DEPARTMENT OF THE AIR FORCE **QTP24-3-C438**
Headquarters US Air Force **11 January 2019**
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Cable Reel Truck

Vehicle Management Codes: C438 – C440

QUALIFICATION TRAINING PACKAGE

CONTENTS

Section 1—OVERVIEW

1.1. Overview.

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

1.1.2. How to use this plan:

1.1.2.1. Instructor:

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

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

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

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

1.1.2.1.5. Instructor's lesson plan for performance, **Section 7**.

1.1.2.2. Trainee:

1.1.2.2.1. Reads entire lesson plan prior to classroom lecture.

1.1.2.2.2. Follows along with lecture using this lesson plan and its attachments.

1.1.2.2.3. Uses **Attachments 2 and 3** as guides for vehicle inspection.

Section 2—RESPONSIBILITIES

2.1. Responsibilities.

2.1.1. The trainee shall:

2.1.1.1. Ensure the trainer explains the Air Force Qualification Training Plan (AFQTP) process and the responsibilities.

2.1.1.2. Review the AFQTP with the trainer.

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

2.1.1.4. Review missed questions with the trainer.

2.1.2. Instructor shall:

2.1.2.1. Review the AFQTP with the trainee.

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

2.1.2.3. .

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

2.1.2.5. Sign-off the task(s).

2.1.3. The Certifier shall:

2.1.3.1. Evaluate the Airman's task performance without assistance.

2.1.3.2. Sign-off the task(s).

Section 3—INTRODUCTION

3.1. Objectives.

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

3.1.1.1. Train and qualify each trainee in safe operation and preventive maintenance of various cable reels.

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

3.2. Desired Learning Outcome.

3.2.1. Understand the safety precautions to be followed before-, during-, and after-operation of the cable reel.

3.2.2. Understand the purpose of the cable reel and its role in the mission.

3.2.3. Know the proper operator maintenance procedures of the cable reel, in accordance with (IAW) applicable technical orders (TOs) and use of AF Form 1800, *Operator's Inspection Guide and Trouble Report*.

3.2.4. Safely and proficiently operate the cable reel.

3.3. Lesson Duration.

3.3.1. Recommended instructional and hands on training time is 20 hours:

Figure 3.1. Recommended Training Time for Training Activities.

Training Activity	Training Time
Trainee's Preparation	1 Hour
Instructor's Lecture	3 Hours
Instructor's Demonstration	4 Hours
Trainee's Personal Experience (to build confidence and proficiency) ▪ Perform Operator Maintenance ▪ Operate the Vehicle	10 Hours
Trainee's Performance Operation	2 Hours

Note: This is a recommended time; training time may be more or less depending how quickly a trainee learns new tasks.

3.4. Instructional References.

3.4.1. Risk Management (RM) and Safety Principles.

3.4.2. Applicable TOs or Manufacturer's Operator's Manual (see vehicle maintenance for TO number for vehicle being used in training).

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

3.4.4. AF Form 1800.

3.5. Instructional Training Aids and Equipment.

3.5.1. Cable Reel Lesson Plan.

3.5.2. Cable Reel.

3.5.3. Applicable TO or manufacturer's operators manual.

3.5.4. AF Form 1800.

3.5.5. Videos (if locally produced).

3.5.6. Suitable training area.

3.5.7. Traffic cones or suitable markers.

Section 4—TRAINEE PREPARATION

4.1. Licensing Requirements.

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

4.1.2. AF Form 171, *Request for Driver's Training and Addition to U.S. Government Driver's License* IAW Air Force Instruction (AFI) 24-301, *Ground Transportation*.

4.1.3. Applicable local licensing jurisdiction requirements.

4.2. Required Reading (Testable Material).

4.2.1. Read Cable Reel Truck Lesson Plan.

4.2.2. Read AFMAN 24-306.

4.2.3. Read manufacturer's operator's manual for the cable reel being trained on.

Section 5—KNOWLEDGE LECTURE AND EVALUATION

5.1. Knowledge Overview.

5.1.1. A cable reel is a vehicle designed to efficiently transport, access and bury cable. The Air Force uses several cable reel models. Refer to the cable reel manual for the model being used for additional and more detailed information.

5.2. Overview of Training and Requirements.

5.2.1. Training objectives:

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

5.2.1.2. Train and qualify each trainee in safe operation and preventive maintenance of the cable reel.

5.2.1.3. This training will ensure the trainee becomes a qualified cable reel operator—an operator who has the knowledge and skills to operate a cable reel in a safe and professional manner.

5.2.2. Desired learning outcomes:

5.2.2.1. Understand the safety precautions to be followed before-, during-, and after-operation of the cable reel.

5.2.2.2. Understand the purpose of the cable reel and its role in the mission.

5.2.2.2.1. Purpose is to unwind/wind cable off and onto the cable plow, increasing efficiency and saving time when burying cable.

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

5.2.2.2.3. Know the proper operator maintenance procedures of the cable reels IAW applicable TOs and use of AF Form 1800.

5.2.2.2.4. Be able to safely and proficiently operate the cable reel.

5.2.2.2.4.1. Meet mission requirements.

5.2.2.2.4.2. Demonstrates a qualified trained professional operator.

5.2.3. Cable reel design and specifications. Cable reels vary in size, shape and specifications, determined by make and model; it is imperative to know the specifications of the cable reel that will be operated before use. Specification information should be used together to determine the proper use and necessary precautions to take prior to operating the cable reel. This information is best found in the appropriate TO or Manufacturer's Operator's Manual for the specific cable reel being operated.

5.2.4. Major systems and components:

5.2.4.1. Hydraulic system.

5.2.4.1.1. The hydraulic oil is the life blood of the system. Its proper selection and care is important to provide the most efficient operation and the longest life from each of the hydraulic components. The hydraulic oil not only transmits the energy required to operate these systems from the pump to the cylinders and motors but also provides for the much needed lubrication and cooling of the components.

5.2.4.1.2. The major hydraulic system components include:

5.2.4.1.2.1. Reservoir.

5.2.4.1.2.1.1. The reservoir has a capacity of 35 gallons for the 93 Series and 45 gallons for the 96 Series and is equipped with fill, drain, return and outlet

connections, oil level indicator, cut off valve on outlet, and internal outlet strainer with magnetic separator.

5.2.4.1.2.1.2. Whenever it is necessary to change a component that is located below the top of the reservoir, the cut off valve on the outlet should be closed to prevent loss of oil from the reservoir.

Note: Whenever this valve has been cut off, make sure it is fully opened prior to engaging power take-off (PTO) or damage to pump will occur.

5.2.4.1.2.2. Cylinders.

5.2.4.1.2.3. Pump.

5.2.4.1.2.4. Motors.

5.2.4.1.2.5. Directional control valves.

5.2.4.1.2.6. Return line filter,

5.2.4.1.2.7. Relief valves.

5.2.4.1.2.8. Plumbing.

5.2.4.1.2.9. Flow dividers.

5.2.4.1.2.10. Oil.

5.2.4.1.3. It is often said that oil does not wear out and can be left in a machine indefinitely provided the filters are changed regularly. Good filtration will definitely prolong the useful life of hydraulic oil; however, its lubrication characteristics are diminished as it becomes diluted by condensation and the formation of acids of other non-filterable contaminants which form during normal use of the equipment.

5.2.4.1.4. The ALTER hydraulic line construction unit hydraulic system is equipped with one of the most complete filtration systems on any piece of mobile equipment. Filtration starts when the oil reservoir is filled as the reservoir is equipped with a strainer basket to prevent large particles from entering the reservoir during filling.

5.2.4.1.4.1. The reservoir cap has a 40 micron element to filter air which enters and leaves the reservoir as the oil level changes. As the oil leaves the reservoir it passes through a magnetic separator.

5.2.4.1.4.2. This unit has a screen to prevent large particles from getting to the pump and a series of magnets in the flow path to attract and accumulate any iron or steel particles which are suspended in the oil.

5.2.4.1.5. Before the oil returns to the reservoir, it passes through the return line filter which has a 10 micron element. This prevents contaminants which the oil picked up from getting into the reservoir. The filter has a bypass valve which allows the oil to bypass the filter should the pressure drop across it exceed 25 pounds per square inch (psi). When this occurs, oil is not being filtered and the element should be replaced.

5.2.4.2. Reel lifter description.

5.2.4.2.1. The model RL9 Reel Lifter is a hydraulically operated unit with independent arms and two sets of lifting hands on each arm.

5.2.4.2.1.1. The lifting arms work independently of each other to facilitate level operation of the reels while the vehicle is parked or driven on uneven surfaces with slopes as much as 15 degrees. It is designed to handle cable reels up to 60" wide in either set of hands.

5.2.4.2.1.2. The outer hands will lift a reel up to 108” in diameter and weighing up to 6000lbs on a 3” diameter spindle bar.

5.2.4.2.1.3. The inner hands will lift a reel up to 96” diameter weighing up to 8000lbs on a 2 1/2” diameter spindle bar and an 84” diameter reel weighing 400lbs on a 1 1/2 diameter spindle bar. The lifter arms will position and hold the reel in desired position within the rotating limits of the arms.

5.2.4.2.2. The major parts and components of the reel lifter are the: Arm assembly, mainframe welding, two double acting hydraulic cylinders, rotating linkage and reel carrying bar.

5.2.4.3. Reel driver description.

5.2.4.3.1. The reel driver is a hydraulically operated unit designed for use with reels up to 46"/60” wide for 88-90, 93-96 Models (Western Electric reel #420). It may be used for:

5.2.4.3.1.1. Pulling in or paying out cable. The driver is designed for light pulling in range of 1000 to 2000 pounds tension and is not primarily designed to pull cable through conduit.

5.2.4.3.1.2. Rewinding cable from one reel to another.

5.2.4.3.1.3. Reel brake.

5.2.4.3.1.4. Capstan or collapsible reel operations when equipped with extended shaft.

5.2.4.3.2. The major parts of the reel driver are the: Hydraulic drive motor, motor mounting base, drive train, driver shaft, shaft bearings and rollers.

5.2.4.3.3. The motor mounting base is mounted to the underside of lifter mainframe and is adjustable to maintain proper tension of drive train chain. The shaft bearing mounting supports are an integral part of the lifter mainframe.

5.2.4.4. Alter model BW2725LWES continuous duty winch description.

5.2.4.4.1. The alter model BW2725LWES continuous duty winch is designed for underground and overhead construction and maintenance of telephone industry cables.

5.2.4.4.2. This winch is a continuous duty-level wind unit designed for sustained maximum pull conditions. Heat generation is minimized by the use of a planetary gear reduction drive assembly.

5.2.4.4.3. There is a clutch and drag brake located on the driver side of the unit. The winch clutch consists of a clutch plate, shift forks, and air cylinder.

5.2.4.4.3.1. The clutch plate is spring loaded to the engaged position. When air is supplied to the retract side of the air cylinder, the clutch plate is disengaged from the drive pins on the winch drum flange. The drag brake is simultaneously engaged when the clutch is disengaged.

5.2.4.4.3.2. The extended shaft, which is attached to the end of the winch drum shaft, can be operated with the clutch disengaged,

5.2.4.4.4. The unit has a load holding drum shaft brake which prevents the drum shaft from turning when the unit is not being driven. Upon application of hydraulic pressure to the winch drive motor the drum shaft brake is released.

Note: Caution – The drag brake is used to prevent overrunning of the winch drum only. It is never to be used to hold the load. Shifting of the clutch should be done only when drum rotation has stopped.

5.2.4.5. Alter model BW2725LWES continuous duty winch specifications.

5.2.4.5.1. Standard features:

5.2.4.5.1.1. 25,000 lbs. capacity.

5.2.4.5.1.2. Level wind, positive worm and pall.

5.2.4.5.1.3. 4 speeds-air shifted.

5.2.4.5.1.4. Large drum capacity 3,824 feet 7/16 rope.

5.2.4.5.1.5. Free wheel clutch with anti-backlash brake.

5.2.4.5.1.6. AT&T spec. extended shaft for continuous use in either direction.

5.2.4.5.1.7. Safety brake holds the load 100%.

5.2.4.5.1.8. Continuous pay-out and pay-in capacity in all speeds, both directions.

5.2.4.5.1.9. Hydraulic power-air controlled.

5.2.4.5.1.10. 65 horsepower (hp) input capacity – all 4 speeds.

5.2.4.5.1.11. Drum guard – keeps rope on drum.

5.2.4.5.1.12. Overwind or under wind -20 minute change.

Table 5.1. Alter Model BW2725LWES Continuous Duty Winch Specifications.

Alter Model BW2725LWES Continuous Duty Winch Specifications		
Specification	Description	
Optional Features	2 speeds	
	3 speeds	
	Increased drum capacity (4554 feet 7/16 rope)	
	Manual drag brake in lieu of automatic brake	
	Delete level wind	
	Hydraulic controls in lieu of air	
	Electric controls in lieu of air	
	Quick set holding brake	
Weight	(Without cable) appx. 1,400 lbs.	
Mount	Designed to be mounted directly to a truck frame with 5/8" bolts or grade 5 bolts and nuts. Does not require welding or a sub base. Shims are used to adjust to different width frames. Easily remountable.	
Rating	SAE rated to 25,000 lbs. at 2,300 psi; rated to 20,000 lbs. at 2,000 psi.	
Input Horsepower	Max - 65	
	Max pressure – 2,300 psi	
	Max flow – 48 gpm	
Extended Shaft Performance	Gear	Revolutions per minute (RPM)
	Low	9
	2	18
	3	37
	High	74
	Meets AT&T specifications.	
	Maximum speed shown. For lower speeds, engine speed can be reduced or valving shifted.	
Dimensions	Height (above frame)	26"
	Width	72"
	Width (extended shaft)	92"
	Depth	30"
Basic Features	Max rated pull	Bare drum 20,000 lbs.
	Minimum rated pull	Full drum 6,900 lbs.
	Drum width	27"
	Net weight	1,700 lbs.
	Drive hydraulic	

5.2.4.6. Wire rope description.

5.2.4.6.1. The Model BW2027LWES winch has the following rope storage capacity. See Table 5.2.

Table 5.2. Model BW2027LWES Winch Rope Storage Capacity.

Rope Diameter	Length
Rear 7/16 in.	3400 ft.
Front 1/2 in.	2500 ft.

5.2.4.6.2. It is important to select the proper wire rope in terms of diameter, number of strands, number of wires per strand, and type of center.

5.2.4.6.3. Rope care.

5.2.4.6.3.1. Care should be taken when installing the wire rope onto the winch drum to prevent kicking. The rope should always be under tension when spooling onto the drum. This will prevent loose coils.

5.2.4.6.3.2. Always spool the rope onto the drum with the natural bend in the same direction as it was on the reel.

5.2.4.6.3.3. When not in operation, the wire rope should be stored under light tension to prevent unwinding.

5.2.4.6.3.4. Wire rope should be lubricated periodically with a good quality wire rope lubricant to maximize the rope's useful life.

5.2.4.7. Alternator description.

5.2.4.7.1. The watts Model 1BHMF-30 is a hydraulic drive alternator capable of producing 3000 (25 amps) of power at 60 cycles and 120 VAC. It is self-excited (requires not power from battery). Is has the ability of operating equipment requiring 25 amps/120 VAC or 12 amps/240 VAC of starting current. It will operate such devices as lights, heaters, tools and other accessories.

5.2.4.7.2. Some accessories powered by induction type motors may not operate from this alternator even though the motor nameplate current draw is well below the amp capacity because of the high starting current requirements of three to five times the running current.

5.2.4.7.3. The alternator is permanently plumbed into the truck hydraulic circuit and wired to an electric outlet. This outlet is a double outlet and located at control station at the rear of the truck.

5.2.4.8. Hydraulic ventilating fan description.

5.2.4.8.1. The ALTER hydraulic ventilating fan is for manholes and other confined areas. It is powered by a hydraulic pump.

5.2.4.8.2. The fan output is 700 cubic feet of air per minute (CFM) through 20 feet of 8 inch duct with two 90 degree bends when supplied with 8 gpm of oil.

5.2.4.8.3. The fan is equipped with a 30,000 British thermal unit (BTU) heater. Water from the vehicle's engine cooling system is pumped through the heater using a 12 volt high temperature water pump. The ventilating air temperature can be infinitely varied from ambient to hot.

5.3. Vehicle Inspection.

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

5.3.2. Preventative maintenance. The operator should be familiar with preventative maintenance and be able to demonstrate preventative maintenance of the following items:

5.3.2.1. Care of the hydraulic line construction unit.

5.3.2.1.1. Shock loads and overloads should be avoided as these conditions can be hazardous to the machine and to people around the unit. Start and stop all operations smoothly.

Note: Do NOT use this unit for jobs beyond its capacity.

5.3.2.1.2.. Any unusual noises observed during operation should be reported so that the cause can be determined and the situation corrected if necessary. A noisy pump should not be run until the cause is corrected. Low oil levels, loose connections or leaks in the inlet lines, a partially closed inlet line valve, worn shaft seals or other pump parts, aeration of the reservoir fluid, excessive pump speeds, and cold or thick hydraulic oil are all possible causes for excessive pump noise.

5.3.2.1.3. Squeaking or jerky motion of moving parts is an indication that lubrication is needed and should be done as outlined in the maintenance section. Any sign of lubricant leaking from the winch should be reported and corrected as soon as possible.

5.3.2.1.4. Any loosening of fasteners or adjustments which appear to be needed should be corrected before they cause more serious problems.

5.3.2.1.5. At no time should an ALTER hydraulic line construction unit be altered or modified without specific written approval from the factory. The machine has been carefully engineered to do its intended job and provide many years of excellent service. The user must assume all responsibility for misuse or unauthorized alteration of the unit.

5.3.2.2. Tire pressure.

5.3.2.3. Loading ramps.

5.3.2.4. Tow bar.

5.3.2.5. Safety chains.

5.3.2.6. Brake fluid.

5.3.2.7. Emergency brake.

5.3.2.8. Lights (after conducted to prime mover).

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

5.3.3.1. Vehicle maintenance to authorize continued use for all other maintenance discrepancies.

5.3.3.2. Ensure correct documentation is in the packet: AF Form 1800, waiver card, Standard Form (SF) Form 91, Department of Defense (DD) Form 518, and airfield diagram.

5.3.3.3. Cleanliness/damage/missing items.

5.3.3.4. Chassis:

5.3.3.4.1. Brakes. Parking and service check for proper operation.

5.3.3.4.2. Wheels and tires. Check for loose or missing wheel studs or nuts, or bent wheel. Check tires for cuts, bruises, excessive wear, and proper inflation.

5.3.3.4.3. Lights. Check operation of lights and flashers.

5.3.3.4.4. All other chassis components. Check as required by company operating practices.

5.3.3.5. Reel lifter:

5.3.3.5.1. Check pivot pins and bushings for retention, excessive play, evidence of lubrication and general condition.

5.3.3.5.2. Check arms and torque tube welds for cracks and structure for evidence of damage.

5.3.3.5.3. Check cylinders and linkage for proper alignment and evidence of damage.

5.3.3.5.4. Check all fasteners for evidence of loosening.

5.3.3.5.5. Check controls for proper operation.

5.3.3.5.6. Lubricate lifter arm grease points (8 locations at least once weekly when in use).

5.3.3.6. Driver:

5.3.3.6.1. Check general condition of rollers and interferences.

5.3.3.6.2. Check general condition of shaft.

5.3.3.6.3. Check mounting of bearings.

5.3.3.6.4. Check chain condition and visually check for proper tension.

5.3.3.6.5. Check controls for proper operation.

5.3.3.7. Winch:

5.3.3.7.1. Check cable for frays, kinks, and proper spooling on drum.

5.3.3.7.2. Check chains on main drive and level wind for proper tension.

5.3.3.7.3. Check controls for proper operation.

5.3.3.7.4. All angle swivels should swivel freely.

5.3.3.7.5. Ensure intermediate cable rollers are free to turn.

5.3.3.8. Ventilating fan, 110 AC Alternator, and Sump Pump:

5.3.3.8.1. Check general condition of fan, collapsible duct, and sump pump hose.

5.3.3.8.2. Check controls for proper operation.

5.3.3.9. Hydraulic System:

5.3.3.9.1. Visually inspect hydraulic system for leaks and correct by tightening, replacing, or repairing any leaking components.

5.3.3.9.2. Check hydraulic oil for proper level.

5.3.3.9.3. Do not add kerosene or other thinners to hydraulic oil. These fluids will cause swelling and rapid deterioration of the O-rings and other seals within the hydraulic system.

5.3.3.9.4. Check all hoses and tubing for damage, frays, cuts, etc. and replace as required.

5.3.3.9.5. Check overall system for evidence of leaks.

5.3.3.9.6. Set proper operating pressures.

5.3.3.9.7. Return filter.

5.3.3.9.7.1. The return filter has a replaceable 10 micron filter element. The frequency with which the filter should be serviced will vary depending upon the conditions under which the unit is operated.

5.3.3.9.7.2. Subsequent filter changes should be done after each 100 hours of machine operation and anytime the pressure drop across the filter is in excess of 25 psi. The filter has a gauge port on top of its housing for installation of a gauge.

5.3.3.9.8. Draining and refilling the hydraulic reservoir. It is recommended that the hydraulic reservoir be drained and refilled with new oil after each 500 hours of machine operation.

5.3.3.9.8.1. In climates where there is a wide variation of operating temperatures between summer and winter months, an oil change to the appropriate oil weight is recommended each spring and fall. The filter cartridge in the return line filter should be replaced at each oil change.

5.3.3.9.9. In the event that the hydraulic system becomes heavily contaminated with metallic particles due to a motor, pump, or other component failure, the following action should be taken to prevent premature failure of the replacement component installed and damage to other components in the system:

5.3.3.9.9.1. Drain the oil reservoir completely.

5.3.3.9.9.2. Wipe the magnets of the magnetic separator clean using a lint free rag.

5.3.3.9.9.3. Use a "short fill" (reservoir half full) of clean hydraulic oil to flush the contaminated oil from all cylinders and prevent cavitation during this flushing process.

5.3.3.9.9.4. Drain the reservoir completely again.

5.3.3.9.9.5. Chain the return line filter cartridge.

5.3.3.9.9.6. Refill the oil reservoir to “full” level with clean hydraulic oil.

Note: Caution – Do NOT add kerosene or other “thinners” to hydraulic oil. These fluids will cause swelling and rapid deterioration of O-rings and other seals in the hydraulic system.

5.3.3.9.9.7. Allow the new oil to circulate through the system for several minute before operating the unit.

5.3.3.9.10. If there is any question as to whether or not the hydraulic oil needs to be changed, some oil may be drained from the bottom of the reservoir into a glass container and inspected for the following indications of oil deterioration:

5.3.3.9.10.1. Dark or cloudy appearance.

5.3.3.9.10.2. A rancid or burned odor.

5.3.3.9.10.3. Foreign particles or other visible contaminants.

5.3.3.9.10.4. A loss of viscosity.

5.3.3.9.10.5. A separation of water or other fluids from the oil.

Note: An oil change is recommended if the sample exhibits these characteristics. A comparison with a sample of new oil may be used to determine the degree of deterioration.

5.3.3.10. Reel lifter:

5.3.3.10.1. Visually inspect the lifter for breaks, cracks, fractures, bent or twisted parts, loose or missing components and fasteners, and other defects. Make necessary repairs or replacements to return unit to proper configuration.

5.3.3.10.2. Operate lifter through its full range and check for correct operation, linkage, arms and/or cylinders for interferences, and pins (for retention and fit).

5.3.3.10.3. If the lifter arms drift under the load, the counterbalance holding valve is most likely contaminated. Cycling the unit may flush contaminants; however, if this does not correct the drifting, the counterbalance valve cartridge should be changed.

Note: Caution – Do NOT attempt to adjust the valve to correct drift. Replace the valve.

5.3.3.11. Reel driver:

5.3.3.11.1. Visually inspect the driver for breaks, cracks, fractures, bent or twisted parts, loose or missing components and fasteners, and other defects. Make necessary repairs or replacements to return driver to proper configuration.

5.3.3.11.2. Check driver chain for condition and tension. If chain requires adjustment, loosen driver motor mounting bracket bolts (2) and reposition motor to obtain desired chain tension, then re-tighten bolts.

5.3.3.11.3. Check driver rollers for condition. Replace if badly worn.

5.3.3.11.4. Lubrication. Lubricate the driver as indicated in the operator's manual.

5.3.3.12. Alter Model BW2725LWES continuous duty winch inspection:

5.3.3.12.1. Inspection of the winch should be a continuing procedure. The operator must always be alert for unusual noises, oil leaking, or heat buildup. Any malfunction should be reported immediately to maintenance.

5.3.3.12.2. Lubrication and chain tension should be checked after each 50 hours of operation.

5.3.3.12.3. The wire rope should be inspected visually for kinks, bends, or broken strands.

5.3.3.12.4. Inspection of the hydraulic system should include the following:

5.3.3.12.4.1. Maintain proper oil level in reservoir. Replenish with oil of the proper grade.

5.3.3.12.4.2. Inspect all fittings to assure than no leaks are present.

5.3.3.12.4.3. Be alert for unusual noise in the hydraulic system.

5.3.3.12.4.4. Change oil filter periodically.

5.3.3.12.5. Lubrication:

5.3.3.12.5.1. Gear housing. The drive gear contains GL5 grade EP 90 gear lubricant. Drain gearbox and install lubricant once a year. Plugs are provided on the housing, one on top, and one on the bottom.

5.3.3.12.5.2. Grease Fittings. There are 5 grease fittings that should be checked every 50 hours; 1 on either end of the level winder shaft at the bearings, 1 on the pawl adjustment screw, 1 on the drum shaft bearing, and 1 on the chain idler shaft. Grease the clutch hex shaft and the level winder groove every 50 hours or once a week.

5.3.3.12.5.3. Chain lube. Lubricate all with a good quality chain lube every 50 hours of operation.

5.3.3.13. Alternator:

5.3.3.13.1. Check the voltage output at the AC outlet. If not proper, check the hydraulic system for proper operation before disassembling alternator service.

5.3.3.13.2. If alternator motor is getting 8 gpm oil flow, then the hydraulic circuit is satisfactory.

5.3.4. During-operation:

5.3.4.1. Lights and reflectors.

5.3.4.2. Brakes.

5.3.4.3. Unusual noises.

5.3.5. After-operation inspection.

5.3.5.1.1. Check the entire vehicle for any damage or leaks.

5.3.5.1.2. Ensure the cable reel is cleaned (free of dirt, excess oil, and grease).

5.3.5.1.3. Refuel.

5.3.5.1.3.1. For all types of fuel and charging: Use refueling area or charging area, turn-off engine and use parking brake, and do not smoke or use electronic devices.

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

5.3.6. A Seven-Step Inspection Method will help ensure the inspection is the same each time it is conducted, and that nothing is left out. See **Attachment 4** for the Seven-Step Inspection Method.

5.4. Vehicle Safety and Equipment.

5.4.1. Hazards and Human Factors.

5.4.1.1. Common mishap types.

5.4.1.1.1. Blind spots.

5.4.1.1.2. Backing.

5.4.2. Safety clothing and equipment:

5.4.2.1. Working gloves.

5.4.2.2. Steel-toed boots.

5.4.2.3. Reflective belts/vests during operation of low visibility and on the flightline.

5.4.2.4. Raingear, cold weather gear, etc.

5.4.2.5. Hearing protection.

5.5. Driving Safety and Precautions.

5.5.1. Payload capacity. Do not exceed the vehicle's payload capacity found on the vehicle data plate or in the manufacturer's operator's manual.

5.5.2. Winch safety:

5.5.2.1. The winch was not designed for, nor intended for moving people. Do not use the winch to move people.

5.5.2.2. The operator must be completely familiar with the winch, its function, and its controls.

5.5.2.3. Never wear loose clothing while operating or working on the winch.

5.5.2.4. Operate the winch in a smooth manner. Jerky or erratic operation can place excessive stress on the winch and cable

5.5.2.5. Coordinate work with all members of the party to eliminate misunderstandings which may lead to injury.

5.5.2.6. When operating the winch, stand clear as practical of the winch line to avoid injury in case of winch line failure.

5.5.2.7. The operator should remain at the control when the winch is in operation.

5.5.2.8. Do not allow the load to exceed winch line capacity.

5.5.2.9. Be sure the winch clutch is fully engaged before pulling begins.

5.5.2.10. Do not operate the winch at excessive speed.

Note: Do not make any modification to an alter winch, which might affect its structural integrity or its operating characteristics, without specific written permission from the Alter Factory.

5.6. Vehicle Operation.

5.6.1. Refer to the Operator's Manufacturer's Manual for detailed, vehicle-specific operation of the cable reel. Additionally, refer to AFMAN 24-306 and local policies and procedures for further laws and regulations pertaining to the operation and use of the cable reel.

5.6.2. Ensure engine' gauges are at proper operating level. Put transmission in neutral, and then engage the PTO before leaving the truck cab. The clutch should be let out to confirm that the pump is operating and the vehicle drive wheels are not engaged. The vehicle main parking brake and any supplemental holding brake, when so equipped, should be set firmly, and the wheels chocked.

5.6.3. In cold weather the engine should be allowed to run at a fast idle speed 5 to 10 minutes giving the oil a chance to warm up before running the pump at operating speeds. Cold, thick oil will not flow easily to the pump and could cause cavitation and consequent pump damage.

5.6.4. A hand throttle at rear control station is provided so the operator may increase the engine speed to provide adequate pump output for the function he wishes to operate.

5.6.5. SAE PTO Control: This control is located on the dash board on the driver's side. To engage PTO, push truck clutch in, pull or slide the PTO control handle out and release the clutch.

Note: Always disengage PTO when roaming the vehicle, no matter how short the distance is. Under no circumstances should the differential lock be engage while vehicle is in motion. Damage to the equipment could result.

5.6.6. Rear station houses control for:

5.6.6.1. Lifter arms.

5.6.6.2. Driver rollers.

5.6.6.3. Winch.

5.6.6.4. Ventilating fan (hydraulic).

5.6.6.5. 110V AC alternator (hydraulic).

5.6.6.6. Sump pump and other tools (hydraulic).

5.6.6.7. Throttle control.

5.6.7. Routine maintenance of the equipment includes lubrication and periodic inspection of the components as specified further in the corresponding section. The routine maintenance intervals should be established in accordance with the equipment's usage and local maintenance procedures. However, in no case should it be longer than 60 days. High usage, dusty and/or wet climate will require lubrication at shorter intervals.

5.6.8. Specific lubrication instructions for each major component are outlined further in the corresponding section along with the type of lubricant to be used. During lubrication, clean all points of application before lubrication and wipe off excess lubricant after lubrication.

5.6.9. Reel lifter operation.

5.6.9.1. Lifting reel onto truck.

5.6.9.1.1. Back truck to within 3 feet of reel, centering the truck with the reel. Set up truck for hydraulic action as previously described.

5.6.9.1.2. Ensure that the outriggers are lowered prior to lifting cable reel. When properly positioned, the outriggers eliminate twisting strains on the truck chassis.

5.6.9.1.3. Lower lifting arms to a position where a carrying bar can be removed.

5.6.9.1.4. With bar removed, lower arms to a position where carrying bar hooks are just below center of the reel.

5.6.9.1.5. Insert carrying bar through the reel.

5.6.9.1.6. Roll reel forward until bar is above openings of hooks then gently raise arms to engage carrying bar. Make sure hook is positioned between the spacer flanges on the bar.

5.6.9.1.7. Center reel on bar and secure reel collars on both sides of reel. This prevents the reel from "walking" on bar during operation and/or travel.

5.6.9.1.8. Raise arms until bar bottoms out in both hooks and secure bar in both hooks with 1/2" bolts.

5.6.9.1.9. Raise reel onto truck to desired position. Observe reel during travel to be sure it remains clear of the body, lifter and other loose items.

5.6.9.1.10. For travel, reel should be position as far forward as is practical.

5.6.9.2. Lifting reel off truck:

5.6.9.2.1. Set up truck as previously described. Lower reel until it makes contact with the ground.

5.6.9.2.2. Remove carrying bar retaining bolts. Lower arms until hooks are free of carrying bar.

5.6.9.2.3. Remove carrying bar from reel. Raise arms to position where carrying bar can be reinstalled.

5.6.9.2.4. After carrying bar is reinstalled in arm hooks, store arms.

5.6.9.3. Reel lifter operation precautions:

5.6.9.3.1. Always operate hydraulic controls smoothly. Do not jerk or rapidly reverse controls. Rough handling can cause mechanical and personal injury.

5.6.9.3.2. Raise and lower reels slowly and evenly, always observing reel path for interference and obstruction.

5.6.9.3.3. . If truck is to be moved with reel suspended or projecting over rear, do not exceed 10 mph over rough surfaces and do not make rapid starts or stops.

5.6.9.3.4. Do not use lifter for operations other than those described above unless specific written approval is obtained from the manufacturer.

5.6.9.4. Lubrication. Lubricate the lifter as described in the operator's manual.

5.6.10. Reel driver operation.

5.6.10.1. Set truck up for hydraulic operation as previously described.

5.6.10.2. Position reel over driver rollers and center reel on carrying bar. Make sure positioning collars are tight against reel on both sides.

5.6.10.3. Check reel to ensure that it is not bent out of line. Wobbly, rough, bent or chipped rims will damage rollers and should not be driven.

5.6.10.4. Lower reel until it makes contact with driver rollers.

5.6.10.5. Before proceeding with normal operation, rotate reel slowly to make sure clearances are satisfactory.

Note: Use only amount of force required to prevent reel rims and rollers from slipping. Excessive down force on rollers will cause mechanical damage.

5.6.10.6. Reel brake operation.

5.6.10.6.1. Driver may be used as a brake to prevent overrun or to control cable slack during pay out operation when cable is being pulled from opposite end or being "free spooled" off reel.

5.6.10.6.2. For brake operation:

5.6.10.6.2.1. Lower reel until it contacts driver rollers.

5.6.10.6.2.2. Apply sufficient pressure with arms to attain desired reel speed.

5.6.10.6.2.3. When more braking is required than can be obtained from Step Two (2), operate driver controls in opposite direction.

5.6.10.7. Capstan or collapsible reel operation.

5.6.10.7.1. Be sure driver rollers are free from obstructions.

5.6.10.7.2. When equipped with an extended shaft, the driver can be used with a capstan head or collapsible reel.

5.6.10.7.3. When using for this type of work, operate driver control in a normal manner.

5.6.11. Alter Model BW2725LWES continuous duty winch operation.

5.6.11.1. Anyone who is not qualified by training and experience to properly operate this winch, should not operate it. Training includes complete knowledge of the employer's work rules, all governmental regulations and contents of this manual relative to safe and recommended operation.

5.6.11.2. The vehicle must be securely parked before using the winch. Place the transmission in neutral and set the parking brake securely. Apply the supplemental holding brake according to instructions. Engage the power take-off. Use wheel chocks.

5.6.11.3. Check the winch drum to assure that wire rope is properly wound and free of tangles.

5.6.11.4. Engage the winch clutch.

5.6.11.5. Operate the controls smoothly for the desired direction of drum rotation (take-up or pay-out).

5.6.11.6. Pull the load steadily using the throttle to control line speed.

5.6.11.7. To stop winch return control to OFF position. Return engine to idle.

5.6.12. Alternator operation.

5.6.12.1. Ensure that the truck is properly set-up for hydraulic system operation.

5.6.12.2. Moving the alternator control valve to the ON position will energize the electrical station.

5.6.13. Hydraulic ventilating fan.

5.6.13.1. Ensure truck is properly set up for the hydraulic system operation.

5.6.13.2. Move switch marked "fan" (on control panel) to the "on" position and purge the air duct.

5.6.13.3. Properly position flexible duct into enclosure to be ventilated.

5.6.13.4. For cool air shut off the manual valve to the heater in the street side compartment and push in the heater fan switch at the control panel. Inside the street side compartment there is a sheet metal gate which is between the hydraulic fan and the heater. Push this gate towards the curb side of the vehicle to block off air from the heater and open the duct to outside air.

5.6.13.5. For heated air open the manual shutoff valve located in the compartment. Pull out the push/pull switch at the control station marked heater and pull the gate valve towards the street side of the compartment.

5.6.13.6. Always purge the fan duct at street level for at least one minute before placing it into the manhole. Be certain the fan intake is away from any sources of potentially harmful fumes or gases.

5.6.13.7. Ventilate the manhole or vault for a minimum of 15 minutes. Test the atmosphere in the vault before entering to begin work.

5.6.13.8. Continue to make periodic tests while working and after taking any work breaks. Many factors are at work which can produce harmful gases in places where they were not found before, so continue testing.

5.6.13.9. Test IAW AFI 91-203.

5.6.14. Operation overview. The prime mover should be adequate to support the tongue weight and have enough power to safely tow the trailer at the desired speed. When loaded, the sustained speed should be no greater than 50 mph. Avoid quick starts and stops.

Note: In hilly or mountainous terrain; the speed should be reduced accordingly. See AFMAN 24-306 for additional guidance.

5.6.15. Pintle hook. Assure installed pintles are roadworthy for towing. Surge brake operation, rear road clearance and ramp fold down clearance requires a pintle with a compatible height (18, 20 or 22 inches).

5.6.15.1. Connection of prime mover to the trailer.

5.6.15.1.1. Chock wheels of the trailer.

5.6.15.1.2. Hook the eyelet of the tow bar to the pintle hook. (Ensure pintle hook is locked and safety pin is inserted).

5.6.15.1.3. Hook-up safety chains, light cable and the emergency surge brake.

5.6.15.2. Loading the trencher.

5.6.15.2.1. The trencher should never be loaded/unloaded unless the trailer is connected to prime mover.

5.6.15.2.2. Lower ramps.

5.6.15.2.3. Gear in range with low throttle speed.

5.6.15.2.4. Replace gate.

5.6.15.2.5. Raise stanchion guards and lock with pins

5.6.15.2.6. Raise stanchions high enough to raise reel supports then lower stanchion until they rest on reel supports.

5.6.15.2.7. Turn-off motor.

5.6.15.3. Unloading the reel.

5.6.15.3.1. Start motor.

5.6.15.3.2. Raise stanchion high enough to lower reel supports, then lower reel.

5.6.15.3.3. Chock reel.

5.6.15.3.4. Lower stanchion guards.

5.6.15.3.5. Remove gate.

5.6.15.3.6. Drive trailer forward until reel is clear of trailer.

5.6.15.3.7. Put bar back on trailer.

5.6.15.3.8. Replace stanchion guards and locking pins.

5.6.15.3.9. Replace gate.

5.6.15.3.10. Turn-off motor (if disconnecting trailer from truck, leave it running until disconnected).

5.6.15.4. Off-loading the trailer.

5.6.15.4.1. Pull park brake (trailer) and chock trailer.

5.6.15.4.2. Start motor.

5.6.15.4.3. Open pintle hook.

5.6.15.4.4. Lower trailer leg until tongue clears pintle hook.

5.6.15.4.5. Remove all hook –ups from truck (lights, chains, etc.).

5.6.15.4.6. Pull truck forward to clear pintle hook.

5.6.15.4.7. Close pintle hook and install safety pin.

5.6.15.4.8. Turn-off the motor.

Section 6—EXPLANATION AND DEMONSTRATION

6.1. Instructor's Preparation.

6.1.1. Establish a training location.

6.1.2. Obtain appropriate Manufacturer's Operator's Manual.

6.1.3. Schedule/reserve a vehicle.

6.1.4. Ensure trainee completes AF Form 171.

6.2. Safety Procedures and Equipment.

6.2.1. The following safety items should be followed by both the instructor and trainee:

6.2.1.1. Chock wheel (if required) when cable reel is parked.

6.2.1.2. Remove all jewelry and identification tags.

6.2.1.3. Personal protective equipment and equipment items.

6.2.1.3.1. Reflective belt will be worn during hours of dark and inclement weather/ low visibility on the flightline.

6.2.1.3.2. Hearing protection.

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

6.2.1.5. Ensure trainee wears seat belt if operating the vehicle pulling the cable reel.

6.2.1.6. Properly adjust driver's seat and all mirrors, if available.

6.2.1.7. Throughout demonstration, practice vehicle and cable reel safety:

6.2.1.7.1. Always observe speed and safety precautions while operating the vehicle. Know local policies regarding airfield operations.

6.2.1.7.2. Keep loads within the rated capacity of the cable reel.

6.2.1.7.3. Always check the rear before backing. Always use a spotter when backing. The operator should always have visual contact with the spotter. If the visual contact is lost, the operator will immediately stop the vehicle. See AFMAN 24-306 for additional information on spotting and standard spotter hand signals.

6.2.2. Practice basic RM process during demonstration:

6.2.2.1. Identify hazards.

6.2.2.2. Assess hazards.

6.2.2.3. Develop controls and make decisions.

6.2.2.4. Implement controls.

6.2.2.5. Supervise and evaluate.

6.3. Operator Maintenance Demonstration.

6.3.1. With trainee, accomplish vehicle inspection using AF Form 1800. The cable reel inspection will follow the seven-step method as described in **Attachment 4**. An inspection guide (**Attachment 2**) can be used to ensure all areas of the cable reel are covered in addition to the "Operation Demonstration" guidelines provided below.

Note: The trainee will also use the applicable guide to inspect the vehicle being operated as. For licensed vehicles with available lesson plan, the trainee will use that vehicle's inspection guide and seven step inspection guide provided. If the vehicle does not have a corresponding lesson plan, the trainee will use the AF Form 1800 to perform the inspection.

6.4. Operation Demonstration.

6.4.1. Throughout demonstration.

6.4.1.1. Allow for questions.

6.4.1.2. Repeat demonstrations as needed.

6.4.1.3. For more information refer to the vehicle data plate and the Operator's Manufacturer's Manual.

6.4.2. For all cable reels within the training area, demonstrate and explain the following. **Note:** Use information contained on the data plate and/or the operator's manual:

6.4.2.1. Go over the capacities of the cable reel.

6.4.2.2. Go over the cable reel controls, reflectors and lights.

6.4.2.3. Go over hand signals, have trainee serve as the spotter. Keep a spotter in sight at all times. If the operator cannot see the spotter, stop the vehicle immediately. Explain and demonstrate how to back the vehicle with the cable reel attached. See AFMAN 24-306 for standard spotter hand signals.

6.4.2.4. Demonstrate the following:

6.4.2.4.1. PTO use.

6.4.2.4.2. Turns.

6.4.2.4.3. Intersections.

6.4.2.4.4. Stopping/starting.

6.4.2.4.5. Curves.

6.4.2.4.6. Backing.

6.4.2.4.7. Parking.

6.4.2.4.8. Reel lifter operation.

6.4.2.4.8.1. Lifting reel onto the truck.

6.4.2.4.8.2. Lifting reel off of the truck.

6.4.2.4.9. Reel driver operation.

6.4.2.4.10. Reel brake operation.

6.4.2.4.11. Capstan or collapsible reel operation.

6.4.2.4.12. Continuous duty winch operation (if applicable).

6.4.2.4.13. Alternator operation.

6.4.2.4.14. Hydraulic ventilation fan use.

6.4.2.4.15. Pintle hook operation (see the Pintle Hook Lesson Plan for additional information).

6.4.2.4.16. Loading the trencher.

6.4.2.4.17. Unloading the reel.

6.4.2.4.18. Shutdown.

6.4.3. Show trainee the after operation inspection and report.

6.4.3.1. Ensure vehicle cleaned.

6.4.3.2. Refueled.

6.4.3.3. Following manufacturer’s shut-down procedures.

6.4.3.4. Park.

6.4.3.4.1. Level area.

6.4.3.4.2. Place transmission control in neutral.

6.4.3.4.3. Apply the parking brake (adjust if necessary).

6.4.3.5. Perform a walk-around inspection.

6.4.3.6. Annotate any discrepancies found on AF Form 1800.

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

Section 7—TRAINEE PERFORMANCE AND EVALUATION

7.1. Trainee Performance.

7.1.1. Instructor will:

7.1.1.1. Ensure safety at all times. **Note:** Stop training when safety items are violated. Proceed only when the trainee fully understands how to avoid repeating the safety infraction(s).

7.1.1.1.1. Chock wheel (if required) when cable reel is parked.

7.1.1.1.2. Remove all jewelry and identification tags.

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

7.1.1.2. Personal protective equipment and other items.

7.1.1.2.1. Reflective belt/vest during low visibility times.

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

7.1.1.4. Ensure trainee wears seat belt.

7.1.1.5. Properly adjust driver’s seat and all mirror.

7.1.1.6. Cable reel safety items/procedures.

7.1.1.7. Ensure the driver is aware of driving situations he/she is to perform.

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

7.1.2. Trainee Performance:

7.1.2.1. Conduct operator maintenance (have trainee explain items being inspected). **Note:** Allow trainee to use **Attachment 2** as a guide while performing the cable reel inspection. The trainee will use the applicable guide to inspect the vehicle being operated as well. For licensed vehicles with available lesson plan, the trainee will use that vehicle's inspection guide and seven step inspection guide provided. If the vehicle does not have a corresponding lesson plan, the trainee will use the AF Form 1800 to perform the inspection.

7.1.2.1.1. Pre-inspection.

7.1.2.1.2. During inspection.

7.1.2.2. Ensure AF From 1800 is properly documented.

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

7.1.2.2.2. Continue until trainee can show proficiency in operating.

7.1.2.3. Have trainee practice the following cable reel operations (use spotter when backing) until they can safely and efficiently perform:

7.1.2.3.1. Explain the capacities of the cable reel.

7.1.2.3.2. Go over the cable reel controls, reflectors and lights.

7.1.2.3.3. Go over hand signals, have trainee serve as the spotter. Keep a spotter in sight at all times. If the operator cannot see the spotter, stop the vehicle immediately. Explain and demonstrate how to back the vehicle with the cable reel attached. See AFMAN 24-306 for standard spotter hand signals.

7.1.2.3.4. Demonstrate the following:

7.1.2.3.4.1. PTO use.

7.1.2.3.4.2. Turns.

7.1.2.3.4.3. Intersections.

7.1.2.3.4.4. Stopping/starting.

7.1.2.3.4.5. Curves.

7.1.2.3.4.6. Backing.

7.1.2.3.4.7. Parking.

7.1.2.3.4.8. Reel lifter operation.

7.1.2.3.4.8.1. Lifting reel onto the truck.

7.1.2.3.4.8.2. Lifting reel off of the truck.

7.1.2.3.4.9. Reel driver operation.

7.1.2.3.4.10. Reel brake operation.

7.1.2.3.4.11. Capstan or collapsible reel operation.

7.1.2.3.4.12. Continuous duty winch operation (if applicable).

7.1.2.3.4.13. Alternator operation.

7.1.2.3.4.14. Hydraulic ventilation fan use.

7.1.2.3.4.15. Pintle hook operation (see Pintle Hook Lesson Plan for additional information).

7.1.2.3.4.16. Loading the trencher.

7.1.2.3.4.17. Unloading the reel.

7.1.2.3.4.18. Shutdown.

7.1.2.4. Perform after operation inspection and report.

7.1.2.4.1. Park.

7.1.2.4.2. Ensure cable reel is cleaned.

7.1.2.4.3. Perform a walk-around inspection.

7.1.2.4.4. Annotate any discrepancies found on AF Form 1800.

7.1.2.5. Conduct after-action reviews with the trainee.

7.1.2.6. Retraining; retrain No-Go's.

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

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

7.1.2.7. Re-evaluate.

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References
AFI 24-301, *Ground Transportation*, 1 November 2018
AFI 91-203, *Air Force Consolidated Occupational Safety Instruction*, 15 June 2012
AFMAN 24-306, *Operation of Air Force Government Motor Vehicles*, 9 December 2016

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

Abbreviations and Acronyms
AF—Air Force
AFI—Air Force Instruction
AFIMSC—Air Force Installation Mission Support Center
AFMAN—Air Force Manual
AFQTP—Air Force Qualification Training Plan
BTU—British Thermal Unit
CFM—Cubic Feet of Air per Minute
DD—Department of Defense
HP—Horsepower
IAW—In Accordance With
PSI—Pounds Per Square Inch
PTO—Power Take-off
RM—Risk Management
RPM—Revolutions per Minute
SF—Standard Form
TO—Technical Order
VCO—Vehicle Control Official

Attachment 2

CABLE REEL INSPECTION GUIDE

GENERAL

STEP 1. VEHICLE OVERVIEW

☐ Paperwork
- AF Form 1800
- Discrepancy Correction Complete (VM Annotation)

☐ Vehicle Approach
- Damage
- Vehicle Leaning
- Fresh Leakage of Fluids
- Hazards Surrounding Vehicle

INTERNAL

STEP 2. FLUID CHECKS

☐ Brake Fluid
☐ Hydraulic Fluid

STEP 3. CONTROL AND SAFETY CHECK (LEFT/FRONT/RIGHT)

☐ Controls
☐ Safety Chains
☐ Tow Bar
☐ Loading Ramps
☐ **3B** – Lights/Reflectors/Reflector Tape Condition (Front/Sides/Rear)
(Dash Indicators for:)
- Left Turn Signal
- Right Turn Signal
- Four-Way Emergency Flashers
- Red Reflectors & Amber Reflectors
- Reflective Tape Condition

☐ Brakes
- Parking Brake Check
- Service Brake Check
- Emergency Brake Check
- Safety Belt (vehicle being operated)

STEP 4. WALK-AROUND INSPECTION

☐ **4A** – Chassis
- Brakes.
- Wheels and Tires.

☐ **4B** – Reel Lifter
- Pivot Pins/Bushings (retention, excessive play, lubrication, condition)
- Arms/Torque Tube Welds (cracks, damage)
- Cylinders/Linkage (proper alignment, damage)
- Fasteners (evidence of loosening)
- Controls (proper operation)
- Lifter Arm (lubrication)

☐ **4C** – Driver
- Rollers and Interferences
- Shaft
- Mounting of Bearings
- Chain Condition/Proper Tension
- Controls (proper operation)

☐ **4D** – Winch (if applicable)
- Cable
- Chains/Level Wind (proper tension)
- Angle Swivels
- Cable Rollers

☐ **4E** – Ventilating Fan/Sump Pump
- Fan/Collapsible Duct/Sump Pump Hose (general condition)
- Controls (proper operation)

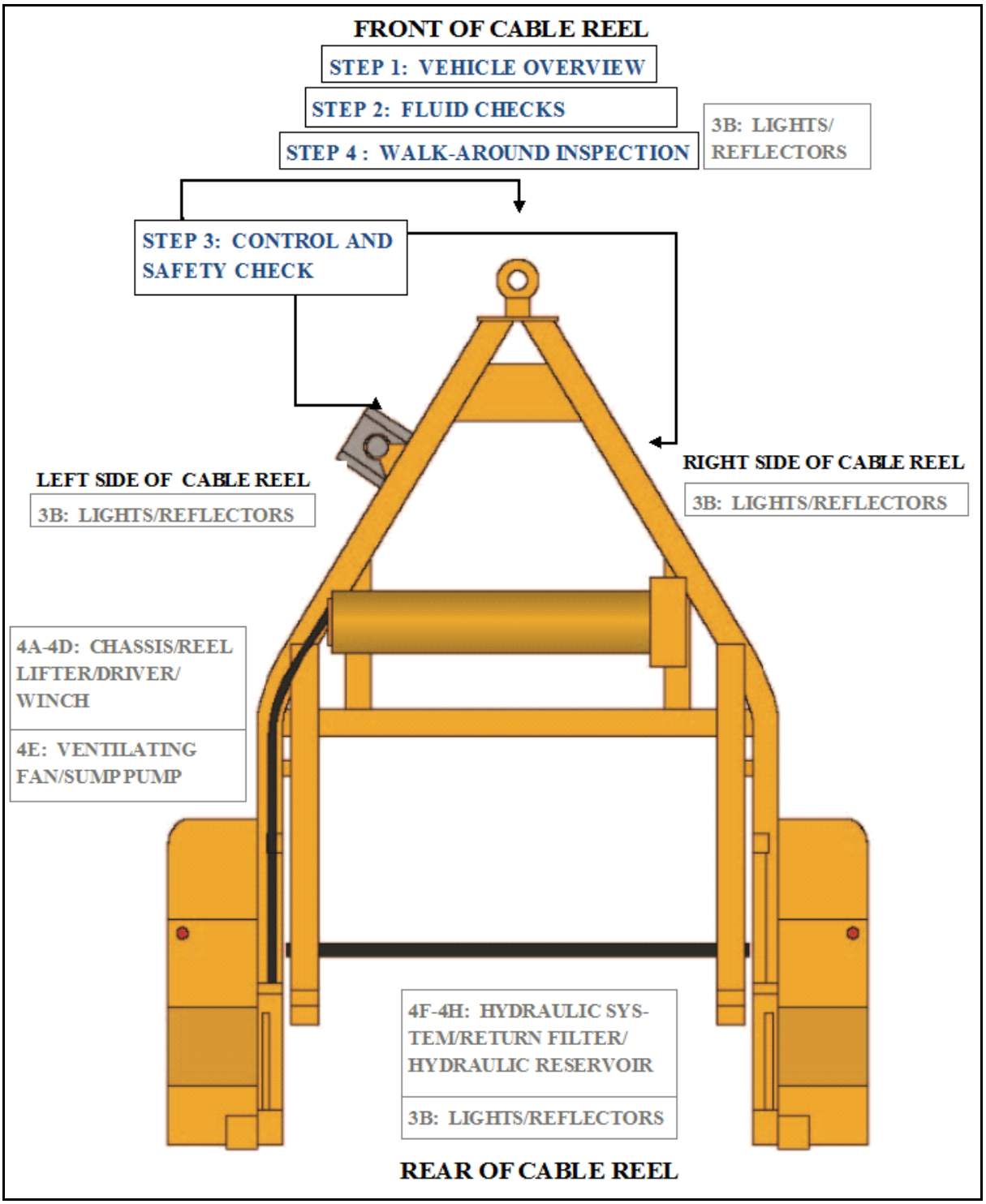
☐ **4F** – Hydraulic Operation

☐ **4G** – Return Filter

☐ **4H** – Hydraulic Reservoir

REAR OF CABLE REEL

Figure A2.1. Cable Reel Inspection Guide.



Attachment 3

PERFORMANCE TEST

A3.1. Desired Learning Outcome.

A3.1.1. Understand the safety precautions to be followed before-, during-, and after-operation of the cable reel.

A3.1.2. Understand the purpose of the cable reel and its role in the mission.

A3.1.3. Know the proper operator maintenance procedures of the cable reel, IAW applicable technical orders and use of Air Force (AF) Form 1800.

A3.1.4. Safely and proficiently operate the cable reel.

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

A3.3. Scoring.

A3.3.1. The trainer examiner will be scoring the trainee on cable reel operations and also the general safe operating practices. The examiner will give directions and instructions to the trainee in sufficient time for him/her to execute an operating/driving maneuver. They will not be asked to operate the vehicle or cable reel in an unsafe manner.

A3.3.2. The examiner will be making various marks on the performance test checklist. This does not necessarily mean anything has been done wrong. It is in the best interest to concentrate on the operation of the vehicle/cable reel. The trainer will explain the test results at the conclusion of the performance test.

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

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

Figure A3.1. Performance Test Checklist:

PERFORMANCE TEST			
Trainees Name:		**Date:**	
Event	**Go**	**No Go**	**Notes**
1. PRE, DURING, AND POST- OPERATION INSPECTION			
1.1. Operator has required Personal Protective Equipment for the vehicle being operated and the cable reel.			
1.2. Follows general pattern of pre-trip checklist for the vehicle being operated and the cable reel.			
1.3. Performs brake check for the vehicle being operated.			
1.4. Signs AF Form 1800 to signify accomplishment of complete inspection for the vehicle being operated and the cable reel.			
1.5. Cleans windshield, windows, mirrors, lights and reflectors of the vehicle being operated and the cable reel.			
1.6. Continues during operations inspection checks for the vehicle being operated and the cable reel.			
1.7. Performs post trip inspection and reports malfunctions to Vehicle Management for the vehicle being operated and the cable reel.			
Event	**Go**	**No Go**	**Notes**
2. KNOWLEDGE OF VEHICLE AND USE OF CONTROLS			
2.1. Safety belt is used; obeys all traffic signs, signals, and laws; completes test without an accident or moving violation.			
2.2. PTO use.			
2.3. Does not cut corners sharply.			
2.4. Maintains proper speed and space.			

2.5. Ensure proper safety practices. List safety violations.			
2.6. Turns - checks traffic in all directions; uses turn signals and safely get into the lane needed for the turn; slows down smoothly, changes gears as needed to keep power; checks mirrors to ensure proper clearance; vehicle should not move into oncoming traffic.			
2.7. Intersections - checks traffic in all directions; decelerate gently, brakes smoothly and, if necessary, changes gears; if necessary, comes to a complete stop (no coasting) behind any stop signs, signals, sidewalks, or stop lines.			
2.8. Stopping - decelerates smoothly, brakes evenly, changes gears as necessary; brings vehicle to a full stop without coasting.			
2.9. Starting - checks traffic, avoids jerky starts.			
2.10. Curves - before entering the curve, reduces speed and is in proper gear; keeps vehicle in the lane; continues checking traffic in all directions.			

Event	Go	No Go	Notes
3. CABLE REEL OPERATION			
3.1. Reel Lifter Operation:			
Lifting reel onto the truck.			
Lifting reel off of the truck.			
3.2. Reel Driver Operation			
3.3. Reel Brake Operation			
3.4. Capstan or Collapsible Reel Operation			
3.5. Continuous Duty Winch Operation (if applicable)			
3.6. Alternator Operation.			
3.7. Hydraulic Ventilation Fan Use			
3.8. Pintle Hook Operation			
3.9. Loading the Trencher			
3.10. Unloading the Reel			
Event	**Go**	**No Go**	**Notes**
4. BACKING AND PARKING			
4.1. Backing.			
Positions properly.			
Inspects before backing.			
Post guide before backing and uses spotters properly.			
Uses mirrors properly.			
Avoids blind side backing.			
Controls speed.			
4.2. Parking.			
Checks traffic position before parking.			
Parks legally and safely.			
Pulls completely off pavement when possible.			
Knows proper use of emergency warning devices.			
Uses emergency warning devices.			
CERTIFIER COMMENTS:			

Attachment 4

SEVEN-STEP INSPECTION PROCESS

Figure A4.1. Seven-Step Inspection Process.

Seven-Step Inspection Process	
Step	**Procedure**
1. Vehicle Overview	• Review the AF Form 1800. o Ensure any discrepancy has been corrected. o Vehicle Management annotated the discrepancy was completed. o Approaching the vehicle. ▪ Damage or vehicle leaning to one side. ▪ Fresh leakage of fluids. ▪ Hazards around vehicle.
5. Do Walk-Around Inspection	• General. o Four-way emergency flashers. o Turn-on parking, clearance, side-marker, and identification lights. o Turn-on right turn signal, and start walk-around inspection. o Walk around and inspect. ▪ Clean all lights, reflectors, and glass as while doing the walk-around inspection. • Left front side. • Left wheels. o Condition of wheel and rim--missing, bent, broken studs, clamps, lugs, or any signs of misalignment. o Condition of tires--properly inflated, valve stem and cap OK, no serious cuts, bulges, or tread wear. o Use wrench to test rust-streaked lug nuts, indicating looseness. o Hub oil level OK, no leaks. Left front suspension. o Condition of spring, spring hangers, shackles, o U-bolts. o Shock absorber condition. • Left front brake. o Condition of brake drum or disc.

	o Condition of hoses. • Front. o Condition of front axle. Condition of steering system. o No loose, worn, bent, damaged or missing parts. • Right side o . o Frame and cross members--no bends or cracks. o Air-lines and electrical wiring--secured against snagging, rubbing, wearing. o • Right rear. o Condition of wheels and rims--no missing, bent, or broken spacers, studs, clamps, or lugs. o Condition of tires--properly inflated, valve stems and caps OK, no serious cuts, bulges, tread wear, tires not rubbing each other, and nothing stuck between them. o Tires same type, e.g., not mixed radial and bias types. o Tires evenly matched (same sizes). Wheel bearing/seals not leaking. o Suspension. o Condition of spring(s), spring hangers, shackles, and u-bolts. o Axle secure. o Condition of shock absorber(s). o . o Brakes. o Brake adjustment. o Condition of brake drum(s) or discs. o Condition of hoses--look for any wear due to rubbing. o Lights and reflectors. o Side-marker lights clean, operating, and proper color (red at rear, others amber). o Side-marker reflectors clean and proper color (red at rear, others amber). • Rear.

	o Lights and reflectors. o Rear clearance and identification lights clean, operating, and proper color (red at rear). o Reflectors clean and proper color (red at rear). o Right rear turn signal operating, and proper color (red, yellow, or amber at rear). o License plate(s) present, clean, and secured. o Splash guards present, not damaged, properly fastened, not dragging on ground, or rubbing tires. o End gates free of damage, properly secured in stake sockets. o Rear doors securely closed, latched/locked. • Left side. o Check all items on right side.