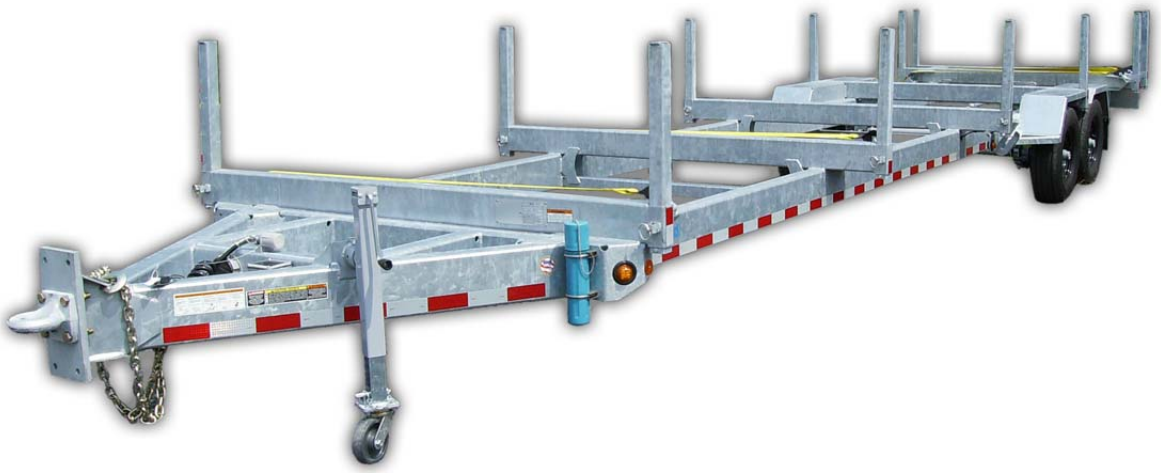
Parts / Maintenance Manual



GSP10004
TELESCOPIC STICK PIPE TRAILER

MGS Incorporated , 178 Muddy Creek Church Road, Denver, PA 17517
PH 1-800-952-4228

PMSLSPU0091 05/08

Table of Contents

MGS Inc. was established in 1962 by owner and president Roland Gehman. The company's corporate culture is a direct reflection of Roland's desires, capabilities, and attitudes. These attitudes have developed from his experiences and relationships with his family, education, church, volunteer groups, business associates and MGS employees. We are staffed with an extraordinary group of talented people. The members of MGS consist of : salesmen, welders, sales support personnel, press and shear operators, engineers, tow motor operators, shipping and receiving personnel, purchasing agents, production controllers, administrative personnel, supervisors, painters, mechanics, cad operators, maintenance men, truck drivers, carpenters, and managers. All of which, have an impact on who we are:

INNOVATORS AND MANUFACTURERS OF TRANSPORTATION EQUIPMENT

The MGS Mission :

It is our mission to provide *the best total solution* for our customers, clients and alliance partners. These solutions are built like our products, with TEAMWORK. The combined expertise and efforts of the MGS team is what keeps us **one of a kind - not one of a group!**

About Your Trailer

MGS Model No.	GSP10004
Description	Telescopic Gas Pipe Trailer
GAWR	#7,000 per axle
GVWR	#15,400
Empty Weight	# 4,600
Unladen Hitch Weight	#920 (telescopic section retracted)
Tire Size	235/80R16
Coupler	Eye 3" - 4 bolt Adjustable
Electrical Connection	7 way plug

This hazard alert sign appears in this manual. When you see this sign, carefully read what it says.
YOUR SAFETY IS AT STAKE.

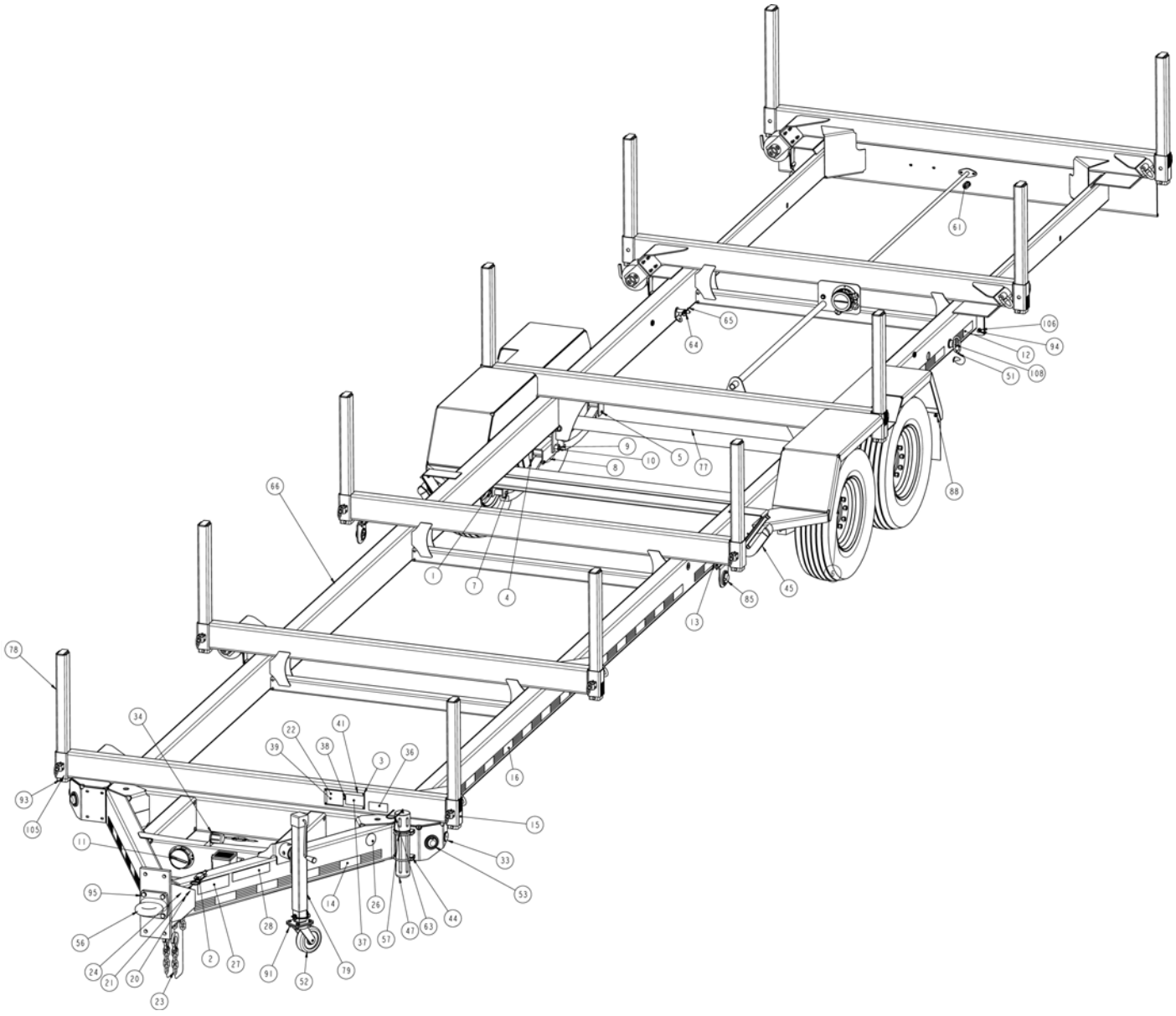
Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

Indicates an potentially hazardous situation which, if not avoided, could result in death or serious injury.

Indicates a hazardous situation which if not avoided, may result in minor or moderate injury

Read and Understand

Do not operate this equipment until you have carefully read, and understand the “Safety” and “Operation” sections of this manual, and of all other equipment manuals that will be used with it. Your safety and the safety of others depends upon care and judgement in the operation of this equipment. Follow all applicable federal, state, local, and industry specific regulations. MGS Inc. cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this manual and on the machine are therefore not all inclusive. You must satisfy yourself that a procedure, tool, work method, or operating technique is safe for you and others. You should also ensure that the machine will not be damaged or made unsafe by the method of operation or maintenance you choose.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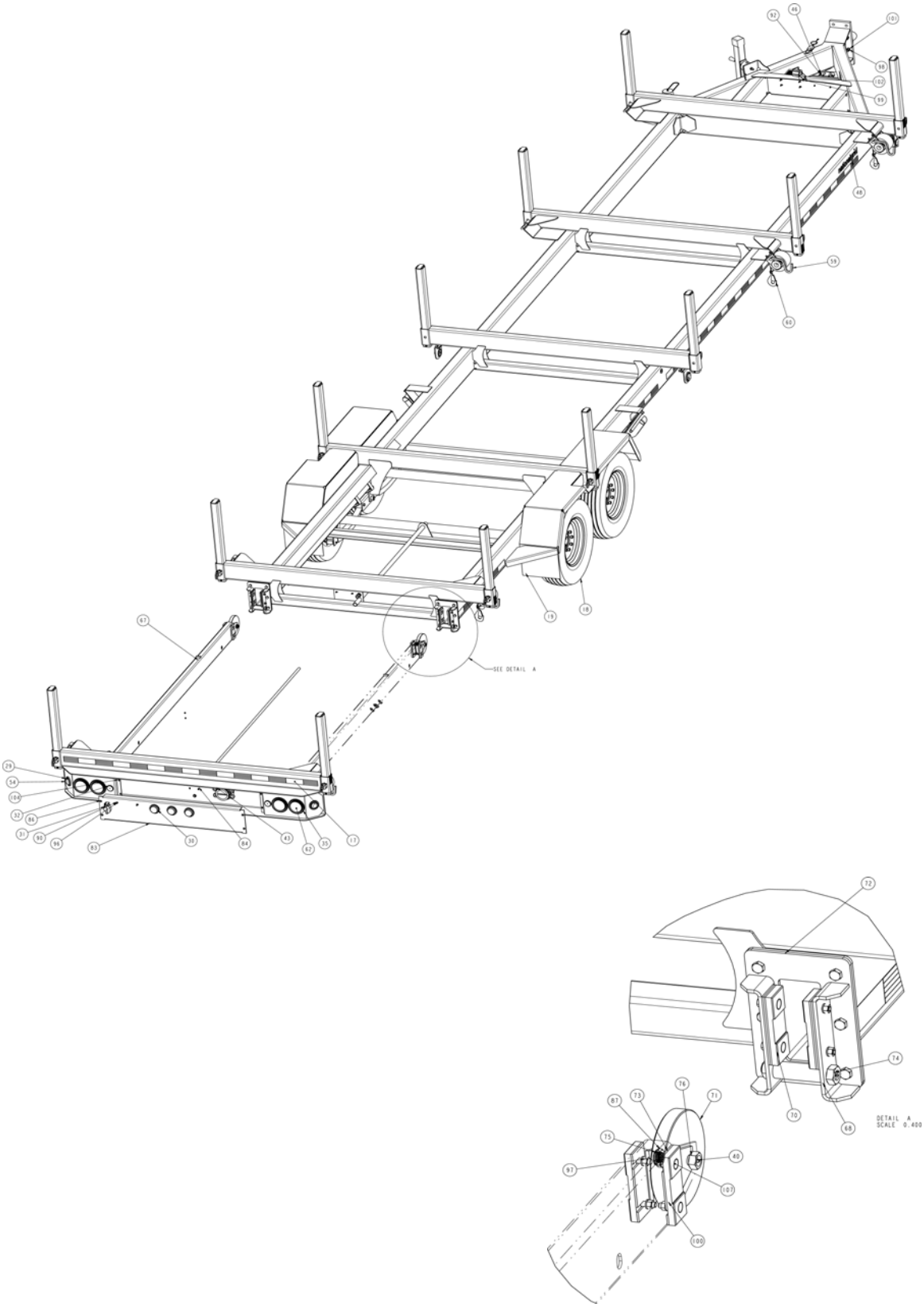
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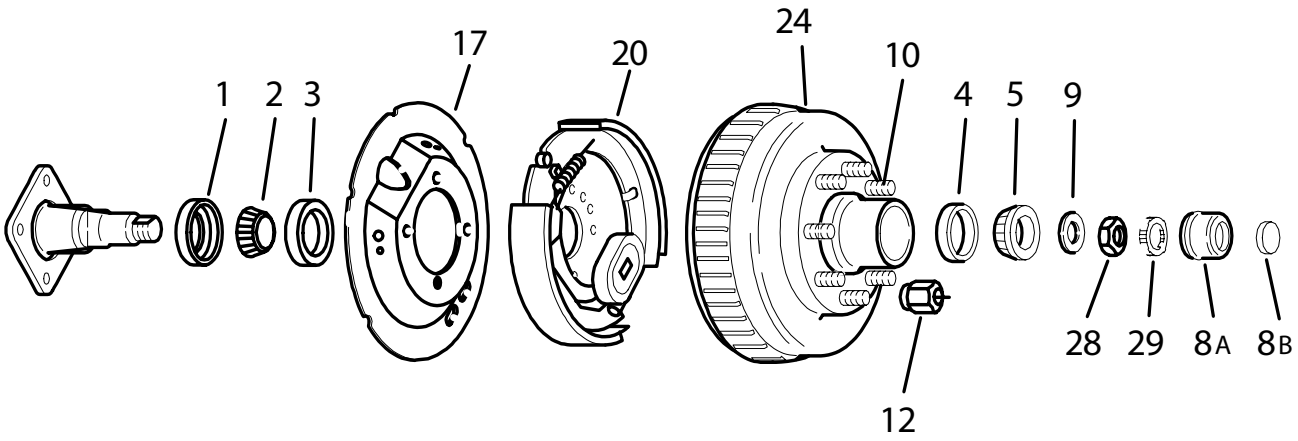
ITEM	QTY.	PART NO.	DESCRIPTION
1	4	08095	SHACKLE BOLT LOCK NUT 9/16
2	1	10713	BREAKAWAY SWITCH
3	5	12755	DRIVE RIVET, 3/16 ALUMINUM
4	4	15219	5/16-18 KEEPER NUT SLIPPER SYS 6-11
5	4	15220	KEEPER BOLT SLIPPER SYS 6-11
6	32	15221	LUG NUT 9/16-18 60°
7	4	15381	SHACKLE BOLT 9/16-3 GR 5
8	2	15825	EQUALIZER 013-044-01
9	2	15972	EQUALIZER BOLT
10	2	15973	EQUALIZER BOLT LOCK NUT
11	1	16001	DOCUMENT HOLDER SMOKE COVER
12	2	18823-12	CONSPICUITY TAPE, RED/WHITE
13	4	18823-24	CONSPICUITY TAPE, RED/WHITE
14	2	18823-54-R	CONSPICUITY TAPE, RED/WHITE
15	10	18823-6	CONSPICUITY TAPE, 3" RED / 3" WHITE
16	4	18823-84	CONSPICUITY TAPE, RED/WHITE
17	1	18823-88-R	CONSPICUITY TAPE, RED/WHITE
18	4	19026	T&W ASSY LT235/85R16 LRG
19	2	19638	MUD GUARD
20	3	30072	JUNCTION BOX #50400
21	5	30073	COMPRESSION FITTING, 3/4" I.D
22	1	32591	VIN LABEL UV OVERLAY
23	2	34066	SAFETY CHAIN 3/8 GR 70 w/ 3/8 CLEVIS HOOK
24	6	39223	COMPRESSION FITTING #50840
25	2	45881	CONNECTOR CORD
26	1	46948	DECAL, NATM COMPLIANCE
27	1	46949	DECAL, NATM COMBO PINTLE EB
28	1	46953	DECAL, TRAILER WARNING COMBO
29	9	48761	GROMMET FOR LED CLEARANCE/MARKER LAMP
30	3	48762	LED RED CLEARANCE/MARKER LAMP
31	1	48765	LED LICENSE PLATE LAMP,TRUCK-LITE
32	2	48844	RED REFLECTOR, ROUND
33	2	48845	YELLOW REFLECTOR, ROUND
34	1	56134	STOR-AWAY PLUG HOLDER
35	4	58828	GROMMET, STOP, TURN / TAIL LIGHT LED
36	1	61191	DECAL, OVERLOAD HAZARD
37	1	61353	TIRE & LOADING INFORMATION LABEL
38	1	61354	TIRE LABEL UV OVERLAY
39	1	61357	VIN LABEL
40	2	63694	GREASE ZERK
41	1	64294	PLATE, VIN & TIRE
42	40	68283	7 CONDUCTOR CABLE (PER FOOT)
43	3	68492	COMPRESSION FITTING #50841
44	2	71541	3" CLAMP
45	2	71867	CHOCK HOLDER W.A.
46	1	71935	ANCHOR PLATE
47	1	71947	CANISTER, OPERATOR'S MANUAL
48	2	71959	LOGO DECAL
49	3	71960	UNIT NUMBER DECAL
50	1	71967	HARNESS, 4-PLUG LED LICENSE/I.D.
51	2	72278	304 SS SASH CHAIN LANYARD, 12"
52	1	72285	ALBION CASTER WHEEL, 71XP06201
53	4	72378	MODEL 10 MARKER/CLEARANCE LAMP, AMBER, LED

54	2	72380	MODEL 10 CLEARANCE/MARKER LAMP, RED, LED
55	5	72410	GROMMET
56	1	72713	EYE 3", 4 BOLT, 60000 GROSS TRL WT
57	2	73048	SS SPLIT RING .680 O.D.
58	2	73116	HARNESS, 84" SINGLE PLUG LED
59	4	73545	WEB WINCH W.A.
60	4	73548	WINCH STRAP, 4" X 27', TWIST HOOK 2"
61	2	73570	FITTING, LIQUIDTIGHT STRAIN RELIEF 1/2"
62	4	73573	SUPER 44 S/T/T LED 4" SEALED 6 DIODE
63	1	73574	TYPE 302 SS BEAD CHAIN LANYARD
64	2	73575	SPLIT RING, 316 SS
65	2	74260	DOUBLE LOOP HITCH PIN CLIP
66	1	74282	FRAME W.A.
67	1	74283	REAR FRAME
68	2	74288	ROLLER SOCKET
69	1	74289	BREAKAWAY BATTERY AND BOX
70	8	74292	BEARING BLOCK
71	2	74295	ROLLER
72	2	75541	BEARING PLATE W.A.
73	12	75543	SHIM
74	2	75544	AXLE BOLT
75	2	75546	LOCKNUT, 3/4-10 THIN
76	2	75547	AXLE BOLT, DRILLED
77	2	75550	AXLE 7000 EB UNDER SLUNG
78	12	75560	POST W.A.
79	1	75785	TONGUE JACK W.A.
80	2	75786	HARNESS, 264" SINGLE PLUG LED
81	1	75787	HARNESS, S/T/T & REAR MARKER, RH
82	1	75788	HARNESS, S/T/T & REAR MARKER, LH
83	1	75791	REAR CROSSMEMBER COVER PLATE
84	1	75793	WIRE GUIDE BAR W.A.
85	2	75813	MID LIGHT PLATE
86	4	FW01	1/4 FLAT WASHER
87	2	FW08	3/4 FLAT WASHER
88	4	FWW01	1/4 FLAT WASHER, WIDE
89	1	GSP10004	EXTENDIBLE PIPE CARRIER TRAILER
90	22	HCS01-02	1/4-20 X 1 HEX HEAD CAP SCREW
91	20	HCS03-03	3/8-16 X 1-1/4 HEX HEAD CAP SCREW
92	2	HCS03-04	3/8-16 X 1-1/2 HEX HEAD CAP SCREW
93	12	HCS03-10	3/8-16 X 3 HEX HEAD CAP SCREW
94	12	HCS05-02	1/2-13 X 1-1/2 HEX HEAD CAP SCREW
95	4	HCSG807-06	5/8-11 X 3 HEX HEAD CAP SCREW
96	2	HN01	1/4-20 NUT
97	16	HN03	3/8-16 NUT
98	4	HNG8-07	5/8-11 NUT
99	12	KHN52	10-32 KEPS NUT
100	16	LW06	3/8 HELICAL SPRING LOCK WASHER
101	4	LW10	5/8 HELICAL SPRING LOCK WASHER
102	10	MSPH02-54	#10-32 X 3/4 PHIL PAN HEAD MACH SCREW
103	2	MSPH02-56	#10-32 X 1 PHIL PAN HEAD MACH SCREW
104	20	NLN01	1/4-20 NYLOC NUT
105	34	NLN03	3/8-16 NYLOC NUT
106	13	NLN05	1/2-13 NYLOC NUT
107	16	RCSN02-03	3/8-16 X 1-1/2 COUNTERSUNK (PLOW) SQUARE HEAD BOLT
108	2	X-19469	HEAVY DUTY HITCH PIN--3/4 x 6



STANDARD GREASE LUBE PARTS

Item	Part No.	Description
1	010-063-00	Seal
2	031-030-02	25580 Inner Bearing Cone
3	031-030-01	25520 Inner Bearing Cup
4	031-028-01	Outer Bearing Cup (02420)
5	031-028-02	Outer Bearing Cone (02475)
6	006-001-00	Spindle Nut - E-Z Lube only
8A	021-043-01	Grease Cap E-Z Lube
8B	085-001-00	E-Z Lube Plug
9	005-057-00	Spindle Washer
14	046-052-00	Oil Filler Plug
15	005-101-00	Tang Washer for E-Z Lube Only

HUBS

Item	Part No.	Description	Bolt Circle
24	008-355-13	Grease Hub & Drum w/cups & 9/16" studs	8 on 6.50

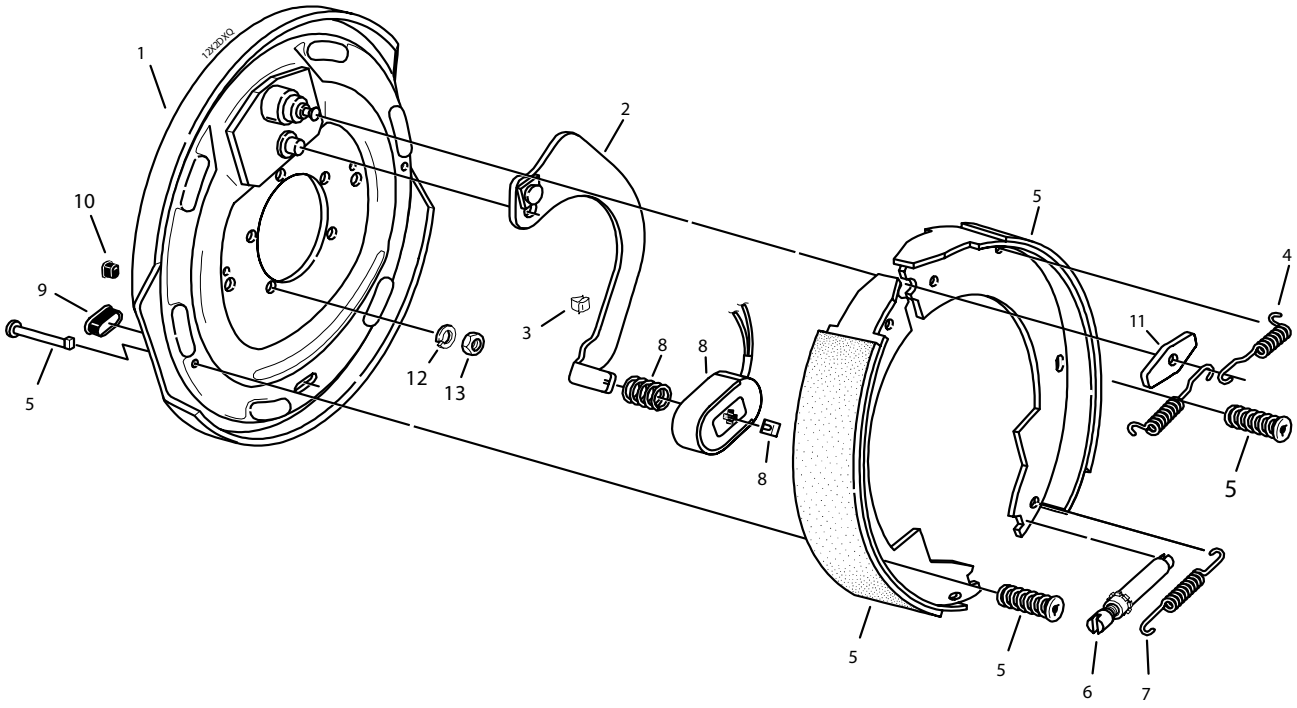
BRAKES

Item	Part No.	Description
20	023-369-00/023-370-00	RH/LH 12¼ x 2½" Electric Brakes
17	036-110-00	Dust Shield (top)
17	036-110-01	Dust Shield (bottom)

STUDS & WHEEL NUTS

Item	Part No.	Description
12	007-223-00	9/16" Stud

7,000# 12” x 2” Brake Components

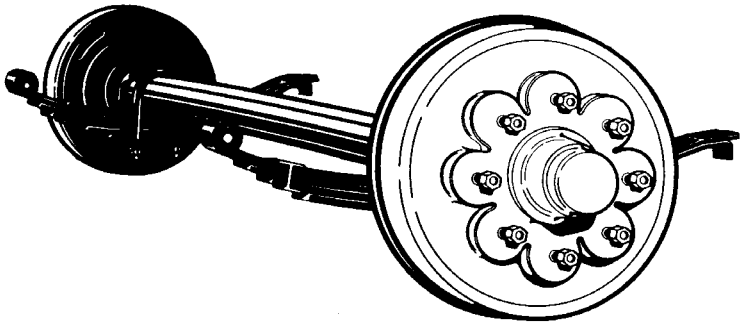


ELECTRIC BRAKE 7000#

Item	Part No.	Qty/Brk	Description
0	023-326-00	1	LH Complete Brake Assembly, Non Asbestos
0	023-327-00	1	RH Complete Brake Assembly, Non Asbestos
1	036-089-05	1	Backing Plate Assembly
2	047-107-00	1	LH Actuating Lever Arm Assembly
2	047-108-00	1	RH Actuating Lever Arm Assembly
3	027-005-00	2	Wire Clip
4	046-009-00	2	Retractor Spring
5	K71-127-00	1	Shoe and Lining Kit containing: 1 #040-215-00 Primary S&L 1 #040-216-00 Secondary S&L 2 #049-011-00 Shoe Hold Down Pin #2 2 #046-077-00 Shoe Hold Down Spring & Cup
6	043-004-00	1	Adjuster Assembly
7	046-018-00	1	Adjusting Screw Spring
8	K71-105-00	1	Magnet Kit containing: 1 #042-099-01 Magnet (white wire) 1 #027-009-00 Magnet Clip 1 #046-080-00 Magnet Spring
9	046-007-00	1	Adjuster Slot Plug
10	046-016-00	1	Wire Grommet
11	005-067-00	1	Anchor Post Washer
12	005-004-00	5	Lockwasher
13	006-010-00	5	Brake Mounting Nut

Axle Information

MGS PART#	75550
RATED CAPACITY	7000 LBS.
BRAKE STYLE	ELECTRIC
BRAKE ASSEMBLY#	LH: K23-180-00, RH:K23-181-00
PARKING BRAKE	NO
PARKING BRAKE CABLE	NO
SPINDLE TYPE	STRAIGHT 3.00 X .3
HUB GROUP DESIGNATION	008-219-13 (865. 9/16" STUDS)
E-Z LUBE HUBS	YES
STUDDED HUB	YES
SPRING#	72-32 (3,500# CAP. EACH)
SPRING TYPE	SLIPPER
SPRING CENTER (INCHES)	66
SPRING LOCATION	UNDER
HUB FACE (INCHES)	86



Braking Systems - Electric

Important Safety Notice

Appropriate service methods and proper repair procedures are essential for the safe, reliable operation of all running gear as well as the personal safety of the individual doing the work. This manual provides general directions for performing service and repair work with tested, effective techniques. Following these guidelines will help assure reliability.

There are numerous variations in procedures, techniques, tools, parts for servicing axles, as well as in the skill of the individual doing the work. This manual cannot possibly anticipate all such variations and provide advice or cautions as to each. Accordingly, anyone who departs from the instructions provided in this manual must first establish that they neither compromise their personal safety nor the vehicle integrity by their choice of methods, tools, or parts.

Refer to your vehicle manufacturers owner's manual for additional procedures, techniques, and warnings prior to performing any maintenance or repairs.

⚠ **THIS SYMBOL WARNS OF POSSIBLE**

PERSONAL INJURY.

Set-up and Adjustment

For proper performance, all new axles should have the following checked at the specified intervals:

- *Wheel Nut Torque:* at 10, 25, and 50 miles (page 45)
- *Brake Adjustment:* at 200 and 3000 miles (page 31)
- *Tire pressure:* to manufacturers requirements (page 46)
- *Brake synchronization* - set brake controller per controller manufacturer's directions (page 10)

Electric Brakes -Features

Electrically actuated brakes have several advantages over other brake actuation systems.

1. They can be manually adjusted to provide the correct braking capability for varying road and load conditions.
2. They can be modulated to provide more or less braking force, thus easing the brake load on the towing vehicle.
3. They have very little lag time from the moment the tow vehicle's brakes are actuated until the trailer brakes are actuated.
4. In an emergency situation, they can provide some braking independent of the tow vehicle.

Braking Systems - Electric

Operation

The electric brakes on your trailer are similar to the drum brakes on your automobile. The basic difference is that your automotive brakes are actuated by hydraulic pressure while your electric trailer brakes are actuated by an electromagnet. With all of the brake components connected into the system, the brake will operate as follows: (see electric brake assembly illustration on page 10)

When the electrical current is fed into the system by the controller, it flows through the electromagnets in the brakes. The high capacity electromagnets are energized and are attracted to the rotating armature surface of the drums which moves the actuating levers in the direction that the drums are turning.

The resulting force causes the actuating cam block at the shoe end of the lever to push the primary shoe out against the inside surface of the brake drum. The force generated by the primary shoe acting through the adjuster link then moves the secondary shoe out into contact with the brake drum.

Increasing the current flow to the electromagnet causes the magnet to grip the armature surface of the brake drum more firmly. This results in increasing the pressure against the shoes and brake drums until the desired stop is accomplished.

Parking Brake Option **(not available on all sizes)**

Dexter electric brakes with parking brake option, are mechanically operated by cable means. The cable attachment occurs outside of the brake backing plate. Cable force applied to the parking lever creates a torque through the pivot pin and cam assembly. Torque transferred to the parking cam results in a spreading force between the primary and secondary shoes. The shoes in turn, move towards the drum until contact is made. Friction generated between the drum and lining contact surface results in parking brake capability.

Trailer Wire Size Chart

Number of Brakes	Hitch-to-Axle Distance in Feet	Recommended Minimum Hookup Wire Size (Copper)
2		12 AWG
4	Under 30	12 AWG
4	30-50	10 AWG
6	Under 30	10 AWG
6	30-50	8 AWG

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How To Use Your Electric Brakes Properly

Your trailer brakes are designed to work in synchronization with your tow vehicle brakes. Never use your tow vehicle or trailer brakes alone to stop the combined load.

Your trailer and tow vehicle will seldom have the correct amperage flow to the brake magnets to give you comfortable, safe braking unless you make proper brake system adjustments. Changing trailer load and driving conditions as well as uneven alternator and battery output can mean unstable current flow to your brake magnets. It is therefore imperative that you maintain and adjust your brakes as set forth in this manual, use a properly modulated brake controller, and perform the synchronization procedure noted below

In addition to the synchronization adjustment detailed below, electric brake controllers provide a modulation function that varies the current to the electric brakes with the pressure on the brake pedal or amount of deceleration of the tow vehicle. It is important that your brake controller provide approximately 2 volts to the braking system when the brake pedal is first depressed and gradually increases the voltage to 12 volts as brake pedal pressure is increased. If the controller "jumps" immediately to a high voltage output, even during a gradual stop, then the electric brakes will always be fully energized and will result in harsh brakes and potential wheel lockup.

Proper synchronization of tow vehicle to trailer braking can only be accomplished by road testing. Brake lockup, grabbiness, or harshness is quite often due to the lack of synchronization between the tow vehicle and the trailer being towed, too high of a threshold voltage (over 2 volts), or under adjusted brakes.

Before any synchronization adjustments are made, your trailer brakes should be burnished-in by applying the brakes 20-30 times with approximately a 20 m.p.h. decrease in speed, e.g. 40 m.p.h. to 20 m.p.h. Allow ample time for brakes to cool between application. This allows the brake shoes and magnets to slightly "wear-in" to the drum surfaces.

To Synchronize

To insure safe brake performance and synchronization, *read the brake controller manufacturer's instructions completely before attempting any synchronization procedure*.

CAUTION:

Before making road tests, make sure the area is clear of vehicular and pedestrian traffic.

Make several hard stops from 20 m.p.h. on a dry paved road free of sand and gravel. If the trailer brakes lock and slide, decrease the gain setting on the controller. If they do not slide, slightly increase the gain setting. Adjust the controller just to the point of impending brake lockup and wheel skid.

Note: *Minimum vehicle stopping distances are achieved when wheels approach lock up. Brake lock up should be avoided as it results in poor vehicle stability and control. Depending on load, brake type, wheels and tires, not all trailer brakes are capable of wheel lockup.*

If the controller is applying the trailer brakes before the tow vehicle brakes, then the controller level adjustment should be adjusted so the trailer brakes come on in synchronization with the tow vehicle brakes. For proper braking performance, it is recommended that the controller be adjusted to allow the trailer brakes to come on just slightly ahead of the tow vehicle brakes. When proper synchronization is achieved there will be no sensation of the trailer "jerking" or "pushing" the tow vehicle during braking.

CAUTION:

Do not adjust this control outside the parameters outlined by the brake controller manufacturer's instructions.

Controllers

Start by making sure the trailer brakes are properly adjusted. Some controllers have a gain control to vary the amount of current to the brakes, and a level control which sets the controller's inertia sensor to sense deceleration. The level adjustment also can be used to vary when the trailer braking is felt. The gain or output control adjustment usually controls the maximum amount of amperage available to the brakes. This can be adjusted for varying trailer loads. The chart below details adjustments available for different brake controllers.

Controller*	**Adjustment to control brake timing**	**Adjustment for brake force**
Tekonsha 9030,9035, 9040,9045,9055	Level	Gain
Kelsey 81741A	Level	Gain
Draw-Tite 5100	Sync	Output

*See manufacturers instructions

General Maintenance

Brake Adjustment

Brakes should be adjusted (1) after the first 200 miles of operation when the brake shoes and drums have "seated," (2) at 3000 mile intervals, (3) or as use and performance requires. The brakes should be adjusted in the following manner:

1. Jack up trailer and secure on adequate capacity jack stands. Follow trailer manufacturers recommendations for lifting and supporting the unit. Check that the wheel and drum rotate freely.

⚠ CAUTION:

Do not lift or support trailer on any part of the axle or the suspension system.

2. Remove the adjusting hole cover from the adjusting slot on the bottom of the brake backing plate.
3. With a screwdriver or standard adjusting tool, rotate the starwheel of the adjuster assembly to expand the brake shoes. Adjust the brake shoes out until the pressure of the linings against the drum makes the wheel very difficult to turn.

Note: *With drop spindle axles, a modified adjusting tool with about an 80 degree angle should be used.*

4. Then rotate the starwheel in the opposite direction until the wheel turns freely with a slight lining drag.
5. Replace the adjusting hole cover and lower the wheel to the ground.
6. Repeat the above procedure on all brakes.

⚠ CAUTION:

Never crawl under your trailer unless it is resting on properly placed jack stands

Follow the trailer manufacturers recommendations for lifting and supporting the unit. Do not lift or place supports on any part of the suspension system.

Brake Cleaning and Inspection

Your trailer brakes must be inspected and serviced at yearly intervals or more often as use and performance requires. Magnets and shoes must be changed when they become worn or scored thereby preventing adequate vehicle braking.

Clean the backing plate, magnet arm, magnet, and brake shoes. Make certain that all the parts removed are replaced in the same brake and drum assembly. Inspect the magnet arm for any loose or worn parts. Check shoe return springs, hold down springs, and adjuster springs for stretch or deformation and replace if required.

Note: With drop spindle axles, a modified adjusting tool with about an 80 degree angle should be used.

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⚠ **CAUTION:**

ASBESTOS DUST HAZARD!

Since some brake shoe friction materials contain asbestos, certain precautions need to be taken when servicing brakes:

1. Avoid creating or breathing dust.
2. Avoid machining, filing or grinding the brake linings.
3. Do not use compressed air or dry brushing for cleaning. (Dust can be removed with a damp brush.)

Brake Lubrication

Before reassembling, apply a light film of Lubriplate or similar grease, or anti-seize compound on the brake anchor pin, the actuating arm bushing and pin, and the areas on the backing plate that are in contact with the brake shoes and magnet lever arm. Apply a light film of grease on the actuating block mounted on the actuating arm.

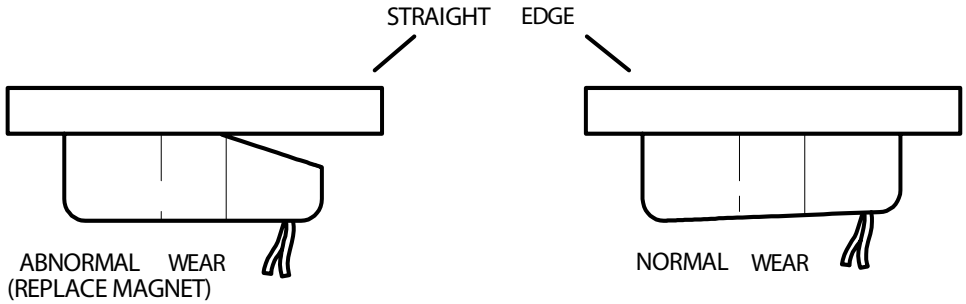
⚠ **CAUTION:**

Do not get grease or oil on the brake linings, drums or magnets.

Magnets

Your electric brakes are equipped with high quality electromagnets that are designed to provide the proper input force and friction characteristics. Your magnets should be inspected and replaced if worn unevenly or abnormally. As indicated below a straightedge should be used to check wear.

Even if wear is normal as indicated by your straightedge, the magnets should be replaced if any part of the magnet coil has become visible through the friction material facing of the magnet. It is also recommended that the drum armature surface be re-faced when replacing magnets. (See Brake Drum Inspection) Magnets should also be replaced in pairs - both sides of an axle. Use only genuine Dexter replacement parts when replacing your magnets. Noted on the next page are the magnet replacement kits which will include the necessary specific instruction for replacement.



Brake Size	Magnet Kit No. (one magnet per kit)	Wire Color
7 x 1 1/4	K71-057-00 Since 4/90	White
7 x 1 1/4	K71-056-00 Prior to 4/90	Yellow
10 x 1 1/2	K71-057-00 Prior to 9/88	White *
10 x 1 1/2	K71-177-00 Since 9/88	Yellow
10 x 2 1/4	K71-104-00	Green
12 x 2	K71-105-00	White
12 x 2	K71-125-00 (7K)	Black
12 1/4 x 2 1/2	K71-441-00	Red
12 1/4 x 3 3/8	K71-375-00 oval magnet	White

** Slight actuating arm magnet tab modification required.*

Shoes and Linings

A simple visual inspection of your brake linings will tell if they are usable. Replacement is necessary if the lining is worn (to within 1/16" or less), contaminated with grease or oil, or abnormally scored or gouged. Hairline heat cracks are normal in bonded linings and should not be a cause for concern. It is important to replace both shoes on each brake and both brakes of the same axle. This is necessary to retain the "balance" of your brakes. Contained in the chart on the next page are the Dexter replacement shoe and lining kits which will contain the specific instructions necessary for proper replacement.

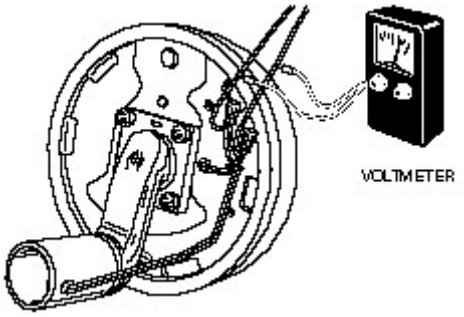
Brake Size	Shoe and Lining Replacement (1 Brake)	
	Electric	*Hydraulic*
7 x 1 1/4	K71-045-00	N/A
7 x 1¾	N/A	K71-466-00
10 x 2 1/4	K71-047-00	K71-267-00
Free Backing		K71-393-00
Corrosion Resistant		K71-423 -00
12 x 2 (5.2K)	K71-048-00	K71-268-00
12 x 2 (6K)		K71-269-00 LH K71-270-00 RH
Free Backing		K71-394-00 LH K71-395-00 RH
Free Backing, Corrosion Resistant		K71-427-00 LH K71-428-00 RH
12 x 2 (7K)	K71-127-00	
12 1/4 x 2 1/2	K71-410-00	N/A
12 1/4 x 3 3/8	K71-049-00 LH K71-050-00 RH	K71-165-00 LH K71-166-00 RH

Troubleshooting

Most electric brake malfunctions that cannot be corrected by either brake adjustments or synchronization adjustments can generally be traced to electrical system failure. Mechanical causes are ordinarily obvious, i.e. bent or broken parts, worn out linings or magnets, seized lever arms or shoes, scored drums, loose parts, etc. Voltmeter and ammeter are essential tools for proper troubleshooting of electric brakes.

How to Measure Voltage

System voltage is measured at the magnets by connecting the voltmeter to the two magnet lead wires at any brake. This may be accomplished by using a pin probe inserted through the insulation of the wires dropping down from the chassis or by cutting the wires. The engine of the towing vehicle should be running when checking the voltage so that a low battery will not affect the readings.



Voltage in the system should begin at 0 volts and, as the controller bar is slowly actuated, should gradually increase to about 12 volts. This is referred to as modulation. No modulation means that when the controller begins to apply voltage to the brakes it applies an immediate high voltage, which causes the brakes to apply instantaneous maximum power.

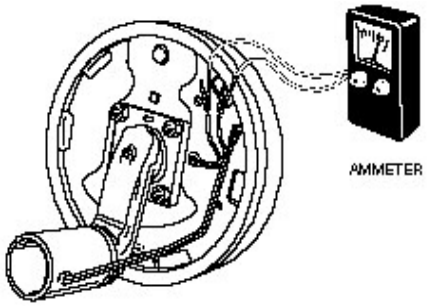
The threshold voltage of a controller is the voltage applied to the brakes when the controller first turns on. The lower the threshold voltage the smoother the brakes will operate. Too high of a threshold voltage (in excess of 2 volts as quite often found in heavy duty controllers) can cause grabby, harsh brakes.

How to Measure Amperage

System amperage is the amperage being drawn by all brakes on the trailer. The engine of the towing vehicle should be running when checking amperage.

One place to measure system amperage is at the BLUE wire of the controller which is the output to the brakes. The BLUE wire must be disconnected and the ammeter put in series into the line. System amperage draw should be as noted in the following table. Make sure your ammeter has sufficient capacity and note polarity to prevent damaging your ammeter.

If a resistor is used in the brake system, it must be set at zero or bypassed completely to obtain the maximum amperage reading.



Individual amperage draw can be measured by inserting the ammeter in the line at the magnet you want to check. Disconnect one of the magnet lead wire connectors and attach the ammeter between the two wires. Make sure that the wires are properly reconnected and sealed after testing is completed.

By far, the most common electrical problem is low or no voltage and amperage at the brakes. Common causes of this condition are:

1. Poor electrical connections
2. Open circuits
3. Insufficient wire size
4. Broken wires
5. Blown fuses (Fusing of brakes is not recommended.)
6. Improperly functioning controllers or resistors

Another common electrical problem is shorted or partially shorted circuits (indicated by abnormally high system amperage). These are occasionally the most difficult to find. Possible causes are:

1 Shorted magnet coils
2. Defective controllers
3. Bare wires contacting a grounded object

Finding the system short is a matter of isolation. If the high amperage reading drops to zero by unplugging the trailer, then the short is in the trailer. If the amperage reading remains high with all the brake magnets disconnected, the short is in the trailer wiring.

All electrical troubleshooting procedures should start at the controller. Most complaints regarding brake harshness or malfunction are traceable to improperly adjusted or non-functioning controllers. See your controller manufacturer's data for proper adjustment and testing procedures. If the voltage and amperage is not satisfactory, proceed on to the connector and then to the individual magnets to isolate the problem source. 12 volts output at the controller should equate to 10.5 volts minimum at each magnet. Nominal system amperage at 12 volts with magnets at normal operating temperatures, i.e. not cold, system resistor at zero and controller at maximum gain should be as detailed in the following chart:

Magnet Amperes Chart

Size	Brake Magnet	Amps/ Brakes	Two Brakes	Four Brakes	Six
	7 x $1^1/_4$	2.5	5.0	10.0	15.0
	10 x $1^1/_4$	3.0	6.0	12.0	18.0
	10 x $2^1/_4$	3.0	6.0	12.0	18.0
	12 x 2	3.0	6.0	12.0	18.0
	$12^1/_4$ x $2^1/_4$	3.0	6.0	12.0	18.0
	$12^1/_4$ x $3^3/_8$	3.0	6.0	12.0	18.0

Hubs / Drums / Bearings

(For Nev-R-Lube drums and bearings see page 39)

Hub Removal

Whenever the hub equipment on your axle must be removed for inspection or maintenance the following procedure should be utilized.

1. Elevate and support the trailer unit per manufacturers' instructions.
2. Remove the wheel.
3. Remove the grease cap by carefully prying progressively around the flange of the cap. If the hub is an oil lube type, then the cap can be removed by unscrewing it counterclockwise while holding the hub stationary.
4. Remove the cotter pin from the spindle nut or, in the case of E-Z Lube versions, bend the locking tang to the free position.
5. Unscrew the spindle nut (counterclockwise) and remove the spindle washer.
6. Remove the hub from the spindle, being careful not to allow the outer bearing cone to fall out. The inner bearing cone will be retained by the seal.
7. On 7200# and 8000# a hub puller should be used to assist drum removal.

Brake Drum Inspection

There are two areas of the brake drum that are subject to wear and require periodic inspection. These two areas are the drum surface where the brake shoes make contact during stopping and the armature surface where the magnet contacts (only in electric brakes.)

The drum surface should be inspected for excessive wear or heavy scoring. If worn more than .020" oversized, or the drum has worn out of round by more than .015", then the drum surface should be turned. If scoring or other wear is greater than .090" on the diameter, the drum must be replaced. When turning the drum surface, the maximum rebore diameter is as follows:

- 7" Brake Drum-7.090"
- 10" Brake Drum-10.090"
- 12" Brake Drum-12.090"
- $12^{1}/_{4}$" Brake Drum-12.340"

The machined inner surface of the brake drum that contacts the brake magnet is called the armature surface. If the armature surface is scored or worn unevenly, it should be refaced to a 120 micro inch finish by removing not more than .030" of material. To insure proper contact between the armature face and the magnet face, the magnets should be replaced whenever the armature surface is refaced and the armature surface should be refaced whenever the magnets are replaced.

Note: *It is important to protect the wheel bearing bores from metallic chips and contamination which result from drum turning or armature refacing operations. Make certain that the wheel bearing cavities are clean and free of contamination before reinstalling bearing and seals. The presence of these contaminants will cause premature wheel bearing failure.*

Bearing Inspection

Wash all grease and oil from the bearing cone using a suitable solvent. Dry the bearing with a clean, lint-free cloth and inspect each roller completely. If any pitting, spalling, or corrosion is present, then the bearing must be replaced. The bearing cup inside the hub must be inspected.

IMPORTANT: *Bearings must always be replaced in sets of a cone and a cup.*

When replacing the bearing cup proceed as follows:

1. Place the hub on a flat work surface with the cup to be replaced on the bottom side.
2. Using a brass drift punch, carefully tap around the small diameter end of the cup to drive out.
3. After cleaning the hub bore area, replace the cup by tapping in with the brass drift punch. *Be sure the cup is seated all the way up against the retaining shoulder in the hub.*

Replace only with bearings as specified in the accompanying Bearing Replacement Chart.

⚠ CAUTION:

Be sure to wear safety glasses when removing or installing force fitted parts. Failure to comply may result in serious eye injury.

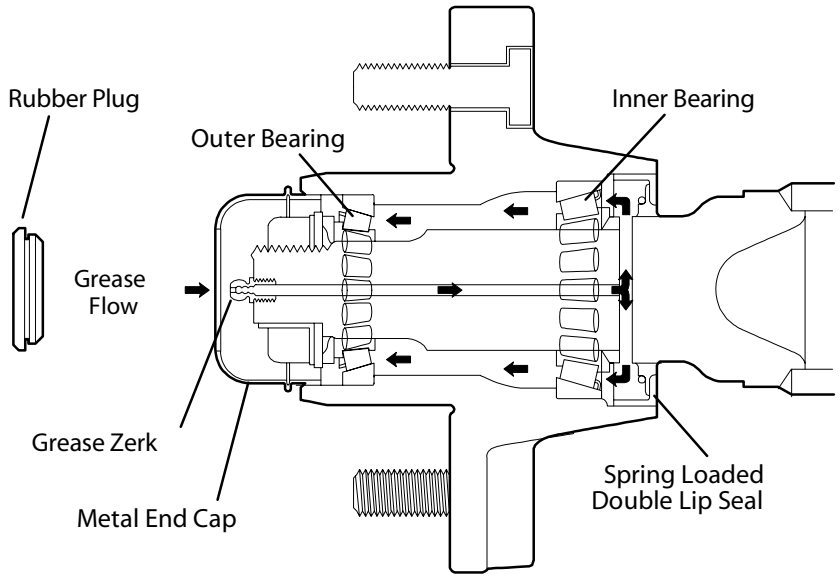
Bearing Lubrication

Along with bearing adjustment, proper lubrication is essential to the current function and reliability of your trailer axle. Bearings should be lubricated every 12 months or 12,000 miles. The method to repack bearing cones is as follows:

1. Place a quantity of grease into the palm of your hand.
2. Press a section of the widest end of the bearing into the outer edge of the grease pile closest to the thumb forcing grease into the interior of the bearing.
3. Repeat this while rotating the bearing from roller to roller.
4. Continue this process until you have the entire bearing completely filled with grease.
5. Before reinstalling, apply a light coat of grease on the bearing cup.

E-Z Lube

If your axle is equipped with the Dexter E-Z Lube feature, the bearings can be periodically lubricated without removing the hubs from the axle. This feature consists of axle spindles that have been specially drilled and fitted with a grease zerk in their ends. When grease is pumped into the zerk, it is channeled to the inner bearing and then flows back to the outer bearing and eventually back out the grease cap hole.



The procedure is as follows:

1. Remove the rubber plug from the end of the grease cap.
2. Place a standard grease gun onto the grease zerk located in the end of the spindle. Make sure the grease gun nozzle is fully engaged on the fitting.
3. Pump grease into the zerk. The old, displaced grease will begin to flow back out the cap around the grease gun nozzle.
4. When the new, clean grease is observed, remove the grease gun, wipe off any excess, and replace the rubber plug in the cap.
5. Rotate hub or drum while adding grease.

Note: *The E-Z Lube feature is designed to allow immersion. Axles not equipped with E-Z Lube are not designed for immersion and bearing should be repacked after each immersion. If hubs are removed from an axle with the E-Z Lube feature, it is imperative that the seals be replaced BEFORE bearing lubrication. Otherwise, the chance of grease getting on brake linings is greatly increased.*

If your axles are equipped with oil lubricated hubs, then your lubrication procedure is to periodically fill the hub with a high quality hypoid gear oil to the level indicated on the clear plastic oil cap. The oil can be filled from either the oil fill hole, if present, in the hub or through the rubber plug hole in the cap itself.

Recommended Wheel Bearing Lubrication Specifications

Grease:

..... Thickener Type	Lithium Complex
.....Dropping Point	230^{O}C (446^{O}F) minimum
..... Consistency	NLGI No. 2
..... Additives	EP, Corrosion & Oxidation Inhibitors
.....	
.....Base Oil	Solvent Refined Petroleum Oil
..... Base Oil Viscosity	@40^{O}C (104^{O}F) 150cSt(695 SUS) Min.
.....	
Viscosity Index ..... 80 Minimum	
Pour Point ..... -10^{O}C (14^{O}F) Minimum	

Approved Sources:

..... Mobil Oil	Mobilgrease HP
.....Exxon/Standard	Ronex MP
..... Kendall Refining Co.	Kendall L-427
..... Ashland Oil Co.	Valvoline Val-plex EP Grease
..... Pennzoil Prod. Co.	Premium Wheel Bearing Grease 707L

Oil:

SAE 90 Hypoid Gear (Hypoid Rear Axle Oil)**Note:** The convenient lubrication provisions of the E-Z Lube and the oil lubrication must not replace periodic inspection of the bearings. **Note:** The convenient lubrication provisions of the E-Z Lube and the oil lubrication must not replace periodic inspection of the bearings.

capable of properly sealing the bearing cavity. If there is any question of condition, replace the seal. Use only the seals specified in the Seal Replacement Chart. To replace the seal:

Seal Inspection and Replacement

Whenever the hub is removed, inspect the seal to assure that it is not nicked or torn and is still capable of properly sealing the bearing cavity. If there is any question of condition, replace the seal. Use only the seals specified in the Seal Replacement Chart. To replace the seal:

1. Pry the seal out of the hub with a screwdriver. Never drive the seal out with the inner bearing as you may damage the bearing.
2. Apply a PERMATEX sealant to the outside of the new seal.
   Note: *Permatex sealant should not be used on rubber encased seals, i.e. 10-10 and 10-63.*
3. Tap the new seal into place using a clean wood block.

Seal Replacement Reference

Brake Size	*Hub Std.*	*Seal Part No. E-Z Lube*	*Oil*
7 x $1^1/_4$	4 or 5 Bolt	10-9 10-60	NA
10 x $1^1/_2$	4 or 5 Bolt	10-42 NA	NA
10 x $2^1/_4$	4 or 5 Bolt	10-4 10-19	NA
12 x 2	4 Bolt 10-1	10-10 NA	
12 x 2+	5 Bolt Demount; 6 or 8 Bolt	10-1 10-10	10-10
12 x 2* 6 or 8 Bolt	5 Bolt Demount; 10-54 10-36	10-63	
$12^1/_4$ x $2^1/_2$	8 Bolt 10-63	10-63 10-63	
$12^1/_4$ x $3^3/_8$	8 Bolt 10-63	10-63 10-63	

*2.25 diameter seal journal after 10/97 +2.12 seal journal prior ro 10/97

Bearing Adjustment and Hub Replacement

If the hub has been removed or bearing adjustment is required, the following adjustment procedure must be followed:

1. After placing the hub, bearings, washers, and spindle nut back on the axle spindle in reverse order as detailed in the previous section on hub removal, rotate the hub assembly slowly while tightening the spindle nut to approximately
   50 lbs.-ft. (12" wrench or pliers with full hand force.)
2. Then loosen the spindle nut to remove the torque. *Do not rotate the hub.*
3. Finger tighten the spindle nut until just snug.
4. Back the spindle nut out slightly until the first castellation lines up with the cotter key hole and insert the cotter pin (or locking tang in the case of E-Z Lube.)
5. Bend over the cotter pin legs to secure the nut (or locking tang in the case of E-Z Lube)
6. Nut should be free to move with only restraint being the cotter pin (or locking tang.)

Suspension

Types

The suspension systems incorporated into Dexter axles are designed to provide the trailer owner three basic functions:

1. Attach the axle to the trailer
2. Dampen the effects of road shock
3. Provide stability to the trailer

All Dexter suspension systems are available in single and multiple axle configurations. These suspension systems are:

Double Eye Leaf Springs

Double eye springs have eyes formed in each end of the spring and are attached to the trailer as follows:

1. The front spring eye is attached directly to the front hanger with a bolt and nut.
2. The rear spring eye is attached to a pair of shackle links which are attached to either a rear hanger (in the case of single axle installation), or an equalizer (in the case of a tandem axle installation.)
3. For triple installation, the middle axle is towed by equalizer eye attachment.

The articulation of this suspension occurs when the spring becomes loaded and consequently lengthens. The double pivot action of the shackle links accommodates this articulation and allows the system to move freely.

In multiple axle installations the action is the same but with the additional movement of the equalizer assembly which serves to transfer instantaneous loads from one axle to another in an effort to "equalize" the load between the axles.

Grease Lubricated Suspension Bushings

In the optional heavy duty attaching parts kits, the suspension bolts and equalizers have grease zerks which provide a
lubrication path to the bronze bushing located in the spring eyes and equalizer. These parts should be periodically lubricated and inspected for signs of excessive wear, cracking, or hole
elongation. If excessive wear, cracking or hole elongation exists, all links and worn parts should be immediately replaced.

Slipper Leaf Springs

Slipper springs have an eye formed in one end only with the other end formed into a reverse curve. The attachment of these springs is as follows:

1. The front eye is attached directly into the front hanger with a bolt and nut.
2. The rear end of the spring is captured in the rear hanger or equalizer with a "keeper bolt" that prevents the spring from coming out when the trailer is jacked up for service.

The articulation of this suspension occurs when the rear end of each slipper spring slides against the wear surfaces provided in the rear hangers or equalizers. This suspension is also available in single and multiple axle
configurations.

Note: Failure to do proper and periodic maintenance of these important structural parts may result in severe and catastrophic injury or damage to property.

Torflex Suspension

The TORFLEX suspension system is a torsion arm type suspension which is completely self contained within the axle tube. It attaches directly to the trailer frame using brackets which are an integral part of the axle assembly. The TORFLEX axle provides improved suspension characteristics relative to leaf spring axles through the unique arrangement of a steel torsion bar surrounded by four natural rubber cords encased in the main structural member of the axle beam.

The wheel/hub spindle is attached to a lever, called the torsion arm, which is fastened to the rubber encased bar. As load is applied, the bar rotates causing a rolling/compressive resistance in the rubber cords. This action provides the same functions as conventional sprung axles with several operating advantages including independent suspension.

Inspection and Replacement

All the components of your suspension system should be visually inspected at least every 6,000 miles for signs of excess wear, elongation of bolt holes, and loosening of fasteners. Whenever loose or replaced, the fasteners in your suspension system should be torqued as detailed in the charts below.

Suspension Fastener Torque Values

Item	Torque (lbs.-ft.) Min	Max
3/8" U-Bolt	30	35
7/16" U-Bolt	45	60
1/2" U-Bolt	45	60
Non shoulder type Shackle Bolt Spring Eye Bolt Equalizer Bolt	Snug fit only. Parts must rotate freely. Locking nuts or cotter pins are provided to retain nut-bolt assembly.	
Shoulder Type Shackle Bolt	30	50

Worn spring eye bushings, sagging springs, or broken springs should be replaced using the following method.

1. Support the trailer with the wheels just off the ground. *Follow the trailer manufacturer's recommendations for lifting and supporting the unit. Do not lift or place supports on any part of the suspension system.*
2. After the unit is properly supported place a suitable block under the axle tube near the end to be repaired. This block is to support the weight of the axle only so that suspension COMPONENTS can be removed.
3. Disassemble the U-bolts, nuts, and tie plates.
4. Remove the spring eye bolts and remove the spring and place on a suitable work surface.
5. If the spring eye bushings are to be replaced, drive out the old bushing using a suitable drift punch.

⚠ CAUTION:

Be sure to wear safety glasses when removing or installing force fitted parts. Failure to comply may result in serious injury.

6. Drive the new bushing into the spring eye using a piloted drift punch or a close fitting bolt inserted through the bushing.
7. Reinstall repaired or replaced components in reverse order.

Note: *For multiple axle units, the weight of each axle must be supported as outlined in Step 2 before disassembly of any component of the suspension system.*

If the equalizer or equalizer bushings must be replaced, follow the instructions above for lifting and supporting the trailer unit and then proceed as follows:

1. With both axles blocked up, remove the spring eye bolt, shackle bolt, and equalizer bolt from the equalizer to be repaired or replaced.
2. Take the equalizer to suitable work surface and remove the worn bushings using a suitable drift punch.
3. Drive the new bushings into place using a piloted drift punch or a close fitting bolt through the bushing.

⚠ CAUTION:

Be sure to wear safety glasses when removing or installing force fitted parts. Failure to comply may result in serious injury.

4. Reassemble in reverse order.

All of the pivot points or your suspension system have been fitted with anti friction bearing materials which do not require routine lubrication. However, when otherwise servicing the unit, these pivot points may be lubricated if you so desire.

Except for periodic inspection of the fasteners used to attach the TORFLEX axle to the vehicle frame, no other suspension maintenance is required on TORFLEX axles. They are, of course, subject to the maintenance and inspection procedures regarding brakes, hubs, bearings, seals, wheels, and tires as outlined in this manual.

⚠ WARNING:

DO NOT WELD ON THE TORFLEX BEAM. *It has rubber cords inside and the heat generated by welding could damage the cord.*

Wheels

Wheel Selection

Wheels are a very important and critical component of your running gear system. When specifying or replacing your trailer wheels it is important that the wheels, tires, and axle are properly matched. The following characteristics are extremely important and should be thoroughly checked when replacement wheels are considered.

1. *Bolt Circle*. Many bolt circle dimensions are available and some vary by so little that it might be possible to attach an improper wheel that does not match the axle hub. Be sure to match your wheel to the axle hub.
2. *Capacity*. Make sure that the wheels have enough load carrying capacity and pressure rating to match the maximum load of the tire and trailer.
3. *Offset*. This refers to the relationship of the center line of the tire to the hub face of the axle. Care should be taken to match any replacement wheel with the same offset wheel as originally equipped. Failure to match offset can result in reducing the load carrying capacity of your axle.
4. *Rim Contour*.

⚠ DANGER:

Use only the approved rim contours as shown in the Tire and Rim Yearbook or the tire manufacturers catalog. The use of other rim contours is dangerous. Failure to use the proper rim contour can result in explosive separation of the tire and wheel and could cause a serious accident.

⚠ WARNING:

Do not attempt to repair or modify a wheel. Even minor modifications can have a great effect. Do not install a tube to correct a leak through the rim. If the rim is cracked, the air pressure in the tube may cause the pieces of the rim to explode with great force and can cause serious injury or death.

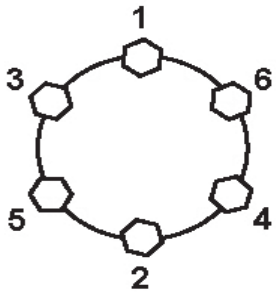
Torque Requirements

It is extremely important to apply and maintain proper wheel mounting torque on your trailer axle. Torque is a measure of the amount of tightening applied to a fastener (nut or bolt) and is expressed as length times force. For example, a force of 90 pounds applied at the end of wrench one foot long will yield
90 lbs.-ft. of torque. Torque wrenches are the best method to assure the proper amount of torque is being applied to a fastener.

Note: *Wheel nut or bolts must be applied and maintained at the proper torque levels to prevent loose wheels, broken studs, and possible dangerous separation of wheels from your axle.*

Be sure to use only the fasteners matched to the cone angle of your wheel (usually 60^{o} or 90^{o}.) The proper procedure for attaching your wheels is as follows:

1. Start all bolts or nuts by hand to prevent cross threading.
2. Tighten bolts or nuts in the following sequence.
3. The tightening of the fasteners should be done in stages. Following the recommended sequence, tighten fasteners per wheel torque chart below.
4. Wheel nuts/bolts should be torqued before first road use and after each wheel removal. Check and re torque after the first 10 miles, 25 miles, and again at 50 miles. Check periodically thereafter.



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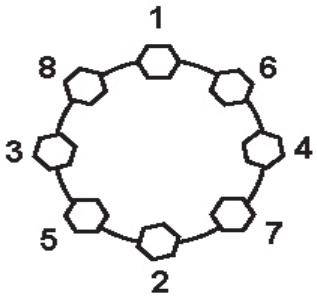

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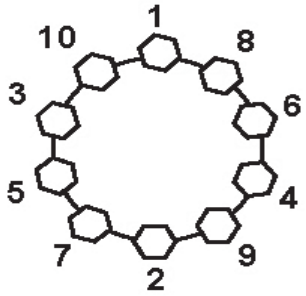


10 BOLT

Size	1st Stage	2nd Stage	3rd Stage
12"	20-25	35-40	50-75
13"	20-25	35-40	50-75
14"	20-25	50-60	90-120
15"	20-25	50-60	90-120
16"	20-25	50-60	90-120

Tires

Before mounting tires onto wheels make certain that the rim size and contour is approved for the tire as shown in the Tire and Rim Association Yearbook or the tire manufacturers catalog. Also make sure the tire will carry the rated load. If the load is not equal on all tires due to trailer weight distribution, use the tire rated for the heaviest wheel position.

Note: *The capacity rating molded into the sidewall of the tire is not always the proper rating for the tire if used in a trailer application. Use the following guideline:*

1. LT and ST tires. Use the capacity rating molded into the tire.
2. Passenger Car Tires. Use the capacity rating molded into the tire sidewall **divided by 1.10.**

Use tire mounting procedures as outlined by the Rubber Manufacturers Association or the tire manufacturers.

Tire inflation pressure is the most important factor in tire life. Inflation pressure should be as recommended by the manufacturer for the load. Pressure should be checked cold before operation. Do not bleed air from tires when they are hot. Check inflation pressure weekly during use to insure the maximum tire life and tread wear. The following tire wear diagnostic chart will help you pinpoint the causes and solutions of tire wear problems.

Note: *Tire wear should be checked frequently because once a wear pattern becomes firmly established in a tire it is difficult to stop, even if the underlying cause is corrected.*

Storage Preparation

If your trailer is to be stored for an extended period of time or over the winter, it is important that the trailer be prepared properly.

1. Remove the emergency breakaway battery and store inside, out of the weather. Charge the battery at least every 90 days.
2. Jack up the trailer and place jack stands under the trailer frame so that the weight will be off the tires. Follow trailer manufacturers guidelines to lift and support the unit. Never jack up or place jack stands on the axle tube or on the equalizers.
3. Lubricate mechanical moving parts such as the hitch, and suspension parts, that are exposed to the weather.
4. Boat trailer axles are subject to repeated immersion. Before storing, remove brake drums; clean, dry and
   re-lubricate moving brake components; inspect bearings - clean and re-lubricate.

Note: *On oil lubricated hubs the upper part of the roller bearings are not immersed in oil and are subject to potential corrosion. For maximum bearing life it is recommended that you revolve your wheels periodically (every 2-3 weeks) during periods of prolonged storage.*

After Prolonged Storage -
Inspection Procedures

Before removing trailer from jack stands:

1. Remove all wheels and hubs or brake drums. Note which spindle and brake that the drum was removed from so that it can be reinstalled in the same location.
2. Inspect suspension for wear.
3. Check tightness of hanger bolt, shackle bolt, and U-bolt nuts per recommended torque values.
4. Check brake linings, brake drums and armature faces for excessive wear or scoring.
5. Check brake magnets with an ohmmeter. The magnets should check 3.2 ohms. If shorted or worn excessively, replace.
6. Lubricate all brake moving parts using a high temperature brake lubricant. (LUBRIPLATE or Equivalent).

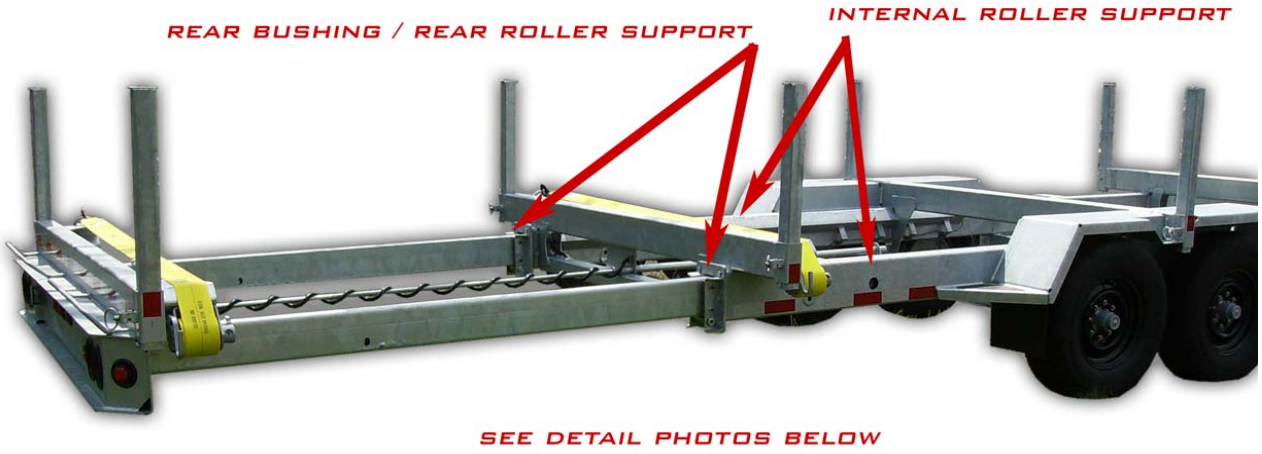
⚠ CAUTION:

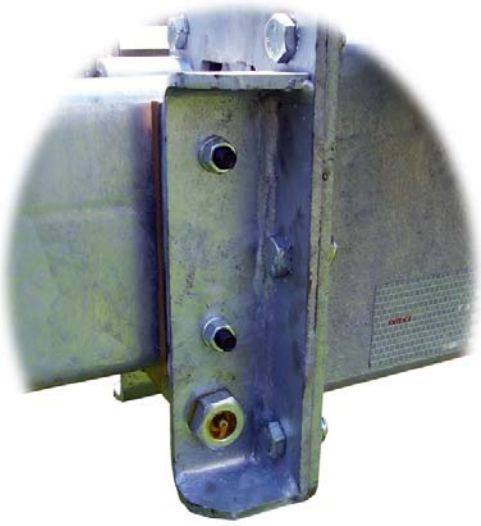
Do not get grease or oil on brake linings or magnet face.

7. Remove any rust from braking surface and armature surface of drums with fine emery paper or crocus cloth. Protect bearings from contamination while so doing.
8. Inspect oil or grease seals for wear or nicks. Replace if necessary.
9. Lubricate hub bearings. Refer to procedure in manual.
10. Reinstall hubs and adjust bearings per instructions in manual.
11. Mount and tighten wheels per instructions in manual.

Special Lubrication Points

The following components should be lubricated during you normal preventative maintenance schedule:

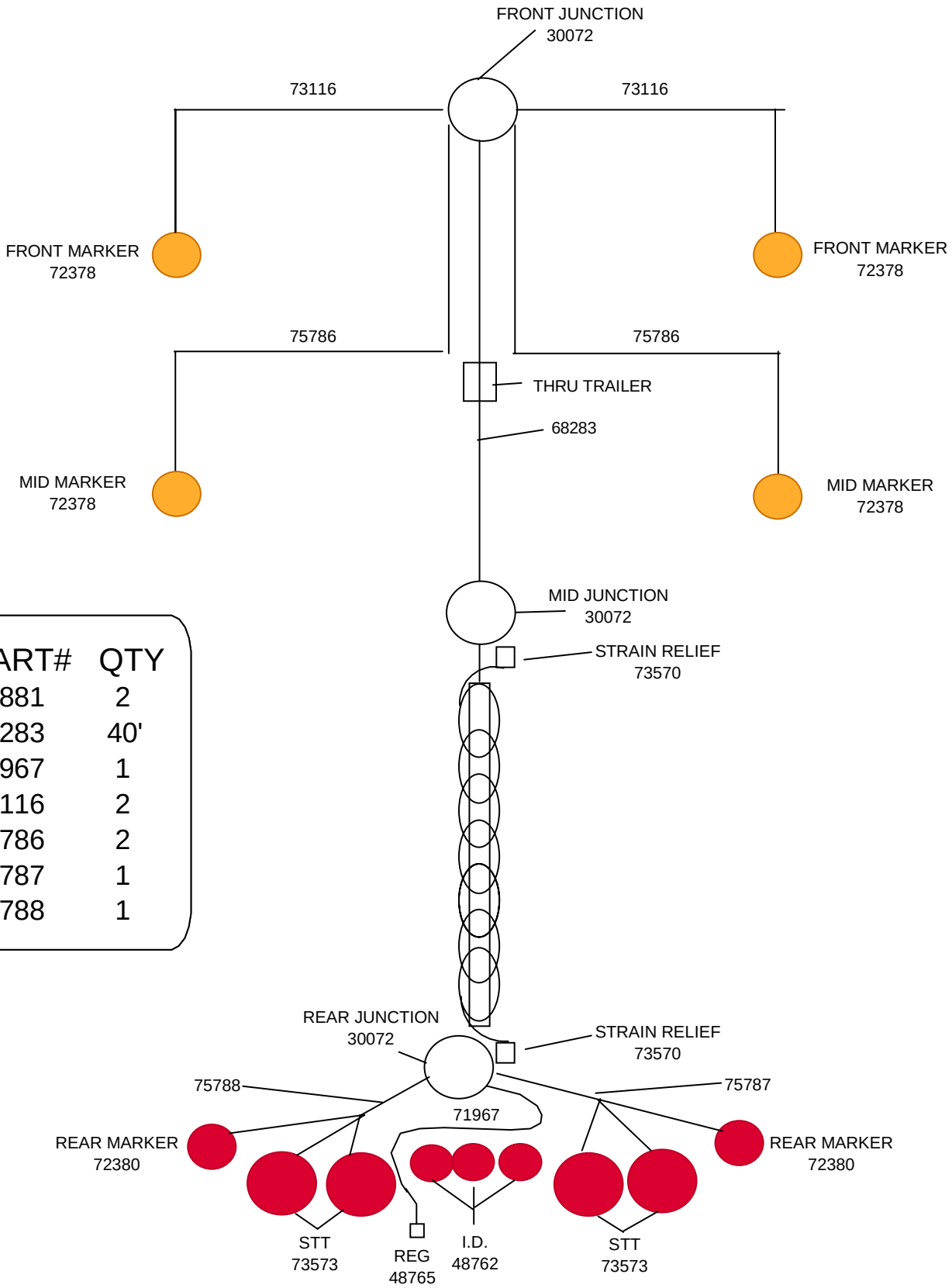




Rear Bushing/Rear roller support.
Lubricate Grease Zerk Every three to six months depending on climate.
Bronze bushings are “oil lite” style and do not need extra lubrication.
Use standard lithium grease.

Internal roller support.
Lubricate Grease Zerk Every three to six months depending on climate.
Use standard lithium grease.

Electrical Schematic



PART#	QTY
45881	2
68283	40'
71967	1
73116	2
75786	2
75787	1
75788	1

MARTIN LIMESTONE, INC.

SUBSIDIARY OF NEW ENTERPRISE STONE & LIME CO., INC.

BLUE BALL, PA. 17506

PLANT NAME & NUMBER: DENVER
PLANT NUMBER 08 PHONE (717) 354-1370

ORDER NO	TICKET NUMBER	DATE	TIME
	M SCALE 2 0836909	04/30/2008	9:05 AM

CUSTOMER ID	SOLD TO	SHIP TO
9025752 22 99	M G S INC 178 MUDDY CREEK CHURCH RD DENVER, PA 17517	STATE PA CITY ZONE

JOB SITE ID:

PRODUCT I.D.	PRODUCT DESCRIPTION
98125	WEIGHING

QUOTATION NO./CUSTOMER P.O.

- [ ] EXTRA CHARGE, PLOWED/NOT WORKED
- [ ] EXTRA CHARGE, LESS THAN 1 TON/ACRE

CUSTOMER PHONE NO.

TAG NO.	NO. AXLES	TRUCK NO.	CARRIER NAME	CARRIER CODE
	0	08		

Pick-up	Freight PPD	Freight Collect
XX		

CHARGE XX C.O.D. [ ]

US Weight	METRIC Weight		ACCUMULATIVE QUANTITIES			UNIT PRICE	TOTAL
4,520		Gross	Ordered		MATERIAL		
4,520		Tare	Today	Loads	HAUL		
		Net	To Date	Loads	ADD'L CHARGES		
			Accumulated Cash Sale		TAX		

WEIGHED BY: BRENDA J. TUCKER 020898

TOTAL THIS LOAD ▶

INSPECTORS SIGNATURE

JOB ARRIVAL TIME | JOB DEP'T TIME

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

X

A SERVICE CHARGE, NOT TO EXCEED THE MAXIMUM ALLOWABLE BY LAW, WILL BE APPLIED TO ALL AMOUNTS OVER 30 DAYS PAST DUE.

DELIVERY INFORMATION

00000000000

GSP 10004

TOTAL WEIGHT = 4520
AXLE WEIGHT = 3600

PLANT DIRECTORY

01 WEAVERLAND PLANT (717) 354-1370	03 VIOLA WAREHOUSE (302) 284-9151	06 BURKHOLDER PLANT (717) 354-1370	11 HONEY BROOK (610) 273-2921
02 LIMEVILLE PLANT (717) 354-1370	04 DELMAR WAREHOUSE (302) 284-9151	08 DENVER PLANT (717) 354-1370	12 NARVON PLANT (717) 354-4941

Your new trailer is warranted by MGS Inc. Please contact MGS Inc. for information and assistance with warranty related issues before attempting to repair any component of the trailer. Making repairs without authorization from MGS may void your warranty.

MGS inc.
178 Muddy Creek Church Rd.
Denver, PA 17517
1-800-952-4228
www.mgsincorporated.com

MGS 1-Year Limited Warranty

MGS Incorporated (Seller) hereby warrants, for a period of **ONE** years from the date of purchase, to the first buyer- purchaser (Purchaser) of a **MGS Trailer** manufactured by Seller (Product) that the Product shall be free from defects in material or workmanship, provided timely notice of any claim on this warranty is given to Seller by Purchaser. *Notice of any warranty claim shall be untimely if written notice of such claim is not given to Seller in writing within fifteen (15) days from the date Buyer has discovered or, with the exercise of reasonable diligence, would have discovered any such defect in material or workmanship giving rise to such warranty claim. Any claim for breach of warranty which is not timely made shall be deemed waived by purchaser.*

Provided that a timely notice of a warranty claim is made for a defect in material or workmanship rising during the warranty period. Seller shall repair or replace any defective Product or portion thereof, or, at its option, may refund the purchase price for the Product. All decisions concerning whether a Product or any portion thereof is defective and whether said defects should be repaired or the Product replaced, and the manner, method and extent of such repairs, shall be within the sole discretion of Seller. Any alteration or repair to a Product or any portion thereof made by Purchaser without the prior written approval of Seller shall be done at Buyer's own risk and expense and shall invalidate this warranty.

Seller makes no warranty in connection with any components provided with the Product subject to a separate manufacturer's warranty and any claim relating to such goods shall lie exclusively against the manufacturer of such goods.

This warranty is made in lieu of all other warranties, express, implied or statutory. **Seller expressly disclaims any warranty or merchantability or warranty of fitness for a particular purpose or use.**

The express warranty provided herein shall be Purchaser's sole and exclusive remedy for any defects in material or workmanship relating to Product. Under no circumstance shall Seller be liable to Purchaser or any other person for lost profits, additional expenses incurred in repairing or replacing the Product or any other special, incidental, indirect or consequential losses of damages of any kind. Purchaser shall have no claim under this warranty for ordinary wear and tear or for abuse, misuse, improper installation or maintenance or alteration of or repairs to the Product unless such repairs have been authorized in writing by Seller prior to said repair.

Notice of any claim under this warranty must be made in writing and sent to Seller by certified mail, return receipt requested addressed to: MGS Incorporated, Sales Department, 178 Muddy Creek Church Road, Denver, PA 17517.

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying MGS Inc.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or MGS Inc.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-800-424-9393(or 202-366-0123) or write to: NHTSA, U.S. Department of Transportation, 400 7th street, SW, NSA-11, Washington, DC 20590. You can also obtain other information about motor vehicle safety from the Hotline.