CIMC REEFER TRAILER OPERATION MANUAL

CIMC REEFER TRAILER INC.

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1. INTRODUCTION

1.1 INTRODUCTION

Read and understand this manual before using your trailer and follow all of the safety instructions.

Some components may have separate instruction manuals. Where this manual indicates that you should read another manual, and you do not have that manual, contact your dealer or Qingdao CIMC Reefer Trailer CO., LTD for assistance.

Information provided in this manual was current as of the issue date. Qingdao CIMC Reefer Trailer reserves the right to make design changes without further notice or liability.

1.2 TRAILER AND MODEL IDENTIFICATION

The Certification / VIN tag is located on the front wall of the trailer. See figure 1-1.

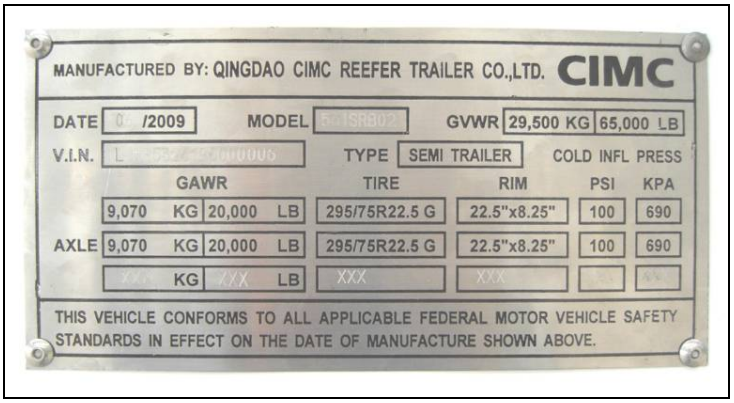

Figure 1-1 - Certification / VIN Tag Location

The trailer Certification / VIN tag contains the following information:

MANUFACTURED BY: Qingdao CIMC Reefer Trailer CO., LTD

DATE: Month and year the trailer was manufactured.

GVWR: The Gross Vehicle Weight Rating is the maximum allowable gross weight of the trailer and its contents with the listed wheel rims.

GAWR: The Gross Axle Weight Rating is the maximum gross weight that the axle can support.

TIRE: The tire size recommended for your trailer and load range.

RIM: The rim size recommended for your trailer.

COLD INFLATION PRESS: This is the tire pressure measured when tires are cold.

CERTIFICATION STATEMENT: "This vehicle conforms to all applicable Federal Motor Vehicle Safety Standards in effect on the date of manufacture shown above".

VIN: The Vehicle Identification Number.

TYPE and MODEL: Type of trailer and model.

2. SAFETY

2.1 SAFETY ALERT SYMBOL AND SIGNAL WORDS

This Owner's Manual covers trailers produced by Qingdao CIMC Reefer Trailer. Before towing, operating or servicing your trailer, you must read, understand and follow the instructions and safety warnings in this manual. Your trailer may not be equipped with some of the optional equipment shown in the illustrations in this manual.

The safety information in this manual is denoted by the safety alert symbol: ^

The level of risk is indicated by the following signal words.

^ DANGER

DANGER – Indicates a hazardous situation, which, if not avoided, will result in death or serious injury.

^ WARNING

WARNING – Indicates a hazardous situation, which, if not avoided, could result in death or serious injury.

^ CAUTION

CAUTION – Indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE – Indicates a situation that could result in damage to the equipment or other property.

2.2 TOWING HAZARDS

Loss of control of the truck/trailer combination can result in death or serious injury. The most common causes for loss of control are:

- Driving too fast.
- Incorrect coupling.
- Overloading.
- Improper load distribution.
- Shifting cargo.

2.2.1 DRIVING TOO FAST

If you drive too fast, the trailer is more likely to sway, thus increasing the possibility for loss of control.

^ WARNING

Collision hazard.

Driving too fast for conditions can result in loss of control and may result death or serious injury.

Adjust speed down when towing trailer.

2.2.2 TRAILER NOT PROPERLY COUPLED TO TRUCK

A secure coupling is vital. Uncoupling can result in death or serious injury.

^ WARNING

Collision hazard.

An improperly coupled trailer can result in death or serious injury.

Before towing trailer, verify that:

- **The coupler is properly secured and locked.**
- **Trailer landing gear is fully retracted.**
- **Lights and air hoses connected.**
- **Perform pre-trip inspection.**

2.2.3 OVERLOADING

An overloaded trailer can result in loss of control, which may result in death or serious injury. Overloading may also result in tire, wheel, axle or structural failure, and also increased stopping distances.

^ WARNING

Collision hazard.

Overloading can result in death or serious injury.

Do not load a trailer or truck body so that the Gross Vehicle Weight Rating (GVWR) or Gross Axle Weight Rating (GAWR) is exceeded.

2.2.4 IMPROPER LOAD DISTRIBUTION

Improper load distribution can result to poor stability and handling. Refer to “Loading and Unloading” for more information.

Uneven load distribution can cause tire, wheel, axle or structural failure. Be sure your load is evenly distributed front-to-rear and side-to-side.

^ WARNING

Collision hazard.

An improperly loaded trailer can result in failure or loss of control, leading to death or serious injury.

Evenly distribute the load through out the trailer.

2.2.5 INAPPROPRIATE CARGO

Carry only the cargo that your trailer was designed for. A trailer must not be used to carry people.

^ WARNING

Never transport people in a trailer.

The transport of people in a trailer puts their lives at risk and is illegal.

2.3 TRAILER STEPS AND GRAB HANDLES

Always use the steps and grab handles if available when entering and exiting the trailer.

^ WARNING

Falling hazard.

Always use the steps and grab handles if available when entering and exiting the trailer.

2.4 BRAKES AND LIGHTS

Be sure that the brakes and all of the lights are functioning properly.

^ WARNING

Collision hazard.

Failure to connect the electrical connector and air hoses will result in inoperable trailer lights and brakes, and can lead to collision.

Before towing, verify that all lights and brakes work properly.

2.5 CLEARANCE

^ WARNING

Collision hazard.

Know the height, width and length of the trailer.

Always be aware of clearances.

2.6 ROLL UP DOOR

^ WARNING

High tension spring can cause severe injury or death.

Do not attempt to alter, modify, repair or adjust the high tension spring.

Service work must be performed by a qualified technician.

2.7 MAINTENANCE

^ WARNING

Crushing hazard.

Before performing inspections, service or maintenance:

- **Park truck and/or trailer on firm, level surface.**
- **Set brakes, turn truck engine off and remove ignition key.**
- **Chock tires if brakes are to be released.**
- **If trailer will be raised, support trailer with properly rated and placed stands.**

2.8 HAZARDS FROM MODIFYING EQUIPMENT

Before making any alteration to your trailer, contact your dealer or Qingdao CIMC Reefer Trailer and describe the alteration you are contemplating. Altering may cause your trailer to be unsafe and may void the manufacturers' warranty.

2.9 REPORTING SAFETY DEFECTS

If you believe that your vehicle has a defect that 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 Qingdao CIMC Reefer Trailer.

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 Qingdao CIMC Reefer Trailer.

To contact NHTSA, you may either call the Vehicle Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153), go to http://www.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.

3. COUPLING TRUCK TO TRAILER

3.1 PROVIDING AN ADEQUATE TRUCK

The truck must be matched to the Gross Vehicle Weight Rating (GVWR) of your trailer. If you already have a truck, know your trucks tow rating and make certain the trailer's rated capacity is less than or equal to the truck's rated towing capacity.

^ DANGER

Loss of control hazard.

Use of an under-rated truck could result in loss of control, and can lead to death or serious injury.

Be sure your truck is rated for the Gross Vehicle Weight Rating (GVWR) of your trailer.

3.2 BEFORE ATTEMPTING TO COUPLE TRUCK TO TRAILER

1. Check the condition of the kingpin and mounting plate. Wipe the kingpin clean and inspect it for flat spots, cracks and pits.

^ WARNING

Uncoupling hazard.

A worn, bent or damaged kingpin can fail while towing, which can result in death or serious injury.

Inspect the kingpin and kingpin plate for wear and damage. Replace a worn or damaged kingpin or kingpin plate before towing trailer.

2. Verify that the kingpin plate and fifth wheel fasteners are tight and welds are sound.

^ WARNING

Uncoupling hazard.

A loose kingpin or fifth wheel can result in the trailer uncoupling, which can result in death or serious injury.

Verify the kingpin and fifth wheel are tight.

3. Lubricate the fifth wheel lock mechanism and verify it will move freely.

4. Clear all hoses and electrical cables from the coupling area.

5. Verify the fifth wheel locks are open.

^ WARNING

Crushing hazard.

Death or serious injury may occur if the trailer drops.

Keep bystanders away from trailer while coupling.

3.3 COUPLE TRUCK TO TRAILER

1. Place wheel chocks behind the trailer tires.

2. Place the truck directly in front of the trailer in a straight line. See figure 3-1. **NEVER** back under the trailer at an angle.

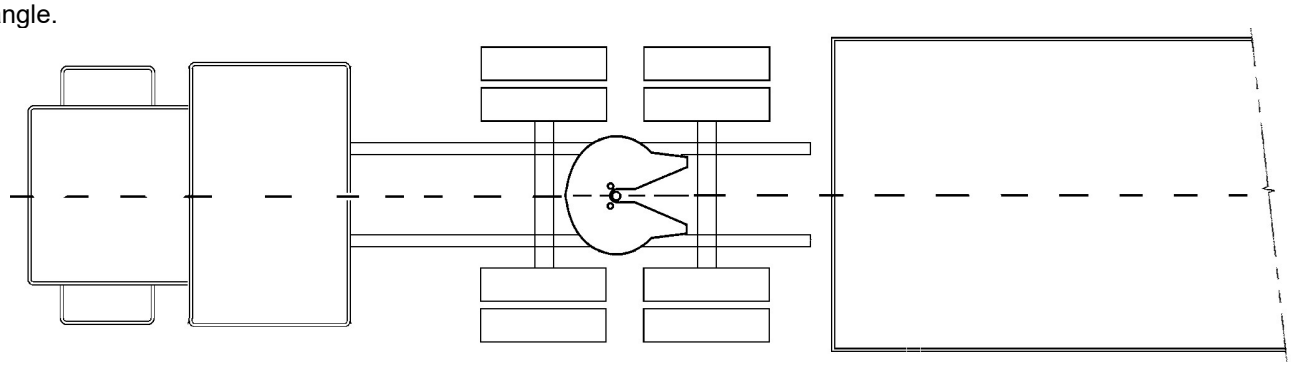

Figure 3-1 Align Truck With Trailer For Coupling

3. Back the truck until close to the trailer.

4. Apply the truck parking brakes and place transmission in neutral.

5. Release air from truck suspension (if equipped).

6. Inspect the height of the trailer vs the fifth wheel. The kingpin plate on the front of the trailer should first contact the fifth wheel 4-6 inches rearward of the fifth wheel centerline. See figure 3-2. The trailer should rise slightly when the truck is backed under it. If the trailer is too low, the truck may strike and damage the front of the trailer. If the trailer is too high, it will not couple correctly. Adjust the landing gear as needed to achieve the correct trailer height.

^ WARNING

Uncoupling hazard.

Trailer must be at the correct height to couple to truck.

Verify trailer is at the proper height before coupling.

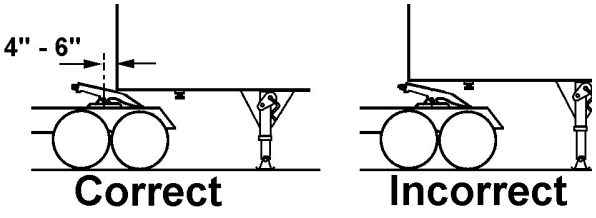

Figure 3-2 Coupling Truck To Trailer

7. Verify that the kingpin and fifth wheel are aligned.

8. Slowly back the truck keeping the kingpin aligned with the fifth wheel. Continue backing until the fifth wheel locks firmly on the kingpin. Attempt to pull forward as a test to verify the fifth wheel is locked. Do not attempt to move the truck and trailer at this time.

9. Apply the truck parking brake, place transmission in neutral, stop truck engine and remove ignition key.

10. Inspect the coupling. See figure 3-3. Verify there is **no space** between the kingpin plate and the fifth wheel. **If there is space,** the kingpin may be on top of the fifth wheel jaws. Raise the trailer with the landing gear, pull the fifth wheel release lever and pull the truck ahead. Repeat steps 6-10 again to couple the trailer correctly.

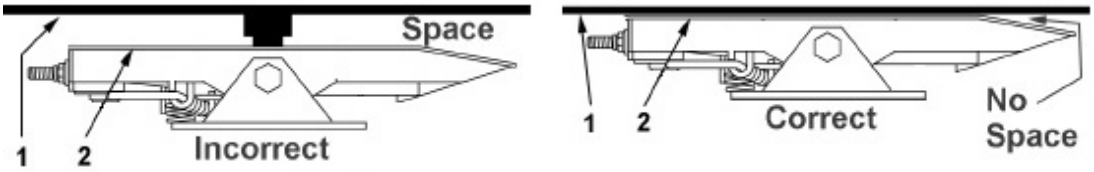

Figure 3-3 Fifth Wheel Checks

10. Go under the trailer with a flashlight and look into the back of the fifth wheel. Verify the fifth wheel jaws (A) have closed around the shank of the kingpin and the fifth wheel lock lever is in the locked position. See figure 3-4.

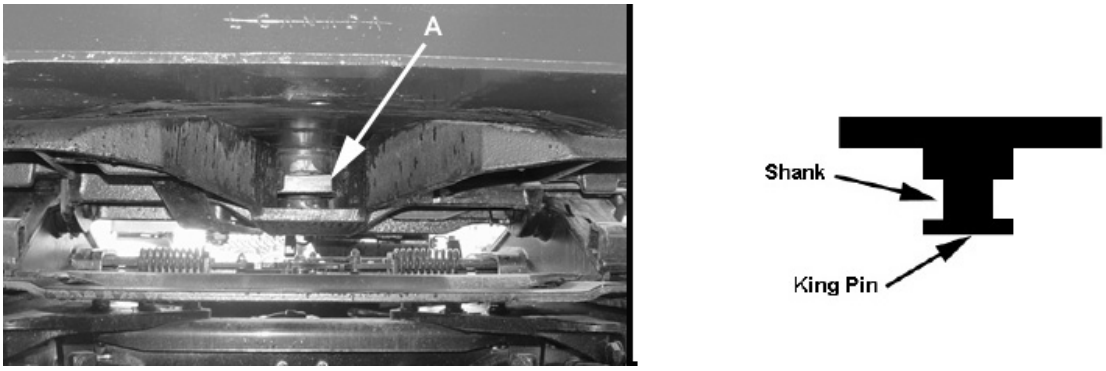

Figure 3-4 Fifth Wheel Jaws Closed Around Kingpin Shank

11. Inflate the truck suspension (if equipped).

12. Raise the landing gear. Qingdao CIMC Reefer Trailer uses a two speed landing gear from several different manufacturers. High speed may be “in” on some models and “out” on others. Engage the crank handle to the shaft and turn to retract the landing gear. Return the landing gear crank handle to the storage position.

Figure 3-5 - Two Speed Landing Gear

13. Connect the 7-pin electrical cable from the truck to connector (2), service hose to glad hand (3) and supply hose to glad hand (4). See figure 3-6.

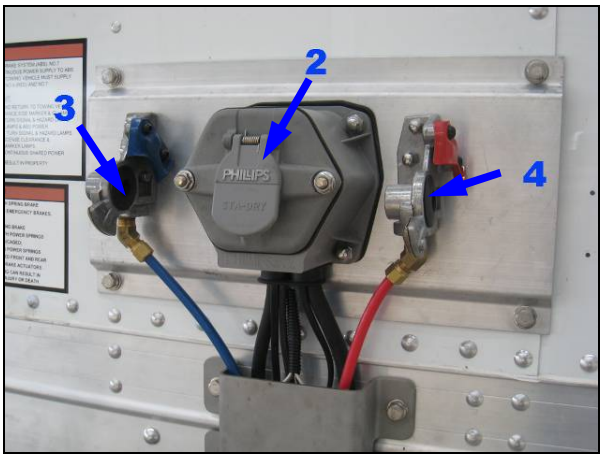

Figure 3-6 – Connect 7-Pin Connector And Air Hoses

14. Press the trailer air supply valve in the truck to fill the trailer air tanks. Do not release parking brakes.

15. Perform pretrip inspection. See Section 3.4.

3.4 PRETRIP INSPECTION

^ WARNING

Crushing hazard.

Before performing inspections, service or maintenance:

- **Park truck and/or trailer on firm, level surface.**
- **Set brakes, turn truck engine off and remove ignition key.**
- **Chock tires if brakes are to be released.**
- **If trailer will be raised, support trailer with properly rated and placed stands.**

Perform the inspections and checks before towing trailer:

- Check all lights for proper operation.
- Check that ABS light (1) on street side rear corner of the trailer is not illuminated. If lamp is illuminated, see the axle and brake manufacturers' manual. See figure 3-7.

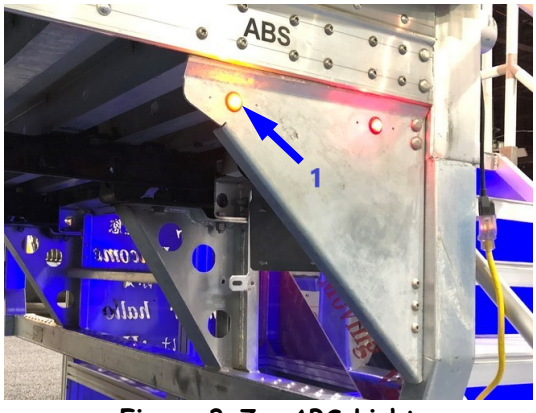

Figure 3-7 – ABS Light

- Check that all safety decals are in place and in good, readable condition.
- Check that all reflectors are in place and in good condition.
- Check air pressure on all tires. Air pressure is listed on the Certification/VIN tag.
- Check and inspect all tires. If a tire has a bald spot, bulge, cut or cords showing, replace the tire(s) before towing trailer.
- Check wheel lug torque.
- Check the wheel hub fluid level and also for signs of lubricant leakage.
- Check for broken or missing leaf springs or verify that air suspension springs are inflated.
- Check electrical harness and air hoses from truck for damage.
- Inspect for damage and listen for air leaks in hoses (2) and air suspension (if equipped). See figure 3-8.

Figure 3-8 – Check Air Hoses

- Inspect air fittings (3) for damage and leaks. See figure 3-9.

Figure 3-9 – Inspect Air Fittings

- Check brakes for wear and verify the brakes function properly.

Repair or replace any worn, damaged, leaking, broken or non-functioning items before towing the trailer.

4. TOWING

4.1 WHEELS AND TIRES

Uneven tread wear can be caused by tire imbalance, axle misalignment or improper inflation. If you observe uneven tread wear, take the trailer to an authorized truck/trailer service center for diagnosis. Trailer wheels and lugs are subjected to high side loads. This can cause the wheel lugs to become loose. Refer to the axle maintenance section for the proper torque specification and tightening procedure. Failure to perform this check may result in a wheel parting from the trailer, and a crash leading to death or serious injury.

Your trailer can be equipped with a tire pressure monitoring system with an indicator light mounted on the upper street side corner of the trailer. If the indicator light is illuminated, one or more of the trailer tires is low on air pressure. See figure 4-1.

Figure 4-1 – Tire Air Pressure Monitor

4.2 ALIGNMENT

Properly aligned trailer axles optimize fuel economy and drivability, and help prevent excessive tire wear. A perfect alignment scenario has all trailer wheels parallel to one another and perpendicular to the centerline of the trailer. However due to uncontrollable factors, this perfect scenario is often an unreasonable expectation. A more likely alignment scenario has the trailer wheels parallel within a very small tolerance range to one another and perpendicular within a very small tolerance range to the centerline of the trailer. There are two important trailer axle angles that must be kept within recommended tolerance ranges: thrust angle and scrub angle. These angles, when out of tolerance, can lead to increased rolling resistance, excessive tire wear and can contribute to trailer “dog tracking”. Dog tracking is a condition where the trailer does not follow or track directly behind the truck as the vehicle is being operated in a straight line and is influenced by body rail alignment, king pin location, axle side-to-side location, and other things. If realignment is necessary, take the trailer to your dealer or an authorized trailer service center.

5. Loading And Unloading Trailer

Always use the steps and grab handles if available when entering and exiting the trailer.

^ WARNING

Falling hazard.

Always use the steps and grab handles if available when entering and exiting the trailer.

Your trailer can be equipped with a step bumper or fold out steps to help enter and exit the trailer safely.

Figure 5-1 – Rear Step Bumper

Trailers equipped with a roll up door will have grab handles on each side of the trailer for use when entering and exiting the trailer. See figure 5-2.

Figure 5-2 – Grab Handles

Trailers equipped with swinging doors will have a chain on each door to secure the door in the open position. Always use these chains while the doors are open to help prevent damage to the doors. See figure 5-3.

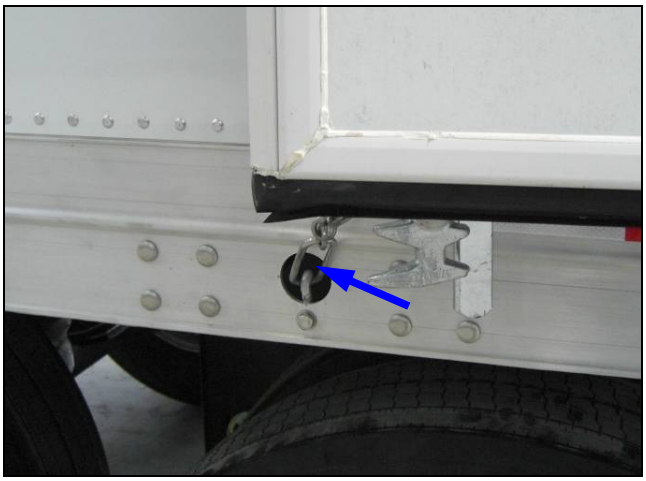

Figure 5-3 – Swing Door Hold Back Chain

Trailers equipped with door vent on curbside door or front vent on roadside of front wall. The vent is used for trailer's ventilation. After discharge cargo every time, the vent should be opened for a few minutes to avoid vacuum damage. See figure 5-4 and 5-5.

Figure 5-4 – Door Vent

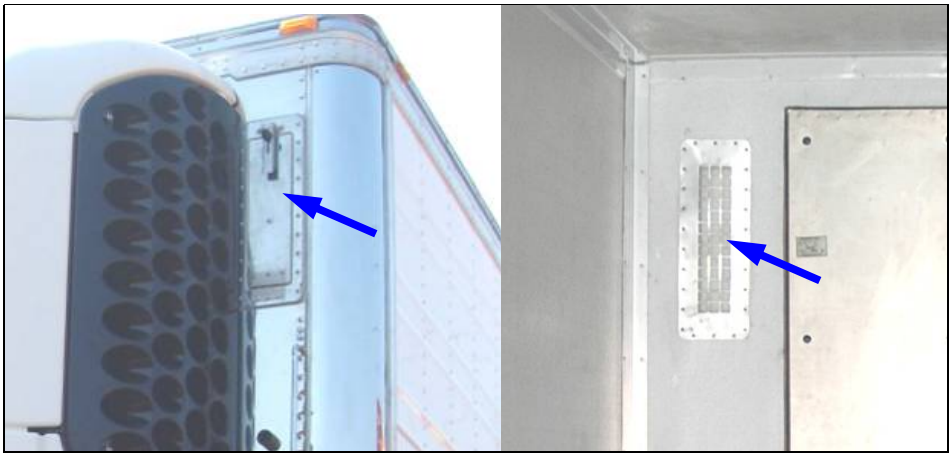

Figure 5-5 – Front Vent

Trailers are designed for uniform load distribution as shown, see figure 5-6. The load should be distributed uniformly from front to rear.

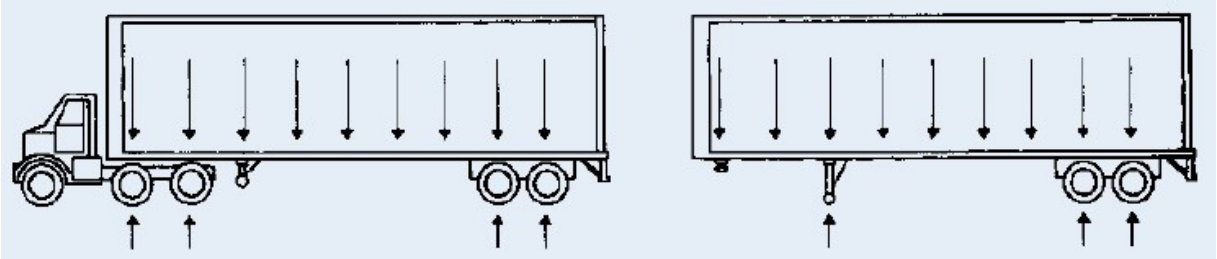

Figure 5-6 – Uniform Load Distribution

Crosswise weights should be equally distributed. A heavy load should not be loaded on one side because this will overload springs and tires on that side. Place load so that weight will be equal on rear tires, eliminating possible twisting of the frame and overloading of axle housings and wheel bearings. See figure 5-7.

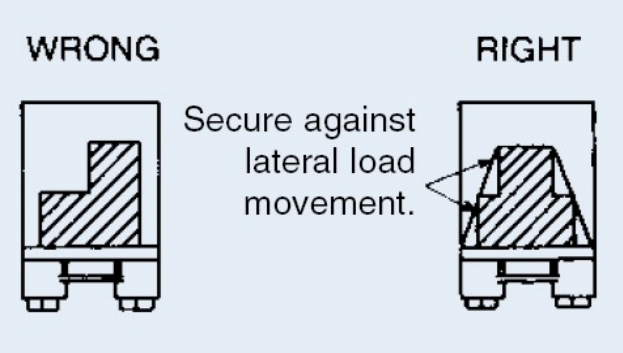

Figure 5-7 – Crosswise Weights Distribution

LOADING HEAVY CONCENTRATED LOADS NOT OCCUPYING FULL TRAILER FLOOR AREA. See figure 5-8.

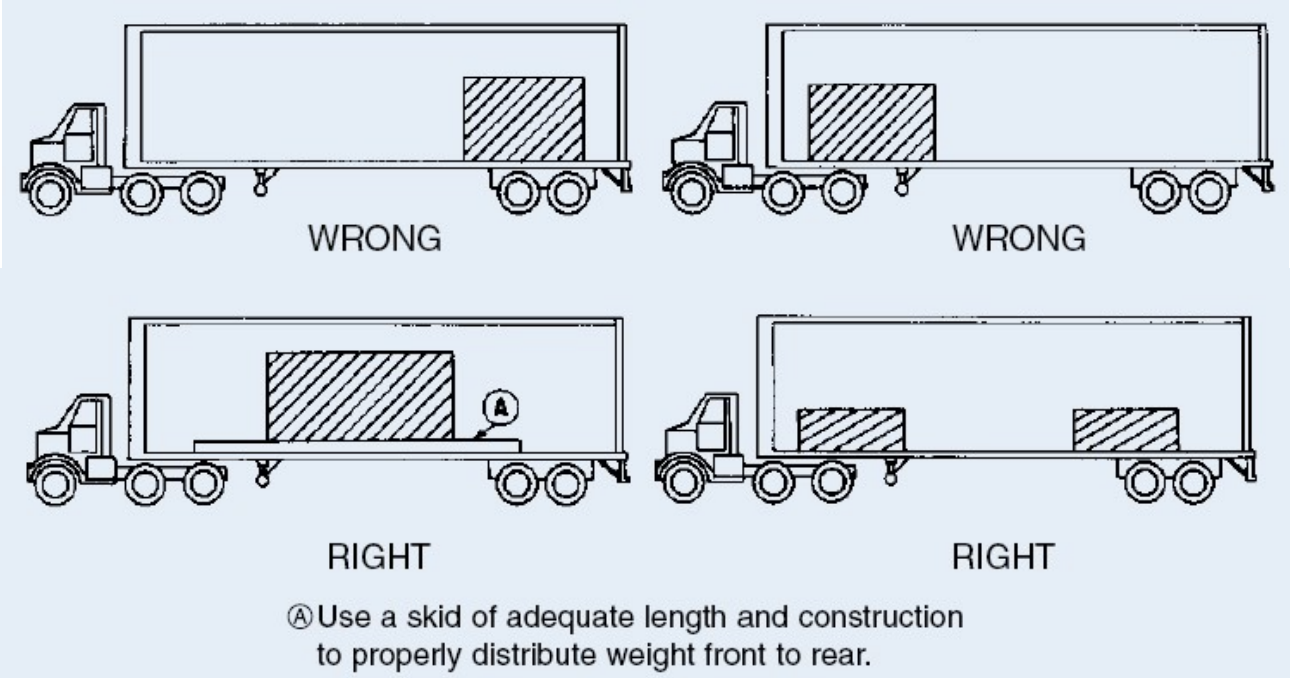

Figure 5-8 –Heavy Concentrated Loads Distribution

6. UNCOUPLE TRUCK

6.1 UNCOUPLE TRUCK FROM TRAILER

1. Park the trailer on a firm level surface.

2. Set the parking brakes and pull the trailer air supply valve out.

3. If trailer is loaded, place blocks or pads under landing gear legs to prevent settling.

4. Lower the landing gear. High speed may be “in” on some models and “out” on others. Engage the crank handle to the shaft and turn to extend the landing gear until it makes firm contact with the pavement, blocks or pads. Switch to low gear and crank an additional 4-8 turns. Return the landing gear crank handle to the storage position. See figure 6-1.

Figure 6-1 - Two Speed Landing Gear

5. Disconnect the 7-pin electrical cable from trailer connector (1), service hose from glad hand (2) and supply hose from glad hand (3). See figure 6-2.

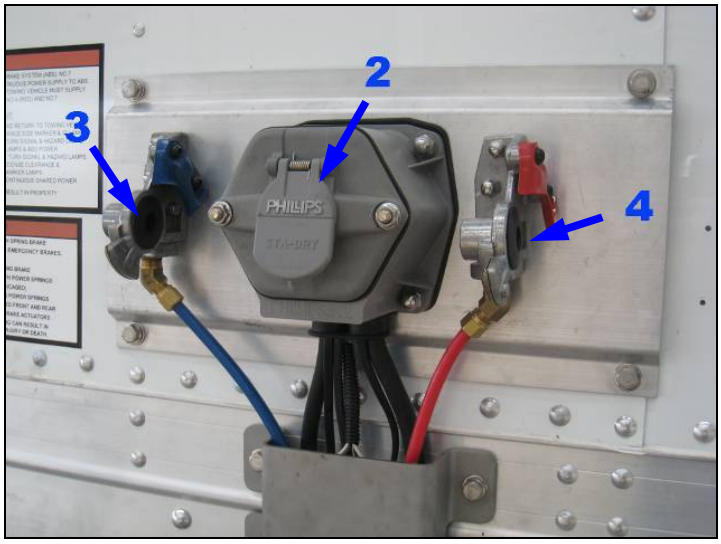

Figure 6-2 Disconnect Hoses and Electrical Connector

7. Pull the fifth wheel release lever.

8. Release air in truck suspension (if equipped) and pull truck forward until fifth wheel comes out from under the trailer.

9. Stop with truck frame under trailer. This will prevent the trailer from falling to the ground if the landing gear should collapse or sink.

10. Apply parking brake and place transmission in neutral.

11. Make sure ground is supporting the trailer. Make sure landing gear is not damaged.

12. Check the area and drive truck forward until clear of trailer.

7. Inspections And Maintenance

Qingdao CIMC Reefer Trailer uses components on their trailers such as refrigeration unit, landing gear, axle assemblies, tires and rims which are produced by other manufacturers. Refer to the OEM manufacturer's information for specific maintenance instructions. If you do not have the manufacturers' information, contact Qingdao CIMC Reefer Trailer or your dealer for assistance.

The refrigeration unit is mounted on trailer's front wall which have made unit opening and mounting bolts. See figure 7-1. Detailed installation, operation, inspection and maintenance refer to unit manufacturer's manual.

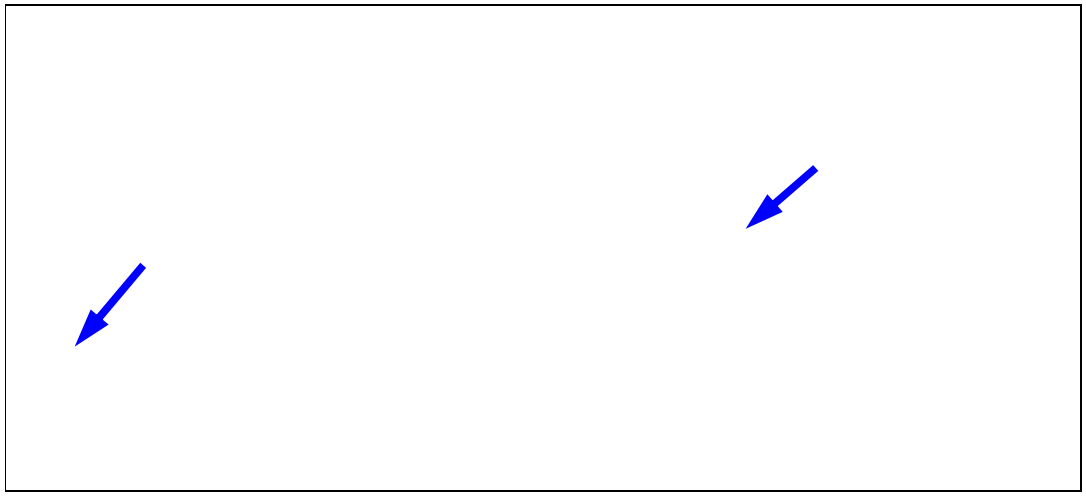

Figure 7-1 – Refrigeration Unit Location, Opening and Bolts

The refrigeration unit components as following (for example Thermo King), see figure 7-2.

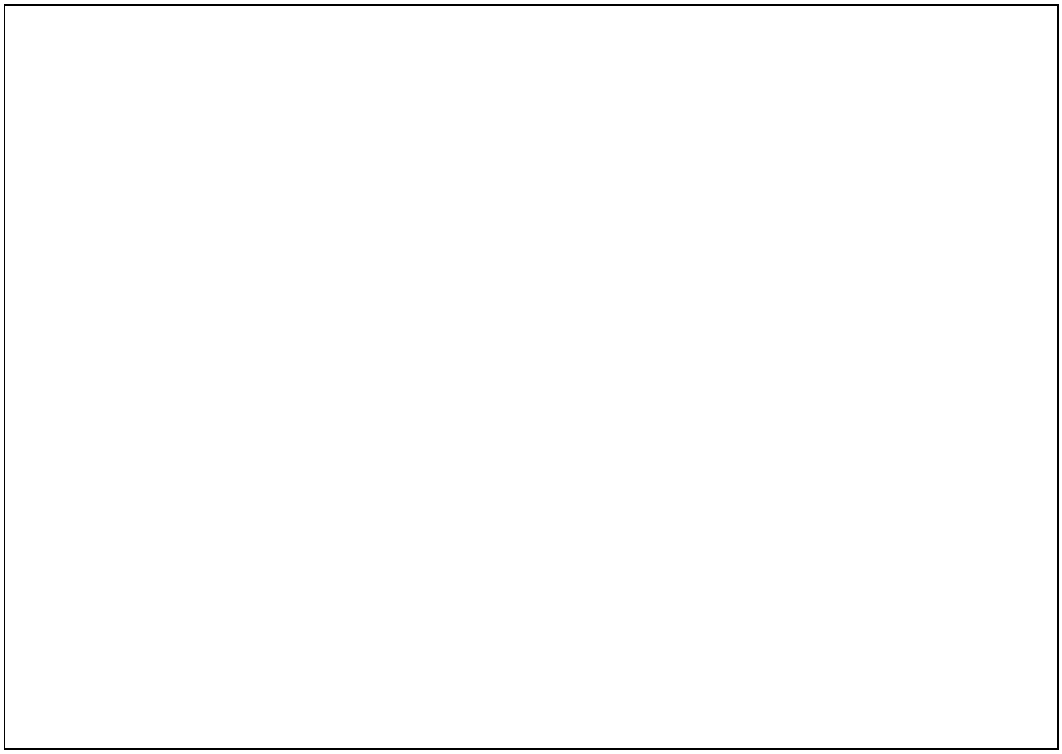

Figure 7-2 – Unit Front View With Door Open (Model 50) And Back view

Routine inspections, maintenance and service must be performed on a regular basis to insure safe and reliable operation. Inspections can be performed by a person trained in spotting potential problems. Service and repairs must be performed by a trained, qualified technician.

Note: In addition to this manual, also check the relevant component manufacturer's manual.

^ WARNING

Crushing hazard.

Before performing trailer Inspections, service or maintenance:

- **Park trailer on firm, level surface.**
- **Set parking brakes, turn truck engine off and remove ignition key.**
- **Chock tires if brakes are to be released.**
- **If raising trailer, support trailer with properly rated and placed stands.**

7.1 EVERY DAY

Perform the following inspections and checks before towing trailer. This list is also covered in the pre-trip inspection:

- Check all lights for proper operation.
- Check that ABS light (1) on street side rear corner of the trailer is not illuminated. If lamp is illuminated, see the axle and brake manufacturers' manual. See figure 7-3.

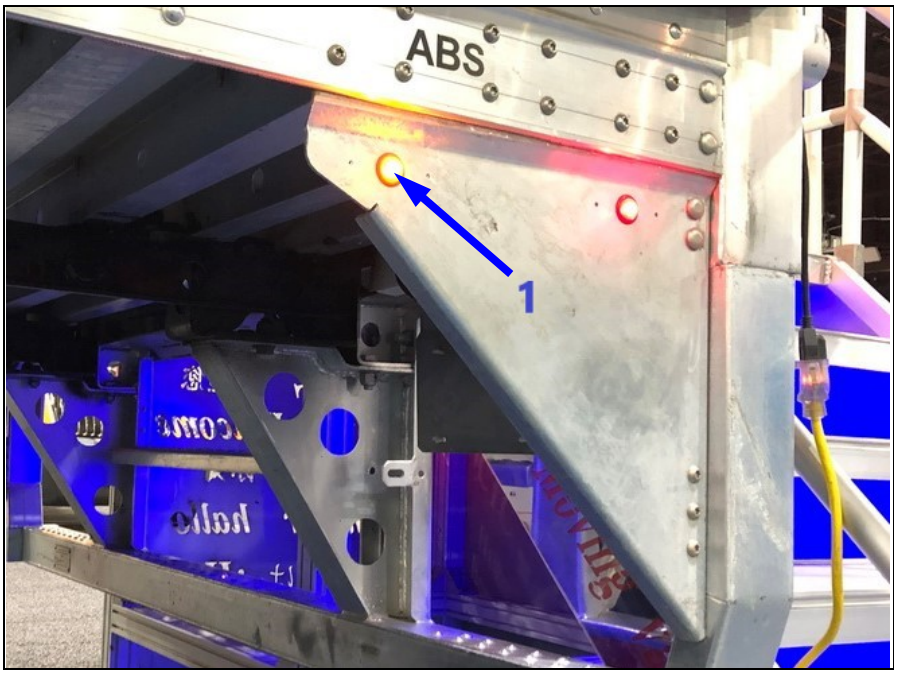

Figure 7-3 – ABS Light

- Check that all safety decals are in place and in good, readable condition.
- Check that all reflectors are in place and in good condition.
- Check air pressure on all tires. Air pressure is listed on the Certification/VIN tag.
- Check and inspect all tires. If a tire has a bald spot, bulge, cut or cords showing, replace the tire(s) before towing trailer.
- Check wheel lug torque.
- Check the wheel hub fluid level and also for signs of lubricant leakage.
- Check for broken or missing leaf springs or verify that air suspension springs are inflated.
- Check electrical harness and air hoses from truck for damage.
- Inspect for damage and listen for air leaks in hoses (2) and air suspension (if equipped). See figure 7-4.

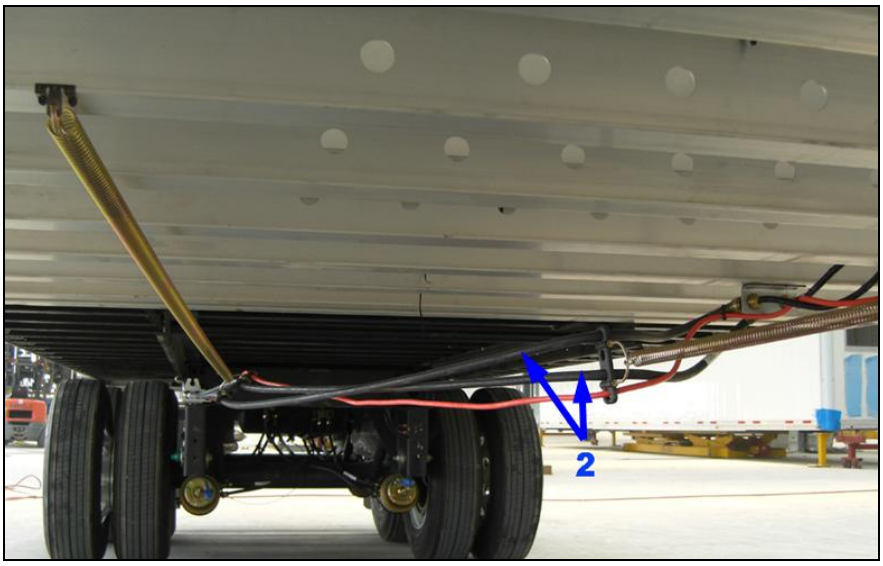

Figure 7-4 – Check Air Hoses

- Inspect air fittings (3) for damage and leaks. See figure 7-5.

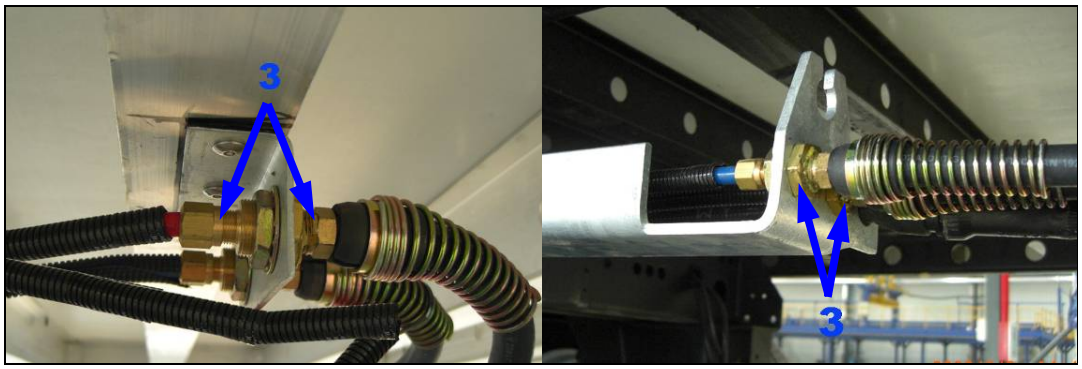

Figure 7-5 – Inspect Air Fittings

- Check brakes for wear and verify the brakes function properly.

Repair or replace any worn, damaged, leaking, broken or non-functioning items before towing the trailer.

7.1.1 INSPECT BODY, CHASSIS AND FASTENERS

1. Inspect the trailer body and chassis for damage daily.

2. Inspect all of the fasteners, welds and structural frame members for bending and other damage, cracks, or failure. Repair or replace any damaged fastener and frame member. If you have any questions about the condition or method of repair of fasteners or frame members, get the recommendation of, or have the repair done by Vanguard National Trailer or your dealer. Welds must be repaired by a qualified technician.

^ WARNING

Broken or damaged fasteners or welds can cause injury and/or damage to trailer and contents.

Inspect for and repair all damaged parts.

7.2 EVERY WEEK

Drain moisture from trailer air tanks by opening petcock on the bottom of each air tank. Close petcocks after draining.

7.3 AS NECESSARY

Lubricate the king pin wear plate as necessary with a quality lithium grease.

7.4 TIRES

Before each tow, be sure the tire pressure is at the value indicated on the Certification / VIN label. Tire pressure must be checked while the tires are cold. Do not check the tire pressure immediately after towing the trailer. Allow at least three hours for a tire to cool, if the trailer has been towed for as much as one mile. Replace tires that have the wear bands showing before towing trailer.

A bubble, cut or bulge in a side wall can result in a tire blowout. Inspect both side walls of each tire for any bubble, cut or bulge; and replace a damaged tire before towing the trailer.

^ WARNING

Collision hazard.

Worn, damaged or under-inflated tires can cause loss of control, injury and damage.

Check tires before towing trailer

8. ADDENDUMS