

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.



Phone 800.323.9147

10 North Sauber Road
Virgil, IL 60151-1000

SAUBERMFG.COM

Fax 800.833.3264

Custom Engineered For PECO Energy

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, 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.

This information is the property of Sauber Mfg. Co. and is intended for customer use only.

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.

This information is the property of Sauber Mfg. Co. and is intended for customer use only.

Operation & Maintenance Manual

Model 1500 Single Reel Trailer

12/2014
Page 3

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 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.

This information is the property of Sauber Mfg. Co. and is intended for customer use only.

- **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.

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.

This information is the property of Sauber Mfg. Co. and is intended for customer use only.



Phone 800.323.9147

10 North Sauber Road
Virgil, IL 60151-1000

SAUBERMFG.COM

Fax 800.833.3264

- **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.

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.

Series 1602 Tensioning Brake

Apply the brake by rotating the tensioning adjustment wheel clockwise. Continue to apply braking pressure until the desired wire sag is present. The brake has a maximum torque of 3000 ft-lbs. This provides 3000 lbs of line tension 1' from the reel bar center. If wire is filled to 2' from the reel bar center the resulting line pull would be 1500 lbs (3000/2).

The reel bar can be removed with a continuous sling. Loop the sling through the hooks on the power arm and reel positioning collar and elevate the load line. Your tongue and groove assembly will automatically line up. There is nothing to disassemble.

Model 1000-T Turbo Retriever

Engage the retriever by moving the black engagement lever towards the outside of the hub. Pressurize the retriever using the tool circuit on your line truck or power source. The bi-directional valve has full feathering capabilities and is set to relieve at 2250 PSI. When paying wire out under tension or "free-wheeling", always disengage the hub. This is necessary because the directional control valve has a tandem spool to prevent loss of line tension when in neutral. This spool will not allow oil to circulate and may cause damage to the motor and drive mechanism if the hub is forced to rotate while in the engaged position. The spool will, however, allow oil to circulate to tank while in neutral.

Retriever Type	Relief Pressure	Speed @ 8 GPM	Torque @ Relief Pressure
Model 1000	1500 PSI	18 RPM	1300 ft-lbs
Model 1000-T	2250 PSI	17 RPM	2600 ft- lbs
Model 1000-2S	2250 PSI	34 RPM High Speed 17 RPM High Torque	1300 ft- lbs High Speed 2600 ft-lbs High Torque

Bronze Sleeve Hinge Collar

Install the insert sleeve(s) over the reel bar and into the reel bar receiver hole as far as possible. Apply the hinge collar directly behind the sleeve flange and tighten the locking bolt to 30 ft-lbs of torque. If a torque wrench is not available, you can approximate this specification by tightening the bolt by hand (finger tight) and then applying one complete turn of the bolt. If lifting hooks are provided on the collar, do not exceed the rating on the hook.

This information is the property of Sauber Mfg. Co. and is intended for customer use only.

Operation & Maintenance Manual

Model 1500 Single Reel Trailer

12/2014
Page 6

Components Sourcing Information

Item.....	Source.....	Description/Specification
Tires.....	Major Brand.....	235/80R16, LRE - 90 PSI
Wheels.....	Dexter.....	8.00 x 6.5" Hub
Axle.....	Dexter.....	7K Torflex Electric Axle
Brakes.....	Dexter.....	12" x 2" H.P.
Hitch Extension.....	Sauber.....	Model 8818-B1
Safety Chain.....	Sauber.....	8256ST 3/8" Grade 70 Chain Group w/ 8250ST Crucifix 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 Extension
Tongue Jack.....	Sauber.....	17754 EZ-Up w/Caster
Outriggers.....	Sauber.....	Model 8805
Electrical Connector.....	SAE.....	11119, 7-Way
Jumper Cord.....	Sauber.....	18808, 52"
Lighting.....	Sauber.....	2-Lite LED Sealed Wiring Group
Wheel Chocks.....	Sauber.....	8500 w/8505 Holders
Tool Box.....	Sauber.....	10544
Breakaway Switch.....	Warner.....	10475
Registration Container.....	Sauber.....	16755
Grounding Lug.....	Sauber.....	15194, Bronze
Pintle Eye.....	Sauber.....	11144, 3" Galvanized
Tensioning Brake.....	Sauber.....	Model 1602, Details to Follow
Retriever.....	Sauber.....	Model 1000-T, Details to Follow
Expanded Metal Basket.....	Sauber.....	16450
Hydraulic Power Source.....	Sauber.....	19245 12VDC w/ 19261 15W Solar Panel & Charging System Upgrade & 10909 #4 Cable
Deep Cell Battery.....	Sauber.....	10257 600 CCA & 15338 25A Charger
Cord Light Reel.....	Sauber.....	15226

Maintenance

Operation.....	Interval
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
Check Trailer Suspension.....	Monthly
Check Pintle Eye Wear.....	Yearly
Check Battery Condition.....	Every Use
Check Trailer Breakaway.....	Every Use

This information is the property of Sauber Mfg. Co. and is intended for customer use only.

All Bronze Brake & Retriever Parts

Models 1602 & 1000

Rev. 5/2008
Page 1

Reference	Item	Description
Tensioning Brake Components		
AA	10335	Brake Assembly Complete - specify for XX Dia Bar - 136 lbs
02B	10336	Set Linings - Small - 101282 (9.5" as measured around long side)
AB	10337	Tensioning Adjustment Assembly (includes items 03/04/05/06/07)
03	10338	Tensioning Adjustment Wheel
04	10341	Tensioning Adjustment Shaft
05	10342	Tensioning Adjustment Spring
06	10343	Tensioning Adjustment Nut
07	10344	Set Cup Washer w/ Insert
27A	10345	Bronze Disc w/ hub offset taper - 3/8" Holes - 26 - Current - Specify 3.50" or 3.75" hub diameter
27B	10346	Bronze Disc - 5/16" Holes - 26 - Prior 1994 - Specify 3.50" or 3.75" hub diameter
28A	10347	Inside Casting w/ 3.75" Bore - BC-1 - Current (specify reel bar diameter)
28B	10348	Inside Casting w/ 3.50" Bore - BC-1 (specify reel bar diameter)
28C	10349	Inside Slide Casting w/ 3.75" Bore - BC-1 (specify reel bar diameter) w/ 4237ST casting modifications for sliding brake mechanism
29	10350	Outside Casting - BC-2
30	10351	Clamp Casting - BC-3
32	10352	Right Caliper Arm - 101173RH
33	10353	Left Caliper Arm - 101172LH
34	10354	Brake Shoe Plate - 10179-L
35	10355	Brake Shoe Plate - 10179-R
36	10356	Stainless Steel Pin - Lower - 2.35"x.75"
37	10357	Stainless Steel Pin - Upper - 3.875"x.75"
62	10358	Upright Slide Casting - BRKS-1 w/ 4240ST machining (for sliding brake mechanism - not shown)
Frame Components		
AC	10359	Frame Assembly Complete - Includes Items 13/15/38
13	10360	A-Frame Weldment
14	10361	Set Uprights - 36"L
15	14689 14688	2 1/4" Generation II Saddle w/ Retainer 2 1/2" Generation II Saddle w/ Retainer
38	10363	Bronze Keeper Pin - Grooved - SP18 - (2) Required
\$59\$60	10364	Saddle Set Screw - Stainless - 44541
	10365	Saddle Retainer Clamp w/ Fastener - 1032ST (not shown) 1/2" Grade 8 Bolt : 130-135 ft-lbs torque 5/8" Grade 8 Bolt: 140-145 ft-lbs torque
Reel Bar Components		
AD	10340	Reel Bar Assembly Complete - 72"O.A.L. - Includes Items 16/17/18
16	10366	Power Arm - PA1
17A	10367	Reel Insert w/ Grounding Lug - RBD - 2749ST (4.25" OAL x .875" Dia)
17B	10368	Reel Insert - RBD2 - 3721ST (5.125" OAL x 1.25" Dia)
61	10369	Brass Set Screw 1.25" x.50" - 2545ST-1 (not shown)
18	10370	Reel Bar Knuckle



Phone 800.323.9147

10 North Sauber Road
Virgil, IL 60151-1000

SAUBERMFG.COM

Fax 800.833.3264

All Bronze Brake & Retriever Parts

Models 1602 & 1000

Rev. 5/2008
Page 2

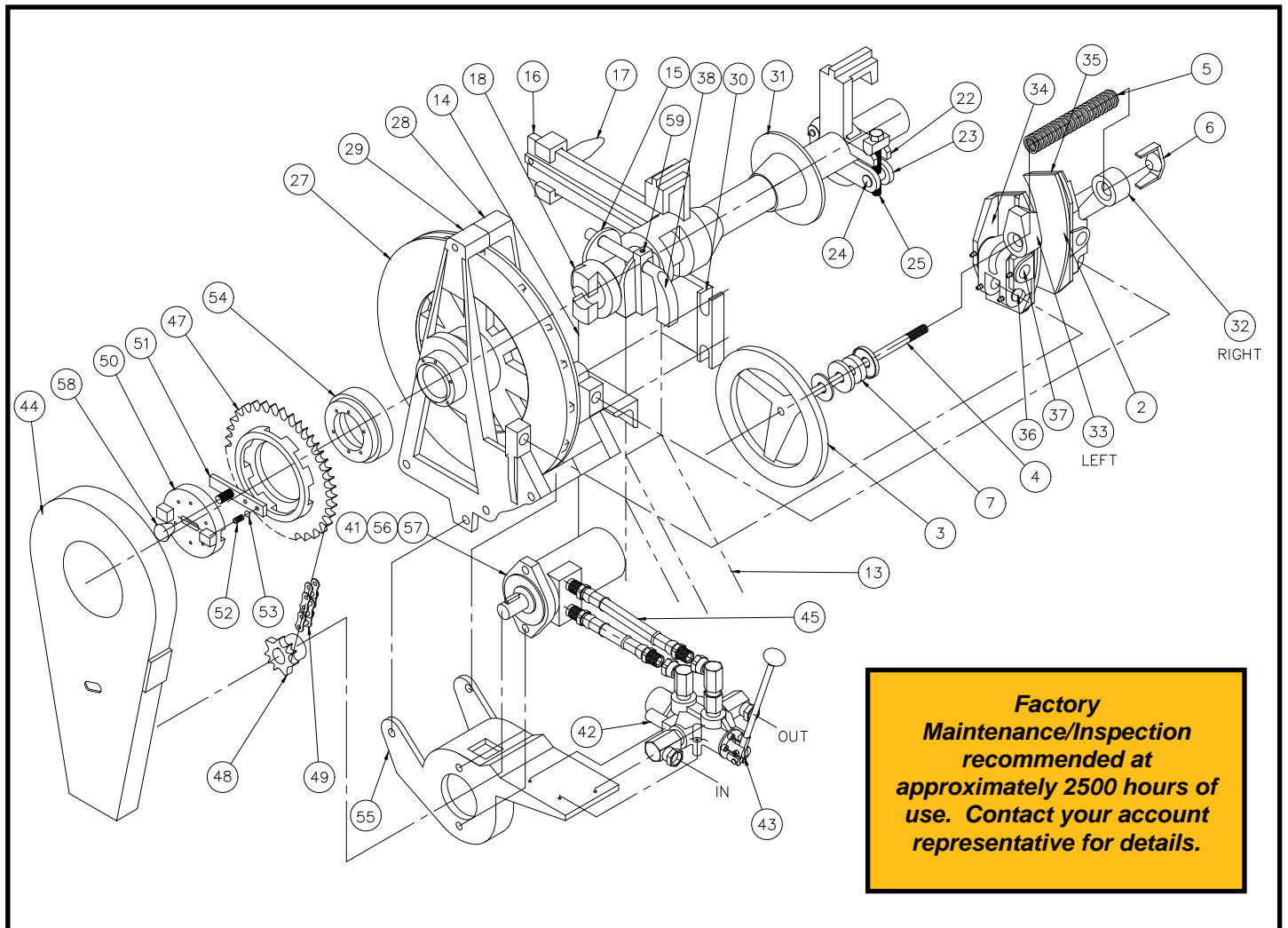
Reference	Item	Description
Reel Positioning Collar Components		
1250	1250	Hinge Collar w/ 1602-31A Sleeve - 2225ST
22	10384	Collar Casting w/ Hook - NHC1A
23	10385	Collar Casting w/o Hook - NHC1
24	10386	Threaded Shaft - 2229ST
25	10253	Bronze Bolt w/ Spacer & Retainer
31A	10387	Tapered Insert Sleeve - 2.5"-3.4"
Take-Up/Retriever Components		
AA	10388	Engagement Hub Assembly - Includes Items 47/50/51/52/53/54/58
55	10389	Motor Housing - Bronze - NBR-1
41	12430	Hydraulic Motor - Standard
56	10391	Hydraulic Motor - Turbo - 104-1143
57	10392	Hydraulic Motor - 2-Speed - 700-258-AS-0-SOL
42	10393	Directional Control Valve - AO-755-T4-JRS
At Valve	11692	90-Degree SAE Fitting - Valve Top To/From Motor
At Valve	11751	90-Degree NPT Fitting - Valve Top To/From Motor
At Valve	11652	90-Degree SAE Fitting - Valve Side To/From Power Source
At Valve	11801	90-Degree NPT Fitting - Valve Side To/From Power Source
43A	10394	Tandem Spool for Series AO Valve - 3/4" - SF303T4
43B	10395	Tandem Spool for Series 34 Valve - 5/8" - P1336
43C	10396	Open Spool for Series AO Valve - 3/4" - SF3030
43D	10397	Open Spool for Series 34 Valve - 5/8" - P1337
44	10398	Chain Guard - 1645ST
Not Shown	17077	Retriever Guard Attachment Rod
Not Shown	10550	Guard Attachment Fender Washer
Not Shown	10572	Guard Attachment Lock Washer
Not Shown	10757	Gaurd Attachment Nut
45	10400	Hose w/ Connectors - Specify Length
47	10401	Plate Gear - 36-Tooth
48	10404	Sprocket - 9-Tooth
49	10405	Chain w/ Full & Half Connectors - # 60x3' - 27 Links
50A	10406	Outer Bronze Hub - 3/8" Holes - Current
50B	10407	Outer Bronze Hub - 5/16" Holes - Prior 1994 - Specify 7/8" or 3/4"W slot
51A	10408	Engagement Lever - 7/8"W - Current
51B	10409	Engagement Lever - 3/4"W - Prior 1992
52	10410	Lever Seating Spring
53	10411	Lever Seating Ball
54A	10412	Inner Bronze Hub - 3/8" Holes - Current
54B	10413	Inner Bronze Hub - 5/16" Holes - Prior 1994
58	10414	Engagement Lever Knob - 6050K16
Not Shown	10572	Split Lock Washer 3/8 - 18-8
Not Shown	12837	Hex 3/8-16 x 2 1/2 C/S YZ GD8

Assembly drawing next page

All Bronze Brake & Retriever Parts

Models 1602 & 1000

Rev. 5/2008
Page 3



Phone 800.323.9147

10 North Sauber Road
Virgil, IL 60151-1000

SAUBERMFG.COM

Fax 800.833.3264

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.

