



Fire Protection Training

Procedures Handbook 4300

MOBILE EQUIPMENT

TOPIC: Jump Starting Vehicles

TIME FRAME: 20 Minutes

LEVEL OF INSTRUCTION:

BEHAVIORAL OBJECTIVE:

Condition: A written quiz

Behavior: The student will list and describe the proper procedure for jump starting vehicles.

Standard: With a minimum of 70% accuracy

MATERIALS NEEDED:

- Jumper cables
- Batteries or simulated batteries
- Visual aids
- Chalkboard and chalk
- Audio visual equipment

REFERENCES:

- CDF, Mobile Equipment Management Procedures Handbook, (6700)

PREPARATION:

As with any equipment batteries on firefighting equipment lose their charge over time and may require a "jump-start". There is a safe procedure for jump starting such vehicles without inflicting personal injury or mechanical damage.



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JUMP STARTING VEHICLES

PRESENTATION	APPLICATION
<p>I. TERMINOLOGY</p> <p>A. Jumper Cables</p> <ol style="list-style-type: none">1. Constructed of two prefabricated insulated cables with a spring type clamp on each end.2. The cables and or clamps are generally color coded to designate whether they should be attached to the negative or positive terminals.<ol style="list-style-type: none">a. Red positive cables are common.b. Black negative cables are common. <p>B. Batteries</p> <ol style="list-style-type: none">1. Come in differing sizes and differing groups depending on the intended use and cranking power requirements.2. Battery terminal<ol style="list-style-type: none">a. Positive terminal<ol style="list-style-type: none">(1) Larger in diameter(2) Stamped with "+"b. Negative terminal<ol style="list-style-type: none">(1) Smaller diameter(2) Stamped with "-"c. Terminal location<ol style="list-style-type: none">(1) Top mounted(2) Side mounted	<p>Information sheet #1</p>



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PRESENTATION	APPLICATION
<p>II. JUMP STARTING PROCEDURE</p> <p>A. Position Vehicles so Cables will reach batteries of Both Vehicles</p> <ol style="list-style-type: none">1. Do not allow vehicles to touch2. Motors should be off on both vehicles3. Transmission must be in "park" or "neutral"4. Brakes must be applied5. Chock blocks should be set if so equipped6. Turn off all lights and accessories <p>B. Remove the Main (In Line) Fuse Serving Communications Equipment</p> <p>C. Connect Jumper Cables</p> <ol style="list-style-type: none">1. Clamp one end of the positive (+) cable to the positive (+) terminal of discharged battery2. Clamp the opposite end of the positive (+) cable to the positive (+) terminal of the charged battery3. Clamp one end of the negative (-) cable to the negative (-) terminal of the "charged" battery	<p>Information sheet #2</p> <p>Prevents radio damage</p> <p>Do not allow clamps to touch each other or any metal object while attached to a battery</p>



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<ul style="list-style-type: none">4. Clamp the opposite end of the negative (-) cable to a ground source on the vehicle with the discharged battery.<ul style="list-style-type: none">a. Ground source must be 18" from the batteryb. Good grounds include heavy bracket, bolts on the engine block and frame members.5. Ensure that cables and tools are clear of all parts which will move when engine starts6. Start the motor of the vehicle with the good battery and run at moderate speed7. Start the engine on the vehicle with the discharged battery<ul style="list-style-type: none">a. If engine does not start, check and secure all clamp connectionsD. Removal Sequence Reverses the Connection Sequence<ul style="list-style-type: none">1. Remove negative cable clamp from frame or other ground source on vehicle with the previously "discharged" battery2. Remove negative cable clamp from negative terminal on vehicle with the "charged" battery3. Remove positive cable clamp from the positive terminal of the previously "charged" battery4. Remove the positive cable clamp from the positive terminal of the previously "discharged" battery<ul style="list-style-type: none">a. Do not allow clamps to touch each other or other metal objects during removal sequence.	



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<p>III. SAFETY PRECAUTIONS</p> <ul style="list-style-type: none">A. Always Wear Eye Protection and GlovesB. Do Not Lean Over BatteryC. Avoid Skin Contact with Battery AcidD. Do Not Overheat Battery by Continuous CrankingE. Do Not Jump Batteries Which are Mismatched as to Size and/or GroupF. Do Not Allow Clamps to Contact Each Other or Metal Parts While attached to a Battery<ul style="list-style-type: none">1. Arcing may cause explosionG. Batteries Produce Poisonous Gases Which Should Not be Inhaled or Subjected to Open FlameH. Do Not Stand Between Vehicles. Starter May Accidentally Crank Over Causing Vehicle to Lurch Forward.	



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SUMMARY:

It is not uncommon within the scope of your employment as a firefighter to encounter "discharged" vehicle batteries. Jump starting these batteries is a relatively simple process if basic rules are followed. Failure to take the proper steps may result in a serious injury.

EVALUATION:

A written quiz.

ASSIGNMENT:

To be determined by instructor(s).