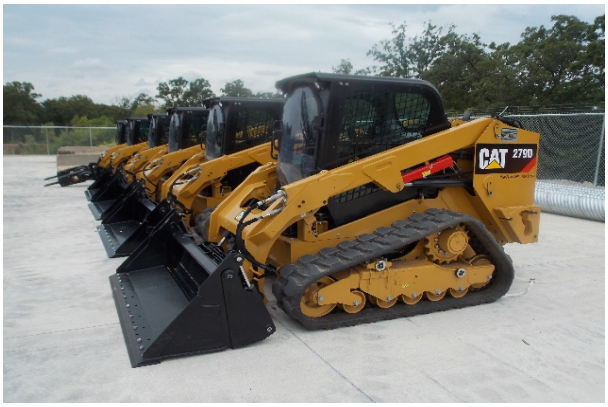
DEPARTMENT OF THE AIR FORCE
Headquarters US Air Force
Washington, D.C. 20330-1030

QTP24-3-D758
16 April 2019

COMPACT TRACK LOADER
(CTL)

Vehicle Management Codes:
D758, D785



QUALIFICATION TRAINING PACKAGE

CONTENTS

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 overview, **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 test 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 **Attachment 2** and **Attachment 3** 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. The trainee should ask questions if he or she does not understand the objectives for each unit.

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. Sign-off the task(s).

Section 3—INTRODUCTION

3.1. Objectives.

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

3.1.1.1. Train and qualify each trainee in safe operation and preventive maintenance of the COMPACT TRACK LOADER. After this point we will refer to the machine as a CTL.

3.1.1.2. This training will ensure the trainee becomes a qualified CTL operator; an operator who has the knowledge and skills to operate a CTL in a safe, proficient and professional manner.

3.2. Desired Learning Outcomes.

3.2.1. Understand the purpose of the CTL and its role in the mission.

3.2.2. Understand the safety precautions to be followed for pre-, during- and post-operation inspections of the CTL.

3.2.3. Know the proper operator maintenance procedures of the CTL IAW applicable technical manual(s) and use of AF Form 1800, *Operator's Inspection Guide and Trouble Report*.

3.2.4. Be completely familiar with the safety features of the CTL.

3.2.5. Safely and proficiently operate the CTL.

3.3. Lesson Duration.

3.3.1. Recommended instructional and hands on training time is 19 hours:

Figure 3.1. Recommended Training Time for Training Activities.

Training Activity	Training Time
Trainee's Preparation	30 Minutes
Instructor's Lecture	1 Hour
Instructor's Demonstration	1.5 Hours
Trainee's Personal Experience (to build confidence and proficiency) ▪ Perform Operator Maintenance ▪ Operate the Vehicle	15 Hours
Trainee's Performance Evaluation	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) Guidance and Tools*.

3.4.2. Applicable technical manual(s) or Manufacturer's Operator's Manual (see Vehicle Management for technical manual(s) number for vehicle being used in training).

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

3.4.4. AF Form 1800.

3.4.5. Air Force Instruction (AFI) 91-203, *Air Force Consolidated Occupational Safety Instruction*.

3.4.6. AFI 24-302, *Vehicle Management*.

3.4.7. 3E251-02-EC02 (CDC Volume 2).

3.5. Instructional Training Aids and Equipment.

3.5.1. CTL Lesson Plan.

3.5.2. CTL.

3.5.3. Applicable technical manual or manufacturer's operator's manual.

3.5.4. AF Form 1800.

3.5.5. Suitable training area.

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 operating session(s), the trainee must be able to perform operator's inspection and complete the performance evaluation with zero instructor assists.

5.1.1.2. Train and qualify each trainee in safe operation and preventive/operational maintenance of the CTL.

5.1.1.3. This training will ensure the trainee becomes a qualified CTL operator—an operator who has the knowledge and skills to operate a CTL in a safe, proficient and professional manner.

5.1.2. Desired learning outcomes:

5.1.2.1. Understand the principals of operation, the purpose of the CTL and its role in the mission.

5.1.2.1.1. The purpose of the CTL is for light construction work, and it is a key piece of equipment during ADR/RADAR operations.

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

5.1.2.2. Understand the importance of efficient operation and performance of preventative maintenance on the CTL to meet mission requirements. Preventative maintenance ensures safe operation and availability for daily and emergency use.

5.1.2.3. Understand the safety precautions to be followed pre-, operation, and post- operation inspection of the CTL.

5.1.2.4. Be completely familiar with the safety features of the CTL.

5.1.2.5. Safely and proficiently operate the CTL.

5.1.3. CTL design. The design of a CTL varies depending on the vehicle manufacturer. Refer to the manufacturer's operator's manual(s) for additional information on the specific CTL being operated.

5.1.4. The operator must know the location and function of all controls and indicators prior to operating the vehicle.

Figure 5.1. Controls and Indicators.

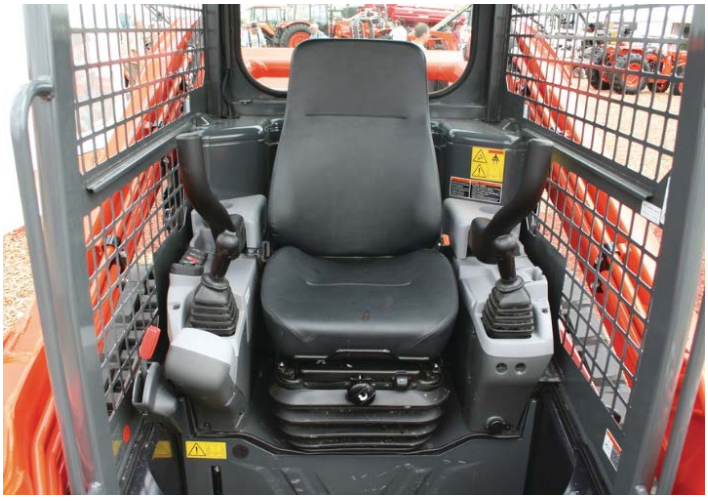


Table 5.1. Controls and Indicators.

Control/Indicator
Arm Rests
Glow Plug System
Hydrostatic Transmission System
Auxiliary Hydraulics
Left Hand Joystick
Right Hand Joystick
Parking Brake
Engine Speed Control Knob
Engine Speed Control Foot Pedal

5.2. Vehicle Inspection.

5.2.1. Pre-operation vehicle inspection test. Use AF Form 1800 as a 360 walk-around guide.

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. Types of Vehicle Inspection. If discrepancies are found the operator must report them to Vehicle Control Official (VCO), the supervisor, and/or vehicle maintenance:

5.2.3.1. Pre-operation inspection – identify items/problems that could cause accidents or breakdowns.

5.2.3.1.1. Vehicle Maintenance may authorize continued use for all other maintenance discrepancies.

5.2.3.1.2. Cleanliness/damaged/missing items.

5.2.3.1.3. Leaks (fuel/oil/coolant/air).

5.2.3.1.4. Fluid levels; ensure levels are is within limits:

5.2.3.1.4.1. Engine oil.

5.2.3.1.4.2. Coolant.

5.2.3.1.4.3. Transmission fluid.

5.2.3.1.4.4. Hydraulic fluid.

5.2.3.1.5. Battery; security, fluid, damage and corrosion.

5.2.3.1.1. Transmission.

5.2.3.1.1.1. Differential(s). Damage, wear and leaks.

5.2.3.1.1.2. Drive train. Damage, wear and leaks.

5.2.3.1.2. Drive belts; tension and fraying.

5.2.3.1.3. Air filter(s).

5.2.3.1.4. All hoses and wiring.

5.2.3.1.5. Frame bolts and other fasteners, visual inspection for damage.

5.2.3.1.6. Welds visual inspection for cracks.

5.2.3.1.7. Visual and auditory warning devices.

5.2.3.1.8. Bucket assembly components.

5.2.3.1.8.1. Bucket.

5.2.3.1.8.2. Cutting edge/moldboard/shanks/teeth.

5.2.3.1.8.3. Lift frame/lift cylinder.

5.2.3.1.8.4. Hydraulic lift/tilt/turn cylinders.

5.2.3.1.8.5. Hydraulic hoses.

5.2.3.1.8.6. Frame assembly/bolts/pins.

5.2.3.2. Operation inspection.

5.2.3.2.1. Ensure master switch is turned to the ON position (if equipped).

5.2.3.2.2. Ignition to accessory position.

5.2.3.2.3. Check all gauges and warning lights/indicators for proper operations.

5.2.3.2.4. Ignition to start.

5.2.3.2.5. Check for unusual conditions (interior).

5.2.3.2.5.1. Sounds.

5.2.3.2.5.2. Odors.

5.2.3.2.5.3. Vibrations.

5.2.3.2.6. Conduct 360 walk-around; check for unusual conditions (exterior).

5.2.3.2.6.1. Sounds.

5.2.3.2.6.2. Odors.

5.2.3.2.6.3. Vibrations.

5.2.3.2.6.4. Leaks.

5.2.3.2.6.5. Light function.

5.2.3.2.7. Sign AF Form 1800. Verify Standard Form (SF) 91, Motor Vehicle Accident Report, SF 94, Statement of Witness, and Department of Defense (DD) Form 518, Accident Identification Card are on-hand.

5.2.3.3. Post-operation inspection.

5.2.3.3.1. Check fuel level (< ¾ tank, refuel).

5.2.3.3.2. Ensure vehicle and components are cleaned.

5.2.3.3.3. Park vehicle.

5.2.3.3.4. Ground attachment.

5.2.3.3.5. Follow manufacturer's shut-down procedures.

5.2.3.3.6. Shut off lights and accessories.

5.2.3.3.7. Switch ignition to OFF position

5.2.3.3.8. Post 360 walk-around. Check for leaks and damage.

5.3. Vehicle Safety and Equipment.

5.3.1. Hazards and human factors:

5.3.1.1. Jerky starts and stops.

5.3.1.2. Traveling too fast and turning too sharply.

5.3.1.3. Slip hazards.

5.3.1.3.1. Always maintain three-points of contact when mounting/dismounting the CTL.

5.3.1.4. Restricted visibility. Be mindful of operator's limited visibility

5.3.1.5. Cargo conditions. Always carry load close to the ground, use a spotter when necessary.

5.3.2. Safety clothing and equipment:

5.3.2.1. Safety toed boots must be worn.

5.3.2.2. Leather gloves.

5.3.2.3. Hearing protection.

5.3.2.4. Inclement weather gear, if required.

5.3.2.5. Place cones around work area.

5.3.2.6. AF Form 1800.

5.4. Driving Safety and Precautions.

5.4.1. Overview safety and precautions. The following are safety items and procedures to be followed during CTL operations. The manufacturer's operator's manual will also provide safe operating procedures and the vehicle itself may have warnings, cautions and danger stickers that the vehicle operator should be aware of.

5.4.2. Vehicle data plate. Be familiar with the location and information found on the data plate.

5.4.3. Evaluate worksite/jobsite location.

5.4.3.1. Obstructions.

5.4.3.2. Uneven ground.

5.4.3.3. Soft surfaces.

5.4.4. Over the road hauling of the CTL.

5.4.4.1. Hauling the machine to/from worksite/jobsite. The operator must consider the combined weight of the CTL (PT) and hauling vehicle. This will affect the following:

5.4.4.1.1. Haul vehicle's ability to stop. Do not tailgate the vehicle in front. Allow more distance between vehicles in order to increase reaction time.

5.4.4.1.2. Haul vehicle's ability to accelerate/follow the flow of traffic. Accelerate smoothly and gradually so the haul vehicle does not jerk. Rough acceleration causes unnecessary, premature mechanical damage to the haul vehicle's drive train. Maintain a safe speed.

5.4.4.2. Downgrades/upgrades. The haul vehicle operator should use lower gears more frequently to climb hills or mountains with increasing grade steepness, length and/or heavy load weight. Plan ahead to identify downgrades/upgrades on the route of travel. If possible, talk to other drivers who are familiar with the grades to find out what speeds are safe. When encountering downgrades/upgrades as described, the haul vehicle operator should address:

5.4.4.2.1. Speed. On downgrades, gravity causes the speed of the haul vehicle to increase. The operator must select an appropriate safe speed, use a low gear, and proper braking techniques. The operator must go slow enough so as to not overheat the vehicle's brakes.

5.4.4.2.2. Stopping. If the brakes become too hot, they may start to "fade". Brake fade will cause partial or complete loss of brakes.

5.4.4.2.3. Sharp turns. Slow down before entering the turn. During the turn, avoid sharp sudden movements with the steering wheel. This reduces the chance of the vehicle weight shifting, and also prevents the possibility of tipping over due to the higher center of gravity.

5.4.4.3. Surroundings. Operating a CTL requires the operator's constant attention. Many situations can be avoided by simply paying close attention to the surrounding conditions. Jobsite conditions such as limited operating space, uneven ground, muddy conditions, steep grades, and low overhead clearance all play a factor in operating the machine.

5.4.4.4. Blind spots. Operators must know where there will be limited or no visibility surrounding the vehicle being operated.

5.4.4.5. Size. The operator must take into account, the size/width of the attachment assembly when operating the CTL.

5.4.5. Backing.

5.4.5.1. Use a spotter and hand signals.

5.4.5.2. Back slowly and keep the spotter in view at all times. If the operator loses sight of the spotter, the operator must immediately stop the vehicle.

5.4.5.3. See AFMAN 24-306 for standard AF spotter hand signals and additional guidance on spotter safety.

5.4.6. General operation.

5.4.6.1. Walk around the vehicle to ensure the area is clear before moving.

5.4.6.2. Before operating, the operator must understand all controls. He/she should ASK, if they do not understand!

5.4.6.3. Never attempt to start or operate the vehicle from any location other than the operator's seat.

5.4.6.4. Never drive close to the edge of a ditch or excavation.

5.4.6.5. Never leave the vehicle running unattended.

5.4.6.6. Do not attempt to get on or off of the machine while it is moving.

5.4.6.7. Always use extreme caution when disconnecting the hydraulic hoses from the CTL.

5.4.6.8. While operating the CTL, always travel with the attachment lowered. CTLs are extremely unstable with attachments raised.

5.4.6.9. If traveling over an obstacle, move slowly, and raise the lift arms just high enough to clear the obstacle. Travel at an angle over the obstacle.

5.4.6.10. When operating always follow manufacturer's instructions for safe operation.

5.5. Vehicle Operation.

5.5.1. Attachment installation/removal.

Caution: Be aware of pinch points. Utilize proper personal protective equipment (PPE).

5.5.1.1. Attachment installation.

5.5.1.1.1. Refer to the manufacturer's operator's manual for additional guidance for the specific model of equipment in use. Use others for assistance during installation, as required.

5.5.1.1.2. Maneuver the CTL forward until it comes in contact with the attachment frame and place the top edge of the CTL mount frame under the attachment flange.

5.5.1.1.3. Be sure to tilt the mounting frame backward until the attachment is lifted up off of the ground.

5.5.1.1.4. Engage the coupler pins to connect the attachment to the CTL using the "work tool coupler control switch."

5.5.1.1.5. If the attachment has hydraulic hoses, route them under the tilt cylinders and connect them to the auxiliary hydraulics quick couplers. Proper routing will ensure the hydraulic hoses will not be damaged by the movement of the machine and attachments.

Caution: Always use extreme care when disconnecting the hydraulic hoses from a loader because hydraulic fluid may be hot and can burn skin if an individual comes into contact with the fluid.

5.5.1.2. Attachment removal.

5.5.1.2.1. Lower attachment to ground.

5.5.1.2.2. If equipped, disconnect hydraulic hoses from quick couplers and route hoses over the top of the attachment to prevent dirt contamination.

5.5.1.2.3. Disengage the coupler pins to disconnect the attachment from the CTL using the "work tool coupler control switch." Hold the switch in the downward position until the coupler pins disengage. (NOTE: Refer to operator's manual for connecting/disconnecting attachments.)

5.5.1.2.4. Tilt mounting frame forward and pull away from attachment.

5.5.1.2.5. Tilt mounting frame backward and shutdown loader engine.

Caution: Always use extreme care when disconnecting the hydraulic hoses from a CTL because hydraulic fluid may be hot and can burn skin if an individual comes in contact with the fluid.

5.5.2. General vehicle operations.

5.5.2.1. Complete a pre-operation vehicle inspection.

5.5.2.2. Sign the current AF Form 1800.

5.5.2.3. Climb into the vehicle. Use three points of contact.

5.5.2.4. Adjust the seat and mirrors (if equipped); fasten seat belt.
5.5.2.5. Place arm rests in down position.

5.5.3. Starting the vehicle.

5.5.3.1. Start the engine, allow the engine to idle, and make sure all gauges function properly.

5.5.3.2. After the engine starts, ensure that oil pressure is indicated on the gauge within 15 seconds after starting. Idle engine for 3 to 5 minutes before operating.

5.5.3.3. Run through the operation of the hydraulics.

Caution: Do not engage the starter for more than 30 seconds at a time. If the engine does not start within 30 seconds, allow the starter two minutes to cool-off.

5.5.3.4. Go through all controls; raise, tilt, curl and lower the lift arms to ensure proper functioning.

5.5.4. Stopping the vehicle.

5.5.4.1. To stop the vehicle, slowly stop pushing the hand joystick forward or in reverse, depending on direction of travel.

5.5.4.2. Set the parking brake. Check the brake by placing the vehicle in motion while the vehicle parking brake is set.

5.5.5. Control use.

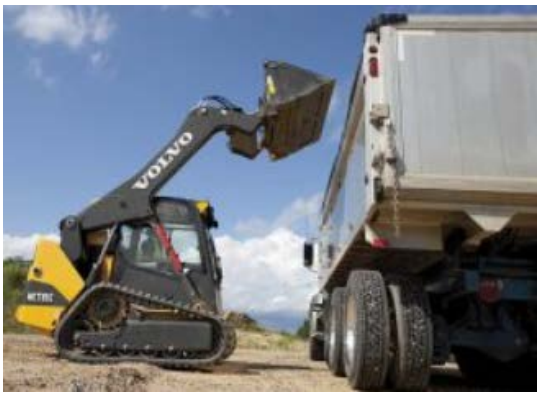
5.5.5.1. Boom control lever – pull backward to lift the bucket, push forward to lower.

5.5.5.2. Bucket control lever – push left to curl the bucket and push right to dump the bucket.

5.5.5.3. Clamshell control lever – is a trigger on the joystick and auxiliary mode must be selected.

Caution: Keep vehicle under control. Keep the spotter in sight at all times. If the operator loses sight of the spotter, he/she must immediately stop the vehicle.

Figure 5.2. Loading.



5.5.6. Loading. Loading a dump truck with a CTL requires a safety-conscious skilled operator. Always keep the following safety precautions in mind:

5.5.6.1. Never load a truck with the operator sitting inside the cab. Have the operator place the truck in neutral or park, set the parking brake, and leave the truck. This prevents injury to the operator if a large object should crush the truck's cab during loading operations.

5.5.6.2. Prevent electrical shock by never loading trucks under or near power lines.

5.5.6.3. Always attempt to load the truck on the side opposite the fuel tanks. If the truck has multiple fuel tanks, be cautious that material doesn't spill out onto the tanks.

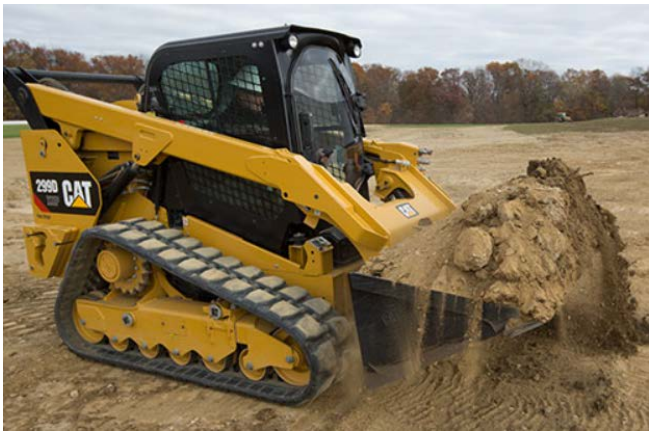
5.5.6.4. Approach the dump truck, and slowly raise the bucket to a height just above the bed of the dump truck.

5.5.6.5. Move the CTL forward so the bucket is positioned over the center of the truck bed. Then, roll the bucket forward until all the material is out of the bucket. To keep from damaging the dump body, dump the first load a little at a time.

5.5.6.6. Take care, so that the material is loaded into the center of the bed, and the truck is not overloaded. Placing the material on one side of the bed causes the truck to lean to that side and makes it difficult to steer. An overloaded truck puts excessive stress on the truck's frame and can cause a traffic hazard when the material falls off onto roadways.

5.5.6.7. Once the bucket is empty, back away from the dump truck, lower the bucket, and return to the stockpile for another load of material.

Figure 5.3. Excavating.



5.5.7. Excavating.

5.5.7.1. Travel to the work area with the bucket in the travel position.

5.5.7.2. Position the CTL for a straight digging angle.

5.5.7.3. Level the bucket and lower it to the ground.

5.5.7.4. Begin to move forward uncurling the cutting edge slightly until the bucket begins to dig.

5.5.7.5. Manipulate the bucket until it is full of material.

5.5.7.6. Curl the bucket all the way back and proceed to the spoil pile site.

5.5.7.7. Slightly raise and uncurl the bucket to dump the material.

5.5.7.8. Place the bucket at the travel height and return to the spot where excavation ended.

5.5.7.9. Repeat the cycle until the excavation is completed.

5.5.8. Backfill and level.

5.5.8.1. Line up the equipment with the area to be backfilled and leveled.

5.5.8.2. Level the bucket and lower it to the ground.

5.5.8.3. Proceed forward pushing the material to the beginning of the excavated area ensuring to cut the high spots.

5.5.8.4. At the end of the excavated area, slightly raise and uncurl the bucket to dump the material.

5.5.8.5. Pull forward and place the bucket on the opposite side of the pile.

5.5.8.6. Adjust the bucket to desired angle and place in float.

5.5.8.7. Level the loose material by moving backwards, ensuring to fill the low spots.

5.5.8.8. Level the bucket when nearing the end of the area to feather the material.

5.5.8.9. Repeat the cycle until the area is backfilled and leveled.

5.5.9. Shutdown procedures.

5.5.9.1. Bring the CTL to a complete stop.

5.5.9.2. Lower the lift arms and place the attachment flat on the ground.

5.5.9.3. Apply parking brake.

5.5.9.4. Turn off all lights and accessories.

5.5.9.5. Allow engine three to five minutes to cool down.

5.5.9.6. Raise the arm rest and unfasten seatbelt.

5.5.9.7. Turn the machine off.
5.5.9.8. Conduct post-operation check.

5.5.10. End of duty day.

5.5.10.1. Perform post-operation procedures as described in **Paragraph 5.2.**

5.5.10.2. Clean all debris from machine (inside and out), especially cylinder rods and affixed safety decals.

5.5.10.3. Check the fuel level and refuel if needed.

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. Remove all jewelry and identification tags.

6.2.1.2. Personal protective equipment (PPE) and equipment items.

6.2.1.2.1. Safety toed boots must be worn.

6.2.1.2.2. Gloves will be worn during pre-operation inspection, post-operation inspection and while performing maintenance/adjustments to the attachment.

6.2.1.2.3. Hearing protection, if required

6.2.1.2.4. Eye protection, if required.

6.2.1.2.5. Inclement weather gear.

6.2.1.3. The trainer and the trainee should conduct a 360 walk-around the vehicle to become familiar with all warning labels and signs.

6.2.1.4. Ensure that the vehicle is properly parked and the brake is set before accomplishing the walk-around inspection.

6.2.1.5. Properly adjust driver's seat and all mirrors (if equipped).

6.2.1.6. Ensure trainee wears seat belt.

6.2.1.7. Throughout demonstration, practice CTL operational safety.

6.2.2. Practice basic AF RM process during demonstration:

6.2.2.1. Identify the hazards.

6.2.2.2. Assess the 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 3**. An inspection guide can be used to ensure all areas of the CTL 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. Demonstrate/discuss pre-operation and operation inspection requirements.

6.4.3. Describe the operation and location of the following items:

6.4.3.1. Arm rests.

6.4.3.2. Glow plug system (if equipped).

6.4.3.3. Hydrostatic transmission system.

6.4.3.4. Auxiliary hydraulics.

6.4.3.5. Left hand joystick.

6.4.3.6. Right hand joystick.

6.4.3.7. Parking brake.

6.4.3.8. Engine speed control knob.

6.4.3.9. Engine speed control foot pedal.

6.4.3.10. Instruments (and their indications).

6.4.4. Discuss the following important operational notes:

6.4.4.1. Radiator checks. When cold, the coolant level should be approximately 1 inch from the top of the filler neck and the full cold mark on the reservoir.

6.4.4.2. Typically, transmission fluid must be checked with the transmission warm, engine running and gear selector in the neutral position. CTL transmissions vary from model to model and may require different fluid checking procedures. Check the operator's manual prior to checking the fluid.

6.4.4.3. Engine oil must be at the full mark on the oil dipstick.

6.4.5. Demonstrate the following for the CTL.

6.4.5.1. Proper mounting and dismounting procedures.

6.4.5.2. Engine start up, including proper safety precautions.

6.4.5.3. Proper use of CTL controls.

6.4.5.4. Proper movement with and without a load.

6.4.5.4.1. Forward.

6.4.5.4.2. Turning.

6.4.5.4.3. Braking.

6.4.5.4.4. Backing, (use spotter when backing).

6.4.5.4.5. Parking.

6.4.5.5. CTL operations. **Note:** Refer to the technical manual for additional guidance pertaining to the vehicle being operated.

6.4.5.5.1. Explain the dangers associated with traveling on a grade. Explain not to exceed manufacturer's recommendations.

6.4.5.5.2. Explain safe handling of loads and discuss potential hazards associated with it. (off-centered loads, overloading, etc.).

6.4.5.5.3. Describe and demonstrate proper way to travel over an obstacle.

6.4.5.5.4. Describe and demonstrate proper procedures for traveling up and down and include with and without a load.

6.4.5.5.1. When traveling up an incline without a load, travel backwards with the engine to the high side.

6.4.5.5.2. When traveling down an incline without a load, travel forward with engine to the high side.

6.4.5.5.2. When traveling up an incline with a load, travel with the bucket forward.

6.4.5.5.3 When traveling down an incline with a load, travel with the bucket forward.

6.4.5.5.5. Describe and demonstrate loading and dumping procedures.

6.4.5.5.6. Describe and demonstrate excavating procedures.

6.4.5.5.7. Describe and demonstrate backfilling and leveling.

6.4.5.5.8. Demonstrate shutdown procedures.

6.4.6. Demonstrate/discuss post-operation requirements.

6.4.6.1. Ensure vehicle is clean.

6.4.6.2. Refuel vehicle.

6.4.6.3. Following manufacturer's shut-down procedures.

6.4.6.4. Perform a 360 walk-around inspection.

6.4.6.5. Annotate any discrepancies found on AF Form 1800.

6.4.7. 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. 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. PPE and other items:

7.1.1.2.1. Safety toed boots must be worn.

7.1.1.2.2. Gloves will be worn during pre-operation, post-operation inspection and while performing maintenance/adjustments to the attachment.

7.1.1.2.3. Hearing protection, if required.

7.1.1.2.4. Eye protection, if required.

7.1.1.2.5. Inclement weather gear, if required.

Note: Discuss when PPE must be worn/utilized.

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

7.1.1.4. Properly adjust driver's seat and all mirrors (if equipped).

7.1.1.5. Ensure trainee wears seat belt.

7.1.1.6. CTL safety items/procedures.

7.1.1.7. Ensure the trainee is aware of tasks to be performed.

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 inspections (have trainee explain items being inspected).

7.1.2.1.1. Pre-operation inspection.

7.1.2.1.2. Operation inspection.

7.1.2.2. Ensure AF From 1800 is properly documented.

7.1.2.2.1. Identify and explain CTL gauges, switches, levers and buttons.

7.1.2.2.2. Define the observable procedures trainee must accomplish during training.

7.1.2.2.2.1. Conducting 360-walk around.

7.1.2.2.2.2. Entering the vehicle using proper techniques

7.1.2.2.2.3. Securing seatbelt, start the engine.

7.1.2.2.2.4. Releasing parking brake.

7.1.2.2.2.5. Moving machine forward.

7.1.2.2.2.4. Turning the machine.

7.1.2.2.2.5. Proper braking.

7.1.2.2.2.6. Moving the machine backwards (use spotter when backing).

7.1.2.2.2.7. Parking – setting park brake, engine shutdown, dismounting.

7.1.2.2.2.8. CTL operation. **Note:** Refer to the technical manual for additional guidance pertaining to the vehicle being operated.

7.1.2.2.2.9. Maneuvering over an obstacle.

7.1.2.2.2.10. Loading and dumping procedures.

7.1.2.2.2.11. Excavating procedures.

7.1.2.2.2.12. Backfilling and leveling.

7.1.2.2.2.13. Shutdown procedures.

7.1.2.2.3. Perform post-operation inspection.

7.1.2.2.3.1. Ensure vehicle components are cleaned.

7.1.2.2.3.2. Check fuel level. If there is < ¾ tank, refuel the vehicle.

7.1.2.2.3.3. Following manufacturer's shut-down procedures.

7.1.2.2.3.4. Park.

7.1.2.2.3.5.1. Place transmission in neutral.

7.1.2.2.3.5.2. Apply parking brake.

7.1.2.2.3.6. Perform a 360 walk-around inspection checking for leaks and damage.

7.2. Performance Evaluation.

7.2.1. Trainee will perform performance evaluation found in **Attachment 2**.

7.2.1.1. Instructor and trainee will review **Attachment 2**.

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. Remove all jewelry and identification tags.

7.2.2.2. PPE and other items.

7.2.2.2.1. Safety toed boots must be worn.

7.2.2.2.2. Gloves will be worn during pre-operation inspection, post- operation inspection and while performing maintenance/adjustments to the attachment.

7.2.2.2.3. Hearing protection, if required.

7.2.2.2.4. Eye protection, if required.

7.2.2.2.5. Inclement weather gear, if required.

7.2.2.3. Ensure trainee wears seat belt.

7.2.2.4. Properly adjust driver's seat and all mirrors (if equipped).

7.2.2.5. CTL safety items/procedures.

7.2.3. Explain operating techniques.

7.2.4. The trainee will demonstrate and be evaluated on the following procedures:

7.2.4.1. Vehicle/equipment checkout.

7.2.4.2. Pre-operation inspection/preventative maintenance.

7.2.4.2.1. Engine start up.

7.2.4.2.2. Proper use of CTL controls.

7.2.4.2.3. Forward.

7.2.4.2.4. Turning.

7.2.4.2.5. Braking.

7.2.4.2.6. Backing (use spotter when backing).

7.2.4.2.7. Parking.

7.2.4.2.8. CTL operation. **Note:** Refer to the technical manual for additional guidance pertaining to the vehicle being operated.

7.2.4.2.8.1. Maneuvering over an obstacle.

7.2.4.2.8.2. Loading and dumping procedures.

7.2.4.2.8.3. Excavating procedures.

7.2.4.2.8.4. Backfilling and leveling.

7.2.4.2.8.5. Shutdown procedures.

7.2.4.3. Perform post-operation inspection.

7.2.4.3.1. Ensure vehicle components are cleaned.

7.2.4.3.2. Check fuel level. If there is < ¾ tank, refuel the vehicle.

7.2.4.3.3. Following manufacturer's shut-down procedures.

7.2.4.3.4. Park.

7.2.4.3.4.1. Place transmission in neutral.

7.2.4.3.4.2. Apply parking brake.

7.2.4.3.5. Perform a 360 walk-around inspection checking for leaks and damage.

7.2.5. Ensure the driver is aware of operating 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 2**.

7.2.9. Retraining; retrain No-Go's.

7.2.9.1. Re-demonstrate "No-Go" items.

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

7.2.9.3. Re-evaluate.

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFI 13-213, *Airfield Driving*, 1 June 2011

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

AFI 24-302, *Vehicle Management*, 26 June 2012

AFI 91-202, *Air Force Consolidated Occupational Safety Instruction*, 15 June 2012

AFMAN 24-306, *Operation of Air Force Government Motor Vehicles*, 9 December 2016

AFPAM 90-803, *Risk Management (RM) Guidance and Tools*, 11 February 2013

Adopted Forms

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

AF Form 847, *Recommendation for Change of Publication*

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

Abbreviations and Acronyms

AF—Air Force

AFI—Air Force Instruction

AFIMSC—Air Force Installation Mission Support Center

AFMAN—Air Force Manual

AFQTP—Air Force Qualification Training Plan

DD—Department of Defense

DEF—Diesel Exhaust Fluid

IAW—In Accordance With

PPE—Personal Protective Equipment

PSI—Pounds per Square Inch

RM—Risk Management

SF—Standard Form

VCO—Vehicle Control Official

Attachment 2

PERFORMANCE TEST

A2.1. Desired Learning Outcome.

A2.1.1. Understand the safety precautions to be followed pre-, operation, and post-operation of the CTL.

A2.1.2. Understand the purpose of the CTL and its role in the mission.

A2.1.3. Know the proper operator maintenance procedures of the CTL, IAW applicable technical orders and use of Air Force (AF) Form 1800.

A2.1.4. Safely and proficiently operate the CTL.

A2.2. Instructions. Before beginning the performance test, the trainer will brief the trainee on the scenario that will need to be accomplished. He/she will be given additional directions and instructions as needed throughout the scenario.

A2.3. Scoring.

A2.3.1. The trainer examiner will be scoring the trainee on CTL operations and also the general safe driving practices. The examiner will give directions and instructions to the trainee in sufficient time for him/her to execute a driving maneuver. They will not be asked to drive in an unsafe manner.

A2.3.2. The examiner will be making various marks on the performance test checklist. This does not necessarily mean anything has been done wrong. It is in the best interest to concentrate on the operation of the CTL. The trainer will explain the test results at the conclusion of the performance test.

A2.3.3. Tasks being graded are listed on the following page; the trainee will be required to successfully pass all items.

A2.3.4. The instructor will stop the test at any time safe operations are not being followed or as deemed necessary for safety concerns.

Figure A2.1. Performance Test Checklist:

PERFORMANCE TEST			
Trainees Name:		**Date:**	
Event	**Go**	**No Go**	**Notes**
1. PRE, OPERATION, AND POST- OPERATION INSPECTION			
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. Cleans windshield, windows, mirrors, lights and reflectors			
1.6. Continues during operations inspection checks.			
1.7. Knows use of jacks, tools, emergency devices, tire chains, fire extinguishers, etc.			
1.8. Performs post trip inspection and reports malfunctions to Vehicle Management.			
Event	**Go**	**No Go**	**Notes**
2. BASIC CONTROL AND VEHICLE OPERATION			
2.1. Safety belt is used; obeys all traffic signs, signals, and laws; completes test without an accident or moving violation.			
2.2. Avoids jerky starts and stops.			
2.3. Does not cut corners sharply.			
2.4. Maintains proper speed and space.			
2.5. Ensure proper CTL safety practices. List safety violations.			

2.6. Turns:			
Checks traffic in all directions; uses turn signals and safely get into the lane needed for the turn; slows down smoothly, changes gears as needed to keep power; checks mirrors to ensure proper clearance; vehicle should not move into oncoming traffic.			
2.7. Stopping - decelerates smoothly, brakes evenly, changes gears as necessary; brings vehicle to a full stop without coasting.			
2.8. Starting - checks traffic, avoids jerky starts.			
Event	**Go**	**No Go**	**Notes**
3. KNOWLEDGE OF VEHICLE AND USE OF CONTROLS			
3.1. Engine:			
Uses proper starting procedures			
Allows proper warm-up.			
Understands all gauges.			
Uses proper shutdown procedures.			
Basic knowledge of engines.			
3.2. Brakes and Braking Techniques			
Proper use of parking brake.			
Performs brake check before pulling out.			
Event	**Go**	**No Go**	**Notes**
4. BACKING/PARKING			
4.1. Backing.			
Positions properly.			
Inspects before backing.			
Uses spotters properly.			
Avoids blind side backing.			
Controls speed.			
4.2. Parking.			
Checks traffic position before parking.			
Secures vehicle properly.			
Parks legally and safely.			
Uses emergency warning devices, if required.			
Event	**Go**	**No Go**	**Notes**
5. CTL OPERATIONS			

5.1. Maneuvering over an obstacle.			
5.2. Loading/dumping.			
5.3. Excavating.			
5.4. Backfilling/leveling.			
CERTIFIER COMMENTS:			

Attachment 3

SEVEN-STEP INSPECTION PROCESS

Figure A3.1. 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. o Damage or vehicle leaning to one side. o Fresh leakage of fluids. o Hazards around vehicle.
2. Check Engine Compartment	• **Note:** 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. • Check the following: o Engine oil level. o Coolant level in radiator; condition of hoses. o Power steering fluid level; hose condition (if so equipped). o Windshield washer fluid level. o Battery fluid level, connections and tie-downs (battery may be located elsewhere). o Automatic transmission fluid level (may require engine to be running). o Check belts for tightness and excessive wear (alternator, water pump, air compressor)--learn how much "give" the belts should have when adjusted right.

	o Leaks in the engine compartment (fuel, coolant, oil, power steering fluid, hydraulic fluid, battery fluid). Cracked, worn electrical wiring insulation.
3. Start Engine and Inspect Inside the Cab (Get in and Start Engine)	• Make sure parking brake is on. • Put gearshift in neutral (or park if automatic). Start engine; listen for unusual noises. • 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. • Look at the gauges. o Oil pressure. Should come up to normal within seconds after engine is started. o Air pressure. 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. o Ammeter and/or voltmeter. Should be in normal range(s). o Coolant temperature. Should begin gradual rise to normal operating range. o Engine oil temperature. Should begin gradual rise to normal operating range. o Warning lights and buzzers. Oil, coolant, charging circuit warning, and antilock brake system lights should go out right away. o Check Condition of Controls. Check all of the following for looseness, sticking, damage, or improper setting: o Steering wheel. o Clutch. o Accelerator (gas pedal). o Brake controls. o Foot brake. o Parking brake. o Transmission controls.

	o Interaxle differential lock (if vehicle has one). o Horn(s). o Windshield wiper/washer. o Lights. o Headlights. o Dimmer switch. o Turn signal. o Four-way flashers. o Parking – clearance – identification – marker switch (switches). • Check mirrors and windshield. o Inspect mirrors and windshield for cracks, dirt, illegal stickers, or other obstructions to seeing clearly. Clean and adjust as necessary. • Check emergency equipment. o Check for safety equipment: o Spare electrical fuses (unless vehicle has circuit breakers). o Three red reflective triangles, 6 fuses or 3 liquid burning flares. o Properly charged and rated fire extinguisher. Check for optional items such as: o Chains (where winter conditions require). o Tire changing equipment. o List of emergency phone numbers Accident reporting kit (packet). o Check safety belt. Check that the safety belt is securely mounted, adjusts; latches properly and is not ripped or frayed.
4. Turn-off Engine	• Make sure the parking brake is set, turn-off the engine, and take the key with. • Turn-on headlights (low beams) and four-way emergency flashers, and get out of the vehicle.

5. Do Walk-Around Inspection	• General. o Go to front of vehicle and check that low beams are on and both of the four-way flashers are working. o Push dimmer switch and check that high beams work. o Turn-off headlights and four-way emergency flashers. o Turn-on parking, clearance, side-marker, and identification lights. o Turn-on right turn signal, and start walk-around inspection. o Walk around and inspect. o Clean all lights, reflectors, and glass as while doing the walk-around inspection. • Left front side. o Driver's door glass should be clean. 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 Use wrench to test rust-streaked lug nuts, indicating looseness. 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. Condition of steering system. o No loose, worn, bent, damaged or missing parts. o Mustgrab steering mechanism to test for looseness. o Condition of windshield.

	o Check for damage and clean if dirty. o Check windshield wiper arms for proper spring tension. o Check wiper blades for damage, "stiff" rubber, and securement. 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 Primary and secondary safety cab locks engaged (if cab-over-engine design). o Right fuel tank(s). o Securely mounted, not damaged, or leaking. Fuel crossover line secure. o Tank(s) contain enough fuel. Cap(s) on and secure. o Condition of visible parts. Rear of engine--not leaking. Transmission--not leaking. o Exhaust system--secure, not leaking, not touching wires, fuel, or air-lines. 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 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, e.g., not mixed radial and bias types. 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 End gates free of damage, properly secured in stake sockets. o Rear doors securely closed, latched/locked. • Left side. o Check all items as done on right side, plus: o Battery (batteries) (if not mounted in engine compartment). o Battery box (boxes) securely mounted to vehicle. Box has secure cover. o Battery (batteries) secured against movement. Battery (batteries) not broken or leaking. o Fluid in battery (batteries) at proper level (except maintenance-free type). o Cell caps present and securely tightened (except maintenance-free type). o Vents in cell caps free of foreign material (except maintenance-free type).
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. • 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 in cab (they might interfere with operation of the controls or hit the operator in a crash). o Start the engine.
7. Start the Engine and 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 (power unit only). Place vehicle into a low gear. 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 A4.2. Additional Steps for Inspecting Air Brakes System.

Additional Steps for Inspecting Air Brakes	
Step	**Procedure**
2. Engine Compartment Checks	• Check air compressor drive belt condition and tightness (if compressor is belt driven).
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.