Chapter 5

Basic Line Construction/Maintenance Vehicle Operations and Maintenance

Topics

1.0.0 Operation of Aerial (Bucket) Lift Truck

2.0.0 Aerial Lift Truck Maintenance

3.0.0 Aerial Lift Rescue

4.0.0 Line Maintenance Truck

5.0.0 Hand Signals

6.0.0 Line Maintenance Truck Operator's Maintenance

7.0.0 Administrative Functions

To hear audio, click on the box.

Overview

Aerial lift and line maintenance trucks have simplified the Construction Electrician's job and allowed safer conduct of required work. Jobs that previously took days to complete now take hours. As an electrician, you will be required at times to work on energized overhead circuits and equipment. While doing this, you must be protected from all grounded surfaces. Aerial lift and line maintenance trucks provide this protection. At other times, a fellow crew member may require rescue. Using the two vehicles available, the crew member can be rescued swiftly with minimum danger to rescuers. As with any heavy construction equipment, there are administrative matters you must know and understand to operate and maintain these vehicles effectively.

Objectives

When you have completed this chapter, you will be able to do the following:

1. Describe the operation of Aerial (Bucket) Lift truck.
2. Describe aerial lift truck maintenance.
3. Describe aerial lift truck rescue procedures.
4. Describe the operation of the line maintenance truck.
5. Identify the hand signals used.
6. Describe line maintenance truck maintenance procedures.
7. Describe administrative functions and forms.

Prerequisites

None

This course map shows all of the chapters in Construction Electrician Basic. The suggested training order begins at the bottom and proceeds up. Skill levels increase as you advance on the course map.

Test Equipment, Motors, and Controllers	↑	C E
Communications and Lighting Systems		
Interior Wiring and Lighting		
Power Distribution		
Power Generation		
Basic Line Construction/Maintenance Vehicle Operations and Maintenance		B A
Pole Climbing and Rescue		S
Drawings and Specifications		I
Construction Support		C
Basic Electrical Theory and Mathematics		

Features of this Manual

This manual has several features which make it easy to use online.

- Figure and table numbers in the text are italicized. The figure or table is either next to or below the text that refers to it.
- The first time a glossary term appears in the text, it is bold and italicized. When your cursor crosses over that word or phrase, a popup box displays with the appropriate definition.
- Audio and video clips are included in the text, with italicized instructions telling you where to click to activate it.
- Review questions that apply to a section are listed under the Test Your Knowledge banner at the end of the section. Select the answer you choose. If the answer is correct, you will be taken to the next section heading. If the answer is incorrect, you will be taken to the area in the chapter where the information is for review. When you have completed your review, select anywhere in that area to return to the review question. Try to answer the question again.
- Review questions are included at the end of this chapter. Select the answer you choose. If the answer is correct, you will be taken to the next question. If the answer is incorrect, you will be taken to the area in the chapter where the information is for review. When you have completed your review, select

anywhere in that area to return to the review question. Try to answer the question again.

1.0.0 OPERATION of AERIAL (BUCKET) LIFT TRUCK

1.1.0 Line Construction Maintenance Vehicles

The Naval Construction Force (NCF) uses line construction maintenance vehicles for construction and maintenance of overhead distribution systems at existing naval bases and advanced base sites during both normal and ***contingency*** operations.

Both the bucket and auger trucks, individually or in combination, fall under this category. See *Figure 5-1* and *Figure 5-2* for examples of both.

Figure 5-1 – Aerial lift truck

Figure 5-2 – Auger truck

1.2.0 Purpose of Aerial Lift Truck

Electrical workers use aerial lift trucks, sometimes called bucket trucks, as elevated platforms for live line maintenance and construction, street lighting maintenance, and tree trimming operations (*See Figure 5-3*). The main use of these trucks is as an insulated platform for live line maintenance actions. Maintenance performed from the aerial lift truck is limited only by the location of the work and the reach limitations of the truck itself.

Figure 5-3 – Aerial lift (bucket) truck.

1.3.0 Capabilities of the Aerial Lift Truck

1.3.1 Booms

The majority of bucket trucks come equipped with two booms.

1.3.1.1 Types

A typical aerial lift truck has an upper and lower boom. These booms are hydraulically operated using control valves either at the boom base or personnel bucket. The lower boom is made of steel and must never come in contact with energized conductors (there is a small fiberglass section in the lower boom to protect the truck and its occupants from accidental contact). The upper boom is fabricated of fiberglass and therefore insulated to protect worker(s) from any contact with energized conductors. (*Refer to Figure 5-4*)

1.3.1.2 Reach

Aerial lift trucks are available in several different boom ranges or reaches. A common vertical reach for these vehicles is 45 feet; the maximum horizontal reach is approximately 30 feet with the lower boom 15 degrees past the vertical position.

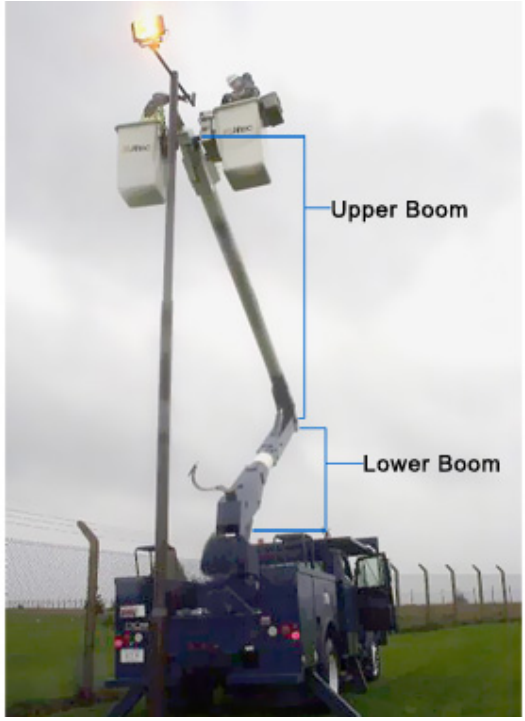


Figure 5-4 – Bucket truck reach values.

1.3.2 Buckets, Basket or Platform

Buckets, baskets or platforms attached to the upper boom are used to carry personnel, tools and equipment to a working position.

1.3.2.1 Types

The aerial lift trucks you may use are equipped with either a single person or a two person bucket. Most buckets come with a bucket liner made of hard plastic. Bucket liners provide additional insulation value and save wear and tear on the bucket itself. Because not all buckets require the liner, it is especially important to take note of the type of bucket from which you will be working. Buckets requiring the liner will usually have a sticker on them that states "No Insulation Value Without Liner". Refer to *Figure 5-5*.

Figure 5-5 – Types of aerial lift buckets.

1.3.2.2 Capacity

Single person buckets have a ***maximum load capacity*** of 300 pounds, the two person bucket a maximum capacity of 500 pounds. A two person bucket must never carry more than two persons. The buckets are equipped with safety belts or body harnesses with one end attached to the boom. Personnel in the bucket(s) must always be belted in so that equipment failure does not throw them from the bucket.

1.4.0 Truck Set Up Procedures

The first step when using an aerial lift truck is to position the truck.

1.4.1 Position the Truck

Always position the truck as close as possible to the work area (See *Figure 5-6*). Doing this assures that your operation and maneuvering of the booms and bucket is kept to a minimum, which is key to properly positioning a truck.

Figure 5-6 – Aerial lift truck at job site.

1.4.1.1 On Hills

If you must position the truck on a slope, ensure that you park the truck downhill from the work area. This allows you to extend the boom uphill to the work. If you position the truck so that the work is downhill, the boom extension could cause the truck to overturn.

1.4.1.2 On Level Surface

You will most often be parking on and working from level surfaces. Again, park the truck so that the bucket requires minimal movement to reach the work area.

1.4.2 Set Up Truck

Once you position the truck, you are ready to set it up.

1.4.2.1 Engage Emergency Brake

Do this by simply pulling on the knob marked “Parking Brake”. This engages the pneumatic (air) brakes on the wheels.

1.4.2.2 Engage PTO

PTO stands for “power take off” (See *Figure 5-7*). This device takes power from the engine and transfers that energy to a hydraulic pump. This provides hydraulic power to the booms, bucket and auxiliary equipment on the truck. To engage the PTO, either pull a lever or flip a switch. There are a number of different vehicles available at different installations; therefore, ensure that you read the vehicle operations manual regarding PTO engagement on the truck you are operating.

Figure 5-7 – PTO actuator.

1.4.2.3 Transfer Controls (Truck to Machine)

This function routes electrical power from the engine and provides it to the rest of the truck. Perform the transfer by flipping a switch marked “Truck/Machine” or “Master Power”. Refer to *Figure 5-8*.

Figure 5-8 – Master Power switch.

1.4.2.4 Lower Outriggers

Outriggers are used to level the truck prior to boom operation. There are four levers on the back of the truck that control the operation of the four outriggers. Usually placards or labels are attached to the truck that shows the direction in which to move the lever to extend or retract the outriggers (See *Figure 5-9*). When lowering the outriggers, extend them down just far enough to raise the truck to a level position. Do not raise the tires off the ground! Some trucks will have a bubble level on the back near the outrigger levels to help you determine when the truck is level.

Figure 5-9 – Outriggers.

1.4.2.5 Free Boom for Movement

The booms will be secured by hold down clamps or straps during transit to prevent them from bouncing when crossing open fields or rough roads. You will have to remove the clamps or straps before attempting to raise the booms, otherwise damage will occur to the hydraulic system or boom assembly. *See Figure 5-10*.

Figure 5-10 – Hold down strap.

1.5.0 Truck Operation Procedures

1.5.1 Controls

There are two locations from which the bucket(s) can be operated. The control mechanisms may be operated either by three ball handle levers or by a pistol grip device.

1.5.1.1 Primary

The primary controls are located near the bucket and normally protected by a fiberglass guard. As the word implies, the primary controls are the controls Construction Electricians normally use when operating the booms to get to and from a work position. See *Figure 5-11*.

1.5.1.2 Secondary

The secondary controls are located somewhere near the base of the lower boom (called the ***turret***) and provide another means (usually used in case of emergencies, accidents or vehicle power failure) of operating the booms. For example, if a bucket operator is injured, someone must be able to bring the workers back down; this is done with the secondary controls. Most secondary controls consist of three ball handle levers and an auxiliary switch or knob. The auxiliary knob will override the primary bucket controls. See *Figure 5-12*.

Figure 5-11 – Primary controls.

Figure 5-12 – Secondary controls.

1.5.2 Position the Booms

Once electrical workers are in the bucket and properly secured using the body harness or safety strap, the booms are ready to raise.

1.5.2.1 Raise

For pistol grip equipped trucks, the first thing you must do is depress the trigger on the grip. Keep it depressed the entire time you are moving the booms. If you move the pistol grip without depressing the trigger, no movement will occur. However, if you move the handle and then depress the trigger, the boom will lurch suddenly, possibly causing injury to you and damage to the truck. Once the trigger is depressed, move the handle up (vertically) and the upper boom moves up. Move the handle backwards (horizontally) and the lower boom moves up. For three ball lever equipped trucks, simply find the lever labeled either “Upper Boom” or “Lower Boom” and lift up on the appropriate handle.

1.5.2.2 Rotate

For pistol grip equipped trucks, twist the handle (similar to the throttle controls on a motorcycle) to the left and the booms rotate left. Twist the handle to the right and the booms rotate right. Remember to squeeze the trigger before moving the handle. For three ball lever equipped trucks, find the lever labeled “Rotation” and lift up to go right and push down to go left.

WARNING

Before rotating the lower boom, make sure it is raised high enough to avoid hitting the truck’s warning beacon and floodlights, generally located on top of the truck cab. Always be aware of the boom’s area of rotation to avoid injury to personnel or damage to equipment. Ensure rotation of the lower boom will clear all potentially energized lines.

1.5.2.3 Lower

For pistol grip equipped trucks, once the trigger is depressed, move the handle down (vertically) and the upper boom moves down. Move the handle forward (horizontally) and the lower boom moves down. For three ball lever equipped trucks, simply find the lever labeled either “Upper Boom” or “Lower Boom” and push down on the appropriate handle. To lower the boom for stowing, align it so it rests in the center of the protective cradle mounted on the cab of the truck then ease it slowly into the cradle by gentle use of the controls. Setting the booms down hard will likely result in damage to the boom assembly. Ensure both the upper and lower booms are lowered completely, so you can easily strap them into place prior to driving the truck away.

1.5.3 Bucket Tilt

Most trucks are equipped with a bucket tilt function. This function is used to clean water and debris out of the bucket and can be used during aerial lift truck rescue. Trucks with two person buckets normally tilt hydraulically, while trucks with one person buckets normally tilt manually (after pulling a pin and moving a handle). See *Figure 5-13*.

Figure 5-13 – Removable bucket tilt pin.

1.5.4 Tool Outlets

Most aerial lift trucks have hydraulic fittings mounted close to the bucket. These fittings are used to attach a variety of hydraulic tools such as chain saws, tree pruners, circular saws, and drills. All tools used on or near energized lines and equipment must be rated for live line use.

1.6.0 Safety

When operating aerial lift trucks, adhere to the following safety guidelines. Avoid sudden stops or reversals of rotation when turning. This prevents undue stress on the turret. Ensure all operators are thoroughly familiar with the capabilities, limitations, precautions, inspections, and preventive maintenance actions for the truck. Do not exceed the rated bucket load. If you leave the truck out in the weather, protect the

bucket(s) with a waterproof cover. Before moving the truck, always make sure the boom hold down clamps or straps are in place. Avoid work on the downhill side when the truck is on a sloping surface. Do not allow the bucket to descend on a fixed object (roof or pole). No one is permitted to touch the truck when a boom or bucket is operating near energized conductors; the vehicle either must be grounded or be considered energized. You must use basket liners if the truck is so equipped. An aerial crew must include a minimum of two qualified Construction Electricians.

Test your Knowledge (Select the Correct Response)

1. What is the maximum capacity of a single person bucket?

   A. 200 pounds
   B. 300 pounds
   C. 400 pounds
   D. 500 pounds

2.0.0 AERIAL LIFT TRUCK MAINTENANCE

2.1.0 Benefits of a Maintenance Program

As a vehicle operator, you will be responsible for performing minor maintenance of the aerial lift truck. This includes keeping it clean, keeping all fluids to the proper levels, and keeping an eye out for any small problems that might turn into big problems. Your responsibility will also require you to record periodic inspections and report items in need of repair to the motor pool. Failure to take these responsibilities seriously will likely result in the vehicle becoming inoperable at the most inopportune time, or in a worse case scenario, contribute to an accident on the job site.

2.2.0 Components of the Aerial Lift Truck Requiring Maintenance Actions

2.2.1 Overall Care

In keeping with the image of a professional unit, you must maintain the appearance of all vehicles. Keeping the truck clean also makes it easy to identify potential maintenance items such as leaks, dents, or scratches. Wash the truck when it gets dirty; wax it once or twice a month, and keep the interior free of loose tools and trash.

2.2.2 Booms

Boom maintenance requirements are minimal compared to the rest of the truck. A visual inspection of the boom should become second nature every time you use the truck. Look for cracks, scratches, cleanliness, and at the overall condition of the booms. You will also be required to make sure that the boom is clean and waxed with a special “boom wax” that helps keep its high ***di-electric*** strength.

2.2.3 Winches

Winches, if attached to the truck, are used to assist with the installation of small transformers, switches, and equipment. The winch is very useful and requires periodic maintenance to ensure proper operation. Check the winch line for fraying, broken strands, corrosion and crushed strands. Perform an operational check to make sure the winch operates properly.

2.2.4 Jib

Some trucks have a jib located at the end of the boom. This is a small boom used in conjunction with a winch for lifting transformers and other heavy equipment. The jib is made of fiberglass and needs to be washed and waxed like the main booms. If the truck has a jib and a winch, you will also need to maintain the winch line.

2.2.5 Tires

Check and record the tire within the first five duty days of the month. Failure to check the pressure can lead to undiscovered tire problems that cause premature tire wear or failure.

2.3.0 Maintenance Documentation (NAVFAC 11240/13)

2.3.1 Record Inspections

Use a NAVFAC 11240/13, Operator's Inspection Guide and Trouble Report; (see *Figure 5-14*) as a checklist to make daily inspections of the aerial lift truck. Thoroughly inspect each item listed on the NAVFAC 11240/13. You as the operator will check and record all discrepancies in cleanliness, tire pressure, battery, fuel, oil, and coolant level. If you need to add coolant, oil, or hydraulic fluid, the motor pool provides these items to you.

Before starting the truck, give it a pre-operational inspection including all applicable items listed on the NAVFAC 11240/13. During the operational inspection, the truck should be under constant surveillance, with the operator monitoring all available gauges, listening for unusual noises, and looking for possible leaks. After the job is finished, give the truck a post-operational check. This check includes a complete walk-around, checking on the condition of tires and the general condition of the truck's body and looking for leaks.

OPERATOR'S INSPECTION GUIDE AND TROUBLE REPORT	
REGISTRATION ID	ODOMETER READING
Use this form as a guide when performing before and after operation inspection. Check (✓) items that require servicing by maintenence personnel.	
	1. DAMAGE (Exterior, Interior, Missing Components)
	2. LEAKS (Oil, Gas, Water)
	3. TIRES (Check inflation, abnormal wear)
	4. FUEL, OIL, WATER SUPPLY (Antifreeze in season)
	5. BATTERY (Check water level, cables, etc...)
	6. HORN
	7. LIGHTS / REFLECTORS / MIRRORS / TURN SIGNALS
	8. INSTRUMENTS (Oil, air temperature, gas)
	9. WINDSHIELD WIPER
	10. CLEAN WINDSHIELD / VEHICLE INTERIOR
	11. CARGO, MOUNTED EQUIPMENT
	12. STEERING
	13. SAFETY DEVICES (Seatbelts, flares, etc...)
	14. DRIVE BELTS / PULLEYS
	15. BRAKES (Drain air tank when equipped)
	16. OTHER (Specify in "Remarks")
DATE	OPERATOR'S SIGNATURE
REMARKS	

S/N 0105-LF-004-1195

Figure 5-14 – NAVFAC 11240/13 Operator's inspection guide and trouble report.

2.3.1.1 Pre Operational Inspection

Each time the vehicle operator changes during the day, the new operator conducts a pre-operational inspection. The purpose is to make all personnel familiar with all discrepancies on the truck, as well as to identify any items the previous operator missed. If your name appears on the NAVFAC 11240/13, you are responsible for the vehicle and for any damage that occurs between the initial signature and the post-operational check.

You must check several items during the pre-operational inspection. These are listed on NAVFAC 11240/13 and you must inspect them prior to leaving the vehicle parking area. These items are as follows:

- Damage – Check for any damaged or missing external or internal components.
- Leaks – Check for oil, fuel, and/or hydraulic leaks.
- Tires – Always maintain tire pressures to the level stenciled on the inside of the driver's door. Spare tires, jacks, and lug wrench are not provided. Tires are changed by the motor pool.
- The operator maintains fuel, oil, and coolant, keeping proper levels at all times.
- Battery – Check terminals for tightness and cleanliness. Check the water levels in each cell.
- Horn – Check for operation.

- Lights and Reflectors – Make sure all lights work and that reflectors are not broken.
- Windshield Wipers – Check for proper operation. Make sure the blades are not torn or dry rotted. If a windshield washer is provided, be sure the reservoir is full and it operates properly.
- Clean Windshield – Sometimes hydraulic fluid or tree sap collects on the windshield and obstructs the operator's view. Clean the windshield of these contaminates.
- Cargo, Mounted Equipment – This check will include booms, buckets, outriggers and the controls. Check that all are properly secured for travel.
- Clean Vehicle inside and out – The truck will be cleaned at least once a week or as needed to maintain proper professional appearance. The truck is also to be waxed periodically.
- Steering – Check steering for looseness, wandering or ***shimmying***. Check power steering fluid, if provided.
- Drive belts and pulleys – Check fan, generator, power steering, hydraulic pump, and air compressor drive belts and pulleys for tightness and serviceability. Also, check any cable pulleys on the booms.
- Brakes – Check brakes for pulling, grabbing, or softness.
- Lube/Oil change – The motor pool will periodically change the oil and lubricate the truck.
- Other – This includes any discrepancy not covered on the NAVFAC 11240/13.

2.3.1.2 Operational Inspection

Conduct the operational inspection while the vehicle or auxiliary equipment is in use. This inspection consists of the following:

- Noises – These will usually be metal against metal type of screeching, squealing due to loose belts, or vibrations. You can only identify problems of this nature while the vehicle or equipment is in use.
- Leaks – You can easily accomplish this inspection due to the pressure generated by the pumps. During the truck's operation, inspect all hydraulic connections and look for any type of visible leak.
- Oil levels of hydraulic system – During operation, check the hydraulic reservoir site glass periodically for the correct oil level. If the oil drops below the site glass, stop operation and fill the system tank. Absence of fluid in the tank will cause strain and damage to the truck's equipment.
- Gauges – Continually check the gauges. Ensure you have correct hydraulic pressure in the system. Check that there is enough fuel to complete the job. The most important gauge to watch is the tachometer. DO NOT exceed the manufacturer's specifications for maximum engine revolutions per minute (RPM). Damage to the engine and hydraulic system can result.

2.3.1.3 Post Operational Inspection

Conduct the post operational inspection every time the vehicle completes a job and prior to storing the truck at the end of the day. This allows the operator to identify any damage, minor or major, which may have been overlooked during the day's work.

2.3.2 Record Discrepancies

As stated previously, conduct all inspections using the NAVFAC 11240/13, Operator's inspection guide and trouble report. Make note of any discrepancies (other than low fluids or cleanliness) on the inside portion of the NAVFAC 11240/13, (see *Figure 5-14*) and coordinate with your crew and vehicle supervisors to turn the truck in to the motor pool for repair.

2.4.0 Procedures to Accomplish Basic Maintenance Actions

2.4.1 Overall Care

Proper overall care includes the orderly arrangement of equipment stored in the vehicle. The exterior of the truck needs washing and waxing, usually once a week but whenever necessary. The interior of the truck also needs to be clean and orderly, as do the tool bins, which hold your tools and materials.

2.4.2 Booms

Visual inspection of the boom is simple. When looking over the boom, look for cracks, scratches, cleanliness, and overall condition. If you find any problems, further investigation may be required. Keep the booms clean and waxed.

2.4.3 Jib

If the truck is equipped with a jib, inspect and maintain it just as you do the booms. Also, ensure the winch line used with the jib is in good condition; repair or replace it as necessary.

2.4.4 Tires

Low tire pressure can cause a number of problems, from uneven tire wear to inability to control the vehicle. Needless to say, it is important to check your tire pressure periodically. There is a space on the NAVFAC 11240/13 to annotate when this check was performed. Accomplish this check within the first 5 duty days of the month.

2.5.0 Safety

Be safe while inspecting and maintaining the aerial lift truck. Remove all rings and secure your handhold and footing when climbing on or off any portion of the vehicle. Always be aware of your surroundings. Watch that you do not hit your head on the protruding parts of the truck. When checking the condition of the battery, wear gloves to avoid contact with battery acid. Never open or uncap a hot radiator or hydraulic reservoir. The fluids maybe under pressure and could possibly burn you.

Test your Knowledge (Select the Correct Response)

2. Which form is utilized to mark down any discrepancies during the conduct of a pre operational inspection?

   A. NAVFAC 11240/10
   B. NAVFAC 11240/13
   C. NAVFAC 11260/10
   D. NAVFAC 11260/13

3.0.0 AERIAL LIFT RESCUE

You may need to perform an aerial lift rescue when personnel in the bucket are unable to get down from a work position by themselves for any reason. As with any rescue, time is critical and the most important consideration during the rescue is your own safety. Remember, you cannot rescue someone else if you yourself become a victim. Always follow established safety procedures.

3.1.0 Types of Aerial Lift Rescues

There are two types of aerial lift rescue, the bucket tilt and the victim lift.

3.1.1 Bucket Lift

On most aerial lift trucks, the buckets are designed to be tilted. This allows for easy removal of water or debris and can be used to remove injured workers from the bucket. On trucks equipped with this type of bucket, the process of performing a rescue is quite simple. Using the secondary controls, you need only bring the bucket close to the ground, tilt it, and remove the victim.

3.1.2 Victim Lift

The victim lift method requires the pre-positioning and use of a block and tackle and a rescue strap prior to the bucket being raised. As with the bucket tilt method you will be required to operate the secondary controls to lower the bucket close to the ground. Once it is there you will have to perform a number of steps to remove the victim using the block and tackle. The following paragraphs cover the specific procedures in detail.

3.2.0 Equipment Required to Perform Victim Lift Rescue

As stated previously, a block and tackle and rescue strap will need to be pre positioned on the truck prior to raising the bucket.

3.2.1 Rescue Strap

Place the strap around the insulated boom approximately ten feet back from the bucket. This strap will provide a place to hang the block and tackle.

3.2.2 Block and Tackle

Use a 3 or 4 inch single sheave block and tackle strung with at least a 1/2 diameter rope to perform an aerial lift rescue. This block and tackle is for rescue purposes only and must never be used in day-to-day work operations. Your compliance with this established practice will ensure the block and tackle is in good shape in the event of an emergency. See *Figure 5-15*.

3.3.0 Victim Lift Procedures

3.3.1 Evaluate Situation

As with a pole top rescue, this is the first step of an aerial lift rescue. This is when you decide if a rescue is actually warranted. Determine the condition of the individual in the bucket by calling out “Do You Need Any Help! Are You O.K.?” If there is no response or if the victim seems stunned or dazed, prepare to perform the rescue. When evaluating the scene, look at the whole scene and not just the victim. Observe the pole for smoke or fire.

Figure 5-15 – Aerial lift rescue equipment.

3.3.2 Provide for Personal Protection

Your personal safety should always be your first concern. As with any rescue, provide for your personal protection throughout the rescue procedure. Use the truck’s radio, a telephone, or a bystander to call for help.

Since the truck could be energized, you must treat it as if it is energized. To avoid becoming an additional path to ground for any high voltage, ensure that you do not touch the truck and the ground at the same time. This will require you to hop onto and off the truck. Again, it is important not to have one foot on the ground and one foot on the truck at the same time!

Figure 5-16 – Victim removal from bucket.

3.3.3 Position Booms

Bring down the bucket using the secondary controls. Be sure to avoid all obstacles in the path of the descending bucket. Since time is extremely important at this point of the rescue, the quickest way to get the bucket down with the least amount of boom movement is to first raise the lower boom to its full vertical position then lower the upper boom until the bottom of the bucket is within approximately 1 foot of the back of the truck.

3.3.4 Perform Rescue

3.3.4.1 Attach Rescue Equipment

After completing the initial positioning of the bucket, reach into the bucket and disconnect the victim’s safety lanyard or safety strap from their “D”- ring. Then attach the rescue rope to the victim’s “D”-ring.

With the rescue rope attached, return to the secondary controls, and operate the upper and lower booms to move the bucket approximately 6 to 8 feet from the back of the truck and 6 feet off the ground.

3.3.4.2 Raise Victim from Bucket

Jump off of the truck and pull on the fall line of the block and tackle until the victim swings clear of the bucket. See *Figure 5-16*.

NOTE

The victim will have a tendency to swing into the back of the truck once they clear the bucket, so in order to preclude any further injury position yourself between the victim and the truck. Use the fall line to make the initial contact and break the forward momentum.

3.3.4.3 Lower Victim to Ground

Ease the victim down to the ground to ensure that no further injury results from impacting the ground too hard. Release the rescue rope from the victim and position the victim on his or her back to facilitate first aid.

3.3.5 Administer Follow up First Aid

If the victim is conscious, provide first aid. If unconscious, determine his or her condition. Open the airway with the head-tilt chin-lift method. Check to see if the victim is breathing. Do this for 5-10 seconds. If the victim is not breathing, give two full breaths. Check for a pulse at the carotid artery on the neck for 5-10 seconds. If there is a pulse but the victim is still not breathing, continue rescue breathing. If there is no pulse, begin CPR.

3.4.0 Safety

If you are performing a rescue, it is probably because of an unsafe act. Do not let the urgency of the situation cloud your judgment and cause you to become a victim as well. Remember, rescuers should always look out for their own safety first. Be careful around energized lines. It is easy in the excitement of the moment to forget where the boom is. Be sure to keep the rescue equipment in good shape and that it is correctly installed no matter how short or simplistic the job seems. You or your co-workers should *always* load the rescue equipment, since doing so could mean the difference between life and death.

Test your Knowledge (Select the Correct Response)

3. How many different types of aerial rescues can be performed with the aerial lift truck?

   A. 2
   B. 3
   C. 4
   D. 5

4.0.0 LINE MAINTENANCE TRUCK

In the past, most overhead and underground distribution system jobs performed by Construction Electricians required a strong back as the work entailed strenuous manual labor. Today, modern support vehicles save time and labor. One such vehicle is the multi-purpose line maintenance truck. See *Figure 5-17*.

4.1.0 Operate a Line Maintenance Truck

4.1.1 Purpose of the Line Maintenance Truck

The line maintenance truck (or auger truck) is primarily designed to support maintenance actions required on overhead and underground distribution systems. Although it is used as a maintenance vehicle, it has the capability to perform minor construction tasks.

Line maintenance trucks come in a variety of makes and models. Even though the trucks are different they all operate essentially the same way.

Figure 5-17 – Line maintenance truck.

Most line trucks have side-mounted controls with an electro-hydraulic control system. That means the control levers send electrical signals to hydraulic valves that open or close sending or releasing hydraulic fluid that is under pressure.

4.1.2 Capabilities of the Line Maintenance Truck

4.1.2.1 Booms

The booms are an important part of a line truck. They are used in setting poles, hanging transformers, and moving heavy equipment.

4.1.2.1.1 Types

Line trucks have three booms that are carried telescoped inside each other in stages. The first and second stages (extensions) are made of steel. The third is made of fiberglass to provide an insulation value of up to 100KV for working near energized lines and equipment.

NOTE

This vehicle is designed to work near and not on energized lines and equipment.

4.1.2.1.2 Reach

The truck can reach 30 feet horizontally with all three booms extended.

NOTE

The first stage is a fixed length. The second stage is hydraulically operated, while the third stage is usually manually extended or retracted.

4.1.2.2 Winches

The truck you will probably encounter has three winches: one mounted on the front bumper, one on the derrick (the base of the boom), and one in the bed. See *Figure 5-18*.

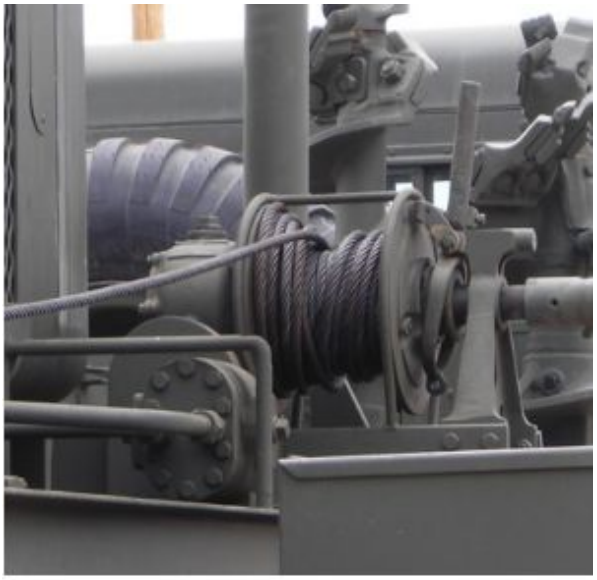


Figure 5-18 – Types of winches.

4.1.2.2.1 Types

The front or bumper winch as it is commonly called is controlled from two locations. The primary control is located on the bumper, the secondary control in the cab of the truck just to the left of the transmission shift lever.

The winch located on the ***derrick*** is commonly referred to as the mid-deck winch and can also be operated from two locations. One set of controls is located on the right side of the truck; the second is located on the left side.

The bed winch, as its name implies, is located in the bed of the truck. This winch is operated by one set of controls located at the rear of the truck. The winch cable is threaded through the undercarriage of the truck and exits through a multi-position cable sleeve

4.1.2.2.2 Capacity

Bumper and bed winches are normally rated for a 20,000-pound working load capacity. Refer to the applicable operator's manual to determine the actual capacity for the vehicles with which you will work. The bumper and bed winches are used to pull equipment towards the truck, equipment such as generators or any piece of equipment that rolls on its own or can be dragged across the ground. These winches may also be used to secure poles or equipment and to pull the truck out of the mud if it gets stuck. The bed winch will be the primary winch used for installing and removing underground cable.

The derrick winch will safely lift 15,000 pounds with the cable on a bare winch drum and 6,000 pounds with the cable on a full winch drum. Each truck may have different capacity winches; therefore, consult your operator's manual and be familiar with the load capacity charts.

The derrick winch is used to raise and lower loads associated with boom operations such as setting poles or raising transformers. Before using the derrick winch, always check the capacity chart (mounted near the controls) for allowable loading and reach. Do not exceed load limits shown on the chart.

NOTE

Navy and OSHA regulations require that anyone in an aerial lift must wear an approved body harness and be attached by a safety strap to an anchor loop on the boom.

4.1.2.4 Digger/Auger

The derrick is equipped with an auger for digging holes. The auger is stored in a cradle connected to the boom. The auger is lowered and raised from the storage position by a cable or a strap. Two control switches (labeled “digger” and “auger release”) operate the auger in conjunction with the boom control levers. Operate these switches and levers one at a time or all together for the different operations of the truck. To prevent accidents, make sure you are familiar with the truck operations and controls before beginning work. See *Figure 5-19*.

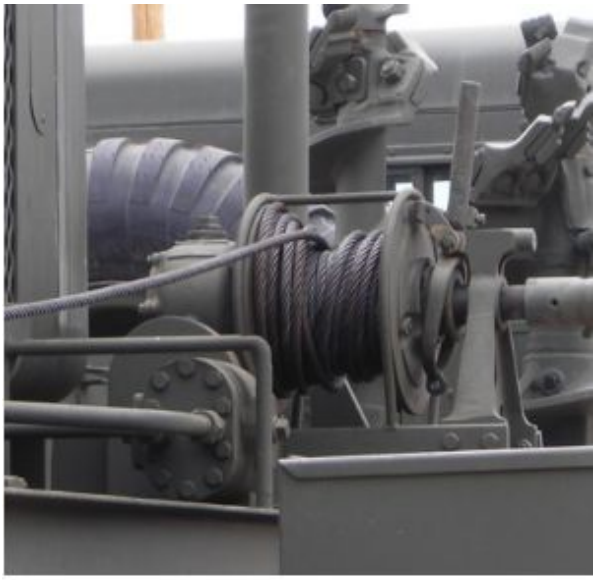


Figure 5-19 – Auger bit attached.

4.1.2.5 Accessories

The line truck has several accessories available to help you in your work. Common to almost all line trucks are screw anchor installers, ***capstans***, collapsible take-up reels, pole pulling jacks, and pole grabbers. A brief description of each follows:

The first of these accessories is an attachment to install screw anchors. The auger is removed from the digging motor and the attachment is installed on the motor shaft. The end of the attachment allows the eye of a screw anchor rod to be attached to the motor. The digging motor is then used to screw the anchor into the earth.

Another accessory is the capstan. It is used to provide extra pulling power for pulling cables or equipment with rope. The capstan is mounted on an extended shaft from either the front bumper winch or the bed winch. Extra pulling power is obtained by wrapping the rope around the capstan and letting the winch perform the pull.

A second accessory that also mounts on the shaft of the bed winch or bumper winch is a collapsible wire take-up reel. This accessory is used to quickly roll up conductors or small diameter cables. The take-up reel is designed so that one side of it will collapse, allowing easy removal of the wire or cable from the reel.

The pole pulling jack accessory is essentially a hydraulically operated jack that is chained around the base of a pole. The jack is used to assist freeing a pole from the ground. The jack breaks the suction around a set pole and lifts it out of the ground until the boom can raise it.

On the end of the boom is a set of steel pinchers called “pole grabbers” that can be tilted up and down, opened, and closed. Pole grabbers are used to control and guide a pole that is being set or removed. Do not use pole grabbers to clamp the pole tightly or lift any of the pole’s weight. The controls for the pole grabbers are toggle switches located on the control panel to the right of the boom controls. See *Figure 5-20* for truck accessory control levers.

Figure 5-20 – Line maintenance truck accessories.

4.1.2.6 Controls

Like aerial lift trucks, line trucks are equipped with two types of controls; primary and secondary. The primary set is located either behind the cab of the truck (*Figure 5-21*) or, on some of the older trucks, on top of the derrick turret. The secondary set of controls is located at the end of the boom's third stage. These secondary controls allow for the operation of the booms and winch from personnel working out of the buckets. Transformers and other heavy equipment can be raised to the electrician's position and installed without the need for another truck.

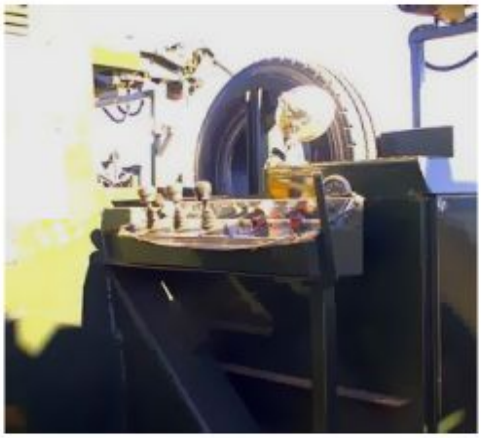


Figure 5-21 – Primary controls.

4.2.0 Truck Set Up Procedures

4.2.1 Position the Truck

During initial vehicle set up, position the truck as close to the work as possible so the booms will be within reach and in a stable work position. Avoid positioning the truck on slopes whenever possible. If you must work on a slope, ensure you only extend the booms uphill. Never extend the booms downhill. Doing so could cause the truck to roll over.

4.2.2 Set Up Truck

The following are the basic procedures to set up and operate the truck.

4.2.2.1 Engage Emergency Brake

The truck must be securely parked before operating the derrick. Place the transmission in neutral and engage the parking brake by pulling the knob labeled "parking brake."

4.2.2.2 Engage PTO

To engage the PTO, depress the clutch and pull out the PTO knob located on the dashboard inside the cab of the truck (*Figure 5-22*). With the transmission in neutral, let out the clutch slowly.

Figure 5-22 – PTO switch.

4.2.2.3 Transfer Controls (Truck to Machine)

Move the truck/machine selector switch on the dash to the machine position. Note: The engine will stop unless the start/stop switch

on the primary controls is in the “START” position. Push in the red knob located at the back of the derrick turret. (See *Figure 5-23*)

4.2.2.4 Lower Outriggers

Move to the rear of the truck and lower the outriggers.

NOTE

The boom will not operate unless the outriggers are down.

The truck has a set of outriggers on or near the pedestal. A two-speed throttle is located on the right rear of the truck. Move the two-speed throttle switch to the “FAST” position and lower the outriggers in a manner that positions the truck as level as possible without lifting the tires off the ground. At completion, return the throttle switch to the “NORMAL” position. You can now operate the derrick from any of the control panels. Refer to *Figure 5-24*.

Figure 5-23 – Truck/Machine knob.

Figure 5-24 – Outrigger operation.

4.2.2.5 Free Boom for Movement

The boom is held in place on a cradle by a pin. This keeps the boom from bouncing as you drive the truck. Remove the pin holding the boom before attempting to raise it.

4.3.0 Truck Operation Procedures

Once the truck has been positioned and set up, you will need to go to a control panel to operate the line truck. There are control panels on both sides of the truck. Each control panel provides complete control of all functions with the exception of the front bumper and bed winch. The switches and levers on the control panel are easy to operate and are clearly marked as to their specific function. See *Figure 5-25*.

Figure 5-25 – Control panel.

A start/stop switch is located on the control panel and operates like a normal ignition switch. With the truck/machine switch in the cab set to machine, the start/stop switch can be used to stop or start the truck's engine.

Next to the start/stop switch is a three-position toggle switch. This switch determines which set of controls will operate. The neutral position prevents either the upper or the lower controls from working. The switch is placed in the "lower" position during most operations.

4.3.1 Booms

Each of the major functions, boom (up and down), rotation (left and right), and second stage (extend and retract), has a control lever with a detent lock that locks the lever in the neutral position. To operate the levers, you must lift the underside of the knob to unlock the control lever and then execute the desired operation. You can raise or lower the boom through an arc of 20° below horizontal to 80° above horizontal. The booms will rotate just over 180° from the cradle in either a right or left direction, allowing a full 360° of coverage.

NOTE

Do not attempt to rotate the booms a full 360° from any one direction, as this will damage the hydraulic lines that run through the turret.

4.3.1.1 Main Boom

The booms of this truck are equipped with ***overload*** pressure switches that prevent the machine from lifting a load that is above its rated capacity. If this situation occurs, the only controls that will operate are boom down, winch down, and second stage retract. These functions allow you to take the strain off the machine and make adjustments as required to continue work.

4.3.1.2 Second Stage

The second stage lever allows the inside (second stage) boom to be extended hydraulically for additional reach during operation. The second stage boom can be retracted to store inside the main boom for travel or for working with loads closer to the truck.

4.3.1.3 Third Stage

Inside the second stage boom is a third stage boom, made of fiberglass, that you must extend manually. It is held in place with a large steel pin that must be removed to extend the third stage and then replaced to hold it in the extended position. This boom provides di-electric protection for working around energized circuits and provides additional length of the boom when required.

4.3.2 Winches

The winch you will use most often is the derrick winch. This winch is used in conjunction with the booms to raise and lower poles or equipment. The control is a simple switch located on the control panel(s), marked “raise” and “lower.” Be sure you check the weight capacity chart (located near the controls) before attempting to lift very heavy objects with the derrick winch.

As stated earlier in the chapter, the bed and bumper winches are used for pulling things to the truck or for attaching accessories such as the capstan or collapsible wire take-up reel. There is a valve located on the pedestal of the boom, directly behind the cab of the truck, which diverts hydraulic pressure either to the auger or the bed/bumper winches. To use the bed/bumper winch, you must place this valve in the proper position. Once this is done, you can operate the bed winch from the controls located at the back of the truck and operate the bumper winch from the controls located on the bumper or in the cab.

4.3.3 Digger/Auger

The following are the basic operating procedures for using the auger (digger) on a truck with side controls. Be sure the valve located on the pedestal behind the cab is placed in the “auger” position.

4.3.3.1 Lower

Before lowering the auger, raise the boom to approximately 45° above horizontal and rotate until it is 90° to the side of the truck. Do this so the auger will not hit the truck as you lower it.

Ensure the second stage boom is fully retracted prior to lowering or raising the auger.

NOTE

This boom enables the auger to be extended and retracted during digging operations and must be fully retracted prior to securing the auger. If you fail to fully retract it, damage to the hanger bracket is likely.

Prior to lowering the auger, check that the two-speed digger button is in the “LOW” speed position. The control for the two-speed digger is located on the top right-hand corner of the control panel. It is a push button with an indicator light next to it. The light should be off during normal digging operations. You will only use the “HIGH” speed position to spin dirt off (clean) the auger.

To lower the auger, move the digger control slightly towards the “DIG” position. This causes the auger to turn, takes up slack in the wind-up cable, and takes the weight off the hanger latch on the auger storage bracket. The toggle switch for the digger is on the right side below the two-speed control.

The toggle switch for the auger release is located to the left of the two-speed control. Hold the switch in the “RELEASE” position. The latch will move out from under the auger shaft, allowing the auger to be lowered from the storage bracket.

Move the auger control to the “CLEAN” position, and the auger will begin to unroll itself from the wind-up cable. Control the auger as you lower it with the digger control. Continue operating digger in “CLEAN” position until the auger completely unwinds itself from the cable and the cable can be removed. After you remove the cable, the auger is ready to use. See *Figure 5-26* for auger in operation.

Figure 5-26 – Auger in operation.

4.3.3.2 Raise

To store the auger, reverse the procedures for lowering it. Remember, you must fully retract the second stage boom before performing the storage procedure.

4.3.4 Secure Vehicle

Upon completion of a digging job, the following procedures are required to secure the vehicle:

1. To store the booms, first store the auger. Then slowly lower the boom into the boom’s cradle. Lightly rest the boom in the cradle. Excessive downward pressure will put unnecessary strain on the cradle assembly during travel. The boom assembly, with attachments, weighs slightly over 2,500 pounds, which is enough to hold the boom in the cradle without downward pressure.
2. Secure all loose gear.
3. Raise and store outriggers.
4. Turn “TRUCK/MACHINE” switch to “truck” to turn off the derrick power.
5. Disengage the power-take-off (PTO).
6. Release the parking brake.
7. Vehicle is now ready to drive.

NOTE

If any of the outriggers are not completely raised or crept down from the stored position, a red warning light in the cab will come on. Take the appropriate action to store the riggers prior to driving.

4.4.0 Safety

Make sure vehicle checks have been made on NAVFAC 11240/13 and discrepancies are reported to maintenance. When using the truck to accomplish maintenance, ensure to properly install all safety equipment and place barricades to give traffic adequate warning of any hazard. Ensure only qualified personnel operate the line truck. During actual operation of the vehicle pay close attention to your surroundings and your co-workers. Never stand beneath a suspended load or between a load and the truck. Stay clear of the auger when it is being lowered or raised in the event the take-up cable breaks. Remember this vehicle is designed to work near and not on energized lines and equipment. Use it accordingly.

Test your Knowledge (Select the Correct Response)

4. Which boom is made of fiberglass?

   A. Main boom
   B. Second stage boom
   C. Third stage boom
   D. Fourth stage boom

5.0.0 HAND SIGNALS

5.1.0 Purpose of Hand Signals

The purpose of hand signals is to ensure clear communication between the truck operator and the ground worker. Using a line truck to lift heavy objects close to high voltage can be dangerous; proper communication is vital to preventing accidents. Distance and noise often make communication with words difficult. A series of hand signals allow two electricians to overcome these obstacles.

5.2.0 Types of Hand Signals

To communicate with the truck's operator, he or she must able to see you. Always face the operator and assume a position the operator can clearly see.

5.2.1 Boom

Four different hand signals are used to control the boom.

5.2.1.1 Raise

To raise the boom, extend your arm horizontally from your body, fingers closed in a fist and thumb pointing upward. (*Figure 5-27*) (Be sure to use the arm that will be easiest for the operator to see.)

5.2.1.2 Rotate

To signal, “rotate the boom”, extend your arm horizontally and point in the direction that you want the operator to rotate the boom. See *Figure 5-27*.

5.2.1.3 Lower

To signal, “rotate the boom”, extend your arm horizontally and point in the direction you want the operator to rotate the boom. (*Figure 5-27*).

Figure 5-27 – Boom hand signals.

5.2.1.4 Extension

Sometimes it is necessary to extend the telescoping booms in order to get the winch hook or auger to the exact work position. Make the signal for extending the boom by bringing both arms close to your body, hands positioned between your waist and chest. Your hands should be closed in a fist with your thumbs pointing outward away from each other. Move both hands back and forth in a motion signaling away from each other (*Figure 5-27*). To signal boom retraction, assume the same position as boom extension except with thumbs faced inward - toward each other (*Figure 5-27*).

5.2.2 Winch

Winch operation entails raising and lowering the winch line. Three hand signals are utilized.

5.2.2.1 Raise

To raise the winch line, extend your arm to the side and bend it upwards at the elbow. Your hand should be in a fist with your index finger pointing to the sky. Rotate your hand to make small horizontal circle movements (*Figure 5-28*).

5.2.2.2 Lower

To lower the winch line, extend your arm to the side and bend it downwards at the elbow. Your hand should be in a fist with your index finger pointing towards the

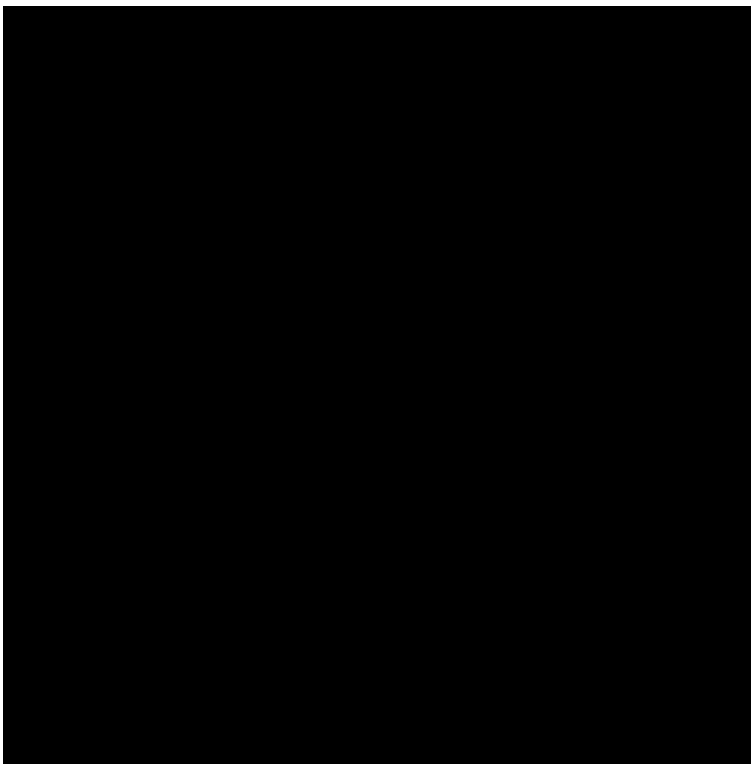


Figure 5-28 – Winch hand signals.

ground. Rotate your hand to make small horizontal circle movements (*Figure 5-28*).

5.2.3 Stop

To stop all action by the operator, hold up a closed fist. Hold it away from your body so the operator can see it clearly. (*Figure 5-28*).

5.2.4 Combinations

Sometimes it is necessary to perform two movements at once. In order to signal these, you have to make one signal with one arm while making another signal with the other arm. Perform both actions simultaneously and in a coordinated fashion similar to patting your head with one hand while rubbing your stomach with the other. It may seem confusing at first; but with practice, it will soon become second nature to you.

5.2.5 Common Variations

Depending on location and other people's experiences, you may encounter and need to adapt variations to some of the hand signals presented here at the school. Most variations are easy to interpret because they differ only slightly from the ones shown here and often mimic the motion desired of the boom. The key is to make sure that operators and coworkers all understand what signals are to be used, how they are to be executed, and their meaning before going out to do the job.

5.3.0 Safety

Communication is the key to preventing most mishaps relating to truck operations. If your co-worker misunderstands what you are saying, or you give the wrong signal, someone could be hurt or killed. Learn the signals and use them properly.

Test your Knowledge (Select the Correct Response)

5. How many hand signals are utilized with the operation of the line maintenance truck boom?

   A. 1
   B. 2
   C. 3
   D. 4

6.0.0 LINE MAINTENANCE TRUCK OPERATOR'S MAINTENANCE

6.1.0 Benefits of a Maintenance Program

As is the case with the aerial lift truck, operators of line maintenance trucks are responsible for minor maintenance on the vehicle. If you recall, minor maintenance entails keeping the truck clean inside and out, ensuring all fluids are kept at the proper levels, and keeping the tires properly inflated. Again, you need to understand that your failure to take these responsibilities seriously will likely result in the vehicle becoming unserviceable, which will force you to resort to less desirable and more time consuming means to accomplish the task at hand.

6.2.0 Components of the Line Maintenance Truck Requiring Maintenance Actions

6.2.1 Overall Care

In keeping with the image of a professional unit or crew, you must maintain the appearance of your vehicle. Keeping the truck clean also makes potential maintenance items such as leaks, dents, scratches easy to identify. Wash the truck when it gets dirty, wax it once or twice a month, and keep the interior free of loose tools and trash.

6.2.2 Booms

The maintenance that the booms require is minimal compared to the rest of the truck. A visual inspection of the boom is all that is normally required; look for damage, cleanliness, and overall condition of the visible parts of the booms. Make sure the hydraulic lines running through the booms aren't leaking and that no hydraulic fittings are broken. The only special maintenance item is to keep the fiberglass third stage boom clean and waxed to ensure its high di-electric strength.

6.2.3 Winches

The only maintenance item you are responsible for on the winches is the winch cable (line) itself. Periodically lubricate the winch cables to prevent corrosion and replace them as required. The motor pool is responsible for the winch drums and all other associated equipment.

6.2.4 Digger/Auger

The digger/auger requires a visual inspection of the auger bit and the retaining cable. Check for broken or worn auger teeth, bent flats (flat portions of the auger bit), and worn fasteners.

6.2.5 Tires

Low tire pressure can cause a number of problems, from uneven tire wear to inability to control the vehicle. Needless to say, it is important to check your tire pressure periodically. There is a space on the NAVFAC 11240/13 to annotate when this check was performed. Accomplish this check within the first 5 duty days of the month.

6.3.0 Maintenance Documentation (NAVFAC 11240/13)

6.3.1 Record Inspections

Use NAVFAC 11240/13 to make daily inspections of the line truck. Inspect each item listed on the NAVFAC 11240/13 thoroughly. The operator checks and maintains all discrepancies relating to cleanliness, tire pressure, battery, fuel, and oil and coolant level. If you need to add coolant, oil, or hydraulic fluid, the motor pool will provide them.

Before starting the truck, give it a pre operational inspection to include all applicable items listed on the NAVFAC 11240/13. During the operational inspection, the truck should be under constant surveillance, with the operator monitoring all available gauges, listening for unusual noises, and looking for possible leaks. After the job is finished, give the truck a post operational check. This check includes a complete walk around, checking for condition of tires, leaks, and general condition including any possible damage.

6.3.1.1 Pre Operational Inspection

The pre operational inspection is accomplished each time the operator changes during the day. The purpose is to make all personnel familiar with all discrepancies on the truck, as well as to identify items the previous operator possibly missed. If your name appears on the NAVFAC 11240/13, you are responsible for the vehicle and for any damage that occurs between the initial signature and the post-operational check.

You must check several things during the pre operational inspection. These items are all listed on NAVFAC 11240/13 and must be inspected prior to leaving the vehicle parking area. These items are as follows:

- Damage – Inspect for any damaged or missing external or internal components.
- Leaks – Inspect for leaks including oil, fuel, and/or hydraulic leaks.
- Tires – Tire pressures must be maintained to the level stenciled on the inside of the driver's door. Spare tires, jacks, and the lug wrench are not provided. The motor pool changes tires.
- The operator maintains fuel, oil, and coolant at proper operating levels.
- Battery – Check terminals for tightness and cleanliness. Check water levels in each cell.
- Horn – Check for operation.
- Lights and Reflectors – Make sure all lights work and the reflectors are not broken.
- Instruments – Check for proper operation.
- Windshield Wipers – Check for proper operation. Make sure the blades are in good condition. If a windshield washer is provided, be sure the reservoir is full and it operates properly.
- Clean Windshield – Sometimes hydraulic fluid or tree sap collects on the windshield and obstructs the operator's view. The windshield should be clean.
- Cargo and Mounted Equipment – This check will include booms, buckets, outriggers and the controls. Check that all are properly secured for travel.
- Clean Vehicle inside and out – Clean the truck at least once a week or as needed to maintain proper cleanliness. Also, wax it periodically.
- Steering – Check steering for looseness, wandering, or shimmying. Check power steering fluid, if provided.
- Safety Devices – Ensure all safety devices are intact and operating properly.
- Drive Belts and Pulleys – Check fan, generator, power steering, hydraulic pump, and air compressor drive belts and pulleys. Also, check cable pulleys on the booms and winches.
- Brakes – Check brakes for pulling, grabbing, or softness.
- Lube/oil Change – The motor pool will change the oil and lubricate the truck periodically.
- Other – This includes any discrepancy not covered on this form.

6.3.1.2 Operational Inspection

The operational inspection is accomplished while the vehicle or auxiliary equipment is in use. This inspection consists of the following:

- Noises – These will usually be metal against metal screeching, loose belts, or vibrations. You can only identify problems of this nature while the vehicle or equipment is in use.
- Leaks – This inspection is easy due to the pressure generated by the pumps. During the truck's operation, inspect all hydraulic connections and look for any visible leaks.
- Oil Levels of Hydraulic System – During operation, check the hydraulic reservoir site glass periodically for the correct oil level. If the oil drops below the site glass, stop operation and fill the system tank. Absence of fluid in the tank will cause strain and damage to the truck equipment.
- Gauges – Continually check the gauges. Ensure you have correct hydraulic pressure in the system. Check that there is enough fuel to complete the job. The most important gauge to watch is the tachometer. Do not exceed the manufacturer's specifications for the maximum engine RPM. Damage to the hydraulic system can result.

6.3.1.3 Post Operational Inspection

Perform a post operational inspection every time the vehicle completes a job and prior to storing the truck at night. This allows the operator to identify any damage, minor or major, which may have been overlooked during the day's work.

6.3.2 Record Discrepancies

All inspections are accomplished using an NAVFAC 11240/13, the special purpose vehicle checklist form. Make note of any discrepancies (other than low fluids or cleanliness) on the NAVFAC 11240/13, and coordinate with your crew supervisor and vehicle petty officer to turn the truck in to the motor pool for repair.

6.4.0 Procedures to Accomplish Basic Maintenance Actions

6.4.1 Overall Care

Overall care entails the orderly arrangement of equipment stored in the vehicle. Wash and wax the exterior of the truck once a week or whenever necessary. The interior of the truck also needs to be clean and orderly, as do the tool bins, which hold your tools and materials.

6.4.2 Booms

Doing a visual inspection of the boom is simple. Look for damage, cleanliness, hydraulic leaks, and overall condition. The third stage is made of fiberglass and requires periodic washing and waxing.

6.4.3 Winches

The only maintenance required for the winches is to inspect, maintain, and repair or replace the winch lines. The motor pool maintains the winch itself.

6.4.4 Digger/Auger

The auger is a solid piece of steel and requires little maintenance beyond keeping it clean and inspecting it for damage or worn teeth.

6.4.5 Tires

Low tire pressure can cause a number of problems ranging from uneven tire wear to inability to control the vehicle. Needless to say, it is important to check your tire pressure periodically. There is a space on the NAVFAC 11240/13 to annotate when this check was performed. Accomplish this check within the first 5 duty days of the month.

6.5.0 Safety

Be safe during inspection and maintenance of the line truck. Be aware of your surroundings and use a hard hat to prevent head injury from protruding parts on the truck. Be careful when checking the vehicle battery fluid levels; battery acid cause's severe injury or burns. Do not take the radiator cap off of a hot radiator. Severe scalding may result due to high pressures in a hot radiator.

Test your Knowledge (Select the Correct Response)

6. Which of the following gauges is the most important to check during an operational inspection?

   A. Oil pressure
   B. Hydraulic pressure
   C. Tachometer
   D. Speedometer

7.0.0 ADMINISTRATIVE FUNCTIONS

The Navy has invested millions of dollars in equipment, equipment repair parts, lubricants, and training that allows the Seabees to perform assigned tasking. Having the basic knowledge of the procedures, reports, and forms for managing these vehicles and equipment is part of your responsibility as a Construction Electrician.

7.1.0 License

Navy policy, according to the Management of Transportation Equipment, NAVFAC P-300, is to ensure that all military personnel, civilian employees, and contractor personnel operating vehicles and equipment on a naval installation are qualified and properly licensed. Navy policy accepts, without further testing and examination, a valid operator's license issued by a state or jurisdiction as proof the applicant has achieved the proficiency level required to operate government vehicles up to 10,000 pounds gross vehicle weight (GVW).

According to the Equipment Management Manual, NAVFAC P-404, all personnel in the Naval Construction Force (NCF) who operate government owned or rented equipment must be qualified and have a valid U.S. Government Operator's License in their possession. This license must cover the size and type of vehicle to be operated. A Government Operator's License is not an authorization for an operator to use a piece of equipment. The proper authorization is a valid trip ticket.

7.2.0 Application Forms

To obtain an operator's license, you must submit an application form to the license examiner. The proper form for applying for an automotive or material-handling equipment (MHE) license is an Application for Vehicle Operator's Identification Card, NAVFAC 11240/10 (*Figures 5-29A* and *5-29B*). The form for applying for a license for other types of equipment is the Application for Construction Equipment Operator License, NAVFAC 11260/1 (*Figures 5-30A* and *5-30B*).

These forms provide information pertinent to applying for and issuing or denying licenses to applicants. The type of license being requested must be shown in part 1 of the application forms. All applicant forms are completed by the applicant and signed by the company commander or company chief. The license examiner maintains in a file the NAVFAC 11240/10, NAVFAC 11260/1 and the Standard Form 47 for each person possessing a license.

APPLICATION FOR VEHICLE OPERATOR'S IDENTIFICATION CARD

NAVFAC 11240/10 (REV 10-75) S/N 0105-LF-012-4655

(See Privacy Act statement and instructions on reverse) ☐ NEW ☐ RENEWAL

PART I - APPLICATION

1. NAME (Last, First, Middle Initial) | 2. RANK / RATE / GRADE AND TITLE | 3. ACTIVITY

4. AGE | 5. DATE OF BIRTH | 6. PLACE OF BIRTH | 7. SOCIAL SECURITY NUMBER

8. SEX | 9. WEIGHT | 10. HEIGHT | 11. COLOR OF HAIR | 12. COLOR OF EYES

13. SHOP NAME / NUMBER AND APPLICANT'S BADGE NUMBER | 14. SUPERVISOR (Name) | 15. PHONE NUMBER

16A ✓	TYPE OF IDENTIFICATION CARD (Check)	16B ✓	TYPES OF VEHICLES TO BE OPERATED (Check)				
	REGULAR		PASSENGER CAR		BUS (GAS AND DIESEL)		TRUCK 4 X 4
	RESTRICTED		PICKUP TRUCK		TRUCK TRACTOR & SEMITRAILER		TRUCK 6 X 6
	EXPLOSIVE		TRUCKS TO 2 TONS		FIRE TRUCK		TRUCK FIRE / CRASH
	EMERGENCY VEHICLE		TRUCKS TO 5 TONS		AMBULANCE		TRUCK TANK
	AVGAS REFUELER		TRUCKS TO 10 TONS		MOTORCYCLE & SCOOTERS		OTHER (Explain below)

17. EXPLANATION

18. VALID STATE VEHICLE OPERATOR'S LICENSE(S)

19. SIGNATURE OF REQUESTING OFFICIAL | DATE

PART II - OPERATOR'S PAST PERFORMANCE RECORD

DATE	VEHICLE TYPE / SIZE	LICENSES ISSUED		NO YRS DRIVING EXP	LIST ACCIDENTS VIOLATIONS ARRESTS (If any) AND ACTION TAKEN
		STATE	OTHER		

I CERTIFY THE ABOVE TO BE CORRECT | SIGNATURE OF APPLICANT | DATE

1. SCORES IN DRIVING TEST	✓ SAT	UNSAT	2. SCORES ACHIEVED IN TESTS	✓ SAT	UNSAT	3. GOVERNMENT VEHICLES AUTHORIZED TO OPERATE (List)
a. ROAD TEST			a. WRITTEN			
b. EQUIPMENT INSPECTION			b. PHYSICAL			
			c. PSYCHOPHYSICAL			

4. REMARKS

PART IV - ACTION BY ADMINISTERING OFFICIAL

1. IDENTIFICATION CARD ISSUED ☐ YES ☐ NO* | 2. IDENTIFICATION CARD NUMBER | DATE ISSUED (Mo Day Yr) | EXPIRATION DATE (Mo Day Yr)

3. IDENTIFICATION CARD MARKED "VOID UNLESS ACCOMPANIED BY A VALID STATE LICENSE" ☐ YES ☐ NO*

4. OPERATOR INSTRUCTED TO TURN IN IDENTIFICATION CARD UPON LOSS OR SUSPENSION OF STATE DRIVER'S LICENSE ☐ YES ☐ NO*

* IF "NO" EXPLAIN UNDER REMARKS | 5. SIGNATURE OF ADMINISTERING OFFICIAL | DATE

SAMPLE

Figure 5-29 – NAVFAC 11240/10 (Application for Motor Vehicle Identification Card).

Read the PRIVACY ACT STATEMENT on reverse before completing this applicantion

APPLICATION FOR CONSTRUCTION EQUIPMENT OPERATOR LICENSE

NAVFAC 11260/1 (Rev. 6/76)

S/N 0105-LF-012-6005

PART I - APPLICATION

1. NAVAL ACTIVITY	2. APPLICANT'S NAME	3. RANK, RATE OR CIVILIAN STATUS

4. DEPARTMENT, DIVISION AND/OR SHOP ASSIGNED TO	5. APPLICANT'S JOB TITLE

6. DESCRIPTION OF EQUIPMENT LICENSE REQUESTED

(a) TYPE OF EQUIPMENT	(b) TYPE OF CONTROL	(c) TYPE OF ATTACHMENT

7. STATEMENT OF QUALIFYING EXPERIENCE

8. DESCRIPTION OF EQUIPMENT APPLICANT IS CURRENTLY LICENSED TO OPERATE

9. SPONSOR'S STATEMENT OF APPLICANT'S READINESS AND/OR PREPARATORY TRAINING FOR TEST *(NOTE: The sponsor can be either a qualified instructor or licensed operator)*

Signature _____

Sponsor

PART II - REQUEST FOR ADMINISTERING TESTS AND EXAMINATIONS AND ISSUING LICENSE

FROM: Date

TO:

It is requested that the license for equipment descripted in item 6 above be issued to this applicant upon his successful completion of the required examinations and tests.

Signature _____

Title _____

Department, Division or Shop Supervisor

(OVER)

Figure 5-30A – NAVFAC 11260/1 (Application for Construction Equipment Operator License). (Front)

PART III - ACTION ON SUBJECT APPLICATION

FROM: Date
TO:

☐ Arrangements will be made to proceed with examinations and tests as requested.

☐ No action will be taken on this application for the following reason:

Signature _____

Title _____

PART IV - LICENSE ACTION

FROM: Date
TO:

☐ The subject license has been issued to the applicant as requested.

☐ The applicant has failed his physical examination.

☐ The applicant has failed to qualify for the subject license.

_____ number of days *(the established waiting period)* must elapse before a new application may be made for this license.

Signature _____

Title _____

PRIVACY ACT STATEMENT

This statement is provided in compliance with the provisions of the Privacy Act of 1974 (PL-93-579) (N00011 C02) which require that Federal agencies must inform individuals who are requested to furnish information about themselves as to the following facts concerning the information requested.

1. AUTHORITY: 5 U.S.C. 301 Departmental Regulations
2. PRINCIPAL PURPOSE(S): To apply for a license to operate government-owned vehicles.
3. ROUTINE USE(S): To be used by agency officials to determine the employee's eligibility to operate government-owned vehicles. May be used by safety and security officials to verify individual's qualifying experience.
4. MANDATORY OR VOLUNTARY DISCLOSURE: The disclosure of information requested is voluntary. However, failure to complete the form will result in nonissuance of license.

SAMPLE

Figure 5-30B – NAVFAC 11260/1 (Application for Construction Equipment Operator License). (Back)

7.3.0 Standard Form 47

The Standard Form 47 (*Figure 5-31*) is the Physical Fitness Inquiry for Motor Vehicle Operators. As an operator, you must have no physical defects or emotional instability that makes you a hazard to yourself and others. The license examiner will review and evaluate this form, plus any other available information regarding your physical condition, and determine if a physical examination is required. The Medical Department performs those physical examinations.

Standard Form 47

(Rev. 1-77)

U.S. Civil Service Commission

FPM Chapter 930

PHYSICAL FITNESS INQUIRY FOR MOTOR VEHICLE OPERATORS

47-105

1. Last Name-First Name- Middle Name	2. Date Of Birth	3. Title Of Position

4. Home Address (*Number, street or RFD, city or town, State& ZIP code)*	5. Employing Agency

6. Have you ever had or have you now (*place check at left of each item*):

YES	NO		YES	NO	
☐	☐	Poor vision in one or both eyes	☐	☐	Arthritis, rheumatism, swollen or painful joints
☐	☐	Eye disease	☐	☐	Loss of hand, arm, foot, or leg
☐	☐	Poor hearing in one or both ears	☐	☐	Deformity of hand, arm, foot, or leg
☐	☐	Diabetes	☐	☐	Nervous or mental trouble of any kind
☐	☐	Palpitation, chest pain, or shortness of breath	☐	☐	Blackouts or epilepsy
☐	☐	Dizziness or fainting spells	☐	☐	Sugar or albumin in urine
☐	☐	Frequent or severe headaches	☐	☐	Exsessive drinking habit (alcohol)
☐	☐	High or low blood pressure	☐	☐	Other serious defects or diseases
☐	☐	Drug or narcotic habit			

7. If your answer is "yes" to one or more of the above questions,explain fully in this space, indicating date of original condition and current status:

8. (A) Do you wear glasses (or contact lenses) while driving? ☐ YES ☐ NO

(B) Do you wear a hearing aid ? ☐ YES ☐ NO

PRIVACY ACT NOTICE

Authority: This information is provided pursuant to Public Law 93-579 (Privacy Act of 1974), December 31, 1974, for individuals completing Standard Form 47, Physical Fitness Inquiry for Motor Vehicle Operators U.S. Code, Title 5, section 301.

Purposes and Uses: SF 47 is used to ascertain the physical fitness of Federal employees, whose jobs are not regular motor vehicle operating jobs, to drive Government- owned motor vehicles. It is also used in the renewal of authorizations for all employees. Based on the information provided, employees may be referred for a medical examination before being given a renewal.

Effects of Non Disclosure: Nondisclosure of this information will result in the employee not being authorized to drive a Federal motor vehicle. The disclosure of this information is mandatory when an employee's job requires driving a Federal motor vehicle and is voluntary otherwise.

I certify that my answers are full and true, and I understand that a willfully false statement or dishonest answer to any question may be grounds for cancellation of my eligibility or my dismissal from the service and is punishable by law.

Signature	Date

REVIEW AND CERTIFICATION BY DESIGNATED OFFICIAL

I certify that I have reviewed this physical fitness inquiry form and other available information regarding the physical condition of the applicant, and that I have made the following determination:

☐ There is no information on this form or otherwise available to indicate that the applicant should be referred for physical examination.

☐ On the basis of items checked in this form or other information, this applicant must be referred for physical examination before he/she is authorized to operate a government- owned motor vehicle or his/her current authorization is renewed.

☐ Items checked on this form or otherwise available do not warrant referral for medical examination because of the following facts:

Signature of designated official	Date

Adapted For Computer Use 11/8/2000

Figure 5-31 – Standard Form 47 (Physical Fitness Inquiry for Motor Vehicle Operators).

SAMPLE

7.4.0 License Test

Part of the process for receiving a license is to take a written test administered by the license examiner. These tests are based on traffic laws and regulations, accident reporting procedures, operator's maintenance responsibilities, safe driving practices, and the characteristics and limitations of the types of equipment for which the test is being given. If you need information particular to a piece of equipment, you can obtain the operator's manual from the technical library. This library is normally located in the mechanic shop.

Examinations and tests for military personnel applying for a license to operate general-purpose vehicles up to 10,000 pounds are normally waived if the applicant possesses a valid state operator's license for the type of vehicle involved.

7.4.1 Performance Qualification Test

All performance qualification tests on equipment, except for cranes, are given by the license examiner. This test enables the license examiner to evaluate the operating skills of each applicant. The applicant must successfully pass an operational performance or road test and perform pre- and post-operator maintenance as outlined in the operator's manual.

The examiner should terminate a performance test if it becomes hazardous or an applicant demonstrates a lack of skill, undue nervousness, speeding, inattentiveness, or any unfavorable actions. Any reason for failure is noted on the application and placed in the license file of the applicant.

7.4.2 Automotive Test

Applicants for a U.S. Government Motor Vehicle Operator's Identification Card, OF-346, must pass a locally created driver skill test. This test is a locally devised checklist used to determine the applicant's reactions under various traffic conditions. The road test is administered in the largest capacity vehicle for which the license is to be issued.

7.4.3 Material Handling Equipment Test

Applicants for MHE licenses are operationally tested and scored as prescribed in Storage and Materials Handling, DODINST 4145.19-R-1.

7.4.4 Construction Equipment Test

Applicants for a Construction Equipment Operator License, NAVFAC 11260/2, (See *Figure 5-32*) must be familiar with the standard Navy hand signals before taking a performance qualification test.

CONSTRUCTION EQUIPMENT OPERATOR LICENSE
NAVFAC 11260 2 (9 - 74)
Supersedes NAVDOCKS 2754
S / N 0105 - LF - 004 - 1510

CARD NO

NAME OF OPERATOR

DATE ISSUED

DATE EXPIRES

DATE OF BIRTH	COLOR OF HAIR	COLOR OF EYES	HEIGHT	WEIGHT

SAMPLE

THE HOLDER OF THIS CARD IS QUALIFIED TO OPERATE U.S. GOVERNMENT HEAVY EQUIPMENT AS SPECIFIED ON REVERSE OF THIS CARD

SIGNATURE OF ISSUING OFFICIAL	TITLE *CERTIFIED EXAMINER*
SIGNATURE OF OPERATOR	TITLE OF POSITION

NOT TRANSFERABLE *Card must be carried at all times when operating Government equipment.*

(Front)

QUALIFIED TO OPERATE

EQUIPMENT TYPE	SIZE AND CAPACITY	ATTACHMENT	TYPE CON-TROLS	EXAM

SAMPLE

☆ U.S. GOVERNMENT PRINTING OFFICE: 1984-705-012/7317 2-1

(Back)

Figure 5-32 – NAVFAC 11260/2 (Construction Equipment Operator License).

7.5.0 License Forms

After an applicant satisfactorily completes the required tests, the examiner issues a license that lists each type of vehicle the license holder is authorized to operate, plus any restrictions imposed on the license.

7.5.1 U.S. Government Motor Vehicle Operator's Identification Card, OF-346

The OF-346 (*Figure 5-33*) is the license required for motor vehicles and material-handling equipment. The information on a properly completed and validated OF-346 consists of the following: a card number, a list of the operator's physical limitations or restrictions, a description of the equipment the operator is qualified to operate, the signature of the examiner, the operator's signature, and any specific notations. The OF-346 expires on the birth date of the operator and is valid for 3 years.

The OF-346 card number is also indicated on the Operator's Record, NAVFAC

OF 346 11/85 USOPM FPM Chapter 930	U.S. Government Motor Vehicle Operator's Identification Card			Card No.	Restrictions		
Name of Operator (Not Transferable)			Sex	Signature of Operator *(Not valid until signed)*	QUALIFIED TO OPERATE		
					Type of Vehicle and/or Equipment	Capacity	Qualifying Official
Date of Birth	Social Security No.						
				Name and Location of Issuing Unit			
Height	Weight	Hair Color	Eye Color				
				Signature and Title of Issuing Official	OTHER RECORDS *(Optional)*		
Date Issued		Date Expires					
The holder of this card is qualified to operate U.S. Government vehicles and/or equipment specified, subject to the restrictions set forth on the other half of this card. Card must be carried at all time when operating Government vehicles.					NSN 7540-00-034-3999		50346-101

SAMPLE

Figure 5-33 – OF-346 (U.S. Government Motor Vehicle Operator's Identification Card)

11240/10, or NAVFAC 11260/3, Construction Equipment Operator License Record (*Figure 5-34*). The license examiner maintains a chronological record of all licenses issued.

CONSTRUCTION EQUIPMENT OPERATOR LICENSE RECORD
NAVFAC 11260 / 3 (Rev. 3-76)
S / N 0105 - LP - 012-6015

SPECIAL REQUIREMENTS FOR		
VISION	HEARING	OTHER

LICENSE NO	NAME	DATE OF BIRTH

EQUIPMENT LICENSED TO OPERATE

EQUIPMENT TYPE DATA			LICENSING DATA						
BASIC UNIT	ATTACHMENT	TYPE OF CONTROL	ISSUING ACTIVITY	EXAMINER	DATE ISSUED	DATE REVOKED	EXPIRATION DATE	RENEWAL DATE	DATE OF PHYSICAL EXAM

NOTE: INFORMATION ON THIS FORM IS SUBJECT TO SAFEGUARD AND DISCLOSURE CONDITIONS OF THE PRIVACY ACT OF 1974.

SAMPLE

Figure 5-34 – NAVFAC 11260/3 (Construction Equipment Operator License Record)

7.5.2 Construction Equipment Operator License, NAVFAC 11260/2

The NAVFAC 11260/2 (*Figure 5-32*) is the license required for operating construction equipment. The information on a properly completed and validated NAVFAC 11260/2 consists of the following: a card number, the operator's name, a description of the equipment, the make and model of the equipment, types of controls, the examiner's signature, and the operator's signature. The NAVFAC 11260/2 expires on the birth date of the operator and is valid for 2 years.

7.6.0 Dispatch Forms

Forms used for records and reports are tools for managing an equipment pool efficiently. When properly used, these forms document the miles, hours, maintenance performed, equipment troubles, operator names, and so forth. As an operator, you are responsible for turning in all related dispatch forms given to you, filled out properly and legibly.

The NAVFAC 9-11240/13 and NAVFAC 11260/4 are essential parts of the equipment maintenance program. The operator of equipment has a better opportunity than anyone else to discover defects before they become serious. Reporting these defects on the proper forms gives maintenance shop personnel a chance to correct them; therefore, always report any operating difficulty you encounter during your daily operations with vehicles and equipment.

OPERATOR'S DAILY PM REPORT NAVFAC 11260/4 (9-74) *Supersedes NAVDOCKS 2664* SIN 0105-LF-004-1520 *Use Reverse Side for Remarks* *Explanatory Notes on Reverse Side.*	USN NO. FUEL OPR HRS

NO.	ITEM	OK	SERVICES PERFORMED
1	RADIATOR SOLUTION		
2	GEN. & FAN BELT		
3	ENGINE OIL LEVEL		
4	AIR CLEANER		
5	PRECLEANER		
6	BATTERY		
7	HYD. OIL LEVEL		
8	LUBRICATION		
9	TIRE CONDITION		
10	SAFETY EQUIP.		
11	GENERAL COND.		
12	FUEL LEVEL		
13	INSTRUMENTS		
14	SHUTDOWN PRECAUTIONS		
15	OTHER		
DATE		OPERATOR'S SIGNATURE	

Figure 5-35A – NAVFAC 11260/4 (Operator's Daily PM Report). (Front)

OPERATOR'S DAILY SERVICES	
1	Fill radiator 10 proper level. Remove debris from core.
2	Inspect belts for proper tension, alinements and condition.
3	Fill to proper level, inspect for leaks.
4	Inspect and clean oil bath and dry type as required.
5	Clean filter jar as often as conditions warrant.
6	Visually inspect for condition. fill to proper level.
7	Fill to proper oil levels and inspect for leaks.
8	Perform daily lubrication services as designnated by the Transportation Division.
9	Check tire pressure with gage. Inflate as necessary to recommended pressure. Remove glass, stones, nails, etc.
10	Inspect for condition, safety guards boom stops, radius indicators, warning devices, ladders, fire extinguishers, etc.
11	Inspect unit for general condition. Correct or report any deficiencies requiring mechanics attention.
12	Fill fuel tank as necessary.
13	Check all gages and metes for proper operation.
14	Perform prescribed shutdown services such as securing machines, draining air tanks, cover exhaust stacks, close hoods, etc.
15	List any deficiencies noted during operation.
REMARKS	

Figure 5-35B – NAVFAC 11260/4 (Operator's Daily PM Report). (Back)

SAMPLE

7.6.1 NAVFAC 11240/13

The Operator's Inspection Guide and Trouble Report, NAVFAC 11240/13, commonly known as the Hard Card**,** is a guide for operator's maintenance. This is one of the forms used to document problems you may encounter during pre- and post operations. This form provides a uniform list of services to be performed by the operator before, during, and after operation.

The operator indicates by a check mark any item that does not function properly. The Remarks space may be used for items not listed or for additional information concerning deficiencies indicated by a check mark. Always complete this form properly and turn it in to the dispatcher, who determines whether the vehicle is ready for another job or requires repair work. Your unit will have a procedure to process the Hard Card in case the vehicle needs repairs.

7.6.2 NAVFAC 11260/4

The Operator's Daily PM Report, NAVFAC 11260/4 (*Figures 5-35A and 5-35B*), is issued to any operator who uses construction equipment. You will perform prestart maintenance checks of the items listed and indicate findings in the appropriate space on the NAVFAC 11260/4. Record malfunctions or other items requiring attention as observed during the working day, and enter hours operated during the day. Take hour readings from the equipment hour meter. After securing the equipment, take the NAVFAC 11260/4 to the dispatcher. The dispatcher will review the report to ensure recorded entries are valid and will take note of any deficiencies.

7.6.3 DD Form 1970

When filled out and signed properly by the dispatcher and operator, the Motor Vehicle Utilization Record, DD Form 1970 (*Figures 5-36A AND 5-36B*), is an operator's official authorization to operate a vehicle whether it is driven by the requester or by a pool operator. This form, commonly known as the Trip Ticket, is a record to verify the vehicle was on an official trip; therefore, fill it out properly and sign it. When completed properly, a trip ticket contains a record of the operator's destination, time of departure and arrival, speedometer reading, and other information pertinent to the trip(s).

NOTE

If the speedometer is broken, the operator must estimate the number of miles traveled.

MOTOR EQUIPMENT UTILIZATION RECORD

1. DATE *(YYYYMMDD)*	2. TYPE OF EQUIPMENT	3. REGISTRATION NO./SERIAL NO.	4. ADMINISTRATION NO.

5. ORGANIZATION NAME	6a. FUEL	b. OIL

ACTION	9. TIME		10. MILES	11. HOURS	
7a. 1ST OPERATOR *(Last Name, First, M.I.)*	a. IN				12a. REPORT TO *(Last Name, First, M.I.)*
8a. OPERATOR'S SIGNATURE	b. OUT				13a. DISPATCHER'S SIGNATURE
	c. TOTAL		0	0	
7b. 2ND OPERATOR *(Last Name, First, M.I.)*	a. IN				12b. REPORT TO *(Last Name, First, M.I.)*
8b. OPERATOR'S SIGNATURE	b. OUT				13b. DISPATCHER'S SIGNATURE
	c. TOTAL		0	0	
7c. 3RD OPERATOR *(Last Name, First, M.I.)*	a. IN				12c. REPORT TO *(Last Name, First, M.I.)*
8c. OPERATOR'S SIGNATURE	b. OUT				13c. DISPATCHER'S SIGNATURE
	c. TOTAL		0	0	
7d. 4TH OPERATOR *(Last Name, First, M.I.)*	a. IN				12d. REPORT TO *(Last Name, First, M.I.)*
8d. OPERATOR'S SIGNATURE	b. OUT				13d. DISPATCHER'S SIGNATURE
	c. TOTAL		0	0	

14. DESTINATION	15. TIME a. ARRIVE	15. TIME b. DEPART	16. RELEASED BY *(Signature)*	17. REMARKS
(1) FROM				
(2) TO				
(3) TO				
(4) TO				
(5) TO				
(6) TO				
(7) TO				
(8) TO				
(9) TO				
(10) TO				
(11) TO				
(12) TO				
(13) TO				
(14) TO				
(15) TO				
(16) TO				

SAMPLE

DD FORM 1970, NOV 1999

14. DESTINATION	15. TIME		16. RELEASED BY *(Signature)*	17. REMARKS
	a. ARRIVE	b. DEPART		
(17) TO				
(18) TO				
(19) TO				
(20) TO				
(21) TO				
(22) TO				
(23) TO				
(24) TO				
(25) TO				
(26) TO				
(27) TO				
(28) TO				
(29) TO				

INSTRUCTIONS

*1. Date. Enter the calendar date the equipment is to be used.

2. Type of Equipment. Enter the type of equipment as designated in the equipment log.

3. Registration Number or Serial Number. Enter the equipment/ registration number or serial number.

4. Administration Number. Enter the unit number or administrative number.

5. Organization Name. Enter the organization to which the equipment is assigned.

6. Fuel/Oil. Enter the amount of fuel (gallons) and/or oil (quarts) obtained for the equipment.

*7. Operator. Enter the name of the equipment operator.

8. Operator's Signature. The equipment operator (item 6) will enter signature immediately upon receipt of equipment.

*9. Time. Indicate time to the nearest 5 minutes using the 24-hour clock.
a. In. Enter time equipment was returned from dispatch or use.
b. Out. Enter the time the equipment was released for operation by the dispatcher.
c. Total. Enter total time the equipment was in the possession of the operator. Time is obtained by subtracting the time listed in "Out" line from that listed on the "In" line.

*10. Miles. Will be recorded to the nearest whole mile.
a. In. The operator will enter the mileage reading when the equipment is returned. If odometer is inoperative, enter estimated mileage.
b. Out. The dispatcher will enter the mileage reading at the time of dispatch.
c. Total. Enter the difference between the "Out" and "In" mileage.

*11. Hours. Will be recorded to the nearest whole hour. On those items which require servicing on an hourly basis and are not equipped with an hour meter, enter the estimated hours of operation.
a. In. The operator will enter the hour meter reading upon completion of the equipment usage.
b. Out. The dispatcher will neter the hour meter reading prior to equipment release.
c. Total. Enter the total hours dispatched for operation.

*12. Report To. Enter the name of the individual to whom the operator is to report.

13. Dispatcher's Signature. Self-explanatory.

14. Destination. Indicate each location at which a trip begins and ends. Normally this starts from the equipment pool ("From" Line) and ends at the same place after one or more intervening destinations.

*15. Time. All time will be recorded using the 24-hour clock, rounded off to the nearest 5 minutes.
a. Arrive. Enter the arrival time at each destination.
b. Depart. Enter the departure time from the motor pool and each succeeding location.

16. Released By. The person in charge of equipment on dispatch will release by signing on the line indicating the destination where the equipment was released to the operator. Upon termination of equipment used, but not moved, the person in charge will release the equipment by signing in the top block of this column.

17. Remarks. The remarks column will be used by the operator to record unusual operation or abnormal occurrences during operation, or other information as directed.

*Items marked with an asterisk (*) have been registered in the DOD Data Element Program.

SAMPLE

DD FORM 1970 (BACK), NOV 1999

Figure 5-36B – DD Form 1970 (Motor Vehicle Utilization Record). (Back)

7.6.4 Standard Form 91

Every mishap involving a Navy motor vehicle or item of construction equipment must be reported on an Operator's Report of Motor Vehicle Accident, Standard Form 91 (*Figures 5-37A* thru *5-37D*). Every Navy vehicle should carry copies of the SF 91, mishap instructions, and a pencil at all times. In case of a mishap involving another vehicle, this report must be completed. This is true even if the driver of the other vehicle states that he or she will file no claim for damages and no matter how unfavorable the circumstances of the mishap may appear to the Navy. The report must also be completed for a mishap not involving another vehicle. The operator involved in a mishap must deliver the mishap report or ensure its immediate delivery, as soon as possible, to the supervisor, who must forward it to the battalion mishap investigator.

If involved in a mishap, your first responsibility is to render aid to the injured. After they have been cared for, complete the mishap report. As an aid in completing Standard Form 91, comply with the following instructions:

1. Obtain and properly spell names and street addresses of persons involved in the mishap and anyone who may have witnessed the mishap.
2. Carefully note weather conditions, road conditions, position of the vehicle involved, and other details you will not be able to get later.
3. Be sure that your report gives a clear picture of what actually happened. Your diagram of the mishap should show exactly where the vehicles were before and after the mishap.
4. State damage you can see, such as "crushed right rear wheel" or "crumpled fender," and give an estimate of the amount of damage. If someone claims that he or she has damaged property but you cannot see the damage, note on the accident form only that he or she "claims bent fender," and so forth. Follow the same procedures with injuries. Report cuts, burns, broken bones, and so forth of which you are certain, and note only that a person "claims" an injury when you have no way of knowing the truth. If you cannot get the exact information on some item, write "unknown" to show that you did not overlook it.
5. When sufficient space is not available for providing information regarding an item, write "see attached sheet" and attach an extra sheet containing the additional information on that item.
6. After you have finished your report, look it over carefully and ensure it is complete and accurate. If you are satisfied, sign the report, and take it to the mishap investigator.

MOTOR VEHICLE ACCIDENT REPORT	Please read the Privacy Act Statement on Page 3.	INSTRUCTIONS: Sections I thru IX are filled out by the vehicle operator. Section X, Items 72 thru 82c are filled out by the operator's supervisor. Sections XI thru XII are filled out by an accident investigator for bodily injury, fatality, and/or damage exceeding $500.

SECTION I - FEDERAL VEHICLE DATA

1. DRIVER'S NAME *(Last, first, middle)*	2. DRIVER'S LICENSE NO./STATE/LIMITATIONS	3. DATE OF ACCIDENT
4a. DEPARTMENT/FEDERAL AGENCY PERMANENT OFFICE ADDRESS		4b. WORK TELEPHONE NUMBER

5. TAG OR IDENTIFICATION NUMBER	6. EST. REPAIR COST	7. YEAR OF VEHICLE	8. MAKE	9. MODEL	10. SEAT BELTS USED
	$				☐ YES ☐ NO

11. DESCRIBE VEHICLE DAMAGE	

SECTION II - OTHER VEHICLE DATA *(Use Section VII if additional space is needed.)*

12. DRIVER'S NAME *(Last, first, middle)*	13. DRIVER'S LICENSE NUMBER/STATE/LIMITATIONS
14a. DRIVER'S WORK ADDRESS	14b. WORK TELEPHONE NUMBER
15a. DRIVER'S HOME ADDRESS	15b. HOME TELEPHONE NUMBER
16. DESCRIBE VEHICLE DAMAGE	17. ESTIMATED REPAIR COST $

18. YEAR OF VEHICLE	19. MAKE OF VEHICLE	20. MODEL OF VEHICLE	21. TAG NUMBER AND STATE

22a. DRIVER'S INSURANCE COMPANY NAME AND ADDRESS	22b. POLICY NUMBER
	22c. TELEPHONE NUMBER

23. VEHICLE IS	24a. OWNER'S NAME(S) *(Last, first, middle)*	24b. TELEPHONE NUMBER
☐ CO-OWNED ☐ RENTAL ☐ LEASED ☐ PRIVATELY OWNED		

25. OWNER'S ADDRESS(ES)

SECTION III - KILLED OR INJURED *(Use Section VIII if additional space is needed.)*

A

26. NAME *(Last, first, middle)*	27. SEX	28. DATE OF BIRTH
29. ADDRESS		

30. MARK "X" IN TWO APPROPRIATE BOXES	31. IN WHICH VEHICLE	32. LOCATION IN VEHICLE	33. FIRST AID GIVEN BY
☐ KILLED ☐ DRIVER ☐ PASSENGER ☐ INJURED ☐ HELPER ☐ PEDESTRIAN	☐ FED ☐ OTHER (2)		

34. TRANSPORTED BY	35. TRANSPORTED TO

B

36. NAME *(Last, first, middle)*	37. SEX	38. DATE OF BIRTH
39. ADDRESS		

40. MARK "X" IN TWO APPROPRIATE BOXES	41. IN WHICH VEHICLE	42. LOCATION IN VEHICLE	43. FIRST AID GIVEN BY
☐ KILLED ☐ DRIVER ☐ PASSENGER ☐ INJURED ☐ HELPER ☐ PEDESTRIAN	☐ FED ☐ OTHER (2)		

44. TRANSPORTED BY	45. TRANSPORTED TO

46. Pedestrian

a. NAME OF STREET OR HIGHWAY	b. DIRECTION OF PEDESTRIAN *(SW corner to NE corner, etc.)*	
	FROM	TO
c. DESCRIBE WHAT PEDESTRIAN WAS DOING AT TIME OF ACCIDENT (Crossing intersection with signal, against signal, diagonally; in roadway playing, walking, hitchhiking, etc.)		

SAMPLE

Figure 5-37A-D – Standard Form 91 (Operator's Report of Motor Vehicle Accident).

SECTION IV - ACCIDENT TIME AND LOCATION *(Use Section VIII if additional space is needed.)*

47. DATE OF ACCIDENT	48. PLACE OF ACCIDENT *(Street address, city, state, ZIP Code; Nearest landmark; Distance nearest intersection; Kind of locality (industrial, business, residential, open country, etc.); Road description).*
49. TIME OF ACCIDENT AM PM	

50. INDICATE ON THIS DIAGRAM HOW THE ACCIDENT HAPPENED

Use one of these outlines to sketch the scene. Write in street or highway names or numbers.

a. Number Federal vehicle as 1, other vehicle as 2, additional vehicle as 3 and show direction of travel with arrow.

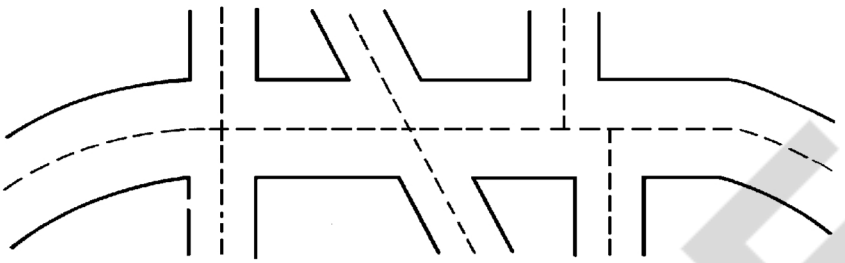
Example: 1 2

b. Use solid line to show path before accident 2
and broken line after the accident 2

c. Show pedestrian by

d. Show railroad by

e. Place arrow in this circle to indicate *NORTH*



51. POINT OF IMPACT *(Check one for each vehicle)*

FED	2	AREA
		a. FRONT
		b. R. FRONT
		c. L. FRONT
		d. REAR
		e. R. REAR
		f. L. REAR
		g. R. SIDE
		h. L. SIDE

52. DESCRIBE WHAT HAPPENED *(Refer to vehicles as "Fed", "2", "3", etc. Please include information on posted speed limit, approximate speed of the vehicles, road conditions, weather conditions, driver visibility, condition of accident vehicles, traffic controls (warning light, stop signal, etc.) condition of light (daylight, dusk, night, dawn, artificial light, etc.) and driver actions (making U-turn, passing, stopped in traffic, etc.).*

SAMPLE

SECTION V - WITNESS/PASSENGER *(Witness must fill out SF 94, Statement of Witness) (Continue in Section VIII.)*

A	53. NAME *(Last, first, middle)*	54. WORK TELEPHONE NUMBER	55. HOME TELEPHONE NUMBER
	56. BUSINESS ADDRESS	57. HOME ADDRESS	
B	58. NAME *(Last, first, middle)*	59. WORK TELEPHONE NUMBER	60. HOME TELEPHONE NUMBER
	61. BUSINESS ADDRESS	62. HOME ADDRESS	

SECTION VI - PROPERTY DAMAGE *(Use Section VIII if additional space is needed.)*

63a. NAME OF OWNER	63b. OFFICE TELEPHONE NUMBER	63c. HOME TELEPHONE NUMBER
63d. BUSINESS ADDRESS	63e. HOME ADDRESS	
64a. NAME OF INSURANCE COMPANY	64b. TELEPHONE NUMBER	64c. POLICY NUMBER
65. ITEM DAMAGED	66. LOCATION OF DAMAGED ITEM	67. ESTIMATED COST $

SECTION VII - POLICE INFORMATION

68a. NAME OF POLICE OFFICER	68b. BADGE NUMBER	68c. TELEPHONE NUMBER
69. PRECINCT OR HEADQUARTERS	70a. PERSON CHARGED WITH ACCIDENT	70b. VIOLATION(S)

SECTION VIII - EXTRA DETAILS

SPACE FOR DETAILED ANSWERS. INDICATE SECTION AND ITEM NUMBER FOR EACH ANSWER. IF MORE SPACE IS NEEDED, CONTINUE ITEMS ON PLAIN BOND PAPER.

SECTION IX - FEDERAL DRIVER CERTIFICATION

In compliance with the Privacy Act of 1974, solicitation of the information requested on this form is authorized by Title 40 U.S.C. Section 491. Disclosure of the information by a Federal employee is mandatory as the first step in the Government's investigation of a motor vehicle accident. The principal purposes for using this information is to provide necessary data for legal counsel in legal actions resulting from the accident and to provide accident information/statistics in analyzing accident causes and developing methods of reducing accidents. Routine use of information may be by Federal, State or local governments, or agencies, when relevant to civil, criminal, or regulatory investigations or prosecutions. An employee of a Federal agency who fails to report accurately a motor vehicle accident involving a Federal vehicle or who refuses to cooperate in the investigation of an accident may be subject to administrative sanctions.

I certify that the information on this form *(Sections I thru VIII)* is correct to the best of my knowledge and belief.

71a. NAME AND TITLE OF DRIVER	71b.. DRIVER'S SIGNATURE AND DATE

SECTION X - DETAILS OF TRIP DURING WHICH ACCIDENT OCCURRED

72. ORIGIN	73. DESTINATION

74. EXACT PURPOSE OF TRIP

75. TRIP BEGAN	DATE	TIME *(Circle one)* a.m. p.m.	76. ACCIDENT OCCURRED	DATE	TIME *(Circle one)* a.m. p.m.

77. AUTHORITY FOR THE TRIP WAS GIVEN TO THE OPERATOR

☐ ORALLY ☐ IN WRITING *(Explain)*

78. WAS THERE ANY DEVIATION FROM DIRECT ROUTE

☐ NO ☐ YES *(Explain)*

79. WAS THE TRIP MADE WITHIN ESTABLISHED WORKING HOURS

☐ YES ☐ NO *(Explain)*

80. DID THE OPERATOR, WHILE ENROUTE, ENGAGE IN ANY ACTIVITY OTHER THAN THAT FOR WHICH THE TRIP WAS AUTHORIZED.

☐ NO ☐ YES *(Explain)*

81. COMPLETED BY DRIVER'S SUPERVISOR

a. DID THIS ACCIDENT OCCUR WITHIN THE EMPLOYEE'S SCOPE OF DUTY

☐ YES ☐ NO

b. COMMENTS

82a. NAME AND TITLE OF SUPERVISOR	82b. SUPERVISOR'S SIGNATURE AND DATE	82c. TELEPHONE NUMBER
NAVEDTRA 14026A		5-54

SAMPLE

SECTION XI - ACCIDENT INVESTIGATION DATA

83. DID THE INVESTIGATION DISCLOSE CONFLICTING INFORMATION. ☐ YES ☐ NO *(If "Yes", explain below.)*

84. PERSONS INTERVIEWED

NAME	DATE	NAME	DATE
a.		c.	
b.		d.	

85. ADDITIONAL COMMENTS *(Indicate section and item number for each comment.)*

SECTION XII - ATTACHMENTS

LIST ALL ATTACHMENTS TO THIS REPORT

SECTION XIII - COMMENTS/APPROVAL

86. REVIEWING OFFICIAL'S COMMENTS

87. ACCIDENT INVESTIGATOR	88. ACCIDENT REVIEWING OFFICIAL
a. SIGNATURE AND DATE	a. SIGNATURE AND DATE
b. NAME *(First, middle, last)*	b. NAME *(First, middle, last)*
c. TITLE	c. TITLE
d. OFFICE	d. OFFICE
e. OFFICE TELEPHONE NUMBER	e. OFFICE TELEPHONE NUMBER

SAMPLE

7.6.5 DD Form 518

The Accident-Identification Card, DD Form 518 (*Figure 5-38A and 5-38B*), is used to provide any person involved in a mishap with a Navy vehicle with the name and organizational assignment of the Navy operator. Always fill out the DD Form 518 at the scene of the mishap, and give a copy to the driver of the other vehicle concerned. If the mishap involves a parked car, and the owner or operator is not available, place the DD Form 518 in or on the parked vehicle. Notify the police immediately and remain at the scene of the mishap until the police arrive or the owner or operator can be located.

ACCIDENT - IDENTIFICATION CARD

(THIS FORM IS SUBJECT TO THE PRIVACY ACT OF 1974 - SEE REVERSE)

Any correspondence regarding accident should be addressed to:

MAKE REFERENCE TO

DATE OF ACCIDENT

MAKE AND TYPE OF VEHICLE

REGISTRATION NO.

DRIVER *(Last name - first name - middle initial)*

SSN	**GRADE**

ORGANIZATION

DD Form 518, OCT 78 PREVIOUS EDITION IS OBSOLETE. Adobe Professional 7.0

SAMPLE

PRIVACY ACT STATEMENT

AUTHORITY: *Sec 638a, Title 31, USC and EO 9397.*

PRINCIPAL PURPOSE: *To provide persons involved in an accident with a DoD owned/leased vehicle the identity of the person with the authority to act on the matter.*

ROUTINE USES: *Placed in each vehicle for purpose stated above. When a DoD vehicle is involved in an accident, the driver provides the other party(s) with a properly executed DD Form 518. The SSN is requested because of similarity of names, to further identify the driver of the DoD vehicle.*

DISCLOSURE IS VOLUNTARY: *No disciplinary action is taken in cases where the SSN is not provided.*

DD Form 518 Reverse, OCT 78

Figure 5-38 – DD Form 518 (Accident-Identification Card).

Test your Knowledge (Select the Correct Response)

7. Which of the following is the Physical Fitness Inquiry for Motor Vehicle Operators form?

   A. Standard Form 47
   B. DD Form 518
   C. Standard Form 91
   D. DD Form 1970

Summary

Aerial lift trucks and line maintenance trucks have simplified the Construction Electrician's job and allowed for the safer conduct of distribution system installation and maintenance procedures. Another benefit of these vehicles is the increased chance of rescuing someone from overhead work areas. Jobs that previously took days to complete now take hours. As an electrician, you will, at times work on energized overhead circuits and equipment. While doing this, you must be protected from all grounded surfaces. The fiberglass boom, hydraulic oil, and fiberglass links of aerial lift and line maintenance trucks provide this protection. As a heavy equipment operator, you must be knowledgeable about the administrative functions required to operate machinery. This process is accomplished through licensing, evaluation, and preventive maintenance inspections.

Review Questions (Select the Correct Response)

1. Which of the following two vehicles will you utilize the most often as a Construction Electrician?

   A. Aerial lift and line maintenance trucks
   B. Aerial lift and 1/2 ton flat bed trucks
   C. Line maintenance and Pole setter trucks
   D. Line maintenance and cable deployment trucks

2. What is the main purpose of the two line maintenance construction vehicles?

   A. Provide a platform for working on derricks
   B. Provide a insulated platform for live line maintenance
   C. Provide a platform for live line maintenance
   D. Provide a insulated platform for crane maintenance

3. The majority of aerial lift trucks are equipped with how many booms?

   A. 0
   B. 1
   C. 2
   D. 3

4. If equipped, how are booms operated on an aerial lift truck?

   A. Pneumatically
   B. Electrically
   C. Manually
   D. Hydraulically

5. If equipped with a extendable boom, what is the upper boom fabricated from?

   A. Fiberglass
   B. Plastic
   C. Sheet metal
   D. Wood

6. What is maximum horizontal reach of a boom?

   A. 15 feet
   B. 30 feet
   C. 45 feet
   D. 60 feet

7. What are the different types of buckets associated with the aerial lift truck?

   A. Single and multi person
   B. Multi person
   C. Single and two person
   D. Two and three person

8. What is the purpose of a bucket liner?

   A. Weather protection
   B. Tool storage
   C. Trash receptacle
   D. Insulation

9. Two person buckets have a maximum capacity of how many pounds?

   A. 500 pounds
   B. 400 pounds
   C. 1000 pounds
   D. 750 pounds

10. What is the first step in aerial truck set up procedures?

   A. Engage emergency brake
   B. Position truck
   C. Disconnect hold down straps
   D. Lower outriggers

11. If the truck needs to be positioned on a slope, where should the truck be parked?

   A. Uphill from work area
   B. Underneath work area
   C. Downhill from work area
   D. Parallel from work area

12. The aerial lift truck is equipped with what type of brake?

   A. Hydraulic
   B. Power
   C. Water
   D. Air

13. What is the purpose of the PTO switch?

   A. Transfers power from engine to hydraulic pump
   B. Transfers power from pump to the engine
   C. Hydraulically locks outriggers in place
   D. Transfer boom controls from primary to secondary location

14. The transfer control switch has how many positions?

A. 1
B. 2
C. 3
D. 4

15. What is the first step in the movement of booms?

A. Engage outrigger's emergency stop
B. Secure power to engine
C. Disconnect hold down straps
D. Install bucket

16. How many locations of the aerial truck can control the buckets from?

A. 5
B. 4
C. 3
D. 2

17. What is the primary reason for the use of secondary bucket controls?

A. Aerial rescue
B. Transformer installation
C. Allow electrician to work hands free
D. Material transport

18. Which of the following controls will override the primary controls?

A. PTO
B. Auxiliary
C. Standby
D. Bypass

19. On trucks equipped with pistol grip boom controls, what position does the grip need to be placed in to cause the lower boom to raise?

A. Trigger depressed, handle forward
B. Trigger not depressed, handle forward
C. Trigger depressed, handle backwards
D. Trigger not depressed, handle backwards

20. On trucks equipped with pistol grip boom controls, what position does the grip need to be placed in to cause the booms to rotate to the right?

A. Trigger depressed, twist handle left
B. Trigger not depressed, twist handle right
C. Trigger not depressed, twist handle left
D. Trigger depressed, twist handle right

21. Which of the following is not a purpose of the bucket tilt feature?

A. Transport material
B. Remove water from bucket
C. Aerial lift truck rescue
D. Remove debris from bucket

22. How is the bucket tilt feature controlled on the two person bucket?

A. Pneumatically
B. Hydraulically
C. Electrically
D. Manually

23. Before moving the truck to or from the work area, what is the first thing to perform prior to moving vehicle?

A. Parking brake disengaged
B. PTO switch in OFF
C. Hold down clamps in place
D. Hydraulic reservoir at least half full

24. What is the minimum amount of qualified electricians to be part of a aerial crew?

A. 5
B. 4
C. 3
D. 2

25. How does the boom of the aerial lift truck maintain a high di-electric strength?

A. Application of boom wax
B. Hydraulic fluid replenishment
C. Insulator blanket installation after use
D. Connection of grounding strap

26. If equipped, what is the main purpose of a winch installed on a aerial lift truck?

A. Removal of tree roots
B. Assistance in the installation of small transformers
C. Removal of vehicle if stuck
D. Installation of underground cabling

27. What is the jib on an aerial lift truck manufactured out of?

A. Iron
B. Plastic
C. Fiberglass
D. Brass

28. When is the tire pressure checked on an aerial lift truck?

A. Monthly
B. Within first ten days of the month
C. When required
D. Within the first five days of the month

29. When conducting a pre operational inspection, what action is required to be performed throughout the inspection?

A. Constant surveillance of vehicle
B. Continuous communications with supervisor
C. Hydraulic pressure maintained at 3000 psi
D. Vehicle running and parking brake engaged

30. When is the pre operational check conducted?

A. Start of each work day
B. Vehicle operator change
C. End of each work shift
D. Start and end of each day

31. Where can the required tire air pressure value be located?

A. On the tire wall
B. Inside the tire wheel well
C. Inside the drivers door
D. On the dash

32. Who conducts oil changes on the aerial lift truck?

A. Individual
B. Unassigned personnel of work crew
C. Junior unqualified personnel
D. Motor pool

33. What action is required when the oil level drops below the site glass?

A. Stop the operation and fill system tank
B. Stop operation
C. Fill system tank
D. Complete evolution and then refill system tank

34. When is the post operational inspection conducted?

A. Vehicle operator turnover
B. Every time vehicle completes a job
C. Start of each day
D. Supervisors discretion

35. What is the most important consideration to take when performing a aerial lift truck rescue?

A. Victim's safety
B. Crew's safety
C. Your own safety
D. Power isolation location

36. What distance is the rescue strap placed around the insulated boom from the bucket?

A. 4 feet
B. 6 feet
C. 8 feet
D. 10 feet

37. What type of single sheave block and tackle is used during bucket lift rescue?

A. 3 or 4 inch
B. 5 or 6 inch
C. 7 or 8 inch
D. 9 or 10 inch

38. How does an individual mount the truck during a victim lift rescue?

A. Hand grips located at the back of the truck
B. Hop on with both feet
C. Via another aerial lift truck
D. Access panel located in cab of truck

39. How is the bucket lowered during a victim lift rescue?

A. Using the primary controls
B. Manually by using winch
C. Using the secondary controls
D. Engaging the PTO switch

40. What is the quickest way to get the bucket down with minimal boom movement?

A. Lower both sets of booms to lowest position
B. Lower upper boom to full horizontal position, then lower the lower boom
C. Lower the lower boom to full vertical, then raise upper boom
D. Raise the lower boom to full vertical, then lower upper boom until bucket is 1 foot off the ground

41. Which of the following vehicles is primarily used to support maintenance actions required for overhead and underground distribution systems?

A. Aerial lift truck
B. Auger truck
C. Cable retrieval truck
D. Flat bed transport truck

42. The side mounted controls on the line maintenance truck operated by which principle?

A. Hydro-electric
B. Electro-pneumatic
C. Electro-hydraulic
D. Electro-mechanical

43. Which of the following is NOT a function of the line maintenance truck booms?

A. Setting poles
B. Hanging transformers
C. Moving heavy equipment
D. Aerial rescue

44. Insulation value of the line maintenance truck's third boom is what value?

A. 100 KV
B. 75 KV
C. 50 KV
D. 25 KV

45. What is the reach of the line maintenance truck when all three booms are extended?

A. 15 feet
B. 30 feet
C. 45 feet
D. 50 feet

46. How is the second stage boom operated?

A. Fixed
B. Manually
C. Hydraulically
D. Pneumatically

47. How is the third stage boom operated?

A. Fixed
B. Hydraulically
C. Pneumatically
D. Manually

48. How many winches are installed on the line maintenance truck?

A. 3
B. 2
C. 1
D. None

49. Where are the secondary controls for the bumper winch located?

A. Inside cab, right side of transmission shift lever
B. Inside cab, left side of transmission shift lever
C. Inside cab, in overhead
D. Inside cab, between front seats

50. How many sets of controls does the bed winch employ and where are they located?

A. One control at front of vehicle
B. Two controls at rear of vehicle
C. One control at rear of vehicle
D. Three controls at rear of vehicle

51. What is the working load capacity of a bumper winch?

A. 5,000 pounds
B. 10,000 pounds
C. 15,000 pounds
D. 20,000 pounds

52. How much will the derrick winch lift safely with the cable on a full winch drum?

A. 6,000 pounds
B. 10,000 pounds
C. 12,000 pounds
D. 20,000 pounds

53. Where is the auger stored on the line maintenance truck?

A. Stored in side panel compartments located on truck
B. Stored in bed of truck
C. Stored in bag attached to jib
D. Stored in a cradle connected to the boom

54. What accessory is used to install pole anchors?

A. Screw anchor installer
B. Anchor bit
C. Jacking screw
D. Pole grabbers

55. What is the purpose of the capstan?

A. Cable or wire retrieval
B. Extra cable pulling power
C. Anchor placement
D. Outrigger operation

56. How is the pole pulling jack accessory operated?

A. Manually
B. Electro-mechanically
C. Hydraulically
D. Pneumatically

57. How many positions are they associated with the pole grabbers?

A. 1
B. 2
C. 3
D. 4

58. What gear position is required to engage the emergency brake?

A. Neutral
B. Park
C. Low
D. Reverse

59. How do you engage the PTO switch on a line maintenance truck?

A. Pull out the PTO knob
B. Depress clutch, then pull out PTO knob
C. Place Truck/Machine switch to Machine
D. Place vehicle in neutral, then pull out PTO knob

60. What is the result of switching the Truck/Machine switch to Machine if the primary controls switch is not in the Start position?

A. Nothing
B. Hydraulic pump will shut down
C. Engine will stop
D. Truck will lurch forward

61. What position must the outriggers be in to operate the boom?

A. Raised
B. Raised and locked in place
C. Lowered and hydraulics secured
D. Lowered

62. Which function does the line maintenance truck control panel not control?

A. Front bumper winch
B. Boom
C. Auger
D. Derrick

63. How far in degrees will the boom rotate left?

A. 90
B. 120
C. 180
D. 240

64. Which safety feature of the line maintenance truck does not allow the lifting of material heavier than rated capacity?

A. Overload limit switches
B. Truck interlocks
C. Overload pressure switches
D. Hydraulic pump override

65. Where is the second stage boom stored onboard a line maintenance truck?

A. On top of main boom
B. Beneath the main boom
C. The bed of the truck
D. Inside the main boom

66. What is the most often winch used on the line maintenance truck?

A. Derrick
B. Bumper
C. Rear
D. Bed

67. What position does the valve located on the pedestal behind the cab need to be in to operate the auger?

A. Digger
B. Auger
C. Digger/Auger
D. Neutral

68. Which boom needs to be fully retracted before raising or lowering the auger?

A. Main boom
B. Third stage boom
C. Second stage boom
D. First stage boom

69. When operating the auger, what is the purpose of the “High” speed switch position?

A. Rapid boring operations
B. Underground cable removal
C. Soil sampling
D. Remove dirt from auger bit

70. The indicator light on the side control panel is in what condition during normal digging operations?

A. Off
B. Blinking with a 5 second delay
C. Blinking with 2 second delay
D. On

71. What switch position on the side control panel is required to allow the auger to lower from the storage bracket?

A. Dig
B. Release
C. Clean
D. Fast

72. How much does the boom assembly weigh with attachments?

A. 1500 pounds
B. 2000 pounds
C. 2500 pounds
D. 1000 pounds

73. What is required prior to disengaging the PTO?

A. Release parking brake
B. Vehicle in neutral
C. Clutch depressed
D. Storage of outriggers

74. How does the driver know that the outriggers are not completely stowed for transport?

A. Red warning light in cab
B. Truck will not start
C. Yellow warning light in cab
D. Parking brake will not disengage

75. How many hand signals are associated with winch operation?

A. 1
B. 2
C. 3
D. 4

76. What hand signal is used to stop all actions on the job site while utilizing the line maintenance truck?

A. Waving arms above head from side to side
B. Drawing your right hand palm down across throat
C. Holding up a closed fist
D. Holding left hand in fist with thumb pointing down

77. What are bent flats?

A. Sticking points are extending boom arms
B. Flat spot on the capstan
C. Broken teeth on pole grabbers
D. Flat portions on the auger bit

78. Which of the following publications dictates that all NCF personnel who operate government equipment will hold a US government license?

A. NAVFAC P-404
B. NAVFAC 11240/10
C. NAVFAC P-300
D. NAVFAC 11260/1

79. Which of the following pieces of equipment DOES NOT require a performance qualification test?

A. Line maintenance trucks
B. Cranes
C. Aerial lift trucks
D. Bulldozers

80. Which of the following instructions prescribes testing and scoring requirements for MHE licenses?

A. DODINST 5110.13
B. DODINST 4970
C. DODINST 4145.19
D. DODINST 5215

81. How long is a US Government motor vehicle license valid for?

A. 1 year
B. 2 years
C. 3 years
D. 4 years

82. Which of the following forms is also known as the “Trip Ticket”?

A. DD Form 1970
B. NAVFAC 11240/13
C. SF 91
D. DD Form 518

83. Which of the following forms is required to document any type of accident involving a government vehicle?

A. DD Form 518
B. SF 91
C. DD Form 1970
D. NAVFAC 11240/13

84. If you are involved in a motor vehicle accident involving another vehicle, what should be given to the other driver prior to leaving the accident scene?

A. DD Form 1970
B. Police Report
C. DD Form 518
D. SF 91

Trade Terms Introduced in this Chapter

Capstans	Any of various windlasses, rotated in a horizontal plane by hand or machinery, for winding in ropes, or cables
Contingency	A possibility that must be prepared for
Derrick	A machine for hoisting and moving heavy objects, consisting of a movable boom equipped with cables and pulleys and connected to the base of an upright stationary beam
Di-Electric	Non conducting substance
Maximum Load Capacity	Maximum amount of weight that can be lifted or support by a piece of machinery
Overload	To load to excess; overburden
Shimmying	Excessive wobbling in the front wheels of a motor vehicle
Turret	A small tower, usually one forming part of a larger structure

Additional Resources and References

This chapter is intended to present thorough resources for task training. The following reference works are suggested for further study. This is optional material for continued education rather than for task training.

*Unified Facilities Criteria (**UFC**) 3-560-0*1 (Electrical Safety, Operation and Maintenance)

OSHA Regulations (Standards – 29 CFR)

American National Standards Institute (ANSI Z89.2-1971)

Naval Construction Force Manual, *NAVFAC P-315*, Naval Facilities Engineering Command, Washington, D.C., 1985.

Operator's Inspection Guide and Trouble Report, NAVFAC 11240/13

Management of Transportation Equipment, NAVFAC P-300 Naval Facilities Engineering Command, 200 Stovall Street, Alexandria, VA, 1988.

NCF Equipment Management Manual, NAVFAC P-404 Naval Facilities Engineering Command, Washington, D.C., 1985.

Equipment Management, COMSECOND/COMTHIRDNCBINST 11200.1, Department of the Navy, Naval Construction Battalions, U.S. Pacific Fleet, Pearl Harbor, Hawaii, Naval Construction Battalions, U.S. Atlantic Fleet, Naval Amphibious Base, Little Creek Norfolk, VA, 1988.

Navy Driver's Handbook, NAVFAC MO-403, Naval Facilities Engineering Command, 200 Stovall Street, Alexandria, VA, 1980.

CSFE Nonresident Training Course – User Update

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Rate____ Course Name_____

Revision Date_____ Chapter Number____ Page Number(s)_____

Description

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(Optional) Correction

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(Optional) Your Name and Address

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