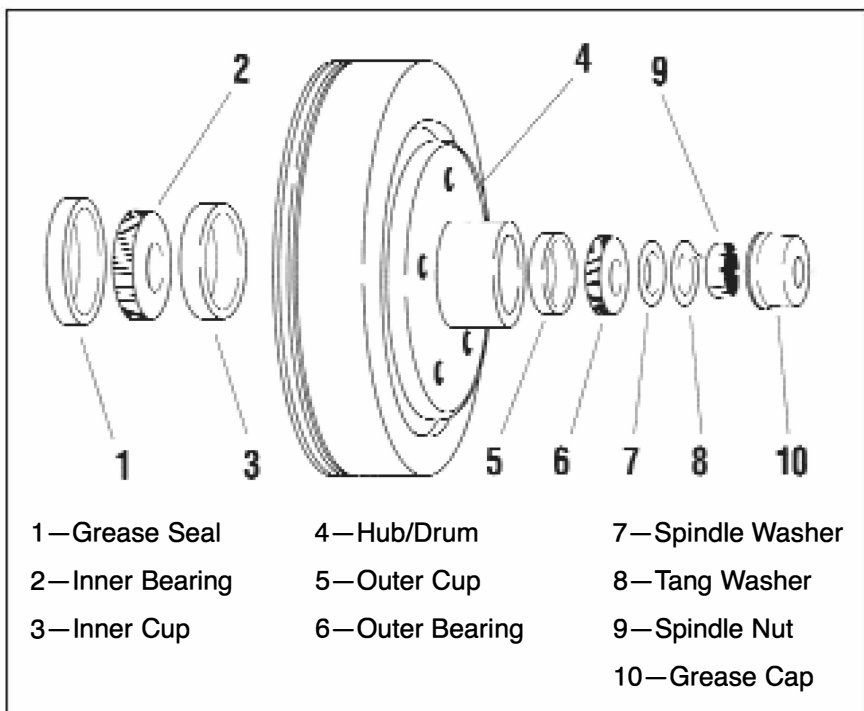


## WHEEL BEARINGS

Trouble-free trailering depends upon proper bearing lubrication, maintenance and inspections. Bearings fail when lubrication fails or when improperly adjusted. In both cases, heat build up occurs. Normal bearing operating temperature is up to 140° and can be touched by hand without burning. Above this temperature, the grease will start to fail and destroy the bearings, drum and/or the spindle. Brakes are designed to operate at up to 600°F. A good practice for both experienced and new trailer owners is to touch each hub within ten miles of starting out when bearings have been repacked and at each stop along the way. (Do not try testing the hub after several miles of continuous hard braking). This will give an advanced warning of pending trouble so corrections can be made prior to failure and breakdown. Remember, inactivity can be more damaging to bearings than everyday use. When a trailer is parked, many times the spindle, bearings or hub is warm.

### **CAUTION**

**INACTIVITY CAN BE  
MORE DAMAGING TO  
BEARINGS THAN  
EVERYDAY USE**



**BEARING, RACE & SEAL NUMBERS**

Axle Size	3500#	6000#	7200#	8000#	10000#	10000# <sup>HD</sup>	12000#
Brake Size	10x2 <sup>1/4</sup>	12x2	12 <sup>1/4</sup> x2 <sup>1/2</sup>	12 <sup>1/4</sup> x3 <sup>3/8</sup>	12 <sup>1/4</sup> x3 <sup>3/8</sup>	12 <sup>1/4</sup> x4	12 <sup>1/4</sup> x5
Typical Bolt Pat.	6 on 5 <sup>1/2</sup> " Bolt Circle	8 on 6 <sup>1/2</sup> " Bolt Circle	8 on 6 <sup>1/2</sup> " Bolt Circle	8 on 6 <sup>1/2</sup> " Bolt Circle	8 on 6 <sup>1/2</sup> " Bolt Circle	8 on 6 <sup>1/2</sup> " Bolt Circle	8 on 6 <sup>1/2</sup> " Bolt Circle
Inner Bearing	L68149	25580	25580	25580			
Inner Race	L68111	25520	25520	25520			
Outer Bearing	L44649	14125A	02475	02475			
Outer Race	L44610	14276	02420	02420			

**GREASE SEALS**

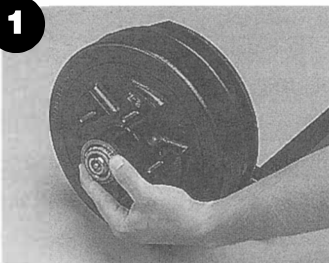
National	—	—	470972	470972	370219BG	370219BG
NOK	AD2267-EO	AD2548-EO	AD8717-EO	AD8717-EO	—	—
Chicago Rawhide	533409	—	21352	21352	—	—
Dexter Replacements		010-009	010-036	010-036	010-063	010-063
Magnet Kit	N/A	K71-104	K71-105	K71-105	K71-441	K71-375
Shoe & Lining	N/A	K71-047	K71-048	K71-048	K71-410	K71-049 LH
Electric Brakes						K71-050 RH

As these cool down, a spot of condensation forms which is the start of a rust spot. The longer the trailer sits idle, the deeper this rust spot becomes. When in doubt of the coverage of grease on bearings – inspect and replace those that have rust spots, metal flaking, wear, cage damage or other visual damage.

If you ever have questions regarding maintenance requirements or how to perform a maintenance task, please do not hesitate to contact us at our customer service hotline listed below or on the back of this manual. A Titan representative will be glad to answer your questions. Ask for a Customer Service Representative at:

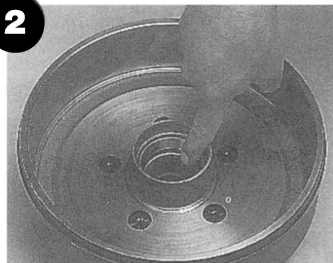
**Toll Free 1-866-294-4514**

**TITAN**



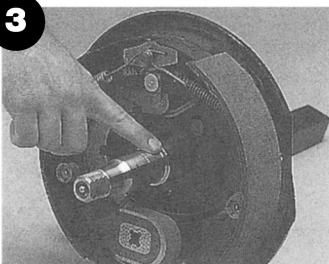
### REMOVE HUB ASSEMBLY

Pry dust cap off with screwdriver. Straighten out tang washer. Remove spindle nut, tang washer and spindle washer. Pull hub toward you to loosen outer bearing. Do not let bearing fall. Pull the hub assembly off spindle. The inner bearing and seal will come with it. Pry out the inner seal and discard. The inner bearing will now come out. Caution-do not remove seal by hitting inner bearing.



### INSPECT BEARING RACES (CUPS) AND HUB

Inspect races for pitting, rusting, frosting, scoring, metal flaking and other obvious damage. If damaged, remove with brass bar or mild steel bar. Inspect race seat and remove any burrs or nicks that prevent the race from seating correctly. Replace races and bearings in sets.



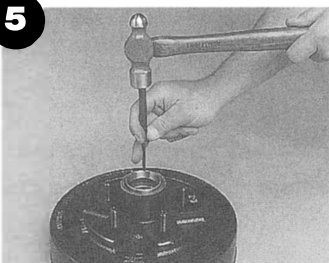
### CLEAN AND INSPECT THE SPINDLE

Clean spindle with solvent to remove old grease, inspect the spindle for nicks, scratches, scoring, damaged threads, or bending. File off nicks or burrs and smooth out with emery cloth. Apply thin film of bearing grease to spindle.



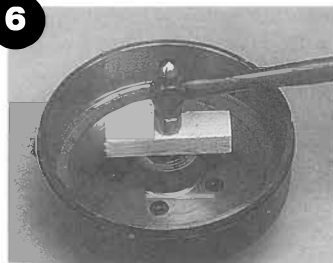
### CLEAN AND INSPECT BEARINGS (CONES)

Clean bearings with solvent and long bristled brush. DO NOT use air pressure to clean out old grease or to dry. Allow to air dry, inspect bearings for pitting, rusting, frosting, scoring, metal flaking, cage damage or other obvious damage. Replace all damaged bearings and mating races in sets.



### INSTALL RACE (CUP)

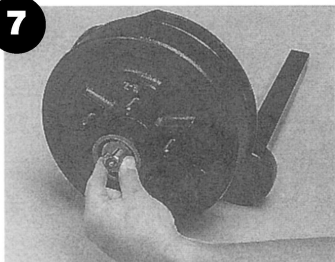
Using a brass bar or a mild steel bar to drive in new race into hub until solidly seated against hub shoulder. Use caution to not damage race surfaces. Never use a bearing to drive a race.



### INSTALL GREASE SEAL

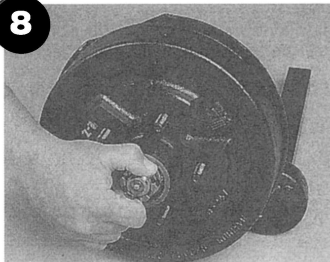
Install new seals when they leak or when bearings are being visually inspected. Install inner bearing in hub, then the seal. Make sure the seal is installed correct side in. Use soft wood to seal in flush with hub.

7

**INSTALL HUB ASSEMBLY**

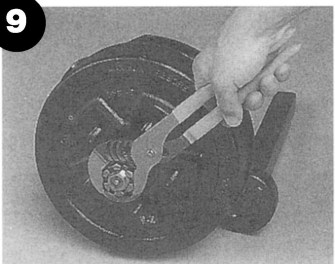
Slide the hub over the spindle with care not to damage the seal or spindle threads.

8



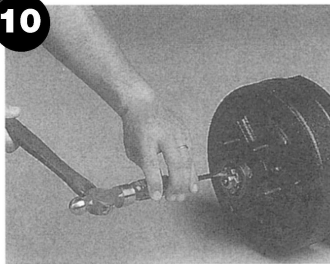
Seat the hub against the seal journal. Insert the outer bearing, D-Shaped spindle washer, tang washer, and spindle nut.

9

**ADJUST BEARING**

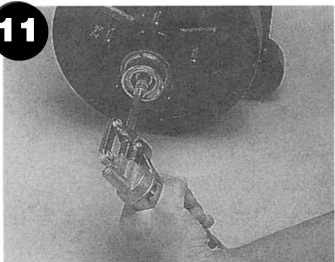
Using a 12" wrench on the spindle nut apply 50ft-lb of torque at the same time the hub is rotated counterclockwise. Leave the hub stationary while backing off the spindle nut to relieve the preload torque. Then hand tighten

10



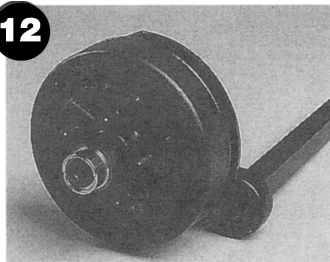
the spindle nut to the first slot that lines up with a tang on the washer. Flatten the tang into the slot as far as it will go. Use caution that the tang is not fractured in this step. The correct adjustment for all bearings is .001 to .012 end play.

11

**FILL WITH GREASE**

Apply nozzle of grease gun to the grease zerk at the end of the spindle. Pump grease into the assembly until it comes out around the spindle washer.

12

**INSTALL DUST CAP**

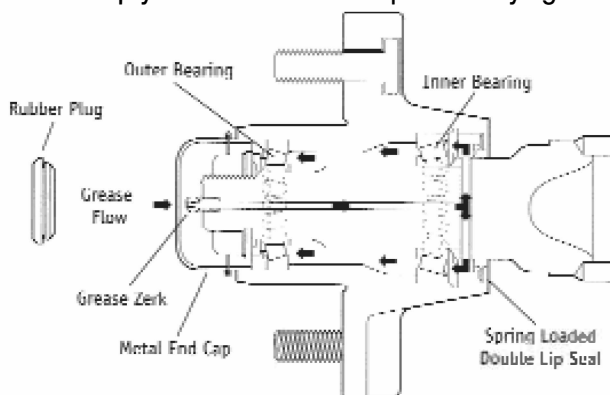
Install dust cap with rubber plug. Care must be taken so that cap goes on evenly and is not crimped on inner lip. Cap is fully seated when rib on the cap is up against the hub all the way around. This prevents grease from being thrown out of hub onto the rim.

## TRAILER BRAKES-BRAKE ADJUSTMENT

Brakes must be adjusted after the first 200 miles of operation when the brake shoes and drums have seated. After the initial adjustment the brakes should be readjusted at 3000 mile intervals or as use and performance requires. The brakes should be adjusted in the following manner:

1. Jack up trailer and secure on adequate capacity jack stands. Lifting and supporting must be on the main I-beams or the perimeter tube frame that the axle is attached to. Check that the wheel and drum rotates freely.
2. Remove the adjusting hole cover from the adjusting slot on the bottom of the brake backing plate.
3. With a screwdriver or standard adjusting tool, rotate the starwheel of the adjuster assembly to expand the brake shoes. Adjust the brake shoes out until the pressure of the linings against the drum makes the wheel very difficult to turn.
4. Now rotate the starwheel in the opposite direction until the wheel turns freely with a slight lining drag. Usually 8 clicks.
5. Replace the adjusting hole cover and lower the wheel to the ground.
6. Repeat the above procedure on all brakes.

See your hitch specialist for your brake controller. They will provide a brake controller manual which gives information on proper controller adjustments. Load and road conditions will require different sensitivity settings of the controller. Heavy loads will need maximum sensitivity as opposed to an empty trailer which will require a very light braking action.



### EZ-LUBE HUBS

See EZ-Lube Hub instructions in Dexter service manual. Lube hubs every 12 months or 12,000 miles. Check the Dexter Service Manual for recommended wheel bearing lubrication specifications.

MATCH AIR PRESSURE & TIRE CAPACITY TO WEIGHT ON AXLES  
TIRE LOAD LIMITS (LBS) AT VARIOUS INFLATION PRESSURES (PSI) COLD

TIRE SIZE	PSI	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
(Letters in parenthesis denote load range for which <b>BOLD FACE</b> loads are maximum)																							
ST205/75R14	1030	1170	1300	1430	1530	1640	1760	(C)															
ST205/75R15	1070	1120	1360	1480	1610	1720	1820	(C)															
ST225/75R15	1260	1430	1600	1760	1880	2020	2150	2270	2380	2540	(B)												
Note: capacity limited to 2150 lbs. @ 50 PSI when mounted on 5 bolt wheel																							
LT235/85R16			1700	1870	2030	2205	2335	2485	2623	(D)	2765	3042	(E)	3170	3300	3415	3550	3675	3750	(G)			
Note: Load range G tire requires compatible wheel, cannot be used with standard 16" wheels																							
215/75R17.5															3695	3860	4020	4180	4340	4495	4650	4805	(H)
Note: Load capacity limited to 4500 lbs. @ 125 PSI with Dexter 17-241 single wheel																							

USE ONLY APPROVED TIRE AND  
WHEEL COMBINATIONS. FAILURE  
TO COMPLY WITH LOAD AND  
INFLATION LIMITS MAY RESULT IN  
SERIOUS INJURY OR DEATH.

The information shown above is valid only for trailer (ST) or light truck (LT) design tires. Passenger car tires (P designation) used in trailer service must be de-rated 10% from the maximum load capacity branded on the tire sidewall (branded load capacity divided by 1.10 equals the load capacity for trailer service.)

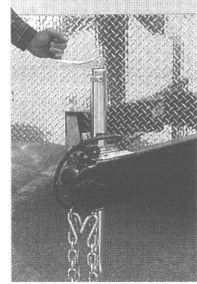
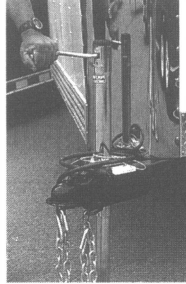
Actual unit or axle load ratings will be determined by the lowest rated component (Tire, Wheel, or Axle)



## VENDOR DOORS AND TONGUE JACKS

### TONGUE JACKS FOR BUMPER-PULL MODELS

Titan trailers uses manual tongue jacks. Lubrication and proper maintenance of jacks will enhance jack life and make operation smoother. The type that Titan uses, the top-wind jack, has an access hole on the front side that will allow oil to be sprayed into the threaded rod. By using a product similar to ANTI-SEIZE TECHNOLOGY's product no. 17061, you will be able to free up rusty and corroded parts, and it leaves a protective anti-rust film. Some spray-on lubricants will only provide short term lubrication and will need to be reapplied more frequently than once a year.



### FIFTH WHEEL AND GOOSENECK LANDING GEAR

These kinds of trailers are equipped with a one speed, single landing gear. If you have questions, please contact us at: 1-785-363-2101.





## TRAILER TOWING SAFETY TIPS

### INSTABILITY

Swaying (or whipping) of a tow vehicle/trailer combination at low speeds may get worse as speed increases. If this happens, take your foot off the gas pedal. Steer straight ahead while manually applying the trailer brakes. Then brake gently after the combination has begun to stabilize itself. Stabilizer or weight equalizing bars will help reduce trailer sway and may also be required by law in some states.

**NEVER INCREASE SPEED  
WHEN TRAILER IS SWAYING  
OR WHIPPING**

Check cargo first to be sure that trailer is loaded heavier in the front. The desired weight for bumper hitch is 10—15% of total load. The desired weight for a goose neck is 20—25% of total load. Next, make certain the rear of the tow vehicle is not overloaded. Then check for wheel wobble on both vehicles caused by bearing failure, loose lug nuts or loose spindle nuts. Now check the tow vehicle's suspension alignment. Finally, make sure that you are not exceeding the recommended maximum speed limit for safety and IT'S THE LAW.

If the above instructions have been followed, instability should now be corrected. If not, something may be wrong with your tow vehicle.

### BACKING TIPS FOR BEGINNER (ALSO SEE HITCHING UP ON P. 19)

Place your hand at the bottom of the steering wheel. While watching in your outside mirrors, if you want the rear of the trailer to go to the right, move your hand to the right. If you want the rear of the trailer to go to the left, move your hand to the left. If the trailer starts to jackknife—STOP—pull ahead to straighten out then start procedure over again. When making turns, be aware the trailer will turn quicker than a tow vehicle. Allow extra turning space so that the trailer wheels don't jump over a

**TRAILER TURNS QUICKER  
THAN TOW VEHICLE. ALLOW  
EXTRA TURNING SPACE FOR  
TRAILER**

curb, hit a soft shoulder, road sign or tree. Your axle and/or tire and rim can be severely damaged as a result or from hitting the curb at a bad angle and too hard.

### CHECK YOUR POLICY

Most automobile and some homeowners insurance policies will provide some coverage for stock and flatbed trailers. They should also provide for you a "grace period" of a set number of days from the date of purchase. Call your agent.

## HITCH AND BRAKE SAFETY

For safe towing it is the trailer owner's responsibility to **CORRECTLY MATCH** the combination of tow vehicle and trailer.

1. **MATCH** the maximum trailer weight allowed for the tow vehicle to the GVWR of the trailer.
2. **MATCH** the hitch weight carrying capacity of the tow vehicle with the loaded tongue weight of the trailer. The desired weight for bumper hitch is 10-15% of total load. The desired weight for a goose neck is 20-25% of total load. Tag models may require a weight distributing hitch with sway controls. Contact your hitch specialist to properly set up your tow vehicle/trailer combination.
3. **MATCH** the size of the brake controller to the number of braking wheels on your trailer. These are sold usually as 2 to 4 wheel brake or 2 to 6 wheel brake units. For proper controller adjustment, see your brake controller manual.
4. **MATCH** the wiring of the tow vehicle to the wiring code on the trailer. Ensure your tow vehicle does have a ground wire running from the receptacle to the frame.
5. **MATCH** the ball size to the coupler size.
6. **MATCH** your Fifth Wheel or Gooseneck trailer to a correct and compatible hitch provided by your hitch specialist. Then consult your hitch specialist for proper maintenance of the hitch assembly.
7. **MATCH** your rear vehicle suspension to the loaded hitch weight of the rear axle of the tow vehicle.

All marginal situations should be corrected for safe trailering. Remember, you are the one that will be trying to control a large combination of weight and size at high speeds. It is your responsibility to set up tow vehicle/trailer properly. Contact or confirm your set-up with a local hitch company professional.

<b>GROSS TRAILER WEIGHT (GTW) &amp; TONGUE WEIGHT (TW)</b>		
<b>CLASS I</b> <b>2,000 lbs. (GTW)</b> <b>200 lbs. (TW)</b> <b>Compact Cars</b>	<b>CLASS II</b> <b>3,500 lbs. (GTW)</b> <b>300 lbs. (TW)</b> <b>Mid Size Cars &amp; Small Pick Ups</b>	<b>CLASS III</b> <b>3,500-5,000 lbs. (GTW)</b> <b>300-500 lbs. (TW)</b> <b>Minivans</b>
<b>CLASS III</b> <b>4,000 lbs. (GTW)</b> <b>350 lbs. (TW)</b> <b>Mid Size Cars</b> <b>Small Pick Ups</b> <b>Minivans</b>	<b>CLASS IV</b> <b>5,000-10,000 lbs. (GTW)</b> <b>500-1,000 lbs. (TW)</b> <b>Pick Ups</b> <b>SUV's</b>	<b>CLASS V</b> <b>14,000 lbs. (GTW)</b> <b>1,700 lbs. (TW)</b> <b>20,000 lbs. (GTW)</b> <b>2,000 lbs. (TW)</b>

## HITCHING UP YOUR TRAILER

Hitching up a trailer to your tow vehicle is usually a one-person job, but it is easier if someone helps you. Here are a few of the basic steps:

- 1. Release the coupler locking device.**
- 2. Check under the coupling** to ensure the ball clamp is below the ball and not riding on top of it.
- 3. Latch the coupler to the hitch ball.** Make sure it is locked in place by lifting up the trailer tongue.
- 4. Make sure your jack is fully raised.**
- 5. If you have a weight distributing hitch** with spring bars, follow the above procedures. Then attach the spring bar chain to the trailer and tighten it until your trailer and car are in normal, level position.
- 6. If your trailer has a surge brake** breakaway cable or chain, attach the cable or chain to your tow vehicle, allowing enough slack for you to make tight turns.
- 7. Attach the safety chains.**
- 8. Connect the trailer wiring harness** to the lighting system of your tow vehicle and check its operation (also see page 7 in this manual for details).

**TITAN**

## TRAILER TACTICS

With a trailer in tow, you're operating a vehicle combination that is longer, heavier and sometimes wider and taller, than you're used to. So you'll have to make some compensating adjustments in your normal driving practices. The following is advice in trailering tactics:

**Take a "Shakedown Cruise".** At least one short trial run before your first trip will help familiarize you with your trailer's operating characteristics. It will also allow you to check the trailer's lights, brakes, hitch, etc., and let you know they are all working properly.

**Slow down.** Moderate to slower driving speeds put less strain on your tow vehicle and trailer and make for safer traveling.

**Allow extra time and space between your rig and traffic.** You will need both when passing and stopping, especially if your trailer is not equipped with brakes.

**Check rear view mirrors.** Doing this frequently will let you know that your trailer is riding properly. We recommend outside rear view mirrors on both sides of your tow vehicle.

**Swing wider.** You need to make wider swings (turns) at curves and corners because your trailer's wheels are generally closer to the inside of a turn than the wheels on your tow vehicle.

**Pass with extra care and caution.** It takes more time and distance to get around a slower vehicle and return to the correct lane when you've got a trailer in tow.

**Watch the wind direction and speed.** To avoid swaying, be prepared for sudden changes in air pressure and wind buffeting when larger vehicles pass from either direction. Slow down a bit and keep a firm hold on your steering wheel. Aim straight down your lane.

**Conserve fuel.** You'll go farther on a tank of gas at moderate speeds. Higher speeds increase wind resistance against the trailer and reduce fuel mileage.

**Avoid sudden stops and starts.** This can cause skidding, sliding, or jackknifing, even if your trailer has brakes. Avoid quick stops while turning. Smooth, gradual starts and stops will improve your gas mileage.

**Signal your intentions.** Let surrounding vehicles know what you intend to do well in advance before you stop, turn, change lanes, or pass.

**Shift to a lower gear.** A lower gear will help ease the load on the transmission and engine when going over steep hills, sand, gravel, or dirt roads. If your tow vehicle has an "overdrive" gear, shifting out of overdrive to a lower gear may improve your gas mileage.

**Always be courteous.** Make it as easy as possible for faster moving vehicles to pass you. Keep to the right of the road and prepare to slow down if passing vehicles need extra time to return to their proper lane.

**Don't tailgate.** Allow at least one car and trailer length between you and the vehicle ahead for each 10 mph on your speedometer. Three seconds should be the minimum distance.

**If a problem occurs** don't panic. Stay calm and cool. Say you experience a sudden bumping or fishtailing. It may indicate a flat tire. Don't jam on the brakes or mash the accelerator in an attempt to drive out of it. Instead, come to a stop slowly as you keep driving in as straight a line as possible. If conditions permit, coast to a very slow speed and try to avoid braking, except when your wheels are straight ahead and your trailer and tow vehicle are in line with each other.

If your trailer begins to fishtail as you accelerate to highway speed, back off the accelerator a bit. This should stop the fishtailing. If it begins again as you increase speed, stop and check your load. It probably isn't distributed evenly from side to side, or it is too far back to put a sufficient load on the hitch ball. The desired weight for bumper hitch is 10-15% of total load. The desired weight for a goose neck is 20-25% of total load. (See page 17 for more details). Redistribute the load as necessity dictates before continuing on the highway.

## SAFETY CHECKLIST

- ☐ Maintenance Checklist (Up to Date)
- ☐ Hitch Ball Tight
- ☐ Hitch Ball Lubricated
- ☐ Hitch Secured in Receiver
- ☐ Safety Chains Crossed and Attached\*
- ☐ Coupler Latched onto Ball
- ☐ Load Distributed Correctly and Securely
- ☐ Trailer Level when Hooked Up
- ☐ Trailer Lights Working Correctly
- ☐ Lug Nuts Checked and Tightened
- ☐ Inspect Tires for Cuts
- ☐ Tire Pressure Checks
- ☐ Breakaway Battery Charged
- ☐ Breakaway Cable Hooked Up
- ☐ Pin or Bolt through Coupler Latch
- ☐ Block Tires when Loading and Unloading

*\* If safety chains are too long, twist to shorten.*

### THE MAIN CAUSES OF TRAILERING ACCIDENTS

1. Driver error.
2. Failure to MATCH speed with weather and road conditions.
3. Trailer sway due to improper loading—The desired weight for bumper hitch is 10-15% of total load. The desired weight for a goose neck is 20-25% of total load.
4. Failure to perform routine maintenance.

Remember, never carry passengers in trailer while moving. Check hub temperature at each stop. Adjust sensitivity of brake controller to match load. 102" axles are legal on all Federally-funded highways (and some state highways).

## FACTORY SERVICE

Call the Titan Customer Service number to schedule a quality factory service. They can retrofitting, reskinning, accident repairs or any other service your dealer can't do. And let Titan handle the jobs your dealer may not want to do. Whatever it takes, Titan is dedicated to your complete satisfaction.

## TRAILER INFORMATION FORM

Fill in the information form below for future use. This critical information should be used for quick reference when ordering genuine Titan replacement parts, factory service or refer to it if you should have a warranty claim. Keep it handy so Titan can serve you promptly and efficiently.

Owner:		
Address:		
City:	State:	Zip:
Date Purchased:		
Dealership:		
Dealership phone number:		
Address:		
City:	State:	Zip:
Model No.:	Tire Size:	
Serial (VIN) No:	Hitch Size:	
Color Name: (from copy of order)		



## MAINTENANCE SCHEDULE

ITEM	FUNCTION REQUIRED	EVERY TRIP	3000 MI 3 MONTHS	6000 MI 6 MONTHS	12000 MI 12 MONTHS	PG #
COUPLER	CHECK FOR FATIGUE & LATCHING OPERATION	●				5
SAFETY CHAINS	CHECK FOR DRAGGING & POSSIBLE STRENGTH LOSS	●				
BREAKAWAY SYSTEM	CHECK BATTERY CHARGE & SWITCH OPERATION CABLE FOR DAMAGE	●				2
LUGNUTS	CHECK FOR CORRECT TORQUE	●				3-4
PIGTAIL	CHECK FOR DRAGGING & STRESS	●				
LIGHTS	CHECK THAT ALL ARE OPERATING	●				
AXLE & SPRING BOLTS	CHECK FOR CORRECT TORQUE & ELONGATION OF THE SHACKLE LINK HOLES			●		
TIRES	CHECK PRESSURE & UNUSUAL WEAR	●				15
BEARINGS	REPACK				●	10-13
HINGES	LUBRICATE		●			5
STABILIZER JACK-SCREW	LUBRICATE THREADED ROD			●		20
HYDRAULIC FLUID	CHECK FLUID LEVEL			●		
ROOF SEALANT	INSPECT FOR CRACKS OR DRYING OUT				●	2
WHEELS	INSPECT FOR CRACKS INDENTATIONS	●				3-5
JACKS	LUBRICATE				●	16
BRAKES	CHECK FOR OPERATION	●				14
BRAKE ADJUSTMENT	ADJUST FOR OPTIMUM PERFORMANCE		●			14
INSPECT FRAME WELDS	CHECK FOR CRACKING			●		

## Tire Safety Information

### 1. TIRE SAFETY INFORMATION

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, 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.

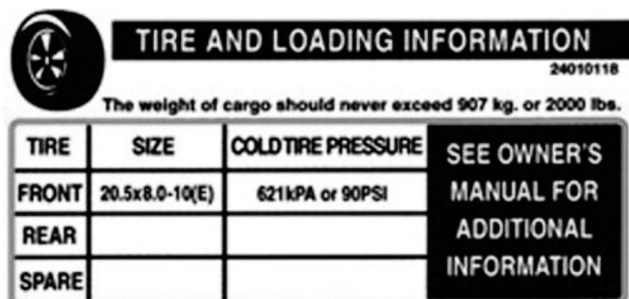
For trailers with living quarters installed, the weight of water and propane also need to be considered. The weight of fully filled propane containers is considered part of the weight of the trailer before it is loaded with cargo, and is not considered part of the disposable cargo load. Water however, 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.

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



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. TRAILERS OVER 10,000 POUNDS GVWR (NOTE: THESE TRAILERS ARE NOT REQUIRED TO HAVE A TIRE INFORMATION PLACARD ON THE VEHICLE)

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. ( $1400 - 750 (5 \times 150) = 650$  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.

**CT**

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 5th 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](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 re-

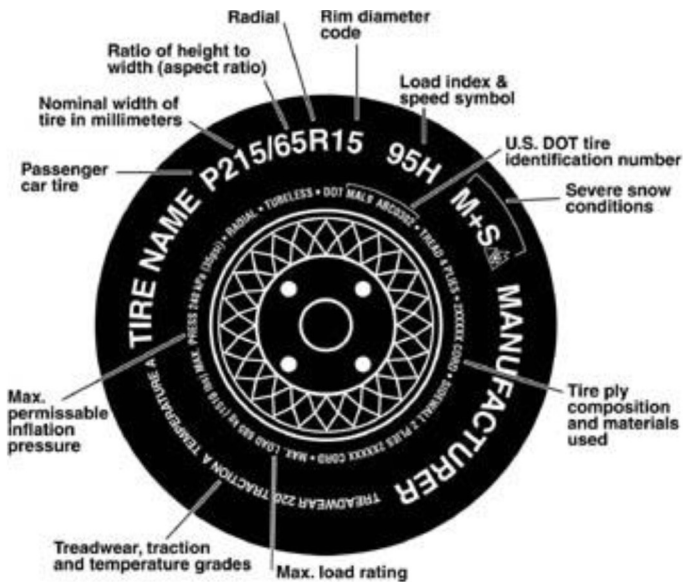
moved from the rim to be properly inspected before being plugged and patched.

### 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

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.

## 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
H	130 mph
V	149 mph
W	168* mph
Y	186* 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.

#### **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**

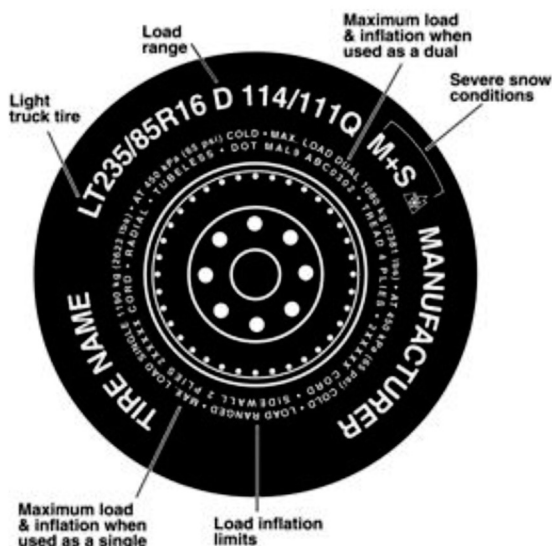
This letter indicates a tire’s ability to stop on wet pavement. A higher graded tire should allow you to stop your car on wet roads in a shorter distance than a tire with a lower grade. Traction is graded from highest to lowest as “AA”, “A”, “B”, and “C”.

### **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”.

### 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.

## WARRANTY

### Manufacturer's Warranty

Titan Trailer Mfg., Inc. warrants that its products will be free from defects in materials and/or workmanship to the original purchaser for a period of five (5) years from the date of manufacturing providing the conditions are met and satisfied.

This excludes the "Light Cargo" trailer which carries a two (2) year warranty.

Warranty is not transferable.

There will be an \$100.00 deductible per claim regardless for any trailer product.

The attached warranty card must be completed and returned to Titan Trailer Mfg., Inc., P.O. Box F, Waterville, KS 66548.

These documents must be filed by the dealer with the manufacturer within 30 days of date of purchase to validate the warranty.

The warranty does not cover the following items, which are not manufactured or constructed by Titan Trailer Mfg., Inc.

The respective manufacturer with a copy of it warrants these components available upon request from Titan Trailer.

Axle Assembled – warranty as per Dexter Axle policy, 10 years on torsion axles, 5 years on sprung axles

Coupler – warranty as per manufacturers policy

Jack Assembly/Landing Gear- 5 year non-transferrable warranty per manufactures policy

Wheels – warranty and/or adjustment made by manufacturers' representative

Tires – warranty and/or adjustment made by manufacturers' representative

Normal wear items will not be replaced due to wear. These items include bearings, brakes, brake linings, hoses, etc.

Titan Trailer is not responsible for damage caused by the abuse or by the misapplication or misuse of the trailer.

Loading in excess of the Gross Vehicle Weight Rating stated on the certification plate will invalidate the warranty.

Paint carries a 5 year pro-rated warranty, it does not cover wear, deterioration and/or damage from road elements, such as, but not limited to, magnesium chloride (liquid salt), rock chips, improper wash solvents, salt, sand and/or weather condition.

Sure Foot Flooring carries a 5 year pro-rated warranty, it does not cover normal wear, deterioration, neglect, or misuse such as but not limited to, damage from chemical or fuel spills, pawing damage from animal, or thinning in high traffic areas.

### Manufacturer's Warranty continued

If necessary, Sure Foot Flooring shall be repaired at Titan Mfg, Inc factory. Transportation to and from, loss of use, and loaner trailers are not provided for under this warranty. Warranty is valid for original purchaser only.

Any modification to the Titan Trailer without prior written authorization from the factory will void this warranty.

Any Titan Trailer found to have defective material or workmanship must be serviced or corrected by an authorized factory representative or by the Titan Trailer Factory. Any Titan Trailer authorized representative may make repair and/or adjustments under this warranty. Cost to repair or adjust must be agreed upon and approved by Titan Trailer in advance.

Titan Trailer will not make reimbursements for any repairs and/or adjustments made without prior written consent. Titan Trailer will not be responsible for any consequential or incidental damages incurred as a result of any defect to include loss of time, inconvenience, loss of use of vehicle.

Titan Trailer reserves the right to make changes in design or make addition and/or improvements without being obligated to install or modify same upon other products covered by this warranty.

When required photos of defective part or parts of the actual part or parts may have to accompany the warranty approval before payment can or will be made. Any part or parts returned for warranty must be pre-paid freight to Titan Trailer.

Titan Trailer reserves the right to decide if the workmanship or material defect should be serviced at the factory.

Titan Trailer will not allow any reimbursement for transportation to and from the factory or the authorized place of repair. Titan Trailer reserves the right to set the cost of warranty. This set amount would reflect the cost of the repair if it were done at the Titan Trailer facility with their personnel.

THIS WARRANTY IS EXPRESSLY MADE IN LIEU OF ANY AND ALL OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS AND NO ONE IS AUTHORIZED TO MAKE ANY FURTHER OR ADDITIONAL WARRANTIES ON BEHALF OF TITAN TRAILER MFG., INC.

### Reporting Safety Defects

If you believe that your vehicle has a defect, which could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying ***Titan Trailer Mfg., Inc.***

If NHTSA receives similar complaints, it may open an investigation, and if found 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 ***Titan Trailer Mfg., Inc.***

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-888-327-4236 (or 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 the above mentioned website.

## MAINTENANCE RECORD

[illegible]

# TITAN



## MAINTENANCE RECORD

[illegible]

## MAINTENANCE RECORD

[illegible]

NOTES



**TITAN TRAILER MFG., INC.**

**2306 HWY 77**

**WATERVILLE, KS 66548**

**(785) 363-2101**

**FAX (785) 363-2472**

**[info@titantrailer.com](mailto:info@titantrailer.com)**