



HYDRO-ACT

HYDRAULIC BRAKE ACTUATORS



Type TA6 12,500 lb. Series

“Ideal for Harsh Environments”

Model	Part Number
16732	850730
16737	850731
16782	850720
16739	850709
16178	850775
16703	850732
16739-M	850719
16762-M	850718
16107	850733
16721	850722
16723	850723



Model 16739-M Shown

(All Models ending in “M” are our Marine Series)

Marine Units have an Exclusive Zinc-Chrome Finish with an Extended Warranty against Rust and Corrosion.

Thoroughly read and understand this manual before installing, operating or servicing this equipment.

OPERATION, INSTALLATION, MAINTENANCE AND REPAIR GUIDE

Hydro-Act brake actuators are made in America with forged American steel and skilled American workmanship.

Actuator Installation

For saddle mounting on a 2 1/2" or 3" wide straight tongue (Fig. 1) locate the actuator so that the trailer tongue does not extend more than 8 3/4" past the rear edge of the actuator. This position assures full travel for the actuator linkage. Spot and drill 17/32" diameter holes for 1/2" bolts. When spotting, do not set the shock absorber down tight against the top of the trailer tongue. Leave 1/16" to 1/8" between the top of the tongue and the low point on the shock absorber.

Rear Shock Absorber Mounting Bolt

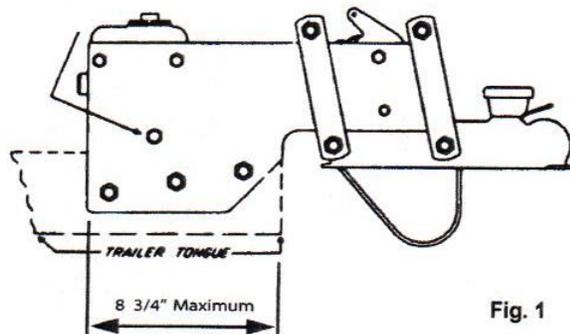


Fig. 1

The A-framer style (Fig. 2) is welded directly to trailer frame. Before welding, check clearance to see that no portion of trailer frame interferes with full travel of actuator linkage.

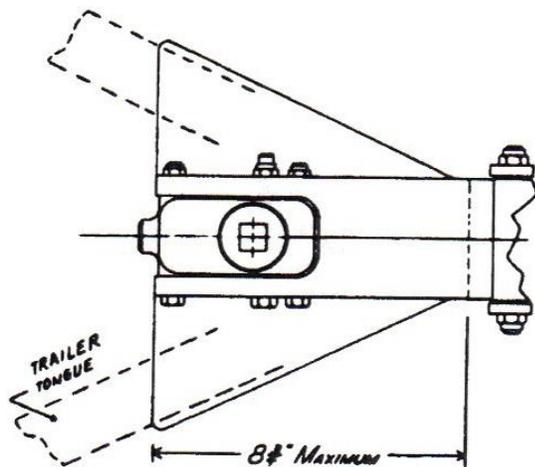


Fig. 2

Hydraulic System

Figure 3 (Page shows the layout of a typical hydraulic brake system. Specific components vary with different Trailer models.

Avoid twists, kinks and abrupt bends in tubing and hoses. Be sure normal loading and operation of trailers will not obstruct or damage brake lines.

Brake Mounting

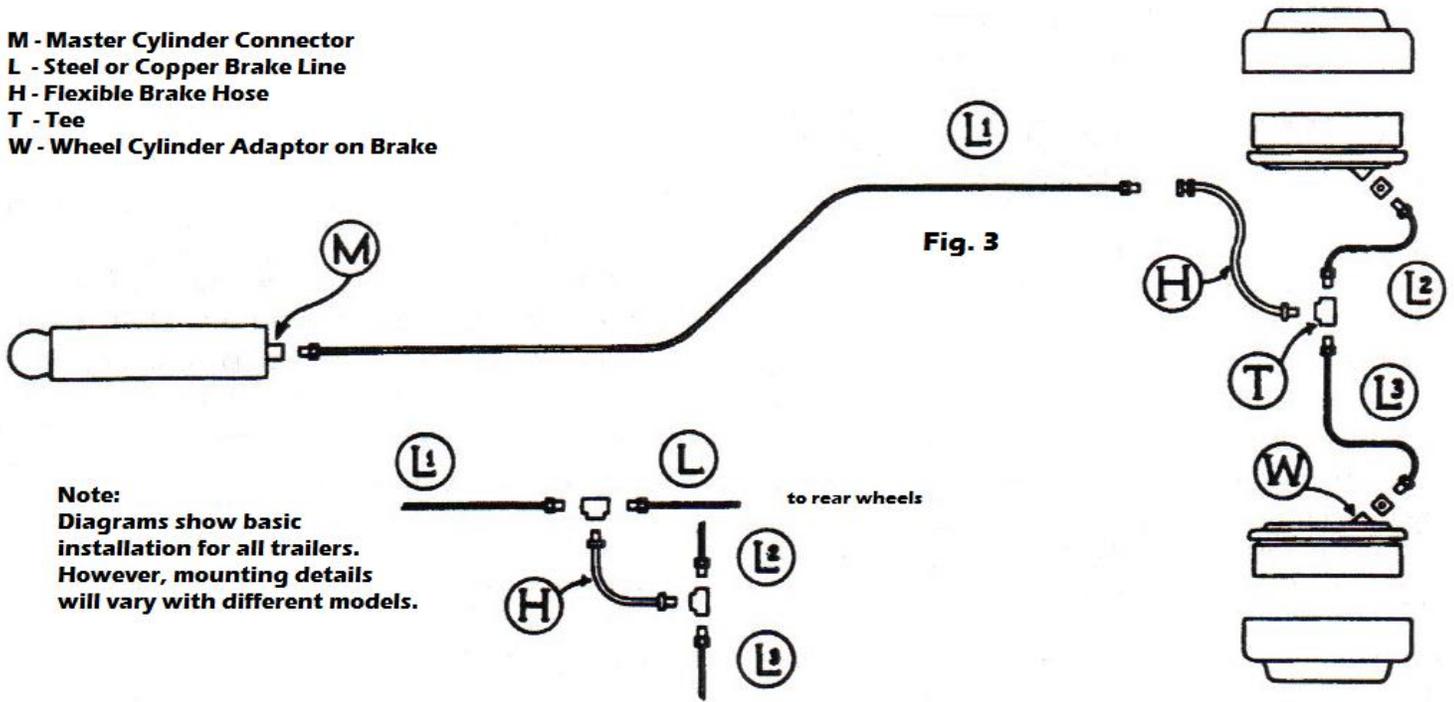
Brake mounting flanges must be installed on axles to hold brakes securely and assure proper match-up of brakes and drums. Flanges are factory-installed by trailer manufacturers on many models. If trailer needs flanges, be sure installer has proper equipment and instructions.

Fig.4 (Next Page) illustrates use of flange locating fixture for Bendix 8" brakes. Contact Mendenhall Industries for recommended axle-flange installation procedures or information about locating fixture.

Unless otherwise specified by trailer manufacturer, brakes are mounted with wheel cylinders at the top. NON-SERVO brakes are mounted with primary (wider) shoes forward, UNI-SERVO brakes with the wheel cylinder pistons toward the front of the trailer, and ONE-SHOE brakes with the shoes toward the front of the trailer. Follow manufacturer's recommendation for disc brake

Trailer Hydraulic Brake Connection for Single Axle Trailer

- M - Master Cylinder Connector
- L - Steel or Copper Brake Line
- H - Flexible Brake Hose
- T - Tee
- W - Wheel Cylinder Adaptor on Brake



Note:
Diagrams show basic installation for all trailers. However, mounting details will vary with different models.

Alternate method for tandem trailer

Fig. 4

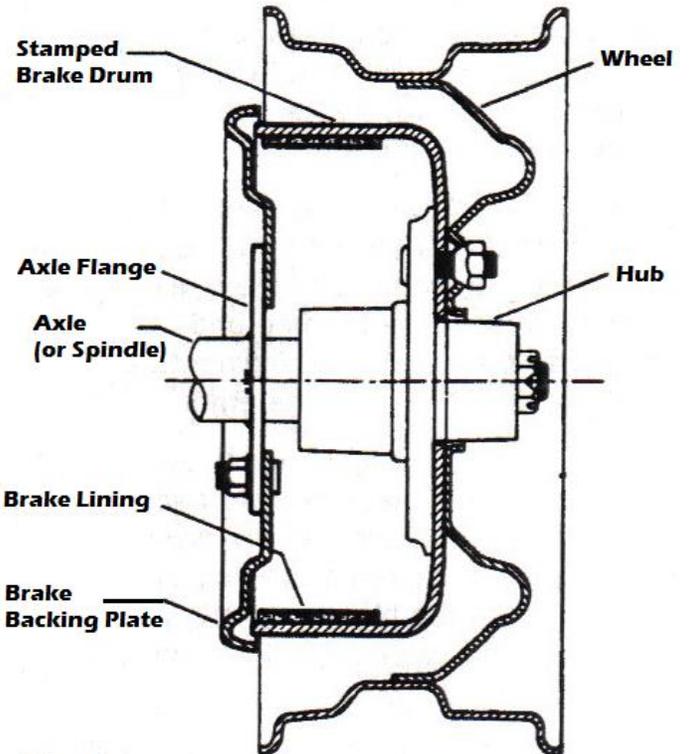
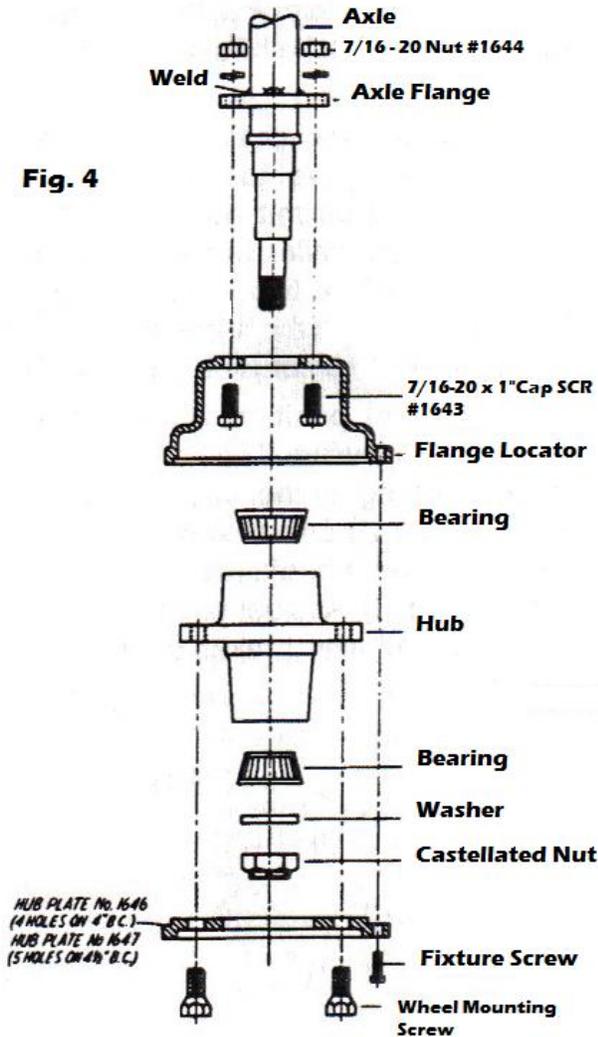


Fig. 5

(Section view showing relationship of typical wheel, hub, stamped drum, and brake on axle)

Filling & Bleeding System

After the actuator, brakes, lines, and fittings are installed and connections are made tight, fill the actuator master cylinder with clean brake fluid.



CAUTION: Be sure to use approved Motor Vehicle Brake Fluid.

The newest SAE standards for non-petroleum motor vehicle brake fluids are j102 (artic) and j1703. Approved fluids under the old standard, prior to 1967, were SAE 70R1 and 70R3. Disc brake manufacturers may recommend special high temperature fluids. Check the container. Be sure the fluid used in the hydraulic brake system conforms to automotive standards.

USE OF IMPROPER FLUID VOIDS ALL BRAKE SYSTEM WARRANTIES.

A pressure bleeder is preferable, but bleeding may be accomplished by pumping the actuator coupler back and forth through its full range of travel. To simplify manual pumping operation, remove rear shock absorber mounting bolt (see Fig. 1). Otherwise, compression and extension stroke of actuator must be accomplished against resistance of shock absorber. Leave bolt out until brakes have been adjusted.

Bleed one wheel cylinder at a time, starting with the rear wheels if the trailer is tandem-axle. Connect a tube or hose to the wheel cylinder bleeder screw. Place the free end of the hose into a clean glass jar containing new brake fluid. Bleed each cylinder until the emerging fluid is free of air bubbles.

Manual bleeding is a two-man operation, with one operator alternately applying and releasing pressure in the system. The second operator opens the bleeder screw as pressure is applied, and closes it before the recovery stroke begins.

Be careful not to pump the master cylinder reservoir empty, or air will be reintroduced to the system. All air must be removed or the brakes will not work properly. When the system is completely bled, apply pressure and check the system for leaks.

Brake Adjustment (Drum Type)

With the trailer on a jack, wheels mounted, brake drums cool, and actuator in towing position:

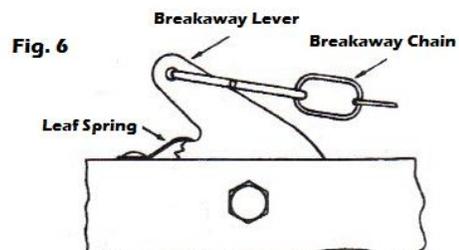
1. Compress actuator mechanism several times to center the shoes in the brake drums.
2. Return actuator to fully-extended towing position.
3. Adjust the brake until a heavy drag can be felt, then back-off the adjustment until the wheel just turns freely, and lock the adjustment. Repeat step 3 for each wheel.
4. Be sure to replace shock absorber rear mounting bolt after all brakes are adjusted.

Safety Chains & Emergency Breakaway

Safety chains should be attached on opposite sides of the trailer tongue or frame, and crossed under the tongue when passed forward to the towing vehicle so as to cradle the tongue in event of a breakaway. Slack should be just sufficient to permit full turns.

Emergency breakaway chain should be fastened securely to towing vehicle in a manner and position that will permit normal operation of towing vehicle and trailer, but assure application of trailer brakes if the two vehicles accidentally separate. Be sure that the breakaway chain does not pull taut while vehicles are connected.

Breakaway lever position should always be checked before towing. The lever must be fully released (pointing all the way back to the rear of the trailer) for normal towing. No teeth or breakaway lever should be engaged in leaf spring (see Fig. 6) Accidental application of the lever will cause trailer brakes to drag, heat up, and possibly burn out.



Operation & Maintenance

The actuator linkage should work freely through its full range of travel. Do not mistake shock absorber resistance for binding. Nylon bearings and plated shafts do not ordinarily require lubrication, but should be checked periodically.



CAUTION: Do not use the hydraulic system for parking.

Investigate erratic brake performance immediately. Trailer should not push two vehicle or jackknife during stops. Brakes should release when trailer is pulled from dead stop. Slight drag may be imperceptible to driver; tap each brake drum with metal object as actuator mechanism is fully extended and fully compressed. Drums should ring clearly when brakes are released.



CAUTION: Do not attempt tighter turns than your vehicle combination is capable of making. Tight turns and jackknifing while backing can damage the actuator or other equipment.

The TA6 actuator is temporarily immobilized because of steep grade or surface-condition backing difficulty, be sure that the actuator mechanism is free to operate before normal towing is resumed.

The TA6 master cylinder and the rest of the trailer hydraulic brake system must be serviced on a schedule comparable to that for any motor vehicle brake system.



CAUTION: Failure to observe normal maintenance procedures may result in non-operation or ineffective operation of the brake system.

Keep system protected from dirt and moisture during off-season storage. Inspect and test system after long periods of idleness. Look for rust inside master cylinder reservoir and around mouth of cylinder bore. Replace cloudy, dirty, or watery brake fluid.

Minimum recommended hitch ball size for ball couplers is 2-inch diameter.

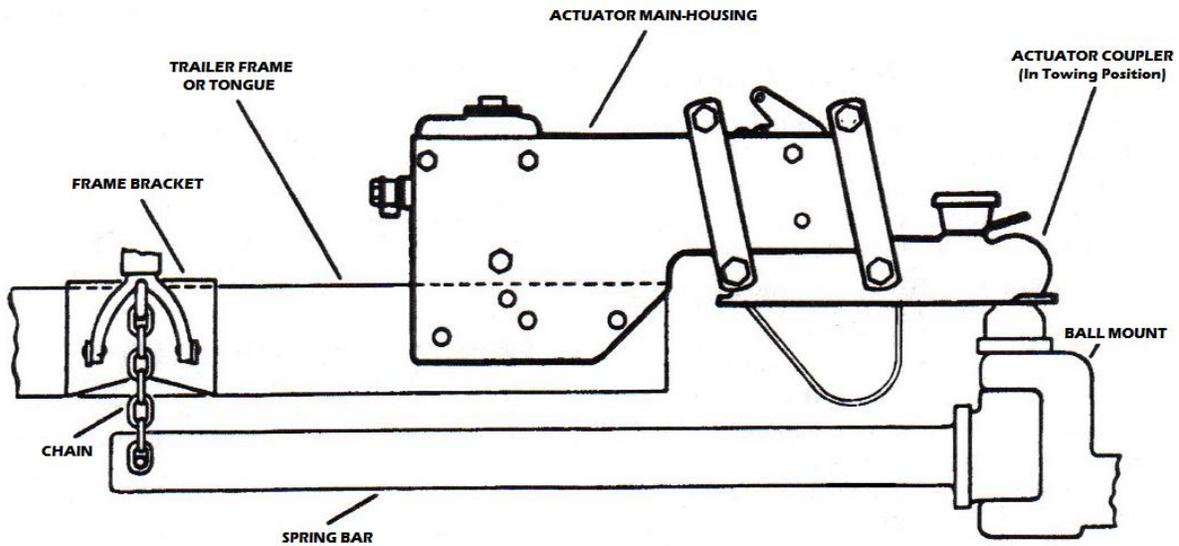
Weight –Equalizing Hitch

Proper operation of surge-type actuator depends on unrestricted relative movement between the tongue-mounted main housing and hitch-mounted coupler assembly; any auxiliary device, such as a weight equalizing hitch that reduces or prevents the required relative motion is incompatible with the surge actuator. The combination of weight-equalizing hitch and surge actuator can be compatible, if suitable precautions are taken.

If the weight-equalizing hitch employs a chain which can swing to permit actuator movement, the installer must be cautious to place the frame brackets (see illustration on following page) so that the chain is in bottom dead center position (vertical) when the actuator mechanism is fully extended as in towing. The tendency of the hitch load to return the chain to bottom dead center position will then assist the recovery stroke of the actuator when the trailer is towed.

The owner or operator of a trailer employing a weight-equalizing hitch should be aware that the tongue load on the trailer is affected by the degree of “equalization” that he selects. It is possible to overload the actuator even though the gross vehicle weight and nominal weight distribution are well within recommended limits.

Since shortening of the chain affects both the arc of its swing and the loading on the trailer tongue, it is recommended that the distance between the chain connections on the frame brackets and the spring bars be not less than six inches.



5 Position Coupler
10784 (12,500 lbs.)



Block Style Coupler
10632-1 (Block Adapter)
Facilitates Welding of Custom Couplers
[NOT RATED]

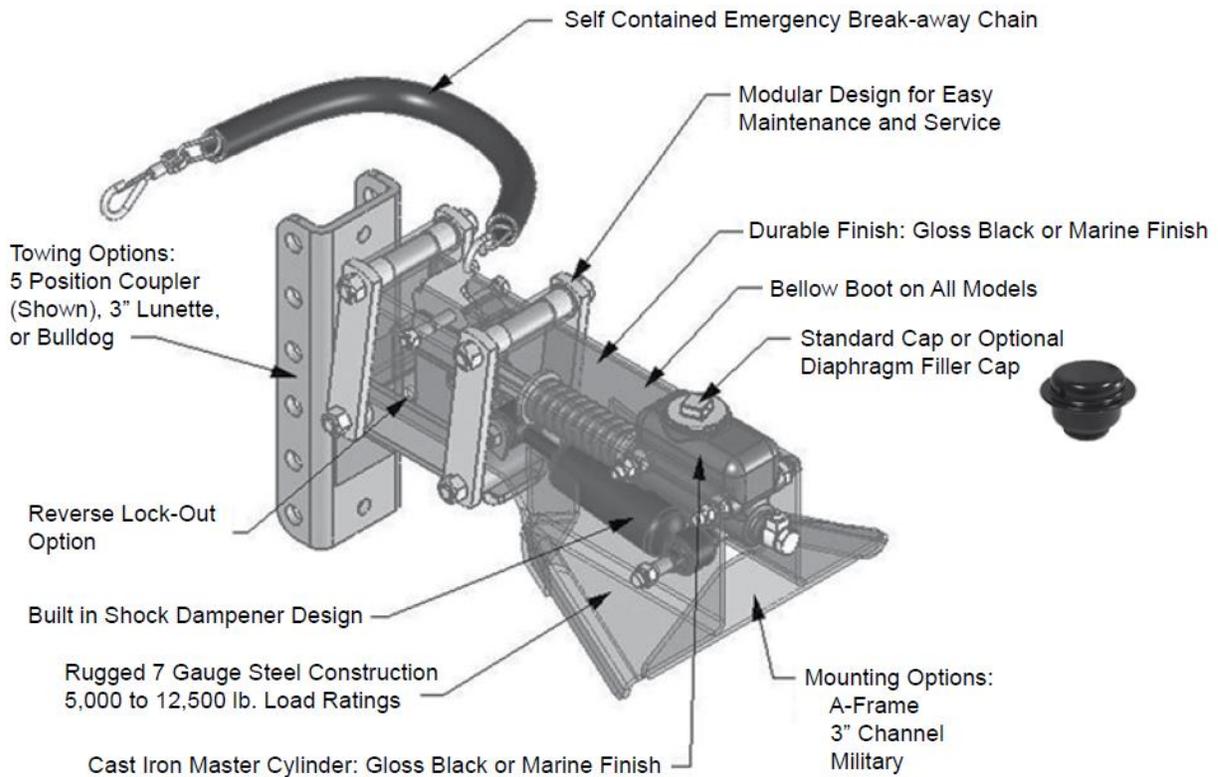


Lunette Couplers
10733 [3" Solid Lunette (12,500 lbs.)]



HD Bull dog Coupler
10738-1 [bulldog (2-5/16" x 12,500lbs.)]

COUPLER STYLE	CAPACITY (LBS) Max Tongue: 10%	A-FRAME VERSION MODEL #	3" CHANNEL VERSION MODEL #
BULLDOG 4BXM (For 2-5/16" Ball Hitch)	12,500	16739	16178
3" Lunette (3" I.D. Tow Ring)	12,500	16732	16737
5 POSITION	12,500	16721	16723



ITEM	PART #	Model #	DESCRIPTION	QTY
1	850116	1804	Lever	1
2	850719	1808-2	HD Link (12,500 lbs.) Only *	4
3	850172	1846	Bolt	3
4	850105	1747	Nut	3
5	850100	11500	Cap	1
6	850063-M	10614-M	Master Cylinder (shown on cover)	1
Mounting	7	850716-M	A-Frame Mounting (Shown on cover)	1
	8	850727	3" Channel Mounting (not shown)	1
	9	850780	5 Position Coupler (shown on Page 6)	1
Coupler	10	850779-M	Bulldog 4BXM Coupler (Shown on cover)	1
	11	850776	3" Lunette Coupler (shown on page 6)	1
	12	850286	Chain Assembly	1
13	850781	1829-2	HD Shaft (12,500 lbs.) Only *	4
14	850106	1753	Hex Nut	8
15	850104	1745	Bearing	8
16	850171	1844-2	Shock (inside)	1
17	850095	10703	Push Rod (inside)	1
18	850160	1828	Spring (inside)	1
19	850167	1840-P	Push Rod Washer (inside)	2

*** Mendenhall Industries will not be held responsible for failure to use the proper parts in which may result in non-operation, unsafe, or ineffective operation of the brake system.**

Limited Warranty

Mendenhall Industries warrants its Hydro-Act Brake Actuators to the original purchaser to be free from defects in material and workmanship for a period of one (1) year from date of purchase. (Any product with an extended limited warranty will be warranted for the period indicated.) Mendenhall Industries liability is to repair or replace any part determined to be defective within the warranty period when returned freight prepaid with proof of purchase to the factory or to a designated service repair distributor. An RMA (Return Material Authorization) form must be issued prior to any product being returned. Unauthorized and collect shipments will be refused. Mendenhall Industries reserves the right to challenge and/or reject questionable claims of warranty.

Should examination by Mendenhall Industries show the part to have defects in material and workmanship it will be repaired or replaced at no charge and returned freight prepaid.

This limited warranty applies only to products installed, maintained, and operated within rated capacities according to factory published instructions. It does not apply to products damaged by improper installation, misapplication, misuse, failure to observe cautions and warnings, abrasion, rust, corrosion, paint, and finish damage, starchy, marks, dents, alterations, negligence, accident, improper maintenance, normal wear and tear, substitution of non-Mendenhall Industries component parts, unreasonable use, and other causes not arising from defects in material and workmanship. Parts sold but not manufactured by Mendenhall Industries are subject to the warranty of their manufacturer.

THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY PURPOSE. IN NO EVENT SHALL MENDENHALL INDUSTRIES BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, OR OTHER DAMAGES OF SIMILAR NATURE, INCLUDING BUT NOT LIMITED TO LOST PROFITS, LOST PRODUCTION, PROPERTY DAMAGE, PERSONAL INJURY, WHETHER SUFFERED BY BUYER OR ANY THIRD PARTY, IRRESPECTIVE OF WHETHER CLAIMS OR ACTIONS, LEGAL OR EQUITABLE, FOR SUCH DAMAGES ARE BASED UPON CONTRACTS, WARRANTY, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE. ANY CLAIM OR ACTION FOR BREACH OF WARRANTY MUST BE BROUGHT WITHIN TWO (2) YEARS FROM THE DATE OF SALE TO THE ORIGINAL PURCHASER. PURCHASERS SOLE AND EXCLUSIVE REMEDY HEREUNDER, SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE DEFECTIVE PART, WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY OR OTHERWISE SHALL NOT EXCEED THE PURCHASE PRICE PAID BY THE ORIGINAL PURCHASER.

This limited warranty gives you specific legal rights. You may also have other rights which vary from State to State.

Trailer design, assessment of capacity requirements and appropriate use of this product, including use of additional or non-surgingly braking systems as may be required for particular applications or by Federal Highway Administration Regulations are the sole responsibility of purchaser and Mendenhall Industries disclaims any responsibility relating thereto.



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