DEPARTMENT OF THE AIR FORCE **QTP24-3-K437**
Headquarters US Air Force **14 January 2019**
Washington, D.C. 20330-1030

M-Series Trailer

Vehicle Management Codes: K437, K450 – K452, K454, K455, K457, L452, L458, L459, L461, L467, L470, L485 – L487

QUALIFICATION TRAINING PACKAGE

CONTENTS

Section 1—OVERVIEW

1.1. Overview.

1.1.1. Send comments and suggested improvements on AF Form 847, *Recommendation for Change of Publication* through Air Force Installation and Mission Support Center (AFIMSC) functional managers via e-mail at AFIMSC.IZSL.VehicleOps@us.af.mil.

1.1.2. How to use this plan:

1.1.2.1. Instructor:

1.1.2.1.1. Provide overview of training, **Section 2** and **Section 3**.

1.1.2.1.2. Instructor's lesson plan for trainee preparation, give classroom lecture, **Section 4**.

1.1.2.1.3. Instructor's lesson plan for knowledge training, **Section 5**.

1.1.2.1.4. Instructor's lesson plan for demonstration, **Section 6**.

1.1.2.1.5. Instructor's lesson plan for trainee performance, **Section 7**.

1.1.2.2. Trainee:

1.1.2.2.1. Reads this entire lesson plan prior to starting lecture.

1.1.2.2.2. Follows along with lecture using this lesson plan and its attachments.

1.1.2.2.3. Uses **Section 5** and **Attachment 2** as guides for vehicle inspection.

1.1.2.2.4. Completes performance demonstration.

Section 2—RESPONSIBILITIES

2.1. Responsibilities.

2.1.1. The trainee shall:

2.1.1.1. Ensure the trainer explains the Air Force Qualification Training Plan (AFQTP) process and the responsibilities.

2.1.1.2. Review the AFQTP/Module/Unit with the trainer.

2.1.1.3. The trainee should ask questions if he/she does not understand the objectives for each unit.

2.1.1.4. Review missed questions with the trainer.

2.1.2. Instructor shall:

2.1.2.1. Review the AFQTP with the trainee.

2.1.2.2. Conduct knowledge training with the trainee using the AFQTP.

2.1.2.3. Review needed material with the trainee to ensure the required task knowledge has been gained to complete the task.

2.1.2.4. Sign-off the task(s).

2.1.3. The Certifier shall:

2.1.3.1. Evaluate the Airman's task performance without assistance.

2.1.3.2. Sign-off the task(s).

Section 3—INTRODUCTION

3.1. Objectives.

3.1.1. Given lectures, demonstrations, hands-on driving session and a performance test, trainees will be able to perform operator's inspection and complete the performance demonstration with zero instructor assists. **Note:** A performance evaluation is not provided for the M-series trailer due to the variation in M-series trailer types/models and missions. Minimum operational tasks that the trainee should be able to perform for all M-series trailers are detailed in **Section 7**.

3.1.1.1. Train and qualify each trainee in safe operation and preventive maintenance of the various M-series trailers.

3.1.1.2. This training will ensure the trainee becomes a qualified M-series trailer operator; an operator who has the knowledge and skills to operate an M-series trailer in a safe and professional manner.

3.2. Desired Learning Outcomes.

3.2.1. Understand the safety precautions to be followed pre-, during-, and post-operation of the M-series trailer.

3.2.2. Understand the purpose of the M-series trailer and its role in the mission.

3.2.3. Know the proper operator maintenance procedures of the M-series trailer, in accordance with (IAW) applicable technical orders (TOs) and use of Air Force (AF) Form 1800, *Operator's Inspection Guide and Trouble Report*.

3.2.4. Safely and proficiently operate the M-series trailer.

3.3. Lesson Duration.

3.3.1. Recommended instructional and hands on training time is 3 hours:

Figure 3.1. Recommended Training Time for Training Activities.

Training Activity	Training Time
Trainee's Preparation	1 Hour
Instructor's Lecture and Demonstration	1 Hour
Trainee's Personal Experience (to build confidence and proficiency) ▪ Perform Operator Maintenance ▪ Operate the Vehicle	1 Hour

Note: This is a recommended time; training time may be more or less depending how quickly a trainee learns new tasks.

3.4. Instructional References.

3.4.1. Risk Management (RM) and Safety Principles IAW Air Force Pamphlet (AFPAM) 90-803, *Risk Management (RM) Guidelines and Tools*.

3.4.2. Applicable TOs or manufacturer's operator's manual (see Vehicle Management for TO number for vehicle being used in training).

3.4.3. Air Force Manual (AFMAN) 24-306, *Operation of Air Force Government Motor Vehicles*.

3.4.4. AF Form 1800.

3.4.5. The state's Commercial Driver's License Manual (most can be downloaded from the internet).

3.4.6. Special references based-off type of vehicle.

3.5. Instructional Training Aids and Equipment.

3.5.1. M-Series Trailer Lesson Plan.

3.5.2. Pintle Hook Lesson Plan

3.5.3. Hazardous Material Lesson Plan.

3.5.4. M-Series trailer.

3.5.5. Applicable TO or manufacturer's operator's manual.

3.5.6. AF Form 1800.

3.5.7. Videos (if locally produced).

3.5.8. Suitable training area.

3.5.9. Traffic cones.

Section 4—TRAINEE PREPARATION

4.1. Licensing Requirements.

4.1.1. Trainee must have in his/her possession a valid state driver's license.

4.1.2. AF Form 171, *Request for Driver's Training and Addition to U.S. Government Driver's License* IAW Air Force Instruction (AFI) 24-301, *Ground Transportation*.

4.1.3. Applicable local licensing jurisdiction requirements.

4.2. Required Reading.

4.2.1. Read this entire lesson plan.

4.2.2. Read AFMAN 24-306.

4.2.3. Read Manufacturer's Operator's Manual for the vehicle being trained on.

Section 5—KNOWLEDGE LECTURE AND EVALUATION

5.1. Overview of Training and Requirements.

5.1.1. Training objectives:

5.1.1.1. Given lectures, demonstrations, hands-on driving session and a performance demonstration, trainees will be able to perform operator's inspection and complete the performance demonstration with zero instructor assists.

5.1.1.2. Train and qualify each trainee in safe operation and preventive maintenance of the various M-series trailers.

5.1.1.3. This training will ensure the trainee becomes a qualified M-series trailer operator—an operator who has the knowledge and skills to operate an M-series trailer in a safe and professional manner.

5.1.2. Desired learning outcomes:

5.1.2.1. Understand the safety precautions to be followed before-, during-, and after-operation of the M-series trailers.

5.1.2.2. Understand the purpose of the M-series trailer and its role in the mission.

5.1.2.2.1. Purpose various based on vehicle type (cargo movement, passenger movement, emergency services support, etc.).

5.1.2.2.2. Role in the mission (Unit/Base/Community (during natural disasters)/Air Force).

5.1.3. M-series trailer design. The design of an M-series trailer varies depending on the vehicle type. Refer to the manufacturer's operator's manual for additional information on the specific M-series trailer being operated, and to the data plate for safe load capacity guidance. The M-series trailer normally can be identified by the following characteristics:

5.1.3.1. All trailers are designed to be towed by a towing vehicle without airbrake connections. A handbrake lever and cable assembly located on each side of the trailer activates a handbrake at each wheel. Control of each handbrake is independent.

5.1.3.2. In some cases, in addition to handbrake lever-activated handbrakes, the trailers are equipped with an inertia-actuated hydraulic brake system.

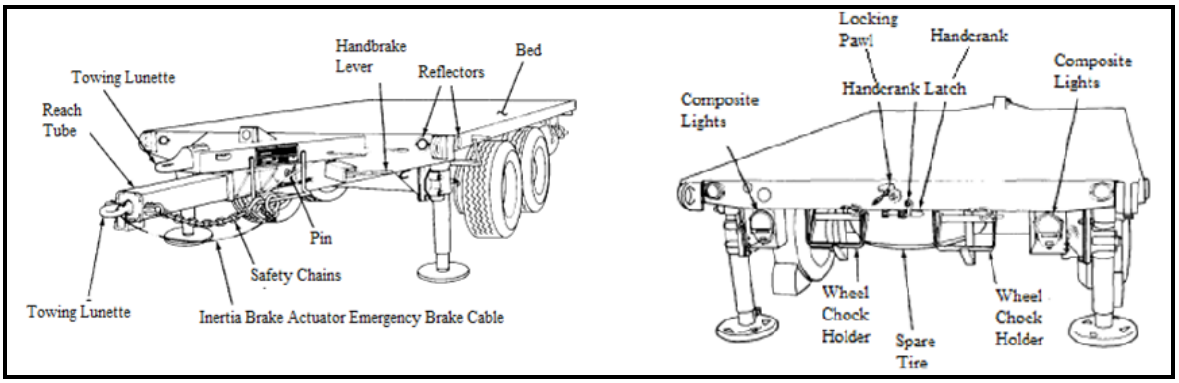
5.1.4. Flatbed trailers design. See **Figure 5.1.**

5.1.4.1. Used to carry mounted systems over highways and cross-country.

5.1.4.2. All trailers have an air/hydraulic brake system which receives air pressure from the towing vehicle through inter-vehicular air hoses.

5.1.4.3. Leveling jacks on the four corners of the trailers provide stability during loading and off-loading.

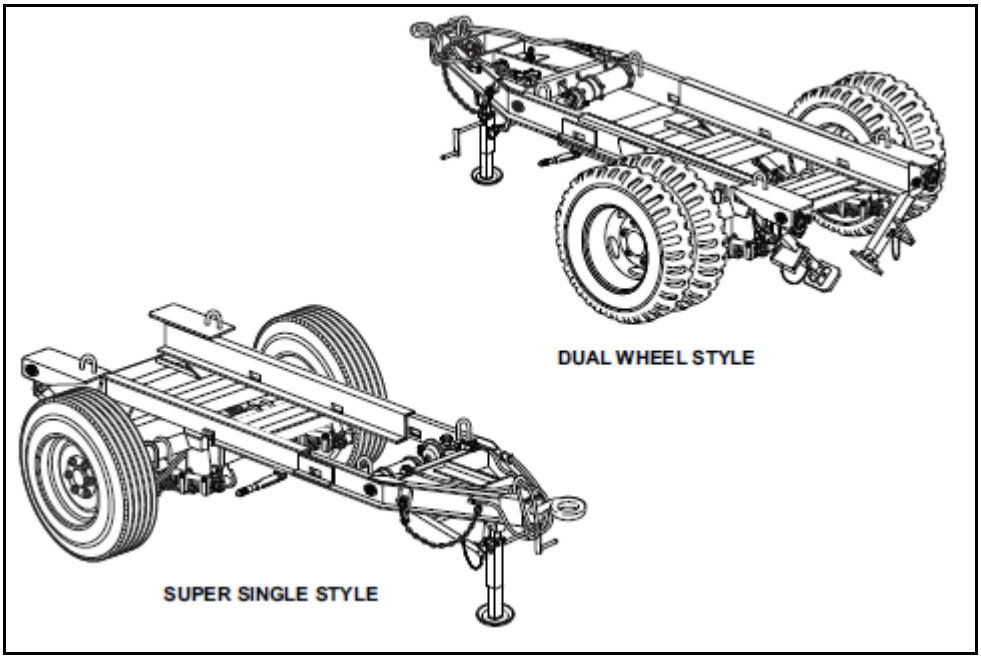
Figure 5.1. Flatbed Trailer Design.



5.1.5. Chassis trailer design. See **Figure 5.2.**

5.1.5.1. The chassis trailer design is an open-frame, single-axle, super single or dual wheel configuration trailer chassis. The chassis trailer is primarily used to transport electric generators. It can be used on improved and unimproved roads, and can be used with the Mine Clearing Line Charge (MICLIC).

Figure 5.2. Chassis Trailer Design.



5.1.5.2. Common features.

5.1.5.2.1. Electrical system. Receives its power from the towing vehicle through the trailer intervehicular cable assembly. Provides power to the antilock brake system (ABS) and taillights located at the rear of the trailer.

5.1.5.2.2. Brake system.

Note: Later models are equipped with ABS.

5.1.5.2.2.1. The ABS is a self-monitoring electronic system that works with the trailer's air/hydraulic brakes. When powered by the towing vehicle, the ABS will constantly monitor trailer wheel speed and control trailer brake function during wheel lock situations. This system improves vehicle stability and control by reducing trailer wheel lock during braking. See **Figure 5.3.**

Figure 5.3. Antilock Brake System.

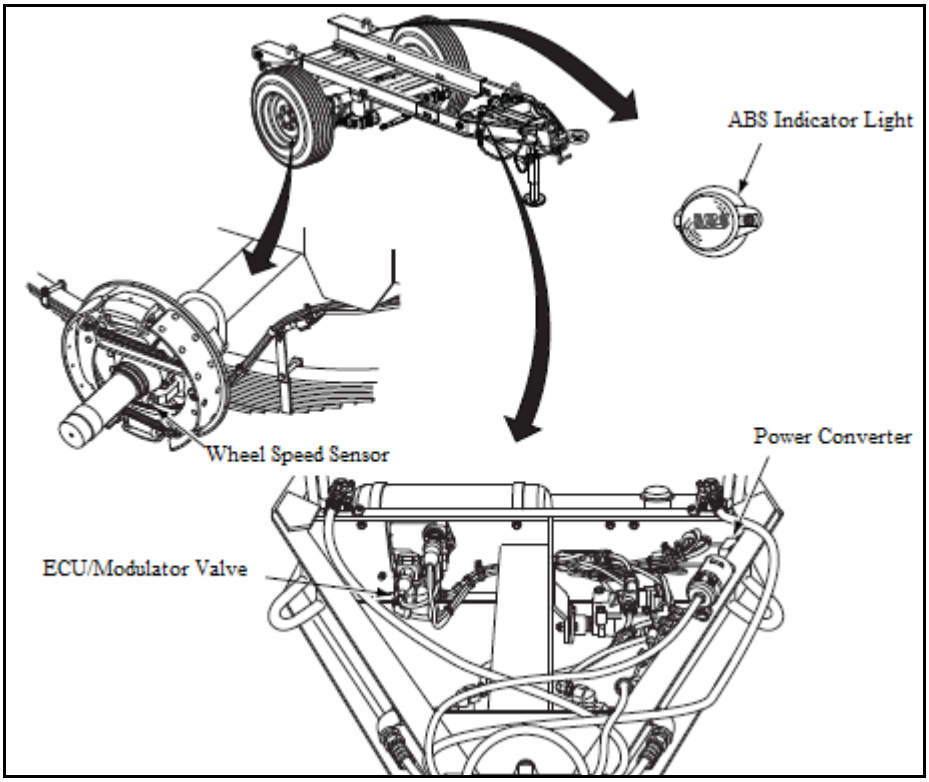
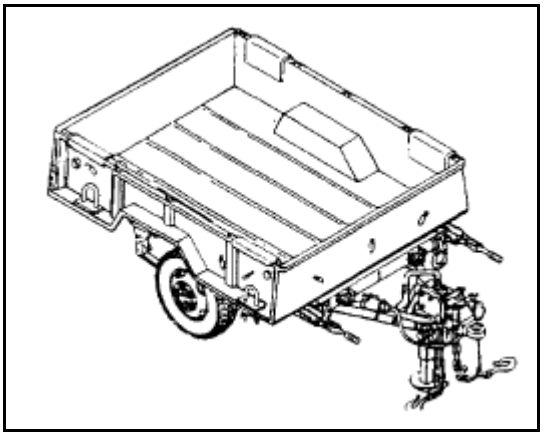


Table 5.1. Brake Components.

Component	Description
Gladhands	The coupling point for the trailer to the towing vehicle. Marked to ensure correct hookup, one for emergency and the other for service.
Air Filters	The air filters clean incoming air from towing vehicle and reduce moisture and foreign matter.
Air Lines	Extend from the air filters to supply service and emergency air to the emergency relay valve, air reservoir and air brake chamber.
Emergency Relay Valve	Controls the braking system of the trailer. Based on the air pressure signals received from the towing vehicle, it will apply or release the service brakes or it will initiate an emergency brake application.
Air Reservoir	The air reservoir stores the system air pressure minimum that operates the brake system. Pressure to the reservoir is initially supplied and then maintained through the emergency supply line from the towing vehicle through the emergency valve.
Air Brake Chamber	The air brake chamber converts air pressure to mechanical motion. This movement through the hydraulic master cylinder applies the brakes. When air pressure in the air brake chamber is released, spring action releases the brakes.
Hydraulic Master Cylinder Lines	The hydraulic master cylinder converts the mechanical motion of the air brake chamber to hydraulic pressure which travels through the hydraulic lines to the wheel cylinders.
Wheel Cylinders	The wheel cylinders convert system hydraulic pressure to mechanical motion and force the brake lining against the brake drum.
Brake Shoes	Cause friction to slow or stop the trailer.

5.1.6. Cargo trailer design. See **Figure 5.4**

Figure 5.4. Cargo Trailer Design.



5.1.6.1. Common cargo trailer components. See manufacturer's operator's manual for model specific description.

Table 5.2. Common Cargo Trailer Components.

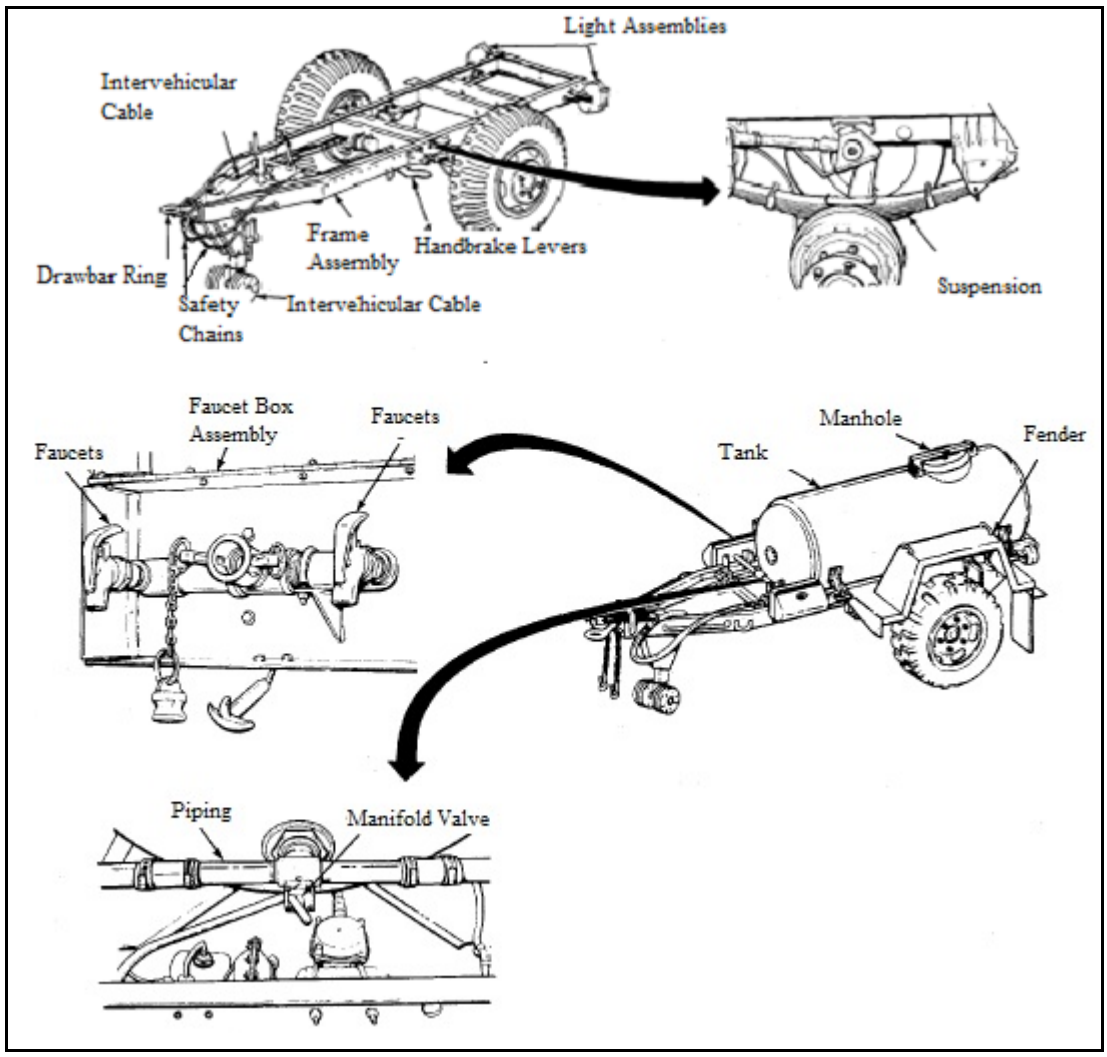
Component	**Description**
Dropped Axle	
Frame	
Spring Assemblies	
Cargo Body	
Rear Stabilizer	
Rack and Tailgate Assembly	
Canvas Cover Assembly	
Electrical System	
Brake System	
Drawbar Coupler	Attaches to the towing vehicle and controls the master cylinder. When the towing vehicle goes forward, the drawbar coupler is pulled and the brakes are released. When the towing vehicle slows down, the trailer pushes the drawbar ring into the towing vehicle and applies the brakes.
Breakaway Chain	Provides for emergency braking of trailer.
Hydraulic Brake Actuator Assembly	Transmits braking forces from towing vehicle to trailer and service brakes by means of a drawbar coupler, master cylinder, hydraulic brake tubes and hose, and wheel cylinders.
Intervehicular Cable	Provides electrical connection between trailer and towing vehicle.

Composite Light	Indicates trailer presence to vehicles traveling behind. Consists of blackout light, service light, turn signal, and stoplight.
Tiedown Shackles	Secures trailer during shipment.
Chassis	Provides mounting for cargo body.
Front Support Leg	Supports trailer when uncoupled from the towing vehicle.
Safety Chain	Prevents trailers from fully breaking away. Hooks to towing vehicle shackles.
U-Bolt	Provides lift points for new style cargo body.
Cargo Body	Carries cargo.
Rear Stabilizer	Prevents trailer from ripping over when loading and unloading cargo. Required when the trailer is carrying generator sets.
Rack Assembly	Increases cargo volume capacity.
Canvas Cover Assembly	Protects cargo from weather.
Tailgate Assembly	Either opens outward or swings downward ease in loading and unloading cargo.

5.1.7. Water tank trailer design.

5.1.7.1. Water tank trailers are designed to carry gallons of potable or non-potable water either highway or cross country. See **Figure 5.5.**

Figure 5.5. Water Tank Trailer Design.



5.1.7.2. Water trailers may be equipped with the following features. See manufacturer's operator's manual for model specific design features.

Table 5.3. Water Trailer Components.

Component	Description
Tank	Holds a designated capacity of gallons of potable or non-potable water, if so marked, for transport.
Electrical System	Capable of operating under standard and blackout modes.
Adjustable Caster Assembly	Supports the front of the trailer when not coupled to the towing vehicle.
Manually Operated Parking Brakes	Used to secure the trailer when stopped or parked.
Leaf Spring Suspension	Absorbs the road shock (typically two-wheel, single axle).
Dual-line Air/Hydraulic Brake System	Receives air pressure from the towing vehicle.
Handbrake Levers	Activate the handbrakes when the trailer is stopped or parked.
Frame Assembly	Supports the trailer load.
Safety Chains	Prevent the trailer from braking away from the towing vehicle.
Drawbar Ring	Attaches the trailer to the towing vehicle.
Faucets	Allows for the dispensing of water from the tank.
Faucet Box	Protect the faucet from weather or incidental damage.
Manhole Valve	Provides the operator with access to the interior of the tank for filling, inspection and cleaning.
Fender	Protects tires, tanks and vehicle traveling behind the trailer from thrown dirt or stones.
Manifold Valve	Directs flow of water to faucets.
Piping	Provides passageway for water from the tank to the faucets.

Table 5.4. Water Trailer Controls and Indicators.

Controls/Indicator	Description
Release Handle	Secures the adjustable caster assembly in up or down position.
Handcrank	Operates the gearbox to raise or lower the adjustable caster assembly.
Ground Pan Handle	Raises or lowers the adjustable caster assembly.
Handbrake Levers	Activate handbrakes when the trailer is stopped or parked.

5.2. Vehicle Inspection.

5.2.1. Pre-trip vehicle inspection test. Use **Attachment 2** as a walk around guide along with AF Form 1800.

5.2.2. A Seven-Step Inspection Method will help ensure the inspection is the same each time it is conducted, and that nothing is left out. See **Attachment 3** for the Seven-Step Inspection Method.

5.2.3. To ensure that the trailers are ready for operation at all times, they must be inspected on a regular basis so that defects may be found before they result in serious damage, equipment failure, or injury to personnel.

5.2.4. Types of vehicle inspection (all M-series trailers). If discrepancies are found they must be reported to the Vehicle Control Officer/Vehicle Control Non Commissioned Officer (VCO/VCNCO), the supervisor, and/or vehicle maintenance:

5.2.4.1. Pre-trip inspection – find items/problems that could cause accident or breakdown.

5.2.4.1.1. Operators need to inspect vehicle and sign the AF Form 1800.

5.2.4.1.2. Vehicle must have the following documentation:

5.2.4.1.2.1. DD Form 518, *Accident Form*.

5.2.4.1.2.2. SF Form 91.

5.2.4.1.2.3. Waiver Card.

5.2.4.1.2.4. AF Form 1800.

5.2.4.1.3. Vehicle maintenance to authorize continued use for all other maintenance discrepancies.

5.2.4.1.4. Cleanup is a part of preventative maintenance. Dirt, grease, oil, and debris may cover up a serious problem. Wipe off excess grease and spilled oil. Use dry cleaning solvent to clean metal surfaces. Use detergent and water to clean rubber or plastic material.

5.2.4.1.5. Ensure vehicle is parked on a level surface.

5.2.4.1.6. Parking brake.

5.2.4.1.6.1. Adjustment.

5.2.4.1.6.1.1. Chock wheels, release parking brake.

5.2.4.1.6.1.2. Hand tighten adjustment knob.

5.2.4.1.6.1.3. Apply brake.

5.2.4.1.6.2. Testing.

5.2.4.1.6.2.1. Remove chocks.

5.2.4.1.6.2.2. Depress brake pedal and start the engine.

5.2.4.1.6.2.3. Shift into drive and high.

5.2.4.1.6.2.4. Apply parking brake, release brake pedal

5.2.4.1.7. Brake systems.

5.2.4.1.7.1. While an assistant actuates the service brakes, listen for air leaks at air couplings, relay valves, and air reservoir.

5.2.4.1.7.2. Check for brake fluid leaks at master cylinders, hydraulic lines, and at wheels.

5.2.4.1.7.3. On trailer equipped with inertia brakes system, actuate the service brakes during operation.

5.2.4.1.7.4. Be alert for unusual difficulty that would indicate that the service brakes are malfunctioning.

5.2.4.1.7.5. Cautiously feel each wheel hub and brake drum. Caution - Serious burns can result from touching an overheated brakedrum.

5.2.4.1.7.6. During halts, cautiously feel brakedrums and hubs for overheated condition. Hot brakedrum indicates dragging brakes.

5.2.4.1.8. Cleanliness/damage/missing items.

5.2.4.1.9. Leaks (fuel/oil/coolant/hydraulic/air).

5.2.4.1.10. All wheel rims (cracks, splits, etc.); check for loose or missing lug nuts.

5.2.4.1.11. All tires.

5.2.4.1.11.1. Proper inflation.

5.2.4.1.11.2. Damage.

5.2.4.1.11.3. Cuts and abrasions.

5.2.4.1.12. Electric conduit, wires, or connectors.

5.2.4.1.12.1. Inspect for cracked or broken conduit insulation, bare wires, and loose or broken connectors.

5.2.4.1.13. Hoses, lines and fitting.

5.2.4.1.13.1. Inspect for wear, damage, and leaks. Ensure that clamps and fittings are tight.

5.2.4.1.13.2. Wet spots show leaks, but a stain around a fitting or connector can mean a leak. If a leak comes from a loose fitting or connector, tighten it. If something is broken or worn out, report it to the VCNCO/VCO.

5.2.4.1.14. Safety chains.

5.2.4.1.14.1. Inspect safety chains for damage or missing parts.

5.2.4.1.15. Intervehicular cable.

5.2.4.1.15.1. Visually inspect electrical connector for damage. Inspect insert for signs of deterioration or arcing. Inspect contacts for dirt, bends, burns, or damage.

5.2.4.1.15.2. Visually inspect wiring harness, clips, and shells for correct assembly and good condition.

5.2.4.1.15.3. Electrical connector.

5.2.4.1.15.3.1. Use a rag to remove any buildup of grease, dirt, etc.

5.2.4.1.15.3.2. Use a scrub brush and clean water to thoroughly clean connector.

5.2.4.1.15.4. Landing leg. Check landing leg for damage, missing parts, and proper operation. Check that handle can be cranked to raise and lower trailer.

5.2.4.1.15.4.1. Use a scrub brush and water to thoroughly clean landing leg.

5.2.4.1.15.4.2. Allow connector to drive.

5.2.4.1.16. Bolts, nuts, and screws.

5.2.4.1.16.1. Ensure they are not loose, missing, bent, or broken. Report loose or missing bolts, nuts, and screws.

5.2.4.1.16.2. Tighten any found that are loose.

5.2.4.1.17. Welds.

5.2.4.1.17.1. Inspect for gaps where parts are welded together. Check for loose or chipped paint, rust, and cracks.

5.2.4.1.18. Differential, shocks and brakes for leaks.

5.2.4.1.19. Suspension, springs and shocks.

5.2.4.1.20. Control panel.

5.2.4.1.21. Lunette ring.

5.2.4.1.21.1. Check lunette ring for secure mounting or obvious damage.

5.2.4.1.22. Mirrors.

5.2.4.1.23. Lights and reflectors.

5.2.4.1.23.1. An assistant is needed when checking the brake lights.

5.2.4.1.23.2. Check the operation of composite lights or stoplights (if a tactical situation permits).

5.2.4.1.23.3. Check for damaged or missing reflectors.

5.2.4.1.24. Fire extinguisher.

5.2.5. Flatbed trailer specific.

5.2.5.1. Towing, lunette and safety chains.

5.2.5.1.1. Check towing lunette for secure mounting and obvious damage.

5.2.5.1.2. Check safety chains for secure mounting and obvious damage.

5.2.5.1.3. Equipment is not ready or available if the towing lunette is cracked, loose, bent, or welds are cracked or if the safety chains are missing or mounting is cracked.

5.2.5.2. Drawbar coupler, and safety chains.

5.2.5.2.1. Check drawbar coupler for secure mounting, obvious damage, and proper torque of mounting bolts. Ensure drawbar coupler is not loose, bent, or missing nuts/bolts or mounting hardware.

5.2.5.2.2. Check safety chains for secure mounting and obvious damage.

5.2.5.3. Electrical connection and wiring.

5.2.5.3.1. Visually inspect electrical connector for damage. Inspect insert for signs of deterioration or arcing. Inspect contacts for dire, bends, burns, or damage.

5.2.5.3.2. Visually inspect wiring harness, clips, and shells for correct assembly and good condition.

5.2.5.3.3. Clean electrical connector.

Note: Perform the following checks and services after coupling trailer to towing vehicle.

5.2.5.4. Leveling jacks.

5.2.5.4.1. Check for damage and security mounting. Check that levels jack legs extend and retract smoothly.

5.2.5.4.2. Equipment is not ready or available if any levels jack is loose, damaged, or inoperative.

5.2.5.5. Handbrakes.

5.2.5.5.1. With trailer coupled to towing vehicle, apply handbrakes. Move trailer slighting to see if handbrakes hold the wheels—if not, adjust handbrake levers.

5.2.5.5.2. Equipment is not ready or available if the handbrakes fail to operate or do not hold wheel.

5.2.5.6. Wheels.

5.2.5.6.1. Check the wheels for damage and wheel nuts for tightness and presence.

5.2.5.6.2. Equipment is not ready or available if one or more wheels are damaged OR if one or more wheel nuts are missing.

5.2.6. Water tank trailer specific.

5.2.6.1. Water tank.

5.2.6.1.1. Do not use steam to clean the interior of fiberglass water tanks.

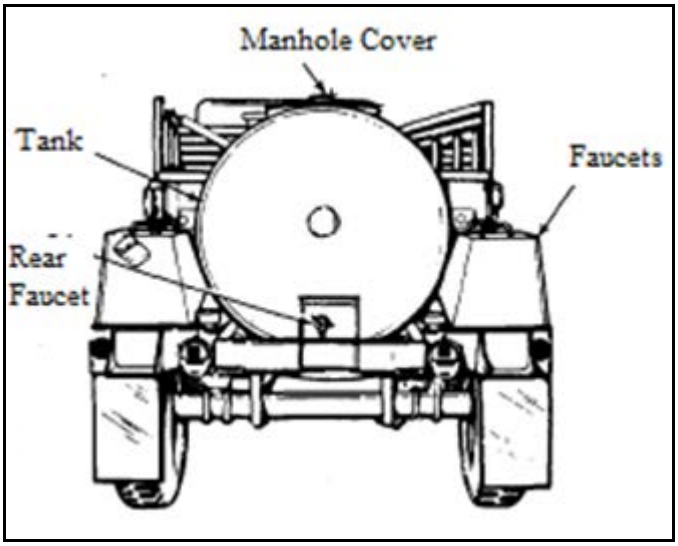
5.2.6.1.2. When filling, check the manhole cover, seal, and latch for damage. See **Figure 5.6.**

5.2.6.1.3. Check rear faucet and forward faucets for leakage and proper operation.

5.2.6.1.4. Check tank interior for contamination (dirt, rust, paint chips, etc.).

5.2.6.1.5. Check tank mounting screws and bushings for obvious looseness.

Figure 5.6. Water Tank Inspection.



5.2.6.2. Lights and reflectors.

5.2.6.2.1. Connect the intervehicular cable to the towing vehicle.

5.2.6.2.2. Operate the towing vehicle light switch through all the settings and check the lights. Check for presence and damage to the reflectors.

5.2.6.3. Handbrakes.

5.2.6.3.1. With the trailer coupled to the towing vehicle, disconnect intervehicular air hoses from lowing vehicle and set handbrakes. Move trailer slightly to see if the handbrakes hold the wheels. Adjust the handbrakes by rotating spring-loaded adjusting knob clockwise to tighten and counterclockwise to loosen.

5.2.6.4. Air tank and air filter.

5.2.6.4.1. Apply handbrakes and open draincock on air reservoir to drain condensation. Close draincock.

5.2.6.4.2. Unscrew pipe plug on air filter and drain condensation from the air filter. Clean pipe plug with lint-free rag before installing.

5.2.6.5. Adjustable caster assembly.

5.2.6.5.1. Check adjustable caster assembly for proper mounting, alignment, and general condition.

5.2.6.5.2. The adjustable caster assembly will not secure in the store position, or it will not support trailer.

5.2.7. Cargo trailer specific.

5.2.7.1. Canvas cover assembly.

5.2.7.1.1. Check for missing or unserviceable tie-down straps and snap fasteners.

5.2.7.1.2. Check for missing or unserviceable ropes.

5.2.7.1.3. Check for missing or unserviceable straps and buckles.

5.2.7.1.4. Check for ripped seams and tears.

5.2.7.2. Tailgate assembly.

5.2.7.2.1. Check for unserviceable slates.

5.2.7.2.2. Check for missing or unserviceable strap hinge assemblies.

5.2.7.2.3. Check for missing or unserviceable strap latch assemblies.

5.2.7.3. Front rack assembly (if applicable).

5.2.7.3.1. Check for unserviceable slates.

5.2.7.3.2. Check for missing or unserviceable strap hinge assemblies.

5.2.7.4. Bow assembly (if applicable).

5.2.7.4.1. Inspect for unserviceable bow assemblies.

5.2.7.5. Side rack assembly (if applicable).

5.2.7.5.1. Check for missing or unserviceable bow clips.

5.2.7.5.2. Check for unserviceable stakes.

5.2.7.5.3. Check for unserviceable slates.

5.2.7.5.4. Check for missing or unserviceable strap hinge assemblies.

5.2.8. During-operation (all M-series trailers).

5.2.8.1. Stoplight-taillights.

5.2.8.1.1. An assistant is required while checking stoplight-taillights.

5.2.8.1.2. Connect intervehicular cables to towing vehicle (if applicable).

5.2.8.1.3. Operate towing vehicle light switch through all settings and check stoplights-taillights.

5.2.8.2. Trailer operation.

5.2.8.2.1. Be alert for any unusual noise while towing trailer. Stop and investigate any unusual noises.

5.2.8.2.2. Make sure trailer is tracking correctly behind towing vehicle, with no side pull.

5.2.8.2.3. All gauges and warning lights for proper operations.

5.2.8.2.3.1. Warning lights.

5.2.8.2.3.2. Gauges (oil pressure, fuel gauge, water temperature, voltage).

5.2.8.2.3.3. Indicators.

5.2.8.2.4. Stay alert for any unusual smells or odors.

5.2.8.2.5. Stay alert for any abnormal vibrations or handling problems.

5.2.8.2.6. Ensure that the trailer is tracking correctly with no side pull. Be alert for any unusual noises while towing the trailer. Stop and investigate.

5.2.9. Flatbed trailer specific during-operations.

5.2.9.1. Air reservoir.

5.2.9.1.1. Pull air tank drain handle ot drain condensation.

5.2.9.1.2. Visually inspect air reservoir for damage or leaks.

5.2.9.2. Suspension system.

5.2.9.2.1. Check springs, hardware, and suspension, for looseness or damage.

5.2.9.3. Miscellaneous assemblies.

5.2.10. Cargo trailer specific during-operations.

5.2.10.1. Front support.

5.2.10.1.1. With trailer coupled to towing vehicle, check front support leg for ease of operation.

5.2.10.1.2. The front support is not fully mission capable if the front support leg will not secure in stowed position or will not support trailer.

5.2.11. After-trip inspection and report.

5.2.11.1. Ensure vehicle and components are cleaned.

5.2.11.2. Equipment is properly stowed.

5.2.11.3. Refueled.

5.2.11.4. Parked.

5.2.11.5. Apply brakes.

5.2.11.6. Place transmission in neutral (park for an automatic).

5.3. Vehicle Safety and Equipment.

5.3.1. Hazards and human factors:

5.3.1.1. Cargo loads beyond the vehicle’s capability.

5.3.1.2. Jerky starts and stops.

5.3.1.3. Traveling too fast and turning too sharply.

5.3.1.4. Not properly securing the cargo.

5.3.1.5. Rollover risk.

5.3.2. Safety clothing and equipment:

5.3.2.1. Safety steel-toed boots must be worn.

5.3.2.2. Gloves will be worn during cargo loading and unloading (take off rings/jewelry first.

5.3.2.3. Hearing and eye protection, if applicable.

5.3.2.4. Gloves will be worn when connecting/disconnecting trailer from pintle hook.

5.3.2.5. Inclement weather gear, if applicable.

5.3.2.6. Reflective belt during hours of reduced visibility and on flightline.

5.3.2.7. Material for under wheels (soft areas).

5.3.2.8. Approved personal protective equipment (PPE) for handling asbestos material.

5.3.2.9. AF Form 1800. **Note:** A separate AF Form 1800 will be used for the towing vehicle and the trailer, respectively.

5.4. Driving Safety and Precautions.

5.4.1. Asbestos hazard. Do not handle the brakeshoes, brakedrums or other brake components unless the area has been properly cleaned. There may be asbestos dust on these components which can be dangerous if touched or inhaled. Ensure PPE is used when exposed to asbestos. Wear an approved filter max and gloves. Failure to wear PPE may result in serious illness or death to personnel.

5.4.2. Coupling and uncoupling trailer. All personnel must stand clear of the towing vehicle and the trailer when coupling and uncoupling the trailer. If the trailer is not coupled to a towing vehicle, ensure that the wheels are securely chocked. Ensure gloves are worn.

5.4.3. Never crawl under the equipment if performing an inspection or maintenance unless the equipment is securely blocked.

5.4.4. Drawbar and lunette ring. Caution – The drawbar is heavy. Failure to maintain control may result in injury to personnel and/or damage to the equipment.

5.4.5. Hot components. If checking the brakes or dry wheel bearings for proper adjustment, use caution when feeling each wheel hub and brakedrum. Caution - Serious burns will result from touching an overheated wheel hub and/or brakedrum.

5.4.6. Tailgate. Hold the tailgate in place prior to removing straight-headed pins. If the tailgate is not properly supported, it may fall and could result in injury to personnel.

5.4.7. Backing. When backing the towing vehicle to the trailer and when backing the towing vehicle and trailer, always use a spotter. The operator should keep visual contact with the spotter at all times. If visual contact is lost, the operator must stop the vehicle immediately. See AFMAN 24-306 for additional guidance on standard AF spotter hand signals and spotter safety. Spotters must be trained IAW AFMAN 24-306.

5.4.8. Water tank trailer. The tank must be marked to indicate if the water being carried is nonpotable v. potable. Follow the manufacturer's operator's manual and federal, state and local guidance for contamination prevention safety and operational guidance.

5.4.9. Tire changing safety.

5.4.9.1. Consider where the vehicle is located. If on a bridge, curve, road with no shoulder, etc.; it is safer to move a vehicle on a flat tire to a safe location.

5.4.9.2. Find a location with a firm and level surface for the jack.

5.4.9.3. Turn-on the four-way flashers.

5.4.9.4. Block the wheels. If changing a front tire, block the rear wheels. If changing a rear tire, block the front wheels.

5.4.9.5. Place the vehicle in "Park" if it has an automatic transmission and low gear if it has a standard shift. If the vehicle does not have "Park", place the vehicle in neutral and engage the parking brake.

5.4.9.6. Ensure the jack is rated for the weight of the vehicle. Ensure proper placement of jack.

5.4.9.7. If available, use jack stands after lifting the vehicle. Once the vehicle is lifted; never at any time get under the vehicle.

5.4.9.8. Before removing lug nuts, ensure lug wedges are loose (double check).

5.4.9.9. After changing the tire, return the jack and lug wrench to the location recommended by the manufacturer (keep them from becoming flying projectiles and makes them available for future tire changes).

5.4.9.10. Secure the damaged tire and once it is repaired, return the spare tire back to its proper location.

5.4.10. Cargo loading and tie-down procedures. For more information on safely loading, transporting and unloading cargo, refer to AFMAN 24-306 and the manufacturer's operator's manual for the specific vehicle type.

5.4.11. Hazardous cargo. For more information on transporting hazardous cargo, refer to the Hazardous Cargo Lesson Plan.

5.4.12. Operation in extreme cold. See manufacturer's operator's manual for additional guidance.

5.4.12.1. Extreme cold can cause insulation material on electrical wire to crack and cause short circuits. Other materials may become hard, brittle, and easily damaged or broken.

5.4.12.2. Ensure that tires are properly inflated. Tires may freeze to the ground or have flat spots if underinflated.

5.4.12.3. Brakeshoes may freeze to brakedrum and will require preheating to prevent damage.

5.4.12.4. If applicable, properly lubricate the trailer in extreme cold weather conditions.

5.4.12.5. Remove all built-up snow or ice as soon as possible after-operation.

5.4.12.6. Exercise care when removing accumulations of ice, mud, and snow from trailer and/or water tank. Fiberglass water tanks are easily damaged by chipping or scraping. This is especially true in extreme cold.

5.4.12.7. Operating a water tank trailer in cold conditions. See manufacturer's operator's manual for additional guidance. Exercise care that drained water does not become a slip, trip or fall hazard.

5.4.12.7.1. In areas where temperatures fall below 32°F, the manhole cover should be kept tightly closed.

5.4.12.7.2. After each succeeding use, drain piping. Close manifold valve by pushing in and then depress faucet levers to drain water from piping.

5.4.12.7.3. If operating a stainless steel water tank, use self-draining rear faucet to dispense water when the temperature is below freezing. Open by turning counterclockwise. Close by turning clockwise.

5.4.12.7.4. If the temperature is expected to fall below 0°F, the trailer should be placed in a shelter if possible.

5.4.13. Operation in extreme heat or high humidity. See operator's manufacturer's manual for additional guidance.

5.4.13.1. Refer to the operator's manufacturer's manual for proper lubricants to use in extreme heat and high humidity.

5.4.13.2. Do not park the trailers in sunlight for long periods of time. Heat and sunlight shorten tire life. If available, use canvas covers to shield trailer.

5.4.13.3. Frequently inspect, clean, and lubricate inactive equipment to prevent rust and fungus accumulation. Inspect tarpaulins for fungus, rot, and damage.

5.4.14. Operation in mud and snow.

5.4.14.1. Under no circumstances will the trailer be towed, pulled, or pushed from the rear as damage to the trailer or equipment may result.

5.4.14.2. If one or more tires sink into mud or snow, it may be necessary to raise the mired tire and insert planking or matting beneath it.

5.4.14.3. Pack wheel bearings as required.

5.4.14.4. Clean off all mud or snow as soon as possible after operation.

5.4.14.5. For more information on off-road driving and safe vehicle operation guidance, refer to AFMAN 24-306.

5.4.15. Fording.

5.4.15.1. Refer to towing vehicle operating instructions for information on fording. Towing vehicle instructions are applicable to the trailer.

5.4.15.2. Maximum fording depth can vary based upon the type of trailer being towed.

5.5. Vehicle Operation.

5.5.1. General operation. The following guidance pertains to operating all M-series trailers (with towing vehicle). Later in the section, additional guidance pertaining to the flatbed M-series trailer, chassis M-series trailer, cargo M-series trailer and water tank M-series trailer is provided. This guidance is not all-inclusive. Trainer and trainee should refer to the manufacturer's operator's manual, Pintle Hook Lesson Plan, Hazardous Material Lesson Plan and AFMAN 24-306 for comprehensive guidance applicable to the specific M-series trailer type/model being used.

5.5.1.1. Towing procedures.

5.5.1.1.1. When trailer is coupled, always start and stop towing vehicle slowly and gradually. Do this whether or not trailer is loaded.

5.5.1.1.2. Sudden and fast acceleration will cause hydraulic brakes to apply.

5.5.1.1.3. When driving towing vehicle and trailer, overall length of unit must be kept in mind when turning and passing other vehicles. Because unit is hinged in the middle, turning and backing are also affected. Heavier payloads will increase stopping distance and decrease off-road maneuverability.

5.5.1.2. Turning.

5.5.1.2.1. When turning corners, allow for the fact that the trailer wheels turn inside the turning radius of the towing vehicle.

5.5.1.2.2. To make a right turn at an intersection, drive towing vehicle partway into the intersection, then cut sharply to the right. This will allow for the turning radius of trailer, and keep trailer wheels off the curb.

5.5.1.3. Backing.

5.5.1.3.1. Always back the towing vehicle slowly and gradually.

5.5.1.3.2. Always use a spotter. The operator must maintain visual contact with the spotter at all times. If visual contact is lost, the operator will immediately stop the vehicle. See AFMAN 24-306 for additional guidance on standard AF spotter hand signals and additional spotter safety guidance.

5.5.1.3.3. Adjust all towing vehicle rearview mirrors before backing, as needed.

5.5.1.3.4. When backing, rear of trailer will move in opposite direction in which towing vehicle is turned. When towing vehicle is turned to the right, rear of trailer will go left. When towing vehicle has turned and backing in a straight line is required, turn the towing vehicle in direction trailer is moving. This will slowly bring towing vehicle and trailer into a straight line.

5.5.1.4. Stopping

5.5.1.4.1. Always stop towing vehicle by applying brakes gradually and smoothly. Do this whether or not the trailer is loaded.

5.5.1.5. Parking.

5.5.1.5.1. When towing vehicle and trailer are left unattended, set towing vehicle parking brakes, turn off engine and set wheel chocks.

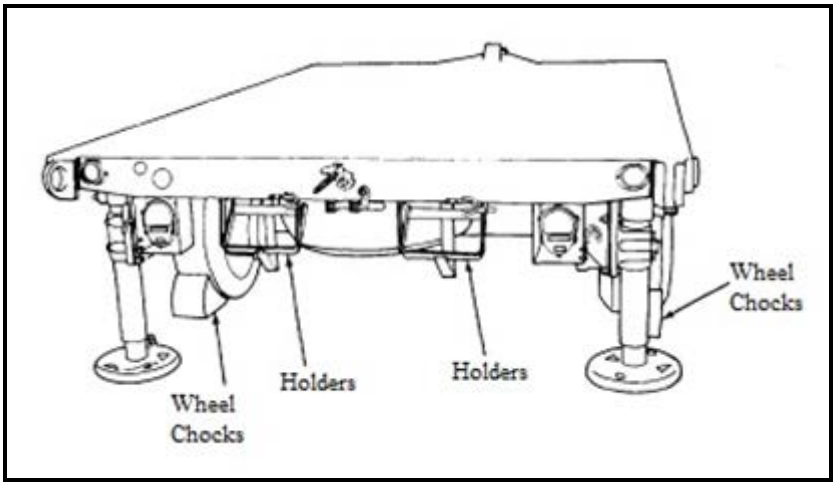
5.5.1.5.2. Apply handbrakes.

5.5.2. Flatbed trailer operation.

5.5.2.1. Coupling trailer to towing vehicle.

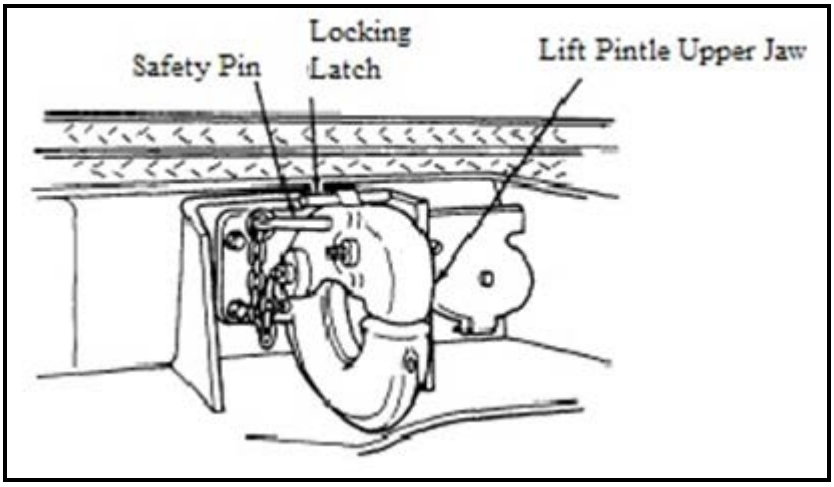
5.5.2.1.1. Remove wheel chocks from holders and place under rearmost tires. See **Figure 5.7.**

Figure 5.7. Removing Wheel Chocks.



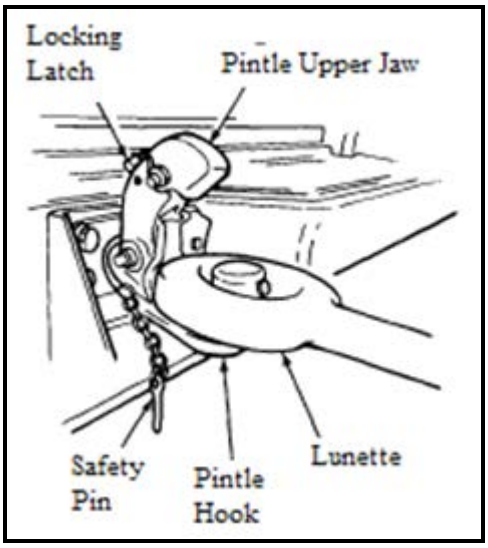
5.5.2.1.2. Remove safety pin on the towing vehicle and pull up on locking latch to lift pintle upper jaw. See **Figure 5.8.**

Figure 5.8. Removing Safety Pin.



5.5.2.1.3. Align towing vehicle with appropriate trailer towing lunette. See **Figure 5.9.**

Figure 5.9. Trailer Towing Lunette.



5.5.2.1.4. If necessary, remove retaining pins. Extend or retract reach tube, using an assistance as required. Install retaining pin to secure the reach tube.

5.5.2.1.5. Back towing vehicle in front of towing lunette. Operate front leveling lacks to raise towing lunette. Back towing vehicle until pintle hook is directly under towing lunette. Lower towing lunette onto pintle hook.

5.5.2.1.6. Push down and close pintle upper jaw. Check that locking latch is locked by pulling up on pintle upper jaw. Insert safety pin.

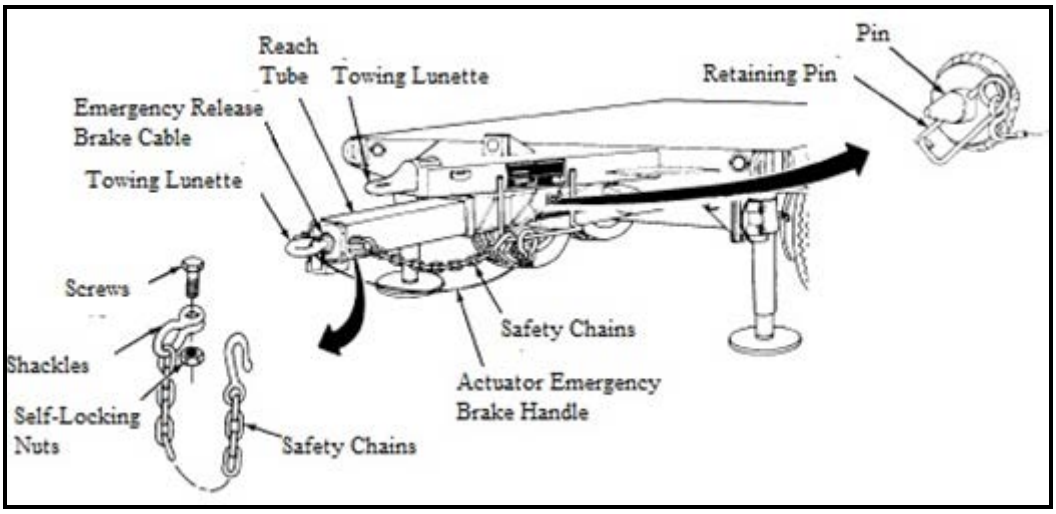
5.5.2.1.7. Raise and stow front and rear leveling jacks in the travel position.

5.5.2.1.8. Safety chains should be mounted near whichever towing lunette is used.

5.5.2.1.9. On some flatbed trailers, shackles are mounted to the reach tube with screws and self-locking nuts. On other models, shackles are mounted with screw-type pins.

5.5.2.1.10. Unstow safety chains. Remove two self-locking nuts and screws, or screw-type pints, shackles, and safety chains. See **Figure 5.10.**

Figure 5.10. Safety Chains.



5.5.2.1.11. Install two safety chains and shackles with screws and self-locking nuts or screw type pins in required location.

5.5.2.1.12. Safety chains are crossed under towing lunette to prevent trailer from fully breaking away if the trailer detaches from the towing vehicle. Ensure that there is enough slack in safety chains to allow trailer to make full turns without being damaged.

5.5.2.1.13. Cross two safety chains under towing lunette and hook to towing vehicle. Secure safety chains to prevent them from dragging.

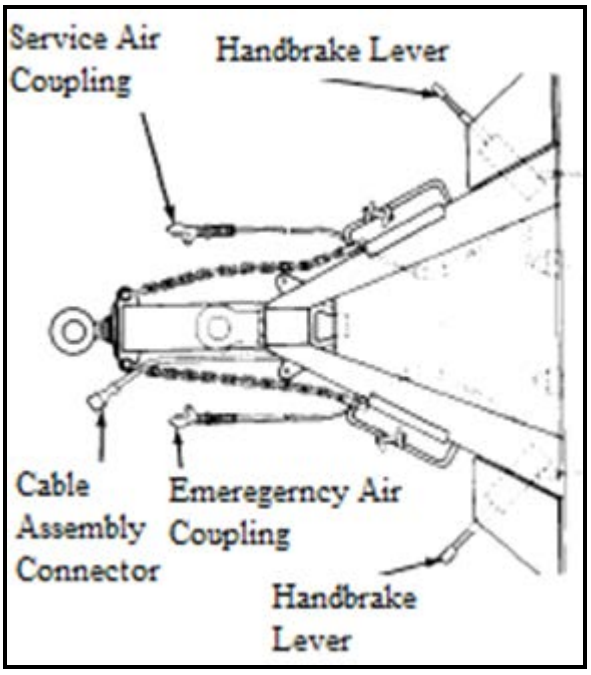
5.5.2.1.14. Ensure that the inertia brake actuator emergency brake cable is fully released. If the cable is not fully released, the brakes will drag, heat up, and burn out. This is not necessary if air/hydraulic brakes are used.

5.5.2.1.15. Attach the inertia brake actuator emergency brake cable to the towing vehicle. Ensure that the brakes are fully released. If brakes are applied, pull emergency brake release cable.

5.5.2.1.16. Be sure to check SERVICE and EMERGENCY tag markings on air hose assemblies on both trailer and towing vehicle before connecting.

5.5.2.1.17. Unstow and connect service air coupling and emergency air coupling to towing vehicle air couplings. Open towing vehicle shut-off valves (refer to towing vehicle operator's manual). See **Figure 5.11.**

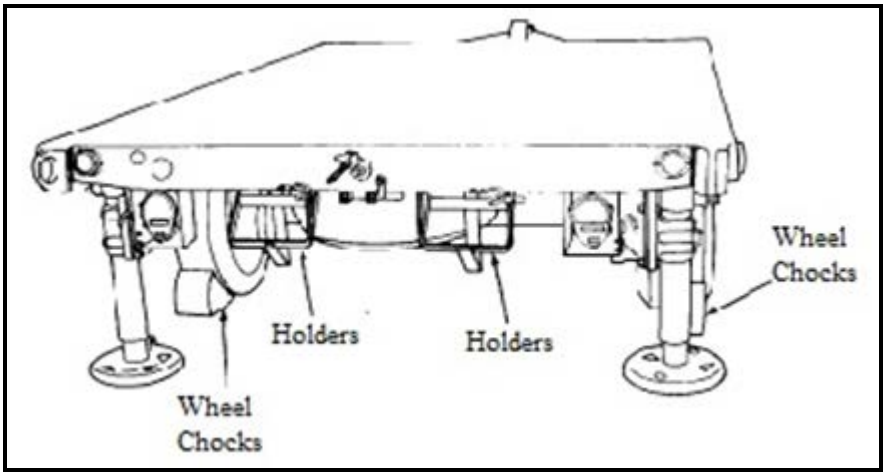
Figure 5.11. Unstowing and Connect Service Air Coupling.



5.5.2.1.18. Unstow intervehicular cable assembly connector from clip. Connect intervehicular cable assembly connector to towing vehicle electrical receptacle.

5.5.2.1.19. Return two wheel chocks to holders. See **Figure 5.12.**

Figure 5.12. Returning Wheel Chocks.



5.5.2.1.20. Release handbrakes by moving two handbrake levers rearward.

5.5.2.2. Uncoupling trailer from vehicle. See manufacturer's operator's manual.

5.5.2.3. Operating leveling jacks.

5.5.2.3.1. Lowering. Caution – Failure to uncouple from vehicle before using leveling jacks may result in damage to leveling trailer.

5.5.2.3.1.1. Pull swivel pin assembly and allow leveling jack leg to slowly swing down until swivel pin assembly clicks in locked position.

5.5.2.3.1.2. Remove hand crank from handcrank latch and place on gearshift.

5.5.2.3.1.3. Rotate handcrank clockwise to lower leveling jack leg.

5.5.2.3.1.4. Continue lowering leveling jack leg until trailer is level or desired effect is achieved.

5.5.2.3.2. Raising.

5.5.2.3.2.1. Rotate handcrank counterclockwise to raise shoe completely off ground.

5.5.2.3.2.2. Remove handcrank from gearshift and slow in handcrank latch.

5.5.2.3.2.3. Release swivel pin assembly and swing leveling jack leg into travel position until swivel pin assembly clicks into locked position.

5.5.2.4. Preparation for lifting.

5.5.2.4.1. Connect sling hooks to lifting eyes at corners of trailer bed. Ensure that all sling hook points are toward outside of trailer.

5.5.2.4.2. Lift trailer when all sling hooks are attached to the lifting eyes.

5.5.2.4.3. After moving the trailer, remove sling hooks from lifting eyes.

5.5.3. Chassis trailer operation.

5.5.3.1. Coupling trailer to towing vehicle. See **Figure 5.13.**

5.5.3.1.1. Apply trailer handbrakes.

5.5.3.1.2. Align towing vehicle with trailer.

5.5.3.1.3. Ensure that the weight of load is evenly distributed. Too much weight at the front will make the trailer difficult to raise with the landing leg. Too much weight at the rear will cause the trailer to tip backward.

5.5.3.1.4. Use landing leg to raise trailer drawbar until lunette ring is higher than towing vehicle pintle hitch.

5.5.3.1.5. Remove the lock pin from the pintle hitch on the towing vehicle.

5.5.3.1.6. Open the pintle hitch by pulling up on the locking latch.

5.5.3.1.7. All personnel must stand clear of towing vehicle and trailer during coupling operation.

5.5.3.1.8. Keep hands away from lunette ring during coupling/uncoupling operations.

5.5.3.1.9. When backing up the towing vehicle to the trailer, always use a spotter.

5.5.3.1.10. Back the towing vehicle in front of lunette ring.

5.5.3.1.11. Use trailer landing leg to adjust height of lunette ring, then place lunette ring on towing vehicle pintle hitch.

5.5.3.1.12. Close pintle hitch. Check that locking latch is locked by pulling up on pintle hitch. Pintle hitch should not come up.

5.5.3.1.13. Install lock pin in pintle.

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

5.5.3.1.15. If safety chains are too short, or if hooks are not large enough to attach to the tow shackles on some towing vehicles, notify Field Maintenance.

5.5.3.1.16. Cross the two trailer safety chains under the drawbar, and hook to towing vehicle eyebolts. If the safety chains are too long, they can be twisted to be shortened. It is recommended that wire be used across the hook openings to prevent accidental unhooking

5.5.3.1.17. When the intervehicular cable is connected, the ABS system will perform a self-check and the indicator light will flash.

5.5.3.1.18. Connect intervehicular cable to towing vehicle.

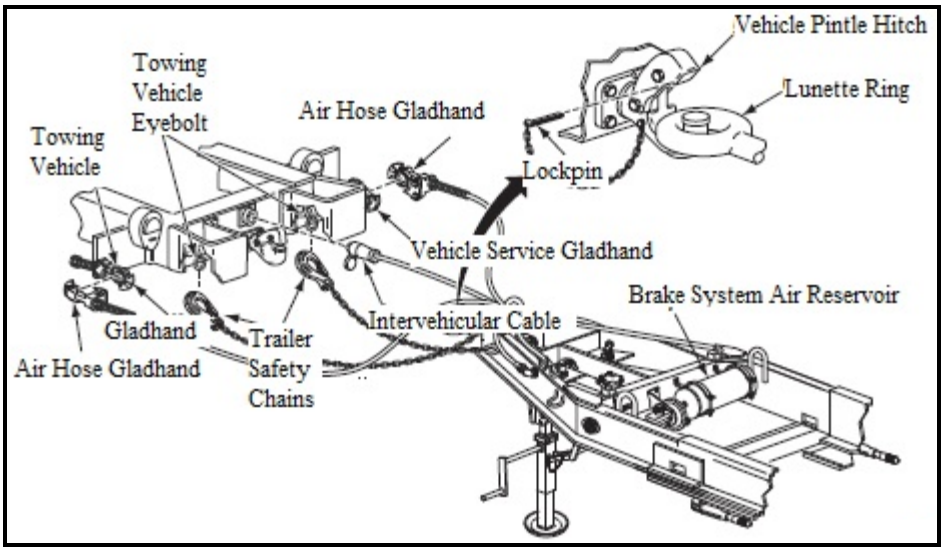
5.5.3.1.19. Connect trailer service air hose gladhand to towing vehicle service gladhand.

5.5.3.1.20. Connect trailer emergency air hose gladhand to towing vehicle emergency gladhand.

5.5.3.1.21. Check air hose gladhands and intervehicular cable for security.

5.5.3.1.22. Turn on towing vehicle air supply to pressurize the brake system air reservoir.

Figure 5.13. Coupling the Chassis Trailer to Towing Vehicle.



5.5.3.1.23. Turn on service lights in towing vehicle and check that all taillights are working.

5.5.3.1.24. Have an assistant turn on turn signals and apply service brakes. Check that taillights flash and the brake lights light.

5.5.3.1.25. Check blackout portions of taillights for proper operation.

5.5.3.1.26. See manufacturer's operator's manual for additional steps and guidance. Guidance will vary based on model type.

5.5.4. Cargo trailer operation.

5.5.4.1. Operating handbrakes.

5.5.4.1.1. Pull handbrake levers forward and down to apply handbrakes.

5.5.4.1.2. Push handbrake levers to an upright position to release the handbrakes.

5.5.4.2. Installing rack, tailgate and canvas cover assemblies. Installation varies per model type. Refer to the manufacturer's operator's manual for additional guidance.

5.5.4.3. Loading the trailer.

5.5.4.3.1. If the trailer is not coupled to the towing vehicle, make sure the handbrakes are applied and the wheels are chocked securely. Failure to do so, may cause the trailer to roll, resulting in serious injury or death to personnel or damage to the equipment.

5.5.4.3.2. Operate handbrake lever to apply handbrakes. Rear stabilizer must be used if the trailer is carrying generator sets. Failure to follow this guidance may cause the trailer to tip.

5.5.4.3.3. If equipped with a rear stabilizer, pull out on release handle and lower rear stabilizer. Turn foot assembly until it firmly contacts ground.

5.5.4.3.4. Distribute load evenly over the trailer. Do not exceed maximum allowable payload. Caution – Failure to ensure that the load is evenly distributed may result in serious injury to personnel or damage to equipment.

5.5.4.4. Coupling trailer to towing vehicle. **Note:** Make sure towing vehicle and trailer are on level ground before coupling.

5.5.4.4.1. Apply handbrakes.

5.5.4.4.2. If equipped with rear stabilizer, turn foot assembly as far as it will go into rear stabilizer. Swing rear stabilizer up until latch hook hooks onto up-latch pin.

5.5.4.4.3. Remove safety pin from pintle hook of towing vehicle.

5.5.4.4.4. Pull up on locking latch to open pintle hook.

Note: CAUTION – Do not move the trailer laterally (push/pull) using the landing leg/caster as a third wheel or trailer dolly. Mounting bracket or landing leg/cast or failure may cause trailer damage or injury to personnel. Do not use landing leg/caster as a third wheel to pivot/turn trailer around to face the prime mover. Remove the load from the trailer if it must be turned around.

5.5.4.4.5. Back towing vehicle in front of drawbar coupler.

Note: CAUTION – The drawbar is heavy. Use front support (landing) leg crank to raise and lower trailer drawbar.

5.5.4.4.6. Use handcrank to adjust height of drawbar coupler. Place drawbar coupler in pintle hook.

5.5.4.4.7. Close pintle hook. Check to see that locking latch is locked by pulling up on pintle hook. Pintle hook should not come up. Install safety pin in pintle hook.

5.5.4.4.8. Cross two safety chains under drawbar coupler and hook to two towing vehicle eyebolts.

5.5.4.4.9. See manufacturer's operator's manual for additional guidance. Steps will vary depending on model being used.

5.5.4.5. Uncoupling trailer from towing vehicle. See manufacturer's operator's manual for additional guidance.

5.5.4.6. Removing canvas cover, tailgate, and rack assemblies (if applicable).

5.5.4.6.1. Assistance is required for performing this task.

5.5.4.6.2. Apply handbrakes.

5.5.4.6.3. Remove fourteen ropes from fourteen cargo hooks on cargo body.

5.5.4.6.4. Unfasten eight straps on canvas cover assembly.

5.5.4.6.5. Fold back curtain over top of canvas cover assembly.

5.5.4.6.6. From inside trailer, unsnap ten canvas fasteners and remove ten tie down straps from five bow assemblies.

5.5.4.6.7. Remove canvas cover assembly from five bow assemblies. Fold canvas cover assembly and stow.

5.5.4.6.8. Remove five bow assemblies from ten stakes.

5.5.4.6.9. Stow five bow assemblies in ten bow clips.

5.5.4.6.10. Remove connecting link from two top strap latch assemblies of road-side and curb-side tailgate assemblies.

5.5.4.6.11. Remove two connecting links from two bottom strap latch assemblies and holes in cargo body.

5.5.4.6.12. At road-side tailgate assembly, remove two cotter pins and headed straight pins from two strap hinge assemblies and hinges. Remove road-side tailgate assembly from curb-side tailgate assembly.

5.5.4.6.13. At curb-side, repeat above to remove curb-side tailgate assembly.

5.5.4.6.14. At road-side front rack assembly, remove two cotter pins and headed straight pins from two strap hinge assemblies and hinges on road-side rack assembly. Repeat at curb-side front rack assembly.

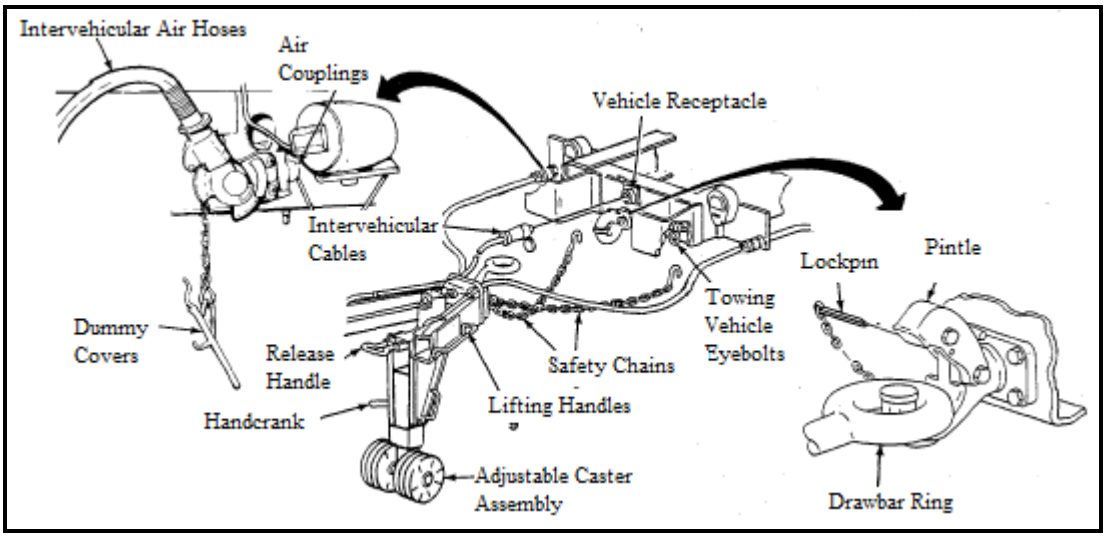
5.5.4.6.15. Side rack assembly is heavy and awkward to handle.

5.5.4.6.16. Lift road-side side rack assembly from five stake pockets in cargo body. Repeat for curb-side side rack assembly.

5.5.5. Water tank trailer operation.

5.5.5.1. Coupling trailer to towing vehicle. See **Figure 5.14.**

Figure 5.14. Coupling Water Tank Trailer to Towing Vehicle.



5.5.5.1.1. Remove lockpin and open towing vehicle pintle.

5.5.5.1.2. Crank adjustable caster assembly down, using handcrank, until drawbar ring is above divided portion of towing vehicle pintle.

5.5.5.1.3. Align towing vehicle with trailer and slowly back towing vehicle up until drawbar ring is centered in towing vehicle pintle

5.5.5.1.4. Use handcrank to lower adjustable caster assembly until the weight ot the trailer is supported by towing vehicle.

5.5.5.1.5. Close pintle and install the lockpin.

5.5.5.1.6. Remove the safety chains from lifting handles. Cross safety chains under the drawbar ring and attach to the towing vehicle eyebolts.

5.5.5.1.7. Connect intervehicular cable to towing vehicle receptacle.

5.5.5.1.8. Remove two dummy covers from the towing vehicle air couplings. Connect intervehicular air hoses to towing vehicle air couplings. Turn towing vehicle air valves on to supply pressure to the trailer service air system.

5.5.5.1.9. Pull release handle and raise adjustable caster assembly into the locked position. Ensure the release handle is fully engaged.

5.5.5.2. Filling water tank. **Note:** Use extreme care to ensure that no foreign amterial enters the water tank.

5.5.5.2.1. Loosen wingnut by turning counterclockwise and push hinged eybolt out of slot on clamp assembly.

5.5.5.2.2. Lift clamp assembly until manhole cover is completely open and will stay open without assistance.

5.5.5.2.3. Fill water tank through manhole opening. Water tank must be filled by an overhead, free-flowing source, or by a pressure pump.

5.5.5.2.4. Close manhole cover. Swing hinged eyebolt and wingnut into slot on clamp assembly. Tighten wingnut by turning clockwise.

5.5.5.3. Filling stainless steel water tank.

5.5.5.3.1. Open manhole cover by pulling up and out on two fasteners and laying them on tank surface. Pull looped end of J-bolt and lift manhole cover until holes on bracket and manhole cover align. Release J-bolt.

5.5.5.3.2. Fill water tank through manhole opening.

5.5.5.3.3. Pull looped end of J-bolt and close manhole cover until holes on bracket and manhole cover align. Release J-bolt into holes.

5.5.5.3.4. Pull out on two fasteners and release into holes.

5.5.5.4. Draining water tank.

5.5.5.4.1. Close manifold valve by pushing in.

5.5.5.4.2. Press down on levers and drain remaining water from piping.

5.5.5.4.3. Remove drain plug and drain liquid from water tank.

5.5.5.4.4. Install drain plug.

Section 6—EXPLANATION AND DEMONSTRATION.

6.1. Instructor's Preparation.

6.1.1. Establish a training location.

6.1.2. Obtain appropriate vehicle operator's manual.

6.1.3. Schedule/reserve a vehicle.

6.1.4. Ensure trainee completes AF Form 171.

6.2. Safety Procedures and Equipment.

6.2.1. The following safety items should be followed by both the instructor and trainee.

6.2.1.1. Chock wheel (if required) when M series trailer is parked.

6.2.1.2. Remove all jewelry and identification tags.

6.2.1.3. Protective equipment for asbestos operations.

6.2.1.4. Personal protective equipment and equipment items.

6.2.1.4.1. Safety steel-toed boots must be worn.

6.2.1.4.2. Gloves will be worn during cargo loading and unloading.

6.2.1.4.3. Inclement weather gear, if applicable

6.2.1.4.4. Hearing and eye protection, if applicable.

6.2.1.4.5. Reflective belt during hours of reduced visibility or on the flightline.

6.2.1.5. Walk around vehicle to become familiar with and to familiarize and the trainee with all warning labels and signs.

6.2.1.6. Ensure trainee wears seat belts.

6.2.1.7. Properly adjust driver's seat and all mirrors, if available.

6.2.1.8. Throughout demonstration, practice M-series trailer safety.

6.2.2. Practice basic RM process during demonstration:

6.2.2.1. Identify hazards.

6.2.2.2. Assess hazards.

6.2.2.3. Develop controls and make decisions.

6.2.2.4. Implement controls.

6.2.2.5. Supervise and evaluate.

6.3. Operator Maintenance Demonstration.

6.3.1. With trainee, accomplish vehicle inspection using AF Form 1800. The vehicle inspection will follow the seven-step method as described in **Attachment 5**. An inspection guide (**Attachment 2**) can be used to ensure all areas of the tractor and trailer are covered in addition to the "Operation Demonstration" guidelines provided below.

6.4. Operation Demonstration.

6.4.1. Throughout demonstration:

6.4.1.1. Allow for questions.

6.4.1.2. Repeat demonstrations as needed.

6.4.2. For all M-series trailers, within the training area, demonstrate and explain the following. **Note:** Use information contained on the data plate and/or the operator's manual:

6.4.2.1. Specific M-series trailer capacities

6.4.2.2. Point out the items to be inspected during operations.

6.4.3. Demonstrate the following M-series trailer operations (use spotter when backing).

6.4.3.1. Coupling/uncoupling.

6.4.3.2. Loading cargo.

6.4.3.3. Forward.

6.4.3.4. Backing.

6.4.3.5. Right/left turning.

6.4.3.6. Parking.

6.4.3.7. Specific M-series model/type operations, as required.

6.4.3.8. Demonstrate securing cargo (if applicable to vehicle type).

6.4.4. Show trainee the after operation inspection and report.

6.4.4.1. Ensure vehicle is cleaned.

6.4.4.2. Cargo straps and chains are properly stowed.

6.4.4.3. Refuel vehicle.

6.4.4.4. Following manufacturer's shut-down procedures.

6.4.4.5. Park.

6.4.4.5.1. Place transmission in neutral (park or an automatic).

6.4.4.5.2. Apply parking brake.

6.4.4.6. Perform a walk-around inspection.

6.4.4.7. Annotate any discrepancies found on AF Form 1800.

6.4.5. Conclude by allowing time for questions and any requested re-demonstrations.

Section 7—TRAINEE PERFORMANCE AND EVALUATION

7.1. Trainee Performance.

7.1.1. Instructor will:

7.1.1.1. Ensure safety at all times. **Note:** Stop training when safety items are violated. Proceed only when the trainee fully understands how to avoid repeating the safety infraction(s).

7.1.1.1.1. Chock wheel (if required) when M series trailer is parked.

7.1.1.1.2. Remove all jewelry and identification tags.

Note: If available, mark vehicle with magnetic sign indicating "Driver-in-Training" or "Trainee Operator."

7.1.1.2. Personal protective equipment and other items:

7.1.1.2.1. Safety steel-toed boots must be worn.

7.1.1.2.2. Gloves will be worn during cargo loading and unloading.

7.1.1.2.3. Reflective belt during hours of reduced visibility or on the flightline.

7.1.1.2.4. Inclement weather gear, if applicable.

7.1.1.2.5. Hearing/eye protection, if applicable.

7.1.1.3. Pay particular attention to the cautions and warnings listed in the operator's manual.

7.1.1.4. Ensure trainee wears seat belts.

7.1.1.5. Properly adjust driver’s seat and all mirrors.

7.1.1.6. M-series trailer safety items/procedures.

7.1.1.7. Ensure the driver is aware of driving situations he/she is to perform.

7.1.1.8. Conduct during/after-action reviews with the trainee (demonstration may need to be re-accomplished).

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References
AFI 24-301, *Ground Transportation, 1 November 2018*
AFMAN 24-306, *Operation of Air Force Government Motor Vehicles*, X January 2017
AFPAM 90-803, *Risk Management (RM) Guidelines and Tools*, 11 February 2013

Adopted Forms
AF Form 171, *Request for Driver's Training and Addition to U.S. Government Drivers License*, 1 November 2018
AF Form 847, *Recommendation for Change in Publication*
AF Form 1800, *Operator's Inspection Guide and Trouble Report*

Abbreviations and Acronyms
ABS—Antilock Brake System
AF—Air Force
AFI—Air Force Instruction
AFIMSC—Air Force Installation Mission Support Center
AFMAN—Air Force Manual
AFQTP—Air Force Qualification Training Plan
CDL—Commercial Driver's License
DD—Department of Defense
IAW—In Accordance With
MICLIC—Mine Clearing Line Charge
RM—Risk Management
SF—Standard Form
TO—Technical Order
VCNCO—Vehicle Control Non Commissioned Officer
VCO—Vehicle Control Officer

Attachment 2

SEVEN-STEP INSPECTION PROCESS

Figure A2.1. Seven-Step Inspection Process.

Seven-Step Inspection Process	
Step	**Procedure**
1. Vehicle Overview	• Review the AF Form 1800. o Ensure any discrepancy has been corrected. o Vehicle Management annotated the discrepancy was completed. o Approaching the vehicle. ▪ Damage or vehicle leaning to one side. ▪ Fresh leakage of fluids. ▪ Hazards around vehicle.
5. Do Walk-Around Inspection	• General. ▪ Clean all lights, reflectors, and glass as while doing the walk-around inspection. • Left front side. o Door latches or locks should work properly. • Left front wheel. o Condition of wheel and rim--missing, bent, broken studs, clamps, lugs, or any signs of misalignment. o Condition of tires--properly inflated, valve stem and cap OK, no serious cuts, bulges, or tread wear. o Hub oil level OK, no leaks. Left front suspension. o Condition of spring, spring hangers, shackles, o U-bolts. o Shock absorber condition. • Left front brake. o Condition of brake drum or disc. o Condition of hoses. • Front. o Condition of front axle. o No loose, worn, bent, damaged or missing parts.

	o Must grab steering mechanism to test for looseness. o . o Lights and reflectors. o Parking, clearance, and identification lights clean, operating, and proper color (amber at front). o Reflectors clean and proper color (amber at front). o Right front turn signal light clean, operating, and proper color (amber or white on signals facing forward). • Right side o Right front: check all items as done on left front. o Securely mounted, not damaged, or leaking. Fuel crossover line secure. o Frame and cross members--no bends or cracks. o Air-lines and electrical wiring--secured against snagging, rubbing, wearing. o Spare tire carrier or rack not damaged (if so equipped). o Spare tire and/or wheel securely mounted in rack. o Spare tire and wheel adequate (proper size, properly inflated). o Cargo securement o Cargo properly blocked, braced, tied, chained, etc. Header board adequate, secure (if required). o Side boards, stakes strong enough, free of damage, properly set in place (if so equipped). o Canvas or tarp (if required) properly secured to prevent tearing, billowing, or blocking of mirrors. o If oversize, all required signs (flags, lamps, and reflectors) safely and properly mounted and all required permits in driver's possession. o Curbside cargo compartment doors in good condition, securely closed, latched/locked and required security seals in place.

	• Right rear. o Condition of wheels and rims--no missing, bent, or broken spacers, studs, clamps, or lugs. o Condition of tires--properly inflated, valve stems and caps OK, no serious cuts, bulges, tread wear, tires not rubbing each other, and nothing stuck between them. o Tires same type o Tires evenly matched (same sizes). Wheel bearing/seals not leaking. o Suspension. o Condition of spring(s), spring hangers, shackles, and U-bolts. o Axle secure. o Powered axle(s) not leaking lube (gear oil). Condition of torque rod arms, bushings. o Condition of shock absorber(s). o If retractable axle equipped, check condition of lift mechanism. If air powered, check for leaks. o Condition of air ride components. o Brakes. o Brake adjustment. o Condition of brake drum(s) or discs. o Condition of hoses--look for any wear due to rubbing. o Lights and reflectors. o Side-marker lights clean, operating, and proper color (red at rear, others amber). o Side-marker reflectors clean and proper color (red at rear, others amber). • Rear. o Lights and reflectors. o Rear clearance and identification lights clean, operating, and proper color (red at rear). o Reflectors clean and proper color (red at rear). o Taillights clean, operating, and proper color (red at rear).

	o	Right rear turn signal operating, and proper color (red, yellow, or amber at rear).
	o	License plate(s) present, clean, and secured.
	o	Splash guards present, not damaged, properly fastened, not dragging on ground, or rubbing tires.
	o	Rear doors securely closed, latched/locked.
	•	Left side.
	o	Check all items as done on right side.
6. Check Signal Lights	•	Get in and turn-off all lights.
	•	Turn-on stop lights (apply trailer hand brake or have a helper put on the brake pedal).
	•	Turn-on left turn signal lights.
	•	Turn-on blackout lights.
	•	Get out and check lights.
	•	Left front turn signal light clean, operating and proper color (amber or white on signals facing the front).
	•	Left rear turn signal light and both stop lights clean operating, and proper color (red, yellow, or amber).
	•	Get in vehicle.
	o	Turn-off lights not needed for driving.
	o	Check for all required papers, trip manifests, permits, etc.
	o	Secure all loose articles (they might interfere with operation of the controls or hit the operator in a crash).
	o	Start the engine.
7. Check Test for Hydraulic Leaks	•	Test for hydraulic leaks.
	o	If the vehicle has hydraulic brakes, pump the brake pedal three times.
	o	Then apply firm pressure to the pedal and hold for five seconds.
	o	The pedal should not move. If it does, there may be a leak or other problem.
	•	Brake system.
	•	Test parking brake.
	o	Fasten safety belt.

	o Set parking brake. o Gently pull forward against parking brake to make sure the parking brake holds. o If it doesn't hold vehicle, it is faulty; get it fixed. • Test service brake stopping action. o Go about 5 miles per hour. o Push brake pedal firmly. o "Pulling" to one side or the other can mean brake trouble. o Any unusual brake pedal "feel" or delayed stopping action can mean trouble. o If the trainee finds anything unsafe during the vehicle inspection, get it fixed. Federal and state laws forbid operating an unsafe vehicle. • Check vehicle operation regularly: o Instruments. o Air pressure gauge (if the vehicle has air brakes). Temperature gauges. o Pressure gauges. Ammeter/voltmeter. o Mirrors. o Tires. o Cargo, cargo covers. Lights, etc. o If the trainee sees, hears, smells, or feels anything that might mean trouble, he/she should check it out. • Safety inspection. • Document any discrepancy on AF Form 1800. Sign-off AF Form 1800 to signify accomplishment of inspection.

Figure A2.2. Additional Steps for Inspecting Air Brakes System.

Additional Steps for Inspecting Air Brakes	
Step	**Procedure**
	•
5. Walk-Around Inspecting	• Check manual slack adjusters on S-cam brakes. **Note:** Vehicles with automatic slack adjustors still must be checked. o Park on level ground and chock the wheels. o Release the parking brakes so the operator can move the slack adjusters. o Use gloves and pull hard on each slack adjuster that it can be reached. o Check slack adjuster, more than 1-inch indicates adjustments required (vehicles with too much brake slack can be very hard to stop). Adjust it or have it adjusted. • Check brake drums (or discs), linings, and hoses.
7. Final Air Brake Check	• Test low pressure warning signal. o Shut the engine off when the vehicle has enough air pressure so that the low pressure warning signal is not on. o Turn the electrical power on. o Step on and off the brake pedal to reduce air tank pressure. o Low air pressure warning signal should come on before the pressure drops to less than 60 psi in the air tank with lowest pressure. • Check that the spring brakes come on automatically. o Chock the wheels. o Release the parking brakes when enough air pressure is built up. o Shut the engine off. o Step on and off the brake pedal to reduce the air tank pressure. o "Parking brake" knob should pop out when the air pressure falls to the manufacturer's specification. • Check rate of air pressure buildup o Refer to manufacturer’s recommendation for average buildup time.

	o If not within recommended time, the air pressure may drop too low during driving operations. • Test air leakage rate. o With a fully-charged air system (typically 125 psi). o Turn-off the engine. o Release the service brake and time the air pressure drop. o The loss rate should be less than 2 psi in one minute for single vehicles. o Not less than 3 psi in 1 minute for combination vehicles. • Then apply 90 psi or more with the brake pedal. o After the initial pressure drop, if the air pressure falls more than 3 psi in 1 minute for single vehicles. o Not more than 4 psi for combination vehicles. o Engine idling, step on and off brake to reduce air tank pressure. o Test parking brake: Stop the vehicle; put the parking brake on; gently pull against it in low gear to determine if parking brake will hold. ▪ Test service brakes. ▪ Wait for normal air pressure. • Release the parking brake. • Move the vehicle forward slowly (about 5 mph). • Apply the brakes firmly using the brake pedal. • Note any vehicle "pulling" to one side, unusual feel, or delayed stopping action.