Model LT10A, LT12A, & LT14A Series
Tag Trailer
Operator's Manual

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F-876-1217 **12/2017**

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5 Troubleshooting Guide

Chapter 1

Introduction and Safety Information

Introduction

This manual provides operating, servicing, and maintenance instructions for Models LT10A, LT12A, & LT14A Series, manufactured by Landoll Corporation, Marysville, Kansas 66508.

CHAPTER 1	Gives basic instructions on the use of this manual and understanding the safety statements.
CHAPTER 2	Gives product specifications for the trailer, including measurements and component specifications. A Standard Bolt Torque Table is provided to give guidelines for bolt torques to be used when servicing this product.
CHAPTER 3	Gives instructions for the proper operation of the equipment.
CHAPTER 4	Gives general maintenance procedures, a maintenance schedule, and a lubrication schedule. Improper maintenance will void your warranty.

IF YOU HAVE ANY QUESTIONS CONTACT:
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CHAPTER 5	Is a troubleshooting guide to aid in diagnosing and solving problems with the trailer.
PARTS MANUAL	Is a separate manual showing the various assemblies, sub-assemblies, and systems. Refer to that manual when ordering Landoll replacement parts. Order parts from your Landoll dealer.
WARRANTY	The Warranty Registration form is included with the product documents. Fill it out and mail it within 15 days of purchase. **NOTE: IMPROPER ASSEMBLY, MODIFICATION, OR MAINTENANCE OF YOUR LANDOLL MACHINE CAN VOID YOUR WARRANTY.**
COMMENTS	Address comments or questions regarding this publication to:

LANDOLL CORPORATION
1900 NORTH STREET
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Understanding Safety Statements

You will find various types of safety information on the following pages and on the machine signs (decals) attached to the vehicle. This section explains their meaning.

The Safety Alert Symbol means ATTENTION! YOUR SAFETY IS INVOLVED!

DANGER

Danger means a life-threatening situation exists. Death can occur if safety measures or instructions on this label are not properly followed.

WARNING

Warning means serious injury or death can occur if safety measures or instructions on this label are not properly followed.

CAUTION

Caution means serious equipment or other property damage can occur if instructions on this label are not properly followed.

NOTE

Means that failure to follow these instructions could cause damage to the equipment or cause it to operate improperly.

NOTE

Make sure you read and understand the information contained in this manual and on the machine signs (decals) before you attempt to operate or maintain this vehicle.

The safety statements contained in this manual relate to the operation of the Models LT10A, LT12A, & LT14A Series.

Chapter 2

Standard Specifications

MODEL LT10A, LT12A, LT14A SERIES	
CAPACITY (FRAME DESIGN)	
MODEL: LT1016A, LT1016+4A, LT1020A	10,000 LBS.
MODEL: LT1216+4A, LT1220A	12,000 LBS.
MODEL: LT1420A, LT1422A	14,000 LBS.

OVERALL WIDTH	
ALL MODELS	8’-6”

WEIGHT	
LT1016A	3,150 LBS.
LT1016+4A, LT1020A	3,500 LBS.
LT1216+4A, LT1220A	3,700 LBS.
LT1420A, LT1422A (W/ Pintle Hitch)	4,350 LBS.
LT1420A & LT1422A (W/ Gooseneck Hitch)	5,520 LBS.

HITCH
STD - 2-5/16” Ball Hitch or 3” I.D. Pintle Eye
Option - Gooseneck W/ 2-5/16” Ball Hitch

DECK LENGTH	
LT1016A	16’ Flat Deck
LT1016+4A, LT1216+4A	16’ Tilt Deck + 4’ Stationary
LT1020A, LT1220A, LT1420A, LT1422A	20’ Tilt Deck

LOAD ANGLE	
LT1016A	12.4°
LT1016+4A, LT1020A, LT1216+4A, LT1220A	11.4°
LT1420A, LT1422A	12.1°

AIR RIDE SUSPENSION	
12” X 2” Electric Brake Mounting Nut	30 - 35 FT. LBS.
12-1/4” X 3-3/8” Electric Brake Mounting Nut	75 - 85 FT. LBS.
1/2” Diameter Wheel Nuts	90 - 120 FT. LBS.
5/8” Diameter Wheel Nuts	275 - 325 FT. LBS.

NOTE: For General Torque Specifications, Refer To Table 2-1.

General Torque Specifications (rev. 4/97)

TORQUE SPECIFIED IN FOOT POUNDS - This chart provides tightening torques for general purpose applications when special torques are not specified on process or drawing. Assembly torques apply to plated nuts and capscrews assembled without supplemental lubrication (as received condition). They do not apply if special graphite moly-disulfide or other extreme pressure lubricants are used. When fasteners are dry (solvent cleaned) add 33% to as received condition torque. Bolt head identification marks indicate grade and may vary from manufacturer to manufacturer. Thick nuts must be used on grade 8 capscrews. Use value in [ ] if using prevailing torque nuts.

UNC SIZE	SAE Grade 2		SAE Grade 5		SAE Grade 8		UNF SIZE	SAE Grade 2		SAE Grade 5		SAE Grade 8	
1/4-20	4	[5]	6	[7]	9	[11]	1/4-28	5	[6]	7	[9]	10	[12]
5/16-18	8	[10]	13	[13]	18	[22]	5/16-24	9	[11]	14	[17]	20	[25]
3/8-16	15	[19]	23	[29]	35	[42]	3/8-24	17	[21]	25	[31]	35	[44]
7/16-14	24	[30]	35	[43]	55	[62]	7/16-20	27	[34]	40	[50]	60	[75]
1/2-13	35	[43]	55	[62]	80	[100]	1/2-20	40	[50]	65	[81]	90	[112]
9/16-12	55	[62]	80	[100]	110	[137]	9/16-18	60	[75]	90	[112]	130	[162]
5/8-11	75	[94]	110	[137]	170	[212]	5/8-18	85	[106]	130	[162]	180	[225]
3/4/10	130	[162]	200	[250]	280	[350]	3/4-16	150	[188]	220	[275]	320	[400]
7/8-9	125	[156]	320	[400]	460	[575]	7/8-14	140	[175]	360	[450]	500	[625]
1-8	190	[237]	408	[506]	680	[850]	1-14	210	[263]	540	[675]	760	[950]
1-1/8-7	270	[337]	600	[750]	960	[1200]	1-1/8-12	300	[375]	660	[825]	1080	[1350]
1-1/4-7	380	[475]	840	[1050]	1426	[1782]	1-1/4-12	420	[525]	920	[1150]	1500	[1875]
1-3/8-6	490	[612]	1010	[1375]	1780	[2225]	1-3/8-12	560	[700]	1260	[1575]	2010	[2512]
1-1/2-6	650	[812]	1460	[1825]	2360	[2950]	1-1/2-12	730	[912]	1640	[2050]	2660	[3325]
1-3/4-5	736	[920]	1651	[2063]	2678	[3347]	1-3/4-12	920	[1150]	2063	[2579]	3347	[4183]

METRIC:
Coarse thread metric class 10.9 fasteners and class 10.0 nuts and through hardened flat washers, phosphate coated, Rockwell “C” 38-45. Use value in [ ] if using prevailing torque nuts.

Nominal thread diameter (mm)	Newton Meters (Standard Torque)		Foot Pounds (Standard Torque)		Nominal Thread Diameter (mm)	Newton Meters (Standard Torque)		Foot Pounds (Standard Torque	
6	10	[14]	7	[10]	20	385	[450]	290	[335]
7	16	[22]	12	[16]	24	670	[775]	500	[625]
8	23	[32]	17	[24]	27	980	[1105]	730	[825]
10	46	[60]	34	[47]	30	1330	[1470]	990	[1090]
12	80	[125]	60	[75]	33	1790	[1950]	1340	[1450]
14	125	[155]	90	[115]	36	2325	[2515]	1730	[1870]
16	200	[240]	150	[180]	39	3010	[3210]	2240	[2380]
18	275	[330]	205	[245]	-----	-----		-----	

Table 2-1: General Torque Specifications

Hydraulic Fitting Torque Specifications

TORQUE IS SPECIFIED IN FOOT POUNDS- 37° JIC, ORS, & ORB (REV. 10/97)

This chart provides tightening torques for general purpose applications when special torques are not specified on process or drawing. Assembly torques apply to plated nuts and capscrews assembled without supplemental lubrication (as received condition). They do not apply if special graphite moly-disulfide or other extreme pressure lubricants are used. When fasteners are dry (solvent cleaned) add 33% to as received condition torque. Bolt head identification marks indicate grade and may vary from manufacturer to manufacturer. Thick nuts must be used on grade 8 capscrews. Use value in [ ] if using prevailing torque nuts.

Parker Brand Fittings

Dash Size	37 Degree JIC	O-Ring (ORS)	O-Ring Boss (ORB)
-4	11-13	15-17	13-15
-5	14-16	-----	21-23
-6	20-22	34-36	25-29
-8	43-47	58-62	40-44
-10	55-65	100-110	58-62
-12	80-90	134-146	75-85
-16	115-125	202-218	109-121
-20	160-180	248 -272	213-237
-24	185-215	303-327	238-262
-32	250-290	-----	310-340

Gates Brand Fittings

Dash Size	37 Degree JIC	O-Ring (ORS)	O-Ring Boss (ORB)
-4	10-11	10-12	14-16
-5	13-15	-----	-----
-6	17-19	18-20	24-26
-8	34-38	32-40	37-44
-10	50-56	46-56	50-60
-12	70-78	65-80	75-83
-14	-----	65-80	-----
-16	94-104	92-105	111-125
-20	124-138	125-140	133-152
-24	156-173	150-180	156-184
-32	219-243	-----	-----

Aeroquip Brand Fittings

Dash Size	37 Degree JIC	O-Ring (ORS)	O-Ring Boss (ORB)
-4	11-12	10-12	14-16
-5	15-16	-----	16-20
-6	18-20	18-20	24-26
-8	38-42	32-35	50-60
-10	57-62	46-50	75-80
-12	79-87	65-70	125-135
-14	-----	-----	160-180
-16	108-113	92-100	200-220
-20	127-133	125-140	210-280
-24	158-167	150-165	270-360
-32	245-258	-----	-----

Table 2-2: Hydraulic Fitting Torque Specifications

Chapter 3

Operating Instructions

General

This section supplies information for operation of the trailer. It describes and locates controls, and gives general operation procedures. Read all instructions, warnings, cautions, and danger notes before attempting to operate the trailer. Operators must have proper training before operating the trailer.

IMPORTANT

The trailer is wired according to Figure 3-1. Be sure the truck electrical matches, to eliminate any potential electrical problems.

WARNING

Do not operate the semitrailer with any known fault that might endanger the occupants, nearby workers, other traffic, the load, or the equipment.

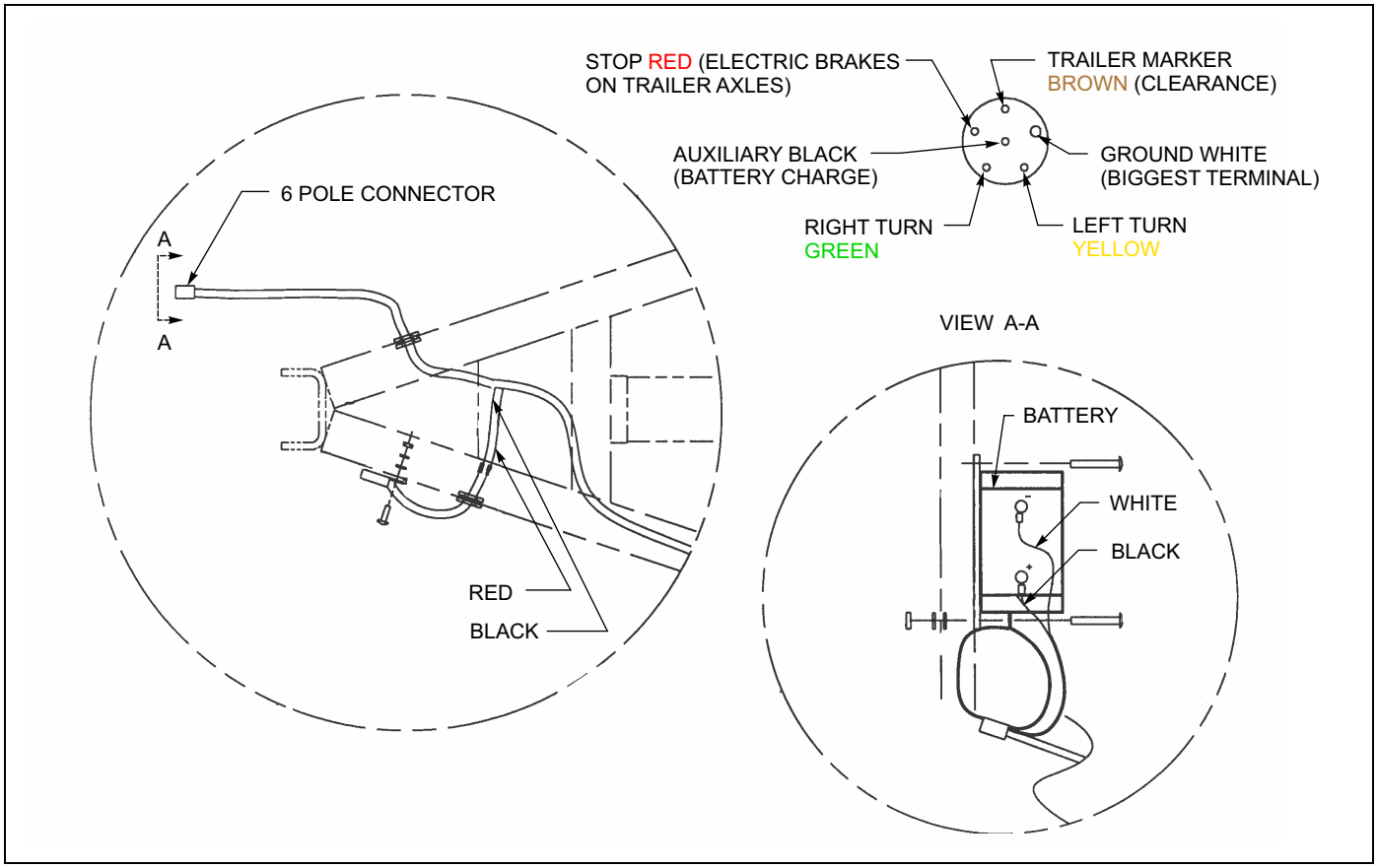

Figure 3-1: Electrical Diagram

Pre-Coupling of Trailer and Truck

1. Slowly back the truck (towing vehicle) up to the front end of the trailer so the hitch of the trailer is centered with the truck. Stop the towing vehicle just inches ahead of the trailer. Set truck parking brake.
2. The hitch on the trailer can be adjusted to different heights. Make sure the hitch height is at the correct height so the trailer deck is about parallel to the ground when loaded.
3. If the trailer hitch needs some adjustment to connect to the truck, manually raise or lower the front of trailer by cranking the landing gear (parking stands) up or down until the proper height has been obtained.
4. Connect electrical receptacle to the truck.
5. Apply brakes and inspect brake action on all wheels for prompt application.

Coupling of the Towing Vehicle to the Trailer

DANGER

Keep all personnel clear of front, rear, and sides of towing vehicle and trailer during coupling, component operations, and uncoupling. Failure to stay clear can result in serious personal injury or death.

1. Verify the trailer wheels are chocked and brakes function properly.
2. Make sure the towing vehicle's coupler is open.

CAUTION

Pushing the trailer backwards can damage landing gear.

3. Slowly back the towing vehicle so the hitch contacts the trailer hitch. Make sure the hitch is centered and will properly connect up. Set the vehicle brakes.
4. Raise the landing gear (parking stands) and lock the hitch in place.

IMPORTANT

Keep brakes engaged for remainder of hookup, checkout procedures, and for parking.

Towing Vehicle and Trailer Hook-up and Check-out

WARNING

Failure to properly set and check parking brake, and chock wheels when parking and during storage, could allow movement of the truck/trailer resulting in serious personal injury, death, or damage to property in its path.

1. Connect the electrical receptacle on the front of the trailer to the towing vehicle.

IMPORTANT

The key on the plug and the keyway in the socket must be properly aligned before inserting the plug into the trailer socket.

2. Assure landing gear is raised up all the way.
3. Attach safety chains from the trailer to the towing vehicle.
4. For electric brake breakaway system, attach brake breakaway cable to towing vehicle. Allow slack in cable for turning. Make sure breakaway battery is charged and breakaway system is working properly.

WARNING

Make sure electric and surge brake breakaway cable is connected for protection while traveling. Failure of cable connection will constitute no emergency braking system in the event that the trailer is separated from the towing vehicle. This may result in serious personal injury, death, or damage to property.

5. For trailers with surge brakes, connect breakaway chain s-hook to towing vehicle. Allow slack for turning, but avoid letting chain drag on pavement. Provide as straight a connection as possible.
6. For trailers with surge brakes, sway control devices that restrict operation of the actuator cannot be used. The actuator must be free to telescope in response to braking requirements.
7. Check your maintenance schedule and be sure everything is up-to-date.
8. Set parking brake and carefully remove all wheel chocks. If brakes are not properly set, the truck/trailer may roll when removing wheel chocks.

Towing the Trailer

1. Driving the towing vehicle with the trailer coupled behind requires constant attention to the overall length of the combination. Turning, passing, acceleration, braking, stopping, and back-up require special attention to the “hinged-in-the-middle” configuration of the trailer. When executing steep grades or turning tight curves, the trailer must not be allowed to push the towing vehicle, or jackknifing the trailer with the towing vehicle may result. Application of the trailer brakes to keep the trailer in tow will help prevent this pushing. Braking should begin before descending a hill or attempting a curve, to assure control.
2. Make a moving test of the trailer brakes at low, and medium speeds before traveling at highway speed.
3. The trailer wheels track to the inside of the towing vehicle during turns. Thus, turning corners requires a wide swing to prevent “curb hopping”, and to allow the trailer wheels to clear any obstacle on the inside of the corner.
4. To stop, use a gradual and smooth application of brakes. If grabbing occurs, apply less pressure. Grabbing brakes are not efficient.
5. During any extended stop period, use wheel chocks to secure the vehicle from moving.

DANGER

Always check behind and under the truck and trailer for persons or objects before moving. Failure to check can lead to serious, or damage to property.

6. Backing should be done with care. Tail overhang, trailer length, and allowable space must be taken into consideration. For trailers with surge brakes, backing up a steep incline or backing up fast can cause the actuator to apply the brakes. The brakes cannot be expected to hold the trailer without pressure on the hitch to activate the actuator.
7. The load on the trailer should be positioned so a minimum of 8% of the total weight is on all the LT series trailers. The maximum of the total weight on the hitch for the LT10A series shall be 30%. The maximum of the total weight on the hitch of the LT12A and LT14A series shall be 25%.

Parking the Trailer

1. Position truck/trailer on a level, solid surface.
2. Chock wheels of trailer.

IMPORTANT

Electric brake and surge brake trailers do not have a parking brake.

Uncoupling Towing Vehicle From Trailer

1. Park the trailer according to instructions in **“Parking the Trailer” on page 3-3.**
2. Lower the landing gear to the ground using the manual crank on the trailer.
3. With electric brake trailers, disconnect the brake breakaway cable. Disconnect the electrical cable and store so end is not on the ground.
4. With surge brake trailers, disconnect the breakaway chain. Disconnect the electrical cable and store so end is not on the ground.
5. Disconnect safety chains from the towing vehicle.
6. Verify that all service lines are disconnected and trailer wheels are chocked.
7. Unlock hitch and raise trailer hitch by cranking landing gear down until the hitch is in a position to be disconnected.
8. Pull towing vehicle away from the trailer.

Loading the Trailer

1. Practice all standard industrial safety standards. Do not load any payload that will overload any component of the trailer or cause an unsafe condition.

WARNING

Do not attempt to load or unload trailer without checking to make sure nothing is in the way when the bed is tilted. Property damage, personal injury or death is possible if in the path of the tilting bed.

2. Ensure maintenance schedule is up-to-date and trailer is ready to be pulled.
3. Park towing vehicle and trailer on relatively level ground.
4. Unlock the over-center hold-down latch located at the front of the bed. Swing the latch u-bolt forward far enough that it will clear the bed anchor.
5. Keeping feet from under trailer where they can become pinched, step on the back of the trailer until the back of trailer rests firmly on the ground.
6. Slowly drive the load onto the trailer until the center of gravity of the load is just slightly in front of the pivot point of the bed and stop until the bed slowly lowers down to the transport position. After the bed has completely lowered, then drive the load on forward until the load center of gravity is centered from side to side and so between 8% and 25% of the total weight of trailer plus payload is on the hitch.
7. Some of the trailers have a load holding valve on them. When the valve knob is screwed shut, it will keep the trailer deck in the tilted position once it is tilted. This feature will allow the trailer to be loaded and stay tilted even if the load center of gravity goes past the pivot point. When the load center of gravity is secured in front of the pivot point, the load holding valve knob can be slowly opened to allow the bed to tilt slowly down into road position.

IMPORTANT

This valve does not keep bed from tilting up even when shut off.

8. Secure the load using approved standard tie-down methods.
9. Lock the bed down with the over-center hold-down latch located at the front of the bed.

Unloading the Trailer

1. Practice all standard industrial safety standards.

WARNING

Do not attempt to load or unload trailer without checking to make sure nothing is in the way when the bed is tilted. Property damage, personal injury or death is possible if in the path of the tilting bed.

2. Park towing vehicle and trailer on relatively level ground.
3. Set towing vehicle's brakes.
4. Unlock the over-center hold-down latch located at the front of the bed. Swing the latch u-bolt forward far enough that it will clear the bed anchor.
5. Making sure the payload will not roll in any direction, remove the payload tie-downs. Make sure nothing is in the path of the tilting bed.
6. Slowly drive the load back until the center of gravity is just slightly back of the pivot point of the bed and stop until the bed slowly lowers down to the ground. After the bed has completely tilted down to the ground, drive the load off the trailer far enough that the bed will not hit it when tilted back down.
7. Lower the bed back down to the transport position by walking up the bed far enough that the bed tilts back down.
8. Lock the bed down with the over-center hold-down latch located at the front of the bed.

Cold Weather Operation

1. Cold weather causes lubricants to congeal, insulation and rubber parts to become hard, which may lead to problems found in bearings and electrical systems. Moisture attracted by warm parts can condense, collect and freeze to immobilize equipment. The truck/trailer operator must always be alert for indicators of cold weather malfunctions.
2. Check all structural fasteners, gaskets, seals and bearings for looseness that can develop due to contraction with cold. Do not over-tighten.
3. Check tire inflation. Tire inflation decreases when the temperature decreases.

Hot Weather Operation

1. Hot weather operation can cause expansion of parts, resulting in tightening of bearings, fasteners, and moving parts. Failure of gaskets or seals can occur.
2. The trailer should be parked in the shade if possible. Long exposure to the sun will shorten service life of rubber components (i.e., tires, light and hose grommets, hoses, etc.) and paint life.
3. Check tire pressure early in the day before beginning operations while the tire is cool. Put all valve stem caps back on after checking.
4. If the area is extremely humid, protect electrical terminals with ignition insulation spray. Coat paint and bare metal surfaces with an appropriate protective sealer.

Table provided for general use.

NOTES:

Chapter 4

Maintenance and Lubrication

General

This section contains instructions necessary for proper maintenance of the trailer. The trailer is designed for years of service with minimal maintenance. However, proper maintenance is important for durability and safe operation and is an owner/user responsibility.

Maintenance Schedule

Trailer maintenance includes periodic inspection and lubrication. **Table 4-2** lists the recommended maintenance and lubrication tasks by time interval and by accumulated mileage (use whichever occurs first).

Inspection

DANGER

Operating the truck or trailer with defective, broken or missing parts may result in serious injury or death, damage to the truck/trailer, its cargo, or property in its path.

1. Inspect the towing vehicle, the trailer, and trailer parts periodically for damage or signs of pending failure. Damaged or broken parts must be repaired or replaced at once. Determine the cause of any binding, at once. Correct the problem before using the towing vehicle or trailer.

Lubrication

See Table 4-1 for lubricant required for axles. During inspections of the trailer, if lubricants are found to be fouled with dirt or sand, those parts should be cleaned with solvent, dried, and relubricated immediately. Dirt in a lubricant forms an abrasive compound that will wear parts rapidly.

WARNING

Paint thinner and other solvents are flammable and toxic to eyes, the skin, and respiratory tract. Avoid skin and eye contact. Good general ventilation is normally adequate. Keep away from open flames or other combustible items.

LUBE	SEASON	BRAND & PRODUCT (WEIGHT AND/OR TYPE)				
		EXXON	MOBIL	PHILLIPS 66	TEXACO	SHELL
1	ALL YEAR	NUTO H 32	DTE 24	Mega Flow HVI 32 SAE 5W-20	Rando HD 32	Tellus T 32
2	ALL YEAR	-----	-----	-----	-----	Aeroshell 64MS
3	ALL YEAR	-----	-----	76 Moly Low Temp Grease	-----	-----
4	SUMMER	-----	Mobilube HD SAE 85W-140	-----	-----	-----
4	WINTER	-----	Mobilube 1 SHC SAE 75W-90	-----	-----	-----
5	SUMMER	-----	Mobilgear 600XP460	-----	-----	-----
5	WINTER	-----	Mobilgear 600XP100	-----	-----	-----
6	ALL YEAR	Beacon EP	Mobilux EP	Mulitiplex Red	Multifak EP	Alvania EP
7	ALL YEAR	Teresstic 32	DTE Light	Condor 32 or Magnus 32	Regal Oil R&O 32	Turbo T 32
8	ALL YEAR	Gear Oil GX SAE 80W-90	Mobilube HD SAE 80W-90	Superior MP SAE 80W-90	Multi-gear EP SAE 80W-90	Spirax A SAE 80W-90
9	ABOVE 0°	Super Flow 10W-30	Drive Clean 5000 10W-30	Kendall Synthetic Blend 10W30	Havoline 10W-30	Formula Shell 10W-30
9	BELOW 32°	Super Flow 5W-20, 5W-30	Drive Clean 5000 5W20 or 7500 5W30	Kendall Synthetic Blend 5W-20, 5W-30	Havoline 5W-20, 5W-30	Formula Shell 5W-20, 5W30

Table 4-1: Lubrication Specifications

NORMAL OPERATING SERVICE INTERVALS								
ITEM	Before Every Use	1st 5 Hours or 50 Miles	Weekly or 500 Miles	Monthly or 2,000 Miles	6 Months or 12,000 Miles	Yearly or 25,000 Miles	LUBE #	NOTES
LIGHTS		I	I					
WIRING & CONNECTIONS		I		I				
FASTENERS		I,T		I				b
BRAKE ADJ & WEAR				I,T				d
WHEEL BEARINGS		I			I,T,L			c
TIRE INFLATION & WEAR			I					e
WHEEL LUG NUTS		I,T	I	I,T				f
BATTERY & BREAKAWAY FOR ELECTRIC BRAKES			I					
HYDRAULIC CUSHION CYLINDER OIL						R	1	g
ROLLERS IN SURGE BRAKE HITCH				L				c
BRAKE FLUID RESERVOIR IN SURGE BRAKE	I							h

I - Inspect, R - Replace, T - Tighten/Adjust Torque, L - Lubricate, C - Clean

a. Perform at the time shown. Shorten service intervals when operating in severe or dirty conditions.
b. **See Table 2-1 and 2-2** for correct torque specifications.
c. **See Table 4-1** for recommended lubricant.
d. Call Landoll Customer Services or consult axle manual for procedures to replace.
e. See Serial Number Plate on the front of trailer for proper inflation requirements.
f. See axle manual for stud tightening sequence.
g. **See Table 4-3** for hydraulic oil.
h. Reservoir must be at least half full to within 3/8” below top of the reservoir with DOT 3 brake fluid.

Table 4-2: Maintenance Schedule

SEASON	BRAND & PRODUCT (WEIGHT AND/OR TYPE)				
	EXXON	MOBIL	PHILLIPS 66	TEXACO	SHELL
ALL YEAR	NUTO H 32	DTE 24	Mega Flow HVI 32 SAE 5W-20	Rando HD 32	Tellus T 32

Table 4-3: Approved Sources for Hydraulic Oil

Maintenance Procedures

Repair Parts

Repair parts are illustrated and listed in the parts manual. Replacement of parts due to wear is determined by examination and measurement.

Tools and Equipment

Tools, equipment, and personnel normally found in a facility capable of making truck repairs will be adequate for maintenance of the trailer. No other special tools or equipment should be necessary.

Standard Torque Values

Table 2-1 and Table 2-2 list torque values for standard hard-ware and is intended as a guide for average applications involving typical stresses and mechanical surfaces. Values are based on the physical limitations of clean, plated, and lubricated hardware. In all cases, when an individual torque value is specified, it takes priority over values given in this table. Replace original fasteners with hardware of equal grade.

Cleaning

1. Wash trailer to remove all accumulated dirt and grime.
2. Use any mineral spirits paint thinner (or its equivalent) to remove grease and oil from all parts of the trailer. Rinse degreasing solution off with cold water.
3. Inspect semitrailer for cause of any reported troubles.

WARNING

Paint thinner and other solvents are flammable and toxic to eyes, skin, and respiratory tract. Avoid skin and eye contact. Good general ventilation is normally adequate. Keep away from open flames or other combustible items.

4. Scrape, sand, prime, and repaint areas where finish is missing or where there is evidence of corrosion.
5. Replace any missing or illegible decals. Replace any missing or damaged reflective tape.
6. Use **“Troubleshooting Guide” on page 5-1** to check for “SYMPTOMS” AND “PROBLEMS” of any trailer system not functioning correctly, or where wear, distortion, or breakage can be found. Administer “REMEDY” according to right-hand column of Troubleshooting guide.
7. After disassembling any components, thoroughly clean dirt and old lubricant from all parts. Do not use a wire brush on any bearing parts or surfaces — use a stiff bristle brush. Do not use compressed air, or spin bearing parts when cleaning. These practices can throw solvents, dirt, or metal particles into your eyes. Dry clean parts with lint free, clean, soft, absorbent, cloth or paper. Wash and dry hands.
8. Inspect seals, seal wiping surfaces, bearing caps, and bearing cones for wear, pitting, chipping, or other damage.

Frame and Decks

The trailer should be thoroughly checked daily for cracks or material fatigue. Cracks will normally show best under loaded conditions. If any cracks or breaks are found, immediately contact Landoll Corporation for recommended repair. Any defective parts must be replaced immediately.

Electrical System

1. Maintenance of the electrical system consists of inspection and minor servicing. Any wire, connection or electrical component showing signs of corrosion, wear, breakage or unraveling must be repaired or replaced.
2. Frayed or unraveling wire must have the defective section removed and replaced with wire of the same color and gauge. Seal all connections and insulate.
3. Corroded terminals must have the corrosion removed, source of corrosion neutralized and the terminals resealed, protected and insulated.
4. Fuse or circuit breaker burn-out or “blow-out” usually indicates an electrical short-circuit, although a fuse can occasionally fail from vibration. Insert a second fuse or reset the breaker. If this fuse immediately burns out or the breaker trips, locate the cause of the electrical short and repair.
5. Lights with a repeated lamp burn-out usually indicates a loose connection, poor system ground, or a malfunctioning voltage regulator. Locate the source of the problem and repair. System grounds must be grounded to bare metal surfaces. Paint, grease, wax, and other coatings act as insulators. Replacement lamps must be equivalent to the factory installed lamp.

Brake System Maintenance

Follow operation maintenance service manual from brake and axle manufacturer. If another manual is required, it may be obtained by requesting Landoll p/n 107482.

Hub and Drum Maintenance

Follow operation, maintenance, service manual from hub and drum vendor that comes with each trailer. If another manual is required, it can be obtained by requesting Landoll p/n 107482.

Wheel Bearing

Use vendor manual for electric or hydraulic brake parts and recommendations. If another manual is required, it can be obtained by requesting Landoll p/n 107482.

Suspension Maintenance

Use vendor manual for suspension parts and recommendations. If another manual is required, it can be obtained by requesting Landoll p/n 107482.

Tires

Tire Inflation

Tire inflation will cause tire to ground contact characteristics as shown in **Figure 4-1.** Tire inflation should be checked daily while the tire is cold, and during road stops. Checking the tire pressures while tires are hot will give a faulty increased pressure reading. Adjusting tire air pressure to the specified amount while tires are hot will produce improper tire to road contact and thus abnormal wear. Do not exceed cold inflation pressure listed on the trailer VIN plate. Exceeding cold inflation pressure will result in damaged tire bodies, rims, and wheels. Replace all valve stem caps when pressure checking/adjusting has been completed.

Wheels

Use vendor manual for wheels and recommendations. If another manual is required, it can be obtained by requesting Landoll p/n 107482.

Hydraulic Cushion Cylinder

1. Maintenance of the hydraulic cushion cylinder consists of replacing hydraulic oil according to maintenance schedule.
2. Check troubleshooting section if hydraulic cushion cylinder is not operating.
3. The amount of hydraulic oil required is about one quart. With the hydraulic cylinder all the way retracted, the hydraulic cylinder, hydraulic hose, and hydraulic fittings should be completely full of oil before putting the plug into the tee.
4. If the unit has the flow control valve on it, the system will require about a gallon of oil. All the air has to be out of the system for the flow control valve to work correctly **(See “Hydraulic System W/ Flow Control Valve Filling Method” on page 4-7.)**

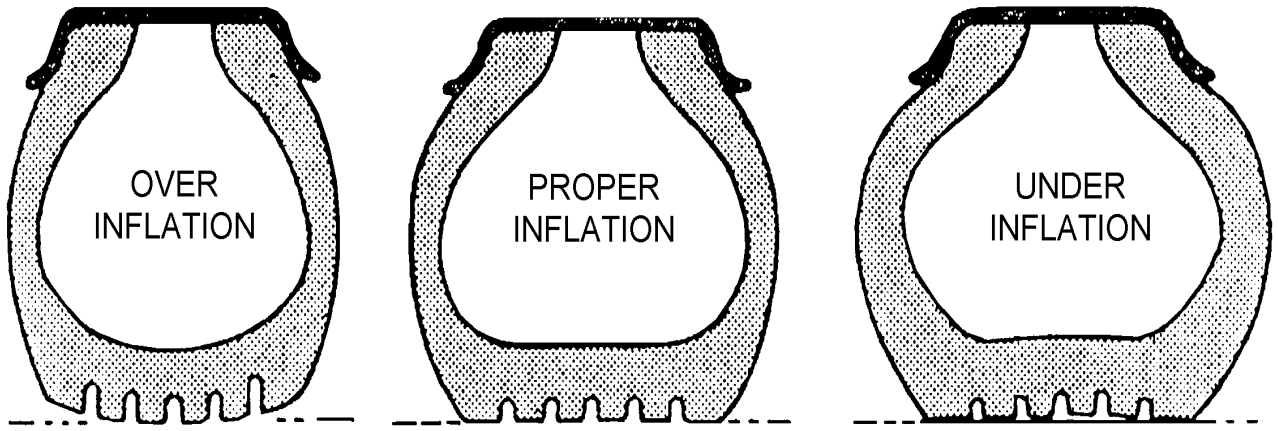

Figure 4-1: Tire Inflation Examples

Hydraulic System W/ Flow Control Valve Filling Method

1. Make sure flow control valve and diaphragm reservoir are plumbed correctly **(See Figure 4-2.)** Open flow control valve. With cylinder retracted, connect a hydraulic tank that can be pressurized to tee at butt end of cylinder. Crack open fitting at diaphragm reservoir to let air out. Apply air pressure to hydraulic tank to force hydraulic oil through the hoses. When oil starts coming out of fitting at diaphragm reservoir, crack open fitting at rod end of cylinder and slowly extend rod of cylinder. When oil starts coming out fitting at cylinder close fitting at diaphragm reservoir and crack open other fittings at flow control valve to get air out of them. Allow oil to come out of them for a half minute, then close all fittings.
2. Shut off air pressure to hydraulic tank and remove fill cap. Retract rod of cylinder. Make sure tank has plenty of oil. Install fill cap and apply air pressure again. Crack open fitting at diaphragm reservoir and extend cylinder rod slowly. Allow oil to come out fitting at least a couple minutes and longer if air keeps coming out. When air stops coming out, close that fitting and open other fittings at flow control valve to assure no air is at them. Close them and crack open fitting at rod end of cylinder and allow oil to come out for a couple minutes or until no air comes out with the oil. To assure all air gets out, repeat this step.
3. Shut off air pressure to hydraulic tank and remove fill cap. Retract cylinder rod 6” (It should be extended 10”). Disconnect hydraulic tank at tee and plug tee. Connect cylinder to bed. Shut flow control valve. The bed should tilt up, but not come back down more than an inch. Open the flow control valve and the bed should come down slowly.
4. If the system does not work properly, check the following:
   a. Make sure flow control valve is installed as shown in **Figure 4-2.**
   b. Make sure hoses go to correct locations as shown in **Figure 4-2.**
   c. Make sure diaphragm reservoir does not have a plug in end that would not let air go freely in and out of bladder.
   d. Repeat Steps 1-3 to remove air from hydraulic system.
   e. Replace flow control valve.

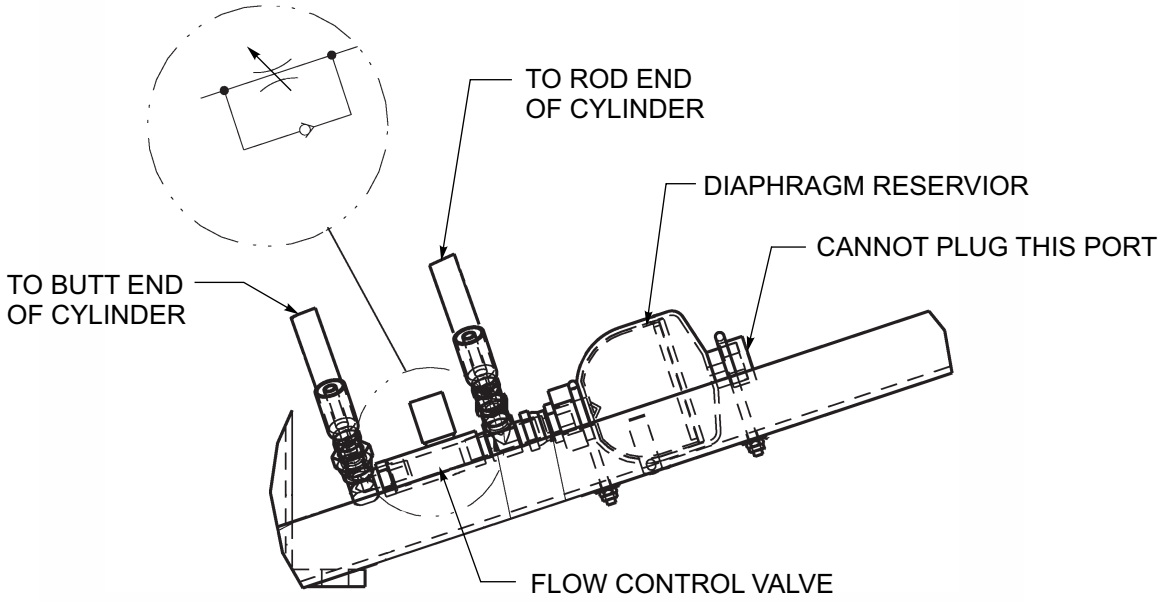

Figure 4-2: Flow Control Valve Installation

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Chapter 5

Troubleshooting Guide

Troubleshooting should be performed by a trained and competent technician. Landoll Corporation is not responsible for equipment that is improperly maintained. Contact an authorized Landoll dealer or the Landoll Service department for service questions.

Electrical

Most electrical system problems show up as a burned out light or fuse, or inoperative electrical component. Wiring, grounds or components may be at fault. Locate the symptom in this section that best identifies your electrical problem. Check out each possible problem under that symptom. If the problem cannot be located, see an automotive electrical specialist. For maintenance procedures, see **"Electrical System" on page 4-5.**

PROBLEM	PROBABLE CAUSE	SOLUTION
NO LIGHTS	Fuse blown	Replace fuse
	Loose Connection at plug-in	Tighten connection
	Broken or corroded wires	Replace wire
	Ground wire loose	Clean and tighten ground
LIGHTS FLICKERING	Wires shorted or loose	Locate, insulate, replace, or tighten
LIGHTS DIM	Voltage difference between trailer and tractor	Tractor supply wire or circuit components too low capacity Enlarge wire or component, match bulbs with tractor voltage
LIGHTS BRIGHT AND BURN OUT	Voltage difference between trailer and tractor	Tractor supply wire or circuit components too low capacity Enlarge wire or component, match bulbs with tractor voltage
	Ground wire disconnected	Self-explanatory
FUSE BLOW-OUT OR CIRCUIT BREAKER TRIPPING	Vibration	Locate source of vibration and repair
	Short circuit	Replace fuse and try all accessories If fuse blows right away, locate short and repair
LAMP BULB BURN OUT	Vibration	Locate source of vibration and repair
	Short circuit	Replace fuse and try all accessories If fuse blows right away, locate short and repair
	Loose connection	Check lamp sockets and ground connections
	Intermittent short	Locate short and repair
	Improper voltage	Check voltage regulator output

Tires - Wheels - Suspension

Most tire, wheel, and suspension related problems are due to excessive loads, extreme conditions, and improper maintenance. Tire, wheel, and suspension problems can be easily detected and solved by checking the following guide. For maintenance procedures, refer to the following sections:

- **“Hub and Drum Maintenance” on page 4-5**
- **“Wheel Bearing” on page 4-5**
- **“Suspension Maintenance” on page 4-5**
- **“Tires” on page 4-6**
- **“Wheels” on page 4-6**

PROBLEM	PROBABLE CAUSE	SOLUTION
VIBRATIONS WHILE DRIVING	Improper tire inflation	Inflate to proper pressure **(See “Tire Inflation” on page 4-6)**
	Tires cupped or have flat spots	Replace tires
	Wheels bent or loose	Replace or tighten
	Tires incorrectly mounted	Remount
	Mud in wheels	Clean wheels
	Tire(s) out of balance	Balance tires
	Brakes dragging	Locate cause and repair
RAPID TIRE WEAR/DETERIORATION:		
CENTER TREAD WEAR	Over inflation	Deflate to correct inflation **(See “Tire Inflation” on page 4-6)**
SHOULDER TREAD WEAR - BOTH SHOULDERS	Under inflation	Increase inflation to correct PSI Check axle alignment **(See “Tire Inflation” on page 4-6)**
	Overload	Loads are above rated tire capacity DO NOT load above rated tire capacity
SHOULDER TREAD WEAR - ONE SHOULDER	Axle damage	Straighten or replace axle
	Axles not parallel	Check axle alignment
OVERALL TREAD WEAR	Overloading	Check tire load rating
	High speeds	Adjust speed according to road and load conditions
TIRE FLAT SPOTS	Quick stops	Adjust braking practices
	Grabbing brakes	Adjust brakes properly
	Worn or loose wheel bearings	Adjust or replace as needed
	Out of balance wheels and tire	Balance wheels and tires
UNEVEN WEAR	Suspension bushings worn	Replace bushings
	Worn or loose wheel bearings	Adjust or replace as needed
	Out of balance wheels and tires	Balance wheels and tires
RIM FAILURE*		
CRACKING	Overinflated tires	Deflate tire to proper PSI
	High speeds	Adjust speed according to road and load conditions
	High speed cornering	Adjust cornering practices
	Over loading	Check rim load rating

PROBLEM	PROBABLE CAUSE	SOLUTION
***IN ALL INSTANCES OF RIM FAILURE, REPLACE THE RIM IMMEDIATELY!**		
BENDING OR WARPING	Curb-hopping or potholes	Adjust turning practices and adjust speed accordingly with road conditions
	Improper tightening sequence	Follow proper tightening sequence
***REPLACE BROKEN STUDS BEFORE USING THE SEMITRAILER!**		
BROKEN STUDS*	Over tightening	Use correct torque when mounting **(See Table 2-1)**
TRAILER TRACKING PROBLEMS:		
TRACKS TO ONE SIDE	Axle alignment	Re-align axle
TRACKS TO EITHER SIDE	Broken or bent axle parts	Replace axle

Electric Brakes

For maintenance procedures, see **“Brake System Maintenance” on page 4-5.**

PROBLEM	PROBABLE CAUSE	SOLUTION
NO BRAKES	Open Circuits	Find and correct
	Severe Underadjustment	Adjust brakes
	Faulty Controller	Test and correct
	Short Circuits	Find and correct
WEAK BRAKES	Grease or Oil on Magnets or Linings	Clean or replace
	Corroded Connections	Clean and correct cause of corrosion
	Worn Linings or Magnets	Replace
	Scored or Grooved Brake Drums	Machine or replace
	Improper Synchronization	Correct
	Underadjustment	Adjust brakes
	Glazed Linings	Reburnish or replace
	Overloaded Trailer	Reduce to within load restrictions
LOCKING BRAKES	Underadjustment	Adjust brakes
	Improper Synchronization	Correct
	Faulty Controller	Test and correct
	Loose, Bent, or Broken Brake Components	Replace components
	Out-of-Round Brake Drums	Machine or replace
	Insufficient Wheel Load	Adjust system resistor and synchronize
INTERMITTENT BRAKES	Faulty Controller	Test and correct
	Broken Wires	Repair or replace
	Loose Connections	Find and repair
	Faulty Ground	Find and repair
BRAKES PULL TO ONE SIDE	Wrong Magnet Lead Wire Color	Correct
	Incorrect Adjustment	Adjust
	Grease or Oil on Magnets or Linings	Clean or replace
	Broken Wires	Repair or replace
	Bad Connections	Find and repair
HARSH BRAKES	Underadjustment	Adjust brakes
	Improper Synchronization	Correct
	Improper Controller	Change
	Faulty Controller	Test and correct
NOISY BRAKES	Underadjustment	Adjust brakes
	Broken Brake Components	Replace components
	Incorrect Brake Components	Correct
SURGING BRAKES	Grease or Oil on Magnets or Linings	Clean or replace
	Out-of-Round Brake Drum	Machine or replace
	Faulty Controller	Test and correct

PROBLEM	PROBABLE CAUSE	SOLUTION
DRAGGING BRAKES	Over-adjustment	Readjust
	Out-of-Round Brake Drums	Machine or replace
	Incorrect Brake Components	Replace
	Loose, Bent, or Broken Brake Components	Replace components
	Faulty Breakaway Switch	Repair or replace
	Broken Wires	Repair or replace
	Loose Wheel Bearing Adjustment	Adjust
	Bent Spindle	Replace axle

Surge Hydraulic Brakes

For maintenance procedures, see **"Brake System Maintenance" on page 4-5.**

PROBLEM	PROBABLE CAUSE	SOLUTION
NO BRAKES	Severe Underadjustment	Adjust brakes
	Broken Surge Brake Components	Find and replace
	Broken Hydraulic Line	Find and replace
	No Brake Fluid	Fill per maintenance schedule
	Operation of Actuator Hampered	Remove devices or obstructions that prevent the actuator from being free to telescope in response to braking requirement
WEAK BRAKES	Worn Brake Linings	Replace
	Scored or Grooved Brake Drums	Machine or replace
	Underadjustment	Adjust brakes
	Glazed Linings	Reburnish or replace
	Overloaded Trailer	Reduce to within load restrictions
LOCKING BRAKES	Underadjustment	Adjust brakes
	Breakaway accidentally applied	Pry the breakaway locks apart to release lever
	Loose, Bent, or Broken Brake Components	Replace components
	Out-of-Round Brake Drums	Machine or replace
INTERMITTENT BRAKES	Operation of actuator hampered	Find obstructions or broken parts and repair
BRAKES PULL TO ONE SIDE	Incorrect Adjustment	Adjust
	Grease or Oil on Linings	Clean or replace
HARSH BRAKES	Underadjustment	Adjust brakes
NOISY BRAKES	Underadjustment	Adjust brakes
	Broken Brake Components	Replace components
	Incorrect Brake Components	Correct
SURGING BRAKES	Grease or Oil on Linings	Clean or replace
	Out-of-Round Brake Drum	Machine or replace
DRAGGING BRAKES	Over-adjustment	Readjust
	Out-of-Round Brake Drums	Machine or replace
	Incorrect Brake Components	Replace
	Loose, Bent, or Broken Brake Components	Replace components
	Loose Wheel Bearing Adjustment	Adjust
	Bent Spindle	Replace axle

Bed Tilt

Locate the symptom in this section that best identifies your bed tilt problem. Check out each possible problem under that symptom.

PROBLEM	PROBABLE CAUSE	SOLUTION
BED TILTS TOO SLOW	Dirty oil	Replace oil and check for particles in the restrictor fitting
	Heavy weight oil	Replace oil with lighter weight oil
	Damaged cylinder	Replace cylinder or the broken parts of cylinder
BED TILTS TOO FAST	Not enough oil in cylinder	Fill with oil according to maintenance procedure
	Light weight oil	Replace oil with heavier weight oil
	Bad cylinder seals	Replace cylinder seals
BED WILL NOT FULLY RETRACT	Too full of oil	Fill with oil according to maintenance procedure
	Something between bed and hitch	Remove obstruction
	Cylinder damaged	Replace cylinder
BED WILL NOT TOUCH GROUND	Hitch setting is incorrect	Readjust front hitch position so hitch beams are level or a slight incline up (This is done by unbolting front hitch and lowering to next lower hole position)
	Trailer positioned on unlevel surface	Load and unload on fairly level ground
	Cylinder damaged	Replace cylinder (The centerline pin to centerline pin dimension should be 40" when fully extended)
BED DOES NOT STAY TILTED WITH THE LOAD LOADING VALVE	Cylinder seal damaged	Replace seal in cylinder
	Holding valve damaged	Replace holding valve
	Air in the hydraulic system	See **“Hydraulic System W/ Flow Control Valve Filling Method” on page 4-7** for removing air from the hydraulic system

Hydraulic System

Most hydraulic system failures follow the same pattern: a gradual or sudden loss of pressure or flow with a resulting loss of cylinder or motor power. Any one of the system's components may be at fault. By following step-by-step procedures, the trouble can be located in a short time.

PROBLEM	PROBABLE CAUSE	SOLUTION
SEMITRAILER LOCKED IN TILTED POSITION	Dirty or damaged components	Clean or repair as needed
SYSTEM INOPERATIVE	Not enough oil in system	Fill, Check for leaks
	Wrong oil in system	Change oil, see specifications **(See Table 4-1)**
	Filter dirty or clogged	Drain oil and replace filter
	Hydraulic lines dirty or collapsed	Clean or replace as necessary
	Air leaks in pump suction line	Repair or replace as necessary
	Worn or dirty pump	Clean, repair or replace Check for contaminated oil Drain and flush
	Badly worn components	Examine for internal leakage Replace faulty components Check for cause of wear
	Leakage	Check all components, and relief valve for proper settings
	Excessive load	Check unit specifications for load limit **(See "Standard Specifications" on page 2-1)**
	Slipping or broken pump drive	Repair or replace couplings Check for alignment
	Valve Compensator stuck	Clean, repair or replace
SYSTEM OPERATES ERRATICALLY	Air in the system	Check suction side of system for leaks Repair leaks
	Cold oil	Allow ample warm-up time Use proper weight oil for operating temperature
	Dirty or damaged components	Clean or repair as needed
	Restriction in filters or lines	Clean and/or replace filter or lines
	Not enough oil in system	Fill and check for leaks
SYSTEM OPERATES SLOWLY	Oil viscosity too high, or "cold oil"	Allow oil to warm up before operating
	Low pump drive speed	Increase engine speed (check pump owners manual for specifications)
	Low oil level	Check reservoir and add oil as necessary
	Air in system	Check suction side for leaks Repair leaks
	Badly worn pump, valves, cylinders, etc.	Repair or replace faulty component(s) as necessary
	Restrictions in lines or filter	Clean and/or replace filter or lines
	Improper adjustments	Check orifices, relief valves, etc. Adjust as necessary
	Oil leaks	Tighten fittings Replace seals, gaskets and damaged lines

PROBLEM	PROBABLE CAUSE	SOLUTION
SYSTEM OPERATES TOO FAST	Engine running too fast	Reduce engine speed
OVER HEATING OF OIL IN SYSTEM	Oil passing through relief valve for excessive time	Return control valve to neutral when not in use
	Incorrect, low, dirty oil	Use recommended oil **(See Table 4-1)** Fill reservoir with clean oil Replace filter
	Engine running too fast	Reduce engine speed
	Excessive component internal leakage	Repair or replace component as necessary
	Restriction in filters or lines	Clean and/or replace filter or lines
	Insufficient heat radiation	Clean dirt and mud from reservoir and components
	Malfunctioning component	Repair or replace
FOAMING OF OIL	Incorrect, low, or dirty oil	Replace, clean or add oil as needed
	Water in oil	Replace oil
	Air leaks	Check suction line and component seals for suction leaks Replace defective parts
NOISY PUMP	Low, incorrect, foamy oil	Replace, clean, or add oil as needed
	Suction line plugged	Clean out obstruction or replace line Flush system and replace filter
	Pump damaged	Repair or place
LEAKY PUMP	Damaged or worn shaft seal	Replace seal and/or shaft and check for misalignment
	Loose or broken parts	Tighten or replace
CYLINDERS MOVE WITH CONTROL VALVE IN NEUTRAL POSITION	Leaking cylinder seals or fittings	Replace worn seals or fittings
	Control valve not centering when released	Check linkage for binding and repair
	Valve damaged	Repair or replace
CONTROL VALVE LEAKS	Seals damaged or worn	Replace seals or valve
CYLINDER LEAKS	Seals worn or damaged	Replace seals or cylinder
	Rod damaged	Replace
	Barrel damaged	Replace
CYLINDERS DO NOT FUNCTION, OR CREEP WITH PTO DISENGAGED	Leaking fittings or cylinder seals	Tighten loose fittings Replace worn seals or fittings
	Counter balance valve or O-ring leak	Replace defective component

Table provided for general use.

NOTES:

Equipment from Landoll Corporation is built to exacting standards ensured by ISO 9001 registration at all Landoll manufacturing facilities.

Model LT10A, LT12A, & LT14A Series
Tag Trailer
Operator's Manual

Re-Order Part Number F-876-1217

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