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IMPORTANT

This manual has been prepared to help you operate your new Timpte trailer successfully, economically, and safely. Please read your Operator's Manual carefully and have a full understanding prior to using your trailer or performing any maintenance. We urge you to contact your Timpte Trailer Company factory representative or the Vice President of Engineering at Timpte (402-367-3056) immediately should you have any questions or need an explanation.

Timpte has provided several warnings in your Operator's Manual and on your trailer to help prevent personal injury. Timpte can not foresee all use or misuse of the trailer. Always use common sense judgment while using or performing maintenance to your trailer. Your safety is our primary concern.



This safety alert symbol is used throughout this manual to indicate potential personal safety hazards. Failure to heed the warnings associated with the safety alert symbol can result in property damage, serious injury or death.

Safety decals appear at various locations on your new Bulk Commodity trailer. The decals are provided for your safety and should be kept clean. Replace any decal that has become worn or damaged, painted over, or otherwise difficult to read. Replacement decals are available at no cost through Timpte by calling 402-367-3056.

Information contained in this Operator's Manual is based on the latest information available at the time of publication. Changes are continually being made to improve our product lines.

In addition to this Operator's Manual, there is a set of informational manuals supplied with your trailer from the manufacturers of the various components used to build this trailer including but not limited to:

- **the suspension**
- **the anti-lock brake system**
- **the axles, brakes, wheel ends**
- **the spring brakes chambers**

Please read these manuals carefully as they contain detailed information on these different trailer components as well as safety and maintenance information that is important to you.

We want to thank you for purchasing a Timpte trailer and to let you know that it was designed to meet your specific needs for a Bulk Commodity trailer and was built for long life and low cost of operation. However, regular and proper maintenance of the trailer and your common sense use of it are required to extend the life of the trailer.

NORMAL TRAILER OPERATION

This Timpete trailer is designed for operation within legal posted speed limits on reasonable road surfaces for the type of service it was built to perform, in accordance with the noted weight restrictions.

“Normal Service” means the loading and transportation of uniformly distributed legal loads of properly secured, noncorrosive cargo, in accordance with any applicable factory instructions and in a manner which does not subject the trailer or parts of the trailer to (a) concentrated loads; (b) loads in excess of the Gross Axle Weight Rating (GAWR) or Gross Vehicle Weight Rating (GVWR) stated on the Certification Plate affixed to the trailer by Timpete; and (c) accidental damage, or (d) stresses, impacts or shocks greater than those commensurate with normal, reasonable lawful use.

The GAWR (gross axle weight rating) is the structural capability of the lowest rated member of the running gear components: suspension system, hubs, brake drums, wheels, bearings, axles, brake linings or tires.

The GVWR (gross vehicle weight rating) is the structural capability of the trailer when supported by the kingpin and axles with the load uniformly distributed throughout the cargo space.

NOTICE:

The maximum load indicated on the identification plate may not be a legal load on the highway you plan to use. States have differing laws and regulations affecting vehicle lengths and weights on roads that are not a part of the primary interstate road system.

Modification of the Trailer – Any modification made to the trailer must comply with DOT and NHTSA regulations and must not compromise the gross vehicle weight rating (GVWR) of the trailer. Any modification made to the trailer without prior approval of Timpete may void the warranty. Any operation of the trailer outside the limitations stated in this manual will void any responsibility of Timpete Trailer Company for any of its results.

SAFETY



WARNING

PERSONAL INJURY, DEATH, AND PROPERTY DAMAGE MAY RESULT FROM IMPROPER OPERATION OR UNSAFE PRACTICES. BE SURE TO READ AND FOLLOW ALL DECALS AND EMBLEMS CAREFULLY.

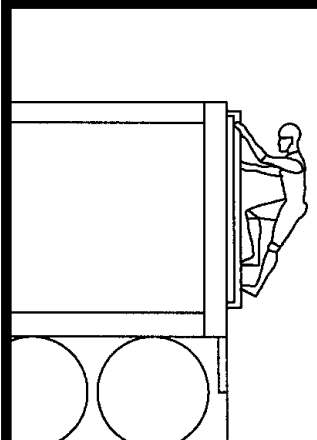
The following section contains the decals and emblems used on the Timpte Hopper Trailers. Due to differences in configurations and equipment, your trailer may or may not use all the decals and emblems shown. Newer trailers may also have decals and emblems that differ from older trailers. Replace damaged or missing decals promptly. Replacement decals for this trailer are available without charge by calling Timpte Trailer Company at 402-367-3056.



WARNING

1. CHECK PIN TO ASSURE THAT IT IS PROPERLY ENGAGED WITH FIFTH WHEEL.
2. KEEP THE UPPER COUPLER LUBRICATED AND FREE OF DEBRIS TO PREVENT GALLING OF THE FIFTH WILL PLATE.
3. INSPECT THE KING PIN AND THE PLATE ASSEMBLY REGULARLY FOR WEAR AND CRACKS.

FAILURE TO FOLLOW THESE WARNINGS COULD RESULT IN SERIOUS INJURY OR DEATH.



WARNING

1. EXERCISE EXTREME CAUTION WHILE CLIMBING ON ACCESS SYSTEM.
2. ALWAYS MAINTAIN 3-POINT CONTACT. (2 HANDS & 1 FOOT OR 2 FEET AND 1 HAND)
3. DO NOT WEAR RINGS OR ANYTHING THAT CAN CATCH ON LADDER.
4. USE LADDER SIDE RAIL FOR HAND HOLD, NEVER USE THE RUNG.
5. NEVER CLIMB OVER THE TOP OF THE TRAILER. NEVER ENTER THE INSIDE COMPARTMENTS FOR ANY REASON.

FAILURE TO FOLLOW THESE WARNINGS COULD RESULT IN SERIOUS INJURY OR DEATH.



WARNING

FAILURE TO USE PROPERLY MATCHED WHEELS, STUDS, BRAKE DRUMS OR CAP NUTS WILL RESULT IN EQUIPMENT DAMAGE AND COULD RESULT IN SERIOUS INJURY OR DEATH IF WHEEL COMES OFF.



WARNING



- FEDERALLY REQUIRED LAMPS MUST NOT BE OBSTRUCTED
- ALWAYS RAISE AND STORE LOWER LADDER SECTION BEFORE MOVING TRAILER.
- FAILURE TO COMPLY CAN CAUSE INJURY OR DEATH.



CAUTION



- MOVING PARTS HAVE PINCH POINTS.
- STAY CLEAR OF SIDE RAILS WHEN OPERATING SWING-DOWN LADDER.
- FAILURE TO COMPLY CAN CAUSE INJURY.



WARNING

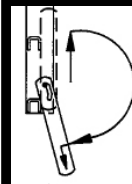
THIS TRAILER IS EQUIPPED WITH A REGULATED LIFT AXLE.

* LIFT AXLE MUST BE ACTIVATED IN DOWN POSITION WHEN TRAILER IS LOADED. FAILURE TO COMPLY WILL RESULT IN DETERIORATION OF BRAKING PERFORMANCE AND REDUCED ROLL STABILITY.

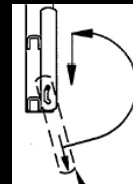
* LIFT AXLE MUST BE ACTIVATED IN RAISED POSITION WHEN TRAILER IS EMPTY.

FAILURE TO FOLLOW THESE WARNINGS COULD RESULT IN PERSONAL INJURY OR DEATH.

SWING-DOWN LADDER OPERATION



- TO LOWER AND USE LADDER:
1. GRASP RUNG FIRMLY & LIFT.
 2. ROTATE LADDER DOWNWARD.
 3. MAKE SURE LADDER IS SECURELY ENGAGED IN UPPER ENDS OF SLOTS.



- TO RAISE AND STORE LADDER:
1. GRASP RUNG FIRMLY, ROTATE LADDER UPWARD WHILE HOLDING RADIALLY OUTWARD.
 2. SLIDE DOWNWARD IN SLOTS.
 3. MAKE SURE LADDER IS FULLY ENGAGED (STORED SECURELY).



WARNING

THIS TRAILER IS EQUIPPED WITH TRAILING BEAM AIR RIDE SUSPENSION.

1. MANUALLY EXHAUST ALL AIR IN THE SUSPENSION SYSTEM PRIOR TO SUPPORTING A LOADED TRAILER ON THE SUPPORT LEGS. FAILURE TO COMPLY CAN CAUSE STRUCTURAL DAMAGE TO THE SUPPORT LEG BRACES.
2. DO NOT USE EXCESSIVE FORCE WHEN COUPLING THE TRACTOR TO THE TRAILER (EMPTY OR LOADED) CONTINUING TO BACK-UP A TRACTOR/TRAILER WITH THE TRAILER BRAKES LOCKED CAN ROTATE THE TRAILING BEAMS AND OVEREXTEND THE SUSPENSION. OVEREXTENSION WILL CAUSE DAMAGE TO THE SUSPENSION SYSTEM.
3. MANUALLY EXHAUST ALL AIR IN THE SUSPENSION SYSTEM PRIOR TO AND DURING UNLOADING THE TRAILER. AFTER UNLOADING THE TRAILER, IMMEDIATELY ACTUATE THE AIR AND WAIT FOR THE SUSPENSION TO RETURN TO THE NORMAL RIDE HEIGHT BEFORE MOVING THE VEHICLE.



DANGER

IF SPRING BRAKES ARE CAGED, DEACTIVATED OR REMOVED, THIS VEHICLE WILL HAVE NO EMERGENCY PARKING BRAKES AND MUST NOT BE PARKED WITHOUT BLOCKING WHEELS OR DRIVEN.

NEVER STAND BETWEEN THE BACK OF THE TRAILER AND ANY STATIONARY OBJECT.

FAILURE TO FOLLOW THIS SAFETY PRECAUTION WILL RESULT IN DEATH OR SERIOUS INJURY

THIS PRODUCT IS PROTECTED BY
US & FOREIGN PATENTS AND TRADEMARKS INCLUDING:
PATENT # 6,736,297 B2
6,059,372
6,814,532 B1
2,255,368
REGISTRATION # 1,411,224

TIMPTE TRAILER CO.
1827 INDUSTRIAL DRIVE
DAVID CITY, NE 68632



WARNING



- DO NOT ATTEMPT TO WALK ON TOP RAILS, THEY ARE NOT AN APPROVED WALKWAY
- FAILURE TO COMPLY CAN CAUSE SERIOUS INJURY OR DEATH

WARNING

THIS TRAILER IS NOT INTERNALLY VENTED, TARP MUST BE OPEN TO PROVIDE ADEQUATE VENTING PRIOR TO AND WHILE DISCHARGING COMMODITY. FAILURE TO COMPLY CAN CAUSE STRUCTURAL DAMAGE TO THE TRAILER.

TIMPTE P/N 035-21729



WARNING

THIS TRAILER IS EQUIPPED WITH ANTILOCK BRAKE SYSTEM (ABS).

D.O.T. REGULATION FMVSS-121 REQUIRE ABS RECEIVE CONSTANT POWER FROM THE CENTER AUXILIARY PIN ON THE 7-WAY CONNECTOR.

INSPECT YOUR TRACTOR! TRACTOR MUST SUPPLY CONSTANT POWER FOR THE ABS ON THE CENTER AUXILIARY PIN WHEN THE KEY SWITCH IS ON. DEACTIVATE ANY SWITCH IN THE TRACTOR THAT WILL TURN THE AUXILIARY POWER OFF (MUST SUPPLY CONSTANT POWER).

DO NOT MODIFY THE TRAILER ELECTRICAL SYSTEM TO POWER OPTIONAL EQUIPMENT OFF THE AUXILIARY CIRCUIT. FEDERAL LAW MANDATES THIS CIRCUIT IS DEDICATED FOR ABS ONLY.

CONTACT TIMPTE ENGINEERING IF YOU HAVE ANY QUESTIONS ABOUT YOUR PRESENT WIRING OR HOW TO REWIRE FOR AUXILIARY EQUIPMENT.

FAILURE TO FOLLOW THESE WARNINGS COULD RESULT IN SERIOUS INJURY OR DEATH.

WARNING

USE KNOCK RAILS TO DISLodge COMMODITY, POUNDING ON SLOPE SHEETS VOIDS WARRANTY.

TIMPTE

P/N 035-03082

CAUTION

DO NOT ATTEMPT TO HOIST TRAILER AT THIS FRAME STRUCTURE.

P/N 035-27163



WARNING

NEVER CLIMB INSIDE THE HOPPER COMPARTMENT!

FAILURE TO FOLLOW THIS WARNING COULD RESULT IN SERIOUS INJURY OR DEATH.



WARNING

CHECK WHEEL NUTS AFTER INITIAL 50 TO 100 MILES OF SERVICE. SEE OWNERS MANUAL FOR CORRECT TORQUE REQUIREMENTS. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN SERIOUS INJURY OR DEATH.



CAUTION

NEW FMVSS-121 REGULATIONS MANDATE HIGHER PRESSURE LEVELS IN THE SUPPLY LINE. TRAILER BRAKE PERFORMANCE WILL BE IMPAIRED IF TRACTOR COMPRESSOR ADJUSTMENT IS TOO LOW.

CHECK YOUR TRACTOR!

COMPRESSOR CUT-IN PRESSURE, ADJUST TO 105 PSI CUT-IN GOVERNOR
COMPRESSOR CUT-OUT PRESSURE: RECOMMENDED MORE THAN 120 PSI CUT-OUT GOVERNOR

NOTE: THE USE OF ADDITIVES IN THE AIR BRAKE SYSTEM IS NOT RECOMMENDED.

P/N 035-29182

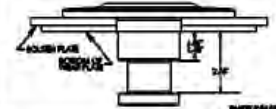


CAUTION

TO INSURE PROPER TRACTOR TO TRAILER COUPLING, THE PROPER LENGTH OF KINGPIN MUST BE MAINTAINED PER SAE J2228.

- THE POLY WEAR PLATE INSTALLED ON THIS TRAILER MUST BE MAINTAINED AND AS IT WEARS, YOU MUST PERIODICALLY CHECK KINGPIN LENGTH AND REPLACE THE WEAR PLATE AS REQUIRED BY THE STANDARD.

- NEVER OPERATE THIS TRAILER WITHOUT A PROPER THICKNESS WEAR PLATE IN PLACE.



CAUTION

1. THE TWO SPEED GEARBOX MUST BE GREASED MONTHLY
2. TO MAINTAIN PROPER OPERATION AND PERFORMANCE OF TRAP DOOR OPENING MECHANISM THE ROLLER SLIDE AREA MUST BE KEPT CLEAN AND FREE OF DEBRIS
3. DISCRETION MUST BE USED WHEN CLOSING AND OPENING THE DOOR. CONTINUING TO CRANK THE OPENER WHEN THE DOOR IS FULLY CLOSED OR OPEN CAN DAMAGE THE GEARBOX OR THE TRAP PLATE

AIR BRAKE SYSTEM

Your new Timpte trailer is equipped with an air brake system which meets or exceeds the requirements of the federal regulation FMVSS-121 for grade-holding ability and emergency stopping in the event of an air supply failure in the service brake system. Air pressure is required to release the parking/emergency brake. As of 10/8/92-FMVSS 121 requires that the supply line for the air brake system be protected to 70 psi. This pressure level requires that supply line pressure levels are achieved before the pressure protection valve opens (opening pressure must be higher than the closing pressure by design).


Keeping your compressor cut-in pressure at maximum levels (over 100 psi) is a clear advantage for peak operation of your entire system, we recommend using a 105 psi cut-in governor setting. Governor cut-out pressure should be at 120 psi minimum. Low compressor cut-in pressure may result in poor performance of the system, for example slow parking brake release time.




Should you still have a problem with your brake system after working through all of the inspection items and tests listed in this manual's maintenance section or in the brake manufacturer's manual supplied with the trailer, contact your Timpte factory representative.

WHEEL NUT TORQUE

Proper torquing and retorquing the wheel nuts are critical to prevent the loss of wheel equipment. Wheel nuts should be torqued to 450 to 500 ft. lbs. (dry). Refer to the manufacturer's decal on the side of the trailer or manufacturer's maintenance information supplied with the trailer for proper torque specifications and tightening sequence.

Wheels must be checked and retorqued after the first 50 to 100 miles of use. This is important every time you change a wheel. Check the fastener torque on a regular on-going basis.

 **WARNING**

-  1. Read and understand this warning and the installation, Service and Safety Instruction Manual to understand all safety precautions, proper operation, and maintenance of your Webb hub. Failure to do so could result in death or serious injury and could result in a compromise of your vehicle's safe operation through loss or failure of a wheel or the compromise of the braking system. Copies of the installation, Service and Safety Instruction Manual are available, free of charge, from Webb Products, Inc., upon request.
-  2. Always use a properly installed calibrated torque wrench to assure proper torque. Under torque and over torque can cause thread and/or nut damage and could result in the loss of a wheel. Failure to ensure proper torque could result in death or serious injury and could shorten the expected life of this product.
-  3. Recheck torque after the first 50 to 100 miles of service. Parts may seat naturally, causing the torque to drop. A drop in torque could result in the loss of a wheel. Proper torque is essential to avoid damage or compromise of your vehicles safety. Failure to ensure proper torque could result in death or serious injury.

HUBS
(FOR PILOT MOUNTED DISC WHEELS)
8 - 10 STUD HUBS
APPLIES TO M22 X 1.5 STUDS / TWO PIECE FLANGE NUT.

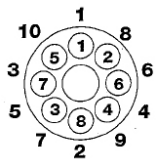
All threads are right hand metric.

Tighten Flange Nuts to 50 ft.lb. using sequence shown.

Check Disc-Wheels for proper positioning on pads and proper seating against flange.

Tighten Flange Nuts to recommended torque using sequence shown.

RECOMMENDED TORQUE: 450 - 500 FT. LBS.



REAR IMPACT GUARDS

As of 1/26/98, all trailers must comply with FMVSS 223 and 224, which specify equipment and performance standards for rear impact guards on new semi-trailers. If required by this statute, a RIG (rear impact guard) has been installed on your trailer that has been designed to resist specified forces and absorb energy at a specific rate in the event of a rear collision with the trailer per the standard. Trailer RIG's are subject to impacts and stress in docking and loading operations. It is therefore important that you inspect them regularly for signs of damage or wear.



WARNING

A DAMAGED REAR IMPACT GUARD MAY NOT BE AS STRONG AS THE ORIGINALLY MANUFACTURED GUARD AND MAY NOT SATISFY THE PERFORMANCE STANDARDS OF FMVSS 223 AND 224. ALTERATIONS OR REPAIRS TO THE RIG COULD HAVE THE SAME EFFECT. PRIOR TO REPAIRING OR MODIFYING ANY TIMPTE RIG, CONTACT THE VICE PRESIDENT OF ENGINEERING AT TIMPTE AT 402-367-3056. **FAILURE TO FOLLOW THIS WARNING COULD RESULT IN SERIOUS INJURY OR DEATH.**

Pre-trip inspections should be made of the guard to assure its integrity and strength. Broken welds, bent components, or other damage will likely affect its performance.

For these reasons, RIG inspection, service and repair records should be maintained. Repairs and replacements must be in accordance with the original design specifications of the guard. Any questions regarding repair or replacement should be directed to the Vice President of Engineering at Timpte.

ABS BRAKING SYSTEM

As of 3/1/98 all trailers manufactured with air braking systems are required to have an ABS (Anti-Lock Braking System).

The system used on your trailer meets or exceeds the FMVSS 121 requirement for ABS. The ABS system on your Bulk Commodity trailer is a 4S/2M system (4 wheel sensors - 2 modulator valves) or a 2S/1M (2 wheel sensors - 1 modulator valve). The intended purpose of ABS is to help maintain control and reduce the likelihood of jackknife situations.

The ABS status indicator light is located on the driver side of the trailer near the rear corner post. It indicates the system status upon initial startup by turning on and then turning off once the vehicle begins to move. If a malfunction in the ABS system occurs, the ABS system status light will come on and stay on until the problem is repaired. Anytime the system status light comes on and stays on, have the ABS system serviced as soon as possible.



WARNING! ABS (Anti-Lock Braking System) is a safety item and must be properly maintained. To operate an ABS equipped truck and trailer properly, during braking- constant pedal force must be applied. All ABS systems require clean, dry air to operate properly. Use of airline deicers or leakage of oil into the air system may diminish the performance of the system and will void the warranty.

BACKUP WARNING SYSTEM

A backup warning system consisting of an audible alarm is available as an option on your Timpte Bulk Commodity trailer. The system is intended to indicate that the vehicle is backing up.

You, the operator, have the Greatest Control over Safe Operation.

1. You, the operator, have control of the most important factors that affect safe trailer operation and vehicle stability. Trailers are a tool and, like any tool, are safe only when properly used by a conscientious, trained and qualified operator.
2. The fifth wheel should be securely mounted to the tractor frame and proper connection between the tractor and trailer verified.
3. The driver should be familiar with the characteristics of the particular trailer and of the load to be transported.
4. The driver should be familiar with the nature of the roads and traffic which may be encountered during the trip.
5. Stability – **Caution - like any other vehicle, semi-trailers can tip or slide out of control if turns are negotiated at too high a speed or when making violent maneuvers such as abrupt lane changes or other evasive actions to avoid obstacles.**
6. Within the relatively narrow confines of road laws limiting vehicle size and weight, together with the characteristics of available tires, suspensions, and other components, there is little that a manufacturer can do to affect the inherent stability of a trailer other than keeping the load as low as feasible, considering the requirements for loading space and adequate tire clearance. This means that the major factors affecting operational stability are the knowledge and skill of the driver. The predominant causes of rollover accidents are:
 - a. Excessive speed
 - b. Violent swerving or turning
 - c. Application of brakes or tractor power while turning.
 - d. Entering curves at too high a speed
7. Tire Characteristics: High pressure truck/trailer tires have different characteristics under high speed cornering conditions than do passenger car tires. Truck/trailer tires are designed for carrying high loads over long distances. Their lateral stability becomes unpredictable when lateral forces approach .04g. This means that commercial vehicles must be operated in a conservative manner when cornering.
8. Braking and Acceleration: Either braking or accelerating while cornering can significantly reduce the stability of the vehicle and should be avoided. The best driving practice is to decelerate to a safe conservative speed before entering a corner or approaching congested traffic, and then to apply only moderate power until a straight path has been re-established.



ATTENTION

TRAILER KINGPIN WEAR

1. Measure the neck - 2"
 - A. Insert the head of the Kingpin through the large opening of the small slot. Locate the gage between the shoulder and the head of the Kingpin.
 - B. Slide the gage toward the small end. The number stamped on the gage at the center of the Kingpin indicates the dimension (see figure 1).
 - C. The Kingpin should be replaced when, at any orientation, the Kingpin reaches the end of the slot (1-7/8" diameter).
2. Measure the shoulder - 2-7/8"
 - A. Repeat the above procedure using the large slot on the shoulder of the Kingpin (see figure 2).
 - B. Replace if the Kingpin reaches the end of the slot (2-3/4" diameter).

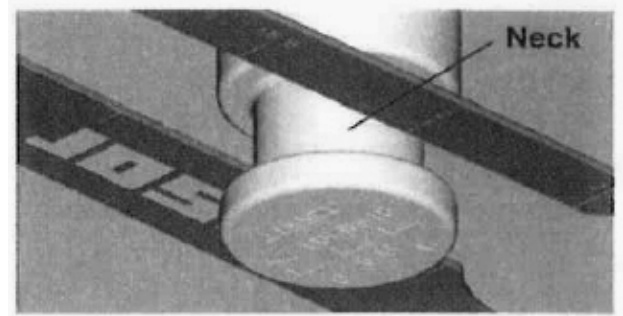


FIGURE 1

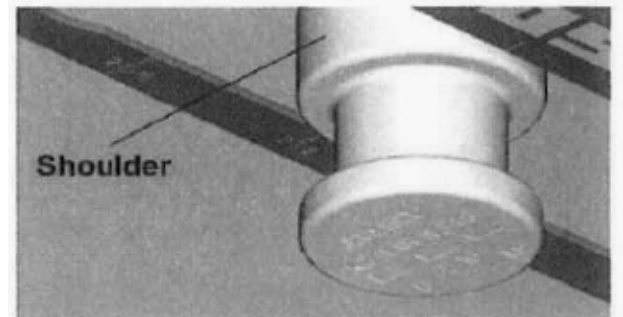


FIGURE 2

TRAILER KINGPIN TO COUPLER INTERFACE INSPECTION CRITERIA

3. Measure the Kingpin length
The Kingpin is the proper length if the "MAX" end engages and the "MIN" end does not engage as shown below.

Important: Be sure to hold the gage edge flat to the upper coupler. Check both the "MAX" end and the "MIN" end as shown in figures 3 and 4.

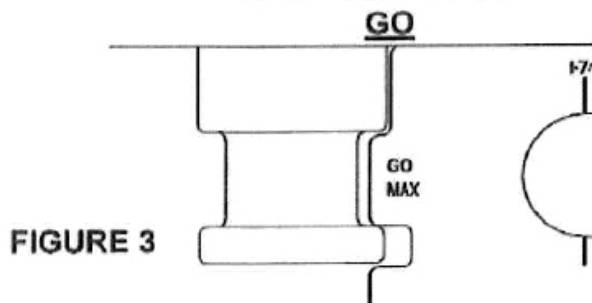


FIGURE 3

THE "MAX" END SHOULD ALWAYS ENGAGE THE KINGPIN.

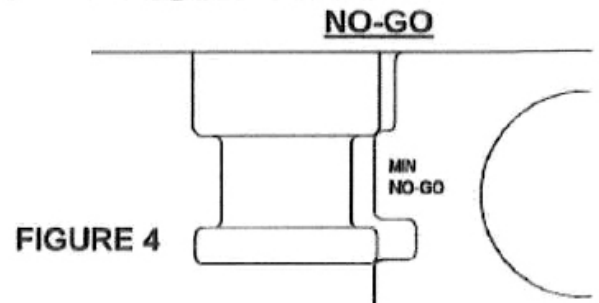


FIGURE 4

THE "MIN" END SHOULD NEVER ENGAGE THE KINGPIN.

Reference SAE J2228 standard for kingpin wear
Reference SAE J700 standard for upper coupler to kingpin interface

Inspection Procedures Before Each Trip



WARNING! Be careful when making inspections, hookups and repairs to avoid personal injury. Make sure parking brakes are properly activated or that wheel chocks are in place to avoid sudden or unexpected movement of the trailer which could result in bodily injury.

NOTICE:

It is the Operator's responsibility to conduct a safe and accurate pre-trip inspection of the vehicle. Per Federal Motor Carrier Statute 49 CFR 392.7 Equipment, Inspection and Use - No motor vehicle shall be driven unless the driver thereof shall have satisfied himself that the following parts and accessories are in good working order, nor shall any driver fail to use or make use of such parts and accessories when and as needed

- Service Brake, including trailer brake connections
- Parking Brake
- Steering Mechanism
- Lighting devices and reflectors
- Tires/Tire Pressure
- Horn
- Windshield Wiper or wipers
- Rear-vision mirror or mirrors
- Coupling devices
- Hoses and Airlines
- Fifth Wheel Plate
- Gladhand Connections
- Hub Maintenance
- Mud Flaps
- RIG (Rear Underride Guard)

Additional Federal Requirements for the Operator can be found in the Federal Motor Carrier Safety Regulations (FMCSR's) in the Code of Federal Regulations (CFR) Title 49 Parts 392, 393 and 396. These can be found on-line at <http://www.access.gpo.gov/nara/> then scroll down to (CFR Sections by Citation).

Failure to regularly inspect the trailer may also void the warranty.

While it is ultimately the operator's responsibility to properly perform and document the pre-trip inspection, Timpte provides the following recommendations and suggestions.

TRAP DOOR LOCKS

Check all trap door locks before each trip to insure that they are in proper working order. Any trap door components which show excessive wear should be replaced immediately. Care should be taken to keep the area around the door frame clear of any debris. A build-up of refuse may result in the doors not completely closing.

Make sure all doors are closed and secured prior to departure.

LIGHTS AND REFLECTORS

The surfaces of the lights and reflectors need to be checked and cleaned. Inspect all lights to see if they are working and check all brake and signal functions.

ELECTRICAL WIRING

Inspect all visible wiring to see that it is not frayed and is properly supported and protected, and that all connections are tight. Inspect the electrical hookup for a clean and secure connection.

FIFTH WHEEL AND KING PIN ENGAGEMENT

Inspect the kingpin and its structure on the trailer for damage or unusual wear. After hook up, make a direct visual inspection to assure proper coupling, then check for positive engagement of the lower fifth wheel and king pin. Apply the trailer brakes and attempt to move the tractor forward to insure that the fifth wheel and king pin are positively locked.



CAUTION! Plastic King Pin Liners (Lube Plate) cannot be installed onto Timpte Trailer upper coupler/king pin assemblies unless the trailer was purchased with that specification. A lube plate changes the king pin interface dimensions relative to the fifth wheel lock. This may result in coupling difficulties, premature lock wear, and a potential for a dropped trailer.

TIRES



WARNING! DO NOT OVERLOAD! Check tires frequently for cuts and abrasions. Check tire pressure daily and keep inflated as recommended by the tire manufacturer. Remove foreign objects that may be lodged in the tire treads or between dual tires.

MUD FLAPS

Be sure the mud flaps are securely in place and in good condition.

TARP SYSTEM

Check to be sure the tarp is in serviceable condition. Insure that the latching system is in good working order and that the tarp is properly secured for travel to prevent being blown about by the wind.

LANDING GEAR

Always raise the landing gear legs completely before moving the trailer. Make sure that the crank handle is properly secured. Prior to trailer transport, lock landing legs into low side gear ratio.

HUB MAINTENANCE

Check wheel studs for good condition – no stripped threads – no bent or loose studs. Replace any broken or bent studs or studs with damaged threads. When a broken stud is replaced, the stud on each side of it should be replaced at the same time. If more than two studs on the same hub are broken, replace all of the studs. NOTE: Hub cap mounting bolts (6) torque 10 to 15 ft. -lbs torque per bolt.

WHEELS AND RIMS

Check all wheel nuts for tightness. Wheel flange nuts should be torqued to 450 to 500 ft. lbs (dry).

Check all metal surfaces thoroughly while making tire inspections and during tire changes.

Look for:

- **Excessive rust or corrosion build-up**
- **Cracks in the metal**
- **Bent flanges or components**
- **Loose, missing, or damaged nuts**
- **Bent or stripped studs.**
- **Incorrectly matched rim parts**

Replace damaged components, making sure that replacements are made with proper sized and type parts.



HUB LUBRICANT

Check and maintain proper level of lubricant in hubs.

Hubs using oil lubricant will have clear hub windows and the oil level will be clearly visible. Be sure the oil level is at the fill line noted on the hub window.

Hubs equipped with synthetic grease will retain the grease between the bearings and no lubricant visual check is possible. Trailers equipped with this option will not have a clear hub window or a fill plug.

Do not add oil to hubs equipped with synthetic grease lubricant. If mixing of lubricants occurs, remove the lubricant and re-install the proper lubricant as soon as possible.

SIDE STRUCTURES

Check the trailer sides for inconspicuous damage to the top and bottom rails as well as the side structure – cracks, contusions, sharp bends, ripples, or missing fasteners. Any problems observed in the side structure should be corrected immediately to prevent the damage from extending further. Unrepaired damage could affect the safe load carrying capacity of the side structure.

SUSPENSION AND SUSPENSION SUBFRAME

Check the suspension and suspension subframe structure for damage or unusual wear. Any type of damage, cracks in the welds or structural members or loose fasteners need to be addressed immediately. Check spring suspensions for free movement of equalizer, condition of bushings, torque of fasteners and for any type of cracking or damage to the spring leaves. Check air ride suspensions for condition of bushings, air leaks, condition of shock absorbers, for proper operation of ride height leveling valve, and for proper inflation of the air springs.

NOTE: Never move an air ride trailer without first fully inflating the air springs – failure to do so could cause damage to the trailer and suspension and will void the warranty.

OPERATING INSTRUCTIONS

PARKING/EMERGENCY BRAKING SYSTEM

This portion of the air brake system makes provision for parking a vehicle on a grade and for emergency stopping in the event of a failure of air supply in the service brake system.

Air pressure within the parking brake chamber is required to release the spring brake. An air reservoir is provided to store enough air to release the brakes at least once by means of the tractor parking brake control, if there is an air line failure. In addition to the normal release of spring brakes using air, a built-in manual release is provided. It allows easy release of the spring brakes for relining the brakes or for moving the trailer in the absence of air pressure.



DANGER

MANUAL RELEASE OF THE PARKING BRAKE SHOULD ONLY BE USED TO MOVE THE TRAILER TO A SAFE LOCATION WHERE REPAIRS CAN BE PERFORMED. ALWAYS INSTALL WHEEL CHOCKS IN FRONT OF AND BEHIND TIRES BEFORE MANUALLY RELEASING SPRING BRAKES. FAILURE TO FOLLOW THIS SAFETY WARNING COULD RESULT IN DEATH OR SERIOUS INJURY.



WARNING

DO NOT ATTEMPT TO MOVE THE TRAILER UNTIL PARKING BRAKE IS FULLY RELEASED. FAILURE TO FOLLOW THIS SAFETY WARNING WILL RESULT IN EQUIPMENT DAMAGE AND COULD RESULT IN SERIOUS INJURY OR DEATH.



WARNING

NEVER ATTEMPT TO USE THE TRAILER FOR THE MAJORITY OF THE BRAKING EFFORT BY BACKING OFF THE TRACTOR BRAKES. THIS IS ILLEGAL, UNSAFE, AND WILL CAUSE PREMATURE FAILURE OF THE TRAILER BRAKE SYSTEM. FAILURE TO FOLLOW THIS SAFETY WARNING COULD RESULT IN DEATH OR SERIOUS INJURY.

TRAILER LOADING

- Roll tarp to open position and lock crank handle in place,
- Check trap doors for closure, locks and latches for proper engagement before loading.
- Position trailer to receive commodity.
- Set parking brake on the tractor prior to loading the commodity onto the trailer.
- The trailer should be loaded evenly from front to rear, maintaining all state bridge laws.
DO NOT Overload the trailer as this action could void the trailer warranty.
- Use the air system air gauge (Air Ride only) to determine legal load conditions. Calibrate the air gauge by comparing the gauge pressure to loaded trailer scale weight.
- The tarp bows can be swung to the side to facilitate loading as needed. Be sure to use a safe, approved walkway or scaffold to reach and manipulate bows.
- Balance the load between front and rear hoppers.
- Roll the tarp closed and lock the crank handle into place before proceeding to another location.

TRAILER UNLOADING



CAUTION! USE EXTREME CAUTION when attempting to dislodge commodity through the trap doors during the unloading process as this could result in serious personal injury or death.

- Position trailer at a point so commodity can be discharged properly and safely.
- Set parking brake on the tractor prior to discharging the commodity.
- Dump air bags (Air Ride only) prior to discharging commodity. **Failure to discharge air from lift bags when unloading could cause damage due to over extension of the air bags and flexing of landing legs. This action could void the trailer warranty.**
- Confirm discharge point is clear of any pedestrians or obstructions.
- Roll tarp to open position prior to unloading. **Failure to open the tarp could result in damage to tarp bows and trailer walls. This action could void trailer warranty.**
- Open hopper trap doors, one at a time, to begin discharging commodity. Always Use knockrails to assist with dislodging commodity.
- Confirm that all commodity has been discharged from both hoppers.
- Close trap doors, latch and lock, prior to departing to your next destination.
- Remove and properly store crank handle.
- Roll the tarp closed and lock the crank handle into place before proceeding to another location.
- Inflate the air-ride suspension system prior to moving the trailer.

NOTE: Timpte trailers are designed to transport free flowing commodity. Knockrail and pneumatic (air) hammer (vibrator) options are available to be installed to assist with unloading commodity, if needed. Speak with a Timpte Sales Representative with any question you may have with respect to knockrail and pneumatic (air) hammer options.

TRAP DOOR OPERATION

Single Speed Trap Openers (Ratchet and Pawl)

- Couple the socket end of the crank handle completely and securely over the hex drive nut on the trap operator shaft.
- On the front tub, rotate the crank handle slightly clockwise, this will release the pressure on the ratchet pawl and allow you to rotate it out of the ratchet gear.
- Once the pressure on the pawl is released, rotate the pawl counterclockwise until it comes to rest on the other side of the ratchet gear.
- Rotate the crank handle counterclockwise to open the trap door. The crank handle swings in a large arc so be sure the area is clear.
- The door can be stopped at any point in the travel and the pawl will hold it from opening further.
- If you determine that you have opened the door too far and need to partly close the door to meter the speed of the discharge, release and rotate the pawl back clockwise before rotating the crank handle clockwise to close the door.
- Rear trap door operates opposite of front trap door.



2 Speed Operators (Gear Reductions)

- Choose gear box mode you want to operate; direct drive or gear reduction. Drive nut assembly without locking latch is the gear reduction side.
- Raise the locking latch to free the operator.
- Couple the socket end of the crank handle completely and securely over the hex drive nut on the trap operator shaft.
- Rotate crank arm clockwise or counterclockwise to open trap door per instruction decal (direction of rotation is dependent upon mode chosen). The crank handle swings in a large arc so be sure the area is clear.
- Rotate crank arm opposite direction to close the trap door.
- Lower locking latch to lock the operator.
- Rear trap door operates opposite of front trap door.

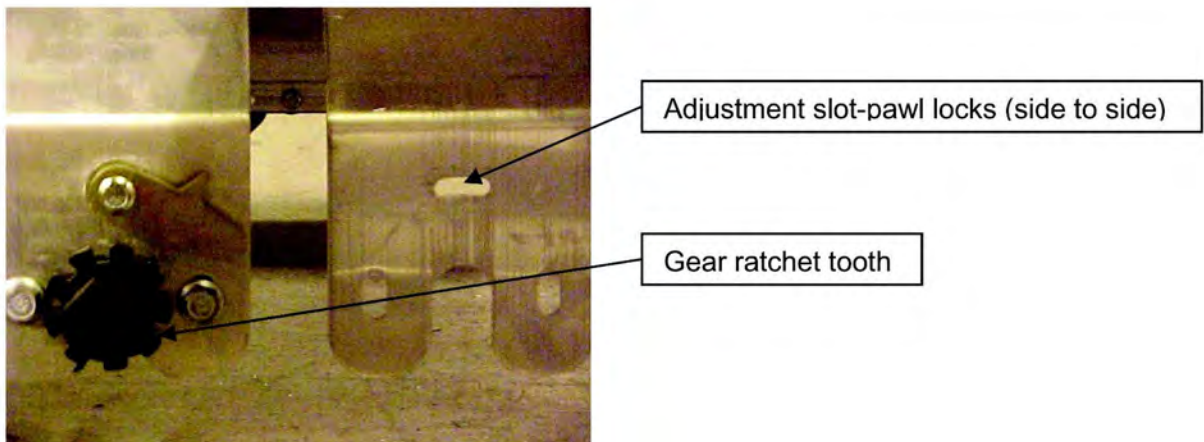


TRAP DOOR LATCH (PAWL) - Setup and Adjustment

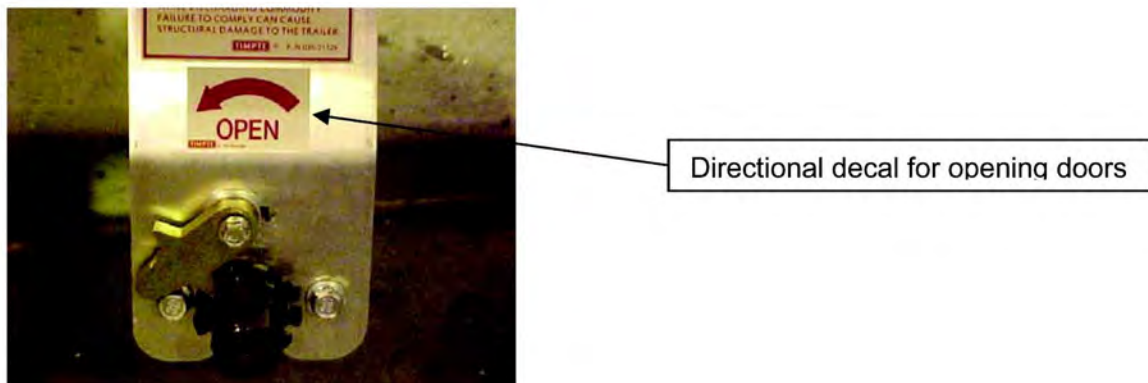
- Use the trap door operator shaft to close the trap door.
- Locate a torque wrench onto the hex drive nut on the operator shaft.
- Rotate the wrench to close the trap door until the door is completely closed (decals).
- Locate the pawl lock to a position approximately 1/2 tooth away from the next gear ratchet wheel locking position (pictured).



- Rotate the torque wrench in the 'close' direction, torque wrench set point at 50 ft-lbs (max), until pawl drops into gear ratchet wheel tooth to lock door closed. Pawl lock must be set to drop into the gear ratchet wheel lock at a torque range of between 45-55 ft-lbs latching torque.
- Adjust pawl position side to side to fine-tune pawl latching torque set point.

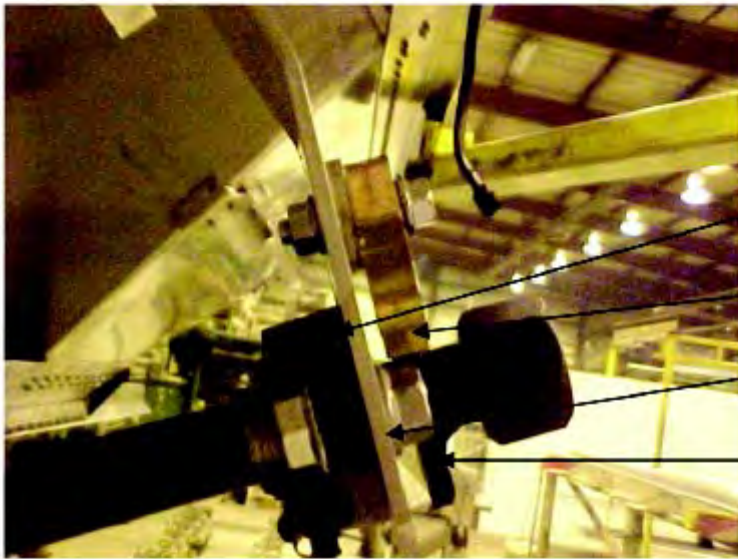


- Release the door lock by rotating the operator shaft toward the 'close' direction, easing the locking pressure on the pawl. Raise the pawl lock out of the ratchet wheel tooth and rotate the pawl in the opposite direction. Open the trap door by rotating the operator shaft, with the crank arm, opposite the 'close' direction (decals). Unlatching torque should not exceed 55 ft-lbs torque.



NOTE

- The pawl lock should be centered on the gear ratchet, front to back, to assure proper alignment between ratchet and pawl for locking.
- Use set screws, located in flange bearing (behind operator shaft mounting plate), to adjust clearance for pawl and gear ratchet centering. (See figures below for clarification).



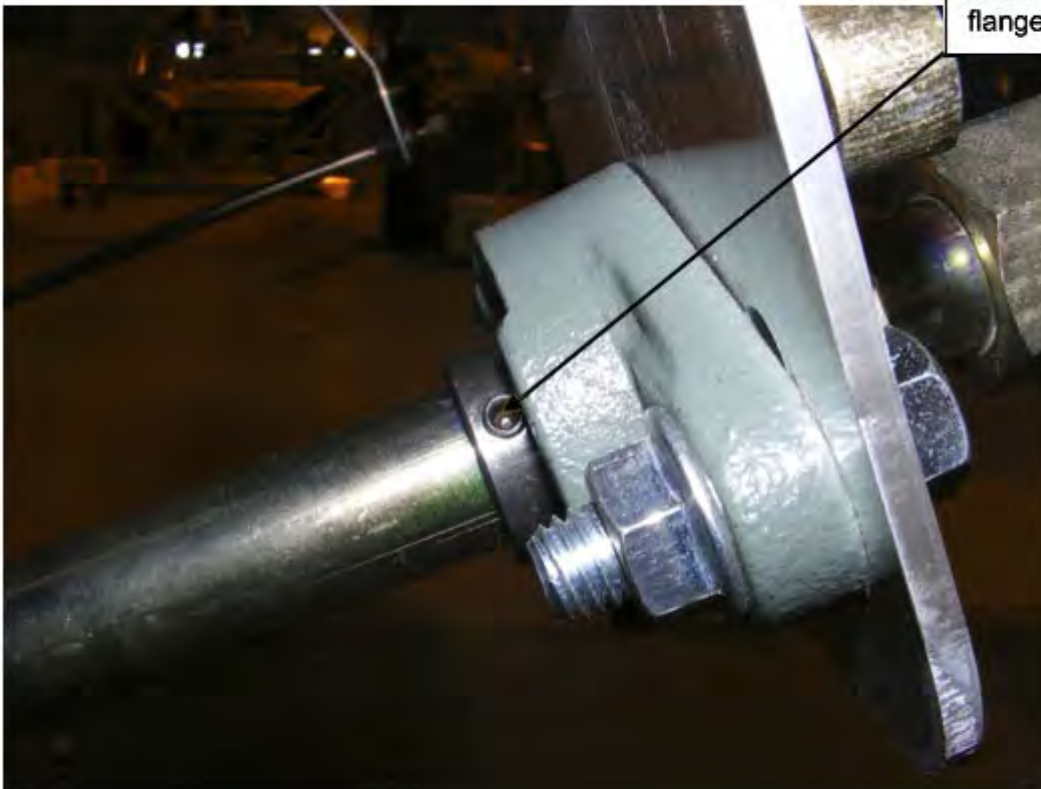
Flange bearing, located behind the Operator Shaft Mounting Plate

Pawl latch

Operator Shaft mounting plate

Gear ratchet

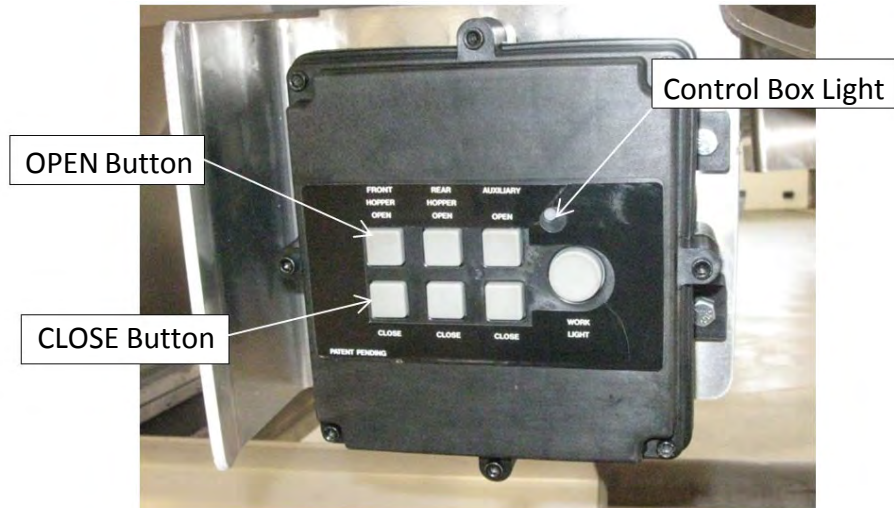
Adjustment set screws for clearance adjustment in flange bearing



- Adjust the pawl and ratchet centering position as follows:
 - Loosen adjustment set screws (2) to allow operator shaft/mounting plate movement (in and out, push/pull).
 - Confirm clearance between gear ratchet and mounting plate (push/pull)
 - Adjust gear ratchet and pawl for centering (in and out movement, push/pull).
 - Re-tighten set screws on flange bearing once centering and clearance are corrected. **DO NOT** over-tighten set screws to avoid damage to operator shafts.

EZ-FLOW CONTROL BOX, MANUAL OPERATION

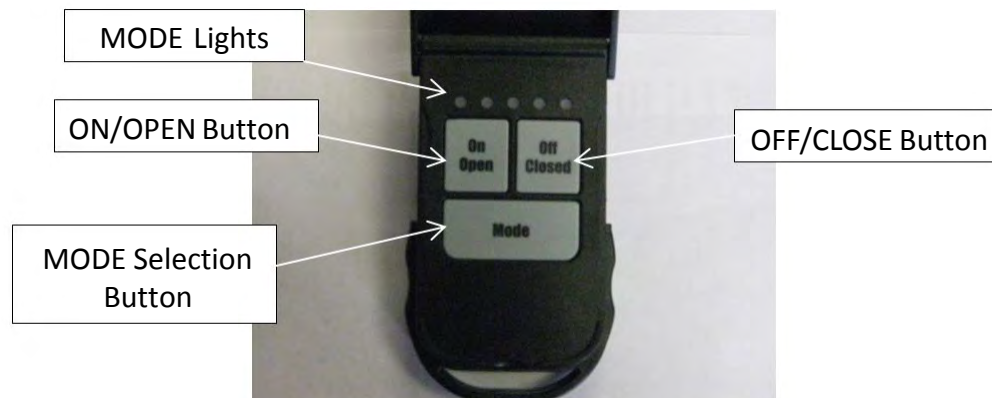
1. Turn on **Master Disconnect Switch** in the tractor.
2. Power up Control Box. (Hold the Front Hopper **“Open”** or **“Close”** buttons on the control box for 3 seconds or until control box light comes on to indicate the control box is activated.)
3. Select button to perform the required operations.
4. Power off Control Box when finished. (Hold the Front Hopper **“Open”** or **“Close”** buttons on the control box for 3 seconds or until control box light goes off.)



SETTING FUNCTIONS ON REMOTE:

Setting function allows functions to be blocked if not required/not going to be used.

1. Open transmitter. Observe flashing light.
2. Press and hold **“MODE”** button for 10-12 seconds until the top light stays lit.
3. Press the **“ON/OPEN”** button if this function will be used. Select and press the **“OFF/CLOSE”** button if you want this function to be skipped.
4. Repeat Step 3 for all five functions.
 - a. 1 LIGHT - TARP SYSTEM
 - b. 2 LIGHTS - FRONT HOPPER
 - c. 3 LIGHTS - REAR HOPPER
 - d. 4 LIGHTS - AUXILIARY
 - e. 5 LIGHTS - AUXILIARY
5. When the last function has been selected, the light on the first mode function will stay lit for approximately 3 seconds to indicate active and return to flashing when process is complete.



WARNING! Make sure all power supply to trailer is disconnected and the ground wire in the nose of the trailer and on the receiver box is disconnected prior to any welding on trailer. Failure to do so could result in damage to receiver control box!!

PROGRAMMING EASY FLOW HOPPER DOORS

1. Power up the control box. (Hold the **Open and Close**” buttons on the control box for 3 seconds or until control box light comes one to indicate the control box is activated.)



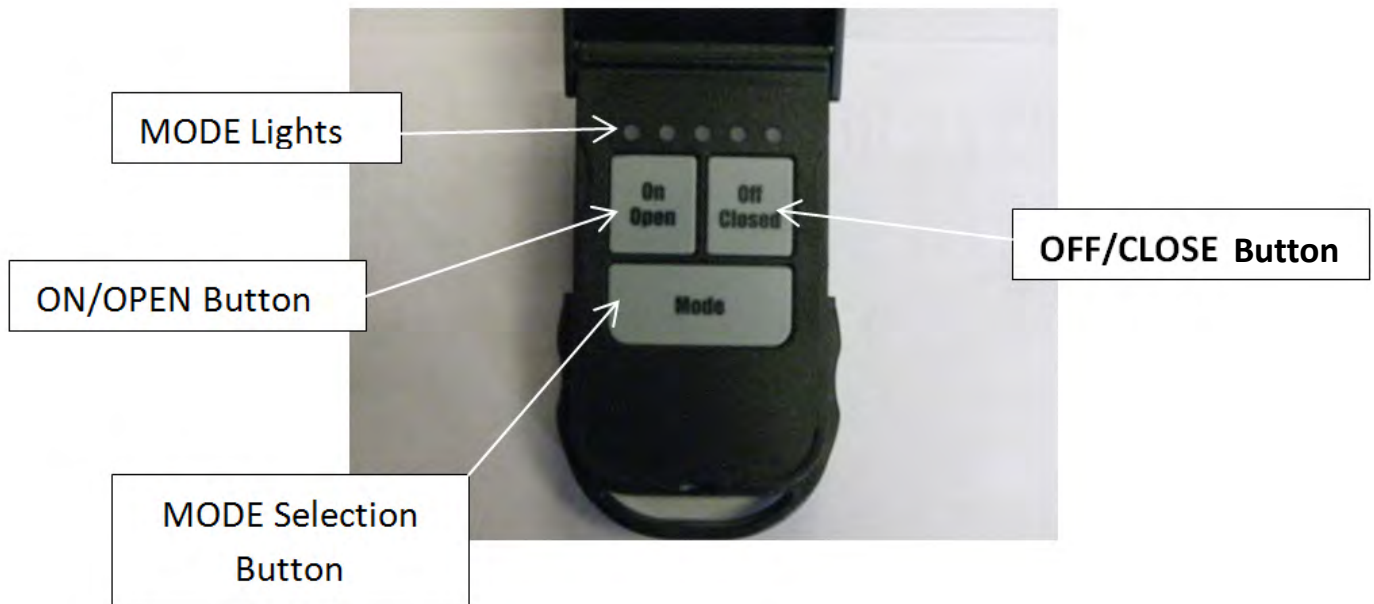
2. Open transmitter and observe flashing light.
3. Push **“MODE”** button to select **“Front Hopper”** Mode (First two lights flashing).



4. Repeat steps 1 and 2 for each transmitter to be programmed. One to four transmitters can be programmed. All transmitters are to require to be programmed while light is flashing.
5. Push and hold **“Programming /Work Light”** button on control box, for approximately 8 seconds, until the illuminated light on the control box starts flashing.
6. Press the **“ON/OPEN”** button on each transmitter to be programmed. Four transmitters can be programmed to each control box so four inputs are required. If one transmitter is being programmed, the **“ON/OPEN”** button will required to be pushed four times. If two transmitters are being programmed then the last transmitter will be required to press the **“ON/OPEN”** button three times. The light on the control box will stop flashing and stay illuminated when the four inputs have been received.
7. Close lid of programmed transmitters to power down transmitters.
8. Power down control box. (Hold the Front Hopper **“Open and Close”** buttons for 3 seconds or until control box light goes off.)

EZ-FLOW CONTROL BOX, WIRELESS OPERATION

1. Turn on **Master Disconnect Switch** in the tractor.
2. Power up Control Box using transmitter. Open transmitter and Push **"MODE"** button to select the **"Front Hopper"** Mode (First two lights flashing).
3. Push and hold the **"Open and Close"** buttons at the same time for 3 seconds or until control box light comes on to indicate the control box is activated.
4. Select button to perform the required operations for the front hopper.
5. To use the rear hopper, push **"MODE"** button to select **Rear Hopper** (First three lights flashing).
6. Select button to perform the required operations for the rear hopper.
7. Power off Control Box when finished. (Push **"MODE"** button to select **"Front Hopper"** Mode (First two lights flashing). Hold the **"Open and Close"** buttons on the transmitter for 3 seconds or until control box light goes off.



EASY FLOW HYDRAULIC DOOR TROUBLE SHOOTING GUIDELINES

EASY FLOW HYDRAULIC DOOR TROUBLE SHOOTING GUIDELINES		
Symptoms	Check List	Emergency Action
Power Unit not operating	Check Electrical connection at motor	Disconnect power wires to motor and use jumper cable to each pole on pump. Reverse cables to operate in other direction. Use manual override on blocking valve for selected door when operating power unit.
	Check Electrical connection at tractor	Remove plug on end of electric motor, insert a 6-mm hex wrench, and use a electric or cordless drill to turn power supply. While operating the pump push manual override on blocking valve for door to be opened.
	Check Electrical connection at two pole connector	
	Check electrical ground on trailer	
Pump runs but cylinders do not operate	Check to make sure hopper door switch was selected	Push manual override on blocking valve while operating power unit
	Check electrical connection to blocking valves	Replace blocking valve coil and cartridge
	Check reservoir fluid level	Fill reservoir with Biodegradable hydraulic fluid
	Check relief valve setting on power unit, relief set to low	See Operator Manual for "Adjusting Pressure Relief Valves"
Cylinders "spongy" or "Jerking" when opening	Check reservoir fluid level	Fill reservoir with Biodegradable hydraulic fluid
	Check for air present in system	Bleed system/cycle system to remove air
	Check for loose fittings	Tighten fittings and cycle system to remove air
Hose failure	Find failed hose and inspect all hoses for wear or leaks	Replace damaged hose and fill reservoir with Biodegradable hydraulic oil
		Disconnect cylinder rod ends and use a Come-A-Long or winch to pull door open
Electric circuit keeps tripping	Check Electrical connections and wiring for shorts or loose connections	Fix or tape shorting area
	Check tractor for undersize circuit breaker in electrical system	Remove circuit breaker from system. Verify circuit breaker locations in system.
	Check relief valve setting on pump, relief set to high	See Operator Manual for "Adjusting Pressure Relief Valves"
Radio Receiver not working/manual switches working	Check electrical connections and wiring for loose or corroded connections. Getting voltage drop though system	Clean or tighten connection points
	Check ground connection on trailer	Battery required to operate system
	Using battery charger without battery to test system	
	Check battery voltage	Replace or clean power source
Door Open/Close Slowly	31" Stoke Ag door operates at 15 to 17 Seconds to open/Close	Clean or tighten connection points. Check for low voltage.
	39" Stoke Standard door operates at 18 to 20 Seconds to open/Close	See Operator Manual for "Adjusting Pressure Relief Valves"
Door doesn't close all the way	Something blocking the door	Remove blockage from trap door
	Nothing blocking the door	Adjust cylinder rod
Door creeping open while sitting	Check for air present in system	Bleed system/cycle system to remove air
Wires getting hot	Check to make sure it is power cord is wired correctly with positive and negative connections	Rewire properly to insure positive and negative are correct
		If wires are damaged replace wiring harness

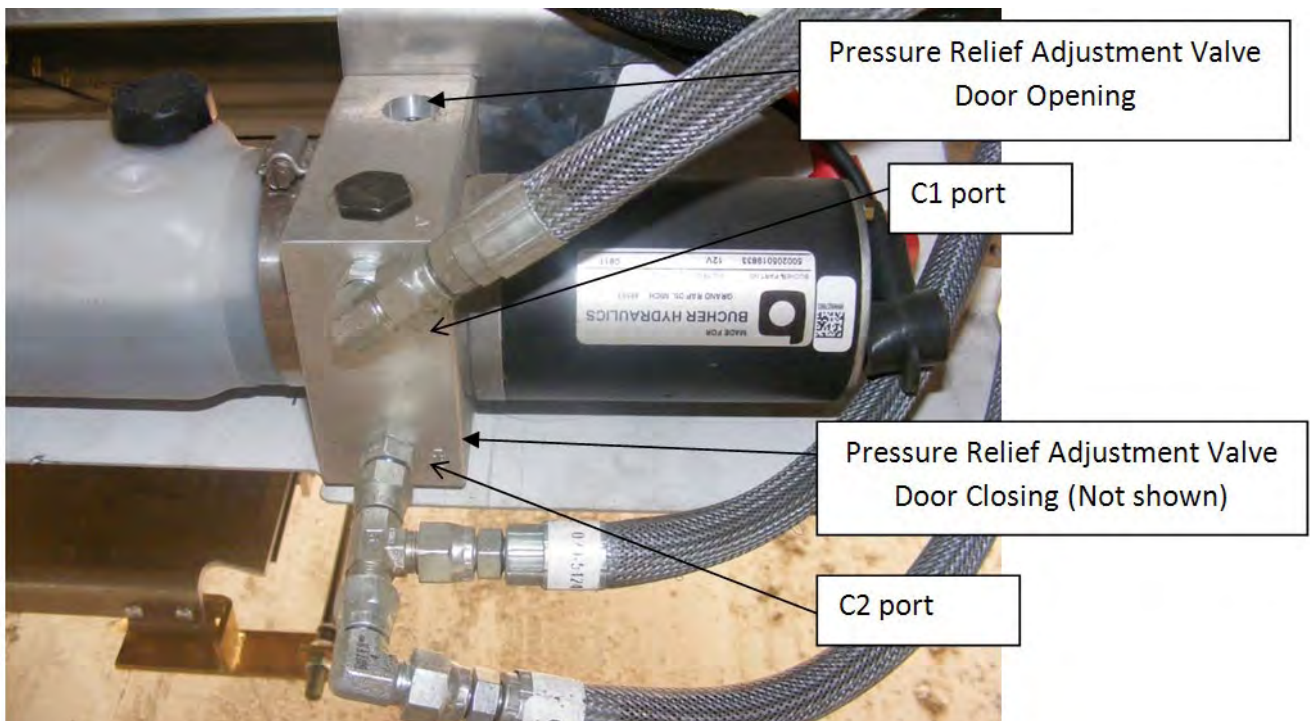
PRESSURE RELIEF ADJUSTMENT

The hydraulic power supply pump is equipped with two pressure relief valves to maximum system pressure at a safe level. These relief valves are located on each side of the pump, 180 degrees from each other. At the hose connections the ports on side of the pump are marked with “C1” and “C2”. The pressure relief on the “C1” side sets the pressure for opening the doors and the relief on the “C2” side sets the pressure for closing.

When testing or making adjustments on the pressure relief valve system a gauge in both ports of the pump is required to ensure the most accurate pressure setting. To adjust pressure relief valves:

Setting Relief Valves with Pressure Gauges:

1. Insert pressure gauges in each pump port “C1” and “C2”.
2. A Pressure Relief valve is located on each side of the pump. Use 9/16” socket and loosen the jamnut on each relief. Do not remove relief valve.
3. Use a 3/16” hex head wrench and turn the relief clockwise to increase pressure setting, counter clockwise to reduce the pressure. Approximately ¼ turn or 90 degrees equals 250 psi adjustments.
4. Operate the system until the cylinder is “dead headed” (cylinder at full stroke or fully retracted) and note the pressure on the gauge. Pumps from factory are preset at 2000 psi.
5. Cycle cylinders in both directions until pressure setting are achieved on both reliefs.
6. Tighten jam nuts and remove gauges.
7. Cycle system to remove any air that may have entered the lines when the gauges were removed.

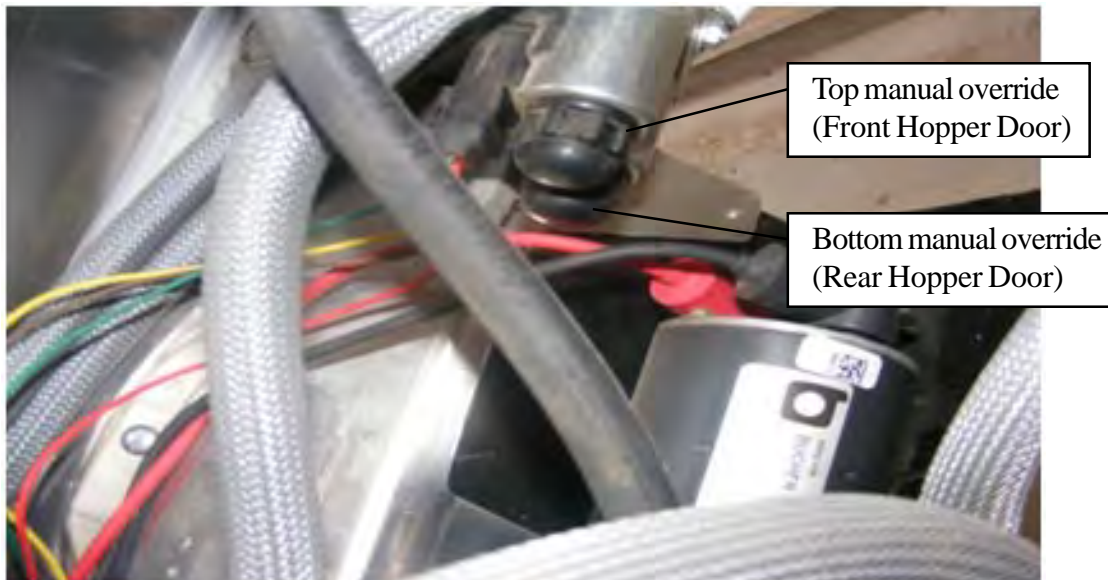


Setting Reliefs Without Gauges:

1. A Pressure Relief valve is located on each side of the pump. Use 9/16” socket and loosen the jam nut on each relief. Do not remove relief valve.
2. Use a 3/16” hex head wrench and turn the relief clockwise to carefully bottom out relief valve. Do not tighten. Tightening relief valve can damage the valve seat.
3. Turn relief valve counter clockwise 1 revolutions. Tighten jam nuts. This will set the pressure at approximately 2000 psi range. Approximately ¼ turn or 90 degrees equals 250 psi adjustment.


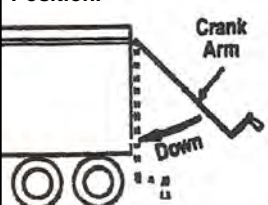
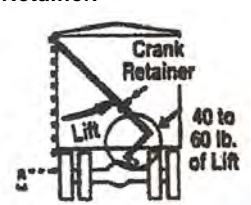
EMERGENCY APPLICATION WITH DRILL

1. Remove Plug from rear of hydraulic power unit motor using a 3/16" Allen wrench.
2. Insert 6-mm hex head wrench attached to an electric drill into opening of motor. Make sure hex key is properly seated into motor before operating drill.



3. There are two manual overrides on the blocking valve. The top manual override is for the front hopper door and the bottom manual override is for the rear hopper door. To open the Front Hopper door run the drill in reverse direction (counter clockwise) while holding the top manual override button. To close the Front Hopper door reverse the operation of the drill (clockwise) while holding the top manual override button.
4. For rear hopper repeat step above while holding the bottom manual override button.

ROLL TARP

ATTENTION!			
<ul style="list-style-type: none">• The tarp must be kept to a recommended 40-60 lbs. of tension or excessive tarp wear may occur.• Do not walk or stand on the end caps.• Do not operate this vehicle at highway speeds, while the tarp system is in the "open" position.			
OPERATING INSTRUCTIONS			
1. Crank The Tarp Up Under The Latch Plate.	2. Bring The Crank Arm Down To A Vertical Position.	3. Lift The Crank Arm Up To The Crank Retainer.	To Adjust The Tarp Tension:
			<ol style="list-style-type: none">1. Allow The Tarp To Roll Down Away From The Latch Plate.2. Remove The Crank Arm From The Splined Shaft.3. Rotate The Crank One Or Two Teeth & Reassemble.

A decal located on the rear of the trailer gives instructions for the operation of the tarp and adjusting the tarp tension. A caution decal is located on the crank handle with instructions pertaining to rolling the tarp. Be sure to follow these instructions.

IMPORTANT: All tarp bows and cross members must be in place while operating a loaded trailer. The tarp bows and cross members hold the trailer walls together and prevent side structure failure. Always close tarp and lock handle into position before moving your trailer to prevent damage to the tarp system.

Always open the tarp before discharging a load. Failure to do so may damage the trailer and void the warranty.

If you must remove or reposition the ridge straps or tarp bows during loading, be sure to use a safe, approved walkway or scaffold. Never walk on the top rail, it is not designed to be a walkway.

TARP TENSION

To Set the Tarp Tension On The Crank:

METHOD ONE:

Hold the crank firmly with both hands

Tighten the tarp by rolling the main tarp tube up under the latch plate

Bring the crank handle down perpendicular to the ground

Continue to tighten by lifting it up (approximately 45 degrees) into the crank retainer:

Repeat this procedure while adjusting the splined shaft and the u•jjoint one tooth at a time to achieve 40 to 60 pounds of tension at the handle end of the crank.

METHOD TWO:

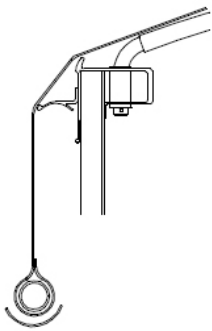
Another method to measure tension is to adjust the tension until you see a slight deflection or a gradual bend in the crank extension of approximately 1/8".

After Properly setting the tension on the crank, make sure that the tarp is in the locked position and check the following:

Check to see that the tarp has equal tension on both the end caps and the bows.

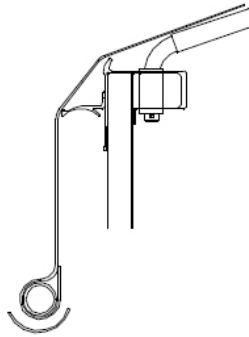
If, for any reason the tarp tension is not the same along the length of the tarp (i.e. tarp twist, uclamps not aligned, varying box widths from front to back), the u-clamps and the tarp may need to be readjusted in the loose areas of the tarp.

Normal Tarp Tension



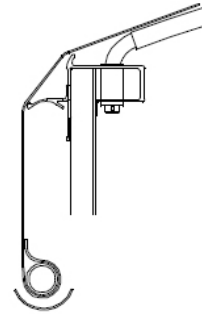
Normal

To Decrease Tarp Tension



Twist pocket clockwise & reinstall the u-clamp to decrease tarp tension in that area

To Increase Tarp Tension



Twist pocket counter clockwise & reinstall the u-clamp to increase tarp tension in that area



WARNING! DO NOT walk, stand or climb over or on the end caps. The tarp caps are designed by the tarp system manufacturer to assist in supporting, tensioning and sealing the tarp. They are not a structural portion of the trailer. They are purposely light-weight and flexible and are not designed to support a person's body weight. Additionally, they are purposely smooth and curved to assist the tarp in sealing tight, and hence are not designed to be a walk surface. Failure to follow this warning could result in serious injury or death.

THUNDER ELECTRIC TARP SYSTEM

OPERATING INSTRUCTIONS - Powering Up or Down the System

To turn the system on or off, locate the “OPEN” and “CLOSE” buttons on the relay module on the front of the trailer. Push and hold both buttons simultaneously for approximately 3 – 5 seconds. The red LED will illuminate indicating the module is on and ready for operation. Alternatively, you can also press and hold buttons “ON/OPEN” and “OFF/CLOSE” on the RF transmitter for 3 – 5 seconds to power the system on or off.

One Touch Operation:

This operation is fully automated and will stop when proper tension is reached when fully opened or closed.

To uncover the load, push and hold the button labeled “OPEN” on the relay module or “ON/OPEN” on the RF transmitter for 1 to 2 1/2 seconds then release. The gear motor will wrap the tarp around the tarp axle causing the axle to move from the tarped position to the stowed position. This tarp system can be opened part way and stopped. Anytime you want to stop the tarp system just hit the “OPEN” or “CLOSE” buttons or “ON/OPEN” or “OFF/CLOSE” on the RF transmitter and the tarp system will stop. It will not hurt the tarp system to stop part way through the tarping cycle. When the system shuts down automatically, the system will be set to the recommended tarp tension. Never travel with the tarp in a partially covered position. The trailer should always be covered when traveling.

To cover the load, push and hold the “CLOSE” button on the relay module or “OFF/CLOSE” on the RF transmitter for 1 to 2 1/2 seconds. The springs in the arm will move the tarp from the stowed position and across the trailer to the tarped position. When the system shuts down automatically, the system will be set to the recommended tarp tension.

Incremental Operation:

To inch the tarp in either direction press the “OPEN” or “CLOSE” buttons on the relay module intermittently.

Press and Hold Operation:

To uncover the load using the press and hold feature, push and hold the button labeled “OPEN” on the relay module or “ON/OPEN” on the RF transmitter. The gear motor will wrap the tarp around the tarp axle causing the axle to move from the tarped position to the stowed position. Release the button when the system shuts down automatically. This tarp system can be opened part way and stopped. Anytime you release the switch the tarp system will stop. It will not hurt the tarp system to stop part way through the tarping cycle.

Never travel with the tarp in a partially covered position. The trailer should always be covered when traveling.

To cover the load using the press and hold feature, push and hold the “CLOSE” button on the relay module or “OFF/CLOSE” on the RF transmitter for greater than 2 1/2 seconds. The springs in the arm will move the tarp from the stowed position and across the trailer to the tarped position. Release the switch when desired during operation or when the system shuts down automatically.

OPTIONAL ARM ADJUSTMENT

As shipped from the factory, the front and rear arms are set to allow the axle to rest lightly on the end caps while following the contour as it moves across the trailer.

Different types of loads and conditions may require your tarp to operate differently. For this reason the system has been designed to be very versatile. Please see the steps below to adjust your arm if need be.

To make the arms carry the axle over heaped loads: Increase the knuckle pressure on the front and rear arms by moving the spring pin up to the middle hole. If even more lift is desired, move the spring pin to the top hole.

To increase arm control in windy conditions:

Increase the base pivot pressure on the front and rear arms by moving the spring pin up to the middle hole. If even more control is desired, move the spring pin to the top hole.

Recommended Maintenance:

All electrical connections should be checked regularly for corrosion. If any connections are found with corrosion, clean the connection and apply dielectric grease before reconnecting. Electrical connections can be found at all motors, switches, contactors, limit switches, control boxes and batteries. Motor mounting bolts should be checked periodically to ensure a minimum torque of 70 in-lbs (5.8 ft-lbs). All mounting hardware should be checked to insure all system components are securely fastened. Visually inspect all moving parts for abnormal or excessive wear.

Field Troubleshooting Guide:

1. Check main circuit breaker at battery to make sure it is not tripped. If tripped, reset.
2. Check all connections to make sure they are properly secured both at the terminal connection to the stud and where the terminal is crimped to the wire. Locations to check: battery connection, circuit breaker near battery, male and female plugs, relay connections, motor connection.
3. Ensure relay is powered up. If the RF module is on, the LED will be solid red. If the LED is not on, power the module up by pushing both large buttons simultaneously for 3 – 5 seconds until LED turns on. If RF module will not power up, remove and replace. If module will power up but system will not function, proceed to step 2.
4. Disconnect power leads from motor. Check for motor operation in both directions. To do so, use a set of jumper cables to go direct from battery to motor terminals (+lead to + terminal, - lead to - terminal). To reverse direction, remove the jumper cables from terminals and swap the leads to the opposite terminals (+lead to - terminal, - lead to + terminal). If motor does not operate in one or both directions, replace motor. If motor operates in both directions, proceed to step 5.
5. Reconnect input wires to motor and check for operation.
6. Using a voltmeter or test light, check for input power at relay. If using voltmeter, input voltage should be a minimum of 12V. If voltage is good, proceed to step 6. If no or low voltage, proceed to step 7.
7. Check voltage at relay output. To do so, connect tester leads to output terminals. Activate in one direction, check voltage, activate in opposite direction, and confirm voltage. If no or low voltage, relay must be replaced. If good proceed to step 8.
8. Check voltage at output circuit breaker located near battery. If no or low voltage, replace circuit breaker.

Error Codes:

Additional Troubleshooting:

Problem Description

Tarp will only run one direction
dielectric

Module clicks, motor will not run
and

Solution

Moisture between FWD & REV terminals, clean and add
grease

M1 & M2 shorted together or motor inter-nally shorted, find
eliminate short

LED Activity

Solid

2 blinks

3 blinks

4 blinks

5 blinks

6 blinks

Description

Unit functioning properly

System Overload Shutdown

Module Overload Shutdown

Motor Overheat Shutdown

High Voltage Shutdown (> 16V)

Low Voltage Shutdown (<7.5V)

Loose connections before control box

Old amperage control module still
connected in junction box

7 blinks

Mis-wired or No Load

Mis-wired – Power leads crossed

power ground is connected to the
M2 post

No Load – loose connection at the back
of box or at the motor

wire

broken wire, short in the system

Duration of LED Activity

During Operation

2 times

Until next button press

Until next button press

Until next button press

Until next button press

Check all connections from tractor to
back of control box

Bypass amperage control module in
junction box

Until next button press

Switch the power leads (red stripe
should be positive)

Switch M2 and ground wire

Check all connections for tightness

Check with repair facility to replace

SETTING FUNCTIONS ON REMOTE

Setting function allows functions to be blocked if not required /not going to be used.

1. Open transmitter. Observe flashing light.
2. Press and hold "MODE" button for 10 - 12 seconds until the top light stays lit.
3. Press the "ON/OPEN" button if this function will be used. Select and press the "OFF/CLOSE" button if you want this function to be skipped.



4. Repeat Step 3 for all five functions.
 - a. 1 LIGHT - TARP SYSTEM
 - b. 2 LIGHTS - FRONT HOPPER
 - c. 3 LIGHTS - REAR HOPPER
 - d. 4 LIGHTS - AUXILIARY
 - e. 5 LIGHTS - AUXILIARY
5. When the last function has been selected, the light on the first mode function will stay lit for approximately 3 seconds to indicate active and return to flashing when process is complete.



WARNING! Make sure all power supply to trailer is disconnected and the ground wire in the nose of the trailer and on the receiver box is disconnected prior to any welding on trailer. Failure to do so could result in damage to receiver control box!!

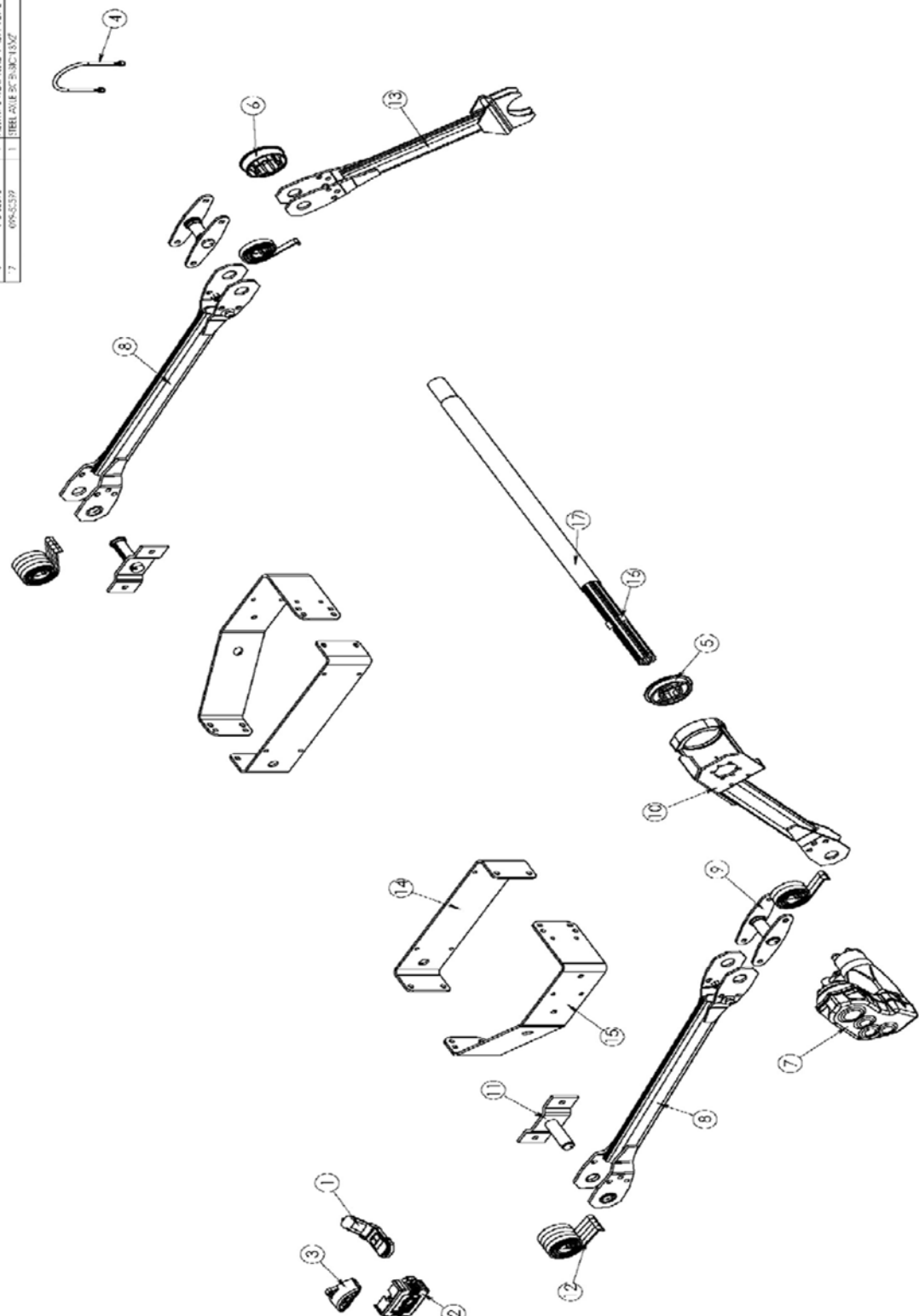
THUNDER TARP RF PROGRAMMING:

1. Power up the RF control module. Press and hold the 2 large “Open” and “Close” buttons for 3 seconds or until the light illuminates to indicate the system is activated.
2. Push and hold the small round button programming and the large “OPEN” button simultaneously and hold for approximately 6 seconds. The red light will flash rapidly.



3. Open all transmitters to be programmed and observe flashing light to insure transmitter is active.
4. Push “Select” button to select “Tarp System” if flashing light is in another mode on all transmitters to be programmed.
5. Press the “ON/OPEN” button on transmitter for one second to be programmed. The red light will stop flashing momentarily and then start. Repeat for all transmitters to be programmed. Four transmitters can be programmed to each control module so four inputs are required. If one transmitter is being programmed, the “ON/OPEN” button will required to be pushed four times. If two transmitters are being programmed then the last transmitter will be required to press the “ON/OPEN” button three times. The light on the control module will stop flashing when the four inputs have been received.
6. Close lid of programmed transmitters to power down transmitters.
7. Power down control module by pushing the “Open” and “Close” buttons for 3 seconds on the power module or transmitter.

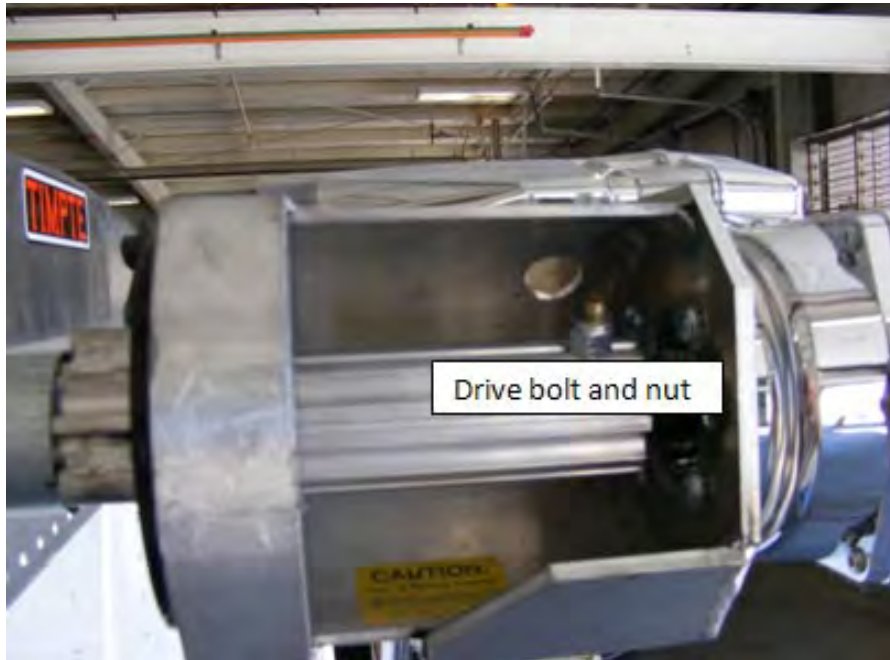
ITEM NO.	DESCRIPTION
1	66-52530 - PARKING BRAKE BEARING
2	66-52538 - BRAKE SHOE BEARING
3	66-52539 - PAD BRG. END VIEW
4	66-52535 - BUSHING 1/2"
5	66-52530 - PALLE SHIELD 2.5P. VENTUR INC
6	66-52534 - BRUSHING LUBRICATOR 1:10
7	66-52536 - SPRING COIL
8	66-52487 - BALE FROM MAN
9	66-52488 - HANDLE PIN W/STOP PLATE
10	66-52539 - U-PIN 1/2" X 1/4"
11	66-52571 - BRG. PIN
12	66-52572 - 1/2" BAL. BRICK - 1/2" ID
13	66-52536 - BEARING FRONT AREA
14	66-52486 - INNER JOINT W/ BRACKET
15	66-52485 - C. TRANSDUCING BRACKET
16	66-52534 - PALLE SHIELD 2.5P. VENTUR INC
17	66-52539 - U-BOLT 3/4" X 3/4" X 18"



THUNDER ELECTRIC TARP SYSTEM, MANUAL OPERATIONS

Your Thunder Electric Tarp System should operate smoothly and provide years of service. In the unlikely event that an issue arises with the electric drive motor for the system, please follow these instructions to manually open and close the tarp system.

1. Remove the motor shaft drive nut and bolt assembly from the tarp drive motor shaft on the nose of the trailer. (See picture below).



Note: Save the nut and bolt as the fasteners will be re-used in the event of an electric motor failure!

2. Remove the Manual Tarp Crank Handle from the Wall-Side Spring Retaining Clips. Use the crank handle to operate the tarp system manually.



3. Locate the universal joint and roll tube spline on the tarp roll rube, rear of the trailer.



4. Slide the Tarp Crank Handle universal joint and roll tube drive spline together (rear of trailer) by pushing the universal in-place until fully engaged with the roll tube spline.



5. Roll the tarp open and closed with the crank handle.
6. When finished, return the handle to the Wall-Side Tarp Crank Handle Retainers for storage and/or transport.

LANDING LEGS

Insure proper engagement of the handle onto the input shaft nut prior to cranking. Use wheel chocks and lock trailer brakes when uncoupling and coupling tractor and trailer. Insure that the supporting surface is of adequate strength and stability to support the trailer and the load, if applicable. Also be sure that the lay of the ground is reasonably flat and level. Select high speed or low speed gear reduction to raise or lower the landing legs. Reference decal on trailer for selection of mode and direction of rotation.

ACCESS SYSTEM

The trailer is supplied with an access system that is designed and supplied to allow the operator a means to view the interior of the trailer. It is comprised of a ladder, an observation platform(s) and a grab handle(s).



WARNING

1. EXERCISE EXTREME CAUTION WHILE CLIMBING ON ACCESS SYSTEM.
2. ALWAYS MAINTAIN 3-POINT CONTACT.
(2 HANDS & 1 FOOT OR 2 FEET AND 1 HAND)
3. DO NOT WEAR RINGS OR ANYTHING THAT CAN CATCH ON LADDER.
4. USE LADDER SIDE RAIL FOR HAND HOLD, NEVER USE THE RUNG.
5. NEVER CLIMB OVER THE TOP OF THE TRAILER.
NEVER ENTER THE INSIDE COMPARTMENTS FOR ANY REASON.
6. NEVER STAND ON THE ACCESS DURING LOADING OR UNLOADING.

FAILURE TO FOLLOW THESE WARNINGS COULD RESULT IN SERIOUS INJURY OR DEATH.

TO INSURE OPTIMUM PERFORMANCE OF THE ACCESS SYSTEM, IT SHOULD BE INSPECTED PRIOR TO USE FOR ANY VISIBLE SIGNS OF DAMAGE. REPAIR OR REPLACE ANY ACCESS SYSTEM COMPONENT THAT HAS BEEN BENT, CRACKED, WORN OR OTHERWISE DAMAGED. DO NOT MODIFY THE ACCESS SYSTEM WITHOUT CONSULTING WITH TIMPTE TRAILER CO.

LIFTABLE, REGULATED AXLE

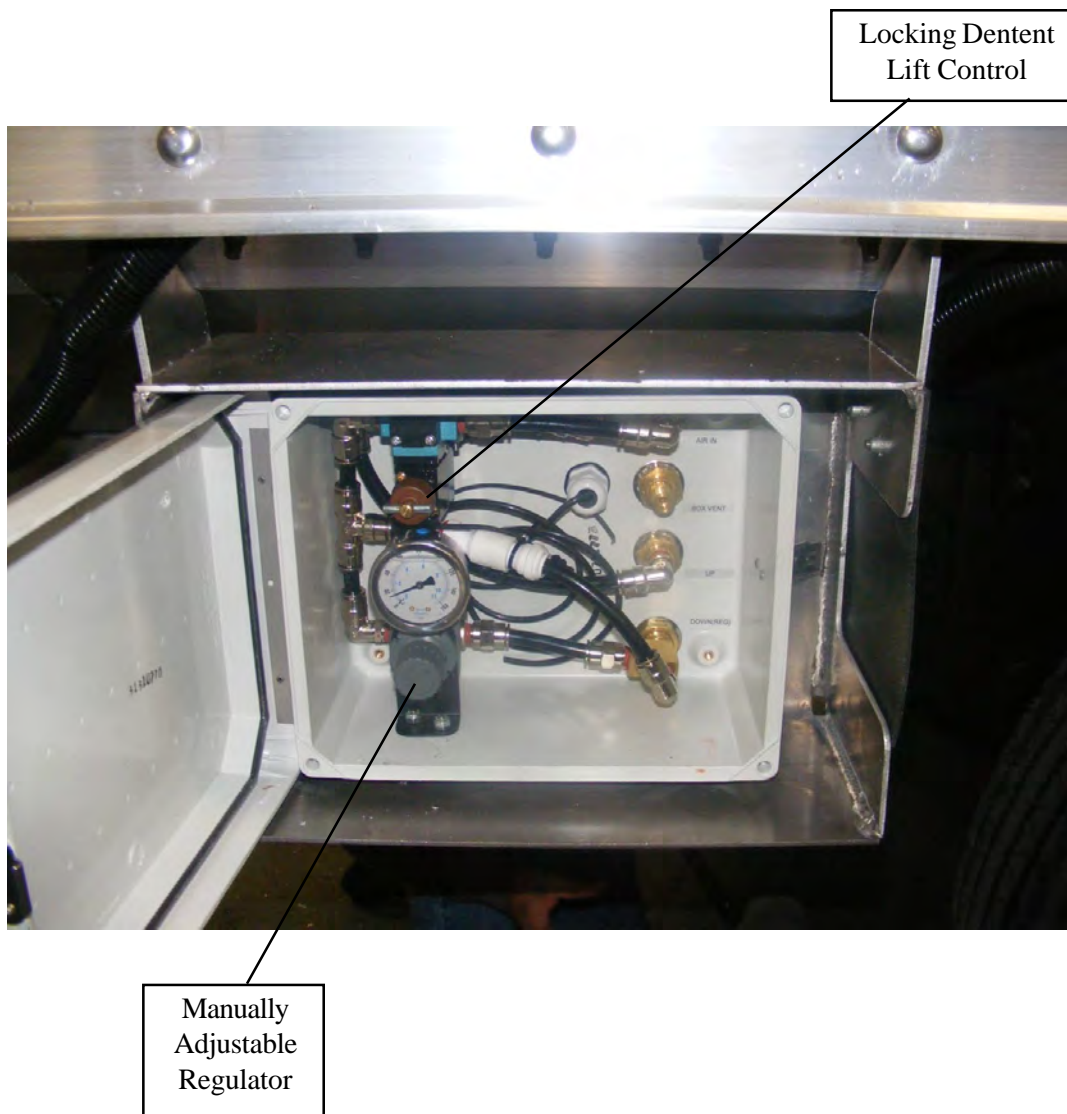
For trailers equipped with a Lifiable, Regulated axle, the air controls are on the roadside near the suspension of your trailer. This box contains a 160 p.s.i. regulator along with a locking detent lift control valve, and a manually adjustable regulator knob. The regulator is adjusted manually to control the pressure of the lift axle ride bags.

To control the load on your lift axle, with the trailer loaded, pull the regulator knob and turn to the desired pressure. This can be accomplished by placing the lift axle on a scale while the adjustment is taking place. Once the desired load is on the axle, push in the knob to lock the adjustment in place.

To lift or lower the axle, rotate the locking detent lift control on the valve counterclockwise Y4 turn to a horizontal position to lift and then back clockwise Y4 turn to a vertical position to lower the axle. The lift axle is considered a 'pushing axle' and it is very important to always lift the axle when the trailer is empty and lower the axle when the trailer is loaded.

If the axle were to be connected to electrical power, the lift has a personal safety feature that will allow the axle to lift when the power is disrupted.

NOTE: Loading the axle should never exceed the wheel, tire, or axle rating.



GENERAL MAINTENANCE

AVOIDING CONTAMINATION

The operator has the best opportunity to avoid contamination between commodities. It is critical that the operator clean and maintain the trailer interior and trap frame areas to avoid contamination. The interior hopper, dividers, etc. should be inspected and cleaned thoroughly by the operator as required. Use a broom or a high pressure sprayer to clean the interior surfaces including the dividers, wall liners and interior tub panels. Do not use a high pressure sprayer for trap frame cleaning and washing. High pressure water could enter and damage the bearings. Access to the interior of the trailer should be from underneath through the trap door opening. Never climb over the top of the trailer into the interior. See section below for trap frame maintenance.

TRAILER WASHING

Washing the trailer is an important step in decreasing future maintenance. The trailer should be washed with soap and water using a relatively soft bristle brush. Various chemicals can cause severe corrosive damage to aluminum. The use of acid in any concentration to clean the trailer will void the warranty.

There are many different types of chemicals used today to de-ice the roadways. Many of these can cause severe damage to the steel substructure of the trailer and diminish the appearance of the aluminum and stainless steel components if not kept properly and regularly washed away.

A number of products hauled in the trailer will also lead to corrosion if the products are allowed to build up. Products that build up on the aluminum and steel members in the suspension subframe and upper coupler area should be routinely washed off.

CORROSIVE DETERIORATION

Various chemicals can cause severe corrosive damage to your aluminum grain trailer. To prevent severe damage to your trailer due to corrosion, contact Timpfe Trailer Company Product Engineering to verify that the materials you are hauling are compatible with the materials used in the construction of the trailer.

Corrosive deterioration caused by incompatible materials could void all or part of the trailer warranty.

The most important preventive maintenance step to avoid corrosion is cleaning; your trailer should be washed out after each load to minimize corrosion when hauling such items as salt, fertilizer, etc.

TRAP FRAME/TRAP OPERATOR MAINTENANCE

The following areas (below) should be inspected regularly between loads and commodities.

- Doors (Top/sides/underside)
- Trap frame structure
- Roller bearings
- Gear rack
- Cross shaft and flange bearings



It is critical that the trap frame area be maintained properly for trouble free operation. Clean these sections with a hand brush, compressed air (50 PSI max) or both between loads to avoid contamination. **Do not use high pressure sprayer as bearings could be damaged.**

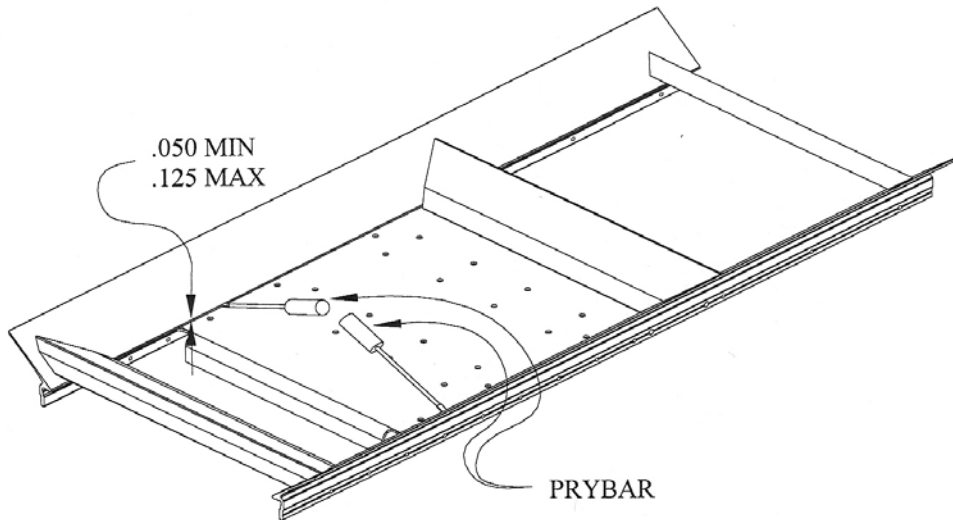
To maintain proper trap door operation and ease of opening, the mechanism must be properly adjusted and lubricated.

The trap operator drive mechanism (gear rack and cross shaft gear) interfaces must be kept properly aligned and free of debris and corrosion to enhance freedom of movement. Flange bearings should be greased regularly, depending on frequency of operation. Timpte recommends the operator grease bearings monthly (failure to do so may void warranty).

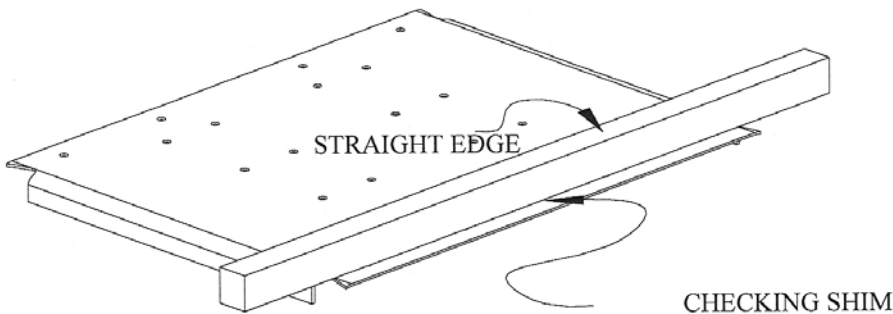
Use the following procedure to readjust the trap door and gear rack assembly.

FIELD ADJUSTMENT OF THE TIMPTE ROLLER DOOR

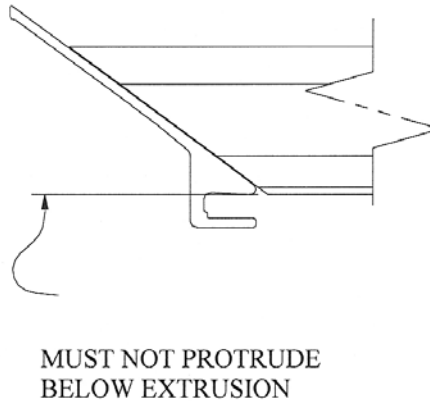
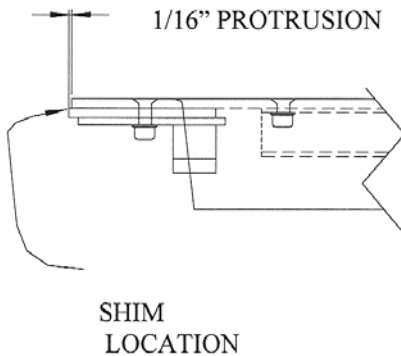
- 1) REMOVE THE OPENING MECHANISM AND THE CROSS SHAFT.
- 2) INSERT A SCREWDRIVER INTO EACH OF THE SIDES OF THE DOOR, BETWEEN THE UNDERSIDE OF THE TRAP FRAME RAIL AND THE FACE OF THE TRAP DOOR PRYING DOWN THE DOOR ONTO THE ROLLERS. MEASURE THE GAP, IT MUST BE BETWEEN .05" (MIN) AND .125" (MAX). IF THIS GAP IS MORE THAN .125", THE DOOR MUST BE SHIMMED WITH A .048" X 2.75" SHIM THE LENGTH OF THE RACK WELD STRIP. INSERT THIS SHIM BETWEEN THE DOOR AND THE SLIDE PADS.



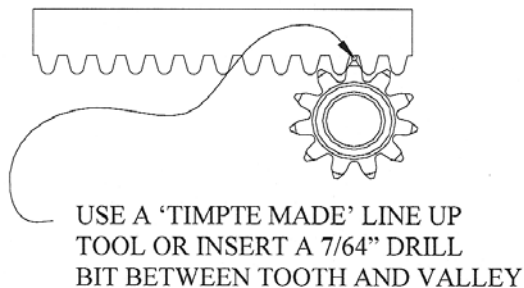
- 3) REMOVE THE DOOR AND MAKE SURE THAT IT IS FLAT. HOLD A STRAIGHT EDGE IN ANY DIRECTION OF THE DOOR AND TRY TO INSERT A .048" THICK SHIM BETWEEN THE TOP OF THE DOOR AND THE STRAIGHT EDGE. IF THE SHIM CAN FIT IN AT ANY POINT, PROP THE DOOR ON A COUPLE OF 2X4 PIECES OF WOOD IN DIRECTIONS THAT WOULD SUPPORT THE LOWER VALLEYS OF THE MEASUREMENT AND HIT THE HIGH PORTIONS OF THE DOOR TO FLATTEN. USE A SOFT BLOW HAMMER. ALSO CHECK TO SEE THAT THE PLASTIC PADS PROTRUDE BEYOND THE ALUMINUM DOOR BY APPROXIMATELY 1/16" BOTH SIDES. IF THEY DO NOT, REMOVE THE FASTENERS THAT HOLD THE RACK STRIP, MOVE THE PADS OUT (DRILL LARGER HOLES IF NECESSARY) AND REFASTEN.



- 4) LOOK AT THE FRONT AND REAR CROSS MEMBERS OF THE TRAP FRAME. THEY SHOULD NOT PROTRUDE BELOW THE UNDERSIDE OF THE SIDE TRAP FRAME RAILS. THIS CAN BE MEASURED BY A STRAIGHT EDGE FROM SIDE TO SIDE. IF THEY DO, KNOCK OR GRIND THE LOWER LIP OF THE CROSS MEMBER.



- 5) REINSTALL THE DOOR AND CHECK FIT AND ROLLER MOVEMENT. INSTALL THE CROSS SHAFT WITH THE SPUR GEARS. INSERT THE SCREWDRIVERS BACK IN BETWEEN THE TOP OF THE DOOR AND THE BOTTOM OF THE SIDE TRAP FRAME MEMBER. PUSH THE SPUR GEAR CROSS SHAFT UP AGAINST THE RACK AND USING THE TIMPTE MADE GAGE OR A 7/64 DRILL BIT FOR CLEARANCE, TIGHTEN DOWN THE FASTENERS. REMOVE THE GAGE/DRILL BIT AND ROTATE THE CROSS SHAFT WITH YOUR HAND. YOU WILL FEEL A BACKLASH (MOVEMENT TO THE SHAFT PRIOR TO ENGAGEMENT ON THE RACK) AND THIS IS NORMAL AND CORRECT. REMOVE THE SCREWDRIVER WEDGES AND RUN THE DOOR OPEN AND CLOSED WITH YOUR HAND USING THE CROSS SHAFT. IT SHOULD RUN SMOOTH AND EASY. IF NOT REPEAT STEPS.



- 6) FINISH INSTALLING THE 2 SPEED OR THE SINGLE SPEED OPENING MECHANISM.

AIR HAMMER (VIBRATOR) MAINTENANCE

The air hammer employed to help dislodge commodity should be lubricated on a regular basis. The air hammer manufacturer recommends a SAE 10 or lighter oil for this purpose. Frequency of lubrication is directly related to volume of usage. The operator should lubricate the air hammers (vibrators) prior to each use or maintain oil in reservoir if equipped with self-lubricating system.

NOTE: The operator must confirm that all air hammers are securely located in the mounting brackets and locked into place prior to usage. Failure to locate and lock air hammers into position properly could result in serious personal injury or damage to the trailer. Do not exceed 80 P.S.I. while operating piston vibrator. Failure to follow operating instructions properly could void the warranty.

TROUBLE-SHOOTING:

1. Vibrator will not start:
 - a. Check to see that quick-opening valve is properly installed.
 - b. Vibrator should be within 5 feet of operating valve.
 - c. Be sure vibrator has adequate air pressure and volume available.
 - d. Check for broken or missing spring on horizontal mount units.
2. Vibrator is sluggish and slow to start.
 - a. Check for adequate lubrication.
 - b. Check for leaking airline or defective operating valve.
 - c. Check air supply for pressure and volume.
 - d. Scale or other contaminants may need to be removed from interior.



FILTER/LUBRICATOR/REGULATOR SPECIFIED OIL

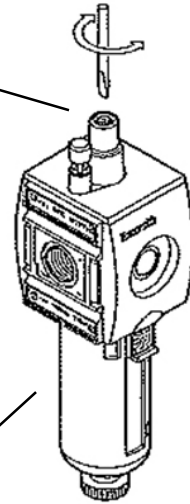
- SAE 10 or lighter air tool oil

FILLING WITH OIL

- Remove the reservoir from the FLR assembly
- Fill the reservoir with specified oil until oil appears in the small window. NOTE: If filling level is too high, oil can reach the system and damage it.
- Place the reservoir on the device until it engages audibly.



CLEAR PLASTIC NIPPLE WITH GOLD ADJUSTMENT SCREW



OILER SECTION ONLY SHOWN

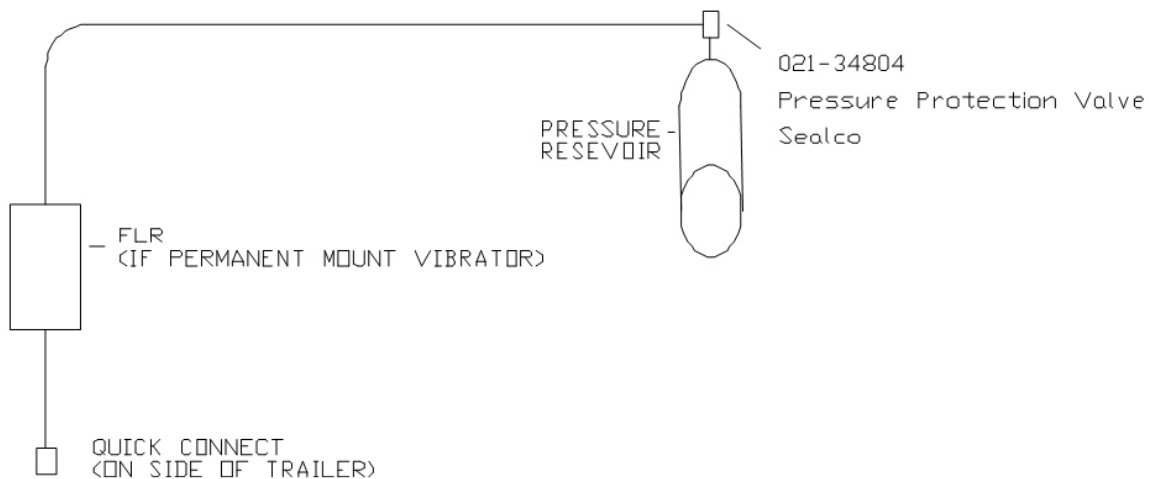
SETTING THE OIL AMOUNT

- Set the oil amount using the metering screw on the standard oil-mist lubricator's drop attachment.
- Determine amounts of oil discharged by observing the number of drops in the drop attachment. Standard value: 1-2 drops/min (qv = 1000 NI/min)

TROUBLE-SHOOTING:

Malfunction	Possible cause	Remedy
Oil content in compressed air is too low	Oil fell below the min. filling level in the reservoir	Refill oil in the reservoir
	Dose too low	Increase number of drops
	Ambient temperature lower than at time of setting	Use oil with lower viscosity
Oil content in compressed air is too high	Oil in the reservoir was filled above max, filling level	Drain oil in reservoir, until it reaches max, filling level
	Dose too high	Decrease number of drops
	Ambient temperature higher than at time of setting	use oil with higher viscosity

VIBRATOR AIRLINE SCHEMATIC



HUB AND BEARINGS

HUB MAINTENANCE

Check wheel studs for good condition – no stripped threads – no bent or loose studs. Replace any broken or bent studs or studs with damage to the threads. When a broken stud is replaced, the stud on each side of it should be replaced at the same time. If more than two studs on the same hub are broken, replace all of the studs.

WHEEL BEARING INSPECTION

Periodic inspection of wheel bearings and lubricants as well as regular lubricant changes are necessary for good maintenance and maximum wheel bearing life. The hub and/or wheel assembly must be properly cleaned to obtain optimum bearing life. This step also applies to field service. When adding or checking oil level, make certain cap and plug are clean. This step will minimize the possibility of dirt and road grime entering the system.

WHEEL BEARING ADJUSTMENT

1. Install adjusting nut so that pin on nut faces away from the hub.
2. Tighten inner nut to 200 ft. lbs. while rotating the hub in both directions.
3. Completely loosen the inner nut, then retighten to 50 ft. lbs. while rotating the hub in both directions.
4. Loosen the inner nut $\frac{1}{4}$ turn. Do not include socket backlash in the $\frac{1}{4}$ turn.
5. Install the lock washer. If the hole in the lock washer is not aligned with inner nut pin, remove the washer, turn it over and reinstall. If the washer hole is still not aligned with the pin, loosen the inner nut slightly until the hole and pin are aligned.

Note: The washer may have to be reversed again with minimum loosening of the nut.

6. Install the jam nut; Torque to 300 ft-lbs.
7. Check the hub end play with a magnetic base and dial indicator.
 - a. Place the magnetic base and indicator on the end of the spindle. Touch dial indicator stem to hubcap gasket face.
 - b. Slightly rotate the hub & drum in both directions while pushing inward until the dial indicator reading does not change.
 - c. Set the dial to zero.
 - d. Slightly rotate the hub & drum in both directions while pulling outward until the dial indicator reading does not change.
 - e. Read the end play from the dial indicator.
8. End play between .001 and .005 is acceptable.
 - a. If the end play is less than .001, loosen the jam nut; Repeat steps 1 through 8, and retorque to 300 ft. lbs.
 - b. If the end play is greater than .005, increase the jam nut torque to 300 ft. lbs.
9. Repeat Steps 6 & 7 as necessary until the end play is within the acceptable range.
10. Bend tabs on lock washer over opposite flats of the jam nut.

BEARING LUBRICANT

The lubricant change interval depends on the type of lubricant used; oil or semi-fluid grease. Oil levels should be checked as part of the daily inspection. Oil should be changed whenever seals are replaced, brakes are relined, or at least every 12 months or 100,000 miles. Fill hubs with new oil to the level indicated on the hub window using HD80-90W heavy duty oil with an API rating of GL-15 or GL-4.



CAUTION! DO NOT overfill oil. Oil seal damage may occur due to excessive internal pressure.

Grease lubricated wheel ends should be changed whenever seals are replaced, brakes are relined or at least every 12 months or 100,000 miles with NLGI Grade 1 or 2 grease.

To install semi-fluid grease

1. Pack both bearings with grease by forcing grease into the cavities between rollers and cage from the large end of the cone.
2. Apply a light coat of grease to the spindle bearing journals.
3. Install the inner bearing, inner seal and hub.
4. Fill the cavity between the bearing races with grease up to the smallest diameter of the bearing cups.
5. Install the outer bearing and adjust end-play as noted in the “Wheel Bearing Adjustment Procedure” section.
6. Apply a light coat of grease to the interior of the hubcap and wheel retention hardware to indicate what lubricant is installed as well as to help prevent corrosion of these parts.

BRAKES

Proper maintenance of the brakes is vitally important. This includes lining inspections and brake adjustments. A schedule for periodic adjustment, cleaning, inspection and lubrication of the brake equipment must be made according to duty cycle and type of operation.

Brakes must be adjusted as frequently as required for correct operation and safety. The adjustment must give correct clearance between the lining and drum, correct push rod travel, and correct balance between the brakes. Improper or inadequate lubrication is the leading cause of dragging brakes/premature brake wear.

Brakes must be cleaned, inspected, lubricated and adjusted every time the wheel hubs are removed.

During a major overhaul, the following parts must be carefully checked and replaced with genuine replacement parts if required.

1. Backing plates or spiders for distortion and loose bolts.
2. Anchor pins for wear and correct alignment.
3. Brake shoes for wear at anchor pins or roller slots.
4. Camshaft and camshaft bushings for wear.
5. Shoe return springs for wear and loss of strength.
6. Brake linings for grease on the lining, wear, chips, and loose rivets or bolts.
7. Drums for cracks, deep scratches, heat checking or other damage.

NOTICE:

Wheel bearings must be correctly adjusted before brake adjustments are made.

NOTICE:

Brake linings must not be permitted to wear to the point that the rivets or bolts touch the drum.

See the manufacturer’s maintenance manual for more information and details on brake maintenance, repair and trouble shooting.

Air leaks at spring brake chambers, reservoir fittings, drain valves, drop hoses, and connections can cause the air system to perform less efficiently and the compressor to cycle too frequently and may eventually result in dragging brakes.

If you suspect air system problems in either service brakes or spring brakes, don't hesitate – service the brake system immediately;

Trouble shooting the air brake system:

- Use the “soap bubble” test at all connections throughout the air system to detect external leaks
 - Threaded connections at the ECU
 - Threaded connections at the pressure protection valve
 - Any and all push-in fittings
- Check for exhaust leaks at all valves to detect internal leaks.
- Check the actuator and spring brake push rod for proper movement in operational modes.

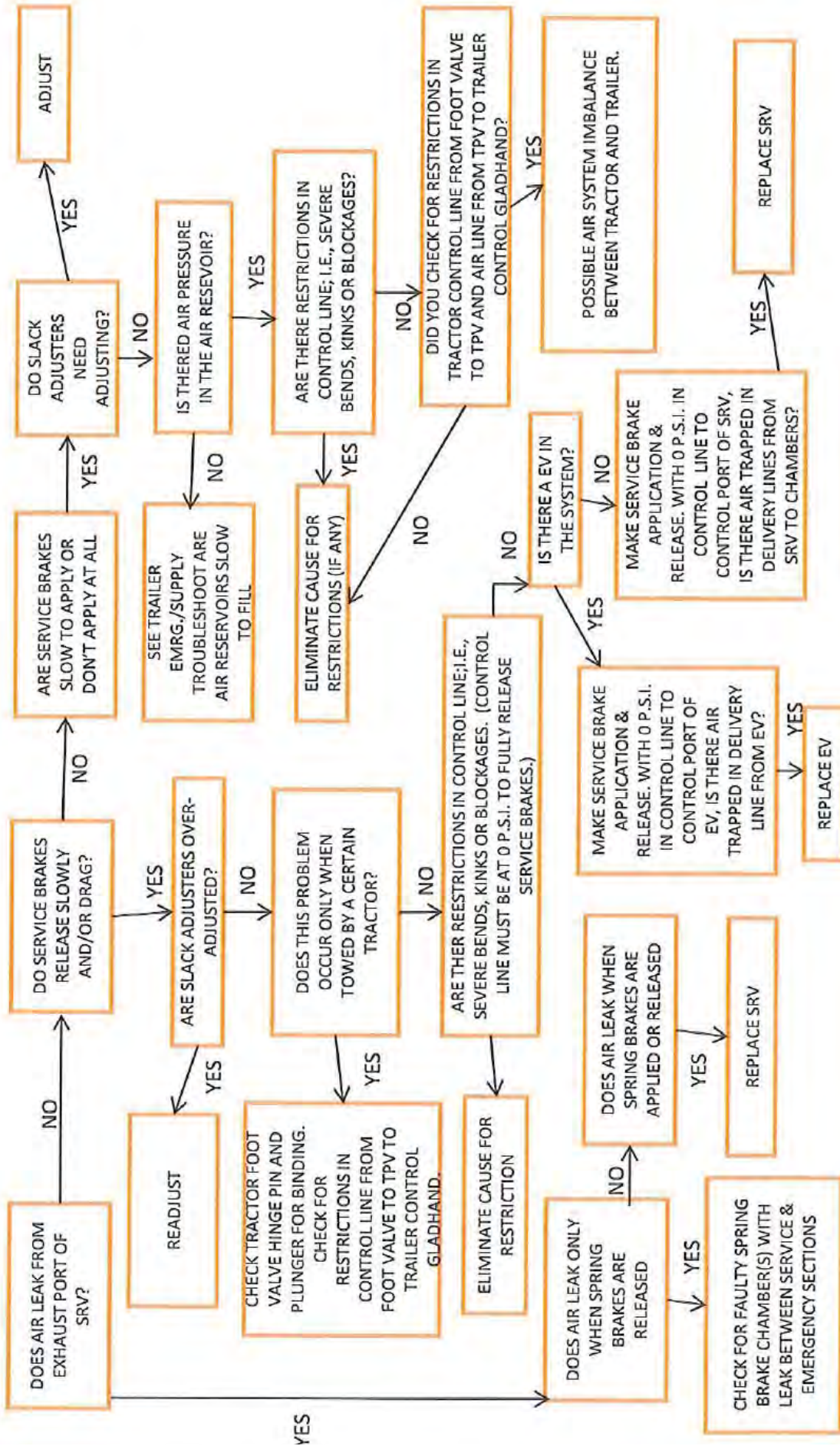
NOTE: Never splice air brake hoses within the air brake system. This action will void part or all of the trailer warranty.

AIR BRAKE SYSTEM - TROUBLESHOOTING GUIDE



CAUTION! Block wheels before servicing trailer air brake system. Drain reservoirs before removing air lines, hoses, valves, or servicing valve plug units. Consult spring brake manufacturer's recommendations before working on spring brake chambers.

LEGEND
 SRV - SERVICE RELAY VALVE (REFERENCE PG 38 BUBBLE 6)
 EV - EMERGENCY VALVE (REFERENCE PG 38 BUBBLE 22)
 TPV = TRACTOR PROTECTION VALVE



BRAKE CONTROLS

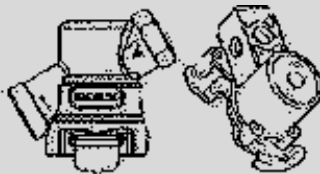
Proper operation of the brake system requires a good, clean seal between the glad hands. Inspect the rubber washer on the glad hands for damage. Inspect the glad hands for cracks in the metal parts. The glad hands have a screen filter and must be cleaned. Check air hoses for cracks and leaks. Check the operation of the brakes and slack adjusters. Drain the water from the air brake system each day by opening the drain cocks on the bottom of the air tank(s). Periodically check and clean the filter element on the air line filter, mounted directly behind the Control side glad hand. Observe the ABS status indicator light for proper operation as found under the ABS heading in the SAFETY section.

IN-LINE AIR FILTER

This trailer is equipped with an in-line air filter, Control side, which is located on the nose of the trailer, to assist in protecting the air system brake valves. The number one cause of ABS valve failure is contamination in the air supply from the tractor. This filter will help in minimizing those problems. To operate properly and provide the most protection possible, the filter should be inspected and cleaned every 3 to 4 months. Proper use and maintenance of the filter will help extend the life of the ABS ECU and will extend the warranty on the ABS ECU.

NOTICE:

Trailer is equipped with an in-line filter to assist in protecting the air system brake valves. The in-line filter is serviceable and should be inspected and cleaned every 3 to 4 months. See TP-03100 for maintenance instructions. www.meritorwabco.com



899 201 842 4

MERITOR WABCO

Rev 9/08

AIR SYSTEM COLD WEATHER OPERATION

Reservoir Draining – Daily reservoir draining is the most basic step in reducing the possibility of freeze up.

Thawing Frozen Air Lines

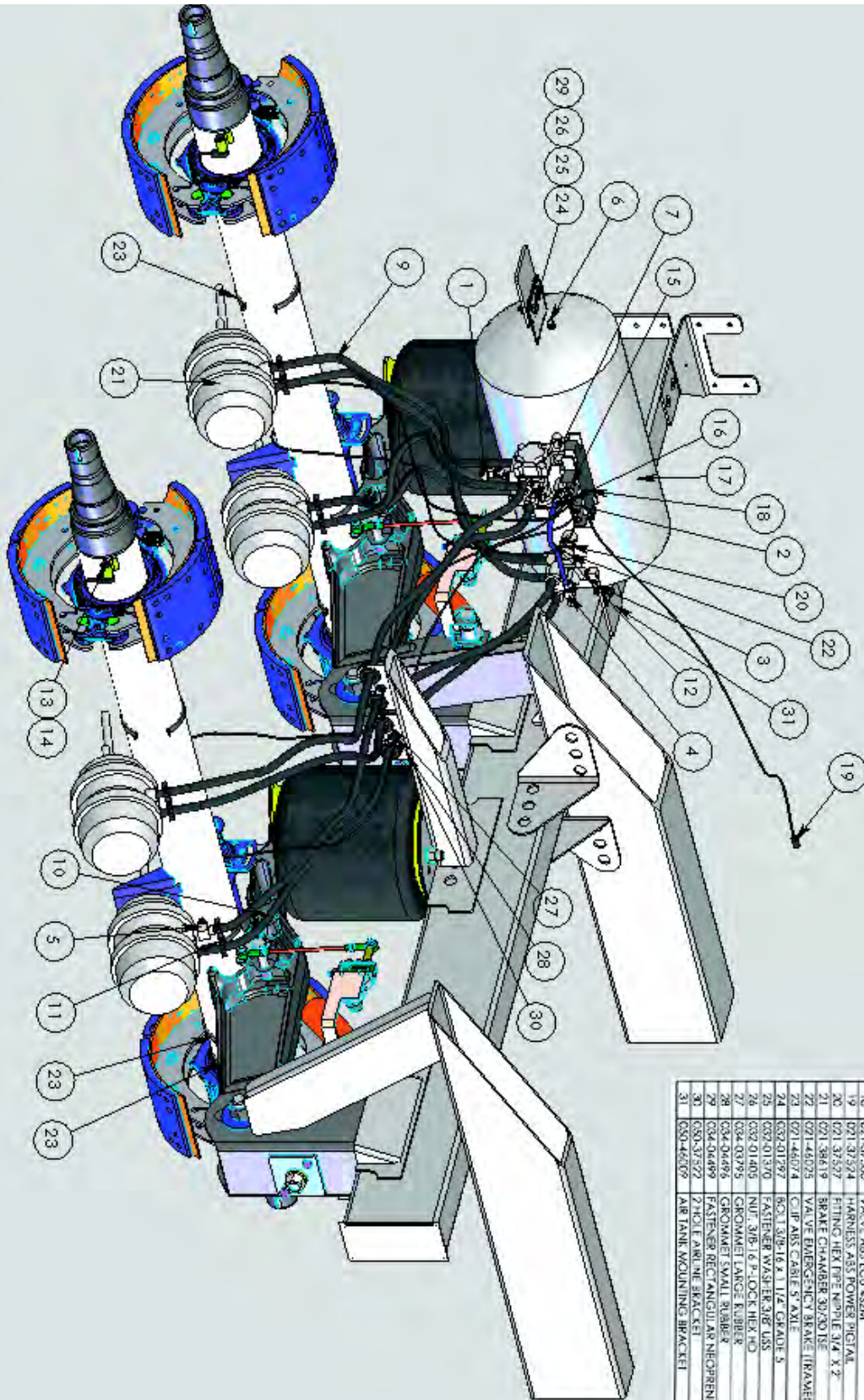
1. Maintain freeze prevention devices to prevent frozen air lines. Daily check evaporators or injectors. Check the air dryer for proper operation and change the desiccant when needed.
2. Thaw out frozen air lines and valves by placing vehicle in a warmed building. This is the only method for thawing that will not cause damage to the air system or its components.
3. Do not apply an open flame to air lines and valves. Beyond causing damage to the internal non-metallic parts of valves and melting or burning non-metallic air lines, THIS PRACTICE IS UNSAFE AND CAN RESULT IN VEHICLE FIRE.



CAUTION! Do not pour any alcohol into gladhands. Doing this will result in valve failure and will void the warranty. Fluid in air lines can also cause a fluid lock and keep

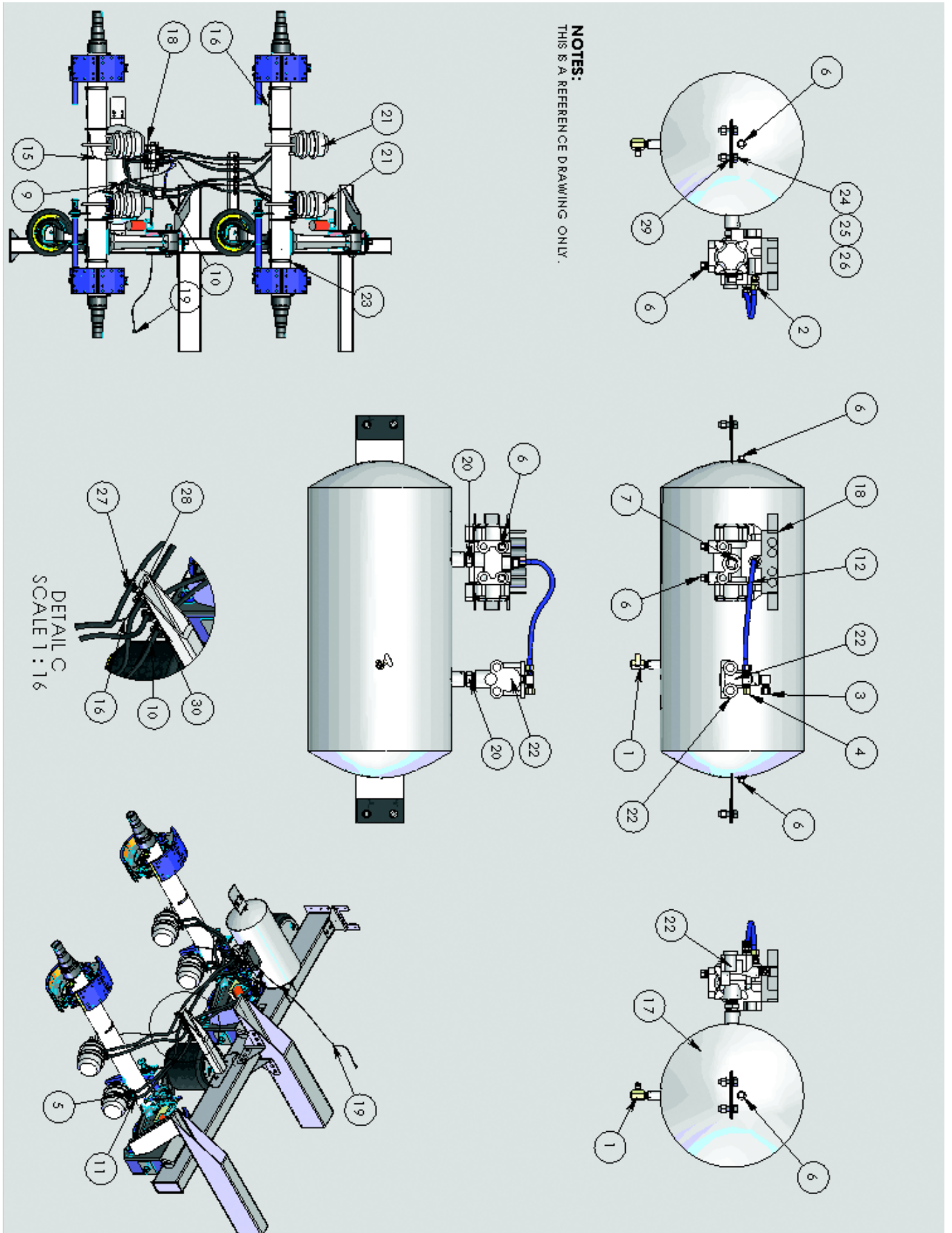
AIR BRAKE PIPING SCHEMATIC

NOTES:
THIS IS A REFERENCE DRAWING ONLY.
THE BILL OF MATERIALS LISTED HERE IS FOR REFERENCE ONLY.



NO.	320-44136	DESCRIPTION
1	021-00701	BRASS DRAIN COCK
2	021-00726	FITTING CONNECTOR 3/8" - 1/4"
3	021-00734	FITTING ELBOW 90° 3/8" - 1/4"
4	021-00757	FITTING TEE W BRANCH 1/4" - 3/8"
5	021-00765	FITTING STREETTEE 3/8" TEE BLOCK
6	021-00792	FITTING FPE PLUG 3/4"
7	021-00797	FITTING FPE PLUG 3/4"
8	021-00843	TYKAP BLACK WEATHER RESISTANT
9	021-02184	HOSE ASSEMBLY 30'
10	021-02184	HOSE ASSEMBLY 60'
11	021-21460	HOSE HANGER (DOG BONE)
12	021-31528	AIR BRAKE LINE 3/8" BLUE
13	021-31648	SENSOR ABS 4M
14	021-31649	SENSOR MOUNTING CLIP
15	021-31699	SENSOR ABS EXT. 1.8M
16	021-32020	SENSOR EXT. ABS 3M
17	021-34492	AIR TANK 17" DIA.
18	021-37500	V.A.V.E ABS ECU 4520A
19	021-37594	HARNLESS ASS. POWER PIGTAIL
20	021-37597	FITTING HEX FPE NIPPLE 3/4" X 2"
21	021-38419	BRAKE CHAMBER 30/20 ISE
22	021-44075	VALVE EMERGENCY BRAKE (BRAHEC)
23	021-44074	CLIP ABS (28E) 5" X 1"
24	021-01797	RC-1 3/8" 10.5" 11.6" 69" ADR-5
25	021-01530	FASTENER WASHER SHEET LOSS
26	021-01480	NUT 3/8" 6-T-LOCK TIE HD
27	021-03795	GROMMET LANGE RUBBER
28	021-04489	FASTENER REC. SMALL RUBBER
29	021-07277	7" HEX T. ANKLE BRACKET
30	021-06709	AIR TANK MOUNTING BRACKET

AIR BRAKE PIPING SCHEMATIC



NOTES:
THIS IS A REFERENCE DRAWING ONLY.

CHECKING SPRING BRAKES

Spring breaks must be inspected on a routine basis to insure proper operation. Inspection is recommended a minimum of every 3 months or 25,000 miles.



WARNING! Always chock wheels to prevent the vehicle from rolling before performing any brake maintenance.

1. Check overall condition of the foundation brakes including drums, shoes, lining, retainers, return springs, bushings and rollers. Replace any damaged or worn components per manufacturer's specifications.
2. Check for obvious structural damage to the spring brakes, brake adjusters, or cam shafts and replace any damaged or worn components per manufacturer's specifications.
3. Hook up appropriate air supply and release parking brakes. Apply and fully release Parking Brake several times while watching for brake adjuster movement. Adjusters should apply and retract at relatively the same distance for all wheel positions.
4. To verify equal push rod movement, measure each push rod from the Face of the Air Brake Chamber to the Center of the Clevis Pin with the brakes Fully Set or Parked. Apply air to the chambers to release the parking brakes and re-measure all wheel positions. All strokes should be within 1/8" of each other.
5. Applied Stroke at 90 to 100 psi can also be used to measure in a similar way as in step #4. Apply Service Brakes instead of setting Spring (Emergency) Brakes and record before and after push rod measurements. Measured push rod stroke should not exceed the recommended maximum readjustment limit of 2" for Standard 30/30 chambers and 2 1/2" for Long Stroke 30/30 chambers.

AUTOMATIC SLACK ADJUSTERS

Effective 10/20/94 all semi-trailers with air brake systems were required to be built with automatic slack adjusters to assist in maintaining the braking system performance. The automatic slack adjusters should be periodically checked to insure that they are performing correctly and should be lubricated on a regular schedule or at least every six months.

The following procedure can be used to check the in-service adjustment of air chamber push rod travel (adjusted chamber stroke) on trailer air brakes with automatic slack adjusters.

1. Connect an adequate air supply to the SUPPLY glad hand of the trailer's air system.
2. Increase the air pressure to 100 psi minimum to release the auxiliary spring brake chambers.
3. Determine the size and type of brake chamber you are inspecting.
4. With the brakes NOT APPLIED measure the distance from the bottom of the air brake chamber to the center of the large clevis pin on all wheel positions. Record each measurement.
5. Connect a second air supply to the CONTROL glad hand of the trailer's air system.
6. Increase the air pressure of the second air supply to 85 to 90 psi to apply the service brakes.
7. With the SERVICE BRAKES APPLIED measure the distance from the bottom of the air brake chamber to the center of the large clevis pin on all wheel positions. Record each measurement.
8. Calculate the adjusted chamber stroke of each brake. Subtract the dimension that was measured in Step #3 from the dimension that was measured in Step #6. The difference between the two dimensions is the adjusted air brake chamber stroke. The adjusted air brake chamber stroke must not be greater than 2" for 30/30 chambers and 1 3/4" for 24/20 chambers. If the adjusted air brake chamber stroke is greater than the dimensions listed, inspect the automatic slack adjuster for wear or damage. See manufacturer's recommendations for repair or replacement.

WHEEL ASSEMBLIES

Inspect parts and components for damage. Replace any defective parts.

Use only correctly matched parts when assembling and installing wheels. Incorrect parts can result in separation of the wheel components which can lead to an accident.

Assembling painted, dirty, or rusty components can prevent proper mating of parts. Make sure all mounting surfaces are clean and free of rust, dirt, or excessive paint.

Make certain all tires are matched to the same rolling circumference per the tire manufacturer's instructions. Do not use tires that do not meet this criterion. Doing so may result in unstable operation that can significantly reduce service life.

All components must be correctly installed and fasteners tightened to the recommended torque to assure maximum service life in accordance with the manufacturer's instructions. Failure to do so may result in serious injury or death.

WHEEL INSTALLATION

Hub piloted disc wheels have stud holes that are drilled straight through the wheel. Pilot bosses machined on the hub fit tightly into the center of the disc wheel. This supplies the alignment of the wheel to hub. Hub Piloted wheels are secured to the hub with flanged nuts.

Installation of a Hub Piloted Wheel

1. Be sure not to mix Hub Piloted and Stud Piloted disc wheels.
2. Use the correct flange nuts to match your wheels. Failure to do so may lead to loose wheels which significantly reduce product life and may result in a crash. Before proceeding with the installation of the disc wheels make certain that you are using the proper flange nuts. The Hub Piloted mounting uses M22 x 1.5mm pitch metric thread series nuts. The stud standout should be at least 2.16". All studs have right hand threads.
3. Rotate the hub so that one of the intermittent pilots is located at the top position.
4. Position the inner disc wheel over the studs and wheel pads being careful not to damage the stud threads or the pilot diameter of the wheel. Make sure the disc wheel is flat against the mounting surface and there is clearance between the disc wheel taper and the brake drum.
5. Position the outer disc wheel over the studs and wheel pilot pads being careful not to damage the stud threads or the pilot diameter of the wheel. Be sure the valve stems for both the inner and outer tires are accessible.
6. Install the flange nuts and tighten to 50 ft. lbs following the sequence shown. Note: On two piece flange nuts, apply a drop of oil between the nut and washer. Make sure the flange washer is not seized to the nut. Do not lubricate the mounting surface of the drum or wheel, or the stud threads.
7. Check both disc wheels for proper positioning on pilots and proper sealing against the drum/hub assembly. If they are not, loosen the flange nuts and reposition the wheels.
8. Tighten the flange nuts to 450 to 500 ft. lbs. dry thread torque following the sequence below.

Recheck the torque after the first 50 to 100 miles of service and at every pre-trip inspection.

WARNING



1. Read and understand this warning and the installation, Service and Safety Instruction Manual to understand all safety precautions, proper operation, and maintenance of your Webb hub. Failure to do so could result in death or serious injury and could result in a compromise of your vehicle's safe operation through loss or failure of a wheel or the compromise of the braking system. Copies of the installation, Service and Safety Instruction Manual are available, free of charge, from Webb Products, Inc., upon request.



2. Always use a properly installed calibrated torque wrench to assure proper torque. Under torque and over torque can cause thread and/or nut damage and could result in the loss of a wheel. Failure to ensure proper torque could result in death or serious injury and could shorten the expected life of this product.



3. Recheck torque after the first 50 to 100 miles of service. Parts may seat naturally, causing the torque to drop. A drop in torque could result in the loss of a wheel. Proper torque is essential to avoid damage or compromise

HUBS (FOR PILOT MOUNTED DISC WHEELS)

8 - 10 STUD HUBS

APPLIES TO M22 X 1.5 STUDS / TWO PIECE FLANGE NUT.

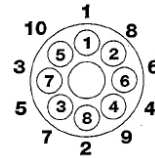
All threads are right hand metric.

Tighten Flange Nuts to 50 ft.lb. using sequence shown.

Check Disc-Wheels for proper positioning on pads and proper seating against flange.

Tighten Flange Nuts to recommended torque using sequence shown.

RECOMMENDED TORQUE: 450 - 500 FT. LBS.



TIRE CHANGE PROCEDURE

PRECAUTIONARY NOTES:

Keep unnecessary personnel away when raising and lowering trailer and changing tires.

Do not climb under a raised trailer.

Do not leave a raised trailer unattended.

Avoid raising a loaded trailer whenever possible.

1. Position trailer on a level, hard surface capable of supporting the total vehicle weight and lifting equipment.
2. Set brakes and block wheels at other locations to prevent movement.
3. If a loaded trailer must be raised for changing tires, take appropriate precautions to reduce risk of tipping, load shifting, or structural damage. If necessary, use two lifting devices and raise both sides of the trailer evenly to prevent leaning and tipping.
4. Position the jacks or lifting devices under the axle, as close to the outer end as possible. Use care to avoid placement that will cause contact and damage to other components such as brake chambers, cam shafts, U-bolts, and slack adjusters.
5. Raise the trailer at a slow, steady rate until the tires to be removed are off the ground. If using two lifting devices, raise both sides of the trailer evenly to avoid leaning and tipping.
6. Position trailer supports under trailer frame or axle to prevent unexpected lowering of the trailer.
7. Remove the nuts securing the tires and remove the tire(s) using a tire fork or similar device to lift the tire(s).
8. Install the replacement tire(s). Refer to the appropriate section of the Owner's Manual for specific instructions for wheel installation.
9. Torque the securing nuts to 450 to 500 ft. lbs. (dry)
10. Remove trailer supports
11. Lower the trailer to the ground at a slow, steady rate. If two lifting devices are used, lower both sides evenly to avoid leaning and tipping.
Watch for pinch points to ensure no electrical or pneumatic lines will be damaged.
12. Remove lifting devices and check wheel nuts to ensure they are torqued to the specified values.
13. Inspect suspension components for damage or improper adjustment resulting from raising and lowering the trailer. Repair any damaged components as necessary.
14. Remove blocks from wheels.

AXLE ALIGNMENT

Proper axle alignment is a vital part of trailer maintenance. Failure to maintain proper alignment may cause tire scrubbing and suspension component strain. Your trailer's alignment should be checked regularly and the axles realigned when required to prevent unnecessary tire wear.

1. To properly align the suspension make sure the trailer is unloaded. Free the suspension of any "binds" by first pushing the trailer backwards and then pulling it forward a sufficient distance. Check axle alignment with the trailer on a level surface with the trailer level both side to side and front to back, with tires properly inflated, trailer securely restrained, trailer brakes (service & parking) released and with the trailer ride height valve properly set (if an air ride).
2. Check each dual tire set. Tires of each set must be matched to a maximum of 1/8" tire radius. Air pressure must be the same in all tires.
3. Using a steel measuring tape, measure from the center point on the bottom of the king pin to identical locations on each end of the front axle using a consistent amount of pressure on the tape measure.
4. If these measurements differ by more than 1/16", adjust one end of the front axle forward or rearward until identical measurements are obtained on both ends.
5. After the front axle is aligned and secured, measure from the end of the front axle to the end of the rear axle on each side.
6. If these measurements differ by more than 1/16", adjust one end of the rear axle forward or rearward until identical measurements are obtained on both ends.

Spring suspensions are equipped with screw adjusted torque arms located on the driver's left side of the trailer. Adjustment of the alignment is accomplished by turning the torque arm in or out, depending on the adjustment required.

1. Loosen the radius rod clamp bolts.
2. Move the left end of the axle forward (shorten the alignment measurement) by turning the torque arm to make it shorter.
Move the left end of the axle rearward (lengthen the alignment measurement) by turning the torque arm to make it longer.
3. Check the alignment measurements. Repeat the adjustment in Step #2 as necessary.
4. When the axle is correctly aligned, tighten the radius rod clamp bolts to 130 ft. lbs. oiled or 170 ft. lbs. dry.

Note: Check the clamp bolt torque within the first 50 to 100 miles of operation following alignment.

Air ride suspensions are equipped with mechanisms to allow the movement of one end of the axle forward or rearward for the purpose of aligning the trailer axles.

Inspect the hanger pivot bushings as well as all other suspension components before adjusting the alignment.

The SAF Holland RLU suspensions use a bolt at the suspension pivot connection with an eccentric collar to allow for adjustment for axle alignment.

1. Loosen the 1 1/8" pivot bolt lock nut on the inside of the suspension hanger.
2. Rotate bolt head clockwise to move the axle forward (to shorten the alignment measurement) or rotate bolt head counter clockwise to move the axle rearward (to lengthen the alignment measurement).
3. Snug the hanger bolts to 200 ft. lbs. and check the alignment measurements. Loosen the nut and repeat the adjustments in Step #2 if necessary
4. When the axle is correctly aligned, re-torque the lock nut on the pivot bolt to 550 ft. lbs.

The SAF Holland CBX23 suspension with the Quik Align feature uses a bolt on the front the suspension hanger to allow for adjustment for axle alignment.

1. Using a hand wrench, rotate the Quick Align bolt clockwise to shorten the alignment measurement or counter clockwise to lengthen the alignment measurement.

AIR-RIDE SUSPENSION SYSTEMS

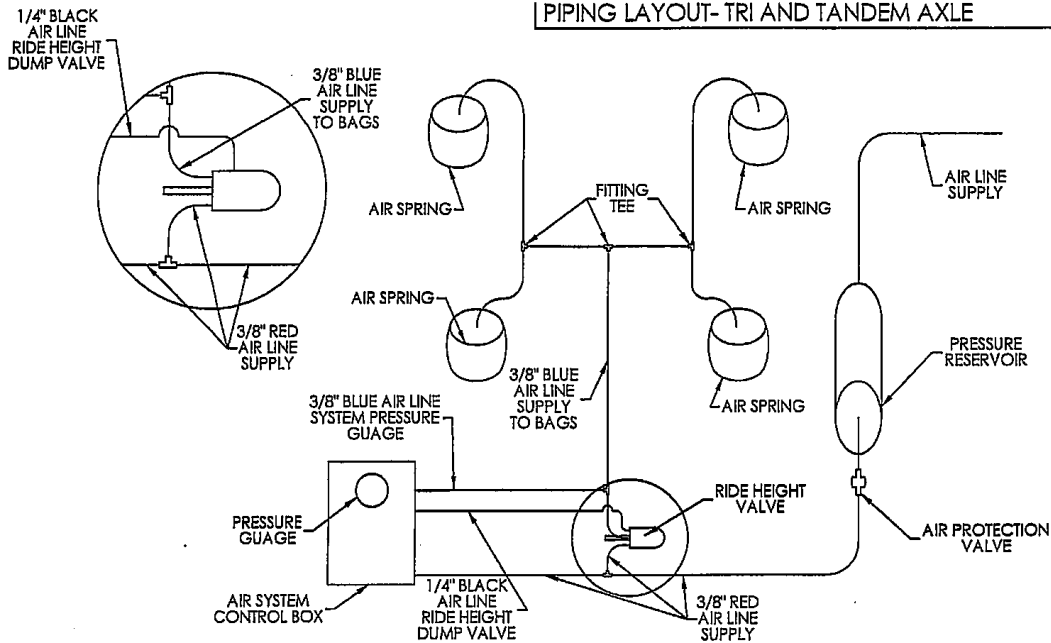
See suspension manufacturer's decals prominently displayed on trailer body and manufacturer literature kit supplied with trailer for details and specific instructions on the care and maintenance of the air ride suspension.

Retorque the suspension fasteners after the first 3 months of use or 5,000 miles of operation after an alignment, at regular periodic maintenance checks and at every brake relining per the manufacturer's directions.

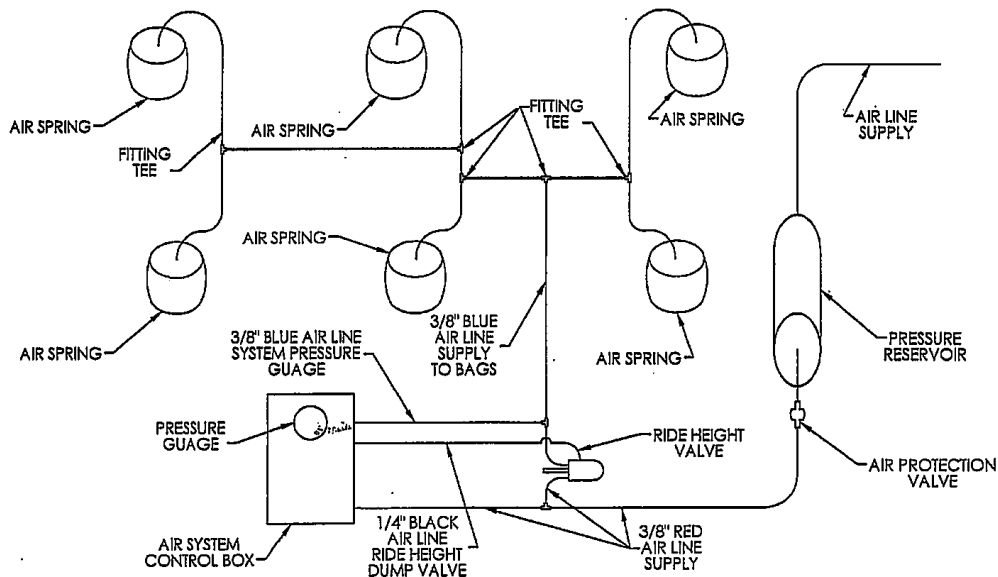
NOTE: Never move an air ride trailer without first fully inflating the air springs – failure to do so could cause damage to the trailer and suspension and will void the warranty.

AIR RIDE SUSPENSION SCHEMATIC

PIPING LAYOUT- TRI AND TANDEM AXLE



PIPING LAYOUT - TANDEM SUSPENSION



PIPING LAYOUT - TRIAXLE SUSPENSION

Trouble shooting hints for air piping systems:

- Check all push-in and T-fittings. Are they locked into place?
- Check all threaded connections to the spring brakes
- Check push-in fittings at the lift box (if applicable)
- Check push-in fitting at ride height box (bottom of the box)
- Threaded connections at the gladhands on the nose of the trailer
- Check push-in fittings at top of air bags
- Check for adequate supply of air from tractor
 - Is volume and pressure great enough to open Pressure Protection Valve
- Check free travel and response of Ride Height Valve

SPRING SUSPENSION MAINTENANCE

After 500 miles or not later than 30 days after purchase, carefully check all fastener torques on the spring suspension and make any adjustments necessary.

Components	New Oiled Torque	Clean Dry Torque
1 1/8-7 Rocker Bolt	590 ft. lbs.	790 ft. lbs.
1-14 Radius Rod Bolts	540 ft. lbs.	720 ft. lbs.
3/4-16 U-Bolts	310 ft. lbs.	420 ft. lbs.
5/8-18 Radius Rod Clamp Bolt	130 ft. lbs.	170 ft. lbs.
5/8-18 Spring Retainer Bolts	35 ft. lbs.	50 ft. lbs.

The axle alignment should be checked and corrected if necessary after this initial break in period. Check all suspension bolts no less than every 4 months. They should be tightened to the above torque specifications. (Remember lubricants or sealants on the threads reduce torque reading and paint, corrosion, or road debris on the threads increase readings). Check for and replace worn bushings in the equalizer and in the torque arm eye ends. Use a good rubber lubricant on bushings before installation to prevent damage during installation. Be sure radius rod bolts are tightened back to 540 ft. lbs. (oiled) after replacing any torque arm bushings, and tighten equalizer rocker bolts back to 590 ft. lbs. (oiled) after replacing equalizer bushings. Check the equalizers to see that there is no obstruction to their movement during operation. If equalizer movement is restricted by an obstruction, the axle “walk” will not be sufficient and damage could result.

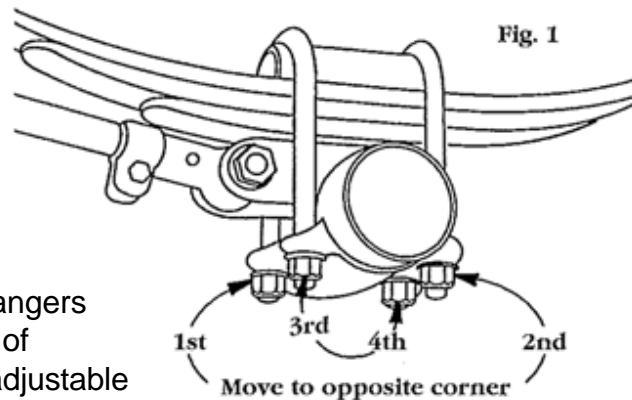
AXLE CLAMP GROUP AND SPRINGS -

1. Check the torque on the U-bolt nuts by alternately tightening opposing corners of the clamp assembly.

See Figure 1.

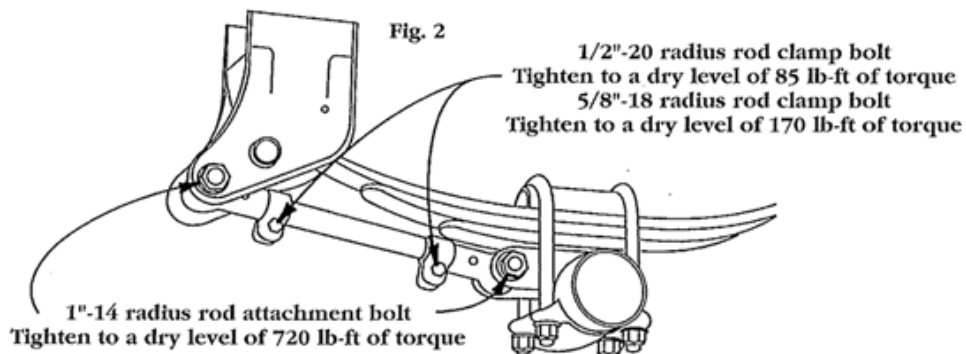
- a. When using 7/8” - 14 U-bolts, the nuts should be torqued to a **dry** level of 470 lb-ft.
- b. When using 3/4” - 16 U-bolts, the nuts should be torqued to a **dry** level of 420 lb-ft.

Always carefully inspect the spring and axle clamp components for any signs of wear or cracks, and replace if visible wear or cracks are present.



RADIUS RODS -

2a. The 1” - 14 radius rod attachment bolts at the hangers and spring seats should be tightened to a **dry** level of 720 lb-ft. of torque on both the adjustable and non-adjustable radius rods.



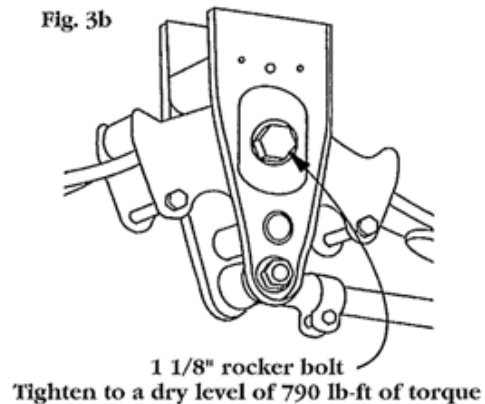
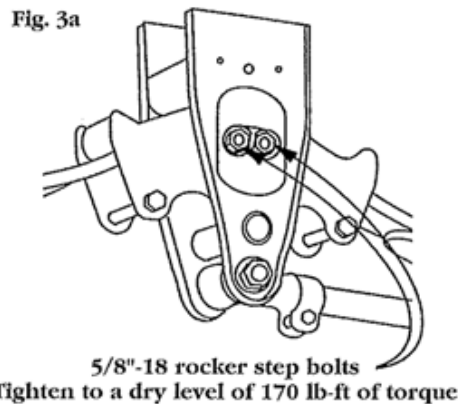
Loose operation of this bolt can result in wear requiring that new components be installed to avoid structural damage. During your visual inspection, if you observe any visible wear or loosening in the bushings, it is imperative that you immediately replace the radius rod bushing and bolt. Failure to replace these components will result in damage to the hanger, spring seat, and/or radius rod.

2b. Next check the 1/2" - 20 radius rod clamp bolt, which should be tightened to a dry level of 85 lb-ft. of torque. The 5/8" - 18 radius rod clamp bolt should be tightened to a dry level of 170 lb-ft of torque. **See Figure 2.** If the clamp bolt has not been properly maintained, then wear between the radius rod screw and the eye end may be observed. If so, then the entire radius rod must be replaced. **Simply retightening or replacing the clamp bolt will not correct the problem.**

ROCKER BUSHINGS -

3. The recommended torque values for the rocker bushing clamp bolts are different for each model.

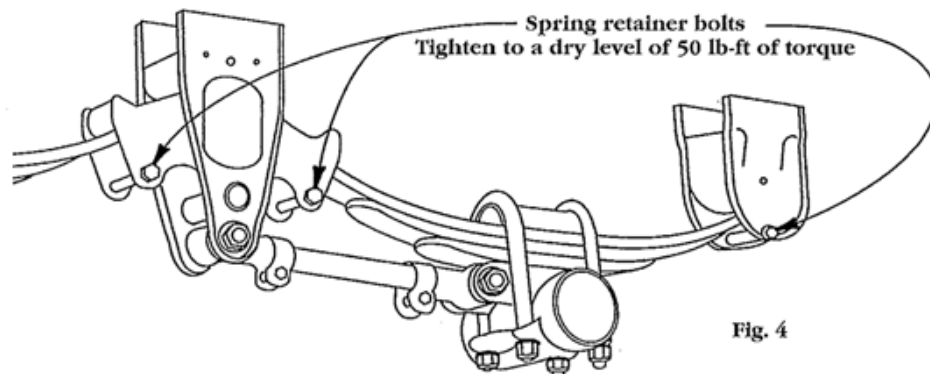
- a. If you are working on the 7700 model suspension, the 5/8" - 18 rocker step bolts should be tightened to a **dry** level of 170 lb-ft of torque. **See Figure 3a.**
- b. If you are working on the 9700 model suspension, the single 1 1/8" - 7 rocker bolt should be tightened to a **dry** level of 790 lb-ft of torque. **See Figure 3b.**



During your check, if the bolts are loose a detailed inspection of the rocker is important to ensure that no structural damage has occurred. One way this can be done is by raising the trailer until the trailer weight is taken off the springs. If the rocker is displaced or if the joint is loose, then the rocker should be removed and the rocker and/or rocker bushing be replaced. Again, visually inspect the condition of all rocker/rocker hanger assembly components and replace if visible wear is present.

HANGERS -

4. Check all the spring retainer bolts found in the rockers and rear hangers. A **dry** value of 50 lb-ft of torque should be maintained on all of these bolts. **See Figure 4.**



Loose fasteners that are allowed to operate for any period of time will result in irreversible suspension damage and possible loss of vehicle control. **Retightening a worn fastener will not correct a situation created by loose operation!**

ELECTRICAL SYSTEM MAINTENANCE

Your Timpte trailer utilizes an internally grounded, automotive style electrical system that meets or exceeds all of the requirements of FMVSS 108.

A 7-way plug is located on the front of your trailer. Each terminal carries current from your tractor electrical source through a circuit to the various electrical devices on the trailer. Individual circuits may be traced by the various wire colors. Listed below is a schedule of the color code of the primary electrical circuits.

Blue – ABS Constant Power
Red – Stop Lights
Black – Red Clearance Lights
Brown – Amber Clearance Lights

Green – Right Turn Signal
Yellow – Left Turn Signal
White – Ground

Use dielectric grease for all electrical connections to prevent corrosion between electrical junctions and to enhance electrical conductivity. (Failure to do so may void warranty.)

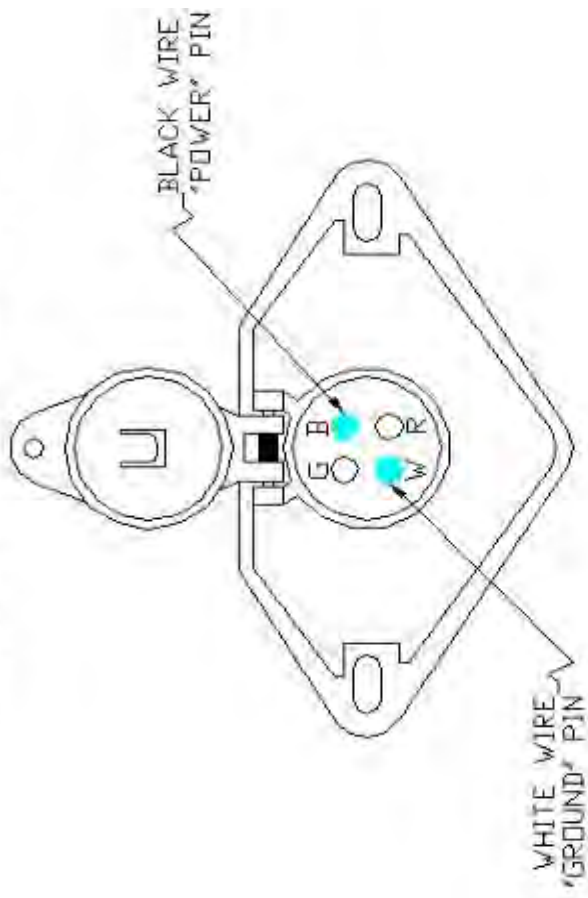
Do Not splice any electrical harness conductor. Splices may create open circuits or create the potential for “dead shorts” or “ground” issues within a circuit. Always replace damaged harnesses and conductors promptly. Splicing or modifying the harness may void warranty.



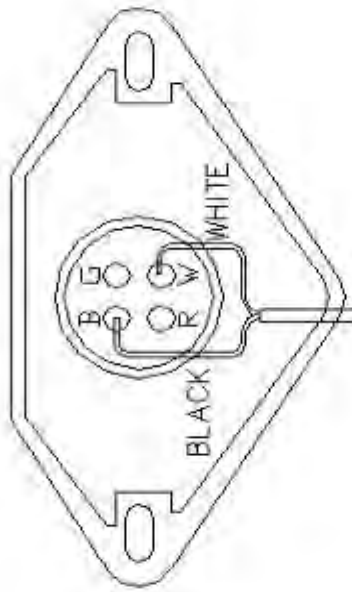
CAUTION – FMVSS #121 safety standard for Air Brake System required as of 3/1/1997 that trailers supply constant power via the blue center pin of the 7 way to the ABS system. As of 3/1/2001, all trailers were required to have an ABS system that provided for activation of the system status warning lamp inside the tractor cab.

Tractors and trailers using a single 7 way electrical connector will have constant power for the ABS on the center pin when the key switch is “on” and the ABS unit will communicate to the in cab system status warning lamp.

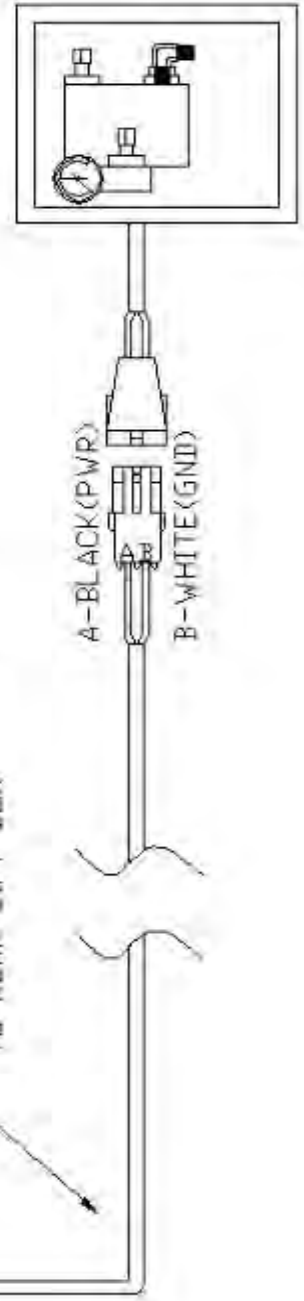
****FRONT OF PLUG ON TRAILER NOSE****



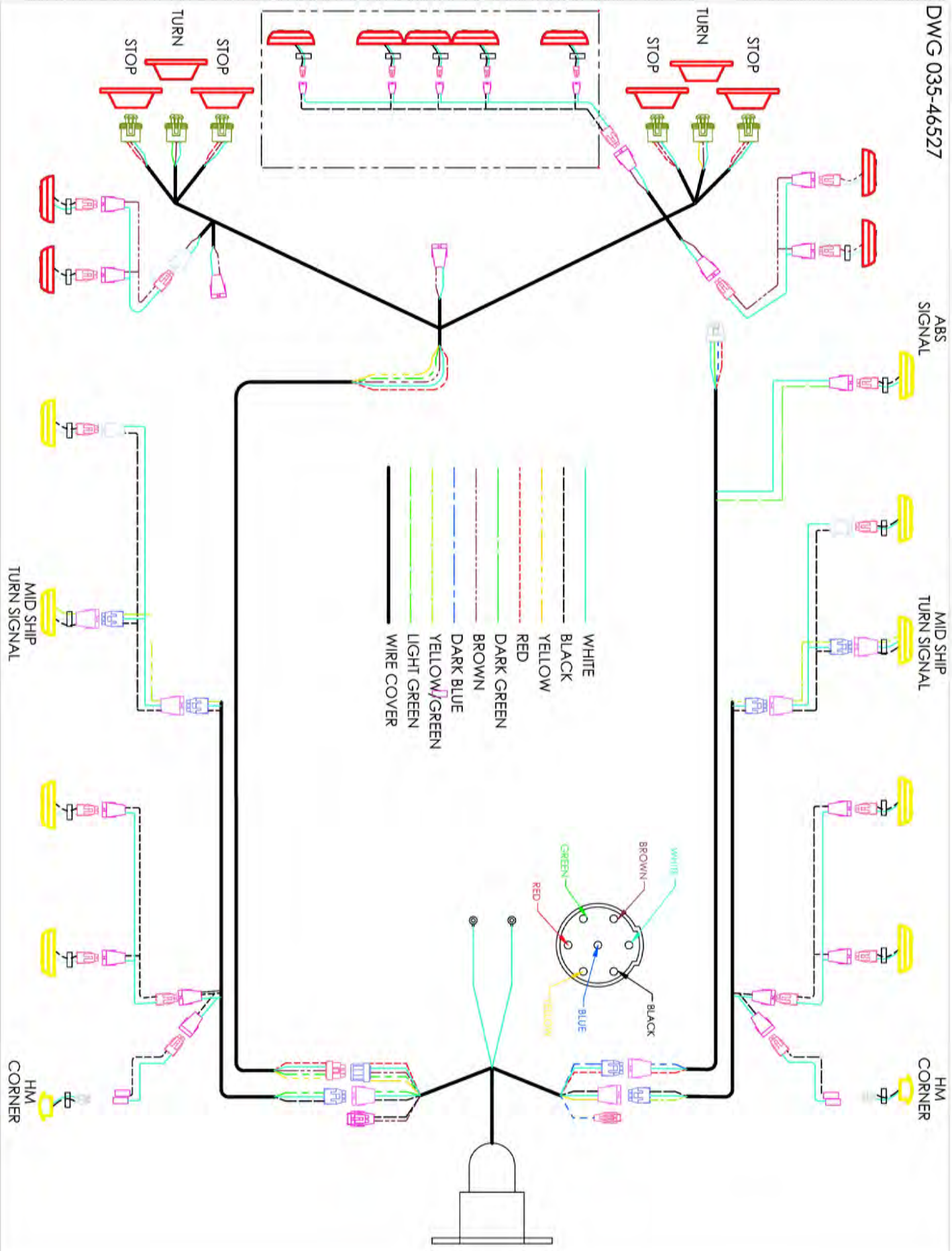
****BACK SIDE OF PLUG****



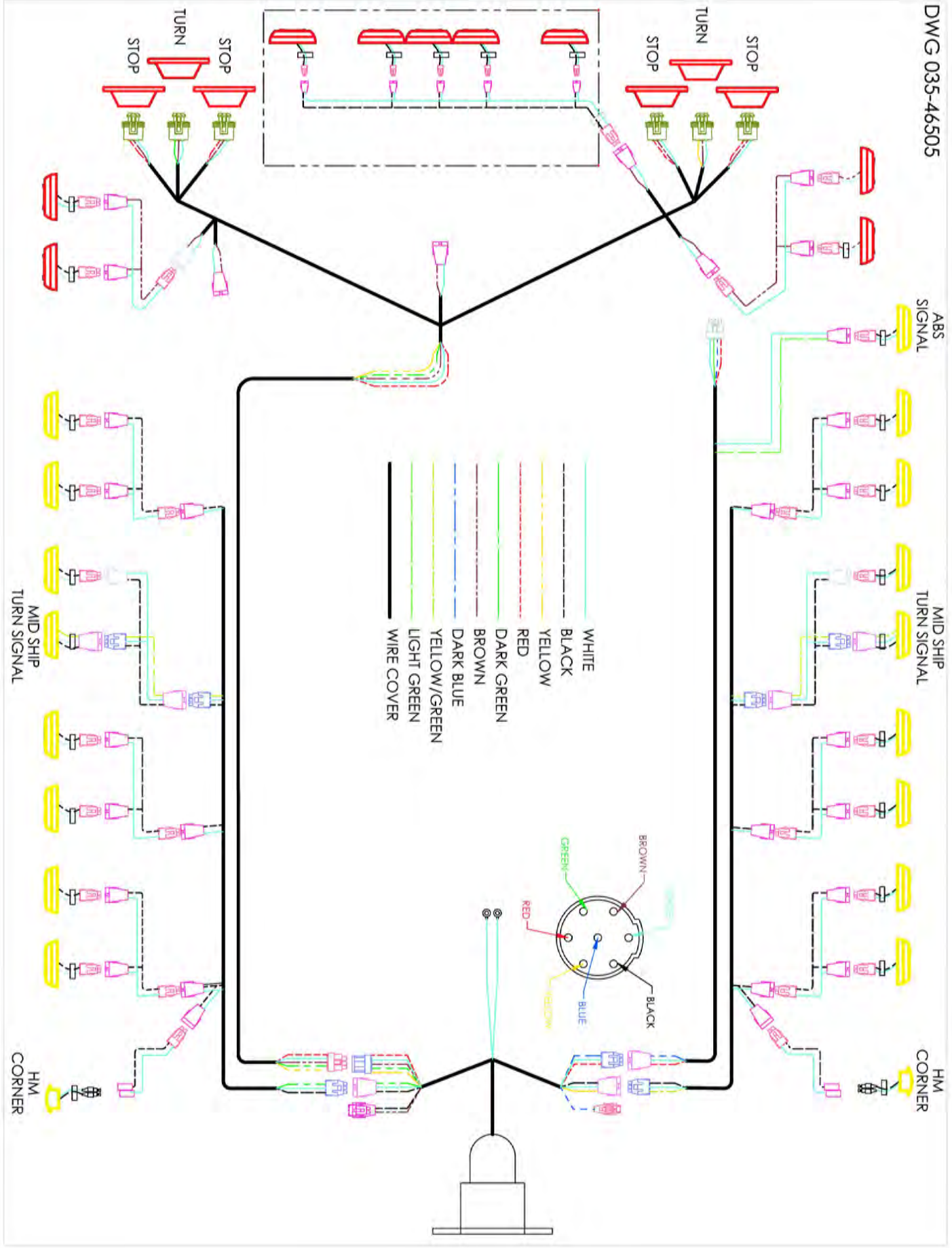
WIRE HARNESS FROM NOSE PLUG TO REAR LIFT BOX



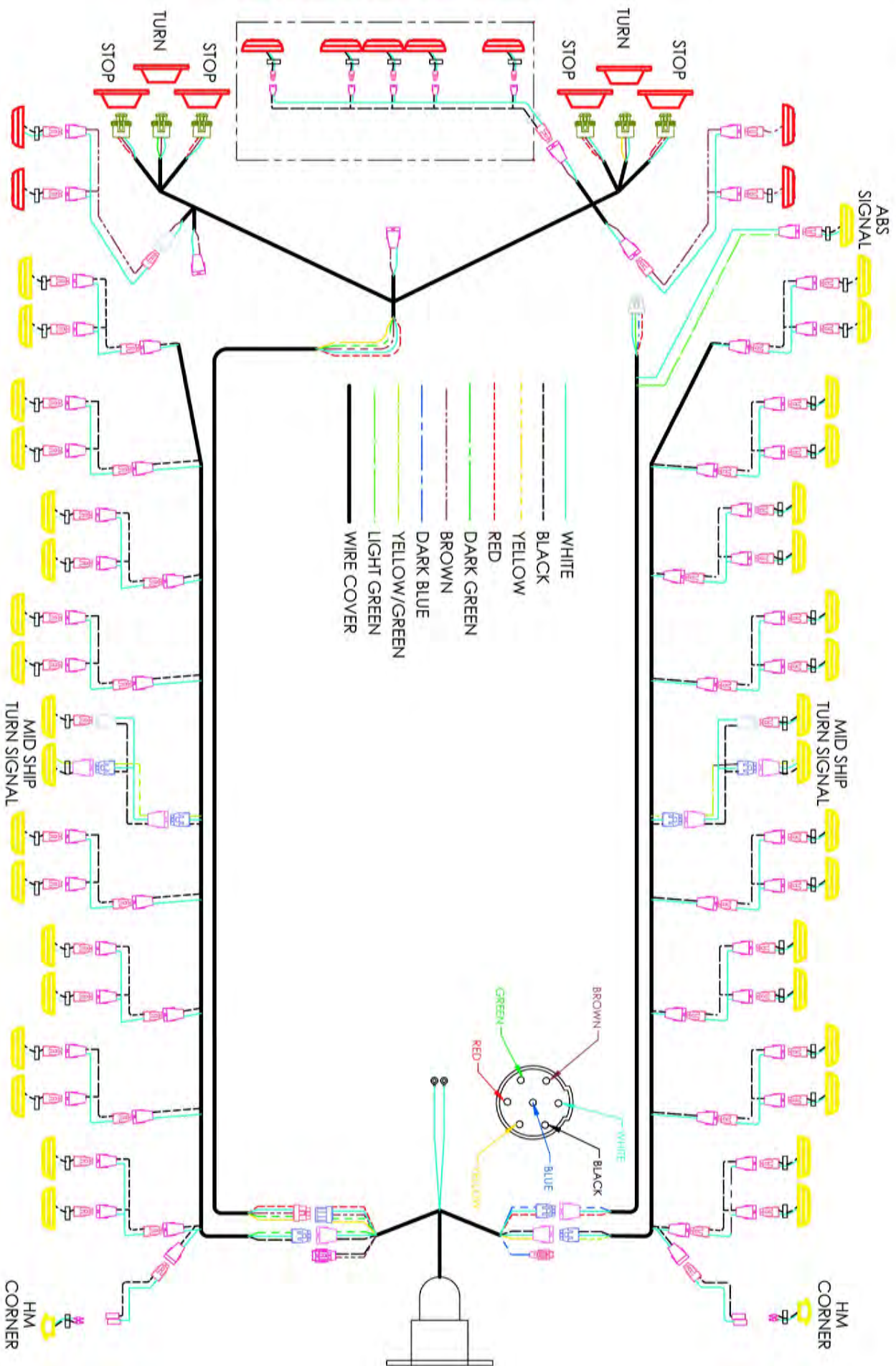
Lift Box 4-Way Wiring Schematic



2R3 LIGHT CONFIGURATION



2R5 LIGHT CONFIGURATION



2R9 LIGHT CONFIGURATION

LANDING LEGS

LANDING GEAR LUBRICATION IS IMPORTANT!

Your landing gear was adequately greased and packed with high quality lubricants when manufactured and will not require additional lubrication for the first five (5) year period of service and operation. Following the initial five year period, it will be necessary to periodically supplement this lubrication to maintain satisfactory performance for your particular application. Re-lubrication should be part of your preventative maintenance program and should be done every month or more often, if required.

For **low temperature operations** (under 20° F) use a lithium or an anhydrous calcium extreme pressure grease that operates down to -65°F.

For **cold weather operations**, it is also recommended to fill the gearbox approximately 3/4 full with grease. This helps minimize moisture accumulation, which can freeze, causing hard gear cranking.

For moderate temperature operations (20° F to 150° F) use a lithium or an anhydrous calcium extreme pressure grease.

Lubricate as follows: **(see FIGURE 1)**

1. Fully retract the landing gear, then using high gear, lower the leg 2-3 turns and lubricate the lift-screw assembly through grease fitting "A" (see landing gear legs shown below). Apply ½ lb. of grease.
Distribute the lubrication by extending and retracting the leg several times.
2. Lubricate the gearbox, using grease fitting "B". Apply ¼ lb. of grease
3. Lubricate the bevel gear using grease fitting "C".
Apply ¼ lb. of grease.

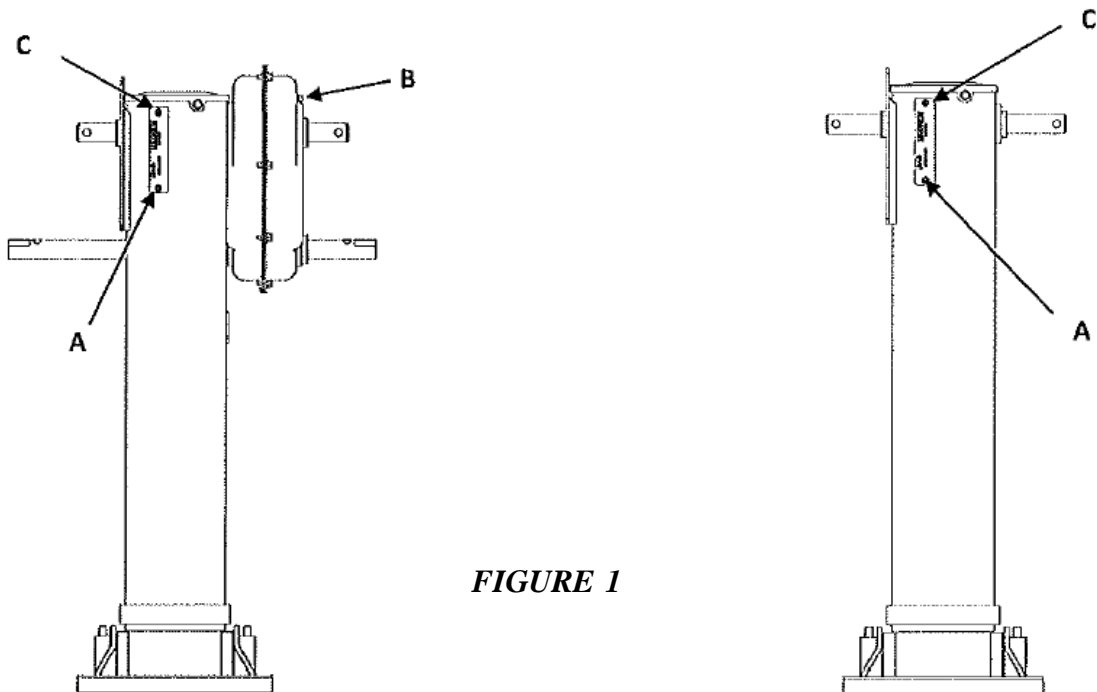


FIGURE 1

REPORTING SAFETY DEFECTS & OTHER CLAIMS

If you believe that this vehicle contains a safety defect you may contact Timpte Trailer Company, the National Highway Traffic Safety Administration (NHTSA) or both.

If you believe that this vehicle contains a safety defect you may contact Timpte Trailer Company, the National Highway Traffic Safety Administration (NHTSA) or both.

The trailer was designed and inspected to conform to industry standards and all applicable NHTSA safety standards. Timpte Trailer Co. warrants this vehicle to be free from defects in materials and workmanship when manufactured per the limited warranty agreement. If you detect a defect that could cause an accident or could cause an injury or death; or if you wish to report any such accident, injury or death, or any property damage claim or other complaint not addressed to the Timpte Trailer Warranty Department, then you should contact in writing:

Timpte Trailer Co.
Vice President of Engineering
1827 Industrial Drive
David City, NE 68632
Phone: 402-367-3056
Fax: 402-367-4340

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 Timpte Trailer Co.

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 Timpte Trailer Co.

To contact NHTSA, you may call the Vehicle Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153); go to <http://nhtsa.safercar.gov>; or write to: Administrator, NHTSA, 1200 New Jersey Avenue SE, Washington, DC 20590. You can also obtain other information about motor vehicle safety from <http://www.safercar.gov>

MAINTENANCE SCHEDULE - HOPPER

Trailer Serial Number _____
 Responsible Facility _____
 Customer Name _____
 Operations Manual to Customer ____ Yes ____ No
 In-Service Date _____
 Date Returned _____
 Date of Inspection _____
 Service Manager Signature _____

DAILY
WEEKLY
MONTHLY
ANNUALLY
SEMI-ANNUAL
QUARTERLY
MILEAGE/HR

*** Alignment and Suspension check ***

- 1) Initial alignment check (30 days for Spring-Ride & 90 dates for Air-Ride)
- 2) Suspension Torque Requirements (see decals on trailer or maintenance manual for specific suspension)
 Spring Ride - First 1000 miles - every 4 months periodically afterwards.
 Air-Ride - First 3 months or 5,000 miles - Every routine p.m. - Every brake realigning
- 3) Check suspension for damage (cracks, loose or missing fasteners)
- 4) Check air-ride suspensions for conditions of bushings, air leaks and shock absorbers
- 5) Check spring condition for free movement of equalizer, condition of bushings, torque of fasteners and any type of cracking or damage to the spring leaves.

Actual Reading	Time	Spec	Date	Initials
	MILEAGE/HR			
	DAILY			
	DAILY			
	DAILY			

*** Wheels, Rims, Tires ***

- 1) Check all wheel nuts for tightness and should be torqued to 450 to 500 ft-lbs (dry) after 50 to 100 miles of service - weekly thereafter.
 Check tires for cuts and abrasions.
- 2) Check tire inflation daily.
- 3) Check wheel stud condition for stripped & damaged threads (if damaged see owners manual)
 Reference Manual for:
 * vendor maintenance information concerning loading, inflation-maintenance procedures
 * replacing damaged components, part number and type.

	DAILY			
	DAILY			
	DAILY			

*** Lights, Reflective Devices, Brakes and Electrical controls ***

- 1) Check and clean all lamps, reflectors and conspicuity tape.
- 2) Check 7-way electrical connection.
- 3) Check air brake glad hands for cracked housing and for rubber washer damage.
- 4) Check air hoses and air lines for cracking and chafing.
- 5) Check the operation of brakes. Check stroke indicators on auto slacks for proper adjustment.
- 6) Drain moisture from the air brake system by opening the drain cocks on air tanks.
- 7) Check ABS warning lamp for system status.

	DAILY			
	DAILY			
	DAILY			
	DAILY			
	DAILY			
	DAILY			

*** FIFTH WHEEL AND KING PIN ***

- 1) Inspect king pin and its structure on the trailer for damage or unusual wear.
- 2) Inspect coupling for positive engagement of the fifth wheel and king pin.
- 3) Inspect for proper lubrication of 5th wheel plate.

	DAILY			
	DAILY			
	WEEKLY			

*** Trailer Body and Structural Components ***

- 1) Visually check trailer body, suspension, sub-frame, upper coupler, etc. for any cracking, deterioration or of any loose or missing fasteners.
- 2) Check trailer sides for damage, sharp bends, ripples or missing fasteners.

	DAILY			
	DAILY			

*** Tarp System ***

- 1) Check to be sure the tarp is in serviceable condition.
- 2) Insure that the latching system is in good working order.
- 3) Check proper operation of electric tarp system if on trailer.
 Reference Manual for:

	DAILY			
	DAILY			
	DAILY			

*securing tarp prior to travel to prevent damage.

*** In-Line Filter ***

- 1) Inspect and clean

	QUARTERLY			
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*** Lubrication ***

- 1) Hub Oil - Check Daily - Change every 100,000 miles (every year minimum)
- 2) Trap operator U-Joints
- 3) Auto slacks
- 4) Cam Bushings (4 times during the life of brake linings - 25,000 miles)

	DAILY			
	MONTHLY			
	SEMI-ANNUAL			
	MILEAGE/HR			

Control Document: 011-46246

Rev B 9-20-12

IMPORTANT - READ THIS

Timpte Reference Guide

Thank you for purchasing a new Timpte Trailer. If you are a first time purchaser or a long time customer this guide is a starting point to better understanding of your Timpte Trailer.

- Inspect your trailer to ensure that all is correct and complete as ordered. Go over Final Quality Control Check list with release agent or sales agent.
- Trailer packet – This packet contains information regarding specific components of your trailer.
- Maintenance Schedule – Please refer to the maintenance schedule in the trailer packet. This document contains important information about maintenance, lubrication and torque requirements. Some highlights:
 - a. Alignments – Complimentary if done within 30 days for spring ride, 90 days for air ride. Call Warranty Department for details (402-367-3056).
 - b. Check wheel torque within the first 50 to 100 miles (450 to 500 ft-lbs dry).
 - c. Suspension Torque Requirements (see decals on trailer or maintenance manual for specific suspensions).
 - d. Several Daily inspections are required of all operators. Refer to the Operators Manual for details (page 64).
 - e. Lubrication (Refer to Operators manual page 64).
 1. Check hub oil daily (change every 100,000 miles).
 2. Lubricate trap operator U-joints monthly.
 3. Lubricate auto slacks and Cam bushings every 25,000 miles or semi-annually.
 4. If so equipped ensure that vibrators are getting properly lubricated and oil reservoir is filled.
If not equipped with auto oiler, vibrators must be oiled prior to each use.
- Inspect and clean In-Line Filter on nose quarterly (refer to Wabco Manual in trailer packet).
- Keep ratchet and pawl lock adjusted properly (refer to Operators Manual for procedure page 16).
- Warranty – The Timpte Warranty Department will need to be contacted in advance for warranty repairs and a claim number issued for such repairs that are warrantable (402-367-3056).



Serving the transportation industry since 1884.

TIMPTE “PEACE OF MIND” LIMITED WARRANTY (FOR TRAILERS BUILT ON OR AFTER FEBRUARY 16TH, 2011)

Subject to the following paragraphs and warranty schedule, Timpte, Inc. warrants the **First Purchaser*** from Timpte, or from an authorized Timpte dealer, that a new bulk commodities trailer manufactured by Timpte, used in Normal Service**, will be free from defects in materials and workmanship for the period of three years from the date of delivery to the **First Purchaser*** except as listed in the exceptions below.

Axle Alignments

Timpte will pay reasonable and customary charges*** for a standard inspection of the trailer alignment and readjustment of the alignment

Spring Ride Suspension Trailers – 30 days

Air Ride Suspension Trailers – 90 days

Tires- Timpte provides no warranty coverage on the tires. They are covered under a separate manufacturer’s warranty.

1 Year Coverage

- Tarps
- Coating on steel parts
- Wheel Seals
- Pneumatic Vibrators

5 Year Coverage

- Landing Legs
- Axles
- Wheels
- Two Speed Gear Boxes
- Spring Ride Suspension Components
- Hub & Drum
- Auto Slack Brake Adjusters

This warranty does not cover items that need periodic adjustment as part of normal maintenance such as but not limited to; trap door adjustment and wheel bearing end play adjustment. This warranty does not cover any goods which are not defective, but which wear out and have to be replaced during the warranty period, including for example, but not limited to tires, lamps, lamp bulbs, brake linings, brake drums, suspension bushings, lubricants, wheel flaps, tarps, seals, grommet mountings, wire ties, circuit breakers, and the like.

Timpte reserves the right to change or clarify the warranty coverage at any time. Contact the Timpte Warranty Administration Group at 402-367-3056 for any specific questions on coverage.

WARRANTY EXCLUSIONS

Misuse, neglect, overloading, improper loading, failure to follow any recommended loading or operating instructions, failure to follow specified maintenance procedures and intervals, unauthorized repair or structural modifications or failure to provide normal maintenance shall void this warranty in its entirety.

This warranty does not cover purchased components, attachments, or accessories, whether acquired from or provided by a Timpte dealer, Timpte branch, or any other party, that are not in accordance with the factory-level standard specifications.

All warranty work must be approved by the Timpte Warranty Department prior to any work being performed.

CUSTOMER RESPONSIBILITIES

The **First Purchaser*** shall regularly inspect and check the trailer and follow all recommended maintenance procedures and intervals.

The **First Purchaser*** shall contact the Timpte Trailer Warranty Department immediately at 402-367-3056 upon detection of any perceived defect in the materials or workmanship. Any continued use of the trailer after discovery of a defect that could in any way aggravate the defect or otherwise damage the trailer will void the warranty on that part of the trailer.

Absolutely no work should be performed to the trailer prior to receiving authorization as evidenced by a valid claim number, from the Timpte Warranty department. Any work performed prior to receiving authorization will not be covered under warranty.

The **First Purchaser*** shall comply with the instructions of the Warranty Department related to a claim within 30 days of the date of those instructions or the warranty on that part of the trailer is voided. The Timpte Warranty Department will issue a claim number as authorization for approved warranty repair. Timpte will not pay for any warranty work that was performed without a valid claim number. All transportation charges in connection with a warranty claim will be the sole responsibility of the **First Purchaser***.

The **First Purchaser's*** sole and exclusive remedy against Timpte, arising from the purchase and use of the trailer, is limited to repair or replacement of defective materials and workmanship, as provided herein.

TIMPTE MAY AT ITS OPTION REQUIRE THAT THE DEFECTIVE PART OR TRAILER BE RETURNED TO A TIMPTE FACILITY OR A TIMPTE AUTHORIZED SERVICE SHOP, AS TIMPTE MAY DETERMINE.

ALL WARRANTY WORK MUST BE PERFORMED AT THE LOCATION DESIGNATED OR APPROVED IN ADVANCE BY TIMPTE AND TO THE SPECIFICATIONS DICTATED BY TIMPTE.

* "First Purchaser" means the first purchaser in good faith for a purpose other than resale.

** "Normal Service" means the loading and transportation of uniformly distributed legal loads of properly secured, noncorrosive cargo, in accordance with any applicable factory instructions and in a manner which does not subject the trailer or parts of the trailer to (a) concentrated loads; (b) loads in excess of the Gross Axle Weight Rating (GAWR) or Gross Vehicle Weight Rating (GVWR) stated on the Certification Plate affixed to the trailer by Timpte; and (c) accidental damage, impact or shock greater than those commensurate with normal, reasonable, lawful use.

*** "Normal and Customary Charges" are a sum not exceeding the price charged by Timpte for such work.

LIABILITY LIMITATIONS

TIMPTE SHALL NOT BE LIABLE TO THE FIRST PURCHASER* OR ANY OTHER PERSON FOR ANY DAMAGES, DIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR OTHERWISE FOR BREACH OF WARRANTY, FAILURE OR DELAY IN MAKING DELIVERY, OR ANY OTHER CAUSE, EXCEPT AS SPECIFICALLY SET FORTH IN THIS WARRANTY. IN NO EVENT WILL TIMPTE'S CUMULATIVE LIABILITY FOR BREACH OF THIS WARRANTY EXCEED THE PRICE CHARGED BY TIMPTE FOR ANY PART TO BE REPLACED PLUS NORMAL AND CUSTOMARY CHARGES *FOR REPAIRS TO BE MADE UNDER THIS WARRANTY.**

WITHOUT LIMITING THE FOREGOING, TIMPTE SHALL NOT BE LIABLE FOR ANY DAMAGES WHATSOEVER AS A RESULT OF CARGO LOSS, DOWNTIME, DRIVER, ROAD SERVICE, TOWING EXPENSE, TIRE REPAIR SERVICE, LOSS OF PROFIT, RENTAL OR SUBSTITUTE EQUIPMENT OR ANY OTHER TYPE OF LOSS DUE TO TRAILER PERFORMANCE. PREMIUM LABOR RATES (I.E. OVERTIME, SERVICE CALLS, ROAD SIDE/MOBILE SERVICE) WILL NOT BE PAID FOR WARRANTY REPAIRS.

THE WARRANTIES SET FORTH HEREIN ARE THE ONLY WARRANTIES APPLICABLE TO TIMPTE BULK COMMODITIES TRAILERS AND ARE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

TIMPTE'S OBLIGATION

In the event of a defect in material or workmanship covered by this warranty, Timpte Inc. in its sole discretion will:

- Correct the defective work or replace the defective parts at Timpte's factory or at a Timpte Branch or dealer assigned by Timpte.
- Or reimburse the **First Purchaser*** by paying a sum not exceeding the price charged by Timpte for such work or part,
- Or provide for repair of the defective parts by an authorized Timpte service facility,
- Or supply a replacement part to the **First Purchaser***, who will install it at his own expense.

To file a claim or if you have any questions concerning this warranty, contact the Timpte Warranty Department at:

Timpte, Inc.
1827 Industrial Drive
David City, NE 68632
402-367-3056

Filing a Warranty Claim

To file a warranty claim with Timpte Trailer Co. pursuant to the Timpte Limited Warranty – contact the Warranty Department at Timpte Trailer Co. at 402-367-3056 or write; Timpte Trailer Co.

Warranty Department
1827 Industrial Drive
David City, NE 68632

When filing a warranty claim several steps can be taken to aid the quick response to your request.

1. **Have the Serial Number of the Trailer** – Everything is registered and logged off of the serial number. (Last six of the VIN#)
2. **Know the In-Service Date** – This will help in determining what warranty coverage is available per the Timpte Limited Warranty.
3. **Have contact information available** – The correct name of the owner, address and phone numbers are important to aid in the confirmation process and timely transfer of information.

Repair Facilities

Timpte operates five service and parts centers:

Timpte Trailer Co.
2801 23rd Avenue
Council Bluffs, IA 51501
Phone#800-654-0636

Timpte Trailer Co.
2225 Howard Drive West
North Mankato, MN 56003
Phone#800-334-2096

Timpte Trailer Co.
3416 South 16th St.
Aurora, NE 68818
Phone#888-256-4884

Timpte Trailer Co.
5368 Hutton Drive
Urbana, IA 52345
Phone#866-865-0992

Timpte Trailer Co.
160 West Progress Drive
Princeton, IL 61356
Phone#866-875-6509

Locations for Timpte Dealers can be found on the Timpte Website – www.timpte.com

