

# ***Operation and Maintenance Manual***



10 North Sauber Road  
Virgil, IL 60151-1000

**SAUBERMFG.COM**

Phone 800.323.9147

Fax 800.833.3264

Valued Customer:

Please review the following manual. If you have any questions or need assistance of any kind, please contact your account representative toll free:

Voice Communications..... (800) 323-9147

Fax Communications..... (800) 833-3264

We welcome feedback on your manuals and our marketing communications. We need, and are driven to constantly improve. If you have any suggestions, comments or criticisms we'd love to hear from you.



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## ***Custom Engineered For Florida Power & Light***

### **Preface**

Thank you for choosing Sauber Mfg. Co.. You have purchased a trailer designed and built with care. With minimal maintenance and by understanding its operation, your new trailer will provide you with years of excellent service. We welcome your suggestions for improvement and stand willing to assist you if any questions arise during its operation. If we can help in any way, please contact your account representative toll free:

Website: SauberMfg.com  
Voice Communications: (800) 323-9147  
Fax Communications: (630) 365-6610

The following manual provides important safety information and instruction. Please read this manual before operating your new trailer. It is important to follow safety instructions and cautions.

We acknowledge that not every situation or combination of tow vehicle and trailer can be addressed, therefore we ask that you use sound judgment after reading the following outlines.

Some components may be produced by a third party. When available, separate service manuals and instructions may apply.

### **Serious Hazards**

Loss of control of the tow vehicle/trailer combination could result in serious injury or death. The most common causes for loss of control include:

- **Failure to adjust driving behavior when towing a trailer**
- **Immoderate speed – Driving too fast for the conditions**

With ideal road conditions, the maximum recommended speed for safely towing a trailer is 60 mph. If you drive too fast, the trailer is more likely to sway, increasing the possibility for loss of control. In addition, it is possible that the tires may overheat, increasing the chance of a blow out.

Decrease your speed as road, weather, lighting, and other conditions decline.

- **Improper sizing of the tow vehicle for the trailer**

Trailers that weigh too much for the tow vehicle can cause unsafe stability issues which can lead to loss of control and a serious accident. Know your vehicle tow rating and Gross Combination Weight Rating (GCWR.) Vehicle manufacturers will provide you with maximum towing capacities, as well as the GCWR. The additional strain put on the engine and drive-train of the vehicle may also lead to serious maintenance problems. For these reasons,

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the maximum towing capacity of your towing vehicle should not be exceeded. The towing capacity of your vehicle can be found in the tow vehicle's Owner's Manual.

Use of a hitch with a load rating less than the load rating of the trailer can result in loss of control and may lead to a serious accident. Ensure that your hitch and tow vehicle are rated for the Gross Vehicle Weight Rating (GVWR) and tongue weight of your trailer.

- **Overloading and/or improper weight distribution**

The total weight of the load you put in or on the trailer, plus the empty weight of the trailer itself, must not exceed the trailer's Gross Vehicle Weight Rating (GVWR.) If you do not know the empty weight of the trailer plus the cargo weight, you must weigh the loaded trailer at a commercial scale. In addition, you must distribute the load in the trailer such that the load on any axle does not exceed the Gross Axle Weight Rating (GAWR.) The GVWR and GAWR are located on the OEM certification and VIN label attached to the front frame of the trailer.

Never exceed the trailer Gross Vehicle Weight Rating or the Gross Axle Weight Rating. Do not load a trailer so that the weight on any tire exceeds its rating.

Improper front/rear load distribution can lead to trailer sway and poor handling conditions. Undesirable trailer sway results from tongue weights that are too low, while tow vehicle instability results from tongue weights that are too high.

Uneven left/right load distribution can cause tire, wheel, axle or structural failure. To the extent possible, be sure your trailer is evenly loaded left/right. Towing stability also depends on keeping the center of gravity as low as possible.

Make certain the tongue weight is within the allowable range. Keep the center of gravity as low as possible.

- **Unsecured loads**

Your trailer may be designed for specific cargo, such as reels, or poles. If your trailer is designed for specific cargo, do not carry any other cargo such as people, hazardous substances or containers of flammable materials.

It is important to avoid shifting cargo. The trailer ride can be bumpy and rough. Securing cargo so that it does not shift or bounce out of the trailer is imperative. Tie down all loads with proper sized fasteners. Always secure doors or lids if present on your trailer by securing it's latch.

- **Improper braking and steering under sway conditions**

When towing a trailer, you will have decreased acceleration, increased stopping distance, and increased turning radius. The trailer will change the handling characteristics of your towing vehicle, making it more sensitive to steering inputs and more likely to be have its stability affected in windy conditions or when passed by large vehicles. You will also need to adjust driving accordingly, i.e. taking a longer distance to pass and allowing for increased braking distances, etc.

Common sense measures may be necessary, such as; being alert for slippery conditions, anticipate trailer sway and be ready to reduce speed, use small, trim-like steering adjustments to re-gain control, check rear view mirrors frequently to evaluate trailer towing and traffic conditions, use a lower gear when driving downhill or on long grades, be aware of your trailer height at all times, especially when approaching bridges and roofed areas.

- **Improper or incorrect coupling of the trailer to the hitch**

It is critical that the trailer be securely coupled to the hitch, and that the safety chains and emergency break-away cable (electric brakes) and air hoses (air brakes) are correctly attached. Uncoupling of the trailer during transit can lead to a serious accident or a fatality.

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Ensure that the pintle hook capacity rating, including installation, is sufficient for the GVWR and the tongue weight of the trailer being towed. Make sure that the pintle hook is physically compatible with the trailer drawbar. Compatibility information is available from the pintle hook manufacturer.

Observe the drawbar and pintle hook for wear, corrosion and cracks before coupling. Replace worn, cracked or corroded components per the manufacturer's recommendations.

Ensure the hitch drawbar and pintle hook are installed with grade-8 fasteners and are properly torqued before coupling to the tow vehicle.

*Do not move the trailer if any of the following conditions appear:*

- The drawbar is not secured and locked to the pintle hook.
- The safety chains are not secured to the tow vehicle. If your trailer detaches from the pintle hook for any reason, we have provided safety chains so that control of the trailer can still be maintained. Improper rigging of the safety chains could result in loss of control. Fasten chains to the frame of the towing vehicle. Do not fasten chains to any part of the hitch unless the hitch has special holes or loops specifically designed for that purpose. Cross chains underneath hitch and coupler with enough slack to permit turning and to suspend the trailer tongue should it become detached.
- The trailer jacks are not fully retracted.

*Do not tow the trailer on the road until:*

- Tires and wheels are checked

*Failure to maintain proper tire condition and pressure can lead to loss of control.*

Just as with your tow vehicle tires, the trailer tires and wheels are important safety items. It is essential to inspect them before each tow.

If a tire is found to include defects such as a bald spot, bulge, cut, cracks or is showing any cords, replace before towing. Have the tires inspected by qualified persons. Check inflation pressure on all tires prior to towing.

Failure to keep lug nuts tightened properly may cause the wheels to be seated to the hub improperly. Before each tow, check to make sure they are properly torqued. The proper torque for lug nuts is listed in this manual and available from the manufacturer. Use a torque wrench to tighten the lug nuts, use a crisscross star pattern.

Lug nuts are also prone to loosen after first being assembled. When driving a new trailer (or after wheels have been remounted,) check to make sure they are tight after the first 10, 25, and 50 miles of use and before each tow thereafter.

- The trailer lights and brakes are connected and checked

Be sure the trailer brakes and all the lights on your trailer are functioning properly before towing your trailer. Brakes and lights on a trailer are controlled via a connection to the tow vehicle.

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### *Straight Air Brake Systems*

Air systems include spring applied brakes as standard equipment. There is no breakaway cable; connecting the emergency and service glad hands is all that is required. The spring brakes are shipped in a mechanically retracted position for receiving and handling purposes. They must be activated prior to use. Loosen the nut on the threaded rod located on the back side of the spring brake canister. Rotate the threaded rod one quarter turn, remove the threaded rod and insert it in the storage pipe provided on the brake actuator casting. Insert the rubber plug provided into the center spring brake canister hole.

### *ABS Information*

If your trailer is equipped with an anti-lock braking system. Anti-lock brakes greatly enhance trailer stability while braking. Because a sliding wheel always leads, a brake lockup situation under manual braking can cause loss of control as the trailer slides sideways. Anti-lock brakes provide the electronic and physical control to prevent wheel lockup and the ensuing control problems. Although Anti-lock brakes may not necessarily help you stop over shorter distances, it will help keep you in control while eliminating excessive tire wear and *flat spotting*.

Anti-lock brakes use microprocessor technology to sense when the wheels are about to lock up under braking and then controls the brake pressure and timing to prevent it. Each wheel must be controlled independently, although only one axle of a multi-axle configuration needs to be equipped with sensors. An exciter ring (sometimes referred to as a tone ring) is installed on the inside of the hub. A sensor *reads* the level of magnetism present as the teeth of the exciter ring pass it. Since they don't touch, there is no wear or friction between them. The sensors provide wheel speed information to the Electronic Control Unit (the ECU or system brain). Input from the sensors is used to determine if a wheel is about to lock during braking. If so, the system can release and apply the brake up to six times per second through the modulator valve.

The system is powered by the stoplight circuit. This allows any of your trucks currently equipped to pull trailers to be used with a Sauber ABS equipped trailer. The system is off while the brakes are off and powers on and checks itself when the brakes are applied. It is so fast that it can test itself sixty times before air from the tow vehicle gets to the trailer brake valves. A warning light is provided on the trailer side and will illuminate if any component is not functioning. The system will continue to have normal brakes until the problem is resolved. Although there are no batteries in the system, the electronic control unit (ECU) has a special microprocessor that can remember up to ninety-nine problems and keep them stored until they're fixed. A number displayed on the handheld display unit (DDU) identifies one of sixty-three fault codes - providing accurate and quick troubleshooting. This unit is available from Sauber Mfg. Co. and should be kept at each garage location expecting to service ABS brakes. All cables are sealed, weatherproof and polarized to provide high reliability and mistake-free serviceability.

- **Proper Tongue Weight is established**

It is critical to have a portion of the trailer load carried by the tow vehicle. The trailer tongue should always exert a downward force on the hitch. Proper tongue weight is essential to good trailer tracking and safe operation. If too little weight is distributed to the tongue, towing will be erratic. Too much tongue weight may overload the towing vehicle's rear axle or the pintle hitch rating. Ten to twenty percent weight transfer is considered a normal range. Smaller, single axle trailers can transfer weight on the high side of this range. Larger, multiple axle trailers are designed to transfer less because of the limited capacity of the towing vehicle's rear axle.

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When necessary, tongue weight can be controlled by distributing the load or by adjusting the pintle eye. Even loading is ideal, but when this is not possible, place more weight toward the trailer front to provide a safe tongue weight. Be aware that too much tongue weight from an uneven load can overload tow vehicle components. It is incumbent upon the operator to provide a safe, towable tongue weight without excessive hitch weight transfer that could place the tow vehicle in a non-compliant condition. If your trailer is equipped with an adjustable eye, lowering it will generally increase tongue weight while raising it will decrease tongue weight - especially on multi-axle models. Additional loading instructions may be included with your trailer, and should be followed.

Once the trailer pintle eye is secured in the towing vehicle hitch, cross the safety chains and connect them to the rings provided at the towing vehicle bumper. Insert the electrical connection cord and check trailer lighting. Connect the air glad hands if present and check brake operation. Ensure the trailer axle(s) do not exceed their GAWR and the entire trailer and load does not exceed the GVWR rating.

- **Wheel Chocks**

Set the chocks at each rear wheel in the direction of the expected load or grade.

- **Do not modify your trailer**

Your trailer is a custom engineered piece of equipment. Essential safety items can be damaged by altering your trailer. The simplest modifications, such as driving a screw or punching a hole to install a hanger can inadvertently damage an electrical wire or other hidden component. Before making any alteration to your trailer, contact Sauber Mfg. Co. at (800) 323-9147.

### ***Machine Loading***

Your trailer is equipped with a tilting bed. To load your machinery, begin driving up the deck until it begins to tilt down. At that point, wait for it to "float" down to a level attitude, then continue advancing the machine forward until the desired tongue weight is achieved. Fully engage the latching mechanism at the front of the deck.

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### Components Sourcing Information

| <b>Item.....</b>                | <b>Source.....</b> | <b>Description/Specification</b>  |
|---------------------------------|--------------------|---|
| Tires.....                      | Major Brand.....   | 18098, 215.75R 17.5 LRH - Goodyear  |
| Wheels.....                     | Dexter.....        | 8 on 6.5"   |
| Axle.....                       | Dexter.....        | 15833 8K Torflex ABS Hydraulic Axle   |
|                                 |                    | 15901 8K Torflex Hydraulic Axle   |
| ABS Tandem Kit.....             | Sauber.....        | Z1331   |
| Air/Hydraulic Torsion Kit.....  | Sauber.....        | 15881   |
| ECU Power Cable.....            | Sauber.....        | 16153   |
| Air Glad Hand Holder.....       | Sauber.....        | 12170   |
| Pogo Stick Coupling Holder..... | Sauber.....        | 10300   |
| Coiled Air Line Set.....        | Velvac.....        | 16753, 12' Red/Blue   |
| Brakes Cable Kit.....           | Sauber.....        | 17150   |
| Pintle Eye.....                 | Holland.....       | 11144, 3" I.D.  |
| Safety Chain.....               | Sauber.....        | 8256ST 3/8" Grade 70 Chain Group w/ 8250ST Cru-<br>cifix Chain Traps – 26400# Breaking Strength |
| Clevis Slip Hook.....           | Sauber.....        | 17186, 3/8" -GR70 w/Latch   |
| Transport Chain.....            | Sauber.....        | 15265 3/8" -GR70 Gold Chain – Galv -43"L w/Hitch<br>Extension                                   |
| Striping.....                   | 3-M.....           | # 29804-SP DOT-C2, 2"W Red/White  |
| Trailer Jack.....               | Sauber.....        | 17361 Spring-Loaded Drop-Leg Kit  |
| Wheel Chock Holders .....       | Sauber.....        | Z1352 Custom  |
| Lighting.....                   | Truck Lite.....    | 2-Light LED Sealed Beam/Sealed Wiring Group   |
| Socket Housing.....             | Sauber.....        | 13802   |
| Jumper Cord.....                | Sauber.....        | 18808 52" w/11121 7-Way SAE Plugs   |
| Electrical Connector.....       | SAE.....           | 11119 SAE 7-Way   |
| Registration Container.....     | Betts.....         | 13980   |
| Lock Mechanism.....             | Sauber.....        | 16704 Toggle Clamp  |
| Hydraulic Cylinder.....         | Sauber.....        | 18956   |
| Binders.....                    | Sauber.....        | 13896 Ratchet Load Binder. 15265 Chain 3/8"-<br>Grade 70 w/17186 Clevis Slip Hook w/Latch       |
| D-Rings.....                    | Sauber.....        | 12316 w/12317 Bracket   |
| Tool Box.....                   | Sauber.....        | 17965, Top Opening Aluminum   |

**Note: Most items listed here are in stock at Sauber Mfg. Co.**

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## **Maintenance**

| <b>Operation.....</b>                                   | <b>Interval</b>    |
|---|--------------------|
| Torque Wheel Nuts - See Components Sourcing - Axle..... | After 1st 50 Miles |
| Torque Wheel Nuts .....                                 | Monthly            |
| Check Trailer Lighting.....                             | Every Use          |
| Check Tire Wear & Inflation Pressure.....               | Monthly            |
| Adjust and Inspect Trailer Brakes.....                  | Monthly            |
| Check Trailer Suspension.....                           | Monthly            |
| Check Pintle Eye Wear.....                              | Yearly             |
| Check Oil Bath Level in Axle Hubs.....                  | Monthly            |
| Grease Hub Bearings.....                                | Monthly            |
| Check Deck Latch.....                                   | Every 6 Months     |

Disengage the toggle clamp, tilt the deck to the travel position and re-engage the toggle clamp.

1. If toggle clamp will not engage in the over center position, the linkage needs to be shortened. If the toggle clamp does not require a firm amount of pressure to engage over center the linkage needs to be lengthened. Tilt the deck to the loading position and rotate the clevis clockwise to shorten, and counterclockwise to lengthen the linkage.
2. Repeat step 1 until the toggle clamp goes over center with a very firm amount of pressure.
3. Tighten the jam nut against the clevis and install the cotter pin on to the clevis pin.

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## We Guarantee

Sauber Manufacturing Company guarantees satisfactory operation of its products and will refund the full purchase price to utility customers who are not fully satisfied.

## We Warranty

We specifically warranty that our products will be free from any defective materials or workmanship when purchased. We will repair or replace, at our option, any part(s) that prove to be defective within the warranty period specified below. This warranty is voided only by evidence of misuse, and does not include shipping charges.

Sauber Manufacturing offers the industry's only 10-year, comprehensive, trailer warranty. This warranty comes at no charge to our customers, yet covers parts and labor on all Sauber manufactured components.

As a leader in the utility industry, we have the financial strength and have demonstrated the integrity necessary to honor our commitments. This expanded warranty is a clear extension of who we are, what type of equipment we build, and how we are investing in our future and yours.

- 10 Year Structural, Parts & Labor on all Sauber Manufactured components
- 10 Year Galvanized Finish Warranty
- 3 Year total Parts & Labor Coverage
- Retroactive total parts & labor coverage includes all trailers built after 04/01/2006
- All warranty support will be provided directly from Sauber Mfg. Co.
- Customer Labor Reimbursement @ \$65/hour
- A credit memo will be issued for claims under \$400 and can be applied to a credit card

For additional details about our warranties, contact your sales professional, and thank you for investing in Sauber Manufacturing equipment.

