



'America's Premier Trailer Manufacturer'

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TRAILER

CARE

AND

MAINTENANCE

MANUAL

## INTRODUCTION

This manual has been written to assist the operators of Strick trailers in achieving the highest level of safety, performance, reliability and dependability we build into every Strick trailer. Periodic safety, maintenance inspections and service with Strick authorized replacement parts is required to achieve the intended results. Careful and complete inspection and verification of the condition of the parts, components and mechanics of a trailer in accordance with this manual, as well as in accordance with the instructions of suppliers to Strick of the particular part or component. Check the part or component suppliers website for more information. This inspection is essential each time a trailer is to be operated. **DO NOT** operate a Strick trailer with un-repaired damaged components.

## IDENTIFICATION

When contacting any Strick representative about a Strick trailer, please note and provide the model and vehicle identification number (VIN) stamped into the tag located on the front wall or roadside frame member of the trailer. This plate contains information, including the model, date of manufacture, gross vehicle weight rating (GVWR), gross axle weight rating (GAWR), tire and wheel size and tire pressure requirements.

## WEIGHT RATING

Strick trailers are designed to operate at legal highway speeds, on improved, paved roads, with the maximum GVWR shown on the VIN tag. GVWR and GAWR are not to be exceeded. Van trailer cargo should be uniformly distributed with no more than 25,000 pounds in any 10 feet of the trailer length. Weight ratings and capacities for other model trailers are based on the requirements noted on the sales order for the equipment. Any cargo loaded into Strick trailers should be properly distributed, braced and blocked, where necessary and conform to D.O.T. 49 CFR, Part 393. Fork lift truck, front axle loading should not exceed 16,000 pounds, when the trailer is equipped with steel crossmembers on 12" centers and 1-5/16" laminated oak flooring. Other floor ratings are based on the materials used and the application.

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## 1.0      SUSPENSION SERVICING

### 1.1 SPRING SUSPENSIONS

The leaf springs in a trailer suspension flex and work while assisting the transfer of the trailer and the cargo weight to the ground. Periodic inspections and checks are required to insure achieving satisfactory performance. These inspections should be made on a regular scheduled basis. The checks should be scheduled at least every 12 months or at once whenever any abnormality, poor operation or unusual wear on parts is noted. The frequency of servicing required depends on the severity of the operating conditions. After a short initial break-in period of 1000 to 2000 miles check the suspension components and verify the alignment and torque on the spring, axle and wheel nuts per the table of recommended bolt torques at the end of this section.

- 1.1.1 Check axle alignment. Also check after replacing any suspension parts or if the trailer does not track behind the tractor or if unusual tire wear is noted. Move trailer forward onto a flat level surface. Inflate tires to rated pressure and check the kingpin to the front axle end dimensions. They must be within plus or minus "0" to expect maximum tire mileage. The front axle to the rear axle end dimensions must be within plus or minus "0" to expect maximum tire mileage.
- 1.1.2 Check all bushings for wear. Replace any worn bushings and re-torque the mounting bolts and nuts to the manufacturer's recommended specifications or refer to the table at the end of this section.
- 1.1.3 Check the equalizer for obstructions that can limit movement and cause damage or limit load transfer between axles.
- 1.1.4 Check spring wear pads in the hangers and equalizers. Worn pads should be replaced before the springs damage the hanger walls. Wear will allow axle shift and cause misalignment and premature tire wear.
- 1.1.5 Check springs for broken or missing leaf sections, misalignment or wear. Replace broken springs. **DO NOT** weld on any spring. **DO NOT** replace individual leaves and **DO NOT** operate with broken spring leaves.
- 1.1.6 Check frame, hangers and equalizer for cracks, breaks or broken welds. Repair or replace according to the suspension manufacturer's specifications. All cracks should be welded and covered by reinforcing plates to preserve their integrity and prevent failure of the repair.

### 1.2 AIR SPRING SUSPENSIONS

Air spring suspensions, currently utilize air pressure in a rubberized, reinforced fabric bag to cushion the trailer/cargo weight transfer to the road. The bags can be located behind, over or in front of the axle. Some designs replace the rear spring hanger with an air bag while others have fabricated trailing arms, which pivot in a hanger and support the axle with an air bag. All air ride suspensions control the ride height with a height control air valve, which maintains the axle to frame mounting height, at any load in the trailer. Always exhaust the air in the air bags before backing the trailer to a dock for loading or unloading to reduce the tendency for "dock walk". A trailer that has an air bag road failure can be moved slowly, for short distances, with the air totally exhausted from the air system. The axles will be supported by internal stops in the bags.

Regular periodic inspection and checks are required to insure achieving satisfactory performance. Regular checks should be made at least every 12

months, or at once if any abnormality, poor operation or unusual wear is found. Frequency of the checks and servicing will depend on the severity of the operation. After a short initial break-in period of 1000 to 2000 miles, check the suspension components and verify the alignment and torque on all suspension mounting bolts and nuts per the table at the end of this section.

- 1.2.1 Check axle alignment. Also check alignment after replacing any suspension parts or if the trailer does not track behind the tractor or if unusual tire wear is noted. Move the trailer forward to a flat, level surface. Inflate the tires to the rated pressure and check the kingpin to the front axle end dimensions. The dimensions must be within plus or minus "0" to expect maximum tire mileage. Adjust using the suspension manufacturers procedures as needed. Check the front to rear axle end dimensions. These must be within plus or minus "0" to expect maximum tire mileage.
- 1.2.2 Check all bushings for wear. Replace any worn bushings and re-torque the mounting bolts and nuts to the manufacturers recommended specifications or refer to the table at the end of this section.
- 1.2.3 Check the airlines for leaks and repair or replace any parts, which cause the suspension lines to leak air.
- 1.2.4 Check the air bags for wear, leaks, deterioration, cracks, folded or misaligned sections. Replace bags that have the internal reinforcing fabric showing. Clearance around the air bags should not be less than 1-3/4" when the bags are inflated. If there is less clearance check for any deterioration or loose or misaligned parts that are the cause.
- 1.2.5 Check the hangers, trailing arms, axle seats and frame for cracks, breaks, deformed surfaces or broken welds. Repair or replace according to the manufacturers recommendations.

**TABLE OF RECOMMENDED GRADE 5 OR HIGHER BOLT/NUT TORQUES**

<u>Bolt diameter</u>	<u>Torque range with oiled threads</u>
1-1/8" -7 UNC	580-600 ft lbs.
1" -14 UNF	530-550 ft lbs.
7/8" -14 UNF	340-360 ft lbs.
3/4" -16 UNF	300-320 ft lbs.
5/8" -18 UNF	120-140 ft lbs.
1/2" - 20 UNF	60- 70 ft lbs.
3/8" - 16 UNF	30- 40 ft lbs.
DISC WHEEL CAP NUTS-Single nut	450-500 ft lbs.
DISC WHEEL CAP NUT INNER-Double nut	450-500 ft lbs.
DISC WHEEL CAP NUT OUTER-Double nut	450-500 ft lbs.
SPOKE WHEEL LUG NUTS	200-250 ft lbs.
HUB CAP BOLTS	12-16 ft lbs.

## 2.0 BRAKE SERVICING

Anti-Lock Brake Systems (ABS) are required by current FMVSS 121 on all trailers over 10,000# GVWR. The ABS controls the air pressure to the brake chambers by sensing the wheel rotation and feeding this back to the Electronic Control Unit (ECU) mounted on the service brake valve. This controlled pressure allows the brakes to apply at the level that keeps the wheels from locking up and losing control.

The primary requirement of a trailer ABS air brake system is clean dry air at the correct pressure. The air supplied by the tractor compressor is routed through the trailer ABS brake system, which activates the service and emergency braking. The system must be tight and leak free. The ABS air system should not have a pressure loss exceeding 4psi per minute, with the service brakes applied, at full pressure and the tractor engine off. **This must be checked at the beginning of every trip.** Always check the operation of the ABS brakes to be sure they work properly, before entering traffic.



**Trailer axles (except dollies) are equipped with spring brake chambers. These operate the emergency and the parking brakes. DO NOT deactivate these chambers and DO NOT attempt to disassemble or open a spring brake chamber. An internal spring is in the chamber under high compression. It is extremely dangerous and could cause serious injury and/or death if opened.**

- 2.1.1 The glad-hand seals and hoses should be inspected for cracks, missing sections, damage or contamination. The hoses and tubing should not rub against any part of the tractor or trailer.
- 2.1.2 The trailer air reservoir should be drained of water and contamination daily. This is particularly important in wet, cold weather. As the reservoir is drained, the spring brakes will apply.
- 2.1.3 Check the brake system for cracked drums, bent chambers and push rods, loose chambers, brakes out of adjustment, loose or broken shoe springs, kinked or worn hoses and disconnected electrical harnesses. **DO NOT** operate the trailer if any defects are present.
- 2.1.4 If the ABS warning light goes on when first moving the trailer and stays on the ABS portion of the brake system is not working. The brakes will operate and apply normally without the Antilock Braking System functionality, but should be checked and/or repaired by a qualified technician.

## 3.0 SLIDER BOGIE

Trailers equipped with sliding suspensions can redistribute cargo weight on the trailer axles by moving the suspension under the trailer chassis. Moving the suspension forward increases the weight on the trailer suspension and moving it to the rear increases the weight on the tractor. The sliding section of the suspension is locked to the trailer chassis by four retractable pins, which move in and out through holes in the two angles welded under the rear of the chassis. The four pins are interlocked to a handle extending out of the suspension frame on the driver's side. Release of the handle and pulling the handle out, retracts the four pins and permits sliding the bogie under the trailer.

- 3.1.1 Before moving a trailer equipped with a sliding bogie, check and verify that the four locking pins are fully extended and pass through the locking holes in the slider track angles on both sides of the trailer. The locking handle must also be positioned and locked in the slider frame. Gently rock the trailer forward and backward, using the tractor power with the trailer brakes set, insuring that the locking mechanism is secure.

3.1.2 The sliding bogie is equipped with four hold down brackets bolted to the corners of the slider frame. These brackets wrap around the lower flanges of the track angles, welded under the trailer chassis. Check the mounting bolts and verify that the brackets are tight against the slider frame and wrap around the angle legs.

3.1.3 Check the locking pins, links, rods and springs for wear or distortion. Be sure all links operate the four pins and fully extend the pins through the matching holes in the angles at the same rate of travel.

3.1.4 Check the sub frame, track angles, gussets and welds for cracks, broken parts or welds. Repair or replace according to the suspension manufacturer's recommendations.

### 3.2 TO MOVE THE SLIDING SUSPENSION UNDER THE TRAILER:

3.2.1 Check airlines and electrical harnesses connected to the slider frame for wear, tangles and clearance.

3.2.2 Align the tractor and trailer in a straight line and set the tractor and trailer brakes.

3.2.3 Pull the locking pin handle all the way out or up and set in the latched position on the frame to release the locking pins.

3.2.4 Check the area around the trailer for clearance, release the tractor brakes and slowly drive backward or forward until the suspension is in the required position. (If a manual stop bar is installed, position it at the desired location before moving the slider)

3.2.5 Release the locking pin handle and visually check the four locking pins for complete engagement. The main cross section of the four pins must extend completely through the matching holes in the slide track angles.

3.2.6 Check for locking mechanism securement by rocking the trailer forward and backward with the brakes set.

#### **CAUTION**

*The design and function of the welded, front and rear bogie stop tubes is to limit the normal slide range of the bogie during repositioning. The bogie stops are not intended to prohibit the suspension system from leaving the trailer body when incorrectly positioned and the four locking pins are not completely engaged in the locator holes in the slide track angles*

## 4.0 WHEEL AND RIM SERVICING

#### **DANGER**

**LOOSE LUG NUTS, CRACKED WHEELS, MISSING NUTS OR LUGS ARE EXTREMELY DANGEROUS AND CAN CAUSE WHEEL LOSS OR CRASHES, SERIOUS INJURY, PROPERTY DAMAGE, AND/OR DEATH!**

**Rim, wheel and tire servicing can be dangerous. Serious injury, property damage and/or death could result from attempting to service or repair tires wheels or rims without adequate training. ALL mounting, de-mounting, inspection, maintenance, procedures, safety requirements, instructions and practices must be followed.**

Information in this regard, is available at no cost from the local OSHA office listed in the telephone directory. Ask for Rules and Regulations 1910.177 " Servicing Multi-Piece and Single Piece Rim Wheels" or contact the U.S. Department of Labor, Publications Distributions Office, Room N1401, Washington, D.C. 20210

(202-523-9667) Another source of this information is the: Wheel and Rim Institute for Safety, 5121 Bowden Road, Suite 303, Jacksonville, FL 32216.

- 4.1.1 Inspect tires, wheels and rims for damage from wear, cracks, corrosion, distortion and/or defects every time tires are checked for proper inflation or de-mounted. Scrap any cracked, worn or deformed parts. Never weld a wheel or rim. Always follow OSHA and Tire and Wheel Manufacturers recommendations and requirements.
- 4.1.2 Check and re-torque wheel/rim mounting nuts after a short (50-100 mile) break in period to the manufacturers recommended level. Maintain the torque levels by planned periodic checks.
- 4.1.3 Check the tires before every trip for wear, cuts breaks, cracks, defects, objects caught or penetrating the tire carcass and for proper inflation. Check tire pressure when the tires are cool and maintain the pressure molded into the sidewall. **DO NOT** operate a trailer with tires that have the internal reinforcing wires or belt showing or less than 2/32" tread depth, when measured at a major tread groove.
- 4.1.4 Check tire sizes to confirm the matching of the tires and check that bias and radial tires are not mixed. (See FMCSR section 393.75)

## **5.0 WHEEL BEARING LUBRICATION AND ADJUSTMENT**

The wheel end bearings are lubricated in one of two ways. Use either with oil or semi-fluid grease. Oil lubricated bearings can be identified by looking at the hubcap ends which will have a clear face and shows the oil level in the hub. Synthetic grease hubcaps are solid, without a clear end face and do not allow checking the lubrication level by sight.

- 5.1.1 Check hubcap face, gasket and hub end for oil leakage before every trip. Check inner wheel and seal area for indications of oil leaking into the brakes, drum or wheel. Add oil if the level is low, but **DO NOT** operate the trailer if oil is present on the wheel end, until repairs have been made.
- 5.1.2 Check for grease on the hubcap, vent, gasket, wheel or inner brake mechanism, if equipped with synthetic grease before every trip. This is more difficult to check than oil. The grease will mix with road dust and form a paste like coating on the wheel end parts when it leaks.



**DANGER** Undetected grease loss can lead to damaged bearings or wheel end failure.

- 5.1.3 Wheel ends lubricated by synthetic grease require inspections annually, or at no more than 100,000 mile intervals. This inspection must be done with the hubcap and outer bearing removed to determine the grease level inside of the hub. Refer to the lubrication supplier's recommendations.
- 5.1.4 Wheel end lubrication, oil or synthetic grease, should be changed once a year or every 100,000 miles whichever comes first.

## **6.0 BODY AND CHASSIS**

The body of a van trailer is the primary support structure. The main rails of a flatbed or chassis frame perform the same function. These main members must be in good condition to work safely and correctly. Operating equipment in service requires that all members must be straight, aligned with the supporting structural parts and undamaged. **DO NOT** operate the trailer with un-repaired damaged structural components.



- 6.1.1 Check the kingpin and upper coupler support structure for damage, wear or corrosion. Check connecting fasteners or welds, which connect the kingpin to the trailer frame. **DO NOT** operate a trailer that has damage to the lower locking flange of the kingpin, cracked welds, loose or missing fasteners or abnormal wear.
- 6.1.2 Check the landing gear and the support structure for loose bolts, cracked welds, damage and bent or distorted parts. Notice if the legs become difficult to raise or lower and if the travel of the legs, up or down is restricted. Extend the legs fully before uncoupling a tractor, do not drop a loaded trailer to the ground. Crank the landing gear legs up or down to match the tractor fifth wheel height before coupling.
- 6.1.3 Check the trailer body or frame for damage, cuts, dents, loose or missing rivets and bolts. Top and bottom rails on vans and main beams on flatbeds or chassis must be straight and undamaged.
- 6.1.4 Crossmembers, fasteners and floor structure should be undamaged, straight and connected on vans and flatbeds. Crossmembers and gussets should be connected without cracks or damage on chassis.
- 6.1.5 Check the floor for cracks, splits, broken sections, missing screws, delamination and deterioration. Repair or replace the damaged area to maintain safe and structural strength built into the trailer floor.
- 6.1.6 All side and front posts and sheets on vans must be straight, undamaged, aligned and connected with rivets in place and tight.
- 6.1.7 Front and rear crossmembers or bolsters on flatbeds or chassis must be straight, connected and aligned with the main beams. Check for cracks, broken welds and damage. Stake pockets and container tie downs must be connected and undamaged. **DO NOT** operate a chassis with damaged or missing tie downs.
- 6.1.8 Roof sheet and cross bows must be tight, in alignment and undamaged. Holes in plastic translucent roof sheets must be repaired before operating a van trailer.

 **WARNING** Failure to repair a translucent sheet can lead to roof failure and structural damage to the trailer body.

- 6.1.9 The rear doors of a van trailer must be closed whenever the trailer is moving. The doors can cause damage or injury to the trailer, cargo, personnel, or other equipment if left open while moving the trailer. Always push the door forward against any shifted cargo inside the trailer when opening a door on a trailer that has been moved to guard against injury caused by falling cargo. Never use a door, door handle or strap as an assist when climbing into or out of a trailer rear. Do not stand between a door and the trailer body when opening or closing the door. Check for loose bolts and nuts. Check hinges, handles, rollers, tracks, springs, seals and support parts for damage, cracks or broken sections. Repair or replace damaged parts.
- 6.1.10 If a tire carrier is installed check that it is undamaged, securely connected to the trailer chassis. A spare tire should be slid completely into the carrier frame and secured by a safety chain and lock connected to the carrier frame and wrapped around the tire.

 **DANGER** Damage and injury can occur if a tire leaves the carrier while the trailer is moving.

## **7.0 REAR IMPACT GUARD (RIG)**

All trailers built after January 26, 1998 with GVWR over 10,000# with some exemptions, must be equipped with a rear impact guard which complies with FMVSS 223 and 224. The RIG must be mounted no more than 22" above the ground, no more than 12" ahead of the rear of the trailer, have a 4" or more rear horizontal member face that extends across the entire rear of the trailer to within 4" of each side and be able to absorb loads and energy defined by the FMVSS noted. There must be a certification label mounted on the curbside forward face of the lower horizontal member 12" in from that end. The guards must be maintained in the condition delivered as defined by FHWA regulations. Repairs or replacement must be performed so that the original structure, integrity and dimensions are retained and a certification label must be installed.

7.1.1 Check the RIG and rear trailer crossmember for dents, cracks, broken parts, damage and distorted sections. Repair or replace the parts using Strick authorized parts and instructions.

## **8.0 ELECTRICAL SYSTEM and CONSPICUITY**

8.1.1 Check all lights for position and illumination. Clean any dim lights. Check wiring and harnesses for any damage or looseness. Clean the J-560 7 way ATA connector pins on the front of the trailer if any lights are dim or do not light up. Use a 12volt battery or approved system checker to trouble shoot.

8.1.2 Check reflective tape on the trailer sides and rear. There must be a minimum of 50% of the overall trailer length of 2" wide, alternating red and white reflective tape on each side of the trailer and a full width stripe of 2" wide alternating red and white reflective tape on the horizontal cross tube of the RIG and along the bottom of the rear doors. A 2" wide, white reflective tape angle with 12" legs must be installed at the top outer corners of the rear doors on vans and the top outer corners of any bulkhead installed on flatbeds. Clean any dirt or grime off tape for maximum visibility.

## **9.0 SAFETY DEFECT REPORTING**

The Department of Transportation has rules covering the inspection, repair, maintenance, parts, safe operation and periodic inspections. These rules are contained in the Federal Motor Carrier Safety Regulations, parts 393 and 396.

If you believe your vehicle has any defect that could cause a risk to safe operation, or a crash you should contact the National Highway Safety Administration and Strick Trailers, LLC.

If NHTSA determines a safety defect does exist, which would constitute a risk to highway safety in a group of vehicles, it can order a recall and remedy campaign. Otherwise, specific problems between your company, Strick Trailers, LLC or its dealers, are to be resolved without government intervention.

NHTSA can be contacted through its hotline at 1-888-327-4236 or write to: Administrator, NHTSA - 1200 New Jersey Avenue S.E. - Washington, D.C. 20590. Other motor vehicle safety information is available on the hotline.