

AIR FORCE
QUALIFICATION TRAINING PACKAGE (AFQTP)



FOR
PAVEMENTS AND CONSTRUCTION EQUIPMENT OPERATOR
(3E2X1)

MODULE 15
MATERIAL HANDLING EQUIPMENT

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MATERIAL HANDLING EQUIPMENT

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Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

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Career Field Education and Training Plan (CFETP) references from 5 August 2002 version.

OPR: HQ AFCESA/CEOF
(SMSgt James R. Faulkner)
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Certified by: HQ AFCESA/CEOF
(CMSgt Myrl F. Kibbe)
Pages: 164/Distribution F

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AIR FORCE QUALIFICATION TRAINING PACKAGES
FOR
PAVEMENTS AND CONSTRUCTION EQUIPMENT OPERATOR
(3E2X1)

INTRODUCTION

Before starting this AFQTP, refer to and read the "[AFQTP Trainer/Trainee Guide](#)."

AFQTPs are mandatory and must be completed to fulfill task knowledge requirements on core and diamond tasks for upgrade training. **It is important for the trainer and trainee to understand** that an AFQTP **does not** replace hands-on training, nor will completion of an AFQTP meet the requirement for core task certification. AFQTPs will be used in conjunction with applicable technical references and hands-on training.

AFQTPs and Certification and Testing (CerTest) must be used as minimum upgrade requirements for Diamond tasks.

MANDATORY minimum upgrade requirements:

Core task:

AFQTP completion
 Hands-on certification

Diamond task:

AFQTP completion
 CerTest completion (80% minimum to pass)

Note: *Trainees will receive hands-on certification training for Diamond Tasks when equipment becomes available either at home station or at a TDY location.*

Put this package to use. Subject matter experts under the direction and guidance of HQ AFCESA/CEOF revised this AFQTP. If you have any recommendations for improving this document, please contact the Career Field Manager at the address below.

HQ AFCESA/CEOF
 139 Barnes Dr Suite 1
 Tyndall AFB FL 32403-5319
 DSN: 523-6074, Comm: (850) 283-6074
 Fax: DSN 523-6488
 E-mail: ceof.helpdesk@tyndall.af.mil

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DUMP TRUCKS

MODULE 15

AFQTP UNIT 1

PERFORM OPERATIONAL CHECKS (15.1.1.)

PERFORM OPERATORS MAINTENANCE (15.1.2.)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON DUMP TRUCK

Task Training Guide

STS Reference Number/Title:	15.1.1. - Perform operational checks on dump truck. 15.1.2. - Perform operator's maintenance on dump truck.
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-1, Lesson 001: <i>Operator Inspection and Maintenance Procedures</i>. 2. Technical Order (TO) 36A series. 3. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 4. AF Form 1806, Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal). 5. Owner's manual. 6. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E231 AFSC. 2. Review the following references: <ol style="list-style-type: none"> 2.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-1, Lesson 001. 2.2. Applicable TO or owner's manual. 2.3. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections and Preventive Maintenance</i>. 2.4. AF Form 1806. 2.5. Local procedures.
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. Dump truck. 2. Personal safety equipment. 3. AF Form 1806. 4. Owner's manual.
Learning Objective:	The trainee will be able to perform operational checks and know exactly how to perform operator's maintenance on a dump truck.
Samples of Behavior:	The trainee will demonstrate the proper procedures for operational checks and operational maintenance.
Notes:	
<ol style="list-style-type: none"> 1. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, and safety glass/goggles and seat belts). 2. Any safety violation is an automatic failure. 	

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PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON A DUMP TRUCK

1. Background. There are several types of dump trucks in the Air Force. Specific preoperational inspection procedures will be found in the owner's manual that accompanied the equipment. Dump truck maintenance, like any other maintenance, is very important. If the machine is not running well, then how is the job going to get done? The main reason you inspect your equipment is to determine what maintenance, if any, is required. The more effective maintenance program we have for the equipment, the better our operation will run.

2. Operational Check Procedures. Follow these steps to perform daily operational checks on a dump truck:

Step 1: Utilizing AF Form 1806.

- 1.1. Check all items listed that pertain to the dumb truck.
- 1.2. Sign the AF Form 1806 after properly inspecting the equipment.

Step 2: Inspect Vehicle Exterior. Inspection of the vehicle exterior begins with a 360-degree walk-around looking for any damage and leaks.

- 2.1. Check wheels/tires for wear, lug nut tightness, leaks from hubs, and proper tire pressure.
- 2.2. Check mirrors and windows for cleanliness and cracks.
- 2.3. Check lights for broken lenses and burned out bulbs.
- 2.4. Check dump bed to make sure it is empty prior to use.
- 2.5. Check the pintle hook w/safety pin and make sure it is in working condition (if applicable).
- 2.6. Annotate any discrepancies found on the AF Form 1806 and notify supervisor.

HINT:

Puddles of fluid and dirty areas on the engine or ground normally indicate problem areas and should be investigated and reported to maintenance as soon as possible.

Step 3: Inspect Drive Engine / Battery Compartments.

- 3.1. Check the engine oil, coolant, power steering, brake, and transmission fluid (if applicable) and fill as needed.
- 3.2. Inspect engine drive belts for wear, tension, and alignment.
- 3.3. Ensure battery connections are secure and free from corrosion.

Step 4: Starting Procedures.

- 4.1. Place gear selector in neutral and insure that the parking brake is applied.
- 4.2. Turn the ignition switch to the start position. When engine starts, release the ignition switch. (See operator's manual for proper procedures for your truck).

CAUTION

DO NOT ENGAGE STARTER FOR MORE THAN THIRTY SECONDS AT A TIME. IF ENGINE DOES NOT START WITHIN THE THIRTY SECONDS, ALLOW THE STARTER TWO MINUTES TO COOL DOWN.

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4.3. Watch for the gauges to make sure they are functioning properly, when the engine starts. Let the engine idle for 3 to 5 minutes before any operation.

NOTE:

Make sure the dump bed is empty prior to dump bed function check.

Step 5: Dump Body Function Check.

- 5.1. Apply parking brakes; engage the Power Take Off (PTO) (see operator's manual for proper procedures for your truck).
- 5.2. Pull hydraulic control lever backward to raise the dump bed.
- 5.3. Disengage the PTO, when dump bed is all the way raised.
- 5.4. Push hydraulic control lever slowly forward, this will prevent the dump bed from slamming down.

3. Maintenance Program. Correct and timely operator maintenance ensures the equipment will do the job when needed and last longer, this saves the Air Force money. A good operator maintenance program includes inspections to detect and correct minor deficiencies before they develop into major defects that could result in loss time or costly repairs. It is the operator's responsibility to perform any minor maintenance needed.

4. Operators Maintenance Procedures. Follow these steps to perform operators maintenance on a dump truck:

Step 1: Clean Dump Truck.

- 1.1. Clean out any trash or debris from the inside of the cab daily.
- 1.2. Wash any dirt or grease from the vehicle; this will help you find the lubrication points on the specified lube chart.
- 1.3. Ensure the dump bed is empty and clean.

Step 2: Clean Air Intake Filter. Air intake filter are of special importance. There are generally two elements the inner and the outer.

- 2.1. Under dusty operating conditions clean both elements daily.
- 2.2. For cleaning procedures use guidelines stated in the operator's maintenance manual.

Step 3: Lubrication.

- 3.1. Lubricate the vehicle according to intervals listed in the maintenance chart. If operating the machine in severe conditions then lubrication would need to be accomplished more frequently.
- 3.2. Wipe grease fittings clean before and after any lubrication.

Step 4: Refueling.

- 4.1. Fuel the dump truck **at the end of each working day** to prevent moisture from condensing and forming droplets within the fuel tank.
- 4.2. Contact base fuels for them to come out to the job site if your equipment can't be driven to the service station.
- 4.3. Ensure the vehicle has a minimum of $\frac{3}{4}$ of a tank of fuel at the end of the duty day.

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**REVIEW QUESTIONS
FOR
PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON DUMP
TRUCK**

QUESTION	ANSWER
1. Operational inspections are only required once a month when the Vehicle NCO provides you with a new 1806.	a. True. b. False.
2. On a 360-degree walk around, what should you check for?	a. Leaks or puddles under the equipment. b. Loose lug nuts or flat tires. c. Look for broken parts. d. All of the above.
3. For the best connection, ensure the battery terminals:	a. Have a tight connection. b. Have good color and aren't extremely faded. c. Are free of corrosion. d. Both a and c.
4. How long should you let the vehicle warm up before any operation?	a. 1 to 2 min. b. 2 to 4 min. c. 3 to 5 min. d. 4 to 7 min.
5. The PTO should be disengaged:	a. After lowering the dump body. b. When pulling the vehicle forward. c. When advised by your spotter. d. When dump body has been all the way raised.
6. Why is cleaning an important part of vehicle maintenance?	a. To minimize breakdowns and save the AF money. b. It is required by AF Form 1806. c. Enables you to see any damage to the vehicle and locate lubrication points. d. It isn't important.
7. Ensure the vehicle always has at least ¼ of a tank of gas at the end of each duty day.	a. True. b. False.
8. Who is responsible for any minor maintenance needed?	a. Vehicle maintenance. b. Operator. c. Vehicle control officer. d. Operation Care Center.
9. Wipe all grease fittings before and after lubrication.	a. True. b. False.

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PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON DUMP TRUCK

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
Operational Checks		
1. utilize the AF Form 1806?		
2. check vehicle exterior?		
3. check fluid levels and fill as needed:		
4. inspect engine drive belts for wear, tension, and alignment?		
5. ensure battery connections are secure and free from corrosion?		
6. perform proper starting procedures?		
7. perform dump body function check?		
8. sign AF Form 1806?		
9. comply with all safety requirements?		
Operators Maintenance		
1. clean the vehicle?		
2. clean/replace the air intake filter?		
3. lubricate the dump truck according to the lube chart?		
4. refuel at the end of the duty day if needed?		
5. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

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DUMP TRUCKS

OPERATE

MODULE 15

AFQTP UNIT 1

HAUL MATERIAL (15.1.3.1.)

DUMP MATERIAL (15.1.3.2.)

HAUL / DUMP MATERIAL
Task Training Guide

STS Reference Number/Title:	15.1.3.1. - Haul material. 15.1.3.2. - Dump material.
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-2, Lesson 002; <i>Dump Truck Operation</i>. 2. Technical Order (TO) 36A series. 3. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 4. AF Form 1806, Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal). 5. Air Force Occupational Safety And Health Standard (AFOSHSTD) 91-10, Civil Engineering. (Note: This AFOSHSTD will become part of AFOSHSTD 91-501, <i>Consolidated Standards, Part 2</i> in FY 03.) 6. Owner's manual. 7. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E231 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-2, Lesson 002. 3.2. Applicable TO or owner's manual. 3.3. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections</i>. 3.4. AFOSHSTD 91-10, Chapter 3; <i>Equipment Operations, Pavements, and Landscape and Grounds Maintenance</i>. 3.5. Local procedures. 4. Completion of AFQTP Module 3E2X1-15, Unit 1; <i>Perform Operational Checks</i>.
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. Dump truck. 2. Front-end loader. 3. Hauling material (sand, dirt, rocks, etc.) 4. AF Form 1806. 5. Personal safety equipment.
Learning Objective:	Trainee will learn how to haul and dump material using a dump truck.
Samples of Behavior:	The trainee will demonstrate the proper procedures in hauling and dumping material.
Notes:	<ol style="list-style-type: none"> 1. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, safety glass/goggles, and seat belt). 2. Any safety violation is an automatic failure.

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HAUL / DUMP MATERIAL

1. Background. The hauling of construction materials is an important function on any Air Force base or station. Dump trucks are primarily used to haul such material as dirt, sand, gravel, and hot asphalt to a construction site, especially when the haul distance is great.

2. Equipment Differences. The difference between a truck that will dump and one that will not is the way it is equipped. This equipment includes a dump bed, or body; a power take-off (PTO); and a hydraulic pump and cylinder. The dump bed is raised using a two-step process. First, engage the PTO that drives the pump according to the operator's manual. Second, engage the bed control valve that forces the hydraulic fluid into the cylinder that raises the bed. The cylinder is similar to a large hydraulic jack and is mounted to the truck frame under the dump box.

3. PTO Location. The make of the truck will determine the location of the controls used to raise and lower the dump bed. Some models have two levers in the floor of the cab; others have controls on the dash or a combination of both. The PTO knob or lever has two positions, engaged and neutral. The valve control lever has three positions; raise, hold, and lower. To engage the PTO with an automatic transmission, the vehicle must be stopped. With the transmission lever in gear, engage the PTO (if the gears do not mesh, let the truck creep ahead slowly while lightly pulling on the PTO control). After the PTO has engaged, you may move the transmission lever into neutral. With the PTO engaged and the truck engine operating slightly above idle, move the valve control lever to the raised position. To hold the dump bed at any position, move the valve control lever to the hold position. To lower the bed, move the control lever to the lower position.

CAUTION

WHEN LOWERING THE DUMP BED, PUSH THE LEVER BACK SLOWLY TO PREVENT THE DUMP BOX FROM SLAMMING DOWN POSSIBLY CAUSING DAMAGE TO THE VEHICLE. AFTER THE DUMP BED HAS BEEN LOWERED MAKE SURE THE PTO HAS ALREADY BEEN DISENGAGED PRIOR TO DRIVING AWAY.

NOTE:

The dump bed operates with hydraulic pressure/flow. Therefore, the speed of operation will be determined by the speed of the truck engine. To prevent damage to the PTO, always check the operator's manual for the maximum allowed rpm for that specific PTO.

4. Dumping Materials. To dump dirt, gravel, or other like materials into a stockpile, back up to the pile. Always use a spotter when backing. Open the tailgate. (Ensure the tailgate chains are in the correct placement). If hauling large debris and the chains are set for sandy loose materials, the weight of the load can cause the front of the vehicle to come off of the ground. If you have the tailgate down for large debris and you unlatch the tailgate lever, the tailgate will drop off. This has happened to many airmen. Save yourself the embarrassment by simply checking the type of load, then making proper adjustments before dumping the load. Now you can dump the load. Before you dump the load, make sure the area is clear. Watch out for overhead obstructions such as power or telephone lines. To ensure the load is completely dumped, with the transmission in neutral, let your foot off the brake allowing the truck to roll forward slightly as the material is dumped. After the dump bed has been emptied, lower the dump bed completely and exit the vehicle to latch the tailgate.

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SAFETY:

SPECIAL CARE SHOULD BE TAKEN WHILE DUMPING ON AN INCLINE; NEVER ATTEMPT TO DUMP PARALLEL TO A SLOPE OR THE TRUCK COULD TIP.

NOTE TO TRAINER/CERTIFIER:

If a hauling and dumping project is not available, then the minimum required for upgrade training is the following: give trainee a scenario based on the steps below. Fill dump truck with soil or sand and have the trainee drive at least three miles and return to fill site and dump material.

5. Dumping Procedures. Follow these steps to haul and dump material while operating a dump truck:

Step 1: Perform daily operational checks if not already accomplished. (See Module 3E2X1-15, Unit 1: Perform Operational Checks / Operators Maintenance for details.)

Step 2: Drive to fill site.

Step 3: Observe loading and inspect truck after loading.

- 3.1. Apply parking brake and exit the vehicle.
- 3.2. Stand out of the way of the loader operator while observing the load.
- 3.3. Wait for the loader operator to signal that he has finished loading.
- 3.4. Inspect the dump truck with a 360-degree walk around to make certain it is evenly loaded (not loaded to one side), and there is no material that can fall out in transit.
 - 3.4.1. Check the truck's suspension and tires for defects under a load.
 - 3.4.2. Dump your load and let the loader operator load again if the truck was overloaded or unevenly loaded. Once you accept the load, it is now your responsibility.

Step 4: Haul material to dump site. Select the right gear for the terrain that you will be traveling over, before hauling the load to the dumpsite (see owners manual for an in-depth description on what gear to use).

SAFETY TIP:

Operate at a safe speed because speeding kills. Every year the Air Force loses operators to dump truck accidents that could have been avoided. Some ways to avoid accidents are, never wear musical headsets or eat while driving and practice safe braking (The braking distance of a loaded dump truck and an unloaded dump truck are very different). Reduce speed before curves and drive down hills at the same speed or slower than the truck would climb the hill.

Step 5: Back up to the dump location.

- 5.1. Use a spotter for backing (if available). If a spotter is not available.
 - 5.1.1. Apply parking brake and exit the vehicle.
 - 5.1.2. Walk around the area to make sure there is nothing to run over.
 - 5.1.3. Check to see if there is enough overhead clearance for the truck bed while dumping.
 - 5.1.4. Re-enter the vehicle and release parking brake.

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5.2. Back up to the pile.

5.2.1. **Do Not** hit the pile.

5.2.2. When the truck runs up on the pile, the mud flaps are pushed up against the tires and will eventually be ripped off the truck.

Step 6: Ready to dump.

6.1. Apply parking brakes and exit vehicle.

6.2. Check tailgate chains and open the tailgate lever.

Step 7: Engage PTO.

7.1. Re-enter truck and release parking brake.

7.2. Engage the PTO to raise the bed. (See operator's manual for proper procedures for the truck.)

Step 8: Raise bed.

8.1. Raise the bed slowly until the material runs out of the dump bed.

8.2. **Do Not** exceed the recommended revolution per minute (rpm) for the vehicle. (See operator's manual for proper procedures for the truck.)

Step 9: Disengage PTO. Once the bed is completely raised, disengage the PTO.

CAUTION

FAILURE TO DISENGAGE THE PTO WILL RESULT IN DAMAGE TO THE DUMP TRUCK AND POSSIBLY THE OPERATOR AS WELL.

Step 10: Lower bed. Push hydraulic control lever forward gently to keep the dump bed from slamming down. (See operator's manual for proper procedures for the truck.)

Step 11: Inspect tailgate.

11.1. Apply parking brake and exit vehicle.

11.2. Ensure tailgate is free from any material prior to traveling.

11.3. Close tailgate lever.

**REVIEW QUESTIONS
FOR
HAUL / DUMP MATERIAL**

QUESTION	ANSWER
1. During extreme cold conditions, the operator is allowed to remain in the cab while being loaded.	a. True. b. False.
2. A loaded dump truck needs about the same distance to stop as an empty one.	a. True. b. False.
3. The dump truck operator takes full responsibility if he accepts a bad load.	a. True. b. False.
4. What is the recommended rpm for dump trucks?	a. As indicated in the operator's manual. b. Usually the same for all trucks. c. Should not be considered. d. 1200 rpm.
5. If you can reach the tailgate lever from the cab, lean out the window to release it.	a. True. b. False.
6. Backing up on a pile will cause:	a. the mud flaps to be torn off. b. the load to discharge faster. c. excessive wear on the tire. d. loose lug nuts.
7. If the truck has rearview mirrors, a spotter is not needed.	a. True. b. False.

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HAUL / DUMP MATERIAL

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
1. perform an operational inspection by utilizing AF Form 1806 if required? (Refer to Unit 1, Perform Operational Checks / Operators Maintenance.)		
2. sign AF Form 1806 if required?		
3. drive to fill site safely? (used seat belt)		
4. observe loading and inspected truck after loading?		
5. drive to dump site safely? (used seat belt)		
6. back up to dump site correctly? (Used spotter or checked area before backing.)		
7. apply parking brake and exit vehicle?		
8. check tailgate chains and open the tailgate lever?		
9. release parking brake and engaged PTO?		
10. raised bed correctly?		
11. disengaged PTO?		
12. lowered bed correctly?		
13. apply parking brake, inspect the tailgate for material, and close lever?		
14. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

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DUMP TRUCKS

OPERATE

MODULE 15

AFQTP UNIT 1

SPREAD MATERIAL SUCH AS GRAVEL (15.1.3.3.1.)

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SPREAD MATERIAL SUCH AS GRAVEL

Task Training Guide

STS Reference Number/Title:	15.1.3.3.1. - Spread material such as gravel.
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-2, Lesson 002; <i>Dump Truck Operation</i>. 2. Technical Order (TO) 36A series. 3. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 4. AF Form 1806, Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal). 5. Air Force Qualification Training Package (AFQTP) Video PIN # 613860: Dump Truck Operations – Spread Material. 6. Air Force Occupational Safety And Health Standard (AFOSHSTD) 91-10, Civil Engineering. (Note: This AFOSHSTD will become part of AFOSHSTD 91-501, <i>Consolidated Standards, Part 2</i> in FY 03.) 7. Owner's manual. 8. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E231 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-2, Lesson 002. 3.2. Applicable TO or owner's manual. 3.3. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections</i>. 3.4. AFOSHSTD 91-10, Chapter 3; <i>Equipment Operations, Pavements, and Landscape and Grounds Maintenance</i>. 3.5. Local procedures. 4. Complete the following: <ol style="list-style-type: none"> 4.1. AFQTP Module 3E2X1-15, Unit 1; <i>Perform Operational Checks and Operators Maintenance</i>. 4.2. AFQTP Video # 613860.
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. Dump truck. 2. Front-end loader. 3. Gravel. 4. AF Form 1806. 5. Personal protection equipment.
Learning Objective:	Trainee will learn how to spread gravel using a dump truck
Samples of Behavior:	The trainee will demonstrate the proper procedures in spreading gravel using a dump truck.
Notes:	<ol style="list-style-type: none"> 1. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, safety glass/goggles, and seat belt). 2. Any safety violation is an automatic failure.

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

SPREAD MATERIAL SUCH AS GRAVEL

1. Background. Sometimes you will need to spread material for other pieces of construction equipment. This is common during grader operations or when the material will be worked for leveling an area. If you look on the back of the tailgate, you will see two chains. These chains can be adjusted so you can spread loose materials in layers. If you choose to spread the materials in layers, stop the truck where you want to start the spread, place the dump control levers in the proper position, raise the bed about a foot, and pull down the tailgate lever unlocking the tailgate as you drive forward in low gear.

SAFETY:

SPECIAL CARE SHOULD BE TAKEN WHILE DUMPING ON AN INCLINE. NEVER ATTEMPT TO DUMP PARALLEL TO A SLOPE OR THE TRUCK COULD TIP.

2. Requirements. View AFQTP Video PIN # 613860: *Dump Truck Operations – Spread Material*. Upon completion of the above-mentioned video, properly spread material for a specific project using the step-by-step procedures listed below.

NOTE TO TRAINER/CERTIFIER:

If a spreading project is not available, then the minimum required for upgrade training is the following: have the trainee drive to a stockpile of gravel (if available, may substitute with sand or dirt) and load the dump truck full of the material. Find a clear area around the stockpile that the trainee can perform the spreading operation as stated below.

3. Spread Material Procedures. Follow these steps to spread material:

Step 1: Perform daily operational checks if not already accomplished. (See Module 3E2X1-15, Unit 1: Perform Operational Checks / Operators Maintenance for details.)

Step 2: Drive to the fill site.

Step 3: Observe / check truck after loading.

3.1. Apply parking brake and exit the vehicle.

3.1.1. Stand out of the way of the loader operator while observing the load.

3.1.2. Wait for the loader operator to signal that he has finished loading.

3.2. Inspect the dump truck with a 360-degree walk around to make certain it is evenly loaded (not loaded to one side), and there is no material that can fall out in transit.

3.2.1. Check the truck's suspension and tires for defects under a load.

3.2.2. If the truck was overloaded or loaded unevenly, dump the load and let the loader operator load again. Once you accept the load, it is now your responsibility.

Step 4: Haul material to dump site. Before hauling the load to the dumpsite select the right gear for the terrain that you will be traveling over. (See owner's manual for an in-depth description on what gear to use.)

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

SAFETY TIP:

Operate at a safe speed because speeding kills. Every year the Air Force loses operators to dump truck accidents that could have been avoided. Some ways to avoid accidents are, never wear musical headsets or eat while driving and practice safe braking (The braking distance of a loaded dump truck and an unloaded dump truck are very different). Reduce speed before curves and drive down hills at the same speed or slower than the truck would climb the hill.

Step 5: Back up to the spreading location.

- 5.1. Use a spotter for backing (if available). If a spotter is not available.
 - 5.1.1. Apply parking brake and exit the vehicle.
 - 5.1.2. Walk around the area to make sure there is nothing to run over.
 - 5.1.3. Check to see if there is enough overhead clearance for the truck bed while dumping.
- 5.2. Check chains. Adjust tailgate chains according to the type of material being spread and how much is to be spread.
- 5.3. Unlatch the tailgate lever.
- 5.4. Re-enter the vehicle and release parking brake.

Step 6: Engage PTO. (See owner's manual for proper procedures for the truck.)

Step 7: Raise bed.

- 7.1. Raise the bed slowly (about one foot) and pull down the tailgate lever.
- 7.2. **Do Not** exceed the recommended revolution per minute (rpm) for your truck. (See owner's manual for correct rpm for the truck.)

Step 8: Drive forward to discharge and disengage PTO.

- 8.1. Put the truck in low gear, and pull forward while raising the bed at the same time.
- 8.2. Once the bed is completely raised; disengage the PTO and continue until all the material is out of the bed.

CAUTION

FAILURE TO DISENGAGE THE PTO WILL RESULT IN DAMAGE TO THE DUMP TRUCK AND POSSIBLY INJURY TO THE OPERATOR AS WELL.

Step 9: Lower bed. Stop the truck and lower the bed completely.

Step 10: Inspect tailgate.

- 10.1. Apply parking brake and exit vehicle.
- 10.2. Ensure tailgate is free from any material prior to traveling.
- 10.3. Close tailgate lever.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

**REVIEW QUESTIONS
FOR
SPREAD MATERIAL SUCH AS GRAVEL**

QUESTION	ANSWER
1. Why should you adjust the chains on the tailgate?	a. To regulate the thickness of the material being spread. b. To hold the tailgate closed. c. For removing the tailgate. d. For towing.
2. You should check the entire area for overhead lines before spread dumping?	a. True. b. False.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

SPREAD MATERIAL SUCH AS GRAVEL

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
1. perform an operational inspection by utilizing AF Form 1806 if required? (Refer to Unit 1, Perform Operational Checks / Operators Maintenance.)		
2. sign AF Form 1806 if required?		
3. drive to fill site safety? (use seat belt)		
4. observe loading and check truck after loading?		
5. drive to dump site safety? (use seat belt)		
6. back up to dump site correctly? (Use spotter or check area before backing.)		
7. apply park brake and unlatch tailgate lever?		
8. engage PTO?		
9. drive forward to discharge load and disengage PTO?		
10. lower bed correctly?		
11. apply parking brake and inspect tailgate?		
12. close the tail gate lever?		
13. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.



DUMP TRUCKS

OPERATE

MODULE 15

AFQTP UNIT 1

TOW EQUIPMENT (15.1.3.4.)

THIS UNIT IS **OPTIONAL** AND AVAILABLE TO USE AS A LESSON PLAN WHEN TRAINING ON THIS NON-CORE TASK.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

TOW EQUIPMENT
Task Training Guide

STS Reference Number/Title:	15.1.3.4. Tow Equipment
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-2, Lesson 002. <i>Dump Truck Operation.</i> 2. Technical Order (TO) 36A series. 3. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 4. AF Form 1806, Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal). 5. Air Force Occupational Safety And Health Standard (AFOSHSTD) 91-10, Civil Engineering. (Note: This AFOSHSTD will become part of AFOSHSTD 91-501, <i>Consolidated Standards, Part 2</i> in FY 03.) 6. Owner's manual. 7. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E231 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-2, Lesson 002. 3.2. Applicable TO or owner's manual. 3.3. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections.</i> 3.4. AFOSHSTD 91-10, Chapter 3; <i>Equipment Operations, Pavements, and Landscape and Grounds Maintenance.</i> 3.5. Local procedures. 4. Completion of AFQTP Module 3E2X1-15, Unit 1; <i>Perform Operational Checks and Operators Maintenance.</i>
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. Dump truck. 2. Tow equipment (air compressor). 3. AF Form 1806. 4. Personal safety equipment.
Learning Objective:	Trainee will learn how to tow equipment using a dump truck.
Samples of Behavior:	The trainee will demonstrate the proper procedures in towing equipment.
Notes:	<ol style="list-style-type: none"> 1. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, safety glass/goggles and seat belt). 2. Any safety violation is an automatic failure. 3. This unit is <u>optional</u> and available to use as a lesson plan when training on this non-core task.

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

TOW EQUIPMENT

1. Background. You will often have to tow equipment such as the air compressor or concrete mixer to your job site. For this task, the dump truck is equipped with a pintle hook.

2. Equipment Requirements. The pintle hook is a jaw-like device that is opened by lifting the latch located at the top of the pintle hook, then pulling up on the upper jaw until it is open. The lunette is a round-shaped eyelet mounted on the front of the trailer or piece of equipment that is to be towed. Safety chains should be attached to the piece of equipment being towed for added safety.

NOTE TO TRAINER/CERTIFIER:

If a towing project is not available, then the minimum required for this task is to have: trainee back up and attach to an air compressor following the steps below and drive around the area to get the feel of the equipment being towed.

3. Towing Procedures. Follow these steps to tow equipment:

Step 1: Perform daily operational checks if not already accomplished. (See Module 3E2X1-15, Unit 1: Perform Operational Checks / Operators Maintenance for details.)

Step 2: Position dump truck. Position the dump truck in front of the piece of equipment.

Step 3: Backing vehicle up to the towed equipment.

3.1. With Spotter. Always use a spotter when available.

3.1.1. Back up slowly while watching the spotter.

3.1.2. Stop the vehicle about three feet from the towed equipment to allow the spotter to open the pintle hook.

3.1.3. Continue to back up slowly while watching the spotter signals.

3.1.4. Stop and apply parking brake when signal by the spotter. Allow spotter to lower the equipment lunette on to the pintle hook.

3.1.5. Wait for a signal from the spotter when the weight of the equipment is resting on the lower portion of the open pintle hook. Turn the truck off and exit vehicle to assist the spotter with the connections.

3.2. Without Spotter.

3.2.1. Apply parking brake and exit the vehicle.

3.2.2. Check for any obstructions between the truck and towed equipment.

3.2.3. Open the pintle hook.

3.2.4. Re-entry vehicle and released parking brake and back up slowly until the pintle hood is under the equipment lunette.

CAUTION

SEVERAL STOPS MAY BE REQUIRED TO CHECK THE DISTANCE AND POSITION OF THE PINTLE HOOD TO THE TOWED EQUIPMENT. WATCH THE AIR BRAKE PRESSURE DUE TO THE EXCESSIVE BACKING.

3.2.5. Stop the truck, apply the parking brake, and turn off the vehicle once the pintle hook is under the lunette.

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

3.2.6. Exit the vehicle and lower the equipment lunette on the lower portion of the open pintle hook.

Step 4: Ensure the pintle hook is closed properly and put the safety pin through the hole on top of the pintle to secure the latch from opening during transportation.

Step 5: Secure the safety chains to the back of the dump truck.

Step 6: Perform a 360-degree walk around to ensure hook-up is correct. It's your responsibility to make sure the entire hook up is done correctly not the spotter or helper.

6.1. Disengage any parking brake on the towed equipment.

6.2. Look over the towed equipment before starting out. It should have a regular pre-operation check like all other pieces of equipment.

6.3. Check/Verify the maximum towing speed for the equipment.

Step 7: Tow equipment to the area directed by your trainer/supervisor.

REVIEW QUESTIONS
FOR
TOW EQUIPMENT

QUESTION	ANSWER
1. Who is responsible for the proper connection?	a. The one who closed the pintle hook. b. Vehicle maintenance. c. The vehicle operator. d. The spotter.
2. When should you check the entire connection?	a. It is not necessary to check the connection if a spotter was present. b. During the tow. c. Before towing. d. After the tow.
3. The safety chains are:	a. used for tie down only. b. required to be connected if present. c. usually too short for a dump truck. d. only needed during heavy tows.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

TOW EQUIPMENT

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
1. perform an operational inspection by utilizing AF Form 1806 if required? (Refer to Unit 1, Perform Operational Checks / Operators Maintenance.)		
2. sign AF Form 1806 if required?		
3. position dump truck in front of equipment?		
4. back up to the equipment? (With or without spotter.)		
5. watch spotter?		
6. stop and apply parking brake?		
7. turn off dump truck?		
8. ensure pintle hook is closed and safety pin installed?		
9. secure safety chains?		
10. perform a 360 degree walk around to ensure hook-up is correct?		
11. verify maximum speed for towed equipment?		
12. tow equipment to the designated area?		
13. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.



DUMP TRUCKS

TAILGATE

MODULE 15

AFQTP UNIT 1

REMOVAL (15.1.4.1.)

INSTALLATION (15.1.4.2.)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

TAILGATE REMOVAL/INSTALLATION

Task Training Guide

<p>STS Reference Number/Title:</p>	<p>15.1.4.1. - Remove tailgate. 15.1.4.2. - Install tailgate.</p>
<p>Training References:</p>	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-2, Lesson 002: <i>Dump Truck Operation</i>. 2. Technical Order (TO) 36A series. 3. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 4. Air Force Civil Engineer Support Agency (AFCESA) Dump Truck Tailgate Removal/Installation Power Point Presentation. (Located on AFCESA web page.) 5. AFCESA Dump Truck Removal/Installation Lesson Plan. (Located on AFCESA web page.) 6. Air Force Occupational Safety and Health Standard (AFOSHSTD) 91-10, Civil Engineering. (Note: This AFOSHSTD will become part of AFOSHSTD 91-501, <i>Consolidated Standards, Part 2</i> in FY 03.) 7. Owner's manual.
<p>Prerequisites:</p>	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E231 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-2, Lesson 002. 3.2. Applicable TO or owner's manual. 3.3. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections</i>. 3.4. AFCESA Dump Truck Removal/Installation Lesson Plan. 3.5. AFOSHSTD 91-10, Chapter 3; <i>Equipment Operations, Pavements, and Landscape and Grounds Maintenance</i>. 4. Complete the following: <ol style="list-style-type: none"> 4.1. AFQTP Module 3E2X1-15, Unit 1; <i>Perform Operational Checks and Operators Maintenance</i>. 4.2. AFCESA Dump Truck Tailgate Removal/Installation Power Point Presentation.
<p>Equipment/Tools Required:</p>	<ol style="list-style-type: none"> 1. Dump truck with tailgate. 2. Forklift or Front End Loader with Forklift attachments and operator. 3. Safety Spotter. 4. AF Form 1806. 5. Personal protection equipment.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

Task Training Guide (Continued)

Learning Objective:	Trainee will learn how to safely remove and install a dump truck tailgate.
Samples of Behavior:	The trainee will demonstrate the proper procedures in removing and installing a dump truck tailgate.
Notes:	
<ol style="list-style-type: none">1. Prior to the start of these tasks the trainer/certifier is required to give the trainee a safety briefing and review operational procedures.2. This task has been coded for refresher training. Refresher training must be conducted every three years.3. Any safety violation is an automatic failure.	

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

TAILGATE REMOVAL/INSTALLATION

1. Background. The tailgate is an integral part of the dump truck, it is very important that we understand when and how to configure the tailgate for proper use. Tailgate removal is accomplished to allow for installation of a spreader/sprayer auxiliary equipment, to dump large debris, or to spread material. Safety is always our first priority no matter what type of operation we are involved.

2. Requirements. Complete AFCEA Dump Truck Tailgate Removal/Installation Power Point presentation. After completing the Power Point presentation see your Unit Education and Training Manager to take the **mandatory** CerTest # 8175, *Dump Truck Tailgate Removal/Installation*. Trainee must score at least 80% to meet the minimum knowledge requirement for this task. Take satisfactory printed CerTest result to VCO/VNCO to receive an AF Form 483 "Certificate of Competency". Then properly remove and install tailgate using the step-by-step procedures listed below.

3. Personnel Requirements. In order to safely complete these tasks the following personnel is required:

- 3.1. Dump Truck Operator (Trainee)
- 3.2. Forklift/Loader Operator
- 3.3. Safety Spotter

4. Personnel Protection Equipment (PPE) Requirements. The following is the required PPE for these tasks:

- 4.1. Hardhat
- 4.2. Gloves
- 4.3. Hearing Protection
- 4.4. Eye Protection (If there is a need to punch out tailgate pins.)

NOTE TO TRAINER/CERTIFIER:

In order to complete these tasks, the trainee will be apart of a three-person team and they must safety remove and install a tailgate on a dump truck. Prior to the start of these tasks the trainer/certifier is required to give the trainee a safety briefing and review the removal/installation procedures. During the removal/installation of the tailgate if a safety violation occurs immediate stop the task and conduct additional training before continuing with the certification.

5. Removal / Installation Procedures. Follow these steps to perform these tasks:

5.1. Removal of Tailgate.

Step 1: Perform daily operational checks if not already accomplished. (See Module 3E2X1-15, Unit 1: Perform Operational Checks / Operators Maintenance for details.)

Step 2: Conduct pre-brief of safety/operational procedures with forklift/loader operator and safety spotter to include hand signal review.

Step 3: Dump truck operator removes left and right tailgate spreader chains from chain supports located on truck prior to positioning the loader/forklift. This should be done in most cases from the ground.

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

Step 4: Dump truck operator ensures tailgate-locking lever is in the closed and locked position.

Step 5: Safety spotter will direct loader/forklift operator by use of hand signals to place forks approximately 12-inches below the top of the tailgate and a few inches away from the tailgate.

CAUTION

EYE PROTECTION IS REQUIRED IF HAMMER AND PUNCH ARE USED TO REMOVE PINS.

Step 6: Dump truck operator enter truck bed using the truck ladder and pull retaining/cotter pins from top pivot pins of tailgate and tap out the hinge pins. Use a hammer and punch if necessary; **NEVER** insert fingers into hinge.

Step 7: Push tailgate at the top to free it from the top pivot points allowing the top of the tailgate to fall freely onto the forks of the forklift.

CAUTION

DUMP TRUCK OPERATOR WILL MOVE SAFELY AWAY FROM THE TAILGATE AFTER PUSHING TAILGATE.

Step 8: Dump truck operator exits truck bed using the truck ladder.

Step 9: Safety spotter directs forklift operator to slowly lower the forklift until the tailgate becomes level with the bed of the truck.

CAUTION

- 1. SAFETY SPOTTER MUST ENSURE ALL PERSONNEL ARE SAFELY AWAY FROM THE TAILGATE DURING STEPS 10 THROUGH 15. WHEN THE BOTTOM OF THE TAILGATE IS HINGED AND THE TOP OF THE TAILGATE IS RESTING ON THE FORKLIFT, THERE IS A RISK OF THE TAILGATE QUICKLY SLAMMING BACK TO THE DUMP TRUCK WHEN THE FORKLIFT IS MOVED.**
- 2. NEVER ALLOW PERSONNEL TO "HANDS-ON" ASSIST THE FORKLIFT/LOADER.**
- 3. IF PROBLEMS ARE ENCOUNTERED, OPERATIONS WILL STOP AND THE DUMP TRUCK OPERATOR, SAFETY SPOTTER, AND FORKLIFT OPERATOR WILL CONSULT TO DEVELOP A PLAN BEFORE RESUMING OPERATION.**

Step 10: Safety spotter directs forklift operator to move towards dump truck slowly to fully support the tailgate.

CAUTION

TAILGATE COULD RAPIDLY SLAM BACK UP TO THE TRUCK.

Step 11: Pull down tailgate release lever.

Step 12: Forklift operator removes tailgate safely away from dump truck and places tailgate on dunnage.

Step 13: Re-install hinge/cotter pins into the of the tailgate holes for safekeeping.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

5.2. Installation of Tailgate.

Step 1: Perform daily operational checks if not already accomplished. (See Module 3E2X1-15, Unit 1: Perform Operational Checks / Operators Maintenance for details.)

Step 2: Conduct pre-brief of safety/operational procedures with forklift/loader operator and safety spotter to include hand signal review.

CAUTION

EYE PROTECTION IS REQUIRED IF HAMMER AND PUNCH ARE USED TO REMOVE PINS.

Step 3: Remove retaining/cotter pins from the tailgate and tap out hinge pin if necessary.

Step 4: Safety spotter will direct forklift/loader operator to place tailgate on forks. Safety spotter will ensure the tailgate is positioned with the bottom of the tailgate away from the loader and that the forks do not protrude past the lower edge of the tailgate.

Step 5: Pull down the tailgate release lever and ensure it remains in the open position.

CAUTION

1. SAFETY SPOTTER MUST ENSURE ALL PERSONNEL ARE SAFELY AWAY FROM THE TAILGATE DURING STEPS 6 THROUGH 12. WHEN THE BOTTOM OF THE TAILGATE IS HINGED AND THE TOP OF THE TAILGATE RESTING ON THE FORKLIFT, THERE IS A RISK OF THE TAILGATE QUICKLY SLAMMING BACK TO THE DUMP TRUCK WHEN THE FORKLIFT IS MOVED.
2. NEVER ALLOW PERSONNEL TO "HANDS-ON" ASSIST THE FORKLIFT/LOADER.
3. IF PROBLEMS ARE ENCOUNTERED, OPERATIONS WILL STOP AND THE DUMP TRUCK OPERATOR, SAFETY SPOTTER, AND FORKLIFT/LOADER OPERATOR WILL CONSULT TO DEVELOP A PLAN BEFORE RESUMING OPERATION.

Step 6: Safety spotter directs the forklift/loader operator to move the tailgate to the dump truck.

Step 7: Safety spotter directs forklift/loader to keep forks level while moving to dump truck and carefully aligns/places lower pivot pins of the tailgate into the saddles of the dump truck bed.

Step 8: Close and latch the tailgate release lever.

Step 9: Safety spotter directs forklift/loader operator back until only about 12 to 16-inches of the forks engage the tailgate.

CAUTION

ENSURE ALL PERSONNEL ARE SAFELY AWAY FROM THE TAILGATE.

Step 10: Forklift/loader operator slowly raises forks up to lift the tailgate.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

Step 11: Safety spotter directs the forklift/loader operator to stop and then move slowly forward until the forks are again 12 to 16-inches from the top of the tailgate.

CAUTION
TAILGATE COULD SLAM BACK UP TO THE TRUCK.

Step 12: Repeat steps 10 & 11 as necessary until the tailgate is in the full upright position and closed.

Step 13: Dump truck operator enters the bed, once the tailgate is in position, install the upper pivot pins and secure them with the retaining/cotter pins.

CAUTION
NEVER INSERT FINGERS INTO HINGE.

Step 14: Forklift/loader operator removes forklift/loader from the area.

Step 15: Dump truck operator exit the dump bed using the truck ladder.

Step 16: Install and adjust the spreader chains accordingly. This should be done from the ground.

6. Additional Training Requirements. This task has been coded for refresher training. Refresher training must be conducted **every three years**. The training products listed in Task Training Guide reference material section will be used to accomplish training. Refresher training will be documented on an AF Form 483 "Certificate of Competency". The date of the previous training/evaluation controls the time frame for the next evaluation.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

TAILGATE REMOVAL/INSTALLATION

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
Tailgate Removal		
1. review Power Point presentation?		
2. obtain 80% or better on CerTest # 8175?		
3. receive safety briefing and operational procedures prior to the start of the task?		
4. have the proper amount of personnel required?		
5. have proper personal protection equipment?		
6. correctly remove tailgate by: 6.1. performing operational check and signing AF Form 1806 (if required)? 6.2. conducting pre-brief of safety/operational procedures with forklift/loader operator and safety spotter to include hand signal review? 6.3. removing left and right tailgate spreader chains from chain supports located on truck prior to positioning the loader/forklift? 6.4. ensuring tailgate-locking lever was in the closed and locked position. 6.5. allowing safety spotter direct loader/forklift operator by use of hand signals to place forks approximately 12-inches below the top of the tailgate and a few inches away from the tailgate? 6.6. entering truck bed using the truck ladder and pulling retaining/cotter pins from top pivot pins of tailgate and tapping out the hinge pins? 6.7. pushing tailgate at the top to free it from the top pivot points allowing the top of the tailgate to fall freely onto the forklift? 6.8. exiting the dump bed by using the truck ladder? 6.9. allowing safety spotter direct forklift operator to slowly lower the forklift until the tailgate becomes level with the bed of the truck? 6.10. allowing safety spotter direct forklift operator to move towards dump truck slowly to fully support the tailgate? 6.11. pulling down tailgate release lever? 6.12. allowing forklift operator remove tailgate safely away from dump truck and places tailgate on dunnage? 6.13. re-installing hinge/cotter pins into top pinholes for safekeeping?		
7. use the proper personal protection equipment?		
8. comply with all safety requirements?		

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PERFORMANCE CHECKLIST (Continued)

DID THE TRAINEE....	YES	NO
Tailgate Installation		
1. review Power Point presentation?		
2. obtain 80% or better on CerTest # 8175?		
3. receive safety briefing and operational procedures prior to the start of the task?		
4. have the proper amount of personnel required?		
5. have proper personal protection equipment?		
6. correctly install tailgate by: 6.1. performing operational check and signing AF Form 1806 if required? 6.2. conducting pre-brief of safety/operational procedures with forklift/loader operator and safety spotter to include hand signal review? 6.3. removing retaining/cotter pins from top pinholes and tapping out hinge pin if necessary. 6.4. allowing safety spotter direct forklift/loader operator to place tailgate on forks? 6.5. pulling down the tailgate release lever and ensured it remains in the open position? 6.6. allowing safety spotter direct the forklift/loader operator to move the tailgate to the dump truck? 6.7. allowing safety spotter direct forklift/loader to keep forks level while moving to dump truck and carefully aligns/places lower pivot pins of the tailgate into the saddles of the dump truck bed? 6.8. pulling up and latch the tailgate release lever? 6.9. allowing safety spotter direct forklift/loader operator back until only about 12 to 16-inches of the forks engage the tailgate? 6.10. allowing forklift/loader operator to slowly raises forks up to lift the tailgate? 6.11. allowing safety spotter direct the forklift/loader operator to stop and then move slowly forward until the forks are again 12 to 16-inches from the top of the tailgate? 6.12. repeating steps 10 & 11 as necessary until the tailgate is in the full upright position and closed? 6.13. entering the bed, once the tailgate was in position, install the upper pivot pins, and secure them with the retaining/cotter pins? 6.14. allowing forklift/loader operator removes forklift/loader from the area? 6.15. exiting the dump bed using the truck ladder? 6.16. installing and adjusting the spreader chains accordingly?		
7. use the proper personal protection equipment?		
8. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.



WHEEL MOUNTED FRONT-END LOADERS

MODULE 15

AFQTP UNIT 2

PERFORM OPERATIONAL CHECKS (15.2.1.)

PERFORM OPERATORS MAINTENANCE (15.2.2.)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON WHEEL MOUNTED FRONT-END LOADER

Task Training Guide

STS Reference Number/Title:	15.2.1. - Perform operational checks on wheel mounted front-end loader. 15.2.2. - Perform operators maintenance on wheel mounted front-end loader.
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 1, Section 1-1, Lesson 200: <i>Functions and Controls of Front-End Loaders</i>. 2. Technical Order (TO) 36C series. 3. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 4. AF Form 1806, Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal). 5. Owner's manual. 6. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E231 AFSC. 2. Review the following references: <ol style="list-style-type: none"> 2.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 1, Section 1-1, Lesson 200. 2.2. Applicable TO or owner's manual. 2.3. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections and Preventive Maintenance</i>. 2.4. Local procedures.
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. Wheeled loader. 2. AF Form 1806. 3. Applicable TO or owner's manual. 4. Personal protection equipment.
Learning Objective:	The trainee will be able to perform operational checks and know exactly what is needed to conduct maintenance on a wheeled loader.
Samples of Behavior:	The trainee will demonstrate the proper procedures for operational checks and operator's maintenance on a wheeled loader.
Notes:	<ol style="list-style-type: none"> 1. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, and safety glass/goggles). 2. Any safety violation is an automatic failure.

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PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON THE WHEEL MOUNTED FRONT-END LOADER

1. Background. There are several types of front-end loaders in the Air Force. They can be mounted on pneumatic wheels or on tracks. Specific pre-operational inspection procedures will be found in the owner's manual that accompanied the equipment. It is important to properly check and service the equipment prior to operation. Front-end loader maintenance, like any other maintenance, is very important. If the machine is not running well, then how is the job going to get done? The main reason you inspect your equipment is to determine what maintenance, if any is needed. The more effective maintenance program we have for the equipment, the better our operation will run.

2. Operational Check Procedures. Follow these steps to perform operational checks on a loader:

Step 1: Utilizing AF Form 1806.

- 1.1. Check all items listed that pertain to the wheel mounted front-end loader.
- 1.2. Sign the AF Form 1806 after properly inspecting the equipment.

Step 2: Inspect Vehicle Exterior. Inspection of the loader begins with a 360-degree walk around looking for any damage or leaks.

- 2.1. Check wheels/tires for wear, lug nut tightness, and correct air pressure.
- 2.2. Check hydraulic fluid sight glass and fill as needed.
- 2.3. Check mirrors and windows for cleanliness and cracks.
- 2.4. Check hydraulic cylinders and hoses for any damage or leaks.
- 2.5. Annotate any discrepancies found on the AF Form 1806 and notify supervisor.

HINT:

Puddles of fluid and dirty areas on the engine or ground normally indicate problem areas and should be investigated and repaired as soon as possible.

Step 3: Inspect Bucket Assembly.

- 3.1. Check for loose teeth (if applicable).
- 3.2. Check blade for wear.
- 3.3. Check for loose bolts.
- 3.4. Check for any cracks.

Step 4: Inspect Drive Engine / Battery Compartments.

- 4.1. Check the engine oil, coolant, and transmission fluid levels and fill as needed.
- 4.2. Inspect the drive belts for wear, tension, and alignment.
- 4.3. Ensure battery connections are secure and free from corrosion.

Step 5: Starting Procedures and Function Check.

- 5.1. Ensure master switch is on (If applicable).
- 5.2. Apply parking brake.
- 5.3. Ensure direction lever is in neutral.

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CAUTION

DO NOT ENGAGE THE STARTER FOR MORE THAN TWENTY SECONDS AT A TIME. IF THE ENGINE FAILS TO START WITHIN TWENTY SECONDS, ALLOW THE STARTER MOTOR TWO MINUTES TO COOL DOWN.

5.4. Turn ignition to the start position.

5.5. Let engine idle for three to five minutes prior to any operation.

5.6. Move the bucket control levers to ensure the loader is functioning properly and to get a good feel of the equipment prior to travel.

3. Maintenance Program. Correct and timely operator maintenance ensures the equipment will do the job when needed and last longer; this saves the Air Force money. A good, operator maintenance program includes inspections to detect and correct minor deficiencies before they develop into major defects that could result in loss time and costly repairs. It is the operator's responsibility to perform any minor maintenance needed.

4. Operators Maintenance Procedures. Follow these steps to perform operators maintenance on a wheeled loader:

Step 1: Clean Front-end Loader.

1.1. Clean out any trash or debris from the inside of the cab daily.

1.2. Wash any dirt or grease from the loader; this will help you find the lubrication points on the specified lube chart.

Step 2: Clean Air Intake Filters. Air intake filters are of special importance. There are generally two elements the inner and the outer.

2.1. Under dusty operating conditions clean both elements daily (even more often if working conditions are extremely dusty).

2.2. For cleaning procedures use guidelines stated in the operator's maintenance manual.

Step 3: Lubrication.

3.1. Lubricate the vehicle according to intervals listed in the maintenance chart. If operating the machine in severe conditions then lubricate the machine more frequently.

3.2. Remove all the dirt and grease from the grease fittings before and after lubricating.

Step 4: Refueling.

4.1. Fuel the loader **at the end of each working day** to prevent moisture from condensing and forming droplets within the fuel tank.

4.2. Contact base fuels for them to come out to the job site if your equipment can't be driven to the service station.

4.3. Ensure the vehicle has a minimum of $\frac{3}{4}$ of a tank of fuel at the end of the duty day.

Step 5: Inspect Cutting Edges and Teeth on Bucket Assembly. The blades base costs hundreds of dollars. If you wear into the base, they must be rebuilt (built up by welding) or replaced. Either method is expensive in comparison to replacing cutting edges.

5.1. Ensure the edges are in good shape and not loose or worn excessively.

5.2. Replace the edges or teeth if damaged or badly worn; the operator is responsible for their replacement. (See technical reference for replacement).

SAFETY:

BE SURE TO BLOCK THE LOADER BUCKET PRIOR TO CHANGING THE CUTTING EDGES AND TEETH.

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**REVIEW QUESTIONS
FOR
PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON WHEEL
MOUNTED FRONT-END LOADER**

QUESTION	ANSWER
1. What is the AF Form 1806 used for?	<ul style="list-style-type: none"> a. Inspecting special purpose vehicles. b. It is not used by the Air Force. c. It is used to authorize digging. d. Report damage to a facility.
2. On a 360-degree walk around, what needs to be checked?	<ul style="list-style-type: none"> a. Leaks or puddles under the equipment. b. Loose lug nuts or flat tires. c. Look for broken part. d. All of the above.
3. Who is responsible for performing the pre-operational check on the vehicle?	<ul style="list-style-type: none"> a. The shop supervisor. b. The VCNCO. c. The operator of the vehicle. d. The Transportation mechanics.
4. Why is cleaning an important part of vehicle maintenance?	<ul style="list-style-type: none"> a. To find lubrication points and keep dirt out of the fittings. b. It is required by AF Form 1806. c. For lubrication. d. It isn't important.
5. When arranging for refueling at the job site, the operator must:	<ul style="list-style-type: none"> a. get several portable gas cans and fill. b. call base fuels to make delivery. c. tell the shop supervisor. d. None of the above.
6. Why should you check the cutting edge?	<ul style="list-style-type: none"> a. For debris stuck in the cracks. b. For any damage and excessive wear. c. For reversibility. d. You shouldn't.
7. Vehicle maintenance is responsible for replacing cutting edges.	<ul style="list-style-type: none"> a. True. b. False.

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PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON WHEEL MOUNTED FRONT-END LOADER

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
Operational Checks		
1. utilize the AF Form 1806?		
2. check vehicle exterior?		
3. check the engine oil, coolant, and transmission fluid levels and fill as needed?		
4. check mirrors and windows for cleanliness and cracks?		
5. check the bucket assembly for any wear or damage?		
6. inspect the drive belts for wear, tension, and alignment?		
7. ensure the battery connections were secure and free of corrosion?		
8. sign AF Form 1806?		
9. comply with all safety requirements?		
Operators Maintenance		
1. clean the vehicle?		
2. inspect and clean the air intake filters?		
3. lubricate the wheel mounted front-end loader according to the lube chart?		
4. remove all the dirt and grease from the grease fittings before and after lubricating?		
5. check the fuel level and refuel if needed?		
6. replace the cutting edges and teeth if needed?		
7. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

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WHEEL MOUNTED FRONT-END LOADERS

LOADER OPERATION

MODULE 15

AFQTP UNIT 2

LOAD GRAVEL INTO DUMP TRUCK (15.2.3.1.)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

LOAD GRAVEL INTO DUMP TRUCK

Task Training Guide

<p>STS Reference Number/Title:</p>	<p>15.2.3.1. - Load gravel into dump truck.</p>
<p>Training References:</p>	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 1, Section 1-1, Lesson 201. <i>Operating a Front-End Loader</i> 2. Technical Order (TO) 36C series. 3. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 4. AF Form 1806, Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal). 5. Air Force Qualification Training Package (AFQTP) Video PIN # 613939: Wheel Mounted Front End Loader – Load Material. 6. Air Force Occupational Safety and Health Standard (AFOSHSTD) 91-10, Civil Engineering. (Note: This AFOSHSTD will become part of AFOSHSTD 91-501, <i>Consolidated Standards, Part 2</i> in FY 03.) 7. Owner's manual. 8. Local procedures.
<p>Prerequisites:</p>	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E231 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 1, Section 1-1, Lesson 201. 3.2. Applicable TO or owner's manual. 3.3. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections.</i> 3.4. AFOSHSTD 91-10, Chapter 3; <i>Equipment Operations, Pavements, and Landscape and Grounds Maintenance.</i> 3.5. Local procedures. 4. Complete the following: <ol style="list-style-type: none"> 4.1. AFQTP Module 3E2X1-15, Unit 2; <i>Perform Operational Checks and Operators Maintenance.</i> 4.2. AFQTP Video PIN # 613939.
<p>Equipment/Tools Required:</p>	<ol style="list-style-type: none"> 1. Wheeled loader with bucket. 2. Dump truck. 3. Gravel. 4. AF Form 1806. 5. Personal protection equipment.

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Task Training Guide (Continued)

Learning Objective:	Trainee will learn how to load gravel into a dump truck using a wheeled loader.
Samples of Behavior:	The trainee will demonstrate the proper procedures in loading material.
Notes:	
1. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, safety glass/goggles and seat belt). 2. Any safety violation is an automatic failure.	

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LOAD GRAVEL INTO DUMP TRUCK

1. Background. A front-end loader is the best piece of equipment to use when loading soft to medium material from stockpiles. When the material is medium to hard the front-end loader loses much of its efficiency. The loader works better on flat smooth-surfaced areas and has proper space to maneuver. The loader bucket may be general-purpose (one-piece, conventional) or multi purpose (two piece-hinged jaw). The bucket attaches to the tractor unit by lift arms. The bucket teeth are bolted or welded onto replaceable cutting edges. Bolt on, replaceable teeth are provided for excavation of medium-type materials. The multipurpose bucket provides the capability to use the loader as a dozer and to grab material.

2. Requirements. View AFQTP Video PIN # 613939: *Wheel Mounted Front End Loader – Load Material*. After completing the AFQTP Video properly load a dump truck with gravel using the step-by-step procedures listed below.

NOTE TO TRAINER/CERTIFIER:

The minimum requirement for this task is the following: Have the trainee go to a stockpile of construction material with a loader and load a dump truck full of material following the steps below.

3. Loading Procedures. Follow these steps to load gravel into a dump truck:

Step 1: Perform daily operational checks if not already accomplished. (See Module 3E2X1-15, Unit 2: Perform Operational Checks / Operators Maintenance for details.)

Step 2: Position dump truck. Proper position of the equipment that will receive material from loader is necessary for maximum production. This cuts down on maneuver time.

Step 3: Approach the stockpile.

- 3.1. Position the bucket level, flat, and grounded.
- 3.2. Apply parking brake and dismount the loader to make sure the bucket is level.
- 3.3. Don't tilt the bucket too far forward; it will dig into the ground.
- 3.4. Don't tilt the bucket too far back; it will ride up the face of the stockpile.
- 3.5. Place the direction control lever in forward and the range control lever in low gear.

Step 4: Enter the stockpile and crowd bucket.

- 4.1. Move the loader into the stockpile, once you make contact with the stockpile push down on the clutch-cutout pedal to disengage the transmission and increase your rpm to allow for more power.
- 4.2. Manipulate the lift and tilt control levers, simultaneously curling back the bucket and raising the boom slightly until the bucket is full and completely rolled back.
- 4.3. Don't let the tires spin when filling the bucket. This causes excessive tire wear and ruts that make an unlevelled work surface.

Step 5: Leave the stockpile.

- 5.1. Once the bucket is full or raised out of the stockpile, decrease the engine speed and put the direction control lever in reverse.
- 5.2. Travel with the loaded bucket as close to the ground as possible.

CAUTION

NEVER TRAVEL WITH A RAISED BUCKET! YOUR CENTER OF GRAVITY CHANGES DRAMATICALLY ESPECIALLY WITH A FULL LOAD.

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Step 6: Approach the dump truck.

- 6.1. Approach the dump truck slowly raising the bucket to a height just above the bed of the dump truck.
- 6.2. Never touch the dump truck with your front tires.
- 6.3. Move the loader forward so the bucket is positioned over the center of the truck bed. Then, roll the bucket forward slowly until all the materials is out of the bucket.
- 6.4. Dump the first load a little at a time to keep from damaging the dump bed and truck suspension.
- 6.5. Know the capacity of the truck being loaded.
- 6.6. Back away from the dump truck once the bucket is empty while simultaneously lowering the boom and leveling the bucket.
- 6.7. Repeat the above steps until the dump truck is loaded.

CAUTION

DO NOT OVERLOAD THE TRUCK BY WEIGHT OR VOLUME. THERE SHOULDN'T BE MATERIAL FALLING OVER THE SIDE OR PILED SO HIGH IT WILL SHIFT DURING TRAVEL.

**REVIEW QUESTIONS
FOR
LOAD GRAVEL INTO DUMP TRUCK**

QUESTION	ANSWER
1. When approaching the stockpile:	a. ride up on the pile by tilting back the bucket to make sure you do not dig in. b. dig about 6 inches of the base material to ensure you get all the material. c. have the bucket lowered, level, flat and grounded. d. drive as fast as you can to crowd the bucket.
2. When making contact with the stockpile:	a. enter at a sharp angle to load only on side of the bucket. b. spin the loader tires for better traction. c. decrease the throttle. d. increase the throttle.
3. When placing material into the dump truck:	a. dump the material with full force to level it out in the bottom of the truck. b. use a soft material to line the bed before dumping. c. dump the material slowly a little at a time. d. use half buckets until the bed is covered.

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LOAD GRAVEL INTO DUMP TRUCK

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
1. perform an operational inspection by utilizing AF Form 1806 if required? (Refer to Unit 2, Perform Operational Checks / Operators Maintenance.)		
2. sign AF Form 1806 if required?		
3. have the truck position correctly?		
4. approach stockpile correctly?		
5. enter stockpile correctly?		
6. crowd bucket correctly?		
7. leave stockpile correctly?		
8. dump material correctly?		
9. fill dump truck correctly?		
10. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

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WHEEL MOUNTED FRONT-END LOADERS

LOADER OPERATIONS

MODULE 15

AFQTP UNIT 2

LEVEL AREA (15.2.3.2.)

THIS UNIT IS **OPTIONAL** AND AVAILABLE TO USE AS A LESSON PLAN WHEN TRAINING ON THIS NON-CORE TASK.

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

LEVEL AREA
Task Training Guide

STS Reference Number/Title:	15.2.3.2. - Level area using a wheel mounted front-end loader.
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 1, Section 1-1, Lesson 201; <i>Operating a Front-End Loader</i>. 2. Technical Order (TO) 36C series. 3. Field Manual (FM) 5-434, Earth Moving Operations. 4. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 5. AF Form 1806, Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal). 6. Air Force Qualification Training Package (AFQTP) Video PIN # 613954: Front End Loader Operations. 7. Air Force Occupational Safety and Health Standard (AFOSHSTD) 91-10, Civil Engineering. (Note: This AFOSHSTD will become part of AFOSHSTD 91-501, <i>Consolidated Standards, Part 2</i> in FY 03.) 8. Owner's manual. 9. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E231 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 1, Section 1-1, Lesson 201. 3.2. Applicable TO or owner's manual. 3.3. FM 5-434, Chapter 5, <i>Loader</i>. 3.4. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections</i>. 3.5. AFOSHSTD 91-10, Chapter 3; <i>Equipment Operations, Pavements, and Landscape and Grounds Maintenance</i>. 3.6. Local procedures. 4. Complete the following: <ol style="list-style-type: none"> 4.1. AFQTP Module 3E2X1-15, Unit 2; <i>Perform Operational Checks and Operators Maintenance</i>. 4.2. AFQTP Video PIN # 613954.
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. Wheeled loader. 2. Gravel. 3. AF Form 1806. 4. Personal safety equipment.

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Task Training Guide (Continued)

Learning Objective:	Trainee will learn how to level material using a wheeled loader.
Samples of Behavior:	The trainee will demonstrate the proper procedures in leveling material.
Notes:	
<ol style="list-style-type: none">1. This area is optional and available to use as a lesson plan when training on this non-core task.2. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, safety glass/goggles, and seat belt).3. Any safety violation is an automatic failure.	

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LEVEL AREA

1. Background. The front-end loader is a good piece of equipment to level out small to medium size jobs. There are two techniques commonly used, they are the Dozer position method and the Back dragging method. In order to perform the Dozer position method the loader must be equipped with a multi-purpose bucket also commonly referred as the 3 in1 bucket. The Back dragging method is used when the loader is equipped with a solid bucket.

2. Requirements. View AFQTP Video PIN # 613954: *Front End Loader Operations*. After completing the AFQTP Video properly level an area with a front-end loader using the step-by-step procedures listed below.

NOTE TO TRAINER/CERTIFIER:

If a project is not available, then the minimum requirement for this task is the following: Fill a dump truck with soil or sand and dump the material in a clear area. Have the trainee level the material following the steps below.

3. Leveling Procedures. Follow these steps to level an area with a front-end loader:

Step 1: Perform daily operational checks if not already accomplished. (See Module 3E2X1-15, Unit 2: Perform Operational Checks / Operators Maintenance for details.)

Step 2: Take a few minutes to assess the job site and get a mental picture of where you want to start. Look for any hazards in the area such as culverts, cable markers, etc.

Step 3: Leveling using a closed bucket.

3.1. Place the bucket level and flat on the ground. Take about $\frac{1}{3}$ of a bucket and push through the material.

3.2. Raise and roll the bucket all the way forward while moving continue this until the all the material is out of the bucket.

3.3. Level the area in rows instead of a random pattern. This will keep the area from becoming overfilled and give you a better idea where the material is needed and how much more you will need.

Step 4: Leveling using the dozer method (if equipped).

4.1. Lower the bucket level and flat on the ground, and open the clamshell.

4.1.1. Remember, you are leveling the area, not digging, so pay attention to what the blade is doing.

4.1.2. The blade should be set on or slightly above the ground.

4.2. Start cutting the high spots out of the area and pushing the material filling in the low spots.

4.3. Level the low spots a little at a time. To do this, just pick your bucket up slightly and when there is no more material, go back and get some more and repeat the step.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

Step 5: Back dragging. Back drag the area from the high spots to the low spots. Once the cutting and filling is done.

5.1. Lower and slightly tilt the loader bucket back until it sets on the ground. Ensure the clamshell is closed if using multi-bucket.

5.2. Tilting the bucket back keeps the teeth from penetrating the ground and leaving small ruts.

5.3. Slowly move the loader backward.

5.3.1. As you start to move, place the lift control lever in the float position.

5.3.2. Continue moving until all the material underneath the bucket is gone.

5.4. Continue until the area is level.

NOTE:

Remember while back dragging, you still must look over both shoulders for any obstructions.

REVIEW QUESTIONS
FOR
LEVEL AREA

QUESTION	ANSWER
1. Push material from the high spot onto the low spots to level an area.	a. True. b. False.
2. Avoid back dragging; it could damage the wheeled loader bucket.	a. True. b. False.
3. Never put the bucket in float because it will cause uneven surfaces.	a. True. b. False.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

LEVEL AREA

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
1. perform an operational inspection by utilizing AF Form 1806 if required? (Refer to Unit 2, Perform Operational Checks / Operators Maintenance.)		
2. sign AF Form 1806 if required?		
3. assess the job site correctly?		
4. cut and fill the area correctly?		
5. back drag the area correctly?		
6. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.



WHEEL MOUNTED FRONT-END LOADERS

LOADER OPERATIONS

MODULE 15

AFQTP UNIT 2

SPREAD MATERIALS (15.2.3.3.)

THIS UNIT IS **OPTIONAL** AND AVAILABLE TO USE AS A LESSON PLAN WHEN TRAINING ON THIS NON-CORE TASK.

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

SPREAD MATERIALS
Task Training Guide

STS Reference Number/Title:	15.2.3.3. - Spread materials with wheel mounted front-end loader.
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 1, Section 1-1, Lesson 201; <i>Operating a Front-End Loader</i>. 2. Technical Order (TO) 36C series. 3. Field Manual (FM) 5-434, Earth Moving Operations. 4. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 5. AF Form 1806, Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal). 6. Air Force Qualification Training Package (AFQTP) Video PIN # 613954: Front End Loader Operations. 7. Air Force Occupational Safety and Health Standard (AFOSHSTD) 91-10, Civil Engineering. (Note: This AFOSHSTD will become part of AFOSHSTD 91-501, <i>Consolidated Standards, Part 2</i> in FY 03.) 8. Owner's manual. 9. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E231 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 1, Section 1-1, Lesson 201. 3.2. Applicable TO or owner's manual. 3.3. FM 5-434, Chapter 5, <i>Loader</i>. 3.4. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections</i>. 3.5. AFOSHSTD 91-10, Chapter 3; <i>Equipment Operations, Pavements, and Landscape and Grounds Maintenance</i>. 3.6. Local procedures. 4. Complete the following: <ol style="list-style-type: none"> 4.1. AFQTP Module 3E2X1-15, Unit 2; <i>Perform Operational Checks and Operator Maintenance</i>. 4.2. AFQTP Video PIN # 613954.
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. Wheeled loader. 2. Spreading material. 3. AF Form 1806. 4. Personal protection equipment.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

Task Training Guide (Continued)

Learning Objective:	Trainee will learn how to spread material using a wheeled loader.
Samples of Behavior:	The trainee will demonstrate the proper procedures in spreading material.
Notes:	
<ol style="list-style-type: none">1. This area is optional and available to use as a lesson plan when training on this non-core task.2. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, safety glass/goggles, and seat belt).3. Any safety violation is an automatic failure.	

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

SPREAD MATERIALS

1. Background. The front-end loader is excellent for spreading piles of material to level an area or to prep the area for more precise equipment such as a grader. There are so many different methods of doing this task that learning the basics and watching experienced operators, you will develop a technique that works for you.

2. Requirements. View AFQTP Video PIN # 613954: *Front End Loader Operations*. After completing the AFQTP Video properly spread material with a front-end loader using the step-by-step procedures listed below.

NOTE TO TRAINER/CERTIFIER:

If a spreading project is not available, then the minimum requirement for this task is the following: Fill a dump truck with soil or sand and dump the material in a clear area. Have the trainee spread the material following the steps below.

3. Spreading Procedures. Follow these steps to spread material with a front-end loader:

Step 1: Perform daily operational checks if not already accomplished. (See Module 3E2X1-15, Unit 2: Perform Operational Checks / Operators Maintenance for details.)

Step 2: Spreading using a closed bucket.

- 2.1. Place the bucket level and flat on the ground. Take about a $\frac{1}{3}$ of a bucket and push through the material.
- 2.2. Raise and roll the bucket all the way forward while moving; continue this until the all the material is out of the bucket.
- 2.3. Spread the area in rows instead of a random pattern. This will keep the area from becoming overfilled and give you a better idea where the material is needed and how much more you will need.

Step 3: Spreading using dozer method (if equipped).

- 3.1. Open the clamshell all the way and raise the bucket just slightly above the ground. Take about a $\frac{1}{3}$ of a bucket and push through the material, continue until all the material is gone from the blade.
- 3.2. Spread the area in rows instead of a random pattern. This will keep the area from becoming overfilled and give you a better idea where the material is needed and how much more you will need.

Step 4. Back dragging. Back drag the area from the high spots to the low spots after spreading the material.

- 4.1. Lower and slightly tilt the loader bucket back until it sets on the ground.
 - 4.1.1. Ensure clamshell is closed if using the multi-bucket.
 - 4.1.2. Tilting the bucket back keeps the teeth from penetrating the ground and leaving small ruts.
- 4.2. Slowly move the loader backward.
 - 4.2.1. As you start to move, place the lift control lever in the float position.
 - 4.2.2. Continue moving until all the material underneath the bucket is gone.
 - 4.2.3. Continue until the area is level.

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

**REVIEW QUESTIONS
FOR
SPREAD MATERIALS**

QUESTION	ANSWER
1. When approaching the stockpile:	a. use high gear and ram the pile to reduce wear on the loader. b. move the whole pile at one time and dump into the fill area. c. take about ¼ of the bucket and push through the pile. d. take about ¾ of the bucket at one time.
2. How should the material be dumped?	a. Open the clamshell or roll the bucket forward and continue until the bucket is empty. b. Two bucket lengths before the fill area. c. Spin the loader tires for better traction. d. In a random pattern.
3. Back drag the area:	a. in the hold position. b. before compaction. c. driving forward. d. in the float position.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

SPREAD MATERIALS

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
1. perform an operational inspection by utilizing AF Form 1806 if required? (Refer to Unit 2, Perform Operational Checks / Operators Maintenance.)		
2. sign AF Form 1806 if required?		
3. approach stockpile correctly?		
4. dump material correctly?		
5. level the area correctly?		
6. compact area correctly?		
7. re-level area correctly?		
8. back drag the area correctly?		
9. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.



WHEEL MOUNTED FRONT-END LOADERS

LOADER OPERATIONS

MODULE 15

AFQTP UNIT 2

STOCKPILE MATERIALS (15.2.3.4.)

THIS UNIT IS **OPTIONAL** AND AVAILABLE TO USE AS A LESSON PLAN WHEN TRAINING ON THIS NON-CORE TASK.

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

STOCKPILE MATERIALS
Task Training Guide

STS Reference Number/Title:	15.2.3.4. - Stockpile materials utilizing front-end loader.
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 1, Section 1-1, Lesson 201; <i>Operating a Front-End Loader</i>. 2. Technical Order (TO) 36C series. 3. Field Manual (FM) 5-434, <i>Earth Moving Operations</i>. 4. Air Force Joint Manual (AFJMAN) 24-306, <i>Manual for the Wheeled Vehicle Driver</i>. 5. AF Form 1806, <i>Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal)</i>. 6. Air Force Qualification Training Package (AFQTP) Video PIN # 613954: <i>Front End Loader Operations</i>. 7. Air Force Occupational Safety and Health Standard (AFOSHSTD) 91-10, <i>Civil Engineering</i>. (Note: This AFOSHSTD will become part of AFOSHSTD 91-501, <i>Consolidated Standards, Part 2</i> in FY 03.) 8. Owner's manual. 9. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E231 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 1, Section 1-1, Lesson 201. 3.2. Applicable TO or owner's manual. 3.3. FM 5-434, Chapter 5, <i>Loader</i>. 3.4. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections</i>. 3.5. AFOSHSTD 91-10, Chapter 3; <i>Equipment Operations, Pavements, and Landscape and Grounds Maintenance</i>. 3.6. Local procedures. 4. Complete the following: <ol style="list-style-type: none"> 4.1. AFQTP Module 3E2X1-15, Unit 2; <i>Perform Operational Checks and Operators Maintenance</i>. 4.2. AFQTP Video PIN # 613954.
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. Wheeled loader. 2. Spreading material. 3. AF Form 1806 4. Personal protection equipment.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

Task Training Guide (Continued)

Learning Objective:	Trainee will learn how to stockpile material using a wheeled loader.
Samples of Behavior:	The trainee will demonstrate the proper procedures in stockpiling material.
Notes:	
<ol style="list-style-type: none">1. This area is optional and available to use as a lesson plan when training on this non-core task.2. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, and safety glass/goggles).3. Any safety violation is an automatic failure.	

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

STOCKPILE MATERIALS

1. Background. The standard machine for building stockpiles is the front-end loader. The dozer can do the same work, but less efficiently, because it cannot make high piles without walking on them. Stockpiling is best done on areas that are flat, hard, and clear. Avoid low areas where drainage is poor and where a hard rain may fill low spots and wash away needed materials.

2. Stockpile Material. Be aware of different size aggregates, in a material being stockpiled, it has a tendency to separate from each other. This is known as segregation. When working the material too much, segregation takes place with the larger particles rolling to the bottom of the pile. To avoid this, build the stockpile in layers to make sure it maintains a uniform gradation.

3. Requirements. View AFQTP Video PIN # 613954: *Front End Loader Operations*. After completing the AFQTP Video properly stockpile material with a front-end loader using the step-by-step procedures listed below.

NOTE TO TRAINER/CERTIFIER:

The minimum requirement for this task is the following: Haul four to five dump truck loads of base course/gravel to a clear area. Have the trainee stockpile the material following the steps below.

4. Stockpiling Procedures. Follow these steps to stockpile material using a front-end loader:

Step 1: Perform daily operational checks if not already accomplished. (See Module 3E2X1-15, Unit 2: Perform Operational Checks / Operators Maintenance for details.)

Step 2: Approach the stockpile material.

2.1. Place the bucket flat, level, and grounded and proceed forward in low gear until you penetrate the material.

2.2. Raise the engine speed high enough to push the material ahead without spinning the tires.

2.3. Push the material to the pre-determined area and stop.

Step 3: Dump the material.

3.1. Raise your bucket and dump the material.

3.2. If trucks are delivering material, have them dump close to the pile.

3.3. Do not ride up on the pile to stack it higher, the material could sink and the loader could tip to one side or completely over.

Step 4: After all the material is stockpiled, clean up around the area and make the pile uniform.

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

**REVIEW QUESTIONS
FOR
STOCKPILE MATERIALS**

QUESTION	ANSWER
1. Segregation is not a common concern while stockpiling.	a. True. b. False.
2. When pushing up a stockpile, never:	a. push a full bucket up the pile. b. start with a level bucket. c. drive up the pile. d. use low gear.
3. Cleaning up around the stockpile will:	a. make a uniform pile and keep all the material in the pile. b. keep traffic out of the area. c. cause segregation. d. ensure drainage.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

STOCKPILE MATERIALS

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
1. perform an operational inspection by utilizing AF Form 1806 if required? (Refer to Unit 2, Perform Operational Checks / Operators Maintenance.)		
2. sign AF Form 1806 if required?		
3. approach material correctly?		
4. load material correctly?		
5. dump material correctly?		
6. clean the area correctly?		
7. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.



WHEEL MOUNTED FRONT-END LOADERS

LOADER OPERATIONS

MODULE 15

AFQTP UNIT 2

BACKFILL (15.2.3.5.)

THIS UNIT IS **OPTIONAL** AND AVAILABLE TO USE AS A LESSON PLAN WHEN TRAINING ON THIS NON-CORE TASK.

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

BACKFILL
Task Training Guide

STS Reference Number/Title:	15.2.3.5. - Backfill with front-end loader.
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 1, Section 1-1, Lesson 201; <i>Operating a Front-End Loader</i>. 2. Technical Order (TO) 36C series. 3. Field Manual (FM) 5-434, Earth Moving Operations. 4. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 5. AF Form 1806, Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal). 6. Air Force Qualification Training Package (AFQTP) Video PIN # 613954: Front End Loader Operations. 7. Air Force Occupational Safety and Health Standard (AFOSHSTD) 91-10, Civil Engineering. (Note: This AFOSHSTD will become part of AFOSHSTD 91-501, <i>Consolidated Standards, Part 2</i> in FY 03.) 8. Owner's manual. 9. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E231 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 1, Section 1-1, Lesson 201. 3.2. Applicable TO or owner's manual. 3.3. FM 5-434, Chapter 5, <i>Loader</i>. 3.4. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections</i>. 3.5. AFOSHSTD 91-10, Chapter 3; <i>Equipment Operations, Pavements, and Landscape and Grounds Maintenance</i>. 3.6. Local procedures. 4. Complete the following: <ol style="list-style-type: none"> 4.1. AFQTP Module 3E2X1-15, Unit 2; <i>Perform Operational Checks and Operators Maintenance</i>. 4.2. AFQTP Video PIN # 613954.
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. Wheeled loader. 2. Backfill material. 3. AF Form 1806. 4. Personal protection equipment.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

TASK TRAINING GUIDE (Continued)

Learning Objective:	Trainee will learn how to backfill using a wheeled loader.
Samples of Behavior:	The trainee will demonstrate the proper procedures in backfilling.
Notes:	
<ol style="list-style-type: none">1. This area is optional and available to use as a lesson plan when training on this non-core task.2. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, safety glass/goggles, and seat belt).3. Any safety violation is an automatic failure.	

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

BACKFILL

1. Background. The front-end loader is a handy tool for backfilling ditches or trenches. An advantageous feature is that the unit's rubber tires have a minimum tearing effect when working on a hard surface such as asphalt. By lowering the bucket to grade level, if equipped, opening the clamshell, and the forward movement of the machine will push the stockpiled earth into the trench.

2. Requirements. View AFQTP Video PIN # 613954: *Front End Loader Operations*. After completing the AFQTP Video properly backfill material with a front-end loader using the step-by-step procedures listed below.

NOTE TO TRAINER/CERTIFIER:

The minimum requirement for this task is the following: Have an area cleared using an AF Form 103 to dig a trench using a backhoe. Once the trench has been established have the trainee backfill the trench following the steps below.

3. Backfilling Procedures. Follow these steps to backfill an area with a front-end loader:

Step 1: Perform daily operational checks if not already accomplished. (See Module 3E2X1-15, Unit 2: Perform Operational Checks / Operators Maintenance for details.)

Step 2: Using closed bucket.

- 2.1. Align the loader at a 45-degree angle to the material being backfilled so that 1/3 of the bucket will contact the stockpile.
- 2.2. Lower the bucket level and flat on the ground.
- 2.3. Raise the engine speed high enough to push the material ahead without spinning the tires.
- 2.4. Push the material into the pre-determined area gradually raising the bucket and rolling the bucket to dump the material.
- 2.5. Continue down the trench and leave the spoil a little high.

Step 3: Using clamshell (if equipped).

- 3.1. Align the loader at a 45-degree angle to the material being backfilled so that 1/3 of the bucket will contact the stockpile.
- 3.2. Open the clamshell with the dozer blade flat and level on the ground and proceed forward in low gear perpendicular to the trench until you penetrate the material.
- 3.3. Raise the engine speed high enough to push the material ahead without spinning the tires.
- 3.4. Push the material into the pre-determined area gradually raising the blade until the material is gone.
- 3.5. Continue down the trench and leave the spoil a little high.

Step 4: Compact the loose dirt.

- 4.1. Drive over the excess spoil of the trench to compact it, if no utilities will be damaged.
- 4.2. Some trenches will require additional compaction and sometime in layers.
- 4.3. Repeat the above steps until the operation is complete.

Step 5: Clean up the area by back dragging parallel to the trench and leveling any loose material. This will enhance the appearance of the job site.

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

**REVIEW QUESTIONS
FOR
BACKFILL**

QUESTION	ANSWER
1. Which direction should you backfill a trench?	a. Against the offset path of the loader. b. Perpendicular. c. Cross gain. d. Parallel.
2. Compact over utilities if there are no possibilities of damage.	a. True. b. False.
3. Cleaning up around the area being backfilled will:	a. enhance the appearance of the job site. b. keep the trench from caving in. c. keep traffic out of the area. d. assist in leveling.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

BACKFILL

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
1. perform an operational inspection by utilizing AF Form 1806 if required? (Refer to Unit 2, Perform Operational Checks / Operators Maintenance.)		
2. sign AF Form 1806 if required?		
3. approach spoiled material correctly?		
4. push material in trench correctly?		
5. compact trench correctly?		
6. back drag and clean up the area correctly?		
7. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.



WHEEL MOUNTED FRONT-END LOADERS

FORKLIFT ATTACHMENT OPERATIONS

MODULE 15

AFQTP UNIT 2

LOAD/UNLOAD MATERIAL (15.2.4.1.)

TRANSPORT MATERIAL (15.2.4.2.)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

LOAD/UNLOAD / TRANSPORT MATERIAL

Task Training Guide

<p>STS Reference Number/Title:</p>	<p>15.2.3.1. - Load/unload material using a front-end loader. 15.2.3.2. - Transport material using a front-end loader.</p>
<p>Training References:</p>	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 1, Section 1-1, Lesson 203: <i>Operating a Forklift</i>. 2. Technical Order (TO) 36C series. 3. Field Manual (FM) 5-434, <i>Earth Moving Operations</i>. 4. Air Force Joint Manual (AFJMAN) 24-306, <i>Manual for the Wheeled Vehicle Driver</i>. 5. AF Form 1806, <i>Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal)</i>. 6. Air Force Qualification Training Package (AFQTP) Video PIN # 613940: <i>Front End Loader With Forklift Attachment</i>. 7. Air Force Occupational Safety and Health Standard (AFOSHSTD) 91-10, <i>Civil Engineering</i>. (Note: This AFOSHSTD will become part of AFOSHSTD 91-501, <i>Consolidated Standards, Part 2</i> in FY 03.) 8. Owner's manual. 9. Local procedures.
<p>Prerequisites:</p>	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E231 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 1, Section 1-1, Lesson 203. 3.2. Applicable TO or owner's manual. 3.3. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections</i>. 3.4. AFOSHSTD 91-10, Chapter 3; <i>Equipment Operations, Pavements, and Landscape and Grounds Maintenance</i>. 3.5. Local procedures. 4. Complete the following: <ol style="list-style-type: none"> 4.1. AFQTP Module 3E2X1-15, Unit 2; <i>Perform Operational Checks and Operators Maintenance</i>. 4.2. AFQTP Video PIN # 613940.
<p>Equipment/Tools Required:</p>	<ol style="list-style-type: none"> 1. Wheeled loader with forklift attachment. 2. Transportable material. 3. AF Form 1806. 4. Personal protection equipment.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

Task Training Guide (Continued)

Learning Objective:	Trainee will learn how to load/unload and transport material using a wheeled loader.
Samples of Behavior:	The trainee will demonstrate the proper procedures in load/unload, and transporting material.
Notes:	
1. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, safety glass/goggles, and seat belt). 2. Any safety violation is an automatic failure.	

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

LOAD/UNLOAD / TRANSPORT MATERIAL

1. Background. The front-end loader has several attachments that can be used for transporting material. The forklift attachment makes the loader very versatile. When forks are installed on the loader, make sure that you know the rated capacity for the fork tines not just the loader. All forks are rated at a certain distance from the back of the forks. The capacity is not at the very end of the forks. Lifting capacity loads at the front of the forks will break the attachment or destroy a load. Remember a loader with a fork attachment is not a forklift. The loader has a looser suspension than a warehouse forklift and the center of gravity is considerably higher. Loading and unloading material is basically the same task but in reverse order.

2. Requirements. View AFQTP Video PIN # 613940: *Front End Loader With Forklift Attachment*. After completing the AFQTP Video properly load, unload, and transport material with a front-end loader using the step-by-step procedures listed below.

NOTE TO TRAINER/CERTIFIER:

The minimum requirement for upgrading is the following: Have the trainee load five pallets of sandbags and transport them to a tractor-trailer. Then reverse the procedure and have the trainee unload the pallets off the trailer and transport them to a designated area.

3. Loading/Unloading and Transport Procedures. Follow these steps to load, unload, and transport material with a front-end loader:

Step 1: Perform daily operational checks if not already accomplished. (See Module 3E2X1-15, Unit 2: Perform Operational Checks / Operators Maintenance for details.)

Step 2: Positioning the forks.

- 2.1. Approach the pallet and check the forks to make sure that they are far enough apart to ensure load stability.
- 2.2. Have a spotter assist you in the placing and moving of the load, if visibility is limited. Make sure the forks are low enough so you don't run them through the load on the pallet.
- 2.3. Pull forward and slide the forks under the pallet.

Step 3: Lifting the load.

- 3.1. Engage the clutch cutout pedal, after the forks are under the pallet.
- 3.2. Accelerate slightly and pull back on the lift control to raise the load.
- 3.3. Pull back on the tilt control to keep the load from tipping. The tilt control lever on the forklift is the same as the bucket control lever on the front-end loader.

Step 4: Transporting the load.

- 4.1. Raise the load 12- to 18-inches off the ground or high enough to clear any obstacles while traveling.
- 4.2. To ensure stability, travel slowly, avoid sharp turns, and don't stop suddenly.

NOTE:

Adjustments of travel height may be needed according to your load type to ensure it does not obstruct the operator's vision in the direction of travel.

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

Step 5: Placing the load on a trailer.

- 5.1. Approach the trailer, decrease your speed and begin elevating the load so it is slightly above the trailer.
- 5.2. When the load is over the trailer tilt the load forward until it becomes level.
- 5.3. Lower the load slowly until it rests on the trailer's surface.
- 5.4. After the load is firmly on the trailer's surface back the forklift slowly away and proceed to the next pallet to be loaded.

Step 6: Offloading the material. Proceed to the trailer and raise the forks. This may require a spotter due to poor visibility.

Step 7: Lifting the load.

- 7.1. Engage the clutch cutout, after the forks are under the pallet.
- 7.2. Accelerate slightly and pull back on the lift control to raise the load.
- 7.3. Pull back on the tilt control to keep the load from tipping.

Step 8: Transporting the load. Follow step 4.

Step 9: Placing the material.

- 9.1. Place any dunnage if needed before placing any material on the ground. This will keep the pallet raised off of the ground and allow the forks to easily back out from underneath the pallet.
- 9.2. Back out slowly after the load is flat and level on the ground.

NOTE:

Be sure to look over both shoulders prior to backing up or use a spotter if available.

**REVIEW QUESTIONS
FOR
LOAD/UNLOAD / TRANSPORT MATERIAL**

QUESTION	ANSWER
1. When a loader is equipped with forks, it is considered to be a forklift.	a. True. b. False.
2. The maximum load capacity for forks is rated by the:	a. maximum load of the fork attachment. b. total load at the end of the fork tips. c. maximum load of the loader. d. maximum load for the tires.
3. How should you travel when transporting a load?	a. Make sharp turns to compensate for shifting of the load. b. High enough to go over any obstacles. c. 18- to 24-inches off the ground. d. As high as possible.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

LOAD/UNLOAD / TRANSPORT MATERIAL

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
1. perform an operational inspection by utilizing AF Form 1806 if required? (Refer to Unit 2, Perform Operational Checks / Operators Maintenance.)		
2. sign AF Form 1806?		
3. have the forks position correctly?		
4. lift the load correctly?		
5. transport safety and correctly?		
6. place and offload the load correctly?		
7. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.



WHEEL MOUNTED FRONT-END LOADERS

MODULE 15

AFQTP UNIT 2

CHANGE ATTACHMENTS ON FRONT-END LOADERS (15.2.6.)

THIS UNIT IS **OPTIONAL** AND AVAILABLE TO USE AS A LESSON PLAN WHEN TRAINING ON THIS NON-CORE TASK.

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

CHANGE ATTACHMENTS ON FRONT-END LOADERS
Task Training Guide

STS Reference Number/Title:	15.2.6. - Change attachments on front-end loader.
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 1, Section 1-1, Lesson 203: <i>Operating a Forklift</i>. 2. Technical Order (TO) 36C series. 3. Field Manual (FM) 5-434, <i>Earth Moving Operations</i>. 4. Air Force Joint Manual (AFJMAN) 24-306, <i>Manual for the Wheeled Vehicle Driver</i>. 5. AF Form 1806, <i>Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal)</i>. 6. Air Force Qualification Training Package (AFQTP) Video PIN # 613940: <i>Front End Loader With Forklift Attachment</i>. 7. Air Force Occupational Safety and Health Standard (AFOSHSTD) 91-10, <i>Civil Engineering</i>. (Note: This AFOSHSTD will become part of AFOSHSTD 91-501, <i>Consolidated Standards, Part 2</i> in FY 03.) 8. Owner's manual. 9. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E231 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 1, Section 1-1, Lesson 203. 3.2. Applicable TO or owner's manual. 3.3. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections</i>. 3.4. AFOSHSTD 91-10, Chapter 3; <i>Equipment Operations, Pavements, and Landscape and Grounds Maintenance</i>. 3.5. Local procedures. 4. Complete the following: <ol style="list-style-type: none"> 4.1. AFQTP Module 3E2X1-15, Unit 2; <i>Perform Operational Checks and Operators Maintenance</i>. 4.2. AFQTP Video PIN # 613940.
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. Front-end /forks/boom/plow bucket if on site. 2. Personal protection equipment.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

Task Training Guide (Continued)

Learning Objective:	The trainee will learn how to change attachments on a front-end loader.
Samples of Behavior:	The trainee will demonstrate the proper procedures in changing attachments on a front-end loader.
Notes:	
<ol style="list-style-type: none">1. This area is optional and available to use as a lesson plan when training on this non-core task.2. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, and safety glass/goggles).3. Any safety violation is an automatic failure.	

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

CHANGE ATTACHMENTS ON FRONT-END LOADERS

1. Background. The front-end loader has many different attachments that can be mounted on the front. There are certain procedures for each different loader. The operator's manual will tell exactly how to use the quick coupler system. Use extreme caution while hooking up attachments. Hoses, or even worse, a person's limbs could be pinched while coupling.

2. Requirements. View AFQTP Video PIN # 613940: *Front End Loader With Forklift Attachment*. After completing the AFQTP Video properly change attachments on a front-end loader using the step-by-step procedures listed below.

NOTE TO TRAINER/CERTIFIER:

The following steps should be used when changing an attachment that utilizes the hydraulic hoses. Substitute steps as needed for your forklift attachment.

3. Procedures. Follow these steps to change out a front-end loader with a bucket to hooking up the fork attachment:

Step 1: Perform daily operational checks if not already accomplished. (See Module 3E2X1-15, Unit 2: Perform Operational Checks / Operators Maintenance for details.)

Step 2: Disconnecting hydraulic hoses.

- 2.1. Turn off the loader.
- 2.2. Move the clamshell lever back and forth several times to help relieve pressure off the clamshell hoses.
- 2.3. Disconnect hydraulic lines.

SAFETY:

USE EXTREME CAUTION WHEN DISCONNECTING THE HYDRAULIC HOSES BECAUSE HYDRAULIC FLUID MAY BE HOT. DISCONNECTING THE HOSES BEFORE UNCOUPLING THE ATTACHMENT WILL PREVENT THE ATTACHMENT FROM COMING OFF AND DAMAGING THE HOSES.

Step 3: Releasing the bucket locking pins. Take a few minutes to look at the operator's manual.

- 3.1. Start the loader.
- 3.2. Locate the connect/disconnect coupler switch or lever and move to disconnect so that this will release the bucket locking pins.
- 3.3. Ensure the bucket is a couple of inches off the ground to make sure there is no pressure on the pins.
- 3.4. Move the tilt lever back and forth if the pins don't release.

Step 4: Disconnecting the bucket once pins are released. While backing up, slowly tilt the bucket forward, and let the boom fall slowly until the quick coupler is free.

Step 5: Connecting forks.

- 5.1. Insert the quick coupler into the back of the forks and slowly roll back until the attachment is flush with the frame of the loader.

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

- 5.2. Pick up the attachment and engage the retaining pins by flipping the coupler switch to connect.
- 5.3. Roll the forks forward until there is pressure.
- 5.4. The front tires of the loader should rise almost off the ground. This means the pins have completely engaged.

NOTE:

Be sure the hydraulic lines are clear before connecting the attachment.

Step 6: Connecting the hydraulic lines.

- 6.1. Turn the loader off.
- 6.2. Pull the hydraulic levers (lift, tilt, and clamshell) toward you, then pushing away from you. To relieve backpressure in the hose connectors.
- 6.3. Inspect the hydraulic ends for dirt and sand.
 - 6.3.1. Clean as needed.
 - 6.3.2. Connect the hydraulic lines; do not hammer the ends to relieve pressure.

Step 7: Testing the hydraulic connections.

- 7.1. Start the loader and move the clamshell hydraulic lever forward under low idle.
 - 7.1.1. Increase the throttle to full if the connection seems to be sealed.
 - 7.1.2. Inspect the connections.
- 7.2. Do the same for the reverse position of that lever.

**REVIEW QUESTIONS
FOR
CHANGE ATTACHMENTS ON FRONT-END LOADER**

QUESTION	ANSWER
1. Why should you relieve the hydraulic pressure before disconnecting the hoses?	a. The seal on the connection will go bad. b. The attachment will not disconnect. c. The hydraulic filter will explode. d. To keep dirt out.
2. All loaders change attachments alike.	a. True. b. False.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

CHANGE ATTACHMENTS ON FRONT-END LOADER

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
1. perform an operational inspection by utilizing AF Form 1806 if required? (Refer to Unit 2, Perform Operational Checks / Operators Maintenance.)		
2. sign AF Form 1806 if required?		
3. disconnect the hydraulic hoses from the bucket correctly?		
4. release the bucket locking pins correctly?		
5. disconnect bucket correctly?		
6. connect forks correctly?		
7. connect hydraulic hoses to the forks correctly?		
8. test the hydraulic connections correctly?		
9. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

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TRACTOR-TRAILER COMBINATIONS

MODULE 15

AFQTP UNIT 4

PERFORM OPERATIONAL CHECKS (15.4.1.)

PERFORM OPERATORS MAINTENANCE (15.4.2.)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

**PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON A
TRACTOR-TRAILER**

Task Training Guide

STS Reference Number/Title:	15.4.1. - Perform operational checks on a tractor-trailer. 15.4.2. - Perform operators' maintenance on a tractor-trailer.
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-3; <i>Truck-Tractor and Semitrailers</i>. 2. Technical Orders (TOs) 36A2, 36A9-2, 36A-12, 36C9, 36C12, 36C15, 36C26, 36Y9 series. 3. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 4. AF Form 1800, Operator's Inspection Guide and Trouble Report (General Purpose Vehicles). 5. Owner's manual. 6. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E251 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-3. 3.2. Applicable TO or owner's manual. 3.3. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections and Preventive Maintenance</i>. 3.4. AF Form 1800. 3.5. Local procedures.
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. Tractor-trailer. 2. Personal protective equipment. 3. General tool kit. 4. AF Forms 1800.
Learning Objective:	The trainee will be able to properly perform operational checks and operator's maintenance on a tractor-trailer.
Samples of Behavior:	The trainee will demonstrate the proper procedures for operational checks and operators' maintenance on a tractor-trailer.
Notes:	<ol style="list-style-type: none"> 1. This is a 7-level core task. 2. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, and safety glass/goggles). 3. Any safety violation is an automatic failure.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON A TRACTOR-TRAILER

1. Background.

1.1. The truck-tractor and semi-trailer are separate units that are joined together by the fifth wheel. The fifth wheel consists of two metal plates, one on the tractor, and one on the semi-trailer. The upper fifth wheel, with its kingpin mounted on the semi-trailer, and the lower fifth wheel, with its locking jaws attached to the tractor, forms a flexible coupling that permits both rotational and vertical movements between the tractor and semi-trailer. When not attached to the tractor, the front-end of the semi-trailer is supported by a retracting landing gear.

1.2. Truck-tractors normally range in size from 5 to 20 tons. The size range depends on the size and type of semi-trailers available for use in vehicle operations. Another factor is the normal size and weight of the equipment that is to be handled (on or off base). Although the size of the tractors may vary, their operation is basically the same. Each truck tractor has a data plate attached to the dashboard. Refer to this data plate to determine operating range and load capacity of the tractor. Usually, a tractor and semi-trailer are used for general cargo transportation, but some are procured for special purposes, such as recovering wrecked and damaged aircraft. Semi-trailers are procured for both general cargo and heavy machinery. Sometimes a van type of semi-trailer is insulated and equipped with refrigeration equipment. Such a van is used to transport perishables or sensitive instruments.

2. Inspection Program. Specific preoperational inspection procedures can be found in the owner's manual that accompanied the equipment. Truck-tractor and semi-trailer maintenance, like any other maintenance, is very important. If the machine is not running well, then how is the job going to get done? The main reason for inspecting the equipment is to determine what maintenance, if any, is required. The more effective maintenance program that a unit has for its equipment, the better the operation will run.

3. Operational Checks Procedures. Follow these steps to perform operational checks on a tractor-trailer:

Step 1: Utilizing AF Forms 1800.

- 1.1. Check all items listed that pertain to the tractor-trailer.
- 1.2. Sign the AF Form 1800 after properly inspecting the equipment.

Step 2: Inspect Vehicle Exterior. Inspection of the vehicle exterior begins with a 360-degree walk around looking for damage and leaks.

- 2.1. Check the tires for wear, lug nut tightness, and correct tire air pressure.
- 2.2. Check the mirrors for cleanliness and cracks.
- 2.3. Drain any built-up condensation from the air tanks.
- 2.4. Check tractor interior for cleanliness.
- 2.5. Annotate any discrepancies found on the AF Forms 1800 and notify supervisor.

HINT:

Puddles of fluid and dirty areas on the engine or ground normally indicate problem areas and should be investigated and repaired as soon as possible.

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Step 3: Inspect Drive Engine / Battery Compartments.

- 3.1. Check the engine oil, coolant, brake, power steering, transmission fluid levels, and fill as needed.
- 3.2. Inspect the drive belts for wear, tension, and alignment.
- 3.3. Ensure the battery connections are secure and free from corrosion.

Step 4: Inspect Tractor Unique Items. The following items are not listed on the AF Form 1800; add these items in the spaces provided for additional items.

- 4.1. Check for safety items such as reflective triangles and fire extinguishers.
- 4.2. Inspect the fifth wheel; ensuring the kingpin latch is open and adequately greased.
- 4.3. Inspect the airlines and electrical jumper cable for signs of abrasion, cracks, or other damage.

Step 5: Inspect Trailer Unique Items. The following items are not listed on the AF Form 1800; add these items in the spaces provided for additional items.

- 5.1. Inspect tie-down points for broken welds, bent rods, or rings.
- 5.2. Check condition of glad hand rubber seals.
- 5.3. Check light for broken or burned
- 5.4. Inspect kingpin and upper trailer plate for damage and adequately greased.
- 5.5. Check condition of deck material and landing gear.

Step 6: Function Check.

- 6.1. Ensure parking brake is set and transmission is in neutral.
- 6.2. Start engine.
- 6.3. Check for leaks.
- 6.4. Check that all mechanical functions operate correctly.
- 6.5. Shut engine down.

4. Maintenance Program. Correct and timely operator maintenance ensures the equipment will do the job when needed and it will last longer, this saves the Air Force money. A good operator maintenance program includes inspections to detect and correct minor deficiencies before they develop into major defects that could result in loss time or costly repairs. It is the operator's responsibility to perform any minor maintenance needed.

5. Operator Maintenance Procedures. Follow these steps to perform operator maintenance on a tractor-trailer.

Step 1: Clean Tractor-Trailer.

- 1.1. Clean out any trash or debris from the inside of the cab daily.
- 1.2. Wash any dirt or grease from the tractor-trailer; this will help you find the lubrication points on the specified lube chart.
- 1.3. Store all chains, binders, etc. in a secure place.

Step 2: Clean Air Intake Filters. Air intake filters are of special importance. There are generally two elements the inner and the outer.

- 2.1. Under dusty operating conditions clean both elements daily.
- 2.2. For cleaning procedures use guidelines stated in the operator's maintenance manual.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

Step 3: Lubrication. Lubrication reduces harmful friction between moving parts.

3.1. Lubricate the vehicle according to intervals listed in the maintenance chart. If operating the machine in severe conditions then lubricate the machine more frequently.

3.2. Remove all the dirt and grease from the grease fittings before and after lubricating.

Step 4: Refueling.

4.1. Fuel the tractor **at the end of each working day** to prevent moisture from condensing and forming droplets within the fuel tank.

4.2. Contact base fuels for them to come out to the job site if your equipment can't be driven to the service station.

4.3. Ensure the vehicle has a minimum of $\frac{3}{4}$ of a tank of fuel at the end of the duty day.

Step 5: Check and replace any broken lenses and burnt out bulbs.

Step 6: Check tires for proper air pressure.

6.1. Add air to the tires if they are low.

6.2. If a tire is damaged or worn take it to vehicle maintenance for replacement.

**REVIEW QUESTIONS
FOR
PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON A
TRACTOR-TRAILER**

QUESTION	ANSWER
1. Why is cleaning an important part of vehicle maintenance?	<ul style="list-style-type: none"> a. To minimize breakdowns and save the AF money. b. It is required by AF Form 1800. c. Enables you to see any damage to the vehicle and locate lubrication points. d. It isn't important.
2. Ensure the vehicle always has at least ½ of a tank of gas at the end of each duty day.	<ul style="list-style-type: none"> a. True. b. False.
3. Who is responsible for any minor maintenance needed?	<ul style="list-style-type: none"> a. Vehicle maintenance. b. Operator. c. Vehicle control officer. d. Operation Care Center.
4. Wipe all grease fittings before and after lubrication.	<ul style="list-style-type: none"> a. True b. False.
5. The kingpin is a part of the tractor's fifth wheel assembly.	<ul style="list-style-type: none"> a. True. b. False.
6. Which of the following are inspection items for the trailer?	<ul style="list-style-type: none"> a. Rings. b. Bent rods. c. Broke welds. d. All the above.
7. Tractors normally range from the ___ to ___ ton size.	<ul style="list-style-type: none"> a. 5 to 10 b. 5 to 15 c. 5 to 20 d. 2 to 25
8. The Air Force Form _____ is used as a guide for tractor-trailer inspection.	<ul style="list-style-type: none"> a. 171 b. 373 c. 1800 d. 1806

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON A TRACTOR-TRAILER

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
Operational Checks		
1. utilize AF Form 1800?		
2. check vehicle exterior, interior, and trailer?		
3. check the engine oil, coolant, and transmission fluid levels and fill as needed?		
4. inspect the drive belts for wear, tension, and alignment?		
5. check the battery connections for tightness and free of corrosion?		
6. inspect air and brake lines?		
7. inspect fifth wheel and kingpin?		
8. inspect lights on tractor and trailer?		
9. sign AF Form 1800?		
10. comply with all safety requirements?		
Operators Maintenance		
1. clean vehicle?		
2. check and clean air intake filters?		
3. lubricate tractor and trailer according to the lube chart?		
4. remove all the dirt and grease from the grease fittings before and after lubricating?		
5. check fuel level and refuel if needed?		
6. check tires for wear/damage?		
7. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.



TRACTOR-TRAILER COMBINATIONS

OPERATE

MODULE 15

AFQTP UNIT 4

COUPLE/UNCOUPLE TRAILER (15.4.3.1.)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

COUPLE/UNCOUPLE TRAILER
Task Training Guide

STS Reference Number/Title:	15.4.3.1. - Couple/uncouple trailer.
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-3, Lesson 003; <i>Coupling and Uncoupling Semitrailers</i>. 2. Technical Orders (TOs) 36A2, 36A9-2, 36A-12, 36C9, 36C12, 36C15, 36C26, 36Y9 series. 3. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 4. AF Form 1800, Operator's Inspection Guide and Trouble Report (General Purpose Vehicles). 5. Owner's manual. 6. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E251 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-3, Lesson 003. 3.2. Applicable TO or owner's manual. 3.3. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections</i>. 3.4. AF Form 1800. 3.5. Local procedures. 4. Complete AFQTP Module 3E2X1-15, Unit 4; Perform Operational Checks and Operator Maintenance.
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. Tractor-trailer. 2. Personal protective equipment. 3. General tool kit. 4. AF Form 1800.
Learning Objective:	The trainee will be able to properly couple/uncouple a tractor-trailer.
Samples of Behavior:	The trainee will demonstrate the proper procedures for couple/uncouple a tractor-trailer.
Notes:	
<ol style="list-style-type: none"> 1. This is a 7-level core task. 2. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, and safety glass/goggles). 3. Any safety violation is an automatic failure. 	

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

COUPLE/UNCOUPLE TRAILER

1. Background. The normal safety precautions should be followed with both coupled and uncoupled trailers.

NOTE TO TRAINER/CERTIFIER:

Trainee will couple and uncouple a trailer to the tractor. Trainee must follow each step in order as stated to complete this unit of training.

2. Coupling / Uncoupling Procedures. Follow these steps to couple and uncouple trailer:

2.1. Coupling Semi-Trailer.

Step 1: Perform an operational inspection. (See Module 3E2X1-15, Unit 4, Perform Operational Checks and Operator Maintenance for details.)

Step 2: Ensure the rear wheels of the semi-trailer are chocked.

Step 3: Position tractor ahead of and in line with the semi-trailer.

3.1. Slowly back the tractor to the nose of the semi-trailer.

3.2. Ensure the kingpin on the semi-trailer is in line with the fifth wheel jaw on the tractor.

Step 4: Check fifth wheel/trailer height.

4.1. Stop the tractor just before the upper coupler plate (fifth wheel) of the semi-trailer starts to ride on the lower fifth wheel.

4.2. Check the height of the semi-trailer fifth wheel plate to assure that it is the proper height to align with the tractor fifth wheel coupler. If not, raise or lower the front of the semi-trailer as needed.

4.3. Pull the fifth wheel plunger hand forward then pull back out to open the coupler jaws.

Step 5: Connect emergency brake line and service line of the tractor to the semi-trailer.

5.1. Connect the coupling of the tractor line marked Emergency hose (color coded red) to the coupling bearing a like tag on the semi-trailer.

5.2. Connect the coupling of the tractor line marked Service (color coded blue) to the coupling bearing a like tag on the semi-trailer.

NOTE:

The airlines will be crossed if connected properly.

5.3. Press in the trailer air supply valve; hold in place for 15 seconds. Release the valve.

NOTE:

The air supply valve will stay in the “engaged” position indicating the semi-trailer air brake system has proper air pressure.

5.4. Apply the trailer brakes by pulling down on the steering column brake lever in the tractor cab.

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5.5. Release the tractor brake. This helps to prevent the trailer from moving when the tractor is backed under it.

Step 6: Connect tractor-trailer.

6.1. Ensure the lower fifth wheel locking handle is in the OPEN position.

6.2. Back the tractor until the fifth wheel has picked up the front of the trailer and the landing gear wheels are off the ground.

6.2.1. Back tractor under the trailer with a faster and more forceful motion until the jaws of the lower fifth wheel automatically lock around the kingpin on the trailer.

6.2.2. This action will throw the lower fifth wheel locking handle into the CLOSED position. Make certain that the coupling is secure by trying to pull the tractor forward with the semi-trailer brakes set and visually check the connection.

6.3. Place the transmission selector in neutral, and then apply parking brake.

6.4. Visually check to make sure the lower fifth wheel locking handle is in the CLOSED position.

6.5. Engage the trailer air brake control handle then release the parking brake lever.

6.6. Place transmission selector in first gear; slightly accelerate. The tractor should not move forward if the fifth wheel is properly connected to the semi-trailer.

6.7. Place the transmission in neutral and apply the parking brake.

6.8. Connect electrical jumper cable, and then operate the lights from the tractor to make sure that all tractor/trailer lights are in working correctly.

6.9. Raise landing gear and remove chock blocks.

2.2. Uncoupling Semi-trailer.

Step 1: Correctly block the wheels on one side of the semi-trailer.

Step 2: Lower landing gear completely to pavement.

NOTE:

Ensure landing gear will be on sound pavement. If needed place some type of board or other type of material under landing gear to prevent landing gear from sinking into the pavement.

Step 3: Uncouple air brake lines and disconnect electrical jumper cable. The semi-trailer brakes automatically set when emergency airline is uncoupled.

Step 4: Unlock the fifth wheel locking jaws.

Step 5: Drive the tractor forward until the semi-trailer is free and rests on the landing gear. Pull the tractor out slowly to prevent dropping the weight of the trailer suddenly on the landing gear.

**REVIEW QUESTIONS
FOR
COUPLE / UNCOUPLE TRAILER**

QUESTION	ANSWER
1. The airline hoses will be crossed if properly connected.	a. True. b. False.
2. The first step in coupling is blocking the rear wheels.	a. True. b. False.
3. If the emergency airline is uncoupled, the trailer brakes are automatically engaged.	a. True. b. False.
4. How much time do you hold the air supply valve in before it should stay in the engaged position?	a. 10 seconds. b. 15 seconds. c. 20 seconds. d. 30 seconds.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

COUPLE/UNCOUPLE TRAILER

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
Couple Trailer		
1. perform an operational inspection by utilizing AF Form 1806 if required? (Refer to Unit 4, Perform Operational Checks / Operators Maintenance.)		
2. sign AF Form 1800 if required?		
3. block rear wheels of semi-trailer?		
4. position tractor correctly?		
5. inspect trailer fifth wheel/trailer height?		
6. connect airlines correctly?		
7. connect tractor and trailer together correctly?		
8. connect electrical jumper cable correctly?		
9. raise landing gear and secure chock blocks?		
10. comply with all safety requirements?		
Uncouple Trailer		
11. block wheels and lower landing gear correctly?		
12. disconnect air brakes and electrical jumper cable?		
13. unlock the fifth wheel locking jaws?		
14. pulled tractor forward to uncouple trailer?		
15. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

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TRACTOR-TRAILER COMBINATIONS

OPERATE

MODULE 15

AFQTP UNIT 4

LOAD/UNLOAD CONSTRUCTION EQUIPMENT (15.4.3.2.)

LOAD/UNLOAD CONSTRUCTION MATERIALS (15.4.3.3.)

SECURE EQUIPMENT USING CHAINS/ BINDERS (15.4.3.4.1.)

SECURE MATERIALS USING CARGO STRAPS (15.4.3.4.2.)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

**LOAD/UNLOAD CONSTRUCTION EQUIPMENT / MATERIALS
SECURE EQUIPMENT/MATERIALS USING CHAINS, BINDERS, AND CARGO
STRAPS**

Task Training Guide

STS Reference Number/Title:	15.4.3.2. - Load/unload construction equipment. 15.4.3.3. - Load/unload construction materials. 15.4.3.4.1. - Secure equipment using chains and binders. 15.4.3.4.2. - Secure material using cargo straps.
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-4; <i>Cargo Loading and Handling</i>. 2. Technical Orders (TOs) 36A2, 36A9-2, 36A-12, 36C9, 36C12, 36C15, 36C26, 36Y9 series. 3. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 4. AFQTP Module 3E2X1-15, Unit 2; <i>Load / Unload / Transport Material</i>. 5. Owner's manual. 6. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E251 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-4. 3.2. Applicable TO or owner's manual. 3.3. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i>. 3.4. Local procedures. 4. Complete AFQTP Module 3E2X1-15, Unit 2; <i>Load / Unload / Transport Material</i> prior to starting this task.
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. Tractor-trailer. 2. Personal protective equipment. 3. Chains, binders, and cargo straps. 4. Equipment (front-end loader, dozer, etc..) 5. Materials (containers, AM-2 matting, etc..)
Learning Objective:	The trainee will be able to properly secure materials and equipment on a tractor-trailer
Samples of Behavior:	The trainee will properly secure materials and equipment on a tractor-trailer
Notes:	<ol style="list-style-type: none"> 1. This is a 7-level core task. 2. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, and safety glass/goggles). 3. Any safety violation is an automatic failure.

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LOAD/UNLOAD CONSTRUCTION EQUIPMENT / MATERIALS SECURE EQUIPMENT/MATERIALS USING CHAINS, BINDERS, AND CARGO STRAPS

1. Background. As a tractor-trailer operator, you must have an understanding of basic procedures and safety rules used when transporting construction materials and equipment. Improper loading of any load can be a danger to you and others. Damage can occur to the tractor-trailer, causing steering problems to the tractor. The operator, whether or not you loaded and secured the load yourself, is responsible to inspect the load, recognize overloads and poorly balanced weight, and to ensure that the load is properly tied, strapped, or chained down and covered, if required to prevent the load from shifting.

2. Vehicle Weight Definitions. The operator is responsible for knowing how much weight is loaded on the tractor-trailer and knowing the total weight of both the unit and cargo. The terms used for vehicle weights are as follows:

2.1. Payload allowance or payload - maximum weight of material that can be transported.

2.2. Gross vehicle weight (GVW) - total weight of a single vehicle plus its load.

2.3. Gross combination weight (GCW) - total weight of a powered unit including the trailer(s) and cargo.

2.4. Gross vehicle weight rating (GVWR) - maximum GCW specified by the manufacturer for a specific combination of vehicles, including the load.

2.5. Curb weight - total weight of an empty truck with the fuel tank, cooling system, and crankcase filled. Additionally, it includes the weight of tools, spare tire, and all other equipment specified as standard. However, this weight does not include the weight of the payload and operator.

2.6. Axle weight - weight transmitted to the ground by one axle or one set of axles.

2.7. Tire load - maximum safe weight a tire can carry at a specified pressure. This rating is stated on the side of each tire.

2.8. Suspension systems - have a manufacturer's weight capacity rating.

2.9. Coupling device capacity - rated for the maximum weight they can pull and/or carry.

3. Operating Conditions. The maximum payload of a truck is determined by subtracting the curb weight and weight of the driver (175 pounds) from the manufacturer's gross vehicle weight rating. The maximum gross vehicle weight rating for a specified operating condition applies only when tires and equipment on the truck are according to the manufacturer's recommendations for the specified operating condition; that is, ideal, moderate, or severe.

3.1. Ideal condition - when a truck is operated over improved, level roads, such as asphalt or concrete, at constant, relatively moderate speeds with no adverse weather or road conditions. Under these conditions, recommended payload equals 100 percent of maximum permissible payload.

3.2. Moderate condition - when a truck is operated at high speeds over improved highways, such as asphalt or concrete, with or without long steep grades. Moderate conditions also include operating at moderate speeds over semi-improved roads with gravel or equivalent surfacing, in gently rolling country with few steep grades and no adverse weather or road conditions. Under these conditions, recommended payload equals 80 percent of maximum permissible payload.

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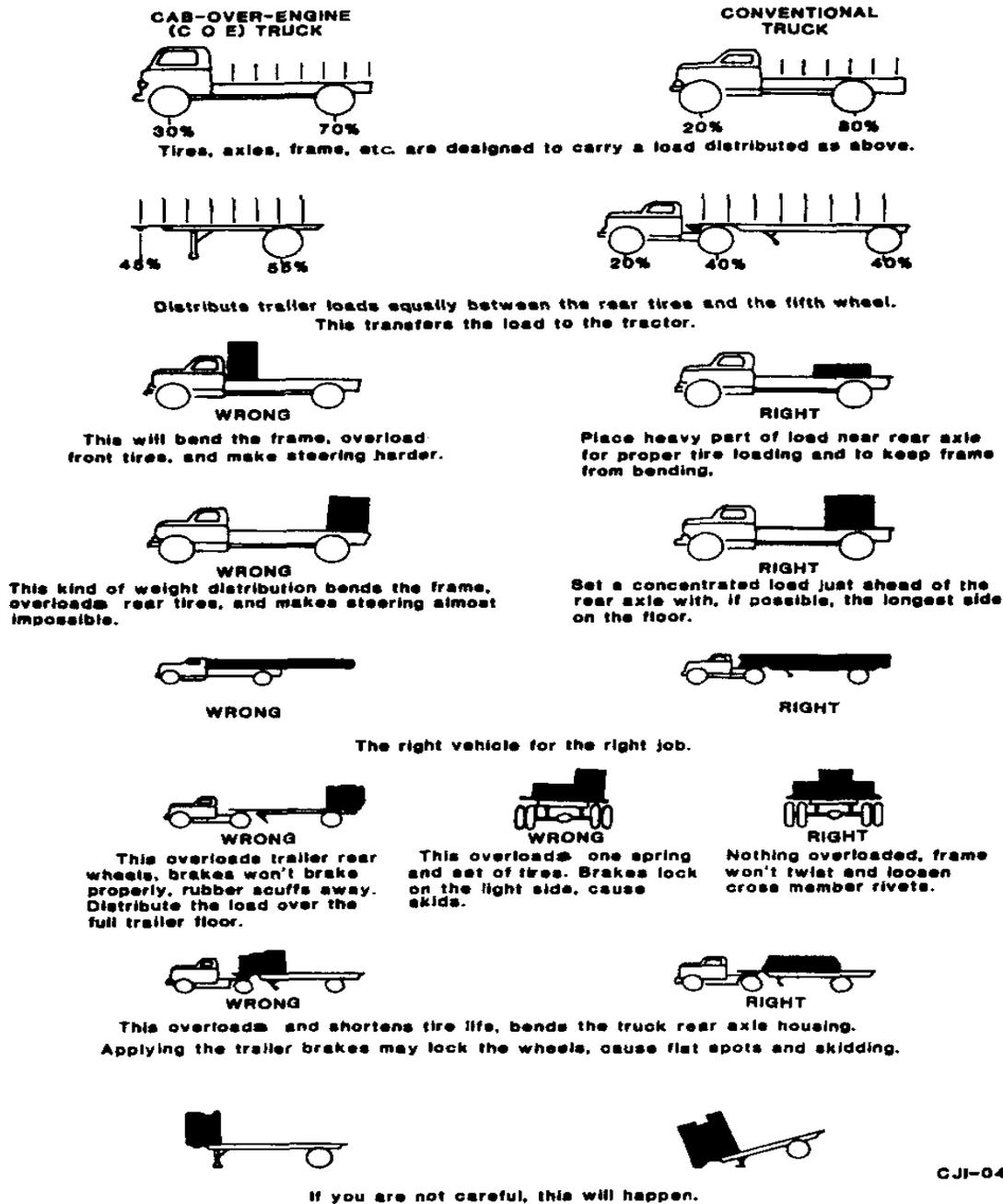
3.3. Severe condition - when the vehicle is operated off the highway, on rough or hilly terrain, over unimproved or pioneer access roads with deep ruts, holes, or steep grades. These conditions also include operating where traffic has created deep holes or ruts in heavy snow, covering normally good city streets or highways. Under these conditions, the recommended payload equals 64 percent of the maximum permissible payload.

4. Weight Distribution. Distribution of cargo has a definite bearing on the life of tires, axles, frame, and other parts of the vehicle. The fact that a truck or trailer is not loaded beyond its gross vehicle weight capacity does not mean that the individual tires and axles may not be overloaded by faulty distribution of the cargo. Additionally, some states have maximums for GVW, GCW, and axle weights. Axle weights prevent the overloading of bridges and roadways. Some examples of proper and improper placement of loads are shown in Figure 15-1.

4.1. To load a tractor-trailer properly, you have to determine the center of the payload. In the unit, the position of the center of the payload is roughly center of the trailer body, because the front wheels of the tractor seldom carry any of the payload. When you are loading, ensure that the maximum capacity of the vehicle is not exceeded over any one axle and, if possible, the load is distributed so there is less than maximum axle loading. Examples of approximate distribution of total weight are shown in Figure 15-1.

4.2. The payload weight must be distributed over the body properly so the percentage of weight carried by the front axle and that carried by the rear axle equals the ratio for which the vehicle was designed, as shown in Figure 15-1.

Figure 15-1. Correct Placement of Payload.



CJI-046

5. Loading Cargo Procedures (Equipment or Material):

5.1. The tractor-trailer can be adapted to transport various types of materials, such as fragile, bulky, compact, dense, rough and high center-of-gravity items. To accommodate a variety of items, you must plan the load, properly prepare the tractor-trailer, and secure the load to the vehicle. Securing the load by restraining it with proper lines, cargo straps, chains, or fastened by tie-down or binders should keep it from shifting or falling off the vehicle. Should a load fall from a vehicle, it is going to damage the load, and create a hazard, until it is cleaned. Protect fragile items from damage by chafing (rubbing together) with cardboard, paper, cloth, or other filler material.

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5.2. Loading equipment onto a trailer is dangerous. In most cases, the equipment will be just as wide as the trailer with little room for error. Always use a guide to ensure that the equipment is on the trailer straight and that you do not run it off the trailer.

NOTE TO TRAINER/CERTIFIER:

If a loading and unloading project is not available, the following is the minimum requirements for these tasks:

1. Have trainee load a loader, grader or other type of heavy equipment on a trailer and securing it using the information and steps stated below. Trainee will need assists from a spotter/helper to spot and tie down the equipment being loaded.
2. After inspecting the equipment have the trainee remove the chains, binders, and unload the equipment. Trainee will need the help of a spotter for unloading the equipment.
3. For the construction material tasks, have the trainee load any available material (drums, lumber, craters, etc...) using a front-end loader (use AFQTP Module 3E2X1-15, Unit 2, Load / Unload / Transport Material for reference, then securing the items using the information and steps stated below.
4. After inspecting the material have the trainee remove the cargo straps and unload the material.

5.3. Construction Equipment and Material Load / Unload Procedures. Follow these steps to perform these tasks:

5.3.1. Loading Construction Equipment.

Step 1: Line the equipment up with the trailer and place the transmission in low gear.

Step 2: Increase the throttle of the vehicle just high enough to load the vehicle on the trailer.

- 2.1. Watch and follow your spotter directions.
- 2.2. Do not steer sharply.
- 2.3. Do not stop except for an emergency.

Step 3: Center the equipment on the trailer. Load the truck-tractor and trailer axles evenly.

Step 4: Ground the attachments, set parking brake, and shut down engine.

Step 5: Install locking bars.

Step 6: Equipment is ready for securing. (See paragraph 6.12.1. for steps.)

5.3.2. Unloading Construction Equipment.

Step 1: Unsecure equipment.

Step 2: Remove locking bars.

Step 3: Start engine, release parking brake and raise attachments enough to clear obstacles.

Step 4: Put transmission in reverse.

- 4.1. Watch and follow your spotter directions.
- 4.2. Do not make any sudden or sharp turns.
- 4.3. Do not stop except for an emergency.

Step 5: Park equipment in designated area.

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CAUTION

FOR CRAWLER MACHINES ONLY, MOVE SLOWLY AT THE TOP OF THE RAMP OR A JARRING FALL CAN RESULT WHEN THE MACHINE IS PAST THE BALANCE POINT.

5.3.3. Loading Construction Materials. (See AFQTP Module 3E2X1-15, Unit 2; Load / Unload / Transport Material for more details.)

Step 1. Determine the weight of materials being loaded.

Step 2. Decide on position that will ensure weight is being distributed evenly and centered on trailer.

Step 3. Place dunnage under materials that will allow forks to slide out easily.

Step 4. Lower materials onto dunnage.

Step 5. Check to ensure position distributes weight evenly and is centered on trailer.

Step 6. Load is now ready to be secured. (See paragraph 6.12.2. for steps.)

5.3.4. Unloading Construction Materials. (See AFQTP Module 3E2X1-15, Unit 2; Load / Unload / Transport Material for more details.)

Step 1. Unsecure construction materials.

Step 2. Insert forklift tines under materials to be unloaded.

Step 3. Lift the materials off of the trailer.

Step 4. Transport materials to designated area.

6. Securing Cargo (Equipment or Material). Regardless of what type of truck you are operating, material you are hauling, or how far you are hauling it, you must secure your load from falling or shifting. When a load shifts, the weight of the load has moved also. This could cause an axle to be overloaded and mechanical failure to occur.

6.1. Certain conditions can cause cargo being transported to shift; however, almost all cargo movement can be controlled with the use of proper blocking and bracing. Blocking is used in the front, back, and/or sides of a piece of cargo to keep it from sliding. Blocking should be shaped to fit snugly against the cargo and should be secured to the deck of the trailer to prevent the cargo from moving. Bracing is also used to prevent movement of the cargo. Bracing is placed from an upper part of the cargo to the floor and/or walls of the cargo compartment.

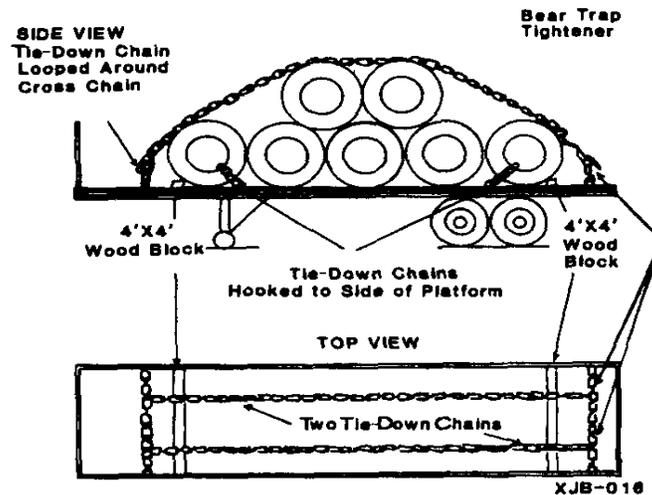
6.2. Because cargo loads have a tendency to shift, a common rule of thumb is to inspect the cargo and the securing devices before departing and within 25 miles after beginning the trip. Always check the cargo and securing devices as often as necessary during a trip to keep the load secured. Inspect the cargo and securing devices after you have driven for three hours or 150 miles and after every break taken during the trip.

6.3. When loading steel, lumber, or anything that must be unloaded with a forklift or crane, you should place 4" by 4" dunnage or pallets under the load. This aids in getting forks or cables in and out from under the load.

6.4. Loads must be secure enough to prevent movement in any direction, which means movement forward, aft, vertically, and horizontally. When securing loads, place tie-downs in a symmetrical pattern, as shown in Figure 15-2.

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Figure 15-2. Loading and Securing Drums on Vehicle Bed Diagram.



6.5. A tie-down assembly must have a safe working load (SWL) of $1\frac{1}{2}$ times the weight of the load to be restrained. For example, to restrain a crawler tractor weighing 55,000 pounds, you need a tie-down assembly for 82,500 ($55,000 \times 1.5 = 82,500$). This means you need eight $\frac{1}{2}$ -inch chains with an SWL of 11,000 pounds each and eight binders with $\frac{1}{2}$ -inch hooks.

6.6. On flatbed or lowboy trailers without sides, cargo must be secured to the trailer to keep it from shifting and falling off. In closed van trailers, tie-downs can also prevent cargo from shifting that may affect the handling of the vehicle. Tie-downs must be proper type and strength. The combined strength of all tie-downs must be strong enough to lift $1\frac{1}{2}$ times the weight of the piece of cargo tied down.

6.7. Chains make up most of our tie-down assemblies. The sizes of chain normally used by the Air Force are $\frac{3}{8}$ and $\frac{1}{2}$ -inch. They are made from Class A type alloy steel. Know the safe working load of any chain before you use it.

6.8. Chains used for restraints should have grab hooks on both ends. Attach hook into the chain as close as possible to the tie-downs on the trailer and on the equipment. This prevents the chain from getting slack once the binder is attached and closed.

6.9. Binders are chain-tightening devices that are made of steel with swivels, chain hooks, and a lever. You hook one of the binder hooks on the chain near the trailer deck and the other higher up the chain near the load. Pulling the lever down tightens the chain. A 3-inch diameter, 3-foot-length pipe, commonly known by the term "cheater bar" is normally used on the lever to provide more leverage when closing the binder.

CAUTION

WHEN YOU ARE CLOSING AND OPENING THE LEVER, DO NOT PUT YOUR HEAD OR ARM IN LINE WITH THE LEVER. IF YOU LOSE YOUR GRIP, THE LEVER WILL OPEN AND HIT YOU.

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6.10. Assume equipment has been loaded as described earlier in this unit. Place your tie-down assemblies to the correct tie-down on the equipment. Be sure you do not put a chain around any hydraulic, fuel, or brake lines, because they will be crushed when the binders are closed. Ensure you secured all movement symmetrically so that the equipment cannot move forward, aft, vertically, or horizontally.

6.11. Oversize and overweight loads require special permits. Driving is usually limited to certain times of the day and requires special equipment, such as “wide load” signs, flashing materials, flags, police escort or pilot vehicles bearing warning signs and/or flashing lights.

NOTE:

Weight, height, and width limitations are set forth by each state. Always know the height, weight, and width of the load you are pulling and the regulations for the state(s) you are to operate in.

6.12. Securing Equipment and Material Procedures. Follow these steps to perform these tasks:

6.12.1. Secure Construction Equipment Using Chains and Binders.

Step 1. Determine the weight of equipment being secured.

Step 2. Determine number of chains that will be used.

Step 3. Ensure the chains have the proper safe working load for equipment being secured.

Step 4. Secure the chains to the tie down points located on the equipment.
(Refer to the owner’s manual for correct procedures.)

Step 5. Secure the chains to the trailer, using tie down points located on the trailer.

Step 6. Ensure that the chains are not going to damage the equipment.

Step 7. Tighten the chains down using binders.

Step 8. Inspect the chains to ensure they are not too loose or over tightened.

Step 9. Secure the binder so it will not come loose during travel.

Step 10. Inspect the secured load for damage, security and any shifting that may have occurred. Remember, the cargo is the responsibility of the operator. You are held liable for its safe delivery!

6.12.2. Secure Materials Using Cargo Straps.

Step 1. Determine the weight of materials being secured.

Step 2. Determine number of cargo straps that will be used.

Step 3. Ensure the cargo straps have the proper safe working load for materials being secured.

Step 4. Secure the cargo straps to the trailer, using tie down points located on the trailer.

Step 5. Ensure that the cargo straps are not going to damage the materials.

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Step 6. Tighten the cargo straps down using the ratchet tie.

Step 7. Inspect the cargo straps to ensure they are not too loose or over tightened.

Step 8. Secure the ratchet tie so it will not come loose during travel.

Step 9. Inspect the secured load for damage, security, and any shifting that may have occurred. Remember, the cargo is the responsibility of the operator. You are held liable for its safe delivery!

**REVIEW QUESTIONS
FOR
LOAD/UNLOAD CONSTRUCTION EQUIPMENT / MATERIALS
SECURE EQUIPMENT/MATERIALS USING CHAINS, BINDERS, AND CARGO
STRAPS**

QUESTION	ANSWER
1. Cargo shifting can be controlled by:	<ul style="list-style-type: none"> a. building a wooden frame around the load. b. the use of proper blocking and bracing. c. checking the load every 25 miles, regardless of the length of the trip. d. taking smaller loads.
2. Chains being used for restraints should not have grab hooks on both ends.	<ul style="list-style-type: none"> a. True. b. False.
3. Over weight loads can be hauled by:	<ul style="list-style-type: none"> a. driving slow with your flashers on. b. using a police escort. c. driving at night when weight stations are closed. d. obtaining a special permit.
4. Who is responsible for the load on a tractor-trailer?	<ul style="list-style-type: none"> a. Tractor-Trailer Operator. b. Forklift Operator. c. Spotter. d. Shotgun.
5. Which response best describes Gross Combination Weight?	<ul style="list-style-type: none"> a. Total weight of a single vehicle plus its load. b. Maximum weight of material that can be transported. c. Total weight of a powered unit including the trailer(s) and cargo. d. Total weight of an empty truck with the fuel tank, cooling system, and crankcase filled.
6. There are _____ type(s) of specified operating conditions.	<ul style="list-style-type: none"> a. 4 b. 3 c. 2 d. 1
7. The restraint safe working load for a 55,000-pound crawler tractor is _____ pounds.	<ul style="list-style-type: none"> a. 75,000 b. 77,500 c. 80,000 d. 82,500

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LOAD/UNLOAD CONSTRUCTION EQUIPMENT / MATERIALS

SECURE EQUIPMENT/MATERIAL USING CHAINS, BINDERS, AND CARGO STRAPS

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
Load / Secure / Unload Construction Equipment		
1. properly load the construction equipment?		
2. ground attachments, set parking brake and shut down engine?		
3. install locking bars (if equipped)?		
4. secure the equipment with correct number of chains and binders?		
5. inspect the load prior to hauling?		
6. unload the equipment?		
7. use a spotter?		
8. comply with all safety requirements?		
Load / Secure / Unload Construction Material		
1. load the construction materials evenly and distribute the weight properly?		
2. know total weight of load?		
3. inspect the load?		
4. secure the load with cargo straps?		
5. unload the construction materials?		
6. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

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TRACTOR-TRAILER COMBINATIONS

OPERATE

MODULE 15

AFQTP UNIT 4

BACKING (15.4.3.5.)

OVER THE ROAD (15.4.3.6.)

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BACKING/OVER THE ROAD

Task Training Guide

STS Reference Number/Title:	15.4.3.5. - Backing tractor-trailer combination. 15.4.3.6. - Over the road tractor-trailer combination.
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-3, Lesson 004; Turning, Backing, Slowing, Stopping, and Operating Over the Road with a Tractor Trailer. 2. Technical Orders (TOs) 36A2, 36A9-2, 36A-12, 36C9, 36C12, 36C15, 36C26, 36Y9 series. 3. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 4. AF Form 1800, Operator's Inspection Guide and Trouble Report (General Purpose Vehicles). 5. Owner's manual. 6. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E251 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 1, Unit 1, Section 1-3, Lesson 004. 3.2. Applicable TO or owner's manual. 3.3. AF Form 1800. 3.4. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections.</i> 3.5. Local procedures.
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. AF Form 1800. 2. Tractor-trailer. 3. Personal protective equipment.
Learning Objective:	The trainee will be able to properly back and operate a tractor-trailer over the road.
Samples of Behavior:	The trainee will properly back and operate a tractor-trailer over the road.
Notes:	<ol style="list-style-type: none"> 1. This is a 7-level core task. 2. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, and safety glass/goggles). 3. Any safety violation is an automatic failure.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

BACKING / OVER THE ROAD

1. Background. Operation of the tractor and trailer is much more difficult than most other vehicles. Allowances must be made for the added length when turning, backing, and passing other vehicles. Space for maneuvering this large vehicle into position for loading and unloading must be considered.

NOTE TO TRAINER/CERTIFIER:

Trainee must have an AF Form 171 in possession before operating any equipment. Have the trainee back the tractor-trailer into pre-positioned traffic cones in an open area until the trainee is comfortable backing the unit. (This may take several days.)

2. Backing Procedures. Follow these steps to back a tractor-trailer:

Step 1: Perform an operational inspection. (See Module 3E2X1-15, Unit 4, Perform Operational Checks and Operator Maintenance for details.)

Step 2: When backing a tractor-trailer combination, reverse the procedures that are used to back a straight truck. For example, if you want the trailer to go to the left, turn the steering wheel to the right.

Step 3: After the trailer is headed in the desired direction, turn the steering wheel slowly to the left. This puts the tractor in the same line of travel as the trailer and prevents the tractor and trailer from jackknifing. The term “jackknife” means a condition where the tractor and trailer become jammed together at an acute angle.

HINT:

Avoid over steering! DO NOT turn the steering wheel more than one half turn when trying to back in a straight line. Make small adjustments as you back. The tendency to turn in the opposite direction as the rear of the trailer can be over come by placing your hands on the bottom of the steering wheel instead of the top. (These are only suggestions to help in training; each operator will develop their own technique.)

Step 4: Backing the semi-trailer to the left is known as “sight side” backing and is the method recommended whenever possible. When backing to the left, you have a better view of the area into which you are backing.

NOTE TO TRAINER/CERTIFIER:

Set aside time when trainee can drive off base for at least half a day to obtain over-the-road training. DO NOT consider half a day as being trained! Trainee should acquire the skills needed to safely haul equipment and materials over-the-road before being licensed

3. Over the Road Procedures. You may be tasked to haul equipment or materials at some point in your career. Knowing traffic safety laws and safe driving skills will ensure that you can complete the mission. Never drive a tractor/trailer unit if you are not confident in your skills. Each year tractor/trailer accidents result in many highway fatalities. BE SAFE! Follow these steps to operate a tractor-trailer over the road:

Step 1: Perform an operational inspection. (See Module 3E2X1-15, Unit 4, Perform Operational Checks and Operator Maintenance for details.)

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

Step 2: Steering.

2.1. When making a turn with the tractor and trailer, you must allow for the overall length of the unit.

2.1.1. Keep in mind that this unit is “hinged” in the middle and that the trailer has a tendency to cut the corners rather than follow the tractor.

2.1.2. For this reason, it is necessary to make a wider turn than when turning with a straight truck.

2.2. On a right turn:

2.2.1. The unit should be kept close enough to the road edge to eliminate the possibility that a following vehicle might attempt to pass on the right.

2.2.2. When preparing for the turn, pull straight ahead into the intersection; continue until the turn can be made without the trailer wheels running over the curb or off the road on the inside corner.

Step 3: Foot Brakes.

3.1. In normal operation, the foot or service brakes alone are used since they control the tractor and trailer simultaneously. The most efficient braking power is at the point just before the brakes lock up.

3.2. The trailer brakes can be controlled independently of the tractor brakes. This is done with a lever usually mounted on the steering column. You must exercise care when applying the trailer brakes so that you do not pull the lever too far and lock the wheels.

SAFETY:

THE TRAILER HANDBRAKE SHOULD NEVER BE USED ALONE TO STOP THE TRACTOR/TRAILER UNIT. THE TRAILER HANDBRAKE IS BEST USED TO PREVENT ROLLOVERS ON STEEP INCLINES.

3.3. Braking in an emergency or under hazardous road conditions, such as steep grades or slippery surfaces, creates the most difficult situation to maintain control and stopping of your tractor and semi-trailer unit.

Step 4: Hand Brakes.

4.1. The use of the semi-trailer handbrake or “Johnson Bar” first in these situations is critical, as the operator is not able to judge how much pressure to apply to the handbrake before the wheels of the trailer become locked.

4.2. The amount of pressure to apply will vary because of road condition and gross vehicle weight.

4.3. Skidding tires caused by locked trailer brakes will not allow you control of the trailer.

4.4. The use of the trailer handbrake and the tractor foot brakes simultaneously to align and control both units during emergencies or under hazardous condition requires the touch of an expert operator.

4.5. The semi-trailer handbrake should never be applied alone to stop the tractor/trailer unit.

4.6. The best use of the semi-trailer brakes is for coupling and uncoupling, and preventing rollback when stopped on an incline.

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Step 5: Jacob's Brake.

5.1. Some tractors are equipped with an engine brake, also known as the Jacob's or Jake Brake.

5.2. The engine brake is applied using a switch located on the dashboard.

5.3. The engine brake is used when driving in mountainous terrain or descending steep grades. The engine brake opens the exhaust valves to the engine, which causes decompression in the engine and slows the vehicle.

Step 6: Parking.

6.1. When you park a tractor-semi-trailer combination, do not depend solely upon the airbrakes to hold the vehicle.

6.2. Place chock blocks before or behind the drive wheels, as required, to keep the wheels from rolling if the unit is to be left unattended.

**REVIEW QUESTIONS
FOR
BACKING/OVER THE ROAD**

QUESTION	ANSWER
1. Allowances must be made for _____ other vehicles.	a. turning b. backing c. passing d. All the above.
2. When backing a tractor-trailer combination, reverse the procedures that are used to back a straight truck.	a. True. b. False.
3. When making turns in tractor-trailer combinations, what must be allowed for?	a. Width. b. Height. c. Length. d. All of the above.
4. The engine brake is also referred to as the:	a. semi-trailer handbrake. b. Jacob's brake. c. Johnson bar. d. foot brake.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

BACKING/OVER THE ROAD

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
Backing/Over the Road		
1. perform an operational inspection by utilizing AF Form 1806 if required? (Refer to Unit 4, Perform Operational Checks / Operators Maintenance.)		
2. sign AF Form 1800 if required?		
3. back tractor-trailer with out hitting the traffic cones?		
4. made right- and left-hand turn correctly?		
5. utilize service brakes correctly?		
6. utilize semi-trailer handbrake correctly?		
7. use "Jacob's Brake" correctly if equipped?		
8. chock trailer when parked?		
9. drive over-the-road with confidence and skill?		
10. drive over-the-road safely, obeying traffic laws?		
11. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

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GRADERS

MODULE 15

AFQTP UNIT 6

PERFORM OPERATIONAL CHECKS (15.6.1.)
PERFORM OPERATORS MAINTENANCE (15.6.2.)

PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON GRADERS

Task Training Guide

STS Reference Number/Title:	15.6.1. - Perform operational checks on graders. 15.6.2. - Perform operators maintenance on graders.
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 2, Section 2-1, Lesson 215; <i>Performing Grader Maintenance Tasks</i>. 2. Technical Orders (TOs) 36A2, 36A9-2, 36A-12, 36C9, 36C12, 36C15, 36C26, 36Y9 series. 3. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 4. AF Form 1806, Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal). 5. Owner's manual. 6. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E251 AFSC. 2. Review the following references: <ol style="list-style-type: none"> 2.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 2, Section 2-1, Lesson 215. 2.2. Applicable TO or owner's manual. 2.3. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections and Preventive Maintenance</i>. 2.4. AF Form 1806. 2.5. Local procedures.
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. Grader. 2. AF Form 1806. 3. Personal safety equipment.
Learning Objective:	The trainee will be able to perform operational checks and know exactly what is needed to conduct maintenance on a grader.
Samples of Behavior:	The trainee will demonstrate the proper procedures for operational checks and operators maintenance.
Notes:	
<ol style="list-style-type: none"> 1. This is a 7-level core task. 2. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, and safety glass/goggles). 3. Any safety violation is an automatic failure. 	

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON GRADER

1. Background. The grader is an important part of the Air Force pavement and equipment construction team. There are several types of graders in the Air Force. It is primarily used when constructing airfield runways, roads, taxiways, and building sites. That is why it is important to properly check and service the equipment prior to operation. Specific pre-operational inspection procedures will be found in the owner's manual that accompanied the equipment. Grader maintenance, like any other maintenance, is very important. If the machine is not running well, then how is the job going to get done? The more effective maintenance program we have for the equipment, the better our operation will run.

2. Operation Checks Procedures. Follow these steps to perform operational checks on a grader:

Step 1: Utilizing AF Form 1806.

- 1.1. Check all items listed that pertain to the grader.
- 1.2. Sign the AF Form 1806 after properly inspecting the equipment.

Step 2: Inspect Vehicle Exterior. Inspection of the grader begins with a 360-degree walk around looking for any damage or leaks.

- 2.1. Check wheels/tires for wear, lug nut tightness, and correct air pressure.
- 2.2. Check hydraulic fluid sight glass and fill as needed.
- 2.3. Check mirrors and windows for cleanliness and cracks.
- 2.4. Check hydraulic cylinders and hoses for any damage or leaks.
- 2.5. Annotate any discrepancies found on the AF Form 1806 and notify supervisor.

HINT:

Puddles of fluid and dirty areas on the engine or ground normally indicate problem areas and should be investigated and repaired as soon as possible.

Step 3: Inspect Cutting Blade Assembly.

- 3.1. Check blade for excessive wear.
- 3.2. Check for loose bolts.
- 3.3. Check for any cracks.

Step 4: Inspect Drive Engine / Battery Compartments.

- 4.1. Check the engine oil, coolant, and transmission fluid levels, and fill as needed.
- 4.2. Inspect the drive belts for wear, tension, and alignment.
- 4.3. Ensure the battery connections are secure and free from corrosion.

Step 5: Starting Procedures/ Function Check.

- 5.1. Ensure the master switch is on (If applicable).
- 5.2. Apply parking brake.
- 5.3. Ensure the transmission control lever is in neutral.
- 5.4. Turn ignition to the start position. Let engine idle for three to five minutes prior to any operation.

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CAUTION

DO NOT ENGAGE THE STARTER FOR MORE THAN TWENTY SECONDS AT A TIME. IF THE ENGINE FAILS TO START WITHIN TWENTY SECONDS, ALLOW THE STARTER MOTOR TWO MINUTES TO COOL DOWN.

5.5. Check your control levers to ensure the grader is functioning properly and to get a good feel of the equipment prior to travel.

3. Maintenance Program. Correct and timely operator maintenance ensures the equipment will do the job when needed and last longer; this saves the Air Force money. A good, operator maintenance program includes inspections to detect and correct minor deficiencies before they develop into major defects that could result in loss time and costly repairs. It is the operator's responsibility to perform any minor maintenance needed.

4. Operators Maintenance Procedures: Follow these steps to perform operators' maintenance on a grader:

Step 1: Clean Grader.

- 1.1. Clean out any trash or debris from the inside of the cab daily.
- 1.2. Wash any dirt or grease from the grader this will help you to find the lubrication points on the specified lube chart.

Step 2: Clean Air Intake Filter. Air intake filter are of special importance. There are generally two elements the inner and the outer.

- 2.1. Clean both elements daily under dusty operating conditions (even more often if working conditions are extremely dusty).
- 2.2. For cleaning procedures use guidelines stated in the operator's maintenance manual.

Step 3: Lubrication.

- 3.1. Lubricate the vehicle according to intervals listed in the maintenance chart. If operating the machine in severe conditions then lubricate the machine more frequently.
- 3.2. Remove all the dirt and grease from the grease fittings before and after lubricating.

Step 4: Refueling.

- 4.1. Fuel the grader **at the end of each working day** to prevent moisture from condensing and forming droplets within the fuel tank.
- 4.2. Contact base fuels for them to come out to the job site if your equipment can't be driven to the service station.
- 4.3. Ensure the vehicle has a minimum of $\frac{3}{4}$ of a tank of fuel at the end of the duty day.

Step 5: Replace Cutting Edges on Blade Assembly. If the cutting edge wears into the blades base, they must be rebuilt (built up by welding) or replaced. Either method is expensive in comparison to replacing cutting edges.

- 5.1. Ensure the edges are in good shape and not loose or worn excessively.
- 5.2. Replace the edges if damaged or badly worn; the operator is responsible for their replacement. (See technical reference for replacement).

CAUTION

WHEN CHANGING THE CUTTING EDGES, NEVER, UNDER ANY CIRCUMSTANCES, CHANGE THE CUTTING EDGES WITH THE ENGINE RUNNING.

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**REVIEW QUESTIONS
FOR
PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON GRADERS**

QUESTION	ANSWER
1. What should you look for on a 360-degree walk around?	<ul style="list-style-type: none"> a. Leaks or puddles under the equipment. b. Loose lug nuts or flat tires. c. For broken parts. d. All of the above.
2. Which of the following items in the drive engine compartment should be checked?	<ul style="list-style-type: none"> a. Drive belts. b. Engine oil. c. Coolant. d. All of the above.
3. There are several types of graders in the AF inventory and all should be checked the same way.	<ul style="list-style-type: none"> a. True. b. False.
4. Why is cleaning an important part of vehicle maintenance?	<ul style="list-style-type: none"> a. To find lubrication points and keep dirt out of the fittings. b. It is required by AF Form 1806. c. For lubrication. d. It isn't important.
5. Lubricate the machine on more frequent intervals during severe weather conditions.	<ul style="list-style-type: none"> a. True. b. False.
6. Why should you check the cutting edge?	<ul style="list-style-type: none"> a. For debris stuck in the cracks. b. For excessive wear. c. For reversibility. d. You shouldn't.
7. You may change the cutting edges while the grader is running.	<ul style="list-style-type: none"> a. True. b. False.

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PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON GRADERS

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
Operational Checks		
1. utilize AF Form 1806?		
2. check vehicle exterior?		
3. check the engine oil, coolant, and transmission fluid levels and fill as needed?		
4. inspect the drive belts for wear, tension, and alignment?		
5. check the battery connections for tightness and free of corrosion?		
6. sign AF Form 1806?		
7. comply with all safety requirements?		
Operator Maintenance		
1. clean the vehicle?		
2. lubricate the grader according to the maintenance chart?		
3. remove all the dirt and grease from the grease fittings before and after lubricating?		
4. check the fuel level and refuel if needed?		
5. inspect and clean the air intake filter?		
6. inspect cutting edges and replace if needed?		
7. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

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GRADERS

PERFORM GRADER OPERATIONS SUCH AS

MODULE 15

AFQTP UNIT 6

LEVEL MATERIALS (15.6.3.4.)

MAINTAIN UNPAVED SURFACES (15.6.3.5.)

LEVEL MATERIALS / MAINTAIN UNPAVED SURFACES

Task Training Guide

STS Reference Number/Title:	15.6.3.4. - Level materials with grader. 15.6.3.5. - Maintain unpaved surfaces with grader.
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 2, Section 2-2, Lesson 213; <i>Leveling, Sloping, Crowning, and Blue Topping with a Grader.</i> 2. Technical Order (TO) 36 series. 3. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 4. AF Form 1806, Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal). 5. Air Force Qualification Training Package (AFQTP) Video PIN # 613956: Grader – Level Material and Maintain Unpaved Surfaces. 6. Owner's manual. 7. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E231 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 2, Section 2-2, Lesson 213. 3.2. Applicable TO or owner's manual. 3.3. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections.</i> 3.4. Local procedures. 4. Complete the following: <ol style="list-style-type: none"> 4.1. AFQTP Module 3E2X1-15, Unit 6; <i>Perform Operational Checks / Operators Maintenance.</i> 4.2. AFQTP Video PIN # 613956.
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. Grader. 2. Spreading material. 3. Unpaved road or area. 4. AF Form 1806. 5. Personal safety equipment.
Learning Objective:	Trainee will learn how to level material and maintain unpaved surfaces using a grader.
Samples of Behavior:	The trainee will demonstrate the proper procedures in leveling material and maintaining unpaved surfaces.
Notes:	
<ol style="list-style-type: none"> 1. This is a 7-level core task. 2. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, safety glass/goggles, and seat belt). 3. Any safety violation is an automatic failure. 	

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LEVEL MATERIALS / MAINTAIN UNPAVED SURFACES

1. Background. Leveling an area and maintaining an unpaved surface is nothing more than cutting high spots and filling in the lows spots. When maintaining unpaved surfaces, try to keep the original contours and slopes. Level and maintain a surface by working the material across the road or runway from one side to the other. However, to maintain a satisfactory surface in dry weather like in the Middle East. Work traffic-eroded material from the edges and shoulders of the road toward the center. The surface is easier to work if damp; therefore, after a rain is a good time to perform surface maintenance. A water truck may be necessary to dampen dry material.

2. Requirements. View AFQTP Video PIN # 613956: *Grader – Level Material and Maintain Unpaved Surfaces*. After completing the AFQTP Video properly level material on an unpaved surface using the step-by-step procedures listed below.

NOTE TO TRAINER/CERTIFIER:

If a project is not available, then the minimum required for this task is to give the trainee a scenario based on the following: After a AF Form 103 has been cleared for the area chosen. Mark an area 40' long by 20' wide and have the trainee level that area based on the steps below.

3. Level and Maintain Procedures. Follow these steps to level material and maintain an unpaved surface with a grader:

Step 1: The first step is to make sure that there a digging permit (AF Form 103) approved for the area to be level.

Step 2: Perform an operational inspection. (See Module 3E2X1-15, Unit 6, Perform Operational Checks / Operators Maintenance for details.)

Step 3: Take a few minutes assess the job site and get a mental picture of what you want the project to look like when its finished.

- 3.1. Decide where you need to start (usually where the most material is).
- 3.2. Look for any hazards in the area such as culverts, cable markers, etc.
- 3.3. When grading a road it is better to do it in small sections, after you grade the first section, you'll have a reference point to start from to grade the other sections.

Step 4: Select the position of the blade and wheels.

- 4.1. Rotate the moldboard so that toe is on the right side of the grader at about a 50-degree to 60-degree angle to the frame. The more you increase the angle of the moldboard, the more earth will spill off the heel.
- 4.2. Ensure that the blade is pitched halfway.
- 4.3. Center shift the blade until the left lift cylinder is straight up and down.
- 4.4. Lean the front wheels to the left.
- 4.5. Lower the moldboard until the toe and heel slightly touch the ground.

Step 5: Start leveling.

- 5.1. Place the grader in motion and, as the moldboard crosses the project start line, apply enough downward pressure on both the heel and the toe to penetrate the surface on a level plain about ½ inch.
- 5.2. Maintain a straight course, adjusting the moldboard slightly to carry the material the length of the project.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

NOTE:

Be sure you DO NOT pile windrows in front of the rear wheel, this will affect traction and grading accuracy.

5.3. Feather the material at the end of each pass.

5.4. Stop the grader and straighten the front wheels after the material is feathered to a smooth termination.

Step 6: Remove windrows.

6.1. Raise both cylinders all the way.

6.2. Position the grader to straddle the windrow just made, and back the grader to the starting point while ensuring the windrow is between the wheels (do not drive on top of the windrow).

6.3. Repeat steps 4 through 5 until the entire area is leveled.

**REVIEW QUESTIONS
FOR
LEVEL MATERIALS / MAINTAIN UNPAVED SURFACES**

QUESTION	ANSWER
1. An AF Form 103 isn't always needed if the job site is far away from the main base.	a. True. b. False.
2. Define leveling.	a. Cutting low spots and moving it to the high spot. b. Cutting high spots and filling low spots. c. Keeping the grader level. d. Plumbing the job site.
3. When windrowing material, keep the material:	a. as small as possible because the grader can't push much material. b. uniformed under the ripper assembly. c. out from under the rear tires. d. cast outside of the rear tires.
4. When cutting excessive high spots it may be necessary to:	a. cut below the low spot to rough the area up before final grade. b. operate faster to move more material. c. cut really deep on the first pass. d. cut by back-dragging all the excess material.

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LEVEL MATERIALS / MAINTAIN UNPAVED SURFACES

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
1. perform an operational inspection by utilizing AF Form 1806 if required? (Refer to Unit 6, Perform Operational Checks / Operators Maintenance.)		
2. sign AF Form 1806 if required?		
3. have approved AF Form 103?		
4. assess the job site correctly?		
5. cut and fill the area correctly?		
6. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

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CRAWLER TRACTOR

MODULE 15

AFQTP UNIT 8

PERFORM OPERATIONAL CHECKS (15.8.1.)

PERFORM OPERATORS MAINTENANCE (15.8.2.)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

**PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON
CRAWLER TRACTOR**

Task Training Guide

STS Reference Number/Title:	15.8.1. - Perform operational checks on a crawler tractor. 15.8.2. - Perform operators maintenance on a crawler tractor.
Training References:	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 3, Section 3-2, Lesson 221; <i>Bulldozer Operator Maintenance</i>. 2. Technical Orders (TOs) 36C-1-6, 36C-12-2-15-1, 36C-12-3-45-1 series. 3. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 4. AF Form 1806, Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal). 5. Owner's manual. 6. Local procedures.
Prerequisites:	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E251 AFSC. 2. Review the following references: <ol style="list-style-type: none"> 2.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 3, Section 3-1, Lesson 221. 2.2. Applicable TO or owner's manual. 2.3. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections and Preventive Maintenance</i>. 2.4. AF Form 1806. 2.5. Local procedures.
Equipment/Tools Required:	<ol style="list-style-type: none"> 1. Crawler tractor. 2. Personal safety equipment. 3. AF Form 1806.
Learning Objective:	The trainee will be able to perform operational checks and operator maintenance on a crawler tractor.
Samples of Behavior:	The trainee will demonstrate the proper procedures for operational checks and operator maintenance.
Notes:	
<ol style="list-style-type: none"> 1. This is a 7-level core task. 2. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, and safety glass/goggles). 3. Any safety violation is an automatic failure. 	

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON THE CRAWLER TRACTOR

1. Background. The crawler tractor is commonly called the bulldozer, or dozer for short. They are several types of crawler tractors in the Air Force. It is important to properly check and service the equipment prior to operation. Specific preoperational inspection procedures will be found in the owner's manual that accompanied the equipment. Crawler tractor maintenance, like any other maintenance, is very important. If the machine is not running well, then how is the job going to get done? The more effective maintenance program we have for the equipment, the better our operation will run.

2. Operational Checks Procedures. Follow these steps to perform operational checks on a crawler tractor:

Step 1: Utilizing AF Form 1806.

- 1.1. Check all items listed that pertain to the crawler tractor.
- 1.2. Sign the AF Form 1806 after properly inspecting the equipment.

Step 2: Inspect Vehicle Exterior. Inspection of the crawler tractor begins with a 360-degree walk around looking for any damage or leaks.

- 2.1. Check hydraulic fluid sight glass and fill as needed.
- 2.2. Check the mirrors and windows for cleanliness and cracks.
- 2.3. Check hydraulic cylinders and hoses for any damage or leaks.
- 2.4. Check the tracks for adjustment and wear.
- 2.5. Annotate any discrepancies found on the AF Form 1806 and notify supervisor.

HINT:

Puddles of fluid and dirty areas on the engine or ground normally indicate problem areas and should be investigated and repaired as soon as possible.

Step 3: Inspect Cutting Blade Assembly.

- 3.1. Check blade for excessive wear.
- 3.2. Check for loose bolts.
- 3.3. Check for any cracks.

Step 4: Check Drive Engine/Battery Compartments.

- 4.1. Check the engine oil, coolant, transmission fluid levels, and fill as needed.
- 4.2. Inspect the drive belts for tension and alignment.
- 4.3. Ensure the battery connections are secure and free from corrosion.

Step 5: Check the owner's manual to ensure you have checked all recommended items.

Step 6: Starting Procedures/Function Check.

- 6.1. Adjust the seat and fasten seat belt. Make sure you can push the foot pedals completely down with your back against the seat cushion.
- 6.2. Engage the parking brake.
- 6.3. Ensure the neutral lock control lever is all the way down.
- 6.4. Pull the hand throttle to ¼ open.

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- 6.5. Turn the master disconnect switch to the ON position.
- 6.6. Press the starter button to activate the starter motor. Allow the engine three to five minutes to warm up.

CAUTION

DO NOT ENGAGE THE STARTER FOR MORE THAN TWENTY SECONDS AT A TIME. IF THE ENGINE FAILS TO START WITHIN TWENTY SECONDS, ALLOW THE STARTER MOTOR TWO MINUTES TO COOL DOWN.

- 6.7. Pull up on the neutral lock control lever to engage all operations.
- 6.8. Check your control levers and pedals to ensure the crawler tractor is functioning properly prior to transporting to a job site.

3. Maintenance Program. Correct and timely operator maintenance ensures that the equipment will do the job when needed, and last longer, saving the Air Force money. A good money saving, operator maintenance program includes inspections to detect and correct minor deficiencies before they develop into major defects that could result in costly repairs. It also includes cleaning and servicing.

4. Operator Maintenance Procedures. Follow these steps to perform operator maintenance on crawler tractor.

Step 1: Clean Crawler Tractor. It may be necessary to take a water tanker to the job site; this saves a lot of time compared to loading and hauling your crawler tractor back to the equipment parking area.

- 1.1. Clean out any trash or debris from the inside of the cab daily.
- 1.2. Wash any dirt or grease from the crawler tractor; this will help you find the lubrication points on the specified lube chart.
- 1.3. Pay close attention to the area where the tracks ride over the rollers. This is a good area for rocks and mud to build up covering lube points.

Step 2: Clean Air Intake Breathers. Air intake filter are of special importance. There are generally two elements the inner and the outer.

- 2.1. Clean both elements daily under dusty operating conditions (even more often if working conditions are extremely dusty).
- 2.2. For cleaning procedures use guidelines stated in the operator's maintenance manual.

Step 3: Lubrication.

- 3.1. Lubricate the vehicle according to intervals listed in the maintenance chart. If operating the machine in severe conditions then lubricate the machine more frequently.
- 3.2. Remove all the dirt and grease from the grease fittings before and after lubricating.

Step 4: Refueling.

4.1. Fuel the crawler tractor **at the end of each working day** to prevent moisture from condensing and forming droplets within the fuel tank. Most crawler tractors will have petcocks on the bottom of the fuel tanks. Since water is heavier than diesel it will settle to the bottom.

- 4.1.1. Drain off every 2 or 3 days.
- 4.1.2. Drain daily if working in humid areas.

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4.2. Contact base fuels for them to come out to the job site since driving a crawler tractor down the street to the service station is not very practical.

4.3. Ensure the vehicle has a minimum of $\frac{3}{4}$ of a tank of fuel at the end of the duty day.

Step 5: Replace Cutting Edges on Blade Assembly. If the cutting edge wears into the blade base, they must be rebuilt (built up by welding) or replaced. Either method is expensive in comparison to replacing cutting edges.

5.1. Ensure the edges are in good shape and not loose or worn excessively.

5.2. Replace the edges if damaged or badly worn; you the operator are responsible for their replacement. (See technical reference for replacement).

CAUTION

BE SURE TO BLOCK THE BLADE UP PRIOR TO REPLACING THE CUTTING EDGES.

NOTE:

If the tracks are adjusted too tight, there will be too much friction between the pins and bushings when the track links swivel as they travel around the sprocket and front idler. This friction causes the pins, bushings, links, sprocket, and idler to wear rapidly.

Step 6: Adjust Tracks.

6.1. Loosen and remove the plug at the front of the track adjuster.

6.2. Loosen the valve in the track adjuster to let some of the grease out.

6.3. Drive the machine forward and backward several times to loosen the track.

6.4. When the track has loosened put a straightedge over the track between the carrier roller and the idler wheel.

6.4.1. Measure the distance from the bottom of the straightedge to the top of the track plate.

6.4.2. The correct adjustment should be between 1 to 1- $\frac{1}{2}$ inches.

6.5. When the track has been adjusted, reinstall the plug.

NOTE:

Read operators manual to ensure you are using the proper method to adjust the tracks with your type of crawler tractor.

**REVIEW QUESTIONS
FOR
PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON
CRAWLER TRACTOR**

QUESTION	ANSWER
1. What is the AF Form 1806 used for?	<ul style="list-style-type: none"> a. Inspecting heavy equipment. b. It is not used by the Air Force. c. It is used to authorize digging. d. Report damage to a facility.
2. On a 360-degree walk around look for:	<ul style="list-style-type: none"> a. leaks or puddles under the equipment. b. loose lug nuts or flat tires. c. broken part. d. All of the above.
3. Check all of the following items in the engine compartment except the:	<ul style="list-style-type: none"> a. drive belts. b. engine oil. c. transaxle. d. coolant.
4. Always use low water pressure while cleaning a crawler tractor.	<ul style="list-style-type: none"> a. True. b. False.
5. Daily refueling is required to prevent:	<ul style="list-style-type: none"> a. premature rust on the inside of the fuel tank. b. operators from refueling at night while performing stand by calls. c. moisture from condensing and forming droplets within the tank. d. wasting time each morning checking fuel gauges.
6. When tracks are adjusted to tightly, where will excessive wear be found?	<ul style="list-style-type: none"> a. Pins and bushing. b. Links, sprockets, and idler. c. Tire and engine gaskets. d. Both a and b.
7. Who must change the blades when worn out?	<ul style="list-style-type: none"> a. Private contractor. b. Vehicle maintenance technicians. c. The operator. d. Only experienced NCOs.

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**PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON
CRAWLER TRACTOR**

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
Operational Checks		
1. utilize AF Form 1806?		
2. check vehicle exterior?		
3. inspect cutting blade assembly?		
4. check the engine compartment?		
5. check the battery connections for tightness and free of corrosion?		
6. utilize owners manual?		
7. sign AF Form 1806?		
8. comply with all safety requirements?		
Operator Maintenance		
1. clean the vehicle?		
2. lubricate the crawler tractor according to the maintenance chart?		
3. remove all the dirt and grease from the grease fittings before and after lubricating?		
4. check the fuel level and refuel if needed?		
5. inspect and clean the air intake filter?		
6. inspect cutting edges and replace if needed?		
7. adjust the tracks if needed?		
8. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

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CRAWLER TRACTOR

PERFORM CRAWLER TRACTOR OPERATIONS SUCH AS:

MODULE 15

AFQTP UNIT 8

STOCKPILING (15.8.3.1.)

PERFORM CRAWLER OPERATIONS SUCH AS STOCKPILING

Task Training Guide

<p>STS Reference Number/Title:</p>	<p>15.8.3.1. - Perform crawler operations such as stockpiling.</p>
<p>Training References:</p>	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 3, Section 3-2, Lesson 220; <i>Dozer Operations During Construction Projects</i>. 2. Technical Manual (TM) 5-2410-237-10, Tractor, Full Tracked, Low Speed: DED, Medium Drawbar Pull, D7GT, January 1993. 3. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 4. AF Form 1806, Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal). 5. Air Force Qualification Training Package (AFQTP) Video PIN # 613957: Crawler Tractor – Stockpile & Leveling. 6. Air Force Occupational Safety and Health Standard (AFOSHSTD) 91-10, Civil Engineering. (Note: This AFOSHSTD will become part of AFOSHSTD 91-501, <i>Consolidated Standards, Part 2</i> in FY 03.) 7. Owner's manual. 8. Local procedures. 9. Field Manual (FM) 5-434, Earthmoving Operations.
<p>Prerequisites:</p>	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E251 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 3, Section 3-2, Lesson 220. 3.2. TM 5-2410-237-10 or owner's manual. 3.3. FM 5-434, Chapter 2, Dozer. 3.4. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections</i>. 3.5. AF Form 1806. 3.6. AFOSHSTD 91-10, Chapter 3; <i>Equipment Operations, Pavements, and Landscape and Grounds Maintenance</i>. 3.7. Local procedures. 4. Complete the following: <ol style="list-style-type: none"> 4.1. AFQTP Module 3E2X1-15, Unit 8; <i>Perform Operational Checks / Operators Maintenance</i>. 4.2. AFQTP Video PIN # 613957.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

Task Training Guide (Continued)

Equipment/Tools Required:	<ol style="list-style-type: none">1. Crawler tractor.2. Personal safety equipment.3. Stockpiling material.4. AF Form 1806.
Learning Objective:	Trainee will learn how to stockpile material using a crawler tractor.
Samples of Behavior:	The trainee will demonstrate the proper procedures in constructing a stockpile.
Notes:	
<ol style="list-style-type: none">1. This is a 7-level core task.2. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, and safety glass/goggles).3. Any safety violation is an automatic failure.	

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

PERFORM CRAWLER TRACTOR OPERATIONS SUCH AS STOCKPILING

1. Background. When the existing ground needs to be removed and hauled away, we use a method of stockpiling to pile up the material to be moved out of the way. We do this sometimes to stockpile topsoil for other jobs.

2. Requirements. View AFQTP Video PIN # 613957: *Crawler Tractor – Stockpiling & Leveling*. After completing the AFQTP Video properly stockpile material using the step-by-step procedures listed below.

NOTE TO TRAINER/CERTIFIER:

The minimum required for upgrade training is the following: Haul four to five dump truck loads of base course/gravel to a clear area. Have the trainee stockpile the material based on the following steps below.

3. Stockpile Procedures One. Follow these steps to stockpile material from haul material using the crawler tractor:

Step 1: Perform an operational inspection. (See Module 3E2X1-15, Unit 8, Perform Operational Checks / Operators Maintenance for details.)

Step 2: Determine the proper start point and distance from pile.

- 2.1. Place the dozer blade just lightly resting on the ground. Push the material through one tractor length from the starting point.
- 2.2. Increase your track speed to compensate for the resistance as the load increases, while maintaining the cut.
- 2.3. Begin to raise the blade letting the material fall under the blade forming a ramp.

Step 3: Continue to push successive layers of material on top.

- 3.1. Push the material in successive layers, working the crawler tractor from the start point all the way through to the stockpiled area.
- 3.2. Keep the approach moderately inclined and at least two dozer blades wide.
- 3.3. Overlay cuts approximately $\frac{1}{3}$ blade width to pickup windrows.

Step 4: Continue to repeat Step 3 until desired height is accomplished. Successive passes are made the same as in Step 3, constructing the stockpile higher on each pass until it reaches the desired height.

4. Stockpile Procedures Two. Follow these steps to stockpile material from existing ground using the crawler tractor.

Step 1: Determine the proper start point and distance from pile.

- 1.1. Place the dozer blade just lightly resting on the ground. Push the material from the starting point to the stockpile area on the first pass. This distance should be no more than 75 feet from the start point. Do not excavate deeper than 6 to 8 inches, while maintaining a level cut.
- 1.2. Begin to raise the blade one dozer length from the intended stockpile, letting the material drift under the blade forming a ramp upon reaching the stockpile area.
- 1.3. Push the material on successive cuts in the same manner, working the dozer from the start point all the way around the work area while stockpiling.

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

CAUTION

KEEP THE DOZER UNDER CONTROL AT ALL TIMES. DO NOT PUT THE TRANSMISSION INTO NEUTRAL TO ALLOW THE MACHINE TO COAST. SELECT THE GEAR RANGE NECESSARY BEFORE STARTING DOWN THE GRADE. DO NOT CHANGE GEARS WHILE GOING DOWNHILL.

- 1.4. Overlap cuts about $\frac{1}{3}$ of the blades width to pick up windrows.
- 1.5. Continue to make successive cuts constructing the stockpile higher on each pass until it reaches the desired height.

SAFETY:

THE OPERATOR MUST BE SATISFIED THAT NO ONE WILL BE ENDANGERED WHILE BACKING THE MACHINE. WHILE MOVING UP THE STOCKPILE ENSURE THE MATERIAL IS MAINTAINED UNDER THE TRACKS. THE CRAWLER TRACTOR COULD LOSE IT'S FOOTING AND ROLL OVER THE SIDE.

**REVIEW QUESTIONS
FOR
PERFORM CRAWLER TRACTOR OPERATIONS SUCH AS STOCKPILING**

QUESTION	ANSWER
1. Why would you need to stockpile material?	a. To prepare it for hauling away or to move it out of the way. b. To subdivide the job site. c. To help with traction. d. Drainage.
2. Stockpiling should be done:	a. in a close proximity to other equipment. b. only with large type gravel. c. during cool weather. d. in layers.
3. When pushing material to be stockpiled, you should:	a. dig as deep as you can and push to the pile. b. back drag as much as possible. c. keep the push area level. d. push in high gear only.

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PERFORM CRAWLER TRACTOR OPERATIONS SUCH AS STOCKPILING

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
1. perform an operational inspection by utilizing AF Form 1806 if required? (Refer to Unit 8, Perform Operational Checks / Operators Maintenance.)		
2. sign AF Form 1806 if required?		
3. determine proper start point and distance from pile?		
4. begin to build the pile correctly?		
5. continue to push successive layers of material on top correctly?		
6. clean the area correctly?		
7. level the area correctly?		
8. continue to repeat Step 3 until desired height was accomplished?		
9. comply with all safety requirements?		

FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

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CRAWLER TRACTOR

PERFORM CRAWLER TRACTOR OPERATIONS SUCH AS:
MODULE 15 AFQTP UNIT 8

LEVELING (15.8.3.2.)

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PERFORM CRAWLER TRACTOR OPERATIONS SUCH AS LEVELING

Task Training Guide

<p>STS Reference Number/Title:</p>	<p>15.8.3.2. - Perform crawler tractor operation such as leveling.</p>
<p>Training References:</p>	<ol style="list-style-type: none"> 1. Career Development Course (CDC) Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 3, Section 3-2, Lesson 220; <i>Dozer Operations During Construction Projects</i>. 2. Technical Manual (TM) 5-2410-237-10, Tractor, Full Tracked, Low Speed: DED, Medium Drawbar Pull, D7GT, January 1993. 3. Air Force Joint Manual (AFJMAN) 24-306, Manual for the Wheeled Vehicle Driver. 4. AF Form 1806, Operator's Inspection Guide and Trouble Report (Aircraft Towing, Base Maintenance Deicers, High Reach and Snow Removal). 5. Air Force Qualification Training Package (AFQTP) Video PIN # 613957: Crawler Tractor – Stockpile & Leveling. 6. Air Force Occupational Safety and Health Standard (AFOSHSTD) 91-10, Civil Engineering. (Note: This AFOSHSTD will become part of AFOSHSTD 91-501, <i>Consolidated Standards, Part 2</i> in FY 03.) 7. Owner's manual. 8. Local procedures. 9. Field Manual (FM) 5-434, <i>Earthmoving Operations.</i>
<p>Prerequisites:</p>	<ol style="list-style-type: none"> 1. Possess a minimum of a 3E251 AFSC. 2. Possess AF Form 171, Request for Driver's Training and Addition to U.S. Governments Driving License. 3. Review the following references: <ol style="list-style-type: none"> 3.1. CDC Pavements and Construction Equipment Operator Journeyman 3E251B, Volume 2, Unit 3, Section 3-2, Lesson 220. 3.2. TM 5-2410-237-10 or owner's manual. 3.3. FM 5-434, Chapter 2, Dozer. 3.4. AFJMAN 24-306, Chapter 1, page 1-6; <i>Driver Responsibilities</i> and Chapter 15, page 15-1; <i>Inspections.</i> 3.5. AF Form 1806. 3.6. AFOSHSTD 91-10, Chapter 3; <i>Equipment Operations, Pavements, and Landscape and Grounds Maintenance.</i> 3.7. Local procedures. 4. Complete the following: <ol style="list-style-type: none"> 4.1. AFQTP Module 3E2X1-15, Unit 8; <i>Perform Operational Checks / Operators Maintenance.</i> 4.2. AFQTP Video PIN # 613957.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

Task Training Guide (Continued)

Equipment/Tools Required:	<ol style="list-style-type: none">1. Crawler tractor.2. Personal safety equipment.3. Leveling material.4. AF Form 1806.
Learning Objective:	Trainee will learn how to level material using a crawler tractor.
Samples of Behavior:	The trainee will demonstrate the proper procedures in leveling material.
Notes:	
<ol style="list-style-type: none">1. This is a 7-level core task.2. Personnel are required to wear all personal protective equipment pertaining to each task (i.e. work gloves, hearing protection, and safety glass/goggles).3. Any safety violation is an automatic failure.	

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PERFORM CRAWLER TRACTOR OPERATIONS SUCH AS LEVELING

1. Background. The crawler tractor is used to level large areas with a lot of material that needs to be moved. Leveling simply stated: is pushing high spots into low spots. The dozer blade is controlled hydraulically by a lever, which raises or lowers the blade. When becoming familiar with a new type of dozer, you should raise and lower the blade several times so you can get the feel of the blade control. After you become an experienced operator, you will be able to raise and lower the dozer blade automatically as the front of the tractor moves up and down. You will learn to do this without giving it a great deal of thought or special attention. When you can do this it is called operating by the *seat of your pants*.

2. Requirements. View AFQTP Video PIN # 613957: *Crawler Tractor – Stockpiling & Leveling*. After completing the AFQTP Video properly level material using the step-by-step procedures listed below.

NOTE TO TRAINER/CERTIFIER:

The minimum required for upgrade training is the following: Haul four to five dump truck loads of base course/gravel to a clear area. Have the trainee level the material based on the following steps below. As long as you level the material and do not dig you will not need an AF Form 103.

3. Procedures. Follow these steps to level material using a crawler tractor:

Step 1: Make sure that there is a work-clearance (AF Form 103) approved for the area to be leveled if you plan to dig into the existing ground.

Step 2: Perform an operational inspection. (See Module 3E2X1-15, Unit 8, Perform Operational Checks / Operators Maintenance for details.)

Step 3: Take a few minutes assess the job site and get a mental picture of what you want the project to look like when its finished.

3.1. Decide where you need to start (usually where the most material is).

3.2. Look for any hazards in the area such as culverts, cable markers, etc.

Step 4: Determine the proper start point and position of the blade.

4.1. Start the crawler tractor on level ground.

4.2. Position the blade two inches above the ground.

4.3. Travel in the appropriate speed for the material.

Step 5: Carrying the load.

5.1. Push the material raising the blade in small increments (about ¼ inch at a time if you feel the crawler tractor pulling to the side). The blade should be as full as possible without stalling the dozer or spinning the tracks.

5.2. Don't raise and lower the blade too much at a time while operating. This will cause an uneven surface.

5.3. Return to the starting point to set the blade for the next lower cut.

5.4. Push the material through counteracting the up and down movement of the front of the crawler tractor by raising and lowering the blade to keep the work level.

Step 6: Finish grade. Operate the dozer at the highest engine speed possible without pulling the engine down and keeping the blade at least half full of material. The finished work will be smoother and your blade will cut the high spots easier and the extra material will fill in the low spots.

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**REVIEW QUESTIONS
FOR
PERFORM CRAWLER TRACTOR OPERATIONS SUCH AS LEVELING**

QUESTION	ANSWER
1. An AF Form 103 isn't always needed if the job site is far enough away from the main base?	a. True. b. False.
2. What does operating by the seat of your pants mean?	a. When you can compensate up and down blade control without giving it much thought. b. You have never operated a crawler tractor before. c. When the terrain is really rough and bumpy. d. It is a term for a hotshot operator.
3. Leveling is done by pushing dirt from the low spot onto the high spots of an area.	a. True. b. False.
4. Avoid back dragging; it could damage the crawler tractor blade.	a. True. b. False.
5. Never put the blade in float, because it will cause uneven surfaces.	a. True. b. False.

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PERFORM CRAWLER TRACTOR OPERATIONS SUCH AS LEVELING

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must satisfactorily perform all parts of the task without assistance. Evaluate the trainee's performance using this checklist.

DID THE TRAINEE....	YES	NO
1. perform an operational inspection by utilizing AF Form 1806 if required? (Refer to Unit 8, Perform Operational Checks / Operators Maintenance.)		
2. sign AF Form 1806 if required?		
3. have approved AF Form 103?		
4. assess the job site correctly?		
5. determine proper starting point and position of the blade?		
6. cut and fill the area correctly?		
7. finish grade correctly?		
8. comply with all safety requirements?		

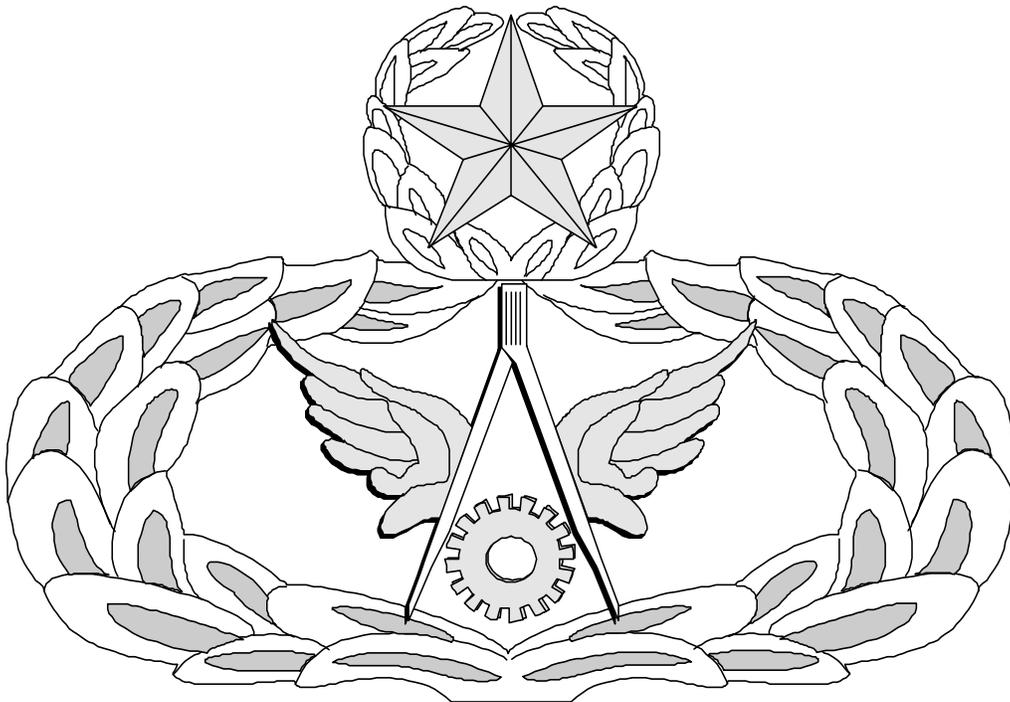
FEEDBACK: Trainer/Certifier should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer/certifier.

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Air Force Civil Engineer

QUALIFICATION TRAINING PACKAGE (QTP)

REVIEW ANSWER KEY



FOR
PAVEMENTS & CONSTRUCTION EQUIPMENT OPERATOR
(3E2X1)

MODULE 15
MATERIAL HANDLING EQUIPMENT

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Key-1

(DUMP TRUCK)

**PERFORM OPERATIONAL CHECK AND ON DUMP TRUCK
(3E2X1-15.1.1. / 15.1.2.)**

QUESTION	ANSWER
1. Operational inspections are only required once a month when the Vehicle NCO provides you with a new 1806.	b. False.
2. On a 360-degree walk around, what should you check for?	d. All of the above.
3. For best connection, ensure the battery terminals:	d. Both a and c.
4. How long should you let the vehicle warm up before any operation?	d. 3 to 5 min.
5. The PTO should be disengaged:	d. When dump body has been all the way raised.
6. Why is cleaning an important part of vehicle maintenance?	c. Enables you to find lubrication points from the lube charts.
7. Ensure the vehicle always has at least ¼ of a tank of gas at the end of the duty day.	b. False.
8. Who is responsible for any minor maintenance needed?	b. Operator.
9. Wipe all grease fittings before and after lubrication.	a. True.

**HAUL / DUMP MATERIAL
(3E2X1-15.1.3.1. & 15.1.3.2.)**

QUESTION	ANSWER
1. During extreme cold conditions, the operator is allowed to remain in the cab while being loaded.	b. False.
2. A loaded dump truck needs about the same distance to stop as an empty one.	b. False.
3. The dump truck operator takes full responsibility if he accepts a bad load.	a. True.
4. What is the recommended rpm for dump trucks?	a. As indicated in the operator's manual.
5. If you can reach the tailgate lever from the cab, lean out the window to release it.	b. False.
6. Backing up on a pile will cause:	a. the mud flaps to be torn off.
7. If the truck has rearview mirrors, a spotter is not needed.	b. False.

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**SPREAD GRAVEL
(3E2X1-15.1.3.3.1.)**

QUESTION	ANSWER
1. What are the chains on the tailgate used for?	a. To regulate the thickness of the material being dumped.
2. You should check the entire area for overhead lines before spread dumping.	a. True.

**TOW EQUIPMENT
(3E2X1-15.1.3.4.)**

QUESTION	ANSWER
1. Who is responsible for the proper connection?	c. The vehicle operator.
2. When should you check the entire connection?	c. Before towing.
3. The safety chains are:	b. required to be connected if present.

(WHEEL MOUNTED FRONT-END LOADERS)

**PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON WHEEL MOUNTED FRONT-END LOADERS
(3E2X1-15.2.1. / 15.2.2.)**

QUESTION	ANSWER
1. What is the AF Form 1806 used for?	a. Inspecting special purpose equipment.
2. On a 360-degree walk around, what needs to be check?	d. All of the above.
3. Who is responsible for performing the pre-operational check on the vehicle?	c. The operator of the vehicle.
4. Why is cleaning an important part of vehicle maintenance?	a. To find lubrication points and keep dirt out of the fittings.
5. When arranging for refueling at the job site, the operator must:	b. call base fuels to make a delivery.
6. Why should you check the cutting edge?	b. For any damage and excessive wear.
7. Vehicle maintenance is responsible for replacing cutting edges.	b. False

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**LOAD GRAVEL IN DUMP TRUCK
(3E2X1-15.2.3.1.)**

QUESTION	ANSWER
1. When approaching the stockpile:	c. have the bucket lowered, level, flat, and grounded.
2. When making contact with the stockpile:	d. increase the throttle.
3. When placing material into the dump truck:	c. place the material slowly a little at a time.

**LEVEL AREA (OPTIONAL)
(3E2X1-15.2.3.2.)**

QUESTION	ANSWER
1. Push material from the high spots onto the low spots to level an area.	a. True.
2. Avoid back dragging; it could damage the wheeled loader bucket.	b. False.
3. Never put the bucket in float because it will cause uneven surfaces.	b. False.

**SPREAD MATERIALS (OPTIONAL)
(3E2X1-15.2.3.3.)**

QUESTION	ANSWER
1. When approaching the stockpile:	c. take about ¼ of the bucket and push through the pile.
2. How should the material be dumped?	a. Open the clamshell or roll the bucket forward and continue until the bucket is empty.
3. Back drag the area:	d. in the float position.

**STOCKPILE MATERIALS (OPTIONAL)
(3E2X1-15.2.3.4.)**

QUESTION	ANSWER
1. Segregation is not a common concern while stockpiling.	b. False.
2. When pushing up a stockpile, never:	c. drive up the pile.
3. Cleaning up around the stockpile will:	a. make a uniform pile and keep all the material in the pile.

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BACKFILL (OPTIONAL)
(3E2X1-15.2.3.5.)

QUESTION	ANSWER
1. Which direction should you backfill a trench?	b. Perpendicular.
2. Compact over utilities if there are no possibilities of damage.	a. True.
3. Cleaning up around the area being backfilled will:	a. enhance the appearance of the job site.

LOAD/UNLOAD AND TRANSPORT MATERIAL
(3E2X1-15.2.4.1. & 15.2.4.2.)

QUESTION	ANSWER
1. When a loader is equipped with forks, it is considered to be a forklift.	b. False.
2. The maximum load capacity for forks is rated by the:	a. maximum load of the fork attachment.
3. How should you travel when transporting a load?	b. High enough to get over any obstacles.

CHANGE ATTACHMENTS ON FRONT-END LOADER (OPTIONAL)
(3E2X1-15.2.6.)

QUESTION	ANSWER
1. Why should you relieve the hydraulic pressure before disconnecting the hoses?	b. The attachment will not disconnect.
2. All loaders change attachments alike.	a. False.

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(TRACTOR-TRAILER)
PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON
TRACTOR-TRAILER
(3E2X1-15.4.1. / 15.4.2.)

QUESTION	ANSWER
1. Why is cleaning an important part of vehicle maintenance?	a. To minimize breakdowns and save the AF money.
2. Ensure the vehicle always has at least ½ of a tank of gas at the end of each duty day.	b. False.
3. Who is responsible for any minor maintenance needed?	b. Operator.
4. Wipe all grease fitting before and after lubrication.	a. True.
5. The kingpin is a part of the tractor's fifth wheel assembly.	a. True.
6. Which of the following are inspection items for the trailer?	d. All of the above.
7. Tractors normally range from the _____ to _____ ton size.	c. 5 to 20
8. The Air Force Form _____ is used as a guide for tractor-trailer inspections.	c. 1800

COUPLE/UNCUPLE TRAILER
(3E2X1-15.4.3.1.)

QUESTION	ANSWER
1. The airline hoses will be crossed if properly connected.	a. True.
2. The first step in coupling is blocking the rear wheels.	a. True.
3. If the emergency airline is uncoupled, the trailer brakes are automatically engaged.	a. True.
4. How much time do you hold the air supply valve in before it should stay in the engaged position?	b. 15 seconds.

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**LOAD/UNLOAD CONSTRUCTION EQUIPMENT / MATERIALS
SECURE EQUIPMENT/MATERIALS USING CHAINS, BINDERS, AND CARGO
STRAPS
(3E2X1-15.4.3.2. / 15.4.3.3. / 15.4.3.4.1. / & 15.4.3.4.2.)**

QUESTION	ANSWER
1. Cargo shifting can be controlled by:	b. the use of proper blocking and bracing.
2. Chains being used for restraints should not have grab hooks on both ends.	b. False.
3. Over weight loads can be hauled by:	d. obtaining a special permit.
4. Who is responsible for the load on a tractor-trailer?	a. Tractor-Trailer Operator.
5. Which response best describes Gross Combination Weight?	c. Total weight of a powered unit including the trailer(s) and cargo.
6. There are _____ type(s) of specified operating conditions.	b. 3
7. The restraint safe working load for a 55,000-pound crawler tractor is _____ pounds.	d. 82,500

**BACKING / OVER THE ROAD
(3E2X1-15.4.3.5. & 15.4.3.6.)**

QUESTION	ANSWER
1. Allowances must be made for _____ other vehicles.	d. All of the above.
2. When backing a tractor-trailer combination, reverse the procedures that are used to back a straight truck.	a. True.
3. When making turns in tractor-trailer combinations, what must be allowed for?	d. All of the above.
4. The engine brake is also referred to as the:	b. Jacob's brake.

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(GRADERS)

PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON GRADERS
(3E2X1-15.6.1. / 15.6.2.)

QUESTION	ANSWER
1. What should you look for on a 360-degree walk around?	d. All of the above.
2. Which of the following items in the drive engine compartment should be checked?	d. All of the above.
3. There are several types of graders in the AF inventory and all should be checked the same way.	b. False.
4. Why is cleaning an important part of vehicle maintenance?	a. To find lubrication points and keep dirt out of the fittings.
5. Lubricate the machine on more frequent intervals during severe weather conditions.	a. True.
6. Why should you check the cutting edge?	b. For excessive wear.
7. You may change the cutting edges while the grader is running.	b. False.

LEVEL MATERIALS / MAINTAIN UNPAVED SURFACES
(3E2X1-15.6.3.4. & 15.6.3.5.)

QUESTION	ANSWER
1. An AF Form 103 isn't always needed if the job site is far away from the main base.	b. False.
2. Define leveling.	b. Cutting high spots and filling low spots.
3. When windrowing material, keep the material:	c. out from under the rear tires.
4. When cutting excessive high spots it may be necessary to:	a. cut below the low spot to rough the area up before final grade.

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(CRAWLER TRACTOR)

**PERFORM OPERATIONAL CHECKS / OPERATORS MAINTENANCE ON
CRAWLER TRACTOR
(3E2X1-15.8.1. / 15.8.2.)**

QUESTION	ANSWER
1. What is the AF Form 1806 used for?	a. Inspecting heavy equipment.
2. On a 360-degree walk around look for _____.	d. All of the above.
3. Check all of the following in the engine compartment except _____.	c. transaxle.
4. Always use low water pressure while cleaning a crawler tractor.	b. False.
5. Daily refueling is required to prevent:	c. moisture from condensing and forming droplets within the tank.
6. When tracks are adjusted to tightly, where will excessive wear be found?	d. Both a and b.
7. Who must change the blades when worn out?	c. The operator.

**PERFORM CRAWLER OPERATIONS SUCH AS STOCKPILING
(3E2X1-15.8.3.1.)**

QUESTION	ANSWER
1. Why would you need to stockpile materials?	a. To prepare it for hauling away or to move it out of the way.
2. Stockpiling should be done:	d. in layers.
3. When pushing material to be stockpiled, you should:	c. keep the push area level.

**PERFORM CRAWLER OPERATIONS SUCH AS LEVELING
(3E2X1-15.8.3.2.)**

QUESTION	ANSWER
1. An AF Form 103 isn't always needed if the job site is far enough away from the main base.	b. False.
2. What does operating by the seat of your pants mean?	a. When you can compensate up and down blade control without giving it much thought.
3. Leveling is done by pushing dirt from the low spot onto the high spots of an area.	b. False.
4. Avoid back dragging; it could damage the crawler tractor blade.	b. False.
5. Never put the blade in float, because it will cause uneven surfaces.	b. False.

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MEMORANDUM FOR HQ AFCESA/CEOF
139 Barnes Drive Suite 1
Tyndall AFB, FL 32403-5319

FROM:

SUBJECT: Qualification Training Package Improvement

1. Identify module.

Module # and title _____

2. Identify improvement/correction section(s):

- | | |
|--|--|
| <input type="checkbox"/> STS Task Reference | <input type="checkbox"/> Performance Checklist |
| <input type="checkbox"/> Training Reference | <input type="checkbox"/> Feedback |
| <input type="checkbox"/> Evaluation Instructions | <input type="checkbox"/> Format |
| <input type="checkbox"/> Performance Resources | <input type="checkbox"/> Other |
| <input type="checkbox"/> Steps in Task Performance | |

3. Recommended changes--use a continuation sheet if necessary.

4. You may choose to call in your recommendations to DSN 523-6074 or FAX DSN/Commercial 523-6488 or (850) 283-6488 or email ceof.helpdesk@tyndall.af.mil.

5. Thank you for your time and interest.

YOUR NAME, RANK, USAF
Title/Position