DEPARTMENT OF THE AIR FORCE **QTP24-3-B313**
Headquarters US Air Force **13 November 2019**
Washington, D.C. 20330-1030

Tractor-Trailer

Vehicle Management Codes: 8199, B313, B325, B327, B328, B352, B353, B356, B360, B361, B363 – B365, B367 – B370, B375, B390, B401, B407, B409 – B411, B415, B417, B418, B420, B421, B422, B423, B426, B429, B442, B443, B447, B458, C360, C366, C372, C379, C388, C395, C397, C410, C414, C415, C425, C427, C437, D732, D740, D741, D742, E975, F353, F361, F380, F400, K363, K365, K371, K376, K407, K411, K412, K429, K472 – K475, K477, K478, L363, L370, L374, L376, L382, L385, L389, L390, L391, L398, L405, L410, L414, L418 – L420, W204, W207, W212, W330, W400

QUALIFICATION TRAINING PACKAGE

CONTENTS

Section 1—OVERVIEW

1.1. Overview.

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

1.1.2. How to use this plan:

1.1.2.1. Trainer.

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

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

1.1.2.1.3. Trainer's lesson plan for knowledge lecture, **Section 5** and the **American Association of Motor Vehicle Administrators (AAMVA)** ***Commercial Driver's License (CDL) Manual***.

1.1.2.1.4. Trainer's lesson plan for air brakes, **Section 5** and the **AAMVA** ***CDL Manual***.

1.1.2.1.5. Trainer's lesson plan for demonstration, **Section 6** and the **AAMVA** ***CDL Manual***.

1.1.2.1.6. Trainer's lesson plan for performance and evaluation, **Section 7**.

1.1.2.2. Trainee.

1.1.2.2.1. Reads this entire lesson plan and the **AAMVA** ***CDL Manual*** prior to starting lecture.

1.1.2.2.2. Follows along with lecture using this lesson plan, its attachments and the **AAMVA** ***CDL Manual***.

1.1.2.2.3. Trainees assigned to an installation identified by AF/A4LR that have transitioned to the AAMVA model, will:

1.1.2.2.3.1. Complete written tests developed and administered in accordance with (IAW) Air Force Instruction (AFI) 24-301, *Ground Transportation*.

1.1.2.2.3.2. Take the Air Force Performance Test (following completion of required written test(s)) consisting of three parts: Vehicle Inspection Test (including air brakes system check and coupling/uncoupling demonstration), Basic Control Skills Test and Road Test.

1.1.2.2.4. Trainees assigned to an installation that has not transitioned to the AAMVA model, will:

1.1.2.2.4.1. Complete written tests developed and administered in accordance with (IAW) Air Force Instruction (AFI) 24-301, *Ground Transportation*.

1.1.2.2.4.2. Complete the performance test developed and administered by Training, Validation and Operations (TVO) staff IAW AFI 24-301.

1.1.2.2.4.2.1. **Attachment 3** provides the minimum requirements to be evaluated during the 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 Package (AFQTP) process and the trainee's responsibilities.

2.1.1.2. Review the Tractor-Trailer Lesson Plan with the trainer.

2.1.1.3. Review the AAMVA *CDL Manual* with the trainer.

2.1.1.4. Ask questions if he/she does not understand the objectives for each unit.

2.1.1.5. Complete training hours recommended for the tractor-trailer.

2.1.1.6. Take the required written test(s) and performance test for the tractor-trailer.

2.1.2. Trainer shall:

2.1.2.1. Review this AFQTP and the AAMVA *CDL Manual* with the trainee.

2.1.2.2. Conduct knowledge training with the trainee using the Tractor-Trailer Lesson Plan and the AAMVA *CDL Manual*.

2.1.2.3. Conduct performance task explanation and demonstration using the Tractor-Trailer Lesson Plan and the AAMVA *CDL Manual*.

2.1.2.4. Answer questions for the trainee to ensure the required task knowledge has been gained to complete the task.

2.1.2.5. Coordinate with the trainee and Vehicle Control Official (VCO) to schedule the required written test(s) and performance test.

2.1.2.6. Document and sign-off the task(s) in Training Business Area (TBA) On-the-Job Training (OJT) records for 2T1X1 personnel. For all installation personnel, this information will be documented on a TVO log.

2.1.3. The Examiner shall:

2.1.3.1. Provide certification support IAW AFI 24-301 and AFQTP 24-3-200, *TVO Examiner's Guide*.

Note: Certification for the tractor-trailer will only be conducted by trained TVO Examiners. Members with a valid Class A CDL and Hazardous Materials endorsement do not require further TVO certification to be licensed on the tractor-trailer.

Section 3—INTRODUCTION

3.1. Objectives.

3.1.1. Given lectures, demonstrations, hands-on driving sessions, trainees will be able to:

3.1.1.1. Achieve an 80% or higher on all written test(s).

3.1.1.2. Complete all components of the performance test with zero instructor assists and a passing score.

3.1.2. Ensure the trainee becomes qualified in the maintenance and operation of the air brake system, an operator who has the knowledge and skills to operate the air brake system in a safe and professional manner.

3.1.3. Ensure the trainee becomes trained and qualified as a tractor-trailer operator; an operator who has the knowledge and skills for safe and professional tractor-trailer operation and preventative maintenance of various tractor-trailers.

3.1.4. Ensure the trainee is able to safely uncouple/couple the tractor-trailer.

3.2. Desired Learning Outcome.

3.2.1. Understand the purpose of the tractor-trailer and its role in the mission.

3.2.2. Be able to safely and proficiently operate the air brake system.

3.2.3. Know the proper operator maintenance procedures of the tractor-trailer, IAW applicable manufacturer's operator's manual, the seven-step inspection process and the vehicle inspection guide.

3.2.4. Know, understand and safely demonstrate the steps for coupling/uncoupling the trailer.

3.2.5. Understand the safety precautions to be followed pre-, during-, and post-operation of the tractor-trailer and the air brake system.

3.2.6. Be able to safely and proficiently operate the tractor-trailer.

3.3. Lesson Duration.

3.3.1. Recommended instructional and hands on training time is 89.25 hours:

Figure 3.1. Recommended Training Time for Training Activities.

Training Activity	Training Time
Trainee's Preparation	10 Hours
Instructor's Lecture	20 Hours
Trainee's Written Evaluation	5 Hours
Instructor's Demonstration	10 Hours
Trainee's Personal Experience (to build confidence and proficiency) ▪ Perform Operator Maintenance ▪ Operate the Vehicle	40 Hours
Trainee's Performance Evaluation	4.25 Hours

3.4. Instructional References.

3.4.1. AFI 24-301, *Ground Transportation*.

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

3.4.3. Tractor-Trailer Lesson Plan.

3.4.4. **AAMVA *CDL Manual***. Contact the TVO Section to obtain a copy.

Note: The material found in this lesson plan was written using resources developed by AAMVA, including AAMVA's *CDL Manual*, in order to provide all Air Force tractor-trailer operators with content in-line with the standards of knowledge equivalent to national standards met by Class A CDL holders. It has been expanded upon and modified to address the mission and standards required by the Department of Defense (DoD) and the United States Air Force.

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

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

3.4.7. Hazardous Materials Lesson Plan.

3.4.8. Pintle Hook Lesson Plan.

3.4.9. Code of Federal Regulations (CFR), Title 49—Transportation, Subtitle B—Other Regulations Relating to Transportation (Continued), Chapter III—Federal Motor Carrier Safety Administration (FMCSA), Department of Transportation (DOT), Parts 300-399; on-line at http://www.access.gpo.gov/nara/cfr/cfr-table-search.html.

3.4.10. United States Department of Transportation, Federal Motor Carrier Safety Administration; on-line at http://www.fmcsa.dot.gov/index.htm.

3.4.11. AAMVA website; on-line at http://www.aamva.org/.

3.5. Instructional Training Aids and Equipment.

3.5.1. Tractor-Trailer Lesson Plan.

3.5.2. Hazardous Materials Lesson Plan.

3.5.3. Pintle Hook Lesson Plan.

3.5.4. **AAMVA *CDL Manual***.

3.5.5. Tractor-Trailer.

Note: If available, the trainee will train and be evaluated on a tractor-trailer equipped with manual transmission.

3.5.6. Applicable TO or manufacturer's operators manual.

3.5.7. Suitable training area.

3.5.8. Traffic cones.

Section 4—TRAINEE PREPARATION

4.1. Licensing Requirements.

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

4.1.2. AF Form 171 IAW AFI 24-301.

4.1.3. Applicable local licensing jurisdiction requirements.

4.2. Required Reading.

4.2.1. Tractor-Trailer Lesson Plan.

4.2.2. **AAMVA's *CDL Manual***.

4.2.3. Hazardous Materials Lesson Plan.

4.2.4. Pintle Hook Lesson Plan.

4.2.5. AFMAN 24-306.

4.2.6. Manufacturer's operator's manual and applicable TOs for the vehicle being trained on.

Section 5—KNOWLEDGE LECTURE AND EVALUATION

5.1. Knowledge Overview (Lecture).

5.1.1. Trainees will pass the required written test(s), with a minimum score of 80%, IAW AFI 24-301 prior to taking the performance test for the tractor-trailer.

5.1.1.1. Written tests will be developed using this vehicle lesson plan and the AAMVA *CDL Manual* as source documents.

5.1.1.2. The trainer will schedule the trainee's written test(s) through the VCO.

5.1.1.3. Trainees who fail the written test(s), will be rescheduled to accomplish the test(s) following remedial training at the discretion and approval of the VCO and trainer.

Note: Refer to AFI 24-301 and local SOP for remediation and retake policy.

5.2. Overview of Training and Requirements.

5.2.1. Training objectives:

5.2.1.1. Given lectures, demonstrations, hands-on driving sessions, trainees will be able to:

5.2.1.1.1. Achieve an 80% or higher on all written tests.

5.2.1.1.2. Complete all components of the performance test with zero instructor assists and a passing score.

5.2.1.1.3. Ensure the trainee becomes trained and qualified as a tractor-trailer operator; an operator who has the knowledge and skills for safe and professional tractor-trailer operation and preventative maintenance of various tractor-trailers.

5.2.1.1.4. Ensure the trainee becomes qualified in the maintenance and operation of the air brake system, an operator who has the knowledge and skills to operate the air brake system in a safe and professional manner.

5.2.2. Desired learning outcome:

5.2.2.1. Understand the purpose of the tractor-trailer and its role in the mission.

5.2.2.2. Be able to safely and proficiently operate the air brake system.

5.2.2.3. Know the proper operator maintenance procedures of the tractor-trailer, IAW applicable manufacturer's operator's manual, the seven-step inspection process and the vehicle inspection guide.

5.2.2.4. Understand the safety precautions to be followed pre-, during-, and post-operation of the tractor-trailer and the air brake system.

5.2.2.5. Know, understand and safely demonstrate the steps for coupling/uncoupling the trailer.

5.2.2.6. Be able to safely and proficiently operate the tractor-trailer.

5.2.3. CDL Overview.

5.2.3.1. Military members are not required to obtain a CDL IAW 49 CFR Part 383.3.

"Each State must exempt from the requirements of this part individuals who operate commercial motor vehicles (CMVs) for military purposes. This exception is applicable to active duty military personnel; members of the military reserves; member of the national guard on active duty, including personnel on full-time national guard duty, personnel on part-time national guard training, and national guard military technicians (civilians who are required to wear military uniforms); and active duty U.S. Coast Guard personnel. This exception is not applicable to U.S. Reserve technicians."

5.2.3.2. The Air Force is, however, required to develop and provide training meeting or exceeding national requirements for CMV operation IAW Department of Defense Manual (DoDM) 4500.36, *Acquisition, Management, and Use of DoD Non-Tactical Vehicles*, Appendix 1 to Enclosure 5, paragraph 4a:

"The DoD Components will prescribe licensing requirements for its military and civilian drivers that meet or exceed the minimum national requirements issued by the Secretary of Transportation"

5.2.3.3. Federal Motor Carrier Safety Administration (FMCSA), under the Department of Transportation (DOT), serves as the administrator for CDL requirements.

5.2.3.3.1. AAMVA, on behalf of FMCSA, develops, provides and maintains the minimum national standards through its CDL Test System model, standards and resources IAW the Code of Federal Regulations (CFR) and the Commercial Motor Vehicle Safety Act of 1986.

5.2.3.3.2. CDL knowledge requirements include:

5.2.3.3.2.1. Safe operations regulations. Motor vehicle inspection, repair, and maintenance; safe vehicle operations procedures (proper visual search methods, appropriate use of signals, speed control for weather and traffic conditions, safe lane changing and turning); effects of fatigue, poor vision, hearing, and general health, alcohol and drug use upon safe CMV operation; types of motor vehicles and cargo subject to the requirements.

5.2.3.3.2.2. Basic vehicle control skills. Ability to start, to stop, and to move the vehicle forward and backward in a safe manner.

5.2.3.3.2.3. Proper use of CMV safety control systems. Lights, horns, side and rear-view mirrors, mirror adjustments, fire extinguishers, symptoms of improper operation revealed through instruments, motor vehicle operation characteristics, and diagnosing malfunctions. Knowledge on the correct procedures needed to use these safety systems in an emergency situation, e.g., skids and loss of brakes.

5.2.3.3.2.4. Air brake equipped. IAW DoT standards and the AAMVA model CDL program, the Air Force requires additional training and evaluation to operate a CMV with air brakes (See **Section 5**).

5.2.3.3.2.5. Transportation of Hazardous Materials endorsement requires additional knowledge and skill sets in accordance with AAMVA requirements. **Note:** For information on the knowledge and skill sets required for the AF vehicle operator transporting hazardous material, see AFMAN 24-306, the Hazardous Materials Lesson Plan and the AAMVA *CDL Manual*.

5.3. Tractor-Trailer Design Overview.

5.3.1. Tractor-trailer design. A tractor-trailer, also referred to as an 18-wheeler, semi, semi-trailer, or big rig, is a vehicle designed to carry cargo. Refer to the manufacturer's operator's manual for additional information on the tractor-trailer being operated, and to the data plate for safe load capacity guidance. The tractor-trailer normally can be identified by the following characteristics:

5.3.1.1. Total of 5 axles/18 wheels.

5.3.1.1.1. Tractor (typically) 3 axles: One front ("steer" axle); 2 rear ("drive" axles) with a pair of dual wheels on each side. Most tractor configurations have 10 wheels.

5.3.1.1.2. Trailer (typically) has 2 axles: 2 rear with a pair of dual wheels on each side, or 8 wheels on the trailer.

5.3.1.2. Total length 50 to 70 feet.

5.3.1.3. Typical weight limit 80,000 lbs.

5.3.1.4. Common components.

5.3.1.4.1. Air brakes.

5.3.1.4.2. Coupling device "5th wheel" (allows easy hook up and release of semi-trailer).

5.3.2. Common types of trailers.

5.3.2.1. 25- and 40-foot low-bed trailer (25 ton). This trailer is used primarily as a regular flatbed trailer. The operator will need to know:

5.3.2.1.1. Tie-down points/ loops location on the side of the trailer (5) and how to attach a chain to each side to increase tie-down locations and the location of the storage bins. If the tie-down locations do not match up with the tie-down locations of the cargo, the operator may also to run chains down the side of the trailer and secure the chain using a binder.

5.3.2.1.2. Storage compartments location on the top of the gooseneck. They may be used to store chains, binders and straps. Cargo should not be loaded on the gooseneck for any reason.

5.3.2.1.3. The height of the cargo and how it relates to the maximum height allowed in the area.

5.3.2.2. 32-foot van trailer. This trailer is primarily used for small non-palletized cargo, sensitive equipment, mail, and cargo that is weather sensitive.

5.3.2.2.1. Rear doors.

5.3.2.2.1.1. Two securing rods that run the height of the doors.

5.3.2.2.1.2. Two door latches top and bottom of each door (securing rod locks into latches). The securing rod must be inserted into both door latches before pushing and lowering the door handle.

5.3.2.2.1.3. The driver side door must be closed before the passenger side door in order to shut and lock the doors. They are closed when moving.

5.3.2.2.1.4. Open carefully, cargo may shift en route.

5.3.2.2.2. Height of trailer. While moving and loading cargo, watch for overhead and side clearance. Never load cargo on the top of a trailer. While transporting cargo, be alert for any object that protrudes from the side of the road or overhead (branches, electrical lines, signal lights, etc.).

5.3.2.2.3. Stabilizing arms. Two stabilizing arms are mounted to stabilize the trailer when being loaded without a tractor being attached to the trailer.

5.3.2.2.3.1. Lowering stabilizing arms. Remove the cotter pins and lower the arms. When the arms reach the ground, place the cotter pins back into their original place. **Note:** If stabilizing arms are not lowered and secured, the trailer could nose dive and cause serious injury and damage.

5.3.2.2.4. Vent panels. Located on both the front side and each rear door of the trailer. Open when transporting cargo over long distances or in hot weather.

5.3.2.2.5. Tie-down points inside the van trailer. Located every five feet on the floor, or running up the side of each wall.

5.3.2.2.6. Clearance lights. Mounted at all four corners and midway down each side.

5.3.2.3. 40-foot tri-axle flatbed trailer. The major difference between this trailer and regular flatbeds is that it is designed to haul heavier loads and ox carts.

5.3.2.3.1. Height of the trailer and cargo cannot exceed legal limits

5.3.2.3.2. May be equipped with side rails (raise side rails to carry small, loose loaded items)

5.3.2.3.3. Three axles to accommodate heavy cargo that exceed that of a regular tandem axle trailer.

5.3.2.3.4. The third axle affects the turning radius. When the trailer makes sharp turns it wears on the tires. If the trailer is loaded, sharp turns could snap the axle or blow a tire due to the skidding effect.

5.3.2.4. 32-foot Kentucky trailer. This trailer is used primarily as a regular flatbed trailer but is mounted with side rails. The operator will need to know:

5.3.2.4.1. Side rails. May be removed by securing to the front wall with straps in order to haul larger cargo item. To install the rails, place all of the stabilizing posts in the slots, slide the rails between the posts from top to bottom, and ensure both sides of the rails are inserted in the rail guides on each post.

5.3.2.4.2. Storage compartments. Mounted on the bottom of the bed and used to store chains, binders and straps. The compartment must be secured to the trailer and the door must be secured shut by shutting the latch and installing the safety pin.

5.3.2.4.3. Front wall. (Approximately 3-feet high mounted, non-removable.) Rails will be secured to this wall, when not installed; small cargo can be loaded on the bed and strapped against the wall.

5.3.2.4.4. Height of the trailer and cargo will not exceed legal limits

5.3.2.4.5. Blind spots are concerns due to the mounted rails on the front of the bed. The largest blind spot is on the passenger side almost parallel with the fifth wheel, and on the driver's side just behind the cab.

5.3.2.5. 40-foot Rollerized Trailer. This trailer is used to transport 463L pallets ONLY.

5.3.2.5.1. Five 463L pallets may be loaded at a time. Ensure the rear-loading ramp is in the raised position. This trailer can be loaded via forklift or K-loader ONLY.

5.3.2.5.2. Rollerized bed. There are three rows of rollers that run the entire length. Ensure that rollers are secure, lubricated and all sections are flush. Between the rows of rollers there are two paths for footing to push the pallets. **Note:** NEVER walk on the rollers, ensure the trailer bed is clear prior to pushing a pallet down the roller surface, and never load rolling stock onto the trailer.

5.3.2.5.3. Guide rails. Mounted on both sides of the trailer by "L" brackets. Used to direct pallets in a straight line to the front of the trailers. Pallets may only be loaded from the rear.

5.3.2.5.4. Lashing rings/small "D" rings. Mounted to the top of the guide rails and held in place by two small bolts. These rings are used for securing tarpaulins over cargo only. **Note:** Do not use these rings for securing cargo.

5.3.2.5.5. Lashing rings/large "D" rings. Mounted to the side of the frame running under the bed, there are five large "D" rings that run the length of the trailer on each side. These rings are the anchoring devices for securing cargo, rated at 10,000 lbs (data plates give the maximum weight limitations on each section of the trailer). Each pallet must be secured to large "D" ring on BOTH sides of the trailer. Married pallets must have a minimum of 4 securing devices.

5.3.2.5.6. Securing cargo. In order to secure cargo on the 40-foot rollerized trailer:

5.3.2.5.6.1. Get a pallet count, and attach as many securing devices as possible to the large D rings on each side of the trailer. (Load from the rear and push all the way to the front of the trailer.).

5.3.2.5.6.2. Once the pallet is against the back of the gooseneck, quickly attach a safety chain to hold it in place until securing devices can be attached properly.

5.3.2.5.6.3. Attach the securing device on the pallet, ratchet end of the strap to the pallet. Pull the pallet toward the front of the trailer to where it is secured up against the rear of the gooseneck. (Repeat on the other side of the pallet.).

5.3.2.5.6.4. If more than one pallet is being transported, push the second pallet all the way up to the rear of the first pallet. Attach the safety chain fist and then use the securing devices the same way as previously mentioned.

5.3.2.5.6.5. When unloading pallets: Leave one securing device attached to the pallet; after forklift or K-loader is in place to receive the pallet at the end of the trailer and the path of travel is clear; then unfasten.

Note: Cargo compartments are located on top of the gooseneck. The lids of the compartment are extremely heavy. Safety awareness is key; be aware of hand and foot placement and wet surfaces.

5.3.2.5.7. Loading ramp. This is attached to the rear of the trailer and has a hydraulic lift installed. Adjust the height of the ramp as needed to load or unload cargo. The ramp can be raised by closing the release valve on the hydraulic unit located on the driver side, near the rear of the guide rails. Remove the two safety pins in the support arms and grab the handle of the hydraulic unit, located below the release valve, and pump the system until the ramp lift is set to the desired height. Once the ramp is at the desired height, install the pins back into the support arms.

5.3.2.6. Tilt trailer (22 tons). This trailer is primarily used to move vehicles and equipment (i.e. forklifts, dozers, etc.) that are not designed for traveling over long stretches of roadways.

5.3.2.6.1. Loading procedures.

5.3.2.6.1.1. Release latches of tilt trailer located in the middle of the trailer.

5.3.2.6.1.2. Lower trailer ramps (if equipped).

5.3.2.6.1.3. With engine running, align equipment with the rear of the trailer.

5.3.2.6.1.4. Raise attachments high enough to clear rear of trailer.

5.3.2.6.1.5. Using a spotter (See AFMAN 24-306), slowly drive the vehicle or equipment up onto the trailer, making sure it is centered.

5.3.2.6.1.6. Before reaching the back of the trailer, the bed will tilt back forward.

5.3.2.6.1.7. Lower attachments and set parking brake.

5.3.2.6.1.8. Stop engine.

5.3.2.6.1.9. Secure the piece of equipment to the trailer with chains and binders, along with blocking and bracing the vehicle. **Note:** Be sure that the tilt latch is in the secured position.

5.4. Air Brakes.

5.4.1. Safe operation of a tractor-trailer with an air brake system.

5.4.1.1. 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 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).

Note: See the AAMVA *CDL Manual* for detailed, testable information on the Air Brake System needed to operate the Air Brake System.

5.4.1.2. The operator will be required to inspect the Air Brake System as a part of the performance test and as a part of the walk-around inspection, for daily operations, once licensed on the vehicle. When inspecting air brakes, the following 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 6**.

Note: If any of the below tests fail, the trainee must report them to the VCO, the supervisor and/or vehicle maintenance.

Figure 5.5. Air Brakes 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. o Park on level ground and chock the wheels. o Release the parking brakes in order to move the slack adjusters. o Use gloves and pull hard on each slack adjuster that can be reached. o Check slack adjuster, more than 1-inch indicates adjustments required (vehicles with too much brake slack can be very hard to stop). Adjust it or have it adjusted. • Check brake drums (or discs), linings, and hoses.
7. Final Air Brake Check	• Test low pressure warning signal. o Shut the engine off when the vehicle has enough air pressure so that the low pressure warning signal is not on.

	o Turn the electrical power on. o Step on and off the brake pedal to reduce air tank pressure. o Low air pressure warning signal should come on before the pressure drops to less than 60 psi in the air tank with lowest pressure. • Check that the spring brakes come on automatically. o Chock the wheels. o Release the parking brakes when enough air pressure is built up. o Shut the engine off. o Step on and off the brake pedal to reduce the air tank pressure. o "Parking brake" knob should pop out when the air pressure falls to the manufacturer's specification. • Check rate of air pressure buildup o Refer to manufacturer’s recommendation for average buildup time. o If not within recommended time, the air pressure may drop too low during driving operations. • Test air leakage rate. o With a fully-charged air system (typically 125 psi). o Turn-off the engine. o Release the service brake and time the air pressure drop. o The loss rate should be less than 2 psi in one minute for single vehicles. o Not less than 3 psi in 1 minute for combination vehicles. • Then apply 90 psi or more with the brake pedal. o After the initial pressure drop, if the air pressure falls more than 3 psi in 1 minute for single vehicles. o Not more than 4 psi for combination vehicles. • Check air compressor governor cut-in and cut-out pressures. o Air compressor should start at about 100 psi and stop at about 125 psi. o Run the engine at a fast idle. o Air governor should cut-out the air compressor at about the manufacturer's specified pressure.

	o Engine idling, step on and off brake to reduce air tank pressure. o Compressor should cut-in at manufacturer's specified cut-in pressure. o Test parking brake: Stop the vehicle; put the parking brake on; gently pull against it in low gear to determine if parking brake will hold. ▪ Test service brakes. ▪ Wait for normal air pressure. • Release the parking brake. • Move the vehicle forward slowly (about 5 mph). • Apply the brakes firmly using the brake pedal. • Note any vehicle "pulling" to one side, unusual feel, or delayed stopping action.

5.5. Vehicle Inspection.

Note: If discrepancies are found the operator must report them to the VCO, the supervisor, and/or vehicle maintenance.

5.5.1. The performance test will include an air brakes system check (See **Section 5.4.**), a vehicle and air brakes component inspection, and a coupling/uncoupling test (See **Section 5.6.**).

5.5.2. Training tools and documentation.

5.5.2.1. Use **Attachment 2**, the Tractor-Trailer Vehicle Inspection Memory Aid, as a walk-around guide.

Note: During the performance test, the trainee will be permitted to use **Attachment 2**.

5.5.2.2. A Seven-Step Inspection Method. The 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 6**.

Note: The trainee will NOT be permitted to use the Seven-Step Inspection Method guide (**Attachment 6**) during the performance test.

5.5.2.3. AF Form 1800. During inspection, fill out and sign the AF Form 1800, *Operator's Inspection Guide and Trouble Report*. If repairs are needed, follow the base policy on repairs, and/or request a replacement tractor-trailer to accomplish the scheduled run.

Note: The trainee will NOT fill out an AF Form 1800 during the AF Performance Test. The AF Form 1800 will be used for the performance test at installations that have not transitioned to the AAMVA model. It will also be used during daily operations.

5.5.2.4. SF 91 and DD Form 518. The operator should verify Standard Form (SF) 91, *Motor Vehicle Accident Report* and Department of Defense (DD) Form 518, *Accident Identification Card* are on-hand.

5.5.3. Pre-operation inspection (pre-trip inspection) – find items/problems that could cause accident or breakdown.

Note: If discrepancies are found the operator must report them to the VCO, the supervisor, and/or vehicle maintenance.

5.5.3.1. Locate and verbally identify air brake operating controls and monitoring devices.

5.5.3.2. Determine the motor vehicle's brake system condition for proper adjustments and that air system connections between motor vehicles have been properly made and secured.

5.5.3.3. Inspect the low pressure warning device(s) to ensure that they will activate in emergency situations; ascertain, with the engine running, that the system maintains an adequate supply of compressed air.

5.5.3.4. Determine that required minimum air pressure build up time is within acceptable limits and that required alarms and emergency devices automatically deactivate at the proper pressure level.

5.5.3.5. Operationally check the brake system for proper performance.

5.5.4. During-operation.

5.5.4.1. Brake and electrical connections to trailer.

5.5.4.2. Trailer coupling devices.

5.5.4.3. Cargo securement devices.

5.5.4.4. Cargo protection covers (tarps).

5.5.5. Post-trip inspection and report.

5.5.5.1. Ensure vehicle and components are cleaned.

5.5.5.2. Equipment is properly stowed.

5.5.5.3. Refueled.

5.5.5.4. Parked.

5.5.5.5. Apply brakes.

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

5.5.5.7. Drain air tanks.

Figure 5.1. 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 (see TO 36-1-191 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.
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. • Steering wheel play of more than 10 degrees (approximately 2-inches movement at the rim of a 20-inch steering wheel) can make it hard to steer.
Suspension System Defects	• Spring hangers. • 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. • HAZMAT (Properly labeled and vehicle placarded/Proper paperwork/Properly placarded, if required).

5.6. Combination Vehicle Inspection.

5.6.1. In addition to the Seven-Step Inspection Method (See **Attachment 6**), the following items need to be included in Step 5 "Walk-Around Inspecting." See **Figure 5.2.**

Figure 5.2. Additional Steps for Inspecting Combination Vehicles.

Additional Steps for Inspecting Combination Vehicles	
Step	Procedure
5. Walk-Around Inspecting	Coupling system areas: • Check fifth wheel (lower). • Securely mounted to frame. • No missing, damaged parts. • Enough grease. • No visible space between upper and lower fifth wheel. • Locking jaws around the shank, not the head of kingpin. • Release arm properly seated and safety latch/lock engaged. • Fifth wheel (upper). o Glide plate securely mounted to trailer frame. o Kingpin not damaged Air and electric lines to trailer. o Electrical cord firmly plugged in and secured. • Air lines properly connected to glad hands, no air leaks, properly secured with enough slack for turns. o All lines free from damage. • Sliding fifth wheel. o Slide not damaged or parts missing. o Properly greased. o All locking pins present and locked in place. o If air powered -- no air leaks. o Check that fifth wheel is not so far forward that tractor frame will hit landing gear or the cab hit the trailer, during turns. Landing gear: • Fully raised, no missing parts, not bent or otherwise damaged.

	• Crank handle in place and secured • If power operated, no air or hydraulic leaks. The following are in addition to inspecting air brake systems: • Check that air flows to all trailers. • Test tractor protection valve. • Test trailer emergency brakes. • Test trailer service brakes.

5.7. Coupling and Uncoupling.

5.7.1. Coupling/uncoupling. The trainee will be required to demonstrate his/her knowledge and understanding of coupling/uncoupling of the trailer, following the walk-around inspection, during the performance test. For step-by-step guidance, see **Attachment 5**.

Note: Vehicle types may vary in components in accordance with the step-by-step guidance found in **Attachment 5**. Reference the manufacturer's operators manual for vehicle-specific guidance.

5.8. Vehicle Safety and Equipment.

5.8.1. Hazards and human factors.

5.8.1.1. Traffic due to size and weight.

5.8.1.2. Cargo loads beyond the tractor-trailer's capability.

5.8.1.3. Jerky starts and stops.

5.8.1.4. Traveling too fast and turning too sharply.

5.8.1.5. Cutting corners too sharply.

5.8.1.6. Not properly securing the cargo.

5.8.2. Safety clothing and personal protective equipment (PPE):

5.8.2.1. Safety steel-toed boots must be worn.

5.8.2.2. Gloves will be worn during cargo loading and unloading (remove rings/jewelry first.

5.8.2.3. First aid kit.

5.8.2.4. Warning triangles or flares.

5.8.2.5. Hearing protection, if required.

5.8.2.6. Coveralls.

5.8.2.7. Inclement weather gear, etc.

5.8.3. AF Form 1800. A separate AF Form 1800 will be used for the tractor and the trailer, respectively.

Note: For day-to-day operations and normal use, the AF Form 1800 will be used to document any discrepancies found during the vehicle pre-inspection, during-use inspection and post-operation inspection.

5.9. Driving Safety and Precautions.

5.9.1. Right turns.

5.9.1.1. Turn slowly, gives the operator and others more time to avoid problems.

5.9.1.2. Make the right turn without swinging into another lane.

5.9.1.3. Prevents vehicles passing on the right.

5.9.1.4. If the trainee must cross into the oncoming lane to make a turn: Watch for vehicles coming toward the vehicle; give them room to go by; stop; do not back up for them.

5.9.2. Left turns.

5.9.2.1. Ensure the vehicle has reached the center of intersection before starting the left turn.

5.9.2.2. If two left turn lanes, take the right-hand lane.

5.9.3. Space needed to cross or enter traffic.

5.9.3.1. Slow acceleration and the space large vehicles require.

5.9.3.2. Acceleration varies with the load.

5.9.4. Mountain driving.

5.9.4.1. Select a "safe" speed, consider these items:

5.9.4.2. Total weight of vehicle and cargo.

5.9.4.3. Length of grade.

5.9.4.4. Steepness of grade.

5.9.4.5. Road conditions.

5.9.4.6. Weather.

5.9.4.7. Select proper gear before starting down grade.

5.9.4.7.1. Do not attempt to downshift after the vehicle’s speed has already increased.

5.9.4.7.2. Use lower gears going down a hill than would be required to go up the hill.

5.9.4.8. Brake fading or failure.

5.9.4.8.1. Excessive heat caused by overuse.

5.9.4.8.2. Brake adjustment must be checked frequently.

5.9.4.9. Proper braking technique.

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

5.9.4.9.2. When the vehicle’s speed has been reduced to approximately 5 MPH below the "safe" speed, release the brakes.

5.9.4.9.3. When the vehicle’s speed has increased to the "safe" speed, repeat steps 1 and 2.

5.9.4.10. Escape ramps.

5.9.4.10.1. Know escape ramp locations on the route.

5.9.4.10.2. Use them if the vehicle’s brakes are lost.

5.9.5. A skid happens whenever the tires lose their grip on the road.

5.9.5.1. Over-braking.

5.9.5.2. Over-steering.

5.9.5.3. Over-acceleration.

5.9.5.4. Driving too fast.

5.9.5.5. Correcting a drive-wheel braking skid.

5.9.5.5.1. Stop braking.

5.9.5.5.2. Turn quickly.

5.9.5.5.3. Counter steer.

5.9.5.6. Front-wheel skids.

5.9.5.6.1. To stop the skid is to let the vehicle slow down.

5.9.5.6.2. Slow down as quickly as possible without skidding.

5.10. Driving and Safety Precautions – Combination Vehicles.

5.10.1. Rollover risks and prevention:

5.10.1.1. Keep the cargo as close to the ground as possible.

5.10.1.2. Drive slowly around turns, corners, and on-/off-ramps.

5.10.1.3. Avoid quick lane changes, especially when fully loaded.

5.10.1.4. Trucks with trailers can have a dangerous effect caused by rearward amplification, where the trailer can swing out, then swing back. Steer gently and smoothly, follow far enough behind other vehicles, look far enough down the road to avoid being surprised, at night, drive slowly enough to see obstacles with the headlights, slow down to a safe speed before going into a turn.

5.10.1.5. Brake early. Combination vehicles take longer to stop when empty. Allow lots of following distance. Look ahead in order to brake early.

5.10.1.6. Prevent trailer skids. Recognize the skid, when braking, check trailer to ensure it is going straight. Stop using the brake. Release the brakes to get traction back. Do not use trailer hand brake to "straighten out the rig".

5.10.1.7. Turn wide. Off tracking, rear wheels follow a different path. Steer front end wide enough around corners so rear will clear. Keep the rear of the vehicle close to curb. Stops other drivers from passing the vehicle on the right. This may require a turn into oncoming lane; watch for oncoming traffic. This may have to wait until oncoming lane is clear.

5.10.2. Combination vehicle air brakes. See **Section 5.4.** and the AAMVA *CDL Manual* for additional information on air brakes for single vehicles and combination vehicles.

5.11. Miscellaneous Tractor-Trailer Vehicle Operations.

5.11.1. Over-the-road operations.

5.11.1.1. When starting off in the tractor-trailer combination, ensure that the trailer brakes are not locked up and that the tires are turning freely.

5.11.1.2. The added weight of the trailer and the equipment being hauled will affect the power of the tractor and the distances required stopping.

5.11.1.3. Know the height of the trailer and equipment being hauled. Avoid low bridges and underpasses.

5.11.2. Unloading procedures.

5.11.2.1. Remove chains, binders, and blocking and bracing from vehicle or equipment being hauled.

5.11.2.2. Unlatch tilt trailer locking pin(s). **Note:** Failure to unlatch tilt trailer locking pin will cause damage to trailer.

5.11.2.3. Lower trailer ramps (if equipped).

5.11.2.4. Start vehicle or equipment and release parking brake.

5.11.2.5. Raise any attachment(s) resting on the trailer deck.

5.11.2.6. Using a spotter, slowly start backing off the trailer. Moving backwards, the vehicle will come to a pivot point where the trailer will start to tilt back. At that point apply the brakes and let the trailer continue to tilt back until it rests on the ground.

5.11.2.7. Continue backing off, the operator may need raise attachments so they will clear the trailer.

5.11.2.8. Once the vehicle or equipment is off the trailer, the bed will tilt back to its normal position.

5.11.2.9. Ensure the tilt lock latches.

5.11.3. Winches (if equipped).

5.11.3.1. Winch cables (also called wire ropes). Immediately have damaged cables replaced, failure to do so can result in cable backlash, which may cause injury or death. The following are items to look for:

5.11.3.1.1. Properly lubricated.

5.11.3.1.2. No frays or cuts in cable (See **Figure 5.3.**).

5.11.3.1.3. Has not been crushed.

5.11.3.1.4. No kinks.

5.11.3.1.5. No bird caging. The twisting of the wire rope in an isolated area in the opposite direction of the rope lay, causing it to take on a bird cage appearance.

5.11.3.1.6. Properly wound on the cable spool.

5.11.3.1.6.1. Cable fastening devices. Need to ensure they are properly installed and securely fastened. Two most common types of fasteners are the U-bolt wire clip and compression sleeve (see **Figure 5.4.**).

5.11.3.1.6.1.1. The U-bolt wire clips have a correct and incorrect way of being fastened to the cable (see **Figure 5.5.**). The saddle of the clip rests against the ``live" portion of the wire rope while the U-bolt rests on the short end of the cable (also called the “dead” portion of the cable). Using clips improperly severely weakens the connection, making it unsafe. A good way to remember if fastened correctly is “never saddle a dead horse”.

Figure 5.3. Cable Frays and Cuts.

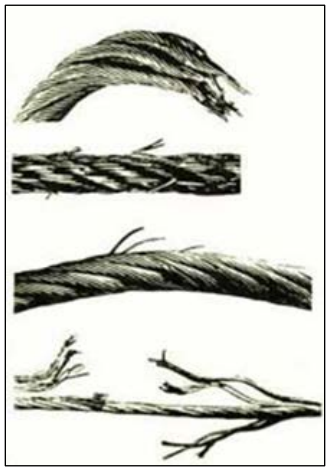


Figure 5.4. Cable U-bolt Wire Clip and Compression Sleeve.

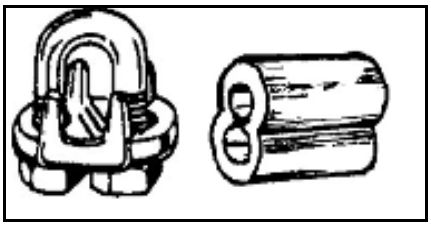
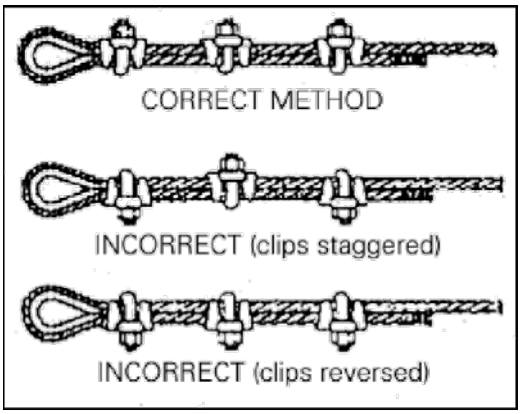


Figure 5.5. Correct and Incorrect Methods for U-bolt Wire Clips.



5.11.4. Additional items.

5.11.4.1. Flightline rules and regulations (when applicable). Refer to AFMAN 24-306, AFI 13-213 and local flightline procedures.

5.11.4.2. Fire extinguisher training. Tractor-trailers are equipped with fire extinguishers and training is required annually. The supervisor or Squadron VCO will schedule training according to local policy. The fire extinguisher itself must be inspected to ensure current inspection date, ensure needle is positioned in the green and ensure it is securely mounted.

5.11.4.3. Workplace policies and procedures. Understand local policies and procedures in regards to tractor-trailer operations. At a temporary duty location, take the time to learn the specific policies and procedures for the location.

Section 6—TRAINER'S EXPLANATION AND DEMONSTRATION

6.1. Trainer'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 tractor-trailer is parked.

6.2.1.2. Remove all jewelry and identification tags.

6.2.1.3. PPE 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. Warning triangles.

6.2.1.3.5. Coveralls, if required.

6.2.1.3.6. Inclement weather gear, if required.

6.2.1.3.7. Reflective belt, if required.

6.2.1.3.8. Hearing protection, if required.

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

6.2.1.5. Ensure trainee wears seat belt.

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

6.2.1.7. Throughout demonstration, practice tractor-trailer safety.

6.2.1.8. Use three points-of-contact when entering/exiting the vehicle.

6.2.2. Practice basic AF Risk Management (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. Trainer Operator Maintenance Demonstration.

6.3.1. With trainee, accomplish vehicle inspection. Document the inspection on an AF Form 1800. The vehicle inspection will follow the seven-step method as described in **Attachment 6**. An inspection guide/memory aid (**Attachment 2**) can be used to ensure all areas of the tractor-trailer are covered. The trainee will be able to utilize **Attachment 2** during the performance test. If desired, the TVO examiner will provide the trainee with a clean copy at the time of the performance test.

6.4. Trainer Operation Demonstration.

6.4.1. Demonstration overview. The trainer will spend time demonstrating the following material to assist the trainee in becoming a proficient tractor-trailer operator. The trainee will NOT be evaluated on the entirety of the material below during the performance test. See **Section 7**, **Attachment 3** and **Attachment 4** for a description of testable performance test components. Throughout demonstration:

6.4.1.1. Allow for questions.

6.4.1.2. Repeat demonstrations as needed.

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

6.4.2.1. Tractor-trailer capacities.

6.4.2.2. Explain parking brake as they apply to tractor-trailer being used.

6.4.2.3. Tractor-trailer controls.

6.4.2.3.1. Shifting pattern.

6.4.2.3.2. Overdrive.

6.4.2.3.3. Mechanical fifth wheel controls.

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

6.4.2.4.1. Instruments.

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

6.4.2.4.3. Temperature gauges.

6.4.2.4.4. Pressure gauges.

6.4.2.4.5. Ammeter/voltmeter.

6.4.2.4.6. Mirrors.

6.4.2.4.7. Tires.

6.4.2.4.8. Cargo, cargo covers.

6.4.3. Demonstrate tractor-trailer coupling/uncoupling. See **Attachment 5**.

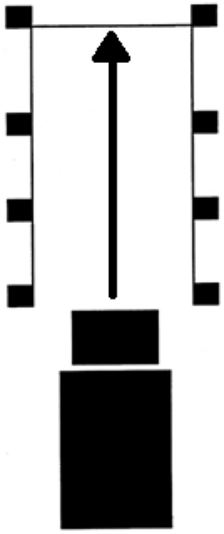
6.4.4. Demonstrate the following tractor-trailer operations (See **Attachment 4**).

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

6.4.4.1.1. Drive forward between the two rows.

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

Figure 6.1. Forward Stop.



6.4.4.2. Backing.

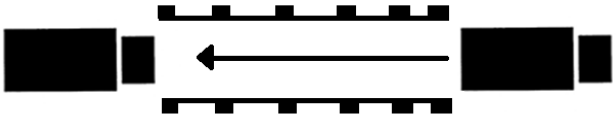
6.4.4.2.1. Straight line backing. Back vehicle in a straight line between two rows.

6.4.4.2.1.1. Bring vehicle to a complete stop as close to the boundary.

6.4.4.2.1.2. Always use a spotter when backing. The operator must maintain visual contact with the spotter at all times. If visual contact is lost, the operator must immediately stop the vehicle.

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

Figure 6.2. Straight Line Backing.



6.4.4.2.2. Offset back – Left.

6.4.4.2.3. Offset back – Right.

6.4.4.2.4. Sight Side parallel parking (operator's side).

6.4.4.2.4.1. Drive past the parking space on the left.

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

6.4.4.2.5. Conventional parallel parking.

6.4.4.2.5.1. Drive past the parking space on the right.

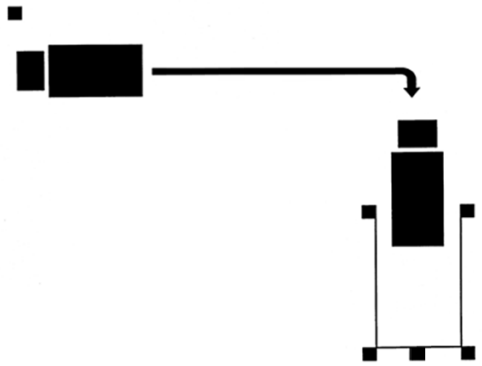
6.4.4.2.5.2. Back rear of vehicle as close as possible to the rear of the space without crossing side or rear boundaries.

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

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

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

Figure 6.3. Alley Dock.



6.4.5. Demonstrate securing cargo. **Note:** While it is impossible to demonstrate all types of cargo, it is important that the trainee has a basic understanding of how they might secure the following types of cargo.

6.4.5.1. Rolling stock.

6.4.5.2. 463L pallets.

6.4.5.3. Lose cargo.

6.4.6. With tractor and trailer, demonstrate driving on a road course.

6.4.6.1. Turns (Left/Right).

6.4.6.2. Intersections.

6.4.6.3. Urban/rural straight.

6.4.6.4. Expressway.

6.4.6.5. Start/stop.

6.4.6.6. Curves (Left/Right).

6.4.6.7. Upgrades.

6.4.6.8. Downgrades.

6.4.6.9. Railroad crossing/simulated railroad crossing.

6.4.6.10. Bridge/overpass.

6.4.7. Show trainee the post-operation inspection and report. Fill out an AF Form 1800.

6.4.7.1. Ensure vehicle is cleaned.

6.4.7.2. Cargo straps and chains are properly stowed.

6.4.7.3. Refuel vehicle.

6.4.7.4. Park.

6.4.7.4.1. Apply brakes.

6.4.7.4.2. Place transmission in neutral (park on an automatic).

6.4.7.5. Follow manufacturer's operator's manual shutdown procedures.

6.4.7.6. Drain air tanks.

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

Section 7—TRAINEE PERFORMANCE DEMONSTRATION AND PERFORMANCE TEST

7.1. Trainee Performance Demonstration.

7.1.1. Following the trainer demonstration, the trainee will accomplish the required behind-the-wheel time. The trainer will evaluate the proficiency of the trainee for the objectives found in **Section 7**, and can use the tractor-trailer performance test framework checklist in **Attachment 3** as a guide for what to expect for the performance test.

7.2. Instructor's Preparation.

7.2.1. Establish a training location.

7.2.2. Obtain appropriate manufacturer's operator's manual.

7.2.3. Schedule/reserve a vehicle.

7.2.3.1. If available, use a tractor-trailer equipped with manual transmission.

7.2.4. Ensure trainee completes AF Form 171.

7.3. Safety Procedures and Equipment.

7.3.1. The following safety items should be followed by the trainee and trainer:

7.3.1.1. Chock wheel (if required) when tractor-trailer is parked.

7.3.1.2. Remove all jewelry and identification tags.

7.3.1.3. PPE items.

7.3.1.3.1. Safety steel-toed boots must be worn.

7.3.1.3.2. Reflective belt, if required.

7.3.1.3.3. Hearing protection, if required.

7.3.1.3.4. First aid kit.

7.3.1.3.5. Warning triangles.

7.3.1.3.6. Inclement weather gear, if required.

7.3.1.4. Ensure operator and passenger wear seatbelt.

7.3.1.5. Properly adjust operator's seat and all mirrors.

7.3.1.6. Throughout demonstration, practice tractor-trailer safety.

7.3.1.7. Keep loads and passenger capacity within the rated capacity of the tractor-trailer.

7.3.1.8. Practice basic AF RM process during demonstration:

7.3.1.8.1. Identify hazards.

7.3.1.8.2. Assess hazards.

7.3.1.8.3. Develop controls and make decisions.

7.3.1.8.4. Implement controls.

7.3.1.8.5. Supervise and evaluate.

7.4. Trainee Vehicle (Pre-trip) Inspection.

7.4.1. Have the trainee accomplish the vehicle inspection. The trainee will document the inspection on an AF Form 1800. The vehicle inspection will follow the seven-step method found in **Attachment 6**. An inspection guide/memory aid (**Attachment 2**) can be used to ensure all areas of the tractor-trailer are covered.

7.4.1.1. The trainee will be able to utilize **Attachment 2** during the performance test. If desired, the TVO Examiner will provide the trainee with a clean copy at the time of the performance test.

7.4.1.2. Before beginning the walk-around vehicle inspection, the trainee will demonstrate an air brake system check. The steps to complete the air brake system check are identified in **Attachment 6**.

7.4.2. Following the walk-around vehicle inspection, the trainee will demonstrate the ability to couple/uncouple a tractor-trailer. He/she will follow the steps for coupling/uncoupling as described in **Attachment 5**.

7.5. Trainee Operation Demonstration.

7.5.1. Demonstration overview. The trainee will demonstrate the following material to gain experience in becoming a proficient tractor-trailer operator.

7.5.1.1. Allow for questions during trainee demonstration.

7.5.1.2. Have the trainee repeat objectives, as needed.

7.5.2. The trainee will demonstrate and explain the following for the tractor-trailer being operated. **Note:** Use information contained on the vehicle data plate and/or the operator's manual:

7.5.2.1. Tractor-trailer capacities.

7.5.2.2. Explain parking brake as they apply to tractor-trailer being used.

7.5.2.3. Tractor-trailer controls.

7.5.3. The trainee will demonstrate the following tractor-trailer operations. See **Attachment 4** for additional guidance:

7.5.3.1. Backing. (Use a spotter when backing).

7.5.3.1.1. Straight line backing.

7.5.3.1.2. Offset back – Left.

7.5.3.1.3. Offset back – Right.

7.5.3.2. Alley dock.

7.5.3.3. Sight Side parallel parking (operator's side).

7.5.3.4. Conventional parallel parking.

7.5.4. With tractor-trailer, trainee will demonstrate driving on a road course:

7.5.4.1. Turns (Left/Right).

7.5.4.2. Intersections.

7.5.4.3. Urban/rural straight.

7.5.4.4. Expressway.

7.5.4.5. Start/stop.

7.5.4.6. Curves (Left/Right).

7.5.4.7. Upgrades.

7.5.4.8. Downgrades.

7.5.4.9. Railroad crossing/simulated railroad crossing.

7.5.4.10. Bridge/overpass.

7.5.5. Trainee will perform the post-operation inspection and report:

7.5.5.1. Walk-around inspection. Fill out AF Form 1800.

7.5.5.2. Ensure vehicle is clean.

7.5.5.3. Cargo straps and chains are properly stowed.

7.5.5.4. Ensure vehicle is refueled.

7.5.5.5. Park.

7.5.5.5.1. Apply brakes.

7.5.5.5.2. Place transmission in neutral (park on an automatic).

7.5.5.6. Follow manufacturer’s operator’s manual for shutdown procedures.

7.5.5.7. Drain air tanks (if applicable).

7.5.6. Conclude the trainee demonstration by allowing time for questions.

7.6. Performance Test Overview.

7.6.1. The examiner provided by the Vehicle Operations Element TVO activity will administer the performance test for the tractor-trailer IAW AFI 24-301 and AFQTP 24-3-200.

7.6.1.1. The performance test, administered by the TVO Examiner, (in addition to the required written test(s)) is the only official evaluation used to license the individual on the tractor-trailer.

7.6.1.2. The trainer will ensure that the trainee is familiar with the components and structure of the test, the items being evaluated and the minimum standards needed to pass the exam.

7.6.1.3. The trainee must first pass required written test(s). See **Section 5** for additional information.

7.6.1.4. The trainee will accomplish the performance test using a tractor-trailer with manual transmission. **Note:** In the event that the trainee is unable complete the performance test using a tractor-trailer with manual transmission, he/she will receive a license restriction notating a limitation to operate only automatic transmission-equipped tractor-trailers.

7.6.2. In order to be licensed on the tractor-trailer:

7.6.2.1. Trainees assigned to an installation that has not transitioned to the AAMVA model will successfully accomplish the performance test developed and administered by TVO staff, IAW AFI 24-301. **Note:** The performance test will be developed, by the TVO staff using this lesson plan and will include, at a minimum, evaluation of the checklist found in **Attachment 3**.

7.6.2.2. Trainees assigned to an installation that has transitioned to the AAMVA model will successfully accomplish the Air Force Performance Test administered by a TVO Examiner IAW AFI 24-301 and AFQTP 24-3-200.

7.6.3. The Air Force Performance Test, for installations using the AAMVA model, consists of three parts: The Vehicle Inspection Test, Basic Control Skills Test and the Road Test.

7.6.3.1. Vehicle Inspection Test. The trainee will be tested to see if he/she knows whether the vehicle is safe to drive. The trainee will walk around the vehicle and point to or touch each item and explain to the examiner what he/she is inspecting and why.

7.6.3.1.1. The Vehicle Inspection Test includes an air brakes system check, a walk-around inspection, an in-cab inspection, and a coupling/uncoupling demonstration. See **Attachment 4** of this AFQTP and Section 11 of the AAMVA *CDL Manual* for additional guidance.

7.6.3.1.2. The trainee is permitted to use the tractor-trailer vehicle inspection memory aid (**Attachment 2**) during the Air Force Performance Test. The examiner will provide a clean copy.

7.6.3.1.3. The trainee does not need to accomplish an AF Form 1800 during the Air Force Performance Test.

7.6.3.1.4. Automatic failures. Automatic failures will result in the immediate termination of the Performance Test. See **Attachment 4** for a list of automatic failures applicable to the Air Force Performance Test, Vehicle Inspection Test.

7.6.3.1.4.1. If the trainee fails the Vehicle Inspection Test, the remainder of the test will be terminated. Retraining and re-examination will be conducted IAW AFI 24-301 and AFQTP 24-3-200.

7.6.3.1.4.2. If a trainee fails any component of the Air Force Performance Test, he/she will be required to retake the Air Force Performance Test, in its entirety.

7.6.3.2. Basic Control Skills Test. The trainee will be tested on his/her skill to control the vehicle. The trainee will be asked to move the vehicle forward, backward, and turn it with a defined area. These areas may be marked with traffic lanes, cones, barriers or something similar. The examiner will explain how to complete each control test. See **Attachment 4** of this AFQTP and Section 12 of the AAMVA *CDL Manual* for additional guidance and for descriptions of the required maneuvers.

7.6.3.2.1. Required Basic Control Skills Test maneuvers:

7.6.3.2.1.1. Straight line backing.

7.6.3.2.1.2. Offset back/right or offset back left.

7.6.3.2.1.3. Parallel park (operator side), parallel park (conventional) or alley dock.

7.6.3.2.2. Basic Control Skills Test Scoring.

7.6.3.2.2.1. Encroachments. The examiner will score the number of times that the trainee touches or crosses over an exercise boundary line or cone with any portion of the vehicle. Each encroachment will count as an error.

7.6.3.2.2.2. Pull-ups. When an operator stops and pulls forward to clear an encroachment or to get a better position, it is scored as a pull-up. Stopping without changing directions does not count as a pull-up. The trainee will not be penalized for initial pull-ups. However, an excessive number of pull-ups, will count as errors.

7.6.3.2.2.3. Outside vehicle observations (Looks). The trainee may be permitted to safely stop and exit the vehicle to check the external position of the vehicle (look). When doing so, the trainee must place the vehicle in neutral and set the parking brake(s). If exiting the vehicle, the trainee must do so safely by facing the vehicle and maintaining three points of contact with the vehicle at all times. If the trainee does not safely secure the vehicle or safely exit the vehicle may result in an automatic failure of the basic control skills test.

7.6.3.2.2.3.1. The maximum number of times that the trainee may look to check the position of the vehicle is two (2) except for the Straight Line Backing exercise, which allows one look. Each time the operator opens the door, moves from a seated position where in physical control of the vehicle, it is scored as a "look".

7.6.3.2.2.4. Final position/inside parallel. It is important that the trainee finish each exercise exactly as the examiner has instructed. If the trainee does not maneuver the vehicle into its final position as described by the examiner, the trainee will be penalized and could fail the basic skills test.

7.6.3.2.3. Automatic failures. Automatic failures will result in the immediate termination of the Air Force Performance Test. See **Attachment 4** for a list of automatic failures applicable to the Basic Control Skills Test. If a trainee fails any component of the Air Force Performance Test, he/she will be required to retake the Air Force Performance Test, in its entirety.

7.6.3.3. Road Test. The trainee will be tested on his/her skill to safely operate the vehicle in a variety of traffic situations. The situations will include left and right turns, intersections, railroad crossings, curves, up and down grades, single and multi-lane roads, streets and highways. The examiner will tell the trainee where to drive.

7.6.3.3.1. The following maneuvers will be demonstrated on the on the road test (See Section 13 of the AAMVA *CDL Manual* and **Attachment 4** of this AFQTP for additional guidance and detailed descriptions of each maneuver):

7.6.3.3.1.1. Turns (Left/Right).

7.6.3.3.1.2. Intersections.

7.6.3.3.1.3. Urban/rural straight.

7.6.3.3.1.4. Expressway.

7.6.3.3.1.5. Start/stop.

7.6.3.3.1.6. Curves (Left/Right).

7.6.3.3.1.7. Upgrades.

7.6.3.3.1.8. Downgrades.

7.6.3.3.1.9. Railroad crossing/simulated railroad crossing.

7.6.3.3.1.10. Bridge/overpass.

7.6.3.3.2. Road Test scoring. For detailed descriptions and scoring expectations of each maneuver, see the Section 13 of the AAMVA *CDL Manual* and **Attachment 4** of this lesson plan.

7.6.3.3.3. Automatic failures. Automatic failures will result in the immediate termination of the Air Force Performance Test. See **Attachment 4** for a list of automatic failures applicable to the Road Test. If a trainee fails any component of the Air Force Performance Test, he/she will be required to retake the Air Force Performance Test, in its entirety.

7.6.4. During the performance test, the examiner will:

7.6.4.1. 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).

7.6.4.1.1. Chock wheel (if required) when tractor-trailer is parked.

7.6.4.1.2. Remove all jewelry and identification tags.

7.6.4.1.3. Personal protective equipment and safety equipment.

7.6.4.1.4. First aid kit.

7.6.4.1.5. Warning triangles.

7.6.4.1.6. Inclement weather gear, etc.

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

7.6.4.3. Ensure trainee wears seat belt.

7.6.4.4. Ensure operator’s seat and all mirrors are properly adjusted.

7.6.4.5. Follow tractor-trailer safety items/procedures.

7.6.4.6. Ensure the operator is aware of driving situations he/she is to perform.

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

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

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

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

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

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

AFQTP 24-3-200, *Training, Validation and Operations Examiner's Manual*, 1 April 2017

AAMVA, *Commercial Driver's License (CDL) Manual*

Title 49 CFR Parts 300-399, *Federal Motor Carriers*, 23 August 2013

DoDM 4500.36, *Acquisition, Management, and Use of DoD Non-Tactical Vehicles*, 7 July 2015

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*, 1 April 2010

DD Form 518, *Accident Identification Card*, October 1978

SF 91, *Motor Vehicle Accident Report*, February 2004

Abbreviations and Acronyms

AAMVA—American Association of Motor Vehicle Administrators

ABS—Antilock Brake System

AFI—Air Force Instruction

AFIMSC—Air Force Installation Mission and Support Center

AFMAN—Air Force Manual

AFQTP—Air Force Qualification Training Plan

CDL—Commercial Driver's License

CFR—Code of Federal Regulations

CMV—Commercial Motor Vehicle

DoD—Department of Defense

DoDM—Department of Defense Manual

DOT—Department of Transportation

FMSCA—Federal Motor Carrier Safety Administration

FMCSR—Federal Motor Carrier Safety Regulation

GMV—Government Motor Vehicle

GVWR—Gross Vehicle Weight Rating

HAZMAT—Hazardous Materials

IAW—In Accordance With

MPH—Miles per Hour

PSI—Pounds per Square Inch

RM—Risk Management

TBA—Training Business Area

TDY—Temporary Duty

TO—Technical Order

TVO—Training Validation and Operations

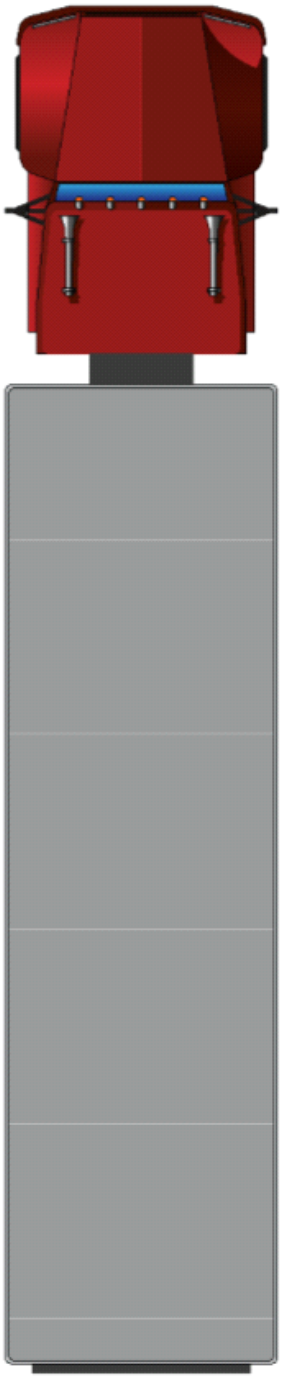
USAF—United States Air Force

VCO—Vehicle Control Official

Attachment 2

TRACTOR-TRAILER MEMORY AID

CDL VEHICLE INSPECTION MEMORY AID
Combination Vehicles



Front of Vehicle, Lights/Reflectors, Engine Compartment & Steering Components

Steering Axle:
- Suspension
- Brakes
- Tires

Driver Door

Fuel Area

Under Vehicle:
- Drive Shaft
- Exhaust
- Frame

Drive Axle(s):
- Suspension
- Brakes
- Tires

Coupling Devices:
- Truck
- Trailer

Rear of Truck/Tractor & Lights/Reflectors

Trailer Components Front, Side, Lights & Reflectors
- Frame
- Landing Gear
- Tandem Release

Trailer Axle(s):
- Suspension
- Brakes
- Tires

Rear of Trailer & Lights/Reflectors

Attachment 3

TRACTOR-TRAILER PERFORMANCE TEST FRAMEWORK

A3.1. Desired Learning Outcome.

A3.1.1. Understand the purpose of the tractor-trailer and its role in the mission.

A3.1.2. Be able to safely and proficiently operate the air brake system.

A3.1.3. Know the proper operator maintenance procedures of the tractor-trailer, IAW applicable manufacturer's operator's manual, the seven-step inspection process and the vehicle inspection guide.

A3.1.4. Understand the safety precautions to be followed pre-, during-, and post-operation of the tractor-trailer and the air brake system.

A3.1.5. Know, understand and safely demonstrate the steps for coupling/uncoupling the trailer.

A3.1.6. Be able to safely and proficiently operate the tractor-trailer.

Note: This checklist serves to provide the minimum requirements to TVO staff for developing the required performance test for installations that have not transitioned to the AAMVA model. The performance test, administered by the TVO Examiner, (in addition to the required written test(s)) is the only official evaluation used to license the individual on the tractor-trailer. This checklist also is a training tool intended to assist the trainer in preparing the trainee for being evaluated and licensed to operate the tractor-trailer through the Air Force Performance Test administered by the TVO Examiner.

A3.2. Instructions. Before beginning the tractor-trailer performance test, the examiner will brief the trainee on the scenario that he/she will need to accomplish. The trainee will be given additional directions and instructions as needed as he/she proceeds through the scenario.

A3.3. Scoring.

A3.3.1. The examiner will be scoring the trainee on tractor-trailer 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. The trainee will not be asked to drive in an unsafe manner.

A3.3.2. The examiner will be making various marks on the tractor-trailer performance test checklist. This does not necessarily mean the trainee has done anything wrong. It is in the best interest of the trainee to concentrate on the operation of the tractor-trailer. The examiner will explain the test results to the trainee at the conclusion of the tractor-trailer 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 performance test at any time safe tractor-trailer operations are not being followed or as deemed necessary for safety concerns.

Figure A3.1. Tractor-Trailer Performance Test Framework (Non-AAMVA Model Installations):

Note: For objectives that the trainee will not perform due to vehicle type restrictions (e.g. no manual transmission, trainee will not perform Paragraph 3.2. *Clutch and Transmission*) annotate "N/A" in each "Go" column to the right of the objective not performed.

TRACTOR-TRAILER PERFORMANCE TEST (Minimum Requirements)			
Trainees Name:		**Date:**	
Event	**Go**	**No Go**	**Notes**
1. PRE, DURING, AND POST- OPERATION INSPECTION			
1.1. Operator has required Personal Protective Equipment.			
1.2. Completes air brakes system check.			
1.3. Completes walk-around inspection and accurately identifies all components. (Can use **Attachment 2**).			
1.4. Continues during operation inspection checks, as needed.			
1.5. Knows use of jacks, tools, emergency devices, tire chains, fire extinguishers, etc.			
1.7. Performs post trip inspection and reports malfunctions to Vehicle Management.			
Event:	**Go**	**No Go**	**Notes**
2A. COUPLING TRACTOR-TRAILER:			
Step 1. Inspect Fifth Wheel.			
Step 2. Inspect Area and Chock Wheels.			
Step 3. Position Tractor.			
Step 4. Secure Tractor.			
Step 5. Check Trailer Height.			
Step 6. Connect Air Lines to Trailer.			
Step 7. Supply Air to Trailer.			
Step 8. Lock Trailer Brakes - Pull out the "air supply" knob.			
Step 9. Back Under Trailer.			
Step 10. Check Connection for Security.			
Step 11. Secure Vehicle.			
Step 12. Inspect Coupling.			

Step 13. Connect the Electrical Cord and Check Air Lines.			
Step 14. Raise Front Trailer Supports (Landing Gear).			
Step 15. Remove Trailer Wheel Chocks – Remove and store in a safe place.			
Event:	**Go**	**No Go**	**Notes**
2B. UNCOUPLING TRACTOR-TRAILER:			
Step 1. Position Tractor.			
Step 2. Ease Pressure on Locking Jaws.			
Step 3. Chock Trailer Wheels - Chock the trailer wheels if the trailer doesn't have spring brakes or if uncertain.			
Step 4. Lower The Landing Gear.			
Step 5. Disconnect Air Lines and Electrical Cable.			
Step 6. Unlock Fifth Wheel.			
Step 7. Pull Tractor Partially Clear of Trailer.			
Step 8. Secure Tractor - Apply parking brake and place transmission in neutral.			
Step 9. Inspect Trailer Supports.			
Step 10. Pull Tractor Clear of Trailer.			
Event	**Go**	**No Go**	**Notes**
3. ON-ROAD DRIVING TEST			
3.1. General - safety belt is used; obeys all traffic signs, signals, and laws; completes test without an accident or moving violation.			
3.2. Turns (2 Right/2 Left) - 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.			

3.3. Intersections (2 Stopped/2 Through) - 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 stop lines.			
3.4. 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.			
3.5. 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.			
3.6. Stopping - decelerates smoothly, brakes evenly, changes gears as necessary; brings vehicle to a full stop without coasting.			
3.7. Starting - checks traffic, avoids jerky starts.			
3.8. Curves (Right/Left) - before entering the curve, reduces speed and is in proper gear; keeps vehicle in the lane; continues checking traffic in all directions.			
3.9. 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.			
3.10. Downgrade - downshifts as needed to help control engine speed and test brakes; does not ride the clutch, race the engine, change gears, or coast.			

3.11. Railroad Crossing/Simulated 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.			
3.12. 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.			
3.13. Roadside Stop/Start – See **Attachment 4**.			
Event	**Go**	**No Go**	**Notes**
4. KNOWLEDGE OF VEHICLE AND USE OF CONTROLS			
4.1. Engine:			
Uses proper starting procedures			
Allows proper warm-up.			
Understands all gauges.			
Uses proper shutdown procedures.			
Basic knowledge of engines.			
4.2. Clutch and Transmission.			
Understands proper clutching techniques.			
Uses clutch properly through all gears.			
Shifts smoothly.			
Time shifts properly.			
Avoids riding the clutch.			
Proper use of tachometer and shifting range.			
Avoids bumping the governor.			
4.3. 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.			
Understands the principle of front wheel limiting switch.			
Proper use of parking brake.			

Ensures air tank is at full tank pressure prior to moving the vehicle.			
Performs brake check (tractor and trailer) before pulling out.			
Event:	**Go**	**No Go**	**Notes**
5. BACKING/PARKING:			
5.1. Backing			
Positions rig properly.			
Inspects rig before backing.			
Post guide before backing and uses spotters properly.			
Uses mirrors properly.			
Avoids blind side backing.			
Controls speed.			
Takes more than three pull-ups on jackknife backing.			
Takes more than two pull-ups on straight line backing.			
5.2. Parking.			
Checks traffic position before parking.			
Secures rig properly.			
Parks legally and safely.			
Pulls completely off pavement when possible.			
Knows proper use of emergency warning devices.			
Uses emergency warning devices.			
CERTIFIER COMMENTS:			

Attachment 4

AIR FORCE PERFORMANCE TEST GUIDE

A4.1. Air Force Performance Test Overview. The trainee/trainee should be able to demonstrate the following maneuvers (See **Section 7**). This guide should be used as a tool to prepare the trainee for his/her Air Force Performance Test.

A4.2. Time Limit: Class A Vehicles: 4 Hours 30 Minutes.

VEHICLE INSPECTION TEST

A4.3. Vehicle Inspection Test Overview (Required). The Vehicle Inspection Test (including Air Brakes test) must be successfully completed prior to being administered the remainder of the Air Force Performance Test (Basic Control Skills Test/Road Test). The trainee is permitted to use the Tractor-Trailer Inspection Memory Aid found in **Attachment 2**. Additional guidance for the Vehicle Inspection Test requirements can be found in **Section 7** and in the AAMVA *CDL Manual* (Section 11). Failure of the Vehicle Inspection Test will terminate the test, requiring the trainee to return at a later date approved by the trainer and examiner IAW AFI 24-301 and AFQTP 24-3-200.

A4.4. Air Brake System Test. The operator will be required to inspect the Air Brake System as a part of the performance test and as a part of the walk-around inspection, for daily operations, once licensed on the vehicle. When inspecting air brakes, the following 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 6**.

A4.5. Coupling/Uncoupling Demonstration. Coupling/uncoupling. The trainee will be required to demonstrate his/her knowledge and understanding of coupling/uncoupling of the trailer, following the walk-around inspection, during the performance test. For step-by-step guidance, see **Attachment 5.**

A4.6. Time Limit: Class A Vehicles: 1 Hour 30 Minutes.

Table A4.1. Vehicle Inspection Test Automatic Failures. Note: The Vehicle Inspection Test will be terminated and the trainee will receive an automatic failure for any of the items listed below.

Automatic Failure		Description
1	Air brakes test	The operator must demonstrate and verbalize all three air brake checks correctly to receive credit in the scoring box. If the operator fails to do all three parts of the check correctly, it is scored as an automatic failure for the Vehicle Inspection Test.
2	Violates law	The operator has a moving traffic violation or disobeys signs and signals.
3	Commits an unsafe act	The operator commits any act that creates a dangerous or unsafe traffic environment.
4	Failure to follow instructions.	If the trainee fails to adhere to the instructions given by the Examiner, he/she will be given one warning. If the trainee again fails to adhere to the instructions given by the Examiner, the Vehicle Inspection Test will be terminated and the trainee will receive an automatic failure.

BASIC CONTROL SKILLS TEST

A4.7. Basic Control Skills Test Overview (Required). The Basic Control Skills Test must be successfully completed prior to being administered the Road Test component of the Air Force Performance Test. Additional guidance for the Basic Control Skills Test requirements can be found in Section 12 in the AAMVA *CDL Manual*. Failure of the Basic Control Skills Test will terminate the test, requiring the trainee to return at a later date approved by the trainer and examiner IAW AFI 24-301 and AFQTP 24-3-200.

Note: During the Basic Control Skills Test (ONLY), a spotter is not required during backing exercises. The TVO Examiner will ensure safety during each maneuver. If, at any time during the test, the TVO Examiner feels the operator or external factors could cause a safety mishap, he or she will immediately direct the operator to stop the vehicle. The operator will not continue until the TVO Examiner permits.

A4.8. Time Limit: Class A Vehicles: 1 Hour.

Table A4.2. Basic Control Skills Test Automatic Failures. Note: The Basic Control Skills Test will be terminated and the trainee will receive an automatic failure for any item listed below.

Automatic Failure		Description
1	Violates law	The operator has a moving traffic violation or disobeys signs and signals.
2	Fails to use seatbelt.	The operator fails to use his/her seatbelt during the Basic Controls Skills Test.
3	Fails to secure the vehicle when not in the operator's seat.	During components when the operator is permitted "Look(s)" to check the vehicle position, the operator fails to safely secure the vehicle.
4	Commits an unsafe act	The operator commits any act that creates a dangerous or unsafe traffic environment (i.e. near accident).
5	Failure to follow instructions.	If the trainee fails to adhere to the instructions given by the Examiner, he/she will be given one warning. If the trainee fails to adhere to the instructions given by the Examiner, he/she will be given one warning. If the trainee again fails to adhere to the instructions given by the Examiner, the Basic Control Skills Test will be terminated and the trainee will receive an automatic failure.

A4.9. Straight Line Backing. The trainee will be asked to back the vehicle in a straight line between two rows of cones without touching or crossing over the exercise boundaries. See **Figure A4.1.**

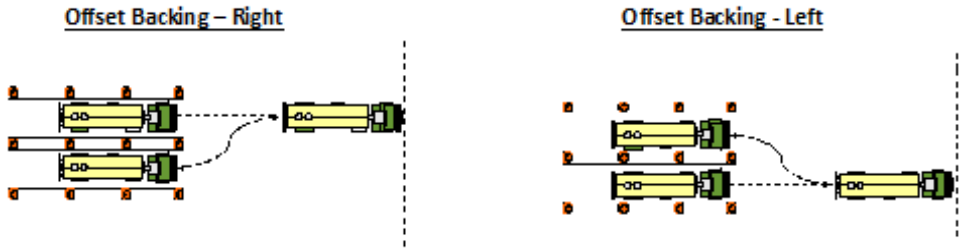
Figure A4.1. Straight Line Backing.

A4.10. Offset Backing (<u>One</u> of the following maneuvers required).

A4.10.1. Offset Backing – Right. The trainee will be asked to back the vehicle into a space that is to the right rear of the vehicle. The trainee will drive straight forward the outer boundary. From that position, the trainee must back the vehicle into the opposite lane until the front of the vehicle has passed the first set of cones without striking boundary lines or cones. See **Figure A4.2.**

A4.10.2. Offset Backing – Left. The trainee will be asked to back the vehicle into a space that is to the left rear of the vehicle. The trainee will drive straight forward the outer boundary. From that position, the trainee must back the vehicle into the opposite lane until the front of the vehicle has passed the first set of cones without striking boundary lines or cones. See **Figure A4.2.**

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

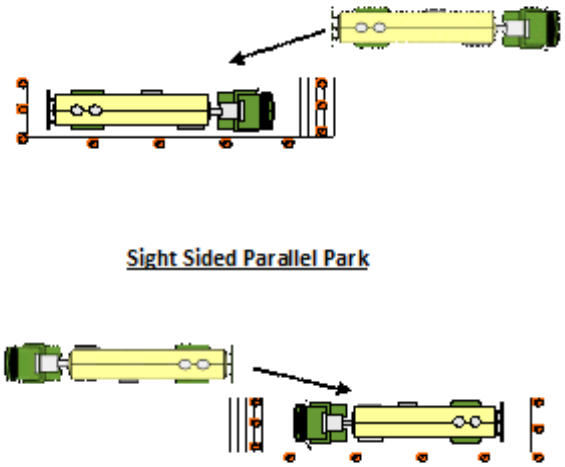


A4.11. Parallel Parking (<u>One</u> of the following maneuvers required).

A4.11.1. Parallel Parking – Operator Side. The trainee will be asked to park in a parallel parking space that is on the left. The trainee will drive past the entrance to the parallel parking space with the vehicle parallel to the parking area; and back into the space without crossing front, side or rear boundaries marked by cones. The trainee is required to get the entire vehicle completely into the space. See **Figure A4.3.**

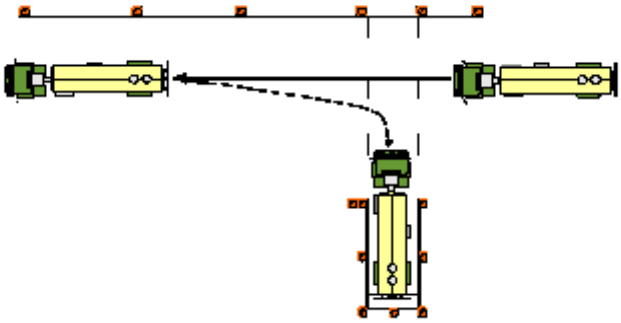
A4.11.2. Parallel Parking – Conventional. The trainee will be asked to park in a parallel parking space that is on the right. The trainee will drive past the entrance to the parallel parking space with the vehicle parallel to the parking area; and back into the space without crossing front, side or rear boundaries marked by cones. The trainee is required to get the entire vehicle completely in the space. See **Figure A4.3.**

Figure A4.3. Parallel Parking.



A4.11.3. Alley Dock. The trainee will be asked to sight-side back the vehicle into an alley. The trainee will drive past the alley and position the vehicle parallel to the outer boundary. From that position, the trainee will back into the alley bringing the rear of the vehicle within three feet of the rear of the alley without touching boundary lines or cones. The vehicle must be straight within the alley/lane when the trainee has completed the maneuver. See **Figure A4.4.**

Figure A4.4. Alley Dock.



ROAD TEST

A4.12. Road Test Overview (Required). The Road Test must be successfully completed prior to being licensed on the vehicle. Additional guidance for the Road Test requirements can be found in Section 13 in the AAMVA *CDL Manual*. Failure of the Road Test will terminate the Air Force Performance Test, requiring the trainee to return at a later date approved by the trainer and examiner IAW AFI 24-301 and AFQTP 24-3-200.

A4.12.1. During the Road Test, the trainee will drive over a test route that has a variety of traffic situations. At all times during the test, the trainee must drive in a safe and responsible manner, wear his/her seatbelt, abide by local, state and federal law, obey all traffic signs and signals and complete the test without an accident or moving violation.

A4.12.2. During the Road Test, the examiner will be scoring the trainee on specific driving maneuvers as well as on general driving behavior. The trainee must follow directions of the examiner. Directions will be given to the trainee so that he/she will have ample time to complete each direction. The trainee will not be asked to drive in an unsafe manner.

A4.12.3. If the test route does not have certain traffic situations, the trainee may be asked to simulate a traffic situation by telling the examiner what he/she are or would be doing if in the traffic situation identified.

A4.13. Time Limit: Class A Vehicles: 2 Hours.

Table A4.3. Road Test Automatic Failures. Note: The Road Test will be terminated and the trainee will receive an automatic failure for any item listed below.

Automatic Failure		Description
1	Violates law	The operator has a moving traffic violation or disobeys signs and signals.
2	Fails to use seatbelt.	The operator fails to use his/her seatbelt during the Road Test.
3	Commits an unsafe act	The operator commits any act that creates a dangerous or unsafe traffic environment (i.e. near accident).
4	Examiner takes control	The operator forces the examiner to take verbal or physical control of the vehicle.
5	Drives over curb	The operator puts the vehicle over sidewalk/curb.
6	Does not yield to others	The operator does not give right-of-way to pedestrians or other vehicles during operator maneuvers. The operator makes physical contact with other vehicles, objects, pedestrians, etc. Drivers of other vehicles or pedestrians were forced to take evasive actions.
7	Failure to follow instructions.	If the trainee fails to adhere to the instructions given by the Examiner, he/she will be given one warning. If the trainee fails to adhere to the instructions given by the Examiner, he/she will be given one warning. If the trainee again fails to adhere to the instructions given by the Examiner, the Road Test will be terminated and the trainee will receive an automatic failure.

A4.14. General Driving Behaviors. The trainee will be scored on his/her overall performance in the following general driving behavior categories:

A4.14.1. Clutch Usage (for Manual Transmission).

A4.14.1.1. Always use clutch to shift.

A4.14.1.2. Must double-clutch when shifting. Do not rev or lug the engine.

A4.14.1.3. Do not ride clutch to control speed, coast with the clutch depressed, or “pop” the clutch.

A4.14.2. Gear Usage (for Manual Transmission).

A4.14.2.1. Do not grind or clash gears.

A4.14.2.2. Select gear that does not rev or lug engine.

A4.14.2.3. Do not shift in turns and intersections.

A4.14.3. Brake Usage.

A4.14.3.1. Do not ride or pump brake.

A4.14.3.2. Do not brake harshly. Brake smoothly using steady pressure.

A4.14.4. Lane Usage.

A4.14.4.1. Do not put vehicle over curbs, sidewalks, or lane markings.

A4.14.4.2. Stop behind stop lines, crosswalks, or stop signs.

A4.14.4.3. Complete a turn in the proper lane on a multiple lane road (vehicle should finish a left turn in the lane directly to the right of the center line).

A4.14.4.4. Finish a right turn in the right-most (curb) lane.

A4.14.4.5. Move to or remain in right-most lane unless lane is blocked.

A4.14.5. Steering.

A4.14.5.1. Do not over or under steer the vehicle.

A4.14.5.2. Keep both hands on the steering wheel at all times unless shifting. Once the trainee has completed shift, return both hands to the steering wheel.

A4.14.6. Regular Traffic Checks.

A4.14.6.1. Check traffic regularly.

A4.14.6.2. Check mirrors regularly.

A4.14.6.3. Check mirrors and traffic before, while in and after an intersection.

A4.14.6.4. Scan and check traffic in high volume areas and areas where pedestrians are expected to be present.

A4.14.7. Use of Turn Signals.

A4.14.7.1. Use turn signals properly.

A4.14.7.2. Activate turn signals when required.

A4.14.7.3. Activate turn signals at appropriate times.

A4.14.7.4. Cancel turn signals upon completion of a turn or lane change.

A4.15. Left/Right Turn. Once the trainee has been asked to make a turn, he/she will do the following:

A4.15.1. Check traffic in all directions.

A4.15.2. Use turn signals and safely get into the lane needed for the turn.

A4.15.3. As the trainee approaches the turn he/she will:

A4.15.3.1. Use turn signals to warn others of his/her turn.

A4.15.3.2. Slow down smoothly, change gears as needed to keep power, but will not coast unsafely. Unsafe coasting occurs when the vehicle is out of gear (clutch depressed or gearshift in neutral) for more than the length of the vehicle.

A4.15.4. If the trainee must stop before making the turn, he/she will:

A4.15.4.1. Come to a smooth stop without skidding.

A4.15.4.2. Come to a complete stop behind the stop line, crosswalk, or stop sign.

A4.15.4.3. If stopping behind another vehicle, the trainee will stop where he/she can see the rear tires on the vehicle ahead. (safe gap).

A4.15.4.4. Not let the vehicle roll.

A4.15.4.5. Keep the front wheels aimed straight ahead.

A4.15.5. When ready to turn, the trainee will:

A4.15.5.1. Check traffic in all directions.

A4.15.5.2. Keep both hands on the steering wheel during the turn.

A4.15.5.3. Keep checking the mirror to make sure the vehicle does not hit anything on the inside of the turn.

A4.15.5.4. Keep the vehicle from moving into oncoming traffic.

A4.15.5.5. Finish turn with the vehicle in the correct lane.

A4.15.6. After turn, the trainee will:

A4.15.6.1. Make sure turn signal is off.

A4.15.6.2. Get up to speed of traffic, use turn signal, and move into right-most lane when safe to do so (if not already there).

A4.15.6.3. Check mirrors and traffic.

A4.16. Lane Change. During multiple lane portions of the test, the trainee will be asked to change lanes to the left, and then back to the right. The trainee should make the necessary traffic checks first, then use the proper signals and smoothly change lanes when it is safe to do so.

A4.17. Urban Highway. During this part of the test, the trainee is expected to make regular traffic checks and maintain a safe following distance. The vehicle should be centered in the proper lane (right-most lane) and the trainee should keep up with the flow of traffic but not exceed the posted speed limit.

A4.18. Intersections. During this part of the test, the trainee should observe the following criteria:

A4.18.1. As the trainee approaches an intersection, he/she will:

A4.18.1.1. Check traffic thoroughly in all directions.

A4.18.1.2. Decelerate gently.

A4.18.1.3. Brake smoothly and, if necessary, change gears.

A4.18.1.4. If necessary, come to a complete stop (no coasting) behind any stop signs, signals, sidewalks, or stop lines maintaining a safe gap behind any other vehicle in front of his/her vehicle.

A4.18.1.5. Not let the vehicle roll forward or backward.

A4.18.2. When driving through an intersection, the trainee will:

A4.18.2.1. Check traffic thoroughly in all directions.

A4.18.2.2. Decelerate and yield to any pedestrians and traffic in the intersection.

A4.18.2.3. No change lanes while proceeding through the intersection.

A4.18.2.4. Keep his/her hands on the wheel.

A4.18.3. Once the trainee is through the intersection, he/she will:

A4.18.3.1. Continue checking mirrors and traffic.

A4.18.3.2. Accelerate smoothly and change gears as necessary.

A4.19. Railroad Crossing. Not all driving road tests will have a railroad crossing. Instead, the trainee may be asked to explain and demonstrate the proper railroad crossing procedures to the examiner at a simulated location.

A4.19.1. Before reaching the crossing, all vehicle operators will:

A4.19.1.1. Decelerate, brake smoothly, and shift gears as necessary.

A4.19.1.2. Look and listen for the presence of trains.

A4.19.1.3. Check traffic in all directions.

A4.19.1.4. Not stop, change gears, pass another vehicle, or change lanes while any part of the vehicle is in the crossing.

A4.19.2. If the trainee is driving a vehicle displaying placards, the trainee should be prepared to observe the following procedures at every railroad crossing, unless the crossing is exempt:

A4.19.2.1. As the vehicle approaches a railroad crossing, activate the four-way flashers.

A4.19.2.2. Stop the vehicle within 50 feet but not less than 15 feet from the nearest rail.

A4.19.2.3. Listen and look in both directions along the track for an approaching train and for signals indicating the approach of a train.

A4.19.2.4. Keep hands on the steering wheel as the vehicle crosses the tracks.

A4.19.2.5. Do not stop, change gears, or change lanes while any part of the vehicle is proceeding across the tracks.

A4.19.2.6. Four-way flashers should be deactivated after the vehicle crosses the tracks.

A4.19.2.7. Continue to check mirrors and traffic.

A4.20. Curves. When the trainee approaches a curve, he/she should:

A4.20.1. Check traffic thoroughly in all directions.

A4.20.2. Before entering the curve, reduce speed so further braking or shifting is not required in the curve.

A4.20.3. Keep the vehicle in the lane.

A4.20.4. Continue checking traffic in all directions.

A4.21. Expressway. For this section of the test the trainee should observe the following:

A4.21.1. Before entering the expressway:

A4.21.1.1. Check traffic.

A4.21.1.2. Use proper signals.

A4.21.1.3. Merge smoothly into the proper lane of traffic.

A4.21.2. Once on the expressway:

A4.21.2.1. Maintain proper lane positioning, vehicle spacing, and vehicle speed.

A4.21.2.2. Continue to check traffic thoroughly in all directions.

A4.21.3. When exiting the expressway:

A4.21.3.1. Make necessary traffic checks.

A4.21.3.2. Use proper signals.

A4.21.3.3. Decelerate smoothly in the exit lane.

A4.21.3.4. Once on the exit ramp, the trainee must continue to decelerate within the lane markings and maintain adequate spacing between his/her vehicle and other vehicles.

A4.22. Roadside Stop/Start. For this maneuver, the trainee will be asked to pull the vehicle over to the side of the road and stop as if the trainee were going to get out and check something on the vehicle. The trainee must check traffic thoroughly in all directions and move to the right-most lane or shoulder of the road.

A4.22.1. As the trainee prepares for the stop:

A4.22.1.1. Check traffic.

A4.22.1.2. Activate the right turn signal.

A4.22.1.3. Decelerate smoothly, brake evenly, change gears as necessary.

A4.22.1.4. Bring the vehicle to a full stop without coasting.

A4.22.2. Once stopped:

A4.22.2.1. Vehicle must be parallel to the curb or shoulder of the road and safely out of the traffic flow.

A4.22.2.2. Vehicle should not be blocking driveways, fire hydrants, intersections, signs, etc.

A4.22.2.3. Cancel the turn signal.

A4.22.2.4. Activate the four-way emergency flashers.

A4.22.2.5. Apply the parking brake.

A4.22.2.6. Move the gear shift to neutral or park.

A4.22.2.7. Remove feet from the brake and clutch pedals.

A4.22.3. When the trainee is told to resume, he/she should:

A4.22.3.1. Check traffic and mirrors thoroughly in all directions.

A4.22.3.2. Turn-off the four-way flashers.

A4.22.3.3. Activate the left turn signal.

A4.22.3.4. When traffic permits, the trainee should release the parking brake and pull straight ahead.

A4.22.3.5. Not turn the wheel before the vehicle moves.

A4.22.3.6. Check traffic from all directions especially to the left.

A4.22.3.7. Steer and accelerate smoothly into the proper lane when safe to do so.

A4.22.3.8. Once the vehicle is back into the flow of traffic, cancel the left turn signal.

A4.23. Low Clearance, Weight Restriction, or Traffic Sign. After driving under an overpass, the trainee may be asked to tell the examiner what the posted clearance or height was. After going over a bridge, the trainee may be asked to tell the examiner what the posted weight limit was. If the test route does not have a bridge or overpass, the trainee may be asked about another traffic sign. When asked, the trainee should be prepared to identify and explain to the examiner any traffic sign which may appear on the route.

Attachment 5

TRACTOR-TRAILER COUPLING/UNCOUPLING GUIDE

Figure A5.1. Coupling Tractor-Semitrailers.

Coupling Tractor-Semitrailers	
Step	**Procedure**
1. Inspect Fifth Wheel	• Check for damaged/missing parts. • Check to see that mounting to tractor is secure, no cracks in frame, etc. • Be sure that the fifth wheel plate is greased, if required. **Note:** Most Air Force assets use a Teflon plate. Do NOT grease the Teflon plate. • Check if fifth wheel is in proper position for coupling: o Wheel tilted down toward rear of tractor. o Jaws open. o Safety unlocking handle in the automatic lock position. o If the vehicle has a sliding fifth wheel, make sure it is locked. o Make sure the trailer kingpin is not bent or broken.
2. Inspect Area and Chock Wheels	• Make sure area around the vehicle is clear. • Be sure trailer wheels are chocked or spring brakes are on. • Check that cargo (if any) is secured against movement due to tractor being coupled to the trailer.
3. Position Tractor	• Put the tractor directly in front of the trailer. (Never back under the trailer at an angle because the trainee might push the trailer sideways and break the landing gear.)

	• Check position, using outside mirrors, by looking down both sides of the trailer.
4. Back Slowly	• Back until fifth wheel just touches the trailer. • Don't hit the trailer.
5. Secure Tractor	• Put on the parking brake. • Put transmission in neutral.
6. Check Trailer Height	• The trailer should be low enough that it is raised slightly by the tractor when the tractor is backed under it. Raise or lower the trailer as needed. (If the trailer is too low, the tractor may strike and damage the trailer nose; if the trailer is too high, it may not couple correctly). • Check that the kingpin and fifth wheel are aligned.
7. Connect Air-lines to Trailer	• Check glad hand seals and connect tractor emergency air-line to trailer emergency glad hand. • Check glad hand seals and connect tractor service air-line to trailer service glad hand. • Make sure air-lines are safely supported where they won't be crushed or caught while tractor is backing under the trailer.
8. Supply Air to Trailer	• Ensure trailer is chocked. • From cab, push in "air supply" knob or move tractor protection valve control from the "emergency" to the "normal" position to supply air to the trailer brake system. • Wait until the air pressure is normal. • Check brake system for crossed air-lines. • Shut engine off so the operator can hear the brakes.

	• Apply and release trailer brakes and listen for sound of trailer brakes being applied and released. The operator should hear the brakes move when applied and air escape when the brakes are released. • Check air brake system pressure gauge for signs of major air loss. • When the operator is sure trailer brakes are working, start engine. • Make sure air pressure is up to normal.
9. Lock Trailer Brakes	• Pull out the "air supply" knob or move the tractor protection valve control from "normal" to "emergency."
10. Back Under Trailer	• Use lowest reverse gear. • Back tractor slowly under trailer to avoid hitting the kingpin too hard. • Stop when the kingpin is locked into the fifth wheel.
11. Check Connection for Security	• Raise trailer landing gear slightly off the ground. • Pull tractor gently forward while the trailer brakes are still locked to check that the trailer is locked onto the tractor.
12. Secure Vehicle	• Put transmission in neutral. • Put parking brakes on. • Shut off engine and take key with so someone else won't move truck while the operator is under it.

13. Inspect Coupling	• Use a flashlight, if necessary. • Make sure there is no space between upper and lower fifth wheel. If there is a space between upper and lower fifth wheel. If there is space, something is wrong (kingpin may be on top of the closed fifth wheel jaws, and trailer would come lose very easily). • Go under trailer and look into the back of the fifth wheel. Make sure the fifth wheel jaws have closed around the shank of the kingpin. • Check that the locking lever is in the "lock" position. • Check that the safety latch is in position over locking lever. (On some fifth wheels the catch must be put in place by hand). • If the coupling isn't right, don't drive the coupled unit; get it fixed.
14. Connect the Electrical Cord and Check Air-Lines	• Plug the electrical cord into the trailer and fasten the safety catch. • Check both air-lines and electrical line for signs of damage. • Make sure air and electrical lines will not hit any moving parts of vehicle.
15. Raise Front Trailer Supports (Landing Gear)	• Use low gear range (if so equipped) to begin raising the landing gear. Once free of weight, switch to the high gear range. • Raise the landing gear all the way up. (Never drive with landing gear only part way up as it may catch on railroad tracks or other things.) • After raising landing gear, secure the crank handle safely. • When full weight of trailer is resting on tractor:

	• Check for enough clearance between rear of tractor frame and landing gear. (When tractor turns sharply, it must not hit landing gear). • Check that there is enough clearance between the top of the tractor tires and the nose of the trailer.
16. Remove Trailer Wheel Chocks	• Remove and store wheel chocks in a safe place.

Figure A5.2. Uncoupling Tractor-Semitrailers.

Uncoupling Tractor-Semitrailers	
Step	**Procedure**
1. Position Tractor-Trailer	• Make sure surface of parking area can support weight of trailer. • Have tractor lined up with the trailer. (Pulling out at an angle can damage landing gear.)
2. Ease Pressure on Locking-Jaws	• Shut off trailer air supply to lock trailer brakes. • Ease pressure on fifth wheel locking jaws by backing up gently. (This will help release the fifth wheel locking lever.) • Put parking brakes on while tractor is pushing against the kingpin. (This will hold rig with pressure off the locking jaws.)
3. Chock Trailer Wheels	• Chock the trailer wheels if the trailer doesn't have spring brakes or if uncertain. (The air could leak out of the trailer air tank, releasing its emergency brakes. Without chocks, the trailer could move.)
4. Lower the Landing Gear	• If trailer is empty, lower the landing gear until it makes firm contact with the ground.

	• If trailer is loaded, after the landing gear makes firm contact with the ground, turn crank in low gear a few extra turns. This will lift some weight off the tractor. (Do not lift trailer off the fifth wheel.) • This will: o Make it easier to unlatch fifth wheel. o Make it easier to couple next time.
5. Disconnect Air Lines and Electrical Cable	• Disconnect air-lines from trailer. Connect air-line glad hands to dummy couplers at back of cab or couple them together. • Hang electrical cable with plug down to prevent moisture from entering it. • Make sure lines are supported so they won't be damaged while driving the tractor.
6. Unlock Fifth Wheel	• Raise the release handle lock. • Pull the release handle to "open" position. • Keep legs and feet clear of the rear tractor wheels to avoid serious injury in case the vehicle moves.
7. Pull Tractor Partially Clear of Trailer	• Pull tractor forward until fifth wheel comes out from under the trailer. • Stop with tractor frame under trailer (prevents trailer from falling to ground if landing gear should collapse or sink).
8. Secure Trailer	• Apply parking brake. • Place transmission in neutral.
9. Inspect Trailer Supports	• Make sure ground is supporting trailer. • Make sure landing gear is not damaged.
10. Pull Tractor Clear of Trailer	• Release parking brakes. • Check the area and drive tractor forward until it clears.

Attachment 6

SEVEN-STEP INSPECTION PROCESS

Figure A6.1. Seven-Step Inspection Process.

Seven-Step Inspection Process	
Step	**Procedure**
1. Vehicle Overview	• Review the AF Form 1800. o Ensure any discrepancy has been corrected. o Vehicle Management annotated the discrepancy was completed. o Approaching the vehicle. ▪ Damage or vehicle leaning to one side. ▪ Fresh leakage of fluids. ▪ Hazards around vehicle.
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. • **Note:** For trailers only, if the yellow light on the left rear of the trailer stays on, the ABS is not working properly. • Look at the gauges. o <u>Oil pressure</u>. Should come up to normal within seconds after engine is started. o <u>Air pressure</u>. Pressure should build from 50 to 90 psi within 3 minutes. Build air pressure to governor cut-out (usually around 120 – 140 psi. Know the vehicle's requirements. o <u>Ammeter and/or voltmeter</u>. Should be in normal range(s). o <u>Coolant temperature</u>. Should begin gradual rise to normal operating range. o <u>Engine oil temperature</u>. 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: ▪ Steering wheel. ▪ Clutch. ▪ Accelerator (gas pedal). ▪ Brake controls. ▪ Foot brake. ▪ Trailer brake (if vehicle has one). ▪ Parking brake. ▪ Retarder controls (if vehicle has them). ▪ Transmission controls. ▪ Interaxle differential lock (if vehicle has one). ▪ Horn(s). ▪ Windshield wiper/washer. ▪ Lights. ▪ Headlights. ▪ Dimmer switch. ▪ Turn signal. ▪ Four-way flashers. ▪ 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: ▪ 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). 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. ▪ 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 Mustgrabsteering 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 Cargo securement (trucks). o Cargo properly blocked, braced, tied, chained, etc. Header board adequate, secure (if required). o Side boards, stakes strong enough, free of damage, properly set in place (if so equipped). o Canvas or tarp (if required) properly secured to prevent tearing, billowing, or blocking of mirrors.

	o If oversize, all required signs (flags, lamps, and reflectors) safely and properly mounted and all required permits in driver's possession. o Curbside cargo compartment doors in good condition, securely closed, latched/locked and required security seals in place. • Right rear. o Condition of wheels and rims--no missing, bent, or broken spacers, studs, clamps, or lugs. o Condition of tires--properly inflated, valve stems and caps OK, no serious cuts, bulges, tread wear, tires not rubbing each other, and nothing stuck between them. o Tires same type, 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 Cargo secure (trucks). o Cargo properly blocked, braced, tied, chained, etc. Tailboards up and properly secured. o End gates free of damage, properly secured in stake sockets. o Canvas or tarp (if required) properly secured to prevent tearing, billowing, or blocking of either the rearview mirrors or rear lights. o 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 driver's possession. 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). Release trailer parking brake (if applicable). Place vehicle into a low gear. o Gently pull forward against parking brake to make sure the parking brake holds. o Repeat the same steps for the trailer with trailer parking brake set and power unit parking brakes released (if applicable). 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. o Drivers of trucks and truck tractors when transporting cargo must inspect the securement of the cargo within the first 50 miles of a trip and every 150 miles or every 3 hours (whichever comes first) after. • Document any discrepancy on AF Form 1800. Sign-off AF Form 1800 to signify accomplishment of inspection.

Figure A6.2. 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.
7. Final Air Brake Check	• Test low pressure warning signal. o Shut the engine off when the vehicle has enough air pressure so that the low pressure warning signal is not on. o Turn the electrical power on. o Step on and off the brake pedal to reduce air tank pressure. o Low air pressure warning signal should come on before the pressure drops to less than 60 psi in the air tank with lowest pressure. • Check that the spring brakes come on automatically. o Chock the wheels. o Release the parking brakes when enough air pressure is built up. o Shut the engine off. o Step on and off the brake pedal to reduce the air tank pressure. o "Parking brake" knob should pop out when the air pressure falls to the manufacturer's specification. • Check rate of air pressure buildup o Refer to manufacturer’s recommendation for average buildup time.

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