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

QTP24-3-B255 17 October 2019

Oversized Cargo Truck

Vehicle Management Codes: B255, B233-B235, B237, B239-B241, B265-B267, C182, C181, C192, C200, C203-C205, C209, C211, C316



QUALIFICATION TRAINING PACKAGE

CONTENTS

SEC 1.1.	TION 1—OVERVIEW Overview	
SEC	TION 2—RESPONSIBILITIES	
2.1.	Responsibilities.	3
SEC	TION 3—INTRODUCTION	
3.1.	Desired Learning Outcomes	+
3.2. 2.2	Lesson Durotion	4 5
3.3. 2.4	Lesson Durational Deferences	
3.4. 2.5	Instructional Training Aids and Equipment	
э.э. стра	Instructional Training Alds and Equipment.	
SEC 4.1.	TION 4—TRAINEE PREPARATION Licensing Requirements	•••••• 6 •••••6
4.2.	Required Reading (Testable Material).	6
SEC	TION 5—KNOWLEDGE LECTURE AND EVALUATION	
5.1.	Overview of Training and Requirements.	0
5.2.	Vehicle Inspection	8
5.3.	Vehicle Safety and Equipment.	13
5.4.	Driving Safety and Precautions	14
5.5.	Vehicle Operation	15
SEC 6.1.	TION 6—EXPLANATION AND DEMONSTRATION Instructor's Preparation.	
6.2.	Safety Procedures and Equipment	17
6.3.	Operator Maintenance Demonstration	18
6.4.	Operation Demonstration	18
SEC 7 1	TION 7—TRAINEE PERFORMANCE AND EVALUATION	
7.2.	Performance Evaluation.	
SEC	TION 8—AIR BRAKES (IF EQUIPPED)	
0.1.	Sale Operation of a CMV with an All Brake System.	
0.2. 0.2	Combination Vehicle Air Drokes	
0.3.	Combination Venicle Air Brakes.	
Attac	chment 1—GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION	40
Attac	chment 2—VEHICLE INSPECTION GUIDE	41
Attachment 3—PERFORMANCE TEST		
Attac	chment 4—PERFORMANCE TEST GUIDE	50
Attac	hment 5—SEVEN-STEP INSPECTION PROCESS	54

Section 1—OVERVIEW

1.1. Overview.

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

1.1.2. How to use this plan:

1.1.2.1. Instructor:

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

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

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

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

1.1.2.1.5. Instructor's lesson plan for 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 Attachment 2 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 responsibilities.

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

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

2.1.1.4. Review missed questions with the trainer.

2.1.2. Instructor shall:

2.1.2.1. Review the AFQTP with the trainee.

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

2.1.2.3. 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 test, 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 various oversize cargo trucks.

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

3.2. Desired Learning Outcomes.

3.2.1. Understand the safety precautions to be followed pre-, during-, and post- operation of the oversized cargo truck.

3.2.2. Understand the purpose of the oversized cargo truck and its role in the mission.

3.2.3. Know the proper operator maintenance procedures of the oversized cargo truck, IAW applicable technical orders (TOs) and use of Air Force (AF) Form 1800.

3.2.4. Safely and proficiently operate the oversized cargo truck.

3.3. Lesson Duration.

3.3.1. Recommended instructional and hands on training time is 23 hours:

Figure 3.1. Recommended Training Time for Training Activities.

Training Activity	Training Time
Trainee's Preparation	2 Hours
Instructor's Lecture and Demonstration	5 Hours
Trainee's Personal Experience (to build	
confidence and proficiency)	14 Hours
 Perform Operator Maintenance 	14 110015
 Operate the Vehicle 	
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, *Operator's Inspection Guide and Trouble Report* (General Purpose Vehicles).

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

3.4.6. Special references based-off type of vehicle.

3.5. Instructional Training Aids and Equipment.

- 3.5.1. Oversized Cargo Truck Lesson Plan.
- 3.5.2. Oversized Cargo Truck.
- 3.5.3. Applicable TO or Manufacturer's Operator's Manual.

- 3.5.4. AF Form 1800.
- 3.5.5. Videos (if locally produced).
- 3.5.6. Suitable training area.
- 3.5.7. 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 test, trainees will be able to perform operator's inspection and complete the performance test with zero instructor assists.

5.1.1.2. Train and qualify each trainee in safe operation and preventive maintenance of the various oversized cargo trucks.

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

5.1.2. Desired learning outcomes:

5.1.2.1. Understand the safety precautions to be followed pre-, during-, and post-operation of the oversized cargo trucks.

5.1.2.2. Understand the purpose of the oversized cargo truck and its role in the mission.

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

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

5.1.3. Oversized Cargo Truck Design. The design of an oversized cargo truck varies depending on the vehicle type. Refer to the manufacturer's operator's manual for additional information on the specific oversized cargo truck being operated, and to the data plate for safe load capacity guidance. The oversized cargo truck normally can be identified by the following characteristics:

5.1.3.1. 4WD Vehicle. A four-wheeled vehicle with a drive train that allows all four wheels to receive torque from the engine simultaneously.

5.1.3.2. 2-3 axles.

5.1.3.2.1. 1 front (steer).

5.1.3.2.2. 1-2 rear (drive, dual wheels).

5.1.3.3. 6-10 wheels total.

5.1.3.4. Additional common components:

5.1.3.4.1. Air brakes.

5.1.3.4.2. Manual transmission.

5.1.4. The 4WD System. A vehicle equipped with 4WD has the ability to use all four wheels to power itself. This increases traction which may enable the operator to safely drive over terrain and road conditions that a conventional two-wheel drive vehicle cannot.

Figure 5.1. The 4WD System.



5.1.4.1. Power is supplied to all four wheels through a transfer case or power transfer unit. 4WD vehicles allow the operator to select different drive modes as necessary.

5.1.4.2. Refer to the manufacturer's operator's manual for information on shifting procedures and maintenance.

5.1.4.3. On some 4WD models, the initial shift from two-wheel drive to 4WD while the vehicle is moving can cause a momentary clunk and ratcheting sound. These sounds are normal as the front drivetrain comes up to speed and is not cause for concern.

5.2. Vehicle Inspection.

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

5.2.2. A Seven-Step Inspection Method will help ensure the inspection is the same each time it is conducted, and that nothing is left out. See **Attachment 5** for the Seven-Step Inspection Method.

5.2.3. Types of Vehicle Inspection. If discrepancies are found they must be reported to the Vehicle Control Official (VCO), the supervisor, and/or vehicle maintenance:

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

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

5.2.3.1.2. Cleanliness/damage/missing items.

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

5.2.3.1.4. Fluid Levels; ensure level is within limits:

5.2.3.1.4.1. Engine oil.

5.2.3.1.4.2. Coolant.

5.2.3.1.4.3. Power steering fluid.

5.2.3.1.4.4. Transmission fluid.

5.2.3.1.4.5. Antifreeze.

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

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

5.2.3.1.7. All tires.

5.2.3.1.7.1. Proper inflation. Note: Notify VCO, the supervisor, and/or vehicle maintenance if split rim is completely flat.

5.2.3.1.7.2. Sidewalls, tread to include depth, bulges.

5.2.3.1.7.3. Cuts and abrasions.

5.2.3.1.7.4. Lug nuts.

- 5.2.3.1.8. Transmission.
- 5.2.3.1.9. Drive belts; tension and fraying.
- 5.2.3.1.10. All hoses and wiring.

5.2.3.1.11. Differential, shocks and brakes for leaks.

- 5.2.3.1.12. Suspension and springs.
- 5.2.3.1.13. Fuel door and fuel cap; intact, not broken or damaged.
- 5.2.3.1.14. Horn operation.
- 5.2.3.1.15. Control panel.
- 5.2.3.1.16. Heater/defroster.
- 5.2.3.1.17. Wiring/lights/reflectors (interior and exterior).

- 5.2.3.1.18. Mirrors.
- 5.2.3.1.19. Windshield and windshield wipers/washers.
- 5.2.3.1.20. Doors.
- 5.2.3.1.21. Windows.
- 5.2.3.1.22. Hood latches.
- 5.2.3.1.23. Seatbelts.
- 5.2.3.1.24. Fire Extinguisher.
- 5.2.3.2. Post-operation.
 - 5.2.3.2.1. All gauges and warning lights for proper operations.
 - 5.2.3.2.1.1. Warning lights.
 - 5.2.3.2.1.2. Gauges (oil pressure, fuel gauge, water temperature, voltage).

5.2.3.2.1.3. Indicators.

- 5.2.3.2.2. Listen for exhaust and air leaks. Listen for any unusual sounds.
- 5.2.3.2.3. Stay alert for any unusual smells or odors.
- 5.2.3.2.4. Stay alert for any abnormal vibrations or handling problems.
- 5.2.3.3. What to look for during an inspection.

What to Look for During an Inspection			
Inspection Location	Problem		
Tires	 Too much or too little air pressure. Bad wear (contact Vehicle Management for proper tread depth). No fabric should show through the tread or sidewall. Cuts or other damage. Tread separation. Dual tires that come in contact with each other or other parts of the vehicle. Mismatched sizes. Radial and bias-ply tires used together. Cut or cracked valve stems. Re-grooved, recapped, or retreated tires on the front wheels of a bus are prohibited. 		
Wheels and Rims	 Damaged rims. Rust around wheel nuts; may mean the nuts are loose—check tightness. Note: After a tire has been changed, stop a short while later and re-check tightness of nuts. Missing clamps, spacers, studs or lugs; means danger, mismatched, bent or cracked lock rings are dangerous. Wheels or rims that have had welding repairs are not safe. Large rocks stuck between wheels. 		
Bad Brake Drums	 Cracked drums. Shoes or pads with oil, grease or brake fluid on them. Shoes worn dangerously thin, missing or broken. 		
Steering System Defects	 Missing nuts, bolts, cotter keys or other parts. Bent, loose, or broken parts, such as steering column. Steering gear box, or tie rods. (If power steering equipped) hoses, pumps, and fluid level. Check for leaks. 		

Figure 5.2. What to Look for During an Inspection.

	• Steering wheel play of more than 10 degrees (approximately two inches movement at the rim of a 20-inch steering wheel) can make it hard to steer.
Suspension System Defects	 Spring hangers that allow movement. Cracked or broken spring hangers. Missing or broken leaves in any leaf spring. Broken leaves that have shifted. Leaking shock absorbers. Torque rod or arm, U-bolts, spring hangers, or other axle positioning parts. Air suspension systems that are damaged and/or leaking. Any loose, cracked, broken or missing frame members.
Exhaust System Defects	 Loose, broken, or missing exhaust pipes, mufflers, tailpipes or vertical stacks. Loose, broken, or missing mounting brackets, clamps, bolts or nuts. Exhaust system parts rubbing against fuel system parts, tires or other moving parts of vehicle. Exhaust system parts that are leaking.
Emergency Equipment	 Fire extinguishers. Note: Additional external fire extinguishers will be required to transport some hazardous materials. Spare electrical fuses (unless equipped with circuit breakers). Warning devices for parked vehicles. Spare tire, jack and lug wrench.
Cargo (Trucks)	 Not overloaded. Cargo is balanced and secured before each trip. Hazardous Material (HAZMAT) properly labeled and vehicle placarded Proper HAZMAT paperwork.

5.2.3.4. Post-trip inspection and report.

5.2.3.4.1. Ensure vehicle and components are cleaned.

5.2.3.4.2. Equipment is properly stowed.

5.2.3.4.3. Refueled.

5.2.3.4.4. Parked.

5.2.3.4.5. Apply brakes.

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

5.3. Vehicle Safety and Equipment.

- 5.3.1. Hazards and Human Factors:
 - 5.3.1.1. Traffic due to size and weight.
 - 5.3.1.2. Cargo loads beyond the vehicle's capability.
 - 5.3.1.3. Jerky starts and stops.
 - 5.3.1.4. Traveling too fast and turning too sharply.
 - 5.3.1.5. Cutting corners too sharply.
 - 5.3.1.6. Not properly securing the cargo.
 - 5.3.1.7. Overhead clearance.
 - 5.3.1.8. Rollover risk.
- 5.3.2. Safety Clothing and Equipment:
 - 5.3.2.1. Safety steel-toed boots must be worn.

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

- 5.3.2.3. First aid kit.
- 5.3.2.4. Raingear, cold weather gear, etc.
- 5.3.2.5. Reflective belt during hours of reduced visibility and on flightline.
- 5.3.2.6. Hearing protecting.
- 5.3.2.7. Tire gauge.
- 5.3.2.8. Fire extinguisher.

5.3.2.9. Shovel, tow chains and cables.

5.3.2.10. Material for under wheels (soft areas).

5.3.2.11. AF Form 1800.

5.4. Driving Safety and Precautions.

5.4.1. Rollover risk warning. The potential for a vehicle to rollover increases for vehicles with a high gross weight (20,000 lbs or more) or a high center of gravity. Check the vehicle's data plate to determine if the vehicle is at higher risk for rollover.

5.4.2. Tire Changing Safety.

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

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

5.4.2.3. Turn-on the four-way flashers.

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

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

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

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

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

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

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

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

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

5.4.5. Hazardous cargo. For more information on transporting hazardous cargo, refer to the Hazardous Cargo Lesson Plan and AFMAN 24-306

5.4.6. 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.

5.4.6.1. 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.

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

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

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

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

5.5. Vehicle Operation.

5.5.1. 4WD operation (if equipped).

5.5.1.1. High ratio, two wheel drive (H2): This setting is used for driving in most street and highway situations. The front axle is not engaged in H2. This setting also provides the best fuel economy.

5.5.1.1.1. Shifting in or out of H2 can be done at any vehicle speed. It may be harder to shift when the vehicle is cold.

5.5.1.1.2. Maintain a constant speed while shifting in and out of H2 and avoid slowing down.

5.5.1.1.3. Shift transfer case lever in one continuous motion.

5.5.1.2. High ratio, four wheel drive (H4): Use this setting when extra traction is needed (snowy or icy roads and most off-road situations). This setting also engages the front axle and is best used when plowing snow.

5.5.1.2.1. Shifting in and out of H4 can be done at any vehicle speed. It may be harder to shift when the vehicle is cold.

5.5.1.2.2. Maintain a constant speed while shifting in and out of H2 and avoid slowing down.

5.5.1.2.3. Shift transfer case lever in one continuous motion.

5.5.1.3. Neutral (N): Shift to this setting only when the vehicle needs to be towed.

5.5.1.3.1. With the vehicle running and the engine at an idle, set the vehicle parking brake.

5.5.1.3.2. Place the transmission in Neutral.

5.5.1.3.3. Shift the transfer case in one continuous motion into or out of the Neutral position.

5.5.1.4. Low ratio, four wheel drive (L4): This setting engages the front axle and delivers extra torque. It sends maximum power to all four wheels. Choose L4 for driving off-road in deep sand, deep snow and while climbing or descending steep hills.

5.5.1.4.1. Shifting the transfer case into L4 while moving at speeds faster than 3 mph may cause premature wear to the transfer case and may cause gears to grind.

5.5.1.4.2. Shift the transmission into Neutral.

5.5.1.4.3. Shift the transfer case lever in one continuous motion into the L4 position.

5.5.1.4.4. When in L4 do not drive faster than 45 mph. This will reduce wear and extend the life of the transfer case.

5.5.2. Refrigeration unit operation (if equipped). Refer to the specific vehicle's Manufacturer's Operator's Manual for more information and recommendations.

5.5.2.1. Adjust thermostat to desired temperature.

5.5.2.2. Place Cool – Idle – Heat switch to idle position.

5.5.2.3. Hold Pre-heat switch to the on position.

5.5.2.4. Preheating temperatures and times:

5.5.2.4.1. Above 60 degrees, ¹/₂ minute.

5.5.2.4.2. 32-60 degrees, 1 minute.

5.5.2.4.3. 0-32 degrees, 2 minute.

5.5.2.4.4. Below 0 degrees, 3 minute.

5.5.2.5. Turn start switch until engine starts.

5.5.2.6. If engine fails to start, check starter for overheating and low oil pressure. Repeat above steps.

5.5.2.7. After engine starts, idle for 2 min and place Cool - Idle - Heat switch to cool or heat as required.

5.5.2.8. Ensure the unit is empty of all personnel prior to locking doors.

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.

6.2.1.3.6. Hearing protection.

- 6.2.1.4. Walk around vehicle to familiarize trainee with all warning labels and signs.
- 6.2.1.5. Ensure trainee wears seatbelts.
- 6.2.1.6. Properly adjust driver's seat and all mirrors.
- 6.2.1.7. Throughout demonstration, practice oversized cargo truck safety.
- 6.2.2. Practice standard AF RM process during demonstration:
 - 6.2.2.1. Identify hazards.
 - 6.2.2.2. Assess hazards.
 - 6.2.2.3. Develop controls and make decisions.
 - 6.2.2.4. Implement controls.
 - 6.2.2.5. Supervise and evaluate.

6.3. Operator Maintenance Demonstration.

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

6.4. Operation Demonstration.

- 6.4.1. Throughout demonstration:
 - 6.4.1.1. Allow for questions.
 - 6.4.1.2. Repeat demonstrations as needed.

6.4.2. For all oversized cargo trucks, 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 oversized cargo truck capacities: Explain parking brake as they apply to oversized cargo truck being used.

6.4.2.2. Oversized cargo truck controls.

6.4.2.2.1. Shifting pattern.

6.4.2.2.2. Overdrive.

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

6.4.2.3.1. Instruments.

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

6.4.2.3.3. Temperature gauges.

6.4.2.3.4. Pressure gauges.

6.4.2.3.5. Ammeter/voltmeter.

6.4.2.3.6. Mirrors.

6.4.2.3.7. Tires.

6.4.2.3.8. Cargo, cargo covers.

6.4.3. Demonstrate the following oversized cargo truck operations (use spotter when backing).

6.4.3.1. Forward stop (see following example for boundary setup).

6.4.3.1.1. Drive forward between the two rows.

6.4.3.1.2. Bring vehicles to a complete stop as close to the boundary.

6.4.3.2. Backing.

6.4.3.2.1. Always use a spotter when backing. The operator must maintain visual contact with the spotter at all times. If the operator loses visual contact with the spotter at any time, he/she must immediately stop the vehicle until visual contact is established. For additional guidance on spotter safety and standard AF spotter hand signals, see AFMAN 24-306.

6.4.3.2.2. Straight line backing (see following example for boundary setup).

6.4.3.2.2.1. Back vehicle in a straight line between two rows.

6.4.3.2.2.2. Bring vehicles to a complete stop as close to the boundary.

6.4.3.2.3. Alley dock (see following example for boundary setup).

6.4.3.2.3.1. Sight-side back the vehicle into an alley.

6.4.3.2.3.2. Bring the rear of vehicle as close as possible to the rear of the alley without going beyond the exercise boundary.

6.4.3.2.4. Offset back – Left.

6.4.3.2.5. Offset back – Right.

6.4.3.3. Parking.

6.4.3.3.1. Sight side parallel park (driver side) (see following example for boundary setup).

6.4.3.3.1.1. Drive past the parking space on the left.

6.4.3.3.1.2. Back rear of vehicle as close as possible to the rear of the space without crossing side or rear boundaries.

6.4.3.3.2. Parallel park (conventional) (see following example for boundary set-up).

6.4.3.3.2.1. Drive past the parking space on the right.

6.4.3.3.2.2. Back rear of vehicle as close as possible to the rear of the space without crossing side or rear boundaries.

6.4.3.4. Right turn (see following example for boundary set-up).

6.4.3.4.1. Drive forward and make a right turn around a cone.

6.4.3.4.2. Bring right rear wheel(s) of the vehicle as close to the base of the cone as possible without hitting it.

6.4.3.5. Backward serpentine (see following example for boundary setup).

6.4.3.5.1. Back vehicle through a 3-cone serpentine.

6.4.3.5.2. Complete without touching any cones or crossing.

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

6.4.5. With the oversized cargo truck, demonstrate driving on a road course.

- 6.4.5.1. Turns (4 Left/4 Right).
- 6.4.5.2. Intersections.
- 6.4.5.3. Urban/rural straight.
- 6.4.5.4. Expressway.
- 6.4.5.5. Start/stop.
- 6.4.5.6. Curves (1 Left/1 Right).
- 6.4.5.7. Upgrades.
- 6.4.5.8. Downgrades.
- 6.4.5.9. Railroad crossing (1).
- 6.4.5.10. Bridge/overpass.
- 6.4.6. Show trainee the after operation inspection and report.
 - 6.4.6.1. Ensure vehicle is cleaned.
 - 6.4.6.2. Cargo straps and chains are properly stowed.
 - 6.4.6.3. Refuel vehicle.
 - 6.4.6.4. Following manufacturer's shut-down procedures.
 - 6.4.6.5. Park.
 - 6.4.6.5.1. Apply brakes.
 - 6.4.6.5.2. Place transmission in neutral (park or an automatic).
 - 6.4.6.6. Perform a walk around inspection.
 - 6.4.6.7. 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 precautions 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 oversized cargo truck 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. Reflective belt during hours of reduced visibility or on the flightline.

7.1.1.2.5. Raingear, cold weather gear, etc.

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. Oversized cargo truck 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 2** 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 From 1800 is properly documented.

7.1.2.2.1. Establish a road 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. Turns (4 Left/4 Right).

- 7.1.2.2.1.2. Lane change maneuvers (2).
- 7.1.2.2.2. Intersections.
 - 7.1.2.2.2.1. Urban/rural straight.

7.1.2.2.2.2. Expressway.

- 7.1.2.2.2.3. Start/stop.
- 7.1.2.2.2.4. Curves (1 left/1 right).
- 7.1.2.2.2.5. Upgrades.
- 7.1.2.2.2.6. Downgrades.
- 7.1.2.2.2.7. Railroad crossing (1).
- 7.1.2.2.2.8. Low clearance, weight restriction, or traffic sign (bridge/overpass).
- 7.1.2.2.2.9. Roadside stop/start.
- 7.1.2.2.2.10. Backing.
 - 7.1.2.2.2.10.1. Straight line backing.
 - 7.1.2.2.2.10.2. Offset back-left.
 - 7.1.2.2.2.10.3. Offset back-right.

7.1.2.2.2.11. Parking.

7.1.2.2.2.11.1. Sight side parallel park.

7.1.2.2.2.11.2. Conventional parallel park.

7.1.2.2.3. Backing. Serve as the trainee's spotter, or if available, have another trainee be the spotter.

7.1.2.2.4. Continue until trainee can show proficiency in operating.

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

7.1.2.4. Establish a road course and operate the oversized cargo truck until trainee performs safely and efficiently, the course should include the following:

7.1.2.4.1. Turns (4 Left/4 Right).

- 7.1.2.4.2. Lane change maneuvers (2).
- 7.1.2.4.3. Intersections.
- 7.1.2.4.4. Urban/rural straight.
- 7.1.2.4.5. Expressway.
- 7.1.2.4.6. Start/stop.
- 7.1.2.4.7. Curves (1 left/1 right).
- 7.1.2.4.8. Upgrades.
- 7.1.2.4.9. Downgrades.
- 7.1.2.4.10. Railroad crossing (1).
- 7.1.2.4.11. Low clearance, weight restriction, or traffic sign (bridge/overpass).
- 7.1.2.4.12. Roadside stop/start.
- 7.1.2.4.13. Backing.
 - 7.1.2.4.13.1. Straight line backing.

7.1.2.4.13.2. Offset back-left.

7.1.2.4.13.3. Offset back-right.

7.1.2.4.14. Parking.

7.1.2.4.14.1. Sight side parallel park.

7.1.2.4.14.2. Conventional parallel park.

7.1.2.4.15. Securing cargo, have trainees secure different types of cargo, if applicable to vehicle type.

7.1.2.5. Perform after-operation inspection.

7.1.2.5.1. Ensure vehicle cleaned.

- 7.1.2.5.2. Cargo straps and chains are properly stowed.
- 7.1.2.5.3. Refueled.
- 7.1.2.5.4. Following manufacturer's shut-down procedures.
- 7.1.2.5.5. Park.
- 7.1.2.5.6. Apply brakes.
- 7.1.2.5.7. Place transmission in neutral (park or an automatic).
- 7.1.2.6. Perform a walk around inspection.
- 7.1.2.7. Report any discrepancies found on AF Form 1800.

7.2. Performance Evaluation.

- 7.2.1. Trainee will perform performance evaluation found in Attachment 3.
 - 7.2.1.1. Instructor and trainee will review Attachment 3 and 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 oversized cargo truck 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 seatbelts.

7.2.2.5. Properly adjust driver's seat and all mirrors.

7.2.2.6. Oversized cargo truck safety items/procedures.

7.2.3. Explain driving techniques.

7.2.4. Establish a road 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. Establish a road 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).

7.2.4.1.1. Turns (4 Left/4 Right).

7.2.4.1.2. Lane change maneuvers (2).

7.2.4.1.3. Intersections (2 through/2 requiring stopping the bus).

7.2.4.1.4. Urban/rural straight.

7.2.4.1.5. Expressway.

- 7.2.4.1.6. Curves (1 left/1 right).
- 7.2.4.1.7. Upgrades.
- 7.2.4.1.8. Downgrades.
- 7.2.4.1.9. Railroad crossing (1).
- 7.2.4.1.10. Low clearance, weight restriction, or traffic sign (bridge/overpass).
- 7.2.4.1.11. Roadside stop/start.
- 7.2.4.1.12. Backing.
 - 7.2.4.1.12.1. Straight line backing.
 - 7.2.4.1.12.2. Offset back-left.
 - 7.2.4.1.12.3. Offset back-right.
- 7.2.4.1.13. Parking.
 - 7.2.4.1.13.1. Sight side parallel park.
 - 7.2.4.1.13.2. Conventional parallel park.
- 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 3.
- 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.

Section 8—AIR BRAKES (IF EQUIPPED)

8.1. Safe Operation of a CMV with an Air Brake System.

8.1.1. Safe operation of a CMV with an air brake system, requires knowledge of: Air Brake System nomenclature; the dangers of contaminated air supply; implications of severed or disconnected air lines between the power unit and the vehicle implications of low air pressure readings; procedures to conduct safe and accurate pre-trip inspections; procedures for conducting en route and post-trip inspections of air actuated brake systems (ability to detect defects, which may cause the system to fail).

8.1.2. Air brakes are really three different braking systems:

8.1.2.1.1. Service brake. Applies and releases the brakes when the operator uses the brake pedal during normal driving.

8.1.2.1.2. Parking brake. Applies and releases the parking brakes when the operator uses the parking brake control.

8.1.2.1.3. Emergency brake. Uses part of the service and parking brake systems to stop the vehicle in the event of a brake system failure.

8.1.3. Parts of an Air Brake System:

Figure 8.1. Air Brake System Components.



8.1.3.1. Air compressor. Pumps air into the air storage tanks (reservoirs). The air compressor is connected to the engine through gears or a v-belt. The compressor may be air cooled or may be cooled by the engine cooling system. It may have its own oil supply, or be lubricated by engine oil. If the compressor has its own oil supply, check the oil level before driving.

8.1.3.2. Air compressor governor. The governor controls when the air compressor will pump air into the air storage tanks. When air tank pressure rises to the "cut-out' level (around 125 pounds per square inch or psi), the governor stops the compressor from pumping air. When the tank pressure falls to the "cut-in" pressure (around 100 psi), the governor allows the compressor to start pumping again.

8.1.3.3. Air storage tanks. Air storage tanks are used to hold compressed air. The number and size of air tanks varies among vehicles. The tanks will hold enough air to allow the brakes to be used several times, even if the compressor stops working.

8.1.3.4. Air tank drains. Compressed air usually has some water and some compressor oil in it which is bad for the air brake system. The water can freeze in cold weather and cause brake failure. Drain the air tanks completely. Each air tank is equipped with a drain valve in the bottom. There are two types:

8.1.3.4.1. Manually operated. Turn a quarter turn or pull a cable to operate. See **Figure 8.2.** Manually drain the tank at the end of each day of driving.

8.1.3.4.2. Automatic. The water and oil is automatically expelled. They may be equipped for manual draining as well. Automatic air tanks are available with electric heating devices to help prevent freezing of the automatic drain cold weather.

Figure 8.2. Manual Drain Valve.



8.1.3.5. Alcohol evaporator. Some air brake systems have an alcohol evaporator to put alcohol into the air system. This helps to reduce the risk of ice in air brake valves and other parts during cold weather which can make the brakes stop working. Check and fill the alcohol container as necessary, every day during cold weather.

8.1.3.6. Safety valve. A safety relief valve is installed in the first tank the air compressor pumps air to. The safety valve protects the tank and the rest of the system from too much pressure. The valve is usually set to open at 150 psi. If the safety valve releases air, something is wrong.

8.1.3.7. The brake pedal. Put on the brakes by pushing down the brake pedal. (It is also called the foot valve or treadle valve.)

8.1.3.7.1. Pushing the pedal down harder applies more air pressure. Letting up on the brake pedal reduces the air pressure and releases the brakes. Releasing the brakes releases some compressed air go out of the system, so the air pressure in the tanks is reduced.

8.1.3.7.2. It must be made up by the air compressor. Pressing and releasing the pedal unnecessarily can release air out faster than the compressor can replace it. If the pressure gets too low, the brakes won't work.

8.1.4. Foundation brakes. Used at each wheel. The most common type is the s-cam drum brake, shown in **Figure 8.3.** Its parts include:

8.1.4.1. Brake drums, shoes, and linings. Located on each end of the vehicle's axles. The wheels are bolted to the drums. The braking mechanism is inside the drum. To stop, the brake shoes and linings are pushed against the inside of the drum. This causes friction, which slows the vehicle (and creates heat). The heat a drum can take without damage depends on how hard and how long the brakes are used. Too much heat can make the brakes stop working.

8.1.4.2. S-cam brakes. When the brake pedal is pushed, air is let into each brake chamber Air pressure pushes the rod out, moving the slack adjuster, thus twisting the brake camshaft. This turns the s-cam (so called because it is shaped like the letter "S"). The s-cam forces the brake shoes away from one another and presses them against the inside of the brake drum. When releasing the brake pedal, the s-cam rotates back and a spring pulls the brake shoes away from the drum, letting the wheels roll freely again.





8.1.4.3. Wedge brakes. The brake chamber push rod pushes a wedge directly between the ends of two brake shoes. This shoves them apart and against the inside of the brake drum. Wedge brakes may have a single brake chamber, or two brake chambers, pushing wedges in at both ends of the brake shoes. Wedge type brakes may be self-adjusting or may require manual adjustment.

8.1.4.4. Disc brakes. In air-operated disc brakes, air pressure acts on a brake chamber and slack adjuster, like s-cam brakes. But instead of the s-cam, a "power screw" is used. The pressure of the brake chamber on the slack adjuster turns the power screw. The power screw clamps the disc or rotor between the brake lining pads of a caliper, similar to a large c-clamp.

8.1.5. Supply pressure gauges. All air-braked vehicles have a pressure gauge connected to the air tank. If the vehicle has a dual air brake system, there will be a gauge for each half of the system. (Or a single gauge with two needles.) Dual systems will be discussed later. These gauges tell the operator how much pressure is in the air tanks.

8.1.6. Application pressure gauge. This gauge shows how much air pressure is being applied to the brakes. (This gauge is not on all vehicles.) Increasing application pressure to hold the same speed means the brakes are fading. Slow down and use a lower gear. The need for increased pressure can also be caused by brakes out of adjustment, air leaks, or mechanical problems.

8.1.7. Low air pressure warning. A low air pressure warning signal is required on vehicles with air brakes. A warning signal that can be seen must come on before the air pressure in the tanks falls below 60 psi. (Or one half the compressor governor cutout pressure on older vehicles.) The warning is usually a red light. A buzzer may also come on.

8.1.7.1. Another type of warning is the "wig wag." This device drops a mechanical arm into the view when the pressure in the system drops below 60 psi. An automatic wig wag will rise out of the view when the pressure in the system goes above 60 psi. The manual reset type must be placed in the "out of view" position manually. It will not stay in place until the pressure in the system is above 60 psi.

8.1.8. Stop light switch. Drivers behind the vehicle must be warned when the brakes are put on. The air brake system does this with an electric switch that works by air pressure. The switch turns on the brake lights when the air brakes are put on.

8.1.9. Front brake limiting valve. Some older vehicles (made before 1975) have a front brake limiting valve and a control in the cab. The control is usually marked "normal" and "slippery." When the control is in the "slippery" position, the limiting valve cuts the "normal" air pressure to the front brakes by half.

8.1.9.1. Limiting valves were used to reduce the chance of the front wheels skidding on slippery surfaces. However, they actually reduce the stopping power of the vehicle.

8.1.9.2. Front wheel braking is good under all conditions. Tests have shown front wheel skids from braking are not likely even on ice. Make sure the control is in the "normal" position to have normal stopping power.

8.1.9.3. Many vehicles have automatic front wheel limiting valves. They reduce the air to the front brakes except when the brakes are put on very hard (60 psi or more application pressure). These valves cannot be controlled by the driver.

8.1.10. Spring brakes. Tractor and straight truck spring brakes will come fully on when air pressure drops to a range of 20 to 45 psi (typically 20 to 30 psi). Do not wait for the brakes to come on automatically. When the low air pressure warning light and buzzer first come on, bring the vehicle to a safe stop right away, while the brakes can still be controlled. Brakes must be properly adjusted to work correctly and to prevent the braking power from being affected.

8.1.11. Parking brake controls. In newer vehicles with air brakes, engage the parking brakes using a diamond-shaped, yellow, push-pull control knob. Pull the knob out to put the parking brakes (spring brakes) on, and push it in to release them. On older vehicles, the parking brakes may be controlled by a lever. Use the parking brakes whenever the vehicle is parked. **Note:** Never push the brake pedal down when the spring brakes are on. The brakes could be damaged by the combined forces of the springs and the pressure.

8.1.11.1. Modulating control valves. A control handle on the dash board found in some vehicles that may be used to apply the spring brakes gradually. It is spring loaded so the operator has a feel for the braking action. The more the control lever is moved, the harder the spring brakes come on, so that the operator can control the spring brakes if the service brakes fail. When parking a vehicle with a modulating control valve, move the lever as far as it will go and hold it in place with the locking device.

8.1.11.2. Dual parking control valves. A dual valve is used when main air pressure is lost to release the spring brakes so the vehicle can be moved in an emergency. A push-pull type valve used to put the spring brakes for parking, and a spring loaded valve in the "out" position. When pushing the control in, air from the separate air tank releases the spring brakes so the vehicle can move. When releasing the button, the spring brakes come on again. There is only enough air in the separate tank to do this a few times. Plan carefully when moving or the vehicle may be stopped in a dangerous location when the separate air supply runs out.

8.1.11.3. Antilock Braking System (ABS). Truck tractors with air brakes built on or after March 1, 1997, and other air brakes vehicles, (trucks, buses, trailers, and converter dollies) built on or after March 1, 1998, are required to be equipped with antilock brakes. ABS is a computerized system that keeps the wheels from locking up during hard brake applications.

8.1.11.3.1. On newer vehicles, the malfunction lamp comes on at start-up for a bulb check, and then goes out quickly. On an older system, the lamp could stay on until the vehicle is driving over 5 mph.

8.1.11.3.2. If the lamp stays on after the bulb check, or goes on once the vehicle is under way, the operator may have lost ABS control at one or more wheels.

8.1.11.3.3. ABS is in addition to the normal brakes. It does not decrease or increase the normal braking capability. It only activates when wheels are about to lock up.

8.1.12. Dual air brakes. Two separate air brake systems which use a single set of brake controls. Each system has its own air tanks, hoses, lines, etc. Both systems supply air to the trailer (if there is one).

8.1.12.1. One system (the "Primary") typically operates regular brakes on rear axle or axles.

8.1.12.2. The other system (the "Secondary") operates regular brakes on front axle (and possibly one rear axle).

8.1.12.3. Before driving a vehicle, allow time for the air compressor to build up a minimum of 1000 psi pressure in both the primary and secondary systems, or to the recommended psi in the Manufacturer's Operator's Manual.

Note: Pay attention to the low air pressure warning light and buzzer. Never operate if the warning light or buzzer is on (typically when the air pressure drops below 660 psi). Bring the vehicle to a stop right away and safely park the vehicle if this happens while driving.

8.1.13. Inspecting air brakes, there are added items to be included in Step 2 "Engine Compartment Checks", Step 5 "Walk-Around Inspecting", and Step 7 "Final Air Brake Check" of the Seven-Step Inspection Process. See **Attachment 5**. **Note:** If any of the below tests fail, they must be reported to the VCO, the supervisor, and or vehicle maintenance.

8.2. Using Air Brakes.

8.2.1. Normal stops. Push the brake pedal down. Control the pressure so the vehicle comes to a smooth, safe stop. If the vehicle has a manual transmission, do not push the clutch in until the engine rpm is down close to idle. When stopped, select a starting gear.

8.2.2. Emergency stops. When stopping in an emergency situation, the operator should brake in a way that will keep the vehicle in a straight line and allow the operator to turn if it becomes necessary. The operator can use controlled or stab braking methods. **Note:** If driving a vehicle with anti-lock brakes, read and follow the directions found in the owner's manual for stopping quickly:

8.2.2.1. Controlled braking:

8.2.2.1.1. Apply the brakes as hard as possible without locking the wheels.

8.2.2.1.2. Keep steering wheel movements very small while doing this.

8.2.2.1.3. Release the brakes if it is necessary to make a larger steering adjustment or if the wheels lock, and reapply the brakes as soon as possible.

8.2.2.2. Stab braking:

8.2.2.2.1. Apply the brakes all the way.

8.2.2.2.2. Release brakes when wheels lock up.

8.2.2.2.3. As soon as the wheels start rolling, apply the brakes fully again.

8.2.3. Stopping distance. The total stopping distance for vehicles with air brake systems is made up of four different factors:

Perception Distance

- + Reaction Distance
- + Brake Lag Distance
- + Effective Braking Distance
- = Total Stopping Distance

8.2.4. Brake fading or failure:

8.2.4.1. Brakes can fade or fail from excessive heat caused by using them too much and not relying on the engine braking effect. Excessive heat causes chemical changes in the brake lining which reduces friction and causes expansion of the brake drums.

8.2.4.2. Brake fade is also affected by adjustment. Brakes out of adjustment will not be able to share the workload with brakes that are properly adjusted, causing the other brakes to overheat and fade from overuse.

8.2.5. Proper Braking Technique. Once the vehicle is in the proper low gear, follow the proper braking technique: **Note:** The use of brakes on along and/or steep downgrade is only a supplement to the braking effect of the engine.

8.2.5.1. Apply the brakes just hard enough to feel a definite slowdown.

8.2.5.2. When the speed has been reduced to approximately 5 mph below the "safe" speed, release the brakes (for appx. 3 seconds).

8.2.5.3. When the speed has increased to the "safe" speed, repeat the above.

8.2.6. Low Air Pressure:

8.2.6.1. If the low air pressure warning comes on, stop and safely park the vehicle as soon as possible.

8.2.6.2. Spring brakes will come on when the air pressure drops into the range of 20 to 45 psi.

8.2.7. Parking Brakes. To use the parking brake, pull the parking brake control knob out. The control will be a yellow, diamond shaped knob labeled "parking brakes" on newer vehicles. On older vehicles, it may be a round blue knob or some other shape (including a lever that swings from side to side or up and down). **Note:** Never leave the vehicle unattended without applying the parking brakes or chock the wheels. The vehicle might roll away and cause injury and damage.

8.2.7.1. Do not use the parking brakes if the brakes are very hot or they can be damaged (e.g. from just coming down a steep grade). Let hot brakes cool before using the parking brakes.

8.2.7.2. Do not use the parking brakes if the brakes are very wet in freezing temperatures (vehicle will not be able to move if they freeze). Use wheel chocks to hold the vehicle. If brakes are wet, use the brakes lightly while driving in a low gear to heat and dry them.

8.2.7.3. If the vehicle does not have automatic air tank drains, drain air tanks to remove the moisture and oil.

8.2.8. Safety Reminders.

8.2.8.1. ABS will not prevent power or turning skids.

8.2.8.2. ABS will not increase or decrease ultimate stopping power.

8.2.8.3. ABS will not necessarily shorten stopping distance.

8.2.8.4. ABS will not change the way the vehicle normally brakes.

8.3. Combination Vehicle Air Brakes.

8.3.1. Trailer hand valve (Trolley Valve/Johnson Bar).

8.3.1.1. Works the trailer brakes.

8.3.1.2. Should be used only to test the trailer brakes. Do not use during driving due to the possibility of trailer skid.

8.3.1.3. Never use the hand valve for parking because all the air might leak out unlocking the brakes.

8.3.1.4. If trailer does not have spring brakes, use wheel chocks to keep the trailer from moving.

8.3.2. Tractor Protection Valve. Keeps air in the tractor should the trailer break away or develop a leak.

8.3.2.1. "Trailer air supply" control valve in the cab controls (opens/closes) tractor protection valve.

8.3.2.2. Will close automatically if air pressure is low (20-45 psi). This stops air from going out of the tractor, and lets the air out of the trailer emergency line which causes the trailer emergency brakes to come on.

8.3.3. Tractor Air Supply Control.

8.3.3.1. Red eight-sided knob which is used to control the tractor protection valve.

8.3.3.2. Push in to supply the trailer with air.

8.3.3.3. Pull out to shut the air off and put on the trailer emergency brakes.

8.3.4. Trailer Air Lines. Every combination vehicle has two air lines that run between each vehicle:

8.3.4.1. Service Air Line. The service line (also called the control line or signal line) carries air which is controlled by the foot brake or the trailer hand brake. Depending on how hard the operator presses the foot brake or hand valve, the pressure in the service line will similarly change. The service line is connected to relay valves. These valves allow the trailer brakes to be applied more quickly than would otherwise be possible.

8.3.4.2. Emergency Air Line (also called supply line). Supplies air to the trailer air tanks, and controls the emergency brakes on combination vehicles. Loss of air pressure in the emergency line causes the trailer emergency brakes to come on. The pressure loss could be caused by a trailer breaking loose, thus tearing apart the emergency air hose. Or it could be caused by a hose, metal tubing, or other part which breaks, letting the air out.

8.3.4.2.1. Emergency lines are often coded with the color red (red hose, red couplers, or other parts) to keep from getting them mixed up with the blue service line.

8.3.4.3. Hose Couplers (glad hands). Coupling devices used to connect air lines from tractor to the trailer. They have a rubber seal which prevents air from escaping.

8.3.4.3.1. Check for cracks and splits in the rubber seal. Clean the couplers and rubber seals before a connection is made and check for dry rotting/cracked seals and proper seat.

8.3.4.3.2. "Dead end" or dummy couplers. A place to attach the hoses when not in use that prevents water and dirt from getting into coupler and air lines. If unavailable, glad hands can sometimes be locked together depending on the couplings.

8.3.4.3.3. When connecting the glad hands, press the two seals together with the couplers at a 90 degree angle to each other. A turn of the glad hand attached to the hose will join and lock the couplers. Make sure to couple the proper glad hands together.

8.3.4.3.4. Look for color coding and tags marked service or emergency. Service lines are blue and emergency (supply) lines are red.

8.3.4.4. If the airlines are crossed, supply air will be sent to the service line instead of going to charge the trailer air tanks. Air will not be available to release the trailer spring brakes (parking brakes). If the spring brakes don't release when pushing the trailer air supply control, check the air line connections.

8.3.4.5. Older trailers do not have spring brakes. If the air supply in the trailer air tank has leaked away there will be no emergency brakes, and the trailer wheels will turn freely. If the air lines were crossed, the operator could drive away, but they wouldn't have trailer brakes.

8.3.4.5.1. Always test the trailer brakes before driving with the hand valve or by pulling the air supply (tractor protection valve) control. Pull gently against them in a low gear to make sure the brakes work.

8.3.5. Trailer Air Tanks. Each trailer and converter dolly has one or more air tanks. They are filled by the emergency (supply) line from the tractor. They provide the air pressure used to operate trailer brakes.

8.3.5.1. Air pressure is sent from the air tanks to the brakes by relay valves. The pressure in the service line tells how much pressure the relay valves should send to the trailer brakes. The pressure in the service line is controlled by the brake pedal (and the trailer hand brake).

8.3.5.2. It is important that water and oil don't build up in the air tanks. If they do, the brakes may not work correctly. Each tank has a drain valve on it, and each tank should be drained every day. If the tanks have automatic drains, they will keep most moisture out. But open the drains to make sure. Tank drains should not be left open over night after draining.

8.3.6. Shut-off valves (Cut-out cocks). Shut-off valves (also called cut-out cocks) are used in the service and supply air lines at the back of trailers used to tow other trailers. These valves permit closing the air lines off when another trailer is not being towed. Check that all shut-off valves are in the open position except the ones at the back of the last trailer, which must be closed.

8.3.7. Trailer service, parking and emergency brakes.

8.3.7.1. Newer trailers have spring brakes just like trucks and truck tractors. However, converter dollies and trailers built before 1975 are not required to have spring brakes.

8.3.7.2. A major leak in the emergency line will cause the tractor protection valve to close and the trailer emergency brakes to come on.

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References AFI 24-301, Ground Transportation, 1 November 2018 AFI 13-213, Airfield Driving, 1 June 2011 AFMAN 24-306, Operation of Air Force Government Motor Vehicles, 9 December 2016

Adopted Forms
AF Form 171, Request for Driver's Training and Addition to U.S. Government Driver's License, 1 November 2018
AF Form 847, Recommendation for Change of Publication, 22 September 2009
AF Form 1800, Operator's Inspection Guide and Trouble Report

Abbreviations and Acronyms **ABS**—Antilock Brake System AF—Air Force **AFI**—Air Force Instruction AFIMSC—Air Force Installation Mission Support Center **AFMAN**—Air Force Manual **AFOTP**—Air Force Qualification Training Plan CDL—Commercial Driver's License FOD—Foreign Object Damage H2—High Ratio, Two Wheel Drive H4—High Ratio, Four Wheel Drive HAZMAT—Hazardous Materials **IAW**—In Accordance With L4—Low Ratio, Four Wheel Drive **RM**—Risk Management **TO**—Technical Order VCO—Vehicle Control Official **4WD**—Four Wheel Drive

Attachment 2

OVERSIZED CARGO TRUCK 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

INTERNAL

STEP 2. ENGINE COMPARTMENT

□ Leaks/hoses/Electrical Wiring Insulation

- □ Oil Level
- □ Coolant Level
- □ Power Steering Fluid
- □ Windshield Washer Fluid
- □ Battery Fluid Level, Connections & Tie-downs
- □ Automatic Transmission Fluid Level
- □ Engine Compartment Belts

STEP 3. ENGINE START/CAB CHECK (LEFT/FRONT/RIGHT)

- □ Safe Start
- □ Gauges
 - Oil Pressure Gauge
 - Air Pressure Gauge
 - Temperature Gauge (Coolant/Engine Oil)
 - Ammeter/Voltmeter
- □ Warning Lights & Buzzers
- □ Mirrors & Windshield
- □ Wipers/Washers
- □ Emergency & Safety Equipment
 - Red Reflective Triangles
 - Properly Charged & Rated Fire Extinguisher
 - Optional (Chains/Tire Changing Equip, Emergency Phone List)

 $\Box \qquad 3B - Lights/Reflectors/Reflector Tape Condition (Front/Sides/Rear)$ (Dash Indicators for:)

- Left Turn Signal
- Right Turn Signal
- Four-Way Emergency Flashers
- High Beam Headlight
- ABS Indicator (If equipped)
- Clearance Lights

(Reflective Clean & Functional Light & Reflector Checks Include:)

- Headlights
- Taillights
- Backing Lights
- Turn Signals
- Four-Way Flashers
- Brake Lights
- Red Reflectors & Amber Reflectors
- Reflective Tape Condition
- □ Horn
- □ Heater/Defroster
- □ Brakes
 - Parking Brake Check
 - Hydraulic Brake Check
 - Air Brake Check (if equipped)
 - Service Brake Check
 - Safety Belt

(TURN-OFF ENGINE/TURN-ON HEADLIGHTS *LOW BEAM* AND FOUR-WAY FLASHERS)

STEP 4. WALK-AROUND INSPECTION

- \Box **4A** Steering
 - Steering Box/Hoses
 - Steering Linkages
- \Box 4B Suspension
 - Springs/Air/Torque
 - Mounts
 - Shock Absorbers
- \Box 4C Brakes
 - Slack Adjustors & Pushrods
 - Brake Chambers
 - Brake Hoses/Lines
 - Drum Brake
 - Brake Linings

 \Box **4D** – Wheels

- Rims
- Tires •
- Hub Oil Seals/Axle Seals •
- Lug Nuts •
- Spacers & Budd Spacing SIDE OF VEHICLE

 \Box 4E – Doors

- \Box 4E Mirrors
- \Box 4E Fuel Tank

REAR OF VEHICLE



Figure A2.1. Oversized Cargo Truck Inspection Guide.

Attachment 3

PERFORMANCE TEST

A3.1. Desired Learning Outcome.

A3.1.1. Understand the safety precautions to be followed before-, during-, and afteroperation of the oversized cargo truck.

A3.1.2. Understand the purpose of the oversized cargo truck and their role in the mission.

A3.1.3. Know the proper operator maintenance procedures of the oversized cargo truck, IAW applicable technical orders and use of AF Form 1800.

A3.1.4. Safely and proficiently operate the oversized cargo truck.

A3.2. Instructions. Before beginning the performance test, the trainer will brief the trainee on the scenario the trainee will need to accomplish. He/she will be given additional directions and instructions as needed to proceed through the scenario.

A3.3. Scoring.

A3.3.1. The trainer examiner will be scoring on oversized cargo truck operations and also the general safe driving practices. The examiner will give directions and instructions to the trainee in sufficient time for to execute a driving maneuver. He/she will not be asked to drive in an unsafe manner.

A3.3.2. The examiner will be making various marks on the performance test checklist. This does not necessarily mean the trainee have done anything wrong. It is in the best interest to concentrate on the operation of the oversized cargo truck. The trainer will explain the test results to the trainee at the conclusion of the performance test.

A3.3.3. Tasks being graded are listed on the following page; the trainee will be required to successfully pass all items.

A3.3.4. The instructor will stop the test at any time safe oversized cargo truck operations are not being followed or as deemed necessary for safety concerns.

PERFORMANCE TEST			
Trainees Name:	D	ate:	
Event	Go	No Go	Notes
1. PRE, DURING, AND POST- OPE	RATION		
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. ON-ROAD DRIVING TEST			
2.1. General - safety belt is used;			
obeys all traffic signs, signals, and			
laws; completes test without an			
accident or moving violation.			
2.2. 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.			_
2.3. Intersections - checks traffic in all			
directions; decelerate gently, brakes			
smoothly and, if necessary, changes			
gears; if necessary, comes to a			
complete stop (no coasting) behind			
any stop signs, signals, sidewalks, or			
	1	1	

Figure A3.1. Performance Test Checklist:

2.4. Urban/Rural Straight - makes		
regular traffic checks and maintains a		
safe following distance; makes		
necessary traffic checks, uses proper		
signals, safely and smoothly changes		
lanes.		
2.5. Expressway - checks traffic, uses		
proper signals; merges smoothly into		
the proper lane of traffic; maintains		
proper lane positioning, vehicle		
spacing, and vehicle speed; continue		
to check traffic thoroughly in all		
directions; exits using proper signals,		
decelerates smoothly.		
2.6. Stopping - decelerates smoothly,		
brakes evenly, changes gears as		
necessary; brings vehicle to a full stop		
without coasting.		
2.7. Starting - checks traffic, avoids		
jerky starts.		
2.8. Curves - before entering the		
curve, reduces speed and is in proper		
gear; keeps vehicle in the lane;		
continues checking traffic in all		
directions.		
2.9. Upgrade - selects proper gear to		
maintain speed and does not lug the		
engine; checks traffic in all directions		
and moves to the right-most or curb		
lane; if legal to do so, uses four-way		
flashers if traveling too slowly for the		
flow of traffic.		
2.10. Downgrade - downshifts as		
needed to help control engine speed		
and test brakes; does not ride the		
clutch, race the engine, change gears.		
or coast.		
2.11. Railroad Crossing - decelerates.		
brake smoothly, and shift gears as		
necessary; does not stop. changes		
gears, pass another vehicle. or change		
lanes while any part of the vehicle is		
in the crossing.		

2.12. Bridge/Overpass/Sign -can			
identify the posted clearance or height,			
the posted weight limit when going			
over bridge and explains any traffic			
sign which may appear on the route.			
Event	Go	No Go	Notes
3. KNOWLEDGE OF VEHICLE AN	ND USE OF	7	
CONTROLS			
3.1. Engine:			
Uses proper starting procedures			
Allows proper warm-up.			
Understands all gauges.			
Uses proper shutdown procedures.			7
Basic knowledge of engines.			7
3.2. Clutch and Transmission.			7
Understands proper clutching			7
techniques.			
Uses clutch properly through all gears.			7
Shifts smoothly.			7
Time shifts properly.			
Avoids riding the clutch.			
Proper use of tachometer and shifting			
range.			
Avoids bumping the governor.			
3.3. Brakes and Braking Techniques			
Understands the principles of an air			
brake system.			
Knows proper use of the tractor			
protection valve.			
Knows proper use of the hand valve.			
Understands the low air warning.			
Uses proper techniques on			
downgrades.			1
Understands the principle of front			
wheel limiting switch.			1
Proper use of parking brake.			1
Ensures air tank is at full tank pressure			
prior to moving the vehicle.			1
Performs brake check (tractor and			
trailer) before pulling out.			

Event:	Go	No Go	Notes
4. BACKING/PARKING:			
4.1. Backing			
Positions truck properly.			
Inspects truck before backing.			
Post guide before backing and uses			
spotters properly.			
Uses mirrors properly.			
Avoids blind side backing.			
Controls speed.			
4.2. Parking.			
Checks traffic position before parking.			
Secures truck properly.			
Parks legally and safely.			
Pulls completely off pavement when			
possible.			
Knows proper use of emergency			
warning devices.			
Uses emergency warning devices.			
Event:	Go	No Go	Notes
5. CARGO SECUREMENT (If not a	ccomplis	hed, have	
trainee explain the procedure):		r	
Checks to ensure oversized cargo			
truck is not overloaded and within			
legal limits.			
Cargo is not top heavy and load is			
distributed evenly.			_
Cargo is securely fastened			
(blocking/bracing and cargo tie-			
downs.			_
Double checks securement of cargo			
prior to operating.			
CERTIFIER COMMENTS:			

Attachment 4

PERFORMANCE TEST GUIDE

A4.1. Straight Line Backing. Back through and out of the alley/lane, without touching boundary lines or cones on either side of the alley/lane.

Figure A4.1. Straight Line Backing.



A4.2. Offset Backing – Left/Right. Adjust boundary depending on vehicle. At the start of the exercise, the vehicle is positioned in the right lane; the operator moves straight ahead and stops at the outer barrier lines/cones. The operator then backs the vehicle so it is positioned in the left lane and continues backing until the vehicle has cleared the forward set of cones with the front of the vehicle.

A4.2.1. The outer and side boundaries are containment boundaries and are used as a reference only.

A4.2.2. The opposite lane is used for Offset Back-Right. The driver drives straight in the left lane to the outer barrier, and backs the vehicle so it is positioned in the right lane and continues to back the vehicle until the front vehicle has cleared the forward set of cones.

Figure A4.2. Offset Backing – Left/Right.



A4.3. Parallel Parking. The length of the parking space must be adjusted for the operator's vehicle before the driver does this exercise. The space must be the length of the vehicle plus 15 feet. The operator must drive past the entrance to the parking space, remaining parallel to the space. From this position the driver must back into it. There are two types of parallel parking exercises. "Sight-sided": the parking space is on the driver's side of the vehicle; and "Conventional": the parking space is on the passenger side of the vehicle.





A4.4. Alley Dock. The length of the parking space must be adjusted for the operator's vehicle before the driver does this exercise. The space must be the length of the vehicle plus 15 feet. The operator must drive past the entrance to the parking space, remaining parallel to the space. From this position the driver must back into it. There are two types of parallel parking exercises. "Sight-sided": the parking space is on the driver's side of the vehicle; and "Conventional": the parking space is on the vehicle.

Figure A4.4. Alley Dock. The outer boundary must be adjusted for the vehicle class. The operator will drive by the entrance to the alley so that the entrance is on the driver's side of the vehicle and the vehicle is parallel to the outer boundary. The operator must back into the alley and stop within three feet of the rear of the alley.



A4.5. Left/Right Turn (4). Include turns at traffic lights, stop signs, and uncontrolled intersections. The turns should range from easy to somewhat difficult for commercial vehicles. The operator should try to get a mixture of types of intersections so that they vary in complexity. Try to include turns that have multiple approach lanes and a single approach lane turning onto a street with multiple lanes.

A4.6. Lane Change (2). Include two lane changes maneuvers. Each maneuver must include a lane change to the left and to the right. The lane change maneuvers can be conducted during any portion of the road test. The locations should be suitable for conducting lane changes and allow enough time for the driver to complete each lane change. The lane change maneuvers may be conducted during the expressway, urban or rural driving sections provided a sufficient amount of driving distance is available.

A4.7. Urban Highway. This section should be at least two miles long. It should contain through intersections and intersections with traffic lights. It should have moderate traffic density. The section should be one that allows the operator to see how the operator copes with traffic in a typical business area. One set of lane change maneuvers may be conducted within this section.

A4.8. Intersections. Select two through intersection and two intersections where a stop has to be made (a stop sign is preferred. These intersections should not be included in the urban section. One of the stop intersections should not be controlled by traffic lights (2- or 4-way stop).

A4.9. Railroad Crossing. Try to have an uncontrolled (no lights or stop arms) railroad crossing. The crossing should have enough sight distance to see if the operator checks left and right while approaching the crossing. The operator's looking left and right down the track will often be the only way to tell if the operator has noticed the crossing.

A4.9.1. If there is no railroad crossing in the testing area, do the following. Find a lightly traveled street or road that contains a landmark which the observer will point out to the operator. Tell the operator to pretend that there is a railroad crossing at that point. The

landmark can be an intersection, an entrance to the road, or a road sign or billboard. Give the operator instructions out of traffic, while the vehicle is stopped.

A4.10. Curves (2). Try to get curves that are tight enough to produce noticeable off tracking on a truck/tractor trailer. The curves should have clearly marked driving lanes. In many cases, a highway on-ramp or exit ramp can be used as a curve.

A4.11. Expressway.

A4.11.1. The operator should use a roadway segment in or close to the testing area. If there is no roadway, freeway, etc., then use a road or highway with high speeds.

A4.11.2. The roadway section should be a four-lane controlled access highway such as an interstate highway. The section should start with a conventional ramp entrance and end with a conventional ramp exit. One set of lane change maneuvers may be conducted within this section.

A4.11.3. If using a rural highway section, it should be at least two miles long. (In general, look for an area of rural road that provides driving challenges similar to those found on an expressway.) One set of lane change maneuvers may be conducted within this section.

A4.12. Roadside Stop/Start. The section of the road selected for this maneuver must allow the driver to pull the vehicle safely over and stop out of the normal flow of traffic. Be sure to select a location where commercial vehicles can safely exit and enter the roadway.

A4.13. Low Clearance, Weight Restriction, or Traffic Sign. This task requires the operator to observe vehicle height and/or weight restrictions. A variety of situations could be used with overpasses and bridges being good candidates. The overpass should have a posted clearance height. The bridge should have a posted weight limit. If overpasses or bridges with posted limits cannot be found, use ones that do not have posted limits. If any low clearances or bridges cannot be found, look for places or situations where there are signs that a heavy vehicle operator should see. Examples would be signing for "No Commercial Vehicles after 11:00 p.m." or "Bridge with 10 Ton Weight Limit in 5 Miles."

Attachment 5

SEVEN-STEP INSPECTION PROCESS

Figure A5.1. Seven-Step Inspection Process.

Seven-Step	Inspection Process
Step	Procedure
1. Vehicle Overview	• Review the AF Form 1800.
	• Ensure any discrepancy has been
	corrected.
	• Vehicle Management annotated the
	discrepancy was completed.
	• Approaching the vehicle.
	 Damage or vehicle leaning to one
	side.
	 Fresh leakage of fluids.
	 Hazards around vehicle.
	are engaged 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:
	• Engine oil level.
	• Coolant level in radiator; condition of
	hoses.
	• Power steering fluid level; hose
	condition (if so equipped).
	• Windshield washer fluid level.
	6 Battery fluid level, connections and tie-downs (battery may be located elsewhere).
	• Automatic transmission fluid level (may require engine to be running).
	 Check belts for tightness and excessive wear (alternator, water pump, air compressor)learn how much "give" the belts should have when adjusted right.

	• Leaks in the engine compartment
	(fuel, coolant, oil, power steering
	fluid hydraulic fluid battery fluid)
	Cracked worn electrical wiring
	insulation
2. Start Engine and Insure that is the Cal	
5. Start Engine and Inspect Inside the Cab	• Ensure parking brake is engaged.
(Get in and Start Engine)	• 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.
	\circ Oil pressure. Should come up to
	normal within seconds after engine is
	started
	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
	(usually around $120 - 140$ psi. Know
	Ammeter and/or voltmeter Should
	be in normal range(s).
	• Coolant temperature. Should begin
	gradual rise to normal operating
	range
	• Engine oil temperature Should
	begin gradual rise to normal
	operating range
	• Warning lights and huzzers Oil
	<u>warning lights and buzzers</u> . On,
	and antiloak broke system lights
	should go out right away
	Should go out fight away.
	• Check condition of controls. Check
	all of the following for looseness,
	sticking, damage, or improper
	setting:
	 Steering wheel.
	• Clutch.
	 Accelerator (gas pedal).
	 Brake controls.
	 Foot brake.
	Trailer brake (if vehicle has one).
	 Parking brake.

		Transmission controls.
	•	Horn(s).
		Windshield wiper/washer.
	•	Lights.
	•	Headlights.
	•	Dimmer switch.
	•	Turn signal.
	•	Four-way flashers.
	•	Parking – clearance – identification –
		marker switch (switches).
	•	Check mirrors and windshield.
	0	Inspect mirrors and windshield for
		cracks, dirt, illegal stickers, or other
		obstructions to seeing clearly. Clean
		and adjust as necessary.
	•	Check emergency equipment.
	0	Check for safety equipment:
	•	Spare electrical fuses (unless vehicle
		has circuit breakers).
	•	Three red reflective triangles, 6 fuses
		or 3 liquid burning flares.
	•	Properly charged and rated fire
		extinguisher. Check for optional
		items such as:
	•	Chains (where winter conditions
		require).
	•	Tire changing equipment.
	•	List of emergency phone numbers
		Accident reporting kit (packet).
	0	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.
	0	Go to front of vehicle and check that
		low beams are on and both of the
		tour-way flashers are working.
	0	Push dimmer switch and check that
		high beams work.

0	Turn-off headlights and four-way
	emergency flashers.
0	Turn-on parking, clearance, side-
	marker, and identification lights.
0	Turn-on right turn signal, and start
	walk-around inspection.
0	Walk around and inspect.
•	Clean all lights, reflectors, and glass
	as while doing the walk-around
	inspection.
•	Left front side.
0	Driver's door glass should be clean.
0	Door latches or locks should work
	properly.
•	Left front wheel.
0	Condition of wheel and rim
	missing, bent, broken studs, clamps,
	lugs, or any signs of misalignment.
0	Condition of tiresproperly inflated,
	valve stem and cap OK, no serious
	cuts, bulges, or tread wear.
0	Hub oil level OK, no leaks. Left
	front suspension.
0	Condition of spring, spring hangers,
	snackies.
0	U-DOILS. Sheak absorber condition
0	L oft front broke
•	Condition of broke drum or dise
0	Condition of boses
•	Eront
•	Condition of front ayle Condition of
0	steering system
0	No loose worn bent damaged or
0	missing parts
0	Must grab steering mechanism to test
U	for looseness.
0	Condition of windshield.
0	Check for damage and clean if dirty.
0	Check windshield wiper arms for
	proper spring tension.
0	Check wiper blades for damage,
	"stiff" rubber, and securement.
0	Lights and reflectors.

0	Parking, clearance, and identification
	lights clean, operating, and proper
	color (amber at front).
0	Reflectors clean and proper color
	(amber at front).
0	Right front turn signal light clean,
	operating, and proper color (amber
	or white on signals facing forward).
•	Right side
0	Right front: check all items as done
	on left front.
0	Primary and secondary safety cab
	locks engaged (if cab-over-engine
	design).
0	Fuel tank(s).
0	Securely mounted, not damaged, or
	leaking. Fuel crossover line secure.
0	Tank(s) contain enough fuel. Cap(s)
	on and secure.
0	Condition of visible parts. Rear of
	enginenot leaking.
0	Transmissionnot leaking.
0	Exhaust systemsecure, not leaking,
	not touching wires, fuel, or air-lines.
0	Frame and cross membersno bends
	or cracks.
0	Air-lines and electrical wiring
	secured against snagging, rubbing,
	wearing.
0	Spare tire carrier or rack not
	damaged (if so equipped).
0	Spare tire and/or wheel securely
-	mounted in rack.
0	(proper size, properly inflated)
-	(proper size, properly initiated).
0	Cargo properly blocked broad tied
0	chained ate Header board adequate
	channed, etc. meader board adequate,
0	Side boards, stakes strong enough
0	free of damage properly set in place
	(if so equipped)
0	Canvas or tarn (if required) properly
0	secured to prevent tearing billowing
	or blocking of mirrors

0	If oversize, all required signs (flags,
	lamps, and reflectors) safely and
	properly mounted and all required
	permits in driver's possession.
0	Curbside cargo compartment doors
0	in good condition, securely closed
	latched/locked and required security
	seals in place
•	Right rear
•	Condition of wheels and rims no
0	missing bont or broken spacers
	stude clamps or luge
-	Condition of times, properly infloted
0	Condition of thesproperty inflated,
	valve stems and caps OK, no serious
	cuts, burges, tread wear, tires not
	rubbing each other, and nothing
	stuck between them.
0	Tires same type, e.g., not mixed
	radial and bias types.
0	Tires evenly matched (same sizes).
	Wheel bearing/seals not leaking.
0	Suspension.
0	Condition of spring(s), spring
	hangers, shackles, and U-bolts.
0	Axle secure.
0	Powered axle(s) not leaking lube
	(gear oil). Condition of torque rod
	arms, bushings.
0	Condition of shock absorber(s).
0	If retractable axle equipped, check
	condition of lift mechanism. If air
	powered, check for leaks.
0	Condition of air ride components.
0	Brakes.
0	Brake adjustment.
0	Condition of brake drum(s) or discs.
0	Condition of hoseslook for any
	wear due to rubbing.
0	Lights and reflectors.
0	Side-marker lights clean, operating,
	and proper color (red at rear, others
	amber).
0	Side-marker reflectors clean and
	proper color (red at rear, others
	amber).
•	Rear.

0	Lights and reflectors.
0	Rear clearance and identification
	lights clean, operating, and proper
	color (red at rear).
0	Reflectors clean and proper color
	(red at rear).
0	Taillights clean, operating, and
	proper color (red at rear).
0	Right rear turn signal operating, and
	proper color (red, yellow, or amber
	at rear).
0	License plate(s) present, clean, and
	secured.
0	Splash guards present, not damaged,
	properly fastened, not dragging on
	ground, or rubbing tires.
0	Cargo secure (trucks).
0	Cargo properly blocked, braced, tied,
	chained, etc. Tailboards up and
	properly secured.
0	End gates free of damage, properly
	secured in stake sockets.
0	Canvas or tarp (if required) properly
	secured to prevent tearing, billowing,
	or blocking of either the rearview
	mirrors or rear lights.
0	If over-length, or over-width, make
	sure all signs and/or additional
	lights/flags are safely and properly
	mounted and all required permits are
-	In arriver's possession.
0	latehad/lockad
	L aft side
•	Check all items as done on right side
0	check all items as done on right side,
0	Plus. Battery (batteries) (if not mounted in
0	engine compartment)
0	Battery box (boxes) securely
0	mounted to vehicle. Box has secure
	cover
0	Battery (batteries) secured against
-	movement. Battery (batteries) not
	broken or leaking.
0	Fluid in battery (batteries) at proper
-	level (except maintenance-free type).

	0	Cell caps present and securely
		tightened (except maintenance-free
		type).
	0	Vents in cell caps free of foreign
	U	material (except maintenance-free
		type)
6 Check Signal Lights	-	Cat in and turn off all lights
0. Check Signal Lights	•	Term en sten lichte (en plactus ilen
	•	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. vellow, or amber).
	•	Get in vehicle
	0	Turn-off lights not needed for
	U	driving
	0	Check for all required papers trip
	0	manifests permits etc
	0	Secure all loose articles (they might
	0	interfere with operation of the
		controls or hit the operator in a
		crash)
	0	Start the ongine
7 Start the Engine and Check Test for	0	Tract for a local scalar
7. Start the Eligine and Check Test for Hydroxlin Looka	•	Test for hydraulic leaks.
Hyuraune Leaks	0	If the vehicle has hydraulic brakes,
		pump the brake pedal three times.
	0	Then apply firm pressure to the pedal
		and hold for five seconds.
	0	The pedal should not move. If it
		does, there may be a leak or other
		problem.
	•	Brake system.
	•	Test parking brake.
	0	Fasten safety belt.
	0	Set parking brake.
	0	Gently pull forward against parking
		brake to make sure the parking brake
		holds.
	0	If it doesn't hold vehicle, it is faulty;
		get it fixed.
	•	Test service brake stopping action.

0	Go about 5 miles per hour.
0	Push brake pedal firmly.
0	"Pulling" to one side or the other can
	mean brake trouble.
0	Any unusual brake pedal "feel" or
	delayed stopping action can mean
	trouble.
0	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:
0	Instruments.
0	Air pressure gauge (if the vehicle has
	air brakes). Temperature gauges.
0	Pressure gauges.
	Ammeter/voltmeter.
0	Mirrors.
0	Tires.
0	Cargo, cargo covers. Lights, etc.
0	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.

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.
	0	Park on level ground and chock the wheels.
	0	Release the parking brakes so the operator can
		move the slack adjusters.
	0	Use gloves and pull hard on each slack
		adjuster that it can be reached.
	0	Check slack adjuster, more than 1-inch
		indicates adjustments required (vehicles with
		too much brake slack can be very hard to
		stop). Adjust it or have it adjusted.
	•	Check brake drums (or discs), linings, and
		hoses.
7. Final Air Brake Check	•	Test low pressure warning signal.
	0	Shut the engine off when the vehicle has
		enough air pressure so that the low pressure
		warning signal is not on.
	0	I urn the electrical power on.
	0	Step on and off the brake pedal to reduce air
		Low sir program worning signal should some
	0	on before the pressure drops to less than 60
		nsi in the air tank with lowest pressure
		Check that the spring brakes come on
	•	automatically
	0	Chock the wheels
	0	Release the parking brakes when enough air
		pressure is built up.
	0	Shut the engine off.
	0	Step on and off the brake pedal to reduce the
		air tank pressure.
	0	"Parking brake" knob should pop out when
		the air pressure falls to the manufacturer's
		specification.
	•	Check rate of air pressure buildup
	0	Refer to manufacturer's recommendation for
		average buildup time.

Figure A5.2. Additional Steps for Inspecting Air Brakes System.

0	If not within recommended time, the air
	pressure may drop too low during driving
	operations.
•	Test air leakage rate.
0	With a fully-charged air system (typically 125
	nsi)
0	Turn-off the engine.
	Release the service brake and time the air
	pressure drop.
0	The loss rate should be less than 2 psi in one
	minute for single vehicles
0	Not less than 3 psi in 1 minute for
	combination vehicles
•	Then apply 90 psi or more with the brake
	nedal
	After the initial pressure drop if the air
	pressure falls more than 3 psi in 1 minute for
	single vehicles
	Not more than 4 psi for combination vehicles
	Check air compressor governor cut-in and
	cut-out pressures
	Air compressor should start at about 100 psi
	and stop at about 125 psi
	Run the engine at a fast idle
0	Air governor should cut-out the air
	compressor at about the manufacturer's
	specified pressure.
0	Engine idling, step on and off brake to reduce
	air tank pressure.
0	Compressor should cut-in at manufacturer's
	specified cut-in pressure.
0	Test parking brake: Stop the vehicle; put the
	parking brake on; gently pull against it in low
	gear to determine if parking brake will hold.
•	Test service brakes.
•	Wait for normal air pressure.
•	Release the parking brake.
	Move the vehicle forward slowly (about 5
	mph).
•	Apply the brakes firmly using the brake pedal.
•	Note any vehicle "pulling" to one side,
	unusual feel, or delayed stopping action.