

**25K-Loader (Halvorsen)**  
Vehicle Management Codes: E935, E936



**QUALIFICATION TRAINING PACKAGE**

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## **Section 1—OVERVIEW**

### **1.1. Overview.**

1.1.1. Send comments and suggested improvements on Air Force (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 exam (CBT), **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 performance and evaluation, **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 TO Operator Inspection Checklist, **Attachment 3** and **Attachment 5** as guides for vehicle inspection.

1.1.2.2.4. Takes performance test.

## **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 trainee's responsibilities.

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

2.1.1.3. 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. Grade the review questions using the answer key.

2.1.2.4. Review missed questions with the trainee to ensure the required task knowledge has been gained to complete the task.

2.1.2.5. 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 and written test, trainees will be able to perform operator's inspection and complete the performance test with zero instructor assists and achieve 80% on the written tests (CBTs).

3.1.1.1. Train and qualify each trainee in safe operation and preventive maintenance of the 25K-loader.

3.1.1.2. This training will ensure the trainee becomes a qualified 25K-loader operator; an operator who has the knowledge and skills to operate a 25K-loader in a safe and professional manner.

### **3.2. Desired Learning Outcomes.**

- 3.2.1. Understand the purpose of the 25K-loader and its role in the mission.
- 3.2.2. Locate information contained in the applicable technical manual and explain terminology used in the technical manual and operator' guide.
- 3.2.3. Identify the major components and the various operating systems contained on the loader. Identify, inspect and operate the operational subsystems on the loader.
- 3.2.4. Identify components of the deck assembly and explain how they function.
- 3.2.5. Identify and locate linkage and chassis assemblies on the loader.
- 3.2.6. Explain what type of engine is in the loader.
- 3.2.7. Identify and operate the controls located inside of the cab.
- 3.2.8. Explain the deck conveyor, pitch, roll and side shift functions. Explain how to remove the side rail assembly, install the deck extension and catwalks, and placement of the bridge plates.
- 3.2.9. Understand the safety precautions to be followed before-, during-, and after- operation of the 25K-loader.
- 3.2.10. Know the proper operator maintenance procedures of the 25K-loader, IAW applicable technical orders (TOs) and use of AF Form 1800, *Operator's Inspection Guide and Trouble Report*.
- 3.2.11. Safely and proficiently operate the 25K-loader. Know how to operate the loader in the event of an emergency, and be familiar with how to start the loader during cold weather.
- 3.2.12. Be able to configure the loader for air shipment to include: deck and cab reconfiguration, weighting and marking the loader and aircraft loading.
- 3.2.13. Know how to transport the Halvorson by truck and remove the drive shaft in the event that the loader needs to be towed more than 500 feet.
- 3.2.14. Explain where to locate trouble shooting data and how to change a wheel or tire.

### 3.3. Lesson Duration.

3.3.1. Recommended instructional and hands on training time is 80 hours:

**Figure 3.1. Recommended Training Time for Training Activities.**

<b>Training Activity</b>	<b>Training Time</b>
Trainee's Preparation	10 Hours
Instructor's Lecture	15 Hours
Trainee's Written Evaluation	3 Hours
Instructor's Demonstration	10 Hours
Trainee's Personal Experience (to build confidence and proficiency) <ul style="list-style-type: none"><li>▪ Perform Operator Maintenance</li><li>▪ Operate the Vehicle</li></ul>	40 Hours
Trainee's Performance Evaluation	2 Hours

**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.

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. Special references based-off type of vehicle.

### **3.5. Instructional Training Aids and Equipment.**

- 3.5.1. 25K-Loader Lesson Plan.
- 3.5.2. 25K-loader
- 3.5.3. Overhead projector
- 3.5.4. Applicable TO or Manufacturer's Operator's Manual. (T.O. 36M2-3-45-1)
- 3.5.5. AF Form 1800.
- 3.5.6. Videos (if locally produced).
- 3.5.7. Suitable training area.
- 3.5.8. 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 (Testable Material).**

- 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 and written test, trainees will be able to perform operator's inspection and complete the performance test with zero instructor assists and achieve 80% on the written tests (CBTs).

5.1.1.2. Train and qualify each trainee in safe operation and preventive maintenance of the 25K-loader.

5.1.1.3. This training will ensure the trainee becomes a qualified 25K-loader operator—an operator who has the knowledge and skills to operate a 25K-loader 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 25K-loader.

5.1.2.2. Understand the purpose of the 25K-loader and its role in the mission.

5.1.2.2.1. The 25K-loader is categorized as a weapons system. The 25K-loader is designed to load and unload cargo on all military and civilian aircraft used by the Department of Defense (DoD). Cargo includes 463L pallets, Type V airdrop platforms (up to 20'), CDS containers (up to 2,500 lbs.), commercial containers and rolling stock.

5.1.2.2.1.1. The Halvorsen can operate in a number of locations with ambient temperatures ranging from -40°F to +125°F degrees.

5.1.2.2.1.2. The loader is capable of air transport on the C-5 and C-17 aircraft utilizing drive-on/drive-off capability.

5.1.2.2.1.3. Designed for transport on railcar, ship or semi-trailer.

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

5.1.3. 25K-loader design. The Halvorsen 25K is a self-propelled, hydraulically operated, electronically controlled vehicle.

5.1.3.1. Six cylinder, liquid cooled, turbocharged, 4-cycle diesel engine coupled to four-speed automatic transmission. Provides power to propel the vehicle and to operate hydraulic and electrical systems.



5.1.4. Major components.

5.1.4.1. Chassis assembly.

5.1.4.2. Scissors.

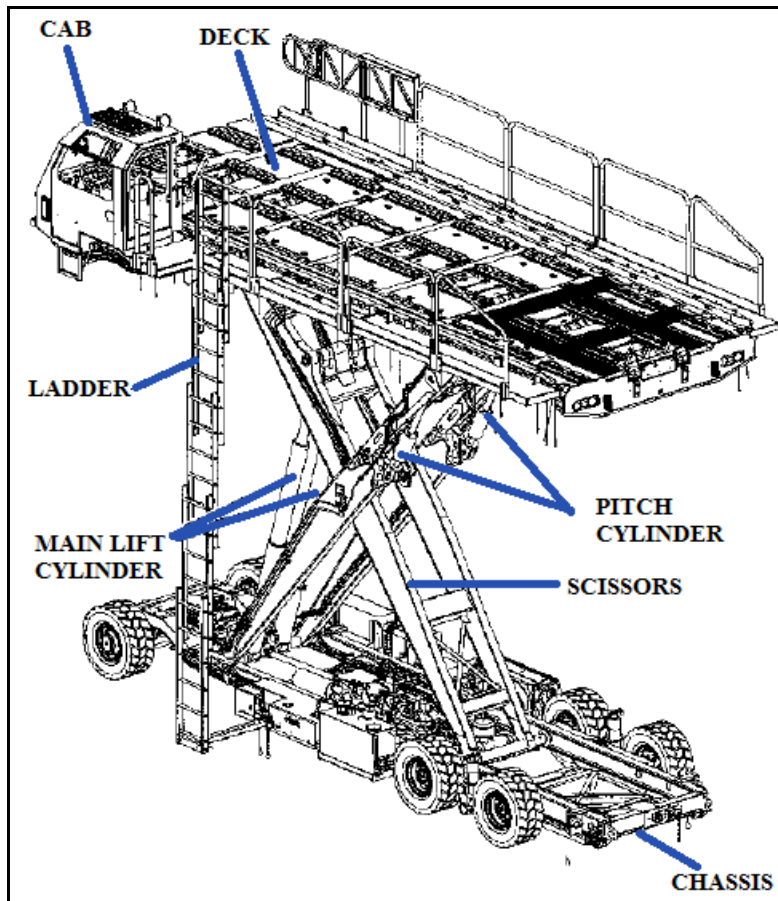
5.1.4.2.1. Main lift cylinder.

5.1.4.2.2. Pitch cylinder.

5.1.4.3. Deck.

5.1.4.4. Cab.

**Figure 5.1. 25K-Loader Major Components.**



5.1.5. General specifications. See **Attachment 2** (*Subject Knowledge*) for 25K-loader specifications.

5.1.6. Chassis.

5.1.6.1. Welded steel frame.

5.1.6.2. Structural foundation.

5.1.6.3. Drive/Steer Axle.

5.1.6.3.1. Front axle produces drive and steer. Axle is mounted rigidly to chassis frame. Differential, planetary wheel ends, and power steering cylinders are incorporated in the axle.

5.1.6.3.2. Brake disk attached to differential pinion. Parking and service brake calipers react on disk.

5.1.6.3.3. Differential lock provides positive driving of both wheels on slippery surface when needed.

5.1.6.4. Rear axle assembly. Provides support for rear of chassis. Allows for travel over irregular surfaces and provides additional chassis clearance when driving up/down ramps.

5.1.6.5. Bogie assembly: Bogie wheel arm, two wheel assemblies and helping cylinder.

5.1.6.5.1. Bogie pivot shaft.

5.1.6.5.2. External disk brakes (hydraulic).

5.1.6.5.3. Attached to chassis by two pivot pins.

5.1.6.5.4. Additional ramp clearance obtained by engaging air transportability latch and raising deck.

5.1.6.6. Power unit. Six-cylinder, liquid cooled, turbocharged diesel engine.

5.1.6.6.1. Drives automatic transmission coupled to the flywheel to propel the loader.

5.1.6.6.2. Drives a variable displacement hydraulic pump coupled to the front end of crankshaft to operate hydraulic systems.

5.1.6.6.3. Drives an alternator for electrical power to keep batteries fully charged.

5.1.6.7. Electrical system.

5.1.6.8. Hydraulic system.

5.1.6.9. Fuel system.

5.1.6.10. Cooling system. Closed-loop engine cooling system consisting of:

5.1.6.10.1. Radiator. Remotely mounted outside right-side of chassis frame.

5.1.6.10.2. Fan. 2-speed hydraulic motor controlled by sensors in the cooling system. Automatically actuates at 190° F.

5.1.6.10.3. Water pump. Circulates coolant as determined by thermostat.

5.1.6.10.4. Coolant reservoir. Mounted on top of engine, reserves fluid volume required to maintain cooling system operating range. Contains a sight gauge.

5.1.6.10.5. Coolant recovery tank. Mounted on rear of engine. Allows coolant recovery, maintains a constant fluid level, prevents introduction of air in the closed loop system.

5.1.6.10.6. Transmission. Four-speed automatic coupled to engine flywheel for directional control.

5.1.6.10.6.1. Torque converter provides inching capability.

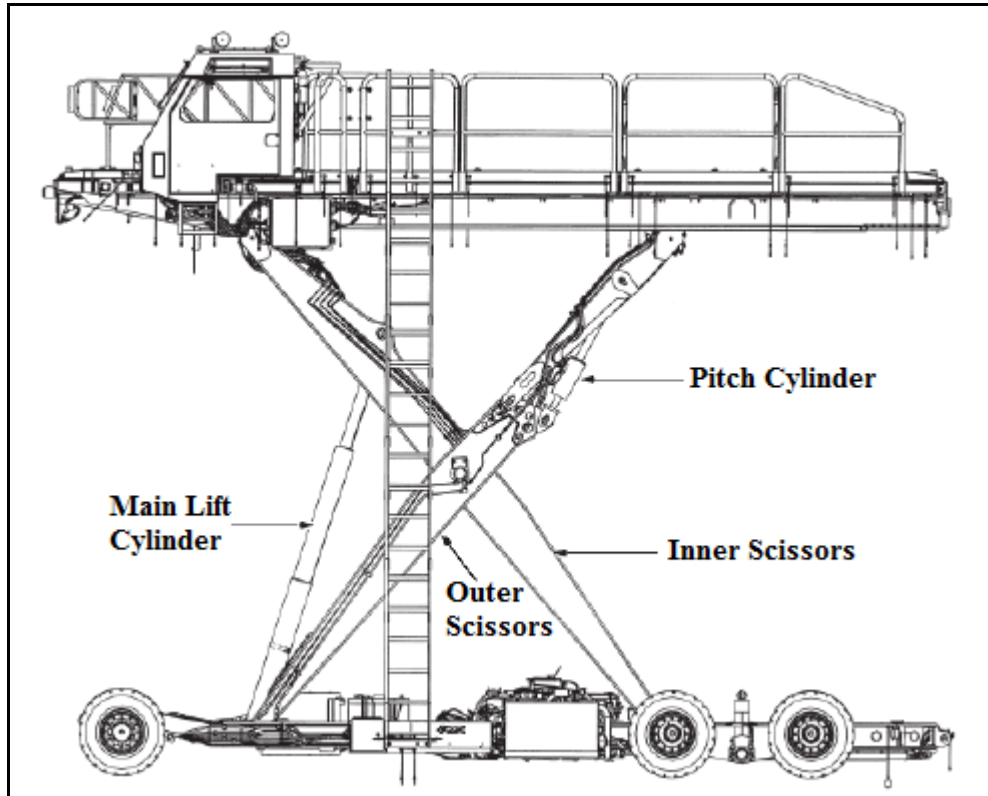
5.1.6.10.6.2. Range selection accomplished by electrically controlled joystick.

5.1.7. Scissors. Provides the means to raise, lower and pitch the deck.

5.1.7.1. Outer scissors. Front pivots on main lift cylinder pivot pins. Rear travels deck frame as deck raises/lowers. Consists of two sections to allow pitch.

5.1.7.2. Inner scissors. Front pivots on deck pivot points. Rear travels on main frame as deck raises/lowers.

**Figure 5.2. Scissors.**



5.1.8. Deck. An aluminum structure raised and lowered by the scissors and contains a powered convey system to control the movements of the pallets.

- 5.1.8.1. Recessed convey modules.
- 5.1.8.2. Removable roller trays.
- 5.1.8.3. Adjustable pallet guide rails.
- 5.1.8.4. Pallet locks.
- 5.1.8.5. Tie-down rings.
- 5.1.8.6. Catwalks.
- 5.1.8.7. Handrails.
- 5.1.8.8. Ladder assembly.
- 5.1.8.9. Folding wings.
- 5.1.8.10. Rear/side tine troughs.

5.1.8.11. Removable covers.

5.1.8.12. Sling bridles.

5.1.8.13. Retractable pallet stops.

5.1.9. External cab. Fully enclosed, mounted on left side.

5.1.9.1. Main door.

5.1.9.2. Rear egress door.

5.1.9.3. Washer fluid fill.

5.1.9.4. Heater fuel fill.

5.1.9.5. Fire extinguisher.

5.1.9.6. Spot lights.

5.1.9.7. Sliding hand rail.

5.1.10. Internal cab. The dash panel contains all of the switches, levers, gauges, and indicators needed for starting and shutting down the engine, as well as monitoring the engine and hydraulic systems.

5.1.11. All deck positioning controls are also located on the dash panel.

5.1.12. The convey panel contains all switches and indicators needed to control the convey system and both pallet stops.

5.1.13. The transmission range selector panel contains the range selector lever and a digital display.

5.1.14. The wiper panel contains all switches and circuit breakers for front/rear wipers/washers. It also contains all switches for loader lighting including dome and cabin dash/gauge lights.

5.1.15. Emergency system. Electrically powered emergency hydraulic pump. Engages automatically in the event of power pack or hydraulic pump failure while driving.

5.1.15.1. Provides power to steering, service brakes, and parking brakes.

5.1.15.2. Automatic feature activates only with ignition on/parking brake off.

5.1.15.3. The emergency pump can be manually actuated by the operator. The momentary switch located on the dash panel allows for deck functions, cargo transfer, and parking brake release. The second switch located on the main panel is used for maintenance.

5.1.16. Winterization. Used for sustained operations at 0° F or below.

5.1.16.1. 120 to 240 VAC.

5.1.16.2. Heats engine oil, engine coolant, transmission fluid, hydraulic fluid and batteries.

5.1.16.3. When connected “winterization” indicator is illuminated on the dash panel.

5.1.17. Controls and indicators.

5.1.17.1. Dash panel. The dash panel is located directly in front of the operator and contains all switches, gauges, and indicator lights for starting the engine, monitoring the engine and hydraulic system conditions, and shutting down the engine.

5.1.17.2. Convey panel. The deck convey panel is at the operator’s right. It contains the controls that activate the convey system for moving cargo on and off of the deck.

5.1.17.3. Wiper panel. The wiper panel is an overhead panel located in the upper-right corner of the cab enclosure that contains the switches for the front wiper, rear wiper, front washer and rear washer. The circuit breakers for the front wiper and rear wiper are adjacent to the switches. The headlights, cab light, dome light, and cabin dash/gauge lights dimmer switches are also located on the wiper panel.

## **5.2. Vehicle Inspection.**

5.2.1. Pre-trip vehicle inspection test/operational checks. During each shift, the operator must perform all operational checks. Before operation, during operation, and after operation. Any equipment or loader faults should be reported immediately to vehicle maintenance personnel.

5.2.2. Use T.O. 36M2-3-45-1 in conjunction with AF Form 1800 and **Attachment 3** as a walk around guide.

5.2.3. 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 5** for the Seven-Step Inspection Method. **Note:** If gauges are not functioning properly, report the loader to maintenance.

5.2.4. Types of vehicle inspection. If discrepancies are found, they must be reported to 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. Vehicle maintenance to authorize continued use for all other maintenance discrepancies.

5.2.4.1.2. The checklist begins with the loader deck lowered onto the chassis.

5.2.4.1.3. Cleanliness/damage/missing items.

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

5.2.4.1.5. Engine area.

5.2.4.1.5.1. Check air filter indicator.

5.2.4.1.5.2. Check belts, hoses and overall appearance of the engine.

5.2.4.1.6. External cab.

5.2.4.1.6.1. Heater fuel valve.

5.2.4.1.6.2. Windows/mirrors.

5.2.4.1.6.3. Windshield washer fluid.

5.2.4.1.6.4. Cab pin.

5.2.4.1.6.5. Hand rails, mounting brackets, locking pins.

5.2.4.1.6.6. Power rollers.

5.2.4.1.6.7. Ladder.

5.2.4.1.6.8. Fire extinguisher.

5.2.4.1.7. Deck.

5.2.4.1.7.1. Casters and rollers.

5.2.4.1.7.2. Rubber bumpers.

5.2.4.1.7.3. Folding wings: damage, free movement, pin engagement.

#### 5.2.4.1.8. Engine oil level.

5.2.4.1.8.1. Lift engage access panel on deck between power rollers 5 and 6. Secure when done.

5.2.4.1.8.2. Wait until the engine has had time to cool after shutting the K-Loader down, before checking the engine oil.

5.2.4.1.9. After the external cab and deck (non-operational) have been checked, the operator will put the loader on the first maintenance stand for the remainder of the inspection.

5.2.4.1.9.1. From the Main Panel: Turn the batter on. Engage shut down override and start switch to start the loader. Engage the auxiliary deck raise/lower switch.

5.2.4.1.9.2. Pull securing pin and remove block from the storage cradle.

5.2.4.1.9.3. Raise the scissors until rollers clear the position on the main frame you intend to use. Insert block pin into the hole on the frame from the inside.

5.2.4.1.9.4. Make sure the block is inserted completely and reinstall the securing pin.

5.2.4.1.9.5. Lower scissors down onto blocks.

5.2.4.1.9.6. Shut the K-Loader down.

5.2.4.1.10. Fluid Levels; ensure level is within limits. Access to vital fluid dipsticks is obtained via the trap door on the deck surface:

5.2.4.1.10.1. Fuel tank. Fuel level can be read from inside the cab with the fuel level gauge.

5.2.4.1.10.2. Splitter box oil level. Position deck on maintenance stands. Check splitter box sight gauge with the engine shutdown.

5.2.4.1.10.3. Coolant. Check the engine coolant level at the reservoirs (peephole).



**Figure 5.3. Coolant.**



5.2.4.1.10.4. Power steering fluid.

5.2.4.1.10.5. Transmission fluid.

5.2.4.1.10.6. Antifreeze.

5.2.4.1.10.7. Hydraulic fluid level.

5.2.4.1.10.7.1. Check the hydraulic fluid pump for leaks. Check hydraulic fluid level at the sight glass on the hydraulic reservoir. The hydraulic fluid level can be checked with the loader deck down or supported on the first maintenance block.

5.2.4.1.10.7.2. The hydraulic filter indicator, breather filter indicator and fill point are located on top of the hydraulic reservoir.

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

5.2.4.1.12. All tires.

5.2.4.1.12.1. Proper inflation. Tire air pressure should be 100 +/- 2 pounds per square inch (psi). Refer to the TO for additional guidance.

5.2.4.1.12.2. Cuts and abrasions.

5.2.4.1.13. Chassis.

5.2.4.1.13.1. Drive wheels.

5.2.4.1.13.2. Park/service brakes (mounting/leaks).

5.2.4.1.13.3. Hydraulic Filter High Pressure Indicator.

5.2.4.1.13.4. Bogie wheels.

5.2.4.1.13.5. Helper cylinders.

5.2.4.1.13.6. Radiator area.

5.2.4.1.13.7. Circuit breaker box area.

5.2.4.1.13.8. Fuel tank area.

5.2.4.1.13.9. Hydraulic return filter.

5.2.4.1.13.9.1. Place the hydraulic preheat switch in the on position and observe reading on the gauge. The gauge is located on the return filter housing on top of the hydraulic reservoir. The filter element should be replaced if the indicator is in the red area.

5.2.4.1.14. Battery box. The battery box is not accessible to the operator.

5.2.4.1.14.1. Check the battery disconnect located on the side of the battery box.

5.2.4.1.14.2. Vertical = ON. Horizontal = OFF.

5.2.4.1.14.3. Remove for security.

5.2.4.1.14.4. Ensure NATO cable connection on the back of the battery box is free of dirt.

5.2.4.1.15. Cab interior.

5.2.4.1.15.1. Cab seat and controls (condition/adjustment).

5.2.4.1.15.2. Seatbelt and latch operation.

5.2.4.1.15.3. Warning lights.

5.2.4.1.15.4. Check windows and mirrors for cracks.

5.2.4.1.15.5. Lights. (Start loader).

5.2.4.1.15.5.1. Front lights.

5.2.4.1.15.5.2. Rear lights.

5.2.4.1.15.5.3. Dome light.

5.2.4.1.15.5.4. Cabin door light.

5.2.4.1.15.6. Heater operation.

5.2.4.1.15.7. Fan.

5.2.4.1.15.8. Wipers/washers.

5.2.4.1.15.9. Horn.

5.2.4.1.15.10. A/C and the evaporation box.

5.2.4.1.16. Deck operation.

5.2.4.1.16.1. All deck position lights.

5.2.4.1.16.2. Auto center.

5.2.4.1.16.3. Front-pallet stop.

5.2.4.1.16.4. Rear pallet stop.

5.2.4.1.16.5. Hydraulic filter gauge. Transmission fluid.

5.2.4.1.16.6. Case drain gauge.

5.2.4.1.16.7. Emergency pump.

5.2.4.1.17. Brakes.

5.2.4.1.17.1. Service brakes and rotors.

5.2.4.1.17.2. Park brakes. Ensure that the loader is on a level surface and has sufficient clearance in front and back. Ensure all personnel are clear of the loader in the event of unexpected movement. Place chocks approximately two inches from the front and rear of a tire to prevent excessive movement of the loader in either

5.2.4.1.17.2.1. Forward movement:

5.2.4.1.17.2.1.1. Start the loader.

5.2.4.1.17.2.1.2. Place foot pressure on the service brake foot pedal and release parking brake.

5.2.4.1.17.2.1.3. Shift transmission to drive.

5.2.4.1.17.2.1.4. Apply parking brake.

5.2.4.1.17.2.1.5. Release foot brake.

5.2.4.1.17.2.1.6. Increase engine speed slowly to verify parking brake holds. Ensure loader does not move. If the loader moves, report the problem to vehicle maintenance.

5.2.4.1.17.2.2. Reverse movement.

5.2.4.1.17.2.2.1. Start the loader.

5.2.4.1.17.2.2.2. Place foot pressure on the service brake foot pedal and release the parking brake.

5.2.4.1.17.2.2.3. Shift transmission to reverse.

5.2.4.1.17.2.2.4. Apply parking brake.

5.2.4.1.17.2.2.5. Release foot brake.

5.2.4.1.17.2.2.6. Increase engine speed slowly to verify parking brake holds. Ensure loader does not move. If the loader moves, report the problem to vehicle maintenance.

5.2.4.1.18. Deck operations. Turn battery disconnect switch to the off position after each operation.

5.2.4.1.18.1. Deck. Raise/lower.

5.2.4.1.18.2. Deck pitch. Up/down.

5.2.4.1.18.3. Deck shift. Left/right.

5.2.4.1.18.4. Deck roll. Left/right.

5.2.4.1.18.5. Front pallet stop. Up/down.

5.2.4.1.18.6. Rear pallet stop. Up/down.

5.2.4.1.18.7. Power steering. Left/right.

5.2.4.1.18.8. Transmission shifting. All ranges.

5.2.4.1.18.9. Deck convey. Forward/aft for front/mid/aft sections.

5.2.4.2. Underside of deck.

5.2.4.2.1. Main lift cylinder.

5.2.4.2.2. Pitch cylinders.

5.2.4.2.3. Roll cylinders.

5.2.4.2.4. Side shift cylinders.

5.2.4.2.5. Pallet stop cylinders.

5.2.4.3. Maintenance stand/positioning/stowage. Maintenance stands are used to support the deck without a hydraulic lift system. A loader operator is required to set the deck on maintenance stands. Used only with cleared deck (no cargo on deck).

5.2.4.3.1. Complete AF Form 1800 document deficiencies and report all safety items immediately to Vehicle Management.

5.2.4.4. During-operation.

5.2.4.4.1. Perform the following checks while operating the loader:

5.2.4.4.2. Monitor all gauges and warning lights for proper operations.

5.2.4.4.2.1. Warning lights.

5.2.4.4.2.2. Gauges (air pressure, oil pressure, fuel gauge, water temperature, battery voltage, hydraulic oil temperature).

5.2.4.4.2.3. Indicators. See TO 36M2-3-45-1 for a detailed description of 25K operator controls, instruments and indicators.

- 5.2.4.4.3. Observe for jerky movement during operation of hydraulic functions.
- 5.2.4.4.4. Listen for exhaust and air leaks. Listen for any unusual sounds.
- 5.2.4.4.5. Stay alert for any unusual smells or odors.
- 5.2.4.4.6. Stay alert for any abnormal vibrations or handling problems.
- 5.2.4.5. After-trip inspection and report.
  - 5.2.4.5.1. Set parking brake.
  - 5.2.4.5.2. Position loader deck on maintenance stands.
  - 5.2.4.5.3. Shut down engine.
  - 5.2.4.5.4. Chock wheels.
  - 5.2.4.5.5. Walk around loader and check for fluid leaks or unusual conditions.
  - 5.2.4.5.6. Drain all three air tanks to expel moisture. Close valve.
  - 5.2.4.5.7. Ensure vehicle and components are cleaned.
  - 5.2.4.5.8. Equipment is properly stowed.
  - 5.2.4.5.9. Refueled.
  - 5.2.4.5.10. Parked.
  - 5.2.4.5.11. Apply brakes.
  - 5.2.4.5.12. 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. Overall size.

5.3.1.2. Ground clearance.

5.3.1.3. Pallet stops. Two pallet stops, located in the center of the front and rear of the deck, are used to prevent palletized cargo from rolling off of the ends of the deck. Front and rear pallet stop control switches are located in the cab. Operators are responsible for

the position of both pallet stops. Pallet stops will be in the locked-up position at all times. Pallet stops must be up even when there is no cargo onboard.

**Exception:** Pallet stops may be placed in the locked-down position when needed for cargo transfer, but must be returned to the locked-up position immediately following transfer. If unsure of the position of pallet stops, stop the operation and ask the crew leader to confirm pallet stops are in the locked-up position.

5.3.1.4. Tie-downs and tools. Properly store in the toolbox when not in use. When tie-down is used, all excess must be stowed.

5.3.1.5. Cab floors must be clear of all loose items.

5.3.1.6. Transferring pallets. When transferring pallets, it is very important to keep the loader deck level in relation to the aircraft ramp or loading dock.

5.3.1.7. Spotting. See AFMAN 24-306.

#### 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 protection.

5.3.2.4. Eye protection.

5.3.2.5. First aid kit.

5.3.2.6. Warning triangles.

5.3.2.7. Raingear, cold weather gear, etc.

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

5.3.2.9. Fire extinguisher.

#### **5.4. Driving Safety and Precautions.**

5.4.1. Operators are required to become familiar with the safety precautions and location and use of controls, accessories, indicators and handling characteristics of the loader prior to attempting any operation or service procedures. See TO 36M2-3-45-1 for additional safety precautions and requirements.

5.4.2. Lifting. When an item cannot be lifted with ease, use two or more people to prevent injury. Always use proper lifting techniques.

5.4.3. Pinched fingers. Exercise care when working with the maintenance stand movable items or replacing heavy assemblies. Fingers or hands may be pinched.

5.4.4. Cleaners/chemicals. Cleaning solvent and Simple Green compounds are toxic and may have adverse effects on the skin, eyes and/or respiratory tract. Skin and eye protection is required. Do not breathe vapors. Use only in a well-ventilated area. Observe manufacturer's warning labels and safety directives.

5.4.5. Lubricating grease and oil. Lubricating grease and oil are toxic to the skin, eyes and respiratory tract. Avoid skin and eye contact. Good general ventilation is normally adequate.

5.4.6. Compressed air. Use of compressed air can create an environment of propelled foreign particles. Wear safety glasses and gloves when using pneumatic tools.

5.4.7. Adequate space. The overall length and width of the loader requires that the loader has adequate space for maneuvering. Operate the loader at a safe distance behind other vehicles. Be aware of the location of all personnel in the general vicinity while operating the loader and/or deck controls.

5.4.8. Off-road driving. Drive carefully on uneven, wet or slippery surfaces. For more information on off-road driving and safe vehicle operation guidance, refer to AFMAN 24-306.

5.4.9. High winds. High wind conditions may cause the deck to sway. Personnel are restricted to operate the loader only during winds under 40 knots.

5.4.10. Come to a complete stop before repositioning the drive switch.

5.4.11. If oil pressure drops below 5 psi, stop engine immediately to prevent damage caused by lack of lubrication.

5.4.12. Ensure seat back is full upright position to avoid damage to the seat or rear egress window. Do not idle for extended periods of time.

5.4.13. Cargo loading and tie-down procedures. For more information on safely loading, transporting and unloading cargo, refer to the Manufacturer's Operator's Manual or TO for the specific vehicle type.

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

5.4.15. Do not allow any riders on the exterior of the loader.

5.4.16. Observe all flightline traffic rules.



5.4.17. Foreign Object Damage (FOD). Vehicle operators will remove FOD from tires during daily the vehicle inspection. Before entering the airfield, a physical check for loose/unsecured objects and an inspection of the tire treads for FOD will be accomplished, with the exception of emergency vehicles responding to actual situations.

5.4.17.1. Any vehicle which has been driven on an unpaved surface will have a tire FOD inspection accomplished prior to re-entering the airfield area. Vehicles that frequent the flight line will be equipped with a FOD picker and a covered FOD container.

5.4.17.2. FOD picker will be etched with the vehicle number painted on red or orange (or have a red streamer attached).

5.4.17.3. FOD picker will be annotated on vehicle inspection form.

5.4.17.4. FOD containers will be identified with the letters "FOD" and will be emptied daily.

5.4.17.5. FOD checks are performed so that aircraft damage can be kept at a minimum.

5.4.18. Spotter safety. A spotter will be used when the vehicle is within 15 feet of any stationary vehicle or obstacle or when the driver's view is obstructed, regardless of the level of experience of the operator. See AFMAN 24-306.

5.4.18.1. While under the direction of the spotter, the operator must maintain positive visual contact with the spotter at all times.

5.4.18.2. If at any time the operator loses sight of the spotter or cannot understand the spotter's directions, the operator shall immediately stop the loader until positive visual contact is made.

5.4.18.3. The spotter will be behind the loader when providing direction while the loader is backing.

## **5.5. Vehicle Operation.**

5.5.1. Engine Starting. To start the loader engine under normal operating condition (+55°F to 125°F), no starting aids are necessary.

5.5.2. Ensure all emergency stop switches are pulled out.

5.5.3. Ensure power cord is unplugged from winterization receptacle.

5.5.4. Check parking brake is in the on position.

5.5.5. Hold the SHUTDOWN OVERRIDE switch is in the LIGHT TEST POSITION. Observe the following:

5.5.5.1. Move IGNITION SWITCH to the on position.

5.5.5.2. Check that N is in the TRANSMISSION RANGE SELECTOR.

5.5.5.3. Wait for ENGINE PREHEAT light to go out before moving switch to start.

5.5.5.4. Move and hold IGNITION SWITCH to the START position until engine starts, then release. **Note:** To prevent damage to the starter motor from overheating, do not crank the engine with the starter motor for more than 15 seconds. Allow 30 seconds for the starter motor to cool before attempting to crank the engine.

5.5.5.5. If oil pressure is below 5 psi, the engine may start then shutdown or not start at all.

5.5.5.6. Push up and hold the SHUTDOWN OVERRIDE switch in while engaging the starter.

5.5.5.7. Release both switches when the oil pressure gauge indicates 5 or higher.

5.5.5.8. Observe all gauges and lights for normal ranges.

5.5.5.9. Engine will shut down when any of these lights exists: Engine oil pressure, engine hot, transmission fluid hot, hydraulic fluid hot. **Note:** Allow the engine to warm-up prior to operating the loader.

#### 5.5.6. Shutdown procedures.

5.5.6.1. Engage PARKING BRAKE and observe light.

5.5.6.2. Place TRANSMISSION SELECTOR in N position.

5.5.6.3. Allow to idle for 3-4 min.

5.5.6.4. Place IGNITION SWITCH to the off position.

5.5.6.5. Disconnect BATTERY BOX when finished.

5.5.6.6. If operating in temperatures below freezing, engage WINTERIZATION BOX.

5.5.7. Winterization. **Note:** Circuit breaker must be in the off position whenever AC power cable is engaged/disengaged.

5.5.7.1. Plug AC power cable into receptacle.

5.5.7.2. Turn circuit breaker to the ON position.

5.5.7.3. WINTERIZATION CONNECT indicator light on dash panel will illuminate.

5.5.8. Deck operation. To perform all functions of the loader deck, including lifting, cargo transfer, conveyor operation, and platform conversion.

5.5.9. Maintenance stands positioning/stowage. Maintenance stands are used to support the deck without a hydraulic lift system. An operator and spotter are required to set the deck on the maintenance (MX) stands.

5.5.10. Tine trough removal. The deck contains five tine troughs for forklift loading that need to be removed for side and rear loading. Install cover in reverse order.

5.5.11. Pallet stops operation. Two emergency pallet stops are located in the center of the deck. Pallet stops are designed so entering cargo will slide over forward and rear stops, forcing the spring-loaded stop down. When cargo has passed, the stop will return to the upright position.

5.5.12. Pallet restraints operation. Pallet restraints are used to secure pallets on the deck.

5.5.12.1. Number of pallets per position: There are 6 pallet locks on the left side guide rails and 6 pallet locks on the right side guide rails. There are 12 pallet locks on the Halvorsen.

5.5.13. Deck configuration. The guide rails can be adjusted to accommodate pallets loading the Logistic or ADS configuration (108"/88").

5.5.13.1. To rotate the guide rail inboard:

5.5.13.1.1. Remove retaining pins, securing rail to the pivot lugs.

5.5.13.1.2. Lift/rotate rail up/inboard and reinstall retaining pins in pivot lugs to secure rail in new location.

5.5.13.1.3. Reinstall pallet locks in exposed cavity as previously mentioned.

5.5.13.1.4. Two retaining pins are removed from the pallet lock cavity.

5.5.13.1.5. After the rail is rotated inboard, lock is placed in new cavities exposed and secured with retaining pins.

5.5.14. Rolling stock. Invert all caster and roller trays.

5.5.14.1. Release latch restraining tray.

5.5.14.2. Invert and place back in cavity.

5.5.14.3. Engage latch.

5.5.15. Forklift configuration.

5.5.15.1. Remove and stow all five tine trough covers.

5.5.15.2. Failure to remove all covers may result in structural damage.

5.5.15.3. Ensure all caster/roller trays are in the UP position.

5.5.16. Cover storage.

5.5.16.1. Tine trough covers are stored on left/rear handrail.

5.5.16.2. Start from the bottom and go up.

5.5.17. Side load configuration.

5.5.17.1. Remove and stow two right rear handrail sections.

5.5.17.2. Remove and stow all five tine trough covers.

5.5.17.3. Ensure caster/roller trays are in the UP position.

5.5.17.4. Support two right rear catwalk sections and remove retaining pins.

5.5.17.5. Lower catwalks and pallet guides.

5.5.18. Deck extension.

5.5.18.1. The forward end of the loader may be configured to allow loader interface with the lower lobes (bellies) of wide-body aircraft.

5.5.19. Type V platform.

5.5.19.1. Place pallet width switch in the OFF position.

5.5.19.2. Rotate all convey module latch handles inline with deck.

5.5.19.3. This allows convey modules to raise high enough to make contact with platform. The platform is higher due to the skid plates underneath.

5.5.20. Shipment preparation.

5.5.20.1. Remove ladder and support arm. Stow on rear of deck. Do not place the ladder on the convey module.

5.5.20.2. Rotate all roller trays adjacent to the cab. Leave the tray directly right of the cab out.

5.5.20.3. Unscrew hinged weldment locking bolt. Located beneath the roller tray next to the cab. Unscrew the bolt completely. Replace the roller tray.

5.5.20.4. Lift the hinged weldment, fold it over onto the deck.

5.5.20.5. Remove cab retaining pin. Carefully push the cab inward and reinstall the retaining pin. **Note:** Do NOT force the cab inboard. Investigate any resistance.

5.5.20.6. Remove walk deck/handrail retaining pins.

5.5.20.7. Rotate sections on to the top of the deck. Watch the clearance behind the cab. The catwalk section behind the cab must be removed for transport on C-130.

5.5.20.8. Replace all of the pins for storage.

5.5.20.9. Air Shipment.

5.5.20.9.1. Rotate airportability latch counterclockwise.

5.5.20.9.2. Insert pin to lock the deck and chassis together.

5.5.20.9.3. Turn the ignition on and observe/confirm that the indicator light is flashing.

**Note:** Do NOT raise the deck if the red indicator light is not illuminated and flashing.

5.5.20.9.4. Move and hold the LIFT switch to the UP position until the flashing indicator becomes constant.

5.5.20.9.5. Helper cylinders will raise the rear deck and chassis, allowing for maximum clearance. **Note:** If the engine RPM increases, stop immediately.

5.5.20.9.6. Engage differential lock. Prevents wheel slippage and loss of steering control on aircraft ramp.

5.5.20.9.7. Select range 1 or R, follow spotters guidance. Loader can be loaded forward or reverse. See AFMAN 24-306.

5.5.20.9.8. Lower deck back onto the chassis.

5.5.20.9.9. Because of the protruding radiator, extreme caution must be used when placing the loader on the C-130 aircraft.

5.5.20.9.10. Ensure that the rails are clear prior to lowering the deck and chassis.

5.5.20.10. Offboarding preparation for shipment.

5.5.20.10.1. Reverse the procedure for loading and preparation for shipment.

5.5.20.10.2. Surface transportation is the same as air transportation.

5.5.21. Sling lifting.

5.5.21.1. Secure bogie axle, both sides with the 10K chains. This prevents the rear axle assembly from drooping.

5.5.21.2. Complete all steps required for size reduction.

5.5.21.3. Insert two 10K chains in front of the pallet stop, rap around the chassis cross member. This keeps the deck and chassis together.

5.5.21.4. Install airportability latch and pin. This keeps the rear chassis and deck together.

5.5.21.5. Attach the crane bridals to the D-rings located on the loader deck. The bridals must be certified for +20 tons and a min. length of 12 feet.

## 5.5.22. Emergency procedures.

5.5.22.1. The emergency stop switch can be actuated for an immediate shutdown of the power unit. The emergency hydraulic pump will automatically actuate for 30 seconds to provide power steering, service brakes, and parking brake.

5.5.22.1.1. Ensure the transmission is placed back to neutral.

5.5.22.2. The emergency pump can be used to operate all deck functions.

5.5.22.2.1. Turn the ignition and parking brake to the ON position.

5.5.22.2.2. Actuate and hold the EMERGENCY PUMP switch to the ON position.

5.5.22.2.3. Engage deck functions as normal.

5.5.22.2.4. When using the emergency pump to raise the deck, the deck supply cutoff valve must be in the off (down) position.

5.5.22.3. Towing procedures (from rear).

5.5.22.3.1. Connect the tow vehicle to the rear tow points on the chassis.

5.5.22.3.2. Turn ignition switch to the ON position.

5.5.22.3.3. Release parking brake while holding Emergency Pump switch on.

5.5.22.3.4. Slowly tow loader away from the aircraft. **Note:** Maximum towing distance is 500 feet.

5.5.22.3.5. Towing more than 500 ft. requires the drive shaft to be disconnected.

5.5.22.4. Lifting and towing loader.

5.5.22.4.1. Lift the loader from the front by attaching to the tow points on the chassis.

5.5.22.4.2. Protection from the damage may be required for front of loader.

## **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 oversized cargo truck is parked.
  - 6.2.1.2. Remove all jewelry and identification tags.
  - 6.2.1.3. Personal protective equipment and equipment items.
    - 6.2.1.3.1. Safety steel-toed boots must be worn.
    - 6.2.1.3.2. Gloves will be worn during cargo loading and unloading.
    - 6.2.1.3.3. First aid kit.
    - 6.2.1.3.4. Raingear, cold weather gear, etc.
    - 6.2.1.3.5. Reflective belt during hours of reduced visibility or on the flightline.
  - 6.2.1.4. Walk-around vehicle to become familiar and to familiarize the trainee with all warning labels and signs.
  - 6.2.1.5. Ensure trainee wears seat belts.
  - 6.2.1.6. Properly adjust driver's seat and all mirrors, if available.
  - 6.2.1.7. Throughout demonstration, practice 25K-loader safety.
- 6.2.2. Practice basic RM process during demonstration:
  - 6.2.2.1. Identify the hazard.
  - 6.2.2.2. Assess the risks.



6.2.2.3. Analyze risk control measures.

6.2.2.4. Make control decisions.

6.2.2.5. Implement risk controls.

6.2.2.6. Supervise and review.

### **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 3**) 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 the 25K-loader, 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 25K-loader capacities: Explain parking brake as they apply to 25K-loader being used.

6.4.2.2. Amount of time the vehicle should be shutdown before performing inspection.

6.4.2.3. 25K-loader levers and controls.

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

6.4.2.4.1. Instruments.

6.4.2.4.2. Air pressure gauge (if the vehicle has air brakes).

6.4.2.4.3. Temperature gauges.

6.4.2.4.4. Pressure gauges.

6.4.2.4.5. Ammeter/voltmeter.

6.4.2.4.6. Mirrors.

6.4.2.4.7. Tires.

6.4.2.4.8. Foreign object damage (FOD).

6.4.2.4.9. Cargo, cargo covers.

6.4.2.4.10. Emergency equipment (fire extinguisher, emergency kill switches, spill kit)

6.4.3. Describe and demonstrate the following 25K-loader operations (use spotter when backing).

6.4.3.1. Configure deck for different loads.

6.4.3.2. All deck controls.

6.4.3.3. Obey speed limits.

6.4.3.4. Use a highline dock to load and unload cargo.

6.4.3.5. Demonstrate the use of the emergency shutdown switch.

6.4.3.6. Demonstrate the proper parking procedures.

6.4.3.7. Demonstrate the proper use of pallet guides, locks, stops, and chains.

6.4.3.8. Describe the proper shutdown techniques.

6.4.3.9. Operate all deck control levers.

6.4.3.10. Demonstrate proper use of the bogie.

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. Apply brakes.

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

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 25K 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. First aid kit.

7.1.1.2.4. Warning triangles.

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

7.1.1.2.6. Raingear, cold weather gear, etc.

7.1.1.2.7. Hearing protection.

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. 25K 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).

#### 7.1.2. Trainee Performance.

7.1.2.1. Conduct operator maintenance (have trainee explain items being inspected).

**Note:** Allow trainee to use **Attachment 3** as a guide while performing inspection.

7.1.2.1.1. Pre-inspection.

7.1.2.1.2. During-inspection.

7.1.2.2. Ensure AF Form 1800 is properly documented.

7.1.2.2.1. Establish a course that will have the following: (if the course does not have one of the following, then the trainee should be able to explain the correct driving techniques).

7.1.2.2.1.1. Operate all deck control levers.

7.1.2.2.1.2. Obey speed limits.

7.1.2.2.1.3. Use a highline to load and unload cargo.

7.1.2.2.1.4. Demonstrate the use of an emergency shutdown switch.

7.1.2.2.1.5. Demonstrate compensating for the rear end swing during travel.

7.1.2.2.1.6. Demonstrate proper parking procedures.

7.1.2.2.1.7. Demonstrate proper use of the bogie.

7.1.2.2.2. Continue until trainee can show proficiency in operating.

7.1.2.3. Have trainee practice the 25K operations listed below (use spotter when backing) until they can safely and efficiently perform.

7.1.2.4. Perform after-operation inspection.

7.1.2.4.1. Ensure vehicle cleaned.

7.1.2.4.2. Cargo straps and chains are properly stowed.

7.1.2.4.3. Refueled.

7.1.2.4.4. Following manufacturer's shut-down procedures.

7.1.2.4.5. Park.

7.1.2.4.6. Apply brakes.

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

7.1.2.5. Report any discrepancies found on AF Form 1800.

## **7.2. Performance Evaluation.**

7.2.1. Trainee will perform performance evaluation found in **Attachment 4**.

7.2.1.1. Instructor and trainee will review **Attachment 4**.

7.2.1.2. Instructor will answer trainee's questions.

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

7.2.2. Instructor will:

7.2.2.1. Ensure safety at all times.

7.2.2.1.1. Place wheel chocks (if required) when 25K is parked,

7.2.2.1.2. Remove all jewelry and identification tags.

7.2.2.2. Personal protective equipment and other items.

7.2.2.2.1. Safety steel-toed boots must be worn.

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

- 7.2.2.2.3. First aid kit.
- 7.2.2.2.4. Reflective belt during hours of reduced visibility or on the flightline.
- 7.2.2.3. Pay particular attention to the cautions and warnings listed in the operator's manual.
- 7.2.2.4. Ensure trainee wears seat belts.
- 7.2.2.5. Properly adjust driver's seat and all mirrors (if available).
- 7.2.2.6. 25K-loader safety items/procedures.
- 7.2.3. Explain driving techniques.
- 7.2.4. Establish a course that will have the following: (if the course does not have one of the following, then the trainee should be able to explain the correct driving techniques).
  - 7.2.4.1. Operate all deck control levers.
  - 7.2.4.2. Obey speed limits.
  - 7.2.4.3. Use a highline to load and unload cargo.
  - 7.2.4.4. Demonstrate the use of an emergency shutdown switch.
  - 7.2.4.5. Demonstrate compensating for the rear end swing during travel.
  - 7.2.4.6. Demonstrate proper parking procedures.
  - 7.2.4.7. Demonstrate proper use of the bogie.
- 7.2.5. Ensure the driver is aware of driving situations.
- 7.2.6. Conduct after-action reviews with the trainee.
- 7.2.7. Trainee is not allowed any instructor assists to pass performance evaluation.
- 7.2.8. Evaluation checklist provided in **Attachment 4**.
- 7.2.9. Perform after-operation inspection. Annotate any discrepancies found on AF Form 1800.
- 7.2.10. Retraining; retrain No-Go's.
  - 7.2.10.1. Re-demonstrate "No-Go" items.

7.2.10.2. Have trainee re-perform until they show proficiency in operating, critique weaknesses as observed.

7.2.10.3. Re-evaluate.

## Attachment 1

### GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

#### *References*

**AFI 24-301**, *Ground Transportation*, 1 November 2018

**AFMAN 24-306**, *Vehicle Operator Fundamentals*, 9 December 2016

#### *Adopted Forms*

**AF Form 171**, *Request for Driver's Training and Addition to U.S. Government Drivers*, 1 November 2018

**AF Form 847**, *Recommendation for Change of Publication*, 22 September 2009

**AF Form 1800**, *Operator's Inspection Guide and Trouble Report*, 1 April 2010

#### *Abbreviations and Acronyms*

**AF**—Air Force

**AFI**—American Force Instruction

**AFIMSC**—Air Force Installation Mission Support Center

**AFMAN**—Air Force Manual

**AFQTP**—Air Force Qualification Training Plan

**IAW**—In Accordance With

**FOD**—Foreign Object Damage

**PSI**—Pounds per Square Inch

**RM**—Risk Management

**TO**—Technical Order

**VAC**—Voltage in Alternating Current

**VCNCO**—Vehicle Control Non Commissioned Officer

**VCO**—Vehicle Control Officer



## Attachment 2

### SUBJECT KNOWLEDGE

**A2.1. 25K-Loader Specifications.** The following table gives specifications for the 25K-loader. For additional information, refer to this vehicle's Manufacturer's Operator's Manual.

**Table A2.1. 25K-Loader Vehicle Specifications.**

<b>Specifications 25K-Loader</b>	
<b>Part</b>	<b>Specification</b>
<b>General</b>	
Gross Weight (unloaded)	31,350 lbs (wet)
Overall Length	355 in.
Overall Width (Operational)	170 in.
Overall Width (Transport)	109 in.
Maximum Speed	17 mph
Length	355"
Width	Operational Mode w/Cab: 170"
	Transport Configuration: 109"
Height	94" (cab)
	39" to 220" (deck height)
Ground Clearance	5"
Turning Diameter	50'
<b>Load Capacities</b>	
Max	25,000 lbs.
<b>Fluid Capacities</b>	
Fuel Tank	23.75 gallons (DFA, DF1, DF2, JP5, JP8)
Heater Fuel Tank	2 gallons
Engine Oil	10 qts
Coolant	15 gallons
Hydraulic Oil Tank	32 gallons
Transmission Fluid	13 qts
<b>Note:</b> Requires special antifreeze, always refer to maintenance if needed. Damage to engine will occur if the incorrect antifreeze is used.	
<b>Engine</b>	
Max Engine Speed	3000 rpm
<b>Electrical System</b>	
Components	24 VDC
<b>Battery System</b>	
Quantity	2
Voltage	12 VDC each
<b>Tires/Wheels</b>	
Tire Pressure	Maximum: 100 psi
Lug Torque	200 ft-lb

## Attachment 3

### 25K-LOADER INSPECTION GUIDE

#### GENERAL

#### STEP 1. VEHICLE OVERVIEW

- Paperwork
  - AF Form 1800
  - Discrepancy Correction Complete (VM Annotation)
- Vehicle Approach
  - Damage
  - Vehicle Leaning
  - Fresh Leakage of Fluids
  - Hazards Surrounding Vehicle

#### STEP 2. WALK-AROUND INSPECTION

#### STEP 3. EXTERNAL CAB CHECK

- Door
- Fuel Tank
- Mirrors & Windshield
- 3B** – Lights/Reflectors/Reflector Tape Condition (Front/Sides/Rear)

#### STEP 4. EXTERNAL DECK CHECK

- 4A**
  - Casters
  - Rollers
  - Rubber Bumpers
  - Folding Wings
  - Engine Oil Level
  - Ladder
  - Brake Canister

## STEP 5. CHASSIS

### 5A

- Drive Wheels
- Park Service Brake
- Hydraulic Filter high Pressure Indicator
- Coolant Recovery Tank Coolant Level
- Hydraulic Oil Level
- Belts
- Air Filter Indicator
- Bogie Wheels
- Helper Cylinders
- Fuel Tank Area
- Radiator Area
- Circuit Breaker Box

## STEP 6. INTERNAL CAB

### 6A

- Cab Seat and Controls
- Seatbelt
- Heater
- Fan
- Wipers
- Horn
- Air Conditioning

## STEP 7. BRAKES

### 7A

- Service Brakes
- Park Brake

## STEP 8. DECK OPERATION

### 8A

- All Deck Position Lights
- Auto Center
- Front Pallet Stop
- Power Rollers
- Hydraulic Filter Gauge
- Transmission Fluid
- Case Drain Gauge
- Emergency Pump

## STEP 9. DECK CONTROLS

### □ 9A

- Deck – Raise/Lower
- Pitch – Up/Down
- Shift – Left/Right
- Roll – Left/Right
- Front Pallet Stop – Up/Down
- Rear Pallet Stop – Up/Down
- Power Steering – Left/Right
- Transmission – All Ranges
- Deck Convey – Forward/Aft for Front/Mid/Aft Sections

## STEP 10. UNDERSIDE OF DECK

### □ 10A

- Main Lift Cylinder
- Pitch Cylinders
- Roll Cylinders
- Side Shift Cylinders
- Pallet Stop Cylinders

**Figure A3.1. 25K-Loader Inspection Guide (Side).**

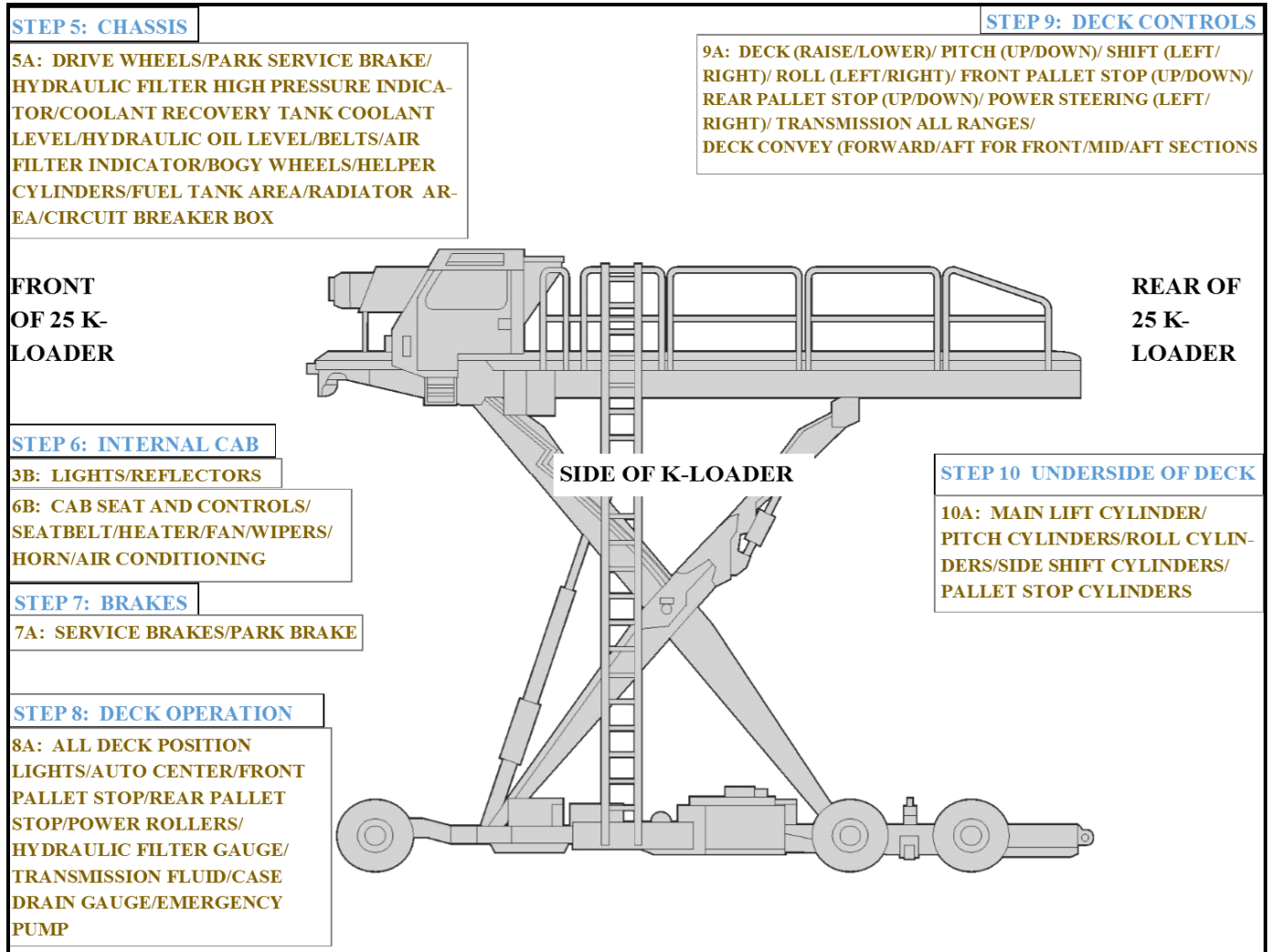
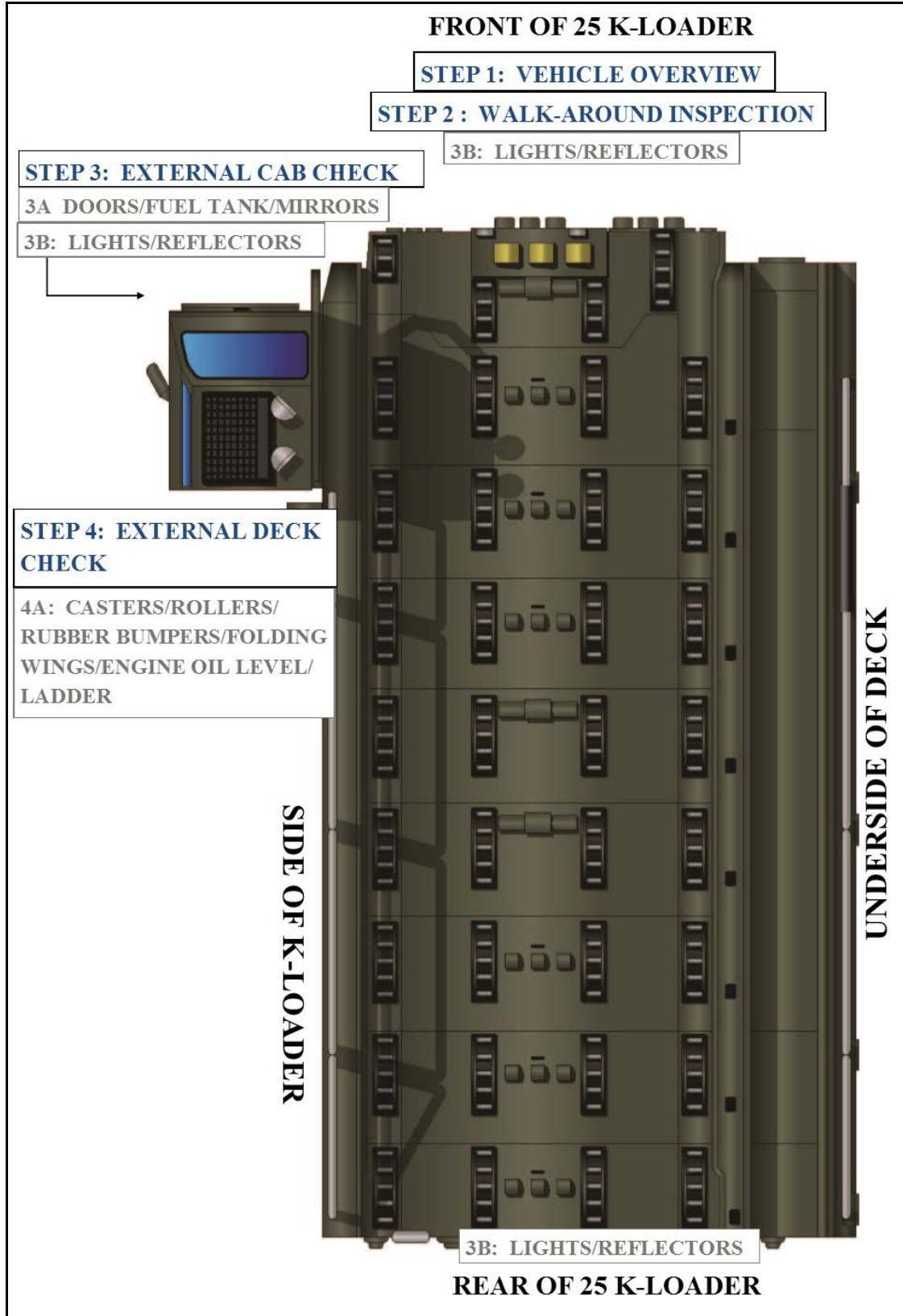


Figure A3.2. 25K-Loader Inspection Guide (Aerial).



## Attachment 4

### PERFORMANCE TEST

#### **A4.1. Desired Learning Outcome.**

A4.1.1. Understand the safety precautions to be followed before-, during-, and after-operation of the 25K-loader.

A4.1.2. Understand the purpose of the 25K-loader and its role in the mission.

A4.1.3. Know the proper operator maintenance procedures of the 25K-loader, IAW applicable technical orders and use of AF Form 1800.

A4.1.4. Safely and proficiently operate the oversized cargo truck.

**A4.2. Instructions.** Before the trainee begins the performance test, the trainer will brief him/her on the scenario that he/she will need to accomplish. The trainee will be given additional directions and instructions as needed as the trainee proceeds through the scenario.

#### **A4.3. Scoring.**

A4.3.1. The examiner will be scoring the trainee on 25K-loader operations and also on general safe driving practices. The examiner will give directions and instructions to the trainee in sufficient time for the trainee to execute a driving maneuver. The trainee will not be asked to drive in an unsafe manner.

A4.3.2. The examiner will be making various marks on the performance test checklist. This does not necessarily mean the trainee has done anything wrong. It is in his/her best interest to concentrate on the operation of the 25K-loader. The trainer will explain the test results to him/her at the conclusion of the performance test.

A4.3.3. Tasks being graded are listed on the following page; he/she will be required to successfully pass all items.

A4.3.4. The instructor will stop the test at any time safe 25K-loader operations are not being followed or as deemed necessary for safety concerns.

**Figure A4.1. Performance Test Checklist:**

<b>PERFORMANCE TEST</b>			
<b>Trainees Name:</b>		<b>Date:</b>	
<b>Event</b>	<b>Go</b>	<b>No Go</b>	<b>Notes</b>
<b>1. PRE, DURING, AND POST- OPERATION INSPECTION</b>			
1.1. Operator has required Personal Protective Equipment.			
1.2. Follows general pattern of pre-trip checklist.			
1.3. Performs brake component check			
1.4. Signs AF Form 1800 to signify accomplishment of complete inspection.			
1.5. Knows the amount of time the vehicle should be shutdown before performing inspection.			
1.6. Inspects all emergency equipment on the K-Loader.			
1.7. Inspects all levers, controls and fluid levels.			
1.8. Cleans windshield, windows, mirrors, lights and reflectors.			
1.9. Inspects tires for FOD.			
1.10. Continues during operations inspection checks.			
1.11. Performs post trip inspection and reports malfunctions to Vehicle Management.			
<b>Event</b>	<b>Go</b>	<b>No Go</b>	<b>Notes</b>
<b>2. ON-ROAD DRIVING TEST</b>			
2.1. General - safety belt is used; obeys all traffic signs, signals, and laws; completes test without an accident or moving violation. Properly uses all necessary safety equipment. Prohibits personnel from walking under the raised deck.			
2.2. Operating the starter for the correct amount of time.			
2.3. Operating all deck controls.			
2.4. Obeying speed limits.			



2.5. Using a highline dock to load and unload cargo. Configuring deck for different loads.			
2.6. Demonstrating the proper use of the emergency shutdown switch.			
2.7. Demonstrating proper parking procedures.			
2.8. Demonstrating the proper use of the bogie.			
<b>CERTIFIER COMMENTS:</b>			

## Attachment 5

### SEVEN-STEP INSPECTION PROCESS

**Figure A5.1. Seven-Step Inspection Process.**

<b>Seven-Step Inspection Process</b>	
<b>Step</b>	<b>Procedure</b>
1. Vehicle Overview	<ul style="list-style-type: none"> <li>● Review the AF Form 1800.</li> <li>○ Ensure any discrepancy has been corrected.</li> <li>○ Vehicle Management annotated the discrepancy was completed.</li> <li>○ Approaching the vehicle.               <ul style="list-style-type: none"> <li>▪ Damage or vehicle leaning to one side.</li> <li>▪ Fresh leakage of fluids.</li> <li>▪ Hazards around vehicle.</li> </ul> </li> </ul>
2. Check Engine Compartment	<ul style="list-style-type: none"> <li>● <b>Note:</b> Check that the parking brakes are on and/or wheels chocked. The operator may have to raise the hood, tilt the cab (secure loose things so they don't fall and break something), or open the engine compartment door.</li> <li>● Check the following:               <ul style="list-style-type: none"> <li>○ Engine oil level.</li> <li>○ Coolant level in radiator; condition of hoses.</li> <li>○ Power steering fluid level; hose condition (if so equipped).</li> <li>○ Windshield washer fluid level.</li> <li>○ Battery fluid level, connections and tie-downs (battery may be located elsewhere).</li> <li>○ Automatic transmission fluid level (may require engine to be running).</li> <li>○ Check belts for tightness and excessive wear (alternator, water pump, air compressor)--learn how much "give" the belts should have when adjusted right.</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Leaks in the engine compartment (fuel, coolant, oil, power steering fluid, hydraulic fluid, battery fluid). Cracked, worn electrical wiring insulation.</li> </ul>
<p>3. Start Engine and Inspect Inside the Cab (Get in and Start Engine)</p>	<ul style="list-style-type: none"> <li>● Make sure parking brake is on.</li> <li>● Put gearshift in neutral (or park if automatic). Start engine; listen for unusual noises.</li> <li>● If equipped, check the Anti-lock Braking System (ABS) indicator lights. Light on dash should come on and then turn-off. If it stays on the ABS is not working properly.</li> <li>● <b>Note:</b> For trailers only, if the yellow light on the left rear of the trailer stays on, the ABS is not working properly.</li> <li>● Look at the gauges. <ul style="list-style-type: none"> <li>○ <u>Oil pressure</u>. Should come up to normal within seconds after engine is started.</li> <li>○ <u>Air pressure</u>. Pressure should build from 50 to 90 psi within 3 minutes. Build air pressure to governor cut-out (usually around 120 – 140 psi. Know the vehicle’s requirements.</li> <li>○ <u>Ammeter and/or voltmeter</u>. Should be in normal range(s).</li> <li>○ <u>Coolant temperature</u>. Should begin gradual rise to normal operating range.</li> <li>○ <u>Engine oil temperature</u>. Should begin gradual rise to normal operating range.</li> <li>○ <u>Warning lights and buzzers</u>. Oil, coolant, charging circuit warning, and antilock brake system lights should go out right away.</li> <li>○ Check condition of controls. Check all of the following for looseness, sticking, damage, or improper setting: <ul style="list-style-type: none"> <li>▪ Steering wheel.</li> <li>▪ Clutch.</li> <li>▪ Accelerator (gas pedal).</li> </ul> </li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>▪ Brake controls.</li> <li>▪ Foot brake.</li> <li>▪ Trailer brake (if vehicle has one).</li> <li>▪ Parking brake.</li> <li>▪ Transmission controls.</li> <li>▪ Interaxle differential lock (if vehicle has one).</li> <li>▪ Horn(s).</li> <li>▪ Windshield wiper/washer.</li> <li>▪ Lights.</li> <li>▪ Headlights.</li> <li>▪ Dimmer switch.</li> <li>▪ Turn signal.</li> <li>▪ Four-way flashers.</li> <li>▪ Parking – clearance – identification – marker switch (switches).</li> <li>• Check mirrors and windshield.</li> <li>○ Inspect mirrors and windshield for cracks, dirt, illegal stickers, or other obstructions to seeing clearly. Clean and adjust as necessary.</li> <li>• Check emergency equipment.</li> <li>○ Check for safety equipment: <ul style="list-style-type: none"> <li>▪ Properly charged and rated fire extinguisher. Check for optional items such as: <ul style="list-style-type: none"> <li>▪ List of emergency phone numbers</li> <li>▪ Accident reporting kit (packet).</li> </ul> </li> </ul> </li> <li>○ Check safety belt. Check that the safety belt is securely mounted, adjusts; latches properly and is not ripped or frayed.</li> </ul>
4. Turn-off Engine	<ul style="list-style-type: none"> <li>• Make sure the parking brake is set, turn-off the engine, and take the key with.</li> <li>• Turn-on headlights (low beams) and four-way emergency flashers, and get out of the vehicle.</li> </ul>
5. Do Walk-Around Inspection	<ul style="list-style-type: none"> <li>• General. <ul style="list-style-type: none"> <li>○ Go to front of vehicle and check that low beams are on and both of the four-way flashers are working.</li> <li>○ Push dimmer switch and check that high beams work.</li> <li>○ Turn-off headlights and four-way emergency flashers.</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Turn-on parking, clearance, side-marker, and identification lights.</li> <li>○ Turn-on right turn signal, and start walk-around inspection.</li> <li>○ Walk around and inspect. <ul style="list-style-type: none"> <li>▪ Clean all lights, reflectors, and glass as while doing the walk-around inspection.</li> </ul> </li> <li>● Left front side. <ul style="list-style-type: none"> <li>○ Driver's door glass should be clean.</li> <li>○ Door latches or locks should work properly.</li> </ul> </li> <li>● Left front wheel. <ul style="list-style-type: none"> <li>○ Condition of wheel and rim--missing, bent, broken studs, clamps, lugs, or any signs of misalignment.</li> <li>○ Condition of tires--properly inflated, valve stem and cap OK, no serious cuts, bulges, or tread wear.</li> <li>○ Use wrench to test rust-streaked lug nuts, indicating looseness.</li> <li>○ Hub oil level OK, no leaks. Left front suspension.</li> <li>○ Condition of spring, spring hangers, shackles,</li> <li>○ U-bolts.</li> <li>○ Shock absorber condition.</li> </ul> </li> <li>● Left front brake. <ul style="list-style-type: none"> <li>○ Condition of brake drum or disc.</li> <li>○ Condition of hoses.</li> </ul> </li> <li>● Front. <ul style="list-style-type: none"> <li>○ Condition of front axle. Condition of steering system.</li> <li>○ No loose, worn, bent, damaged or missing parts.</li> <li>○ Must grab steering mechanism to test for looseness.</li> <li>○ Condition of windshield.</li> <li>○ Check for damage and clean if dirty.</li> <li>○ Check windshield wiper arms for proper spring tension.</li> <li>○ Check wiper blades for damage, "stiff" rubber, and securement.</li> <li>○ Lights and reflectors.</li> </ul> </li> </ul>
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	<ul style="list-style-type: none"> <li>○ Parking, clearance, and identification lights clean, operating, and proper color (amber at front).</li> <li>○ Reflectors clean and proper color (amber at front).</li> <li>○ Right front turn signal light clean, operating, and proper color (amber or white on signals facing forward).</li> <li>● Right side</li> <li>○ Right front: check all items as done on left front.</li> <li>○ Right fuel tank(s).</li> <li>○ Securely mounted, not damaged, or leaking. Fuel crossover line secure.</li> <li>○ Tank(s) contain enough fuel. Cap(s) on and secure.</li> <li>○ Condition of visible parts. Rear of engine--not leaking. Transmission--not leaking.</li> <li>○ Exhaust system--secure, not leaking, not touching wires, fuel, or air-lines.</li> <li>○ Frame and cross members--no bends or cracks.</li> <li>○ Air-lines and electrical wiring--secured against snagging, rubbing, wearing.</li> <li>○ Cargo securement</li> <li>○ Cargo properly, tied, chained, etc. Header board adequate, secure (if required).</li> <li>○ Canvas or tarp (if required) properly secured to prevent tearing, billowing, or blocking of mirrors.</li> <li>● Right rear.</li> <li>○ Condition of wheels and rims--no missing, bent, or broken spacers, studs, clamps, or lugs.</li> <li>○ 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.</li> <li>○ Tires same type, e.g., not mixed radial and bias types.</li> <li>○ Tires evenly matched (same sizes).</li> <li>○ Wheel bearing/seals not leaking.</li> </ul>
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	<ul style="list-style-type: none"> <li>○ Suspension.</li> <li>○ Condition of spring(s), spring hangers, shackles, and U-bolts.</li> <li>○ Axle secure.</li> <li>○ Powered axle(s) not leaking lube (gear oil). Condition of torque rod arms, bushings.</li> <li>○ Condition of shock absorber(s).</li> <li>○ Brakes.</li> <li>○ Brake adjustment.</li> <li>○ Condition of brake drum(s) or discs.</li> <li>○ Condition of hoses--look for any wear due to rubbing.</li> <li>○ Lights and reflectors.</li> <li>○ Side-marker lights clean, operating, and proper color (red at rear, others amber).</li> <li>○ Side-marker reflectors clean and proper color (red at rear, others amber).</li> <li>● Rear.</li> <li>○ Lights and reflectors.</li> <li>○ Rear clearance and identification lights clean, operating, and proper color (red at rear).</li> <li>○ Reflectors clean and proper color (red at rear).</li> <li>○ Taillights clean, operating, and proper color (red at rear).</li> <li>○ Right rear turn signal operating, and proper color (red, yellow, or amber at rear).</li> <li>○ License plate(s) present, clean, and secured.</li> <li>○ Splash guards present, not damaged, properly fastened, not dragging on ground, or rubbing tires.</li> <li>○ Cargo secure</li> <li>○ Cargo properly tied, chained.</li> <li>○ Canvas or tarp (if required) properly secured to prevent tearing, billowing, or blocking of either the rearview mirrors or rear lights.</li> <li>● Left side.</li> <li>○ Check all items as done on right side, plus:</li> </ul>
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	<ul style="list-style-type: none"> <li>○ Battery (batteries) (if not mounted in engine compartment).</li> <li>○ Battery box (boxes) securely mounted to vehicle. Box has secure cover.</li> <li>○ Battery (batteries) secured against movement. Battery (batteries) not broken or leaking.</li> <li>○ Fluid in battery (batteries) at proper level (except maintenance-free type).</li> <li>○ Cell caps present and securely tightened (except maintenance-free type).</li> <li>○ Vents in cell caps free of foreign material (except maintenance-free type).</li> </ul>
<p>6. Check Signal Lights</p>	<ul style="list-style-type: none"> <li>● Get in and turn-off all lights.</li> <li>● Turn-on stop lights (apply trailer hand brake or have a helper put on the brake pedal).</li> <li>● Turn-on left turn signal lights.</li> <li>● Get out and check lights.</li> <li>● Left front turn signal light clean, operating and proper color (amber or white on signals facing the front).</li> <li>● Left rear turn signal light and both stop lights clean operating, and proper color (red, yellow, or amber).</li> <li>● Get in vehicle.</li> <li>○ Turn-off lights not needed for driving.</li> <li>○ Check for all required papers, trip manifests, permits, etc.</li> <li>○ Secure all loose articles in cab (they might interfere with operation of the controls or hit the operator in a crash).</li> <li>○ Start the engine.</li> </ul>
<p>7. Start the Engine and Check Test for Hydraulic Leaks</p>	<ul style="list-style-type: none"> <li>● Test for hydraulic leaks.</li> <li>○ If the vehicle has hydraulic brakes, pump the brake pedal three times.</li> <li>○ Then apply firm pressure to the pedal and hold for five seconds.</li> </ul>



- The pedal should not move. If it does, there may be a leak or other problem.
- Brake system.
- Test parking brake.
- Fasten safety belt.
- Set parking brake (power unit only). Release trailer parking brake (if applicable). Place vehicle into a low gear.
- Gently pull forward against parking brake to make sure the parking brake holds.
- Repeat the same steps for the trailer with trailer parking brake set and power unit parking brakes released (if applicable).
- If it doesn't hold vehicle, it is faulty; get it fixed.
- Test service brake stopping action.
- Go about 5 miles per hour.
- Push brake pedal firmly.
- "Pulling" to one side or the other can mean brake trouble.
- Any unusual brake pedal "feel" or delayed stopping action can mean trouble.
- 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:
- Instruments.
- Air pressure gauge (if the vehicle has air brakes). Temperature gauges.
- Pressure gauges.
- Ammeter/voltmeter.
- Mirrors.
- Tires.
- Cargo, cargo covers. Lights, etc.
- If the trainee sees, hears, smells, or feels anything that might mean trouble, he/she should check it out.
- Safety inspection.

	<ul style="list-style-type: none"><li>○ Drivers of trucks and truck tractors when transporting cargo must inspect the securement of the cargo within the first 50 miles of a trip and every 150 miles or every 3 hours (whichever comes first) after.</li><li>● Document any discrepancy on AF Form 1800. Sign-off AF Form 1800 to signify accomplishment of inspection.</li></ul>
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