Operation and Maintenance Manual



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	
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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.



Custom Fit For PEPCO HOLDINGS

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: (800) 833-3264

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.

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:

• The trailer breakaway system is operational

The breakaway switch must be connected and verified. If equipped with electric brakes, your trailer will be equipped with a breakaway system that can apply the brakes on your trailer if it becomes detached from the tow vehicle for any reason. The breakaway system, including the battery, must be in good condition and properly rigged to be effective. An inoperative breakaway can result in a runaway trailer. The breakaway cable must be attached to the towing vehicle and not to any part of the hitch. Before towing the trailer, test the system. If the system is not working, do not tow the trailer. Have it serviced or repaired.

• 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 be 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.

ABS Information

If your trailer is equipped with and 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 hand held 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



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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.

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.

• Grounding

Your trailer is equipped with a bronze grounding lug. When the trailer is used near energized conductors the trailer must be grounded. A grounding lug is provided to help you follow your company's safety practices.

• Outriggers

Stability is an important part of safe trailer use. Because the towing vehicle can provide additional stability, leave it connected to the trailer when you can. Set the rear outriggers to their lowest level. If you need to decouple the towing vehicle, lower the front jack slightly, set the outriggers and then raise the jack to seat the outriggers firmly in the ground.

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.

Pipe Carrying

Your pole trailer is equipped with a telescoping front and rear section which allows the operator to regulate rear pipe overhang and tongue weight. Optimal tongue weight is between ten and twenty percent of the total load. Adjustments are provided to help you achieve a safe weight distribution. A "cat-track" system is provided inside the telescoping section which eliminates cumbersome front extension cords.

Binders

Pole binders are provided at each bolster position. Wrap the strap under the binder hub, around the pole or poles, back under the binder hub and secure at the hook provided at the opposite end of the trailer. Tighten the binder strap at the EZ-Torque winch using the handle provided.

ltem	Item Number	Description
Doc Bumper	17695	2"x2"x10" Dock Bumper w/ (2) Holes
Tires	17987	315/80R22.5 LRL Tire/Rim50" IN 9.00x22.5 Single Wheel – Galvanized 8 on 275mm w/ .50" Inset; 221mm Hub Piloted for Flange Nuts; 7500 lbs @ 120 PSI Hercules: 8270# @ 120 PSI; 42.3"Dia x 12.3"W 683 Rev. / Mile
	19732 11175 8824	Wheel Nut Indicator B - M22-1.5 Swivel Flange Nut14"Wx12"L Logoed Mud Flap Stage III Almag Hubodometer 4" x 12TPI - Replaces Dex- ter Cap 21-036
	19694	DataTrac Pro Electronic Hubodometer -Smc Programmed @ 467 RPM
Axles	14874	15K Sprung 8275 Air Axle No ABS - 30/30 Spring Brakes; Auto Slack Adjusters 8 on 275mm Hub w/ 12 1/4" x 5" Air Brakes Grease Hubs 22mm Swivel Flange Nuts 72-45-1 3"W Mounted 7500 lbs Slipper Springs 034-188-01 & 034-189-01 16.375"L Camshafts

Components Sourcing Information



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	14872	83"HF x 51"SC - 1595 - 94.3"W 15K Sprung 8275 ABS/Air Axle
		8 on 275mm Hub w/ 12 1/4" x 5" ABS/Air Brakes
		Grease Hubs 22mm Swivel Flange Nuts
		72-45-1 3"W Mounted 7500 lbs Slipper Springs
		30/30 Spring Brakes; Auto Slack Adjusters
		ABS Ready w/ Tone Rings and Sensors
		034-188-01 & 034-189-01 16.375"L Camshafts
	(0000	83"HF x 51"SC - 1595 - 94.3"W
	12030 13935	Single Hgr/AP Kit - 10K-15K
Brake Assembly	10469	48.5" Multi-Axle Kit - 10K-15K ABS Air Brake Auxilliary Kit
Diake Assembly	18471	3-Meter Extension Cable
	18472	PLC Select Full Function 4-P Valve - Multi Axle
	16753	12' Coiled Air Line Set - Red/Blue
	12170	Gladhand Holder Kit w/ (2) Holders
	19631	Premium Flex Grip Set Red/Blue Pair
Slide Assembly	18250	Slide Boss For 5"-6" Tongue – Complete Adjustable w/ Nylon Slides & (2) 19535 Set Screws
	18251	Slide Boss For 8" Tongue – Complete
	10201	Almag Casting Machined, Adjustable w/ Nylon Slides & Set
		Screws
		Fixed Poly Slide Pad for 8" Tongue, 7"L x 3"W x 1"H w/ (2)
	18253	Bosses - Tongue Extension w/ Nylon Slides & Stop
		1.25" Piped Holes w/ Index Stripes Top & Sides Single Fenders w/ Tube Reinforcement – US
		(2) 7295ST 6"x20 #/ft I-Beam Bolsters
		Pole Binder Section
Pintle Eye	11144	3" Flanged Pintle Eye - Galv
Clevis Slip Hook	17142	1/2"-GR70 Clevis Slip Hook w/ Latch
Transport Chain	16224	1/2"-GR70 Transport Chain – Gold (2) 36"L Sections
Trailer Jack	10380	Spring Loaded Drop-Leg Jack
		24.5"-50" Travel w/ 12" Spring Loaded Drop Leg 12500 Lbs Lift - 20000 Lbs Static Capacity
Jumper Cord	18808	52" 7-Way SAE Jumper Cord
Wheel Chocks	8500	All Weather Wheel Chock
	8505	Almag Wheel Chock Holder - S1027ST
Lighting		2-Lite LED
	18782	4" Round S/T/T Lamp w/ .180 Bullet
	12923	S/T/T & B/U Lamp Black 4" Grommet
	17160	LED Model 33 PC C/M w/ Grommet – Yellow



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	17161	LED Model 33 PC C/M w/ Grommet – Red
	14020	Rectangular Reflector Red
	14021	Rectangular Reflector Yellow
	18063	120" Marker Lead Extension
	10448	2"W Red/White Conspicuity Tape
	18298	240" Harness System Main Extension
	18061	120" Harness System Main Extension
	18062	48" Wiring Harness System Main Extension
	11200	Almag Socket Housing Casting - 11119 SAE 7-Way Socket
License Assembly	17387	ABS Plastic License Plate Box
-	18032	LED Model 33 License Lamp w/ Grommet
Grounding Lug	15194	Bronze Grounding Lug w/ Holes
Registration Container	19275	Xenoy Registration Container w/ Poly Bag
Winch Strap Only	10868	Binder Strap - 4"W x 20'L w/ 1026
Winch Binder	19415	BOA EZ Torque Winch - C-Channel Drilled
	16675	EZ Torque/BOA Winch Handle - Galv
Linkage	17713	Uniflex Link - Large 2.19" Pitch – Front & rear
-	17694	Uniflex Large Bracket Set - LH & RH Fixed & Driven Metal
		Brackets
Stanchions	8860	Pole Stanchion Assembly Complete w/ Over Center Lock
		· ·
Tool Box	19664	Stainless Steel Tool Box - Single Door

Note: Most items listed here are in stock at Sauber Mfg. Co. Additional parts manuals available on our website



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Maintenance

Operation	Interval
Torque Wheel Nuts - See Componants Sourcing - Axle	After 1st 50 Miles
Torque Wheel Nuts	Monthly
Check Trailer Lighting	Every Üse
Check Tire Wear & Inflation Pressure	Monthly
Adjust and Inspect Trailer Brakes	Monthly
Check Trailer Suspension	Monthly
Check Pintle Eye Wear	Yearly
Check Battery Condition	Every Use
Check Trailer Breakaway	Every Use
Check Oil Bath Level in Axle Hubs	Monthly
Check Binder Condition	Every Üse
Check Slide Block Condition	Yearly



Winch Binder Care & Use

MAINTENANCE:

- The gear mechanism requires periodic lubrication to maintain proper function. It is important to use premium grade 2 lithium based bearing grease with moly disulfide.
- The grease fitting is located on the back of the gear housing and mates with a standard zerk adapter on a grease gun.
- Inject grease until it comes out either the main shaft bushing or the input hex drive shaft bushing.

OPERATION:

- Turn the input hex drive counterclockwise to disengage from the main gear. The hex drive shaft will move outward from the gear housing.
- With the gears disengaged, the main shaft can be turned by hand using the hand crank.
- Before tensioning, pull excess webbing through mandrel slot. When the tie down is fully tensioned, 2-4 wraps of webbing (2-4 complete shaft rotations) should be on the mandrel. Additional wraps can cause damage to the winch due to excessive torque, or make it difficult to apply or release tension.
- Note that in preparation for shipping, nearly the entire length of the strap is wrapped on the winch mandrel. Always adhere to the instructions above for proper load binding. Test results confirm that too few or too many wraps can result in the release of strap tension which will create a dangerous condition.
- Turn the hex drive clockwise to engage the gears and continue to turn clockwise to apply tension to the binder. Applying 40-60 ft-lbs to the hex drive will result in approximately 1500-2000 lbs. of strap tension. Our maximum recommended drive torque is 70 ft-lbs.
- When tensioning or releasing the winch in rain, snow, or other slippery conditions, carefully position your feet and body to prevent a fall.
- Never load the winch and strap in excess of 5400#.
- Use the winch in accordance with all applicable federal, state, local, and industry regulations applicable to cargo securement.
- A training program for operators is recommended for the correct and safe use of cargo securement systems.
- Never use the winch as a lifting or pulling device.
- Do not use extensions, levers, or other methods that may exceed the maximum drive torque of the winch.

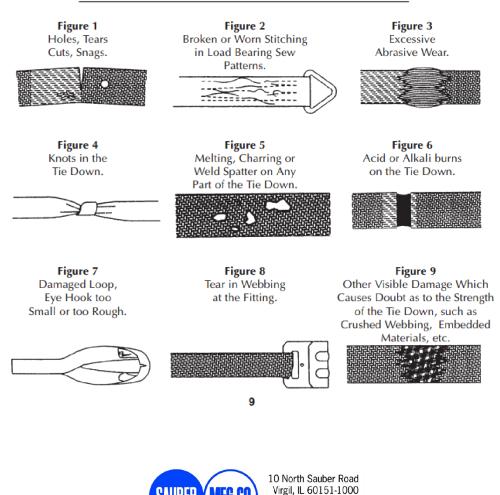






INSPECTION:

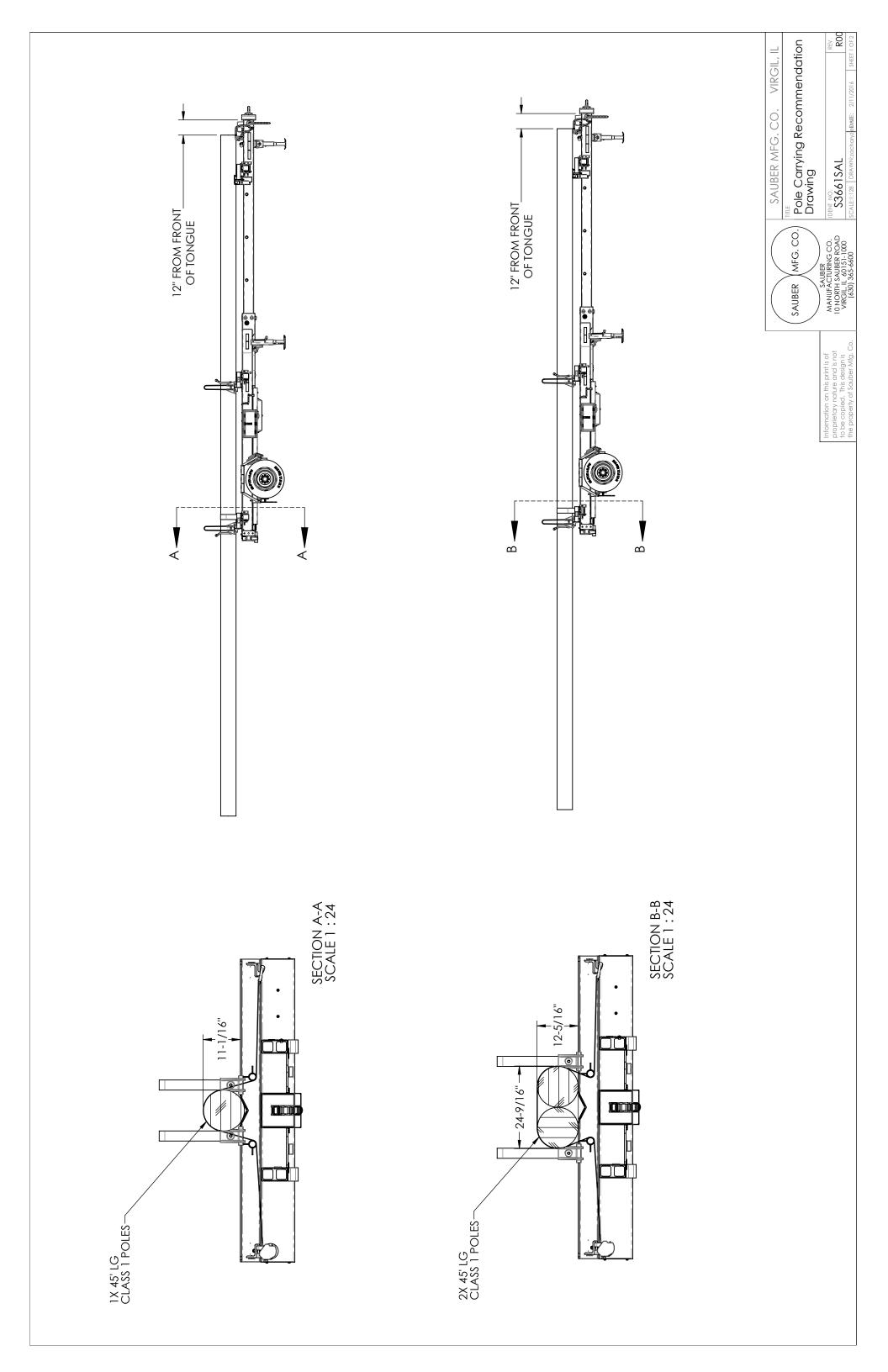
- Ensure winch and crank handle is free from damage and that winch mandrel rotates freely.
- Verify that the winch mounting is secure.
- Check binders periodically during transit and re-tighten as required due to shifting loads.
- Check for damage, deterioration or cut straps and replace as necessary. The removal criteria below was
 taken from the "Recommended Standard Specification For Web Tie Downs WSTDA-T-1" provided by the
 Web Sling & Tie Down Association.
 - 4.4.4 **Removal Criteria -** A tie down shall be removed from service if any of the following forms of damage are visible. See figures 1-9 for illustrative examples.
 - a. Holes, tears, cuts, snags or embedded particles which cause doubt as to the strength of the tie down. Figures 1 & 8.
 - b. Broken or worn stitching in load bearing sew patterns. Figure 2.
 - c. Excessive abrasive wear. Figure 3.
 - d. If any load bearing part of the tie down has been tied into one or more knots. Figure 4.
 - e. Melting, charring or weld spatter on any part of the tie down. Figure 5.
 - f. Acid or alkali burns on the tie down. Figure 6.
 - g. Signs of ultraviolet light degradation such as bleaching, increased stiffness or surface abrasion in areas not in contact with the load. See 4.7.8.2.
 - h. Distortion, excessive pitting, corrosion or other damage to hardware.
 - i. If either the tie down manufacturer or supplier identification is illegible or missing, or the assigned working load limit (WLL) is no longer visible.
 - j. Any other visible damage which causes doubt as to the strength of the tie down. Figures 7, 8 and 9.

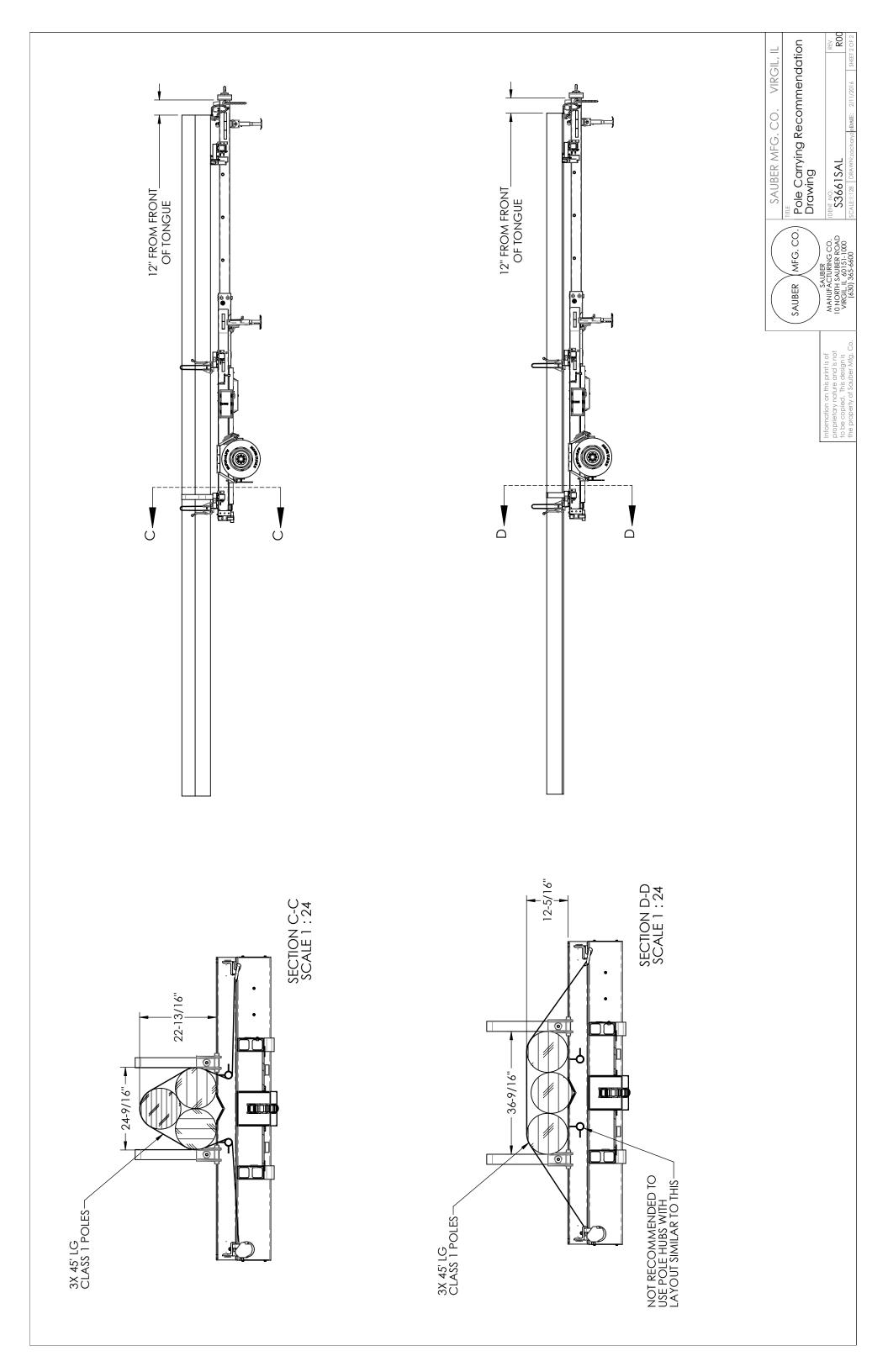


Phone 800.323.9147

Fax 800.833.3264

FIGURES - DAMAGED WEB TIE DOWNS





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.

