

# SANTA ANA POLICE DEPARTMENT

DAVID VALENTIN · CHIEF OF POLICE

## TRAINING BULLETIN

*"Education promotes professional and responsive law enforcement"*

### Safe Vehicle Battery Jump Start Procedure

#### Purpose

The purpose of this Training Bulletin is to educate Department personnel concerning the safety hazards and correct procedure to use when jump starting a vehicle.

#### Introduction

Vehicle lead-acid batteries can be dangerous, as they contain sulfuric acid in the electrolyte. The acid in the battery is highly corrosive and can burn your skin. Batteries can also explode. When a battery charges, it gives off hydrogen gas. Hydrogen is flammable and can explode if a spark occurs near the battery (as when connecting a jumper cable). Law enforcement personnel are occasionally called upon to jump-start a car, so for everyone's safety, the following vehicle battery jump-start procedure should be followed. Jumper cables and safety glasses are located in the trunk of each patrol vehicle.

#### I. Safe Vehicle Battery Jump Start Procedure

If a battery is dead or too low to crank the engine, you can jump-start it using a pair of jumper cables to connect the low/dead battery to a good battery in another vehicle. **Always wear safety glasses when jump starting a battery** to protect your eyes).

Pull the other vehicle as close as possible to the one with the dead/low battery, but **DO NOT** allow the vehicles to touch. Open the hood on both vehicles, and shut **OFF** the engine in the other vehicle.

Jumper cables are color coded, **RED for POSITIVE (+)** and **BLACK for NEGATIVE (-)**. **DO NOT** mix up the cables or allow the metal ends to touch together because this may damage the battery, charging system and/or electronics on a vehicle.

#### A. To Jump-Start the Battery, Proceed As Follows

1. Connect one end of the **RED** jumper cable to the POSITIVE (+) post on the dead battery.
2. Connect the other end of the **RED** jumper cable to the POSITIVE (+) post on the good battery.

3. Connect one end of the **BLACK** jumper cable to the NEGATIVE (-) post on the good battery.
4. Connect the other end of the **BLACK** jumper cable to a heavy metal ground on the engine or frame of the vehicle with the dead battery. DO NOT make the final jumper connection to the NEGATIVE (-) post on the battery itself because it usually sparks and may ignite hydrogen fumes in the dead battery causing it to explode.  
**NOTE:** On some vehicles the battery is not easily accessible (because it is located inside a fender panel, trunk, etc.), so there may be special jumper connections in the engine compartment for jump-starting the vehicle.  
**CAUTION:** DO NOT lean directly over the battery while making jumper connections (in case of explosion).
5. Start the vehicle with the good battery, and run the engine at a fast idle (1200 to 1500 rpm) for a couple of minutes. This will help charge up the low battery and make starting easier.
6. Now you can start the vehicle with the dead battery. If it does not crank or cranks very slowly, wiggle the jumper connections to make sure they are making good contact. Then try again. The engine should start if there are no other problems (such as a bad starter or ignition circuit problem).
7. As soon as the engine starts, disconnect both jumper cables. Do not allow the metal ends of the jumper cables to touch each other or the **RED** cables to touch anything metal on either car.
8. Keep the engine running 20 to 30 minutes, or drive the car to recharge the battery. During this time, leave the lights, heater, A/C and other electrical accessories off so all of the charging system's output can go into the battery.  
**NOTE:** If the engine dies shortly after it has been jump-started, or as soon as the jumper cables are disconnected, it probably means the charging system is not working (bad alternator, voltage regulator, wiring problem or loose/dirty battery cables).
9. If the vehicle runs okay and the battery charges up, you should clean and tighten both battery cables after shutting the engine off. The battery and charging system should also be tested to make sure both are working properly.

## II. Shock Hazards

Batteries only produce 12 volts, so there is NO danger of being shocked. However, batteries can produce hundreds of amps, so never touch a metal object such as a wrench between the positive and negative battery posts to see if the battery will spark. It will, and produce a current similar to a welding arc that may damage the tool, the battery and/or cause the battery to explode!

**WARNING:** On hybrid electric vehicles such as the Toyota Prius, Lexus RX400H, Honda Insight, Ford Escape hybrid, etc., the hybrid battery pack in the back of the vehicle is a HIGH VOLTAGE (300+ volts!) battery. Three hundred plus volts is enough to shock you or kill you, so NEVER work on the hybrid electrical system on one of these vehicles without first disabling or disconnecting the high voltage battery per the vehicle manufacturer's instructions. This must be done by qualified personnel only, using insulated tools and gloves. The high voltage wiring

is usually color-coded **ORANGE**. Santa Ana PD personnel are not trained and should not perform this work.

## Summary

The use of vehicle battery jumper cables to jump start a car can be accomplished safely if the proper procedures and safety precautions are taken. It is imperative that law enforcement personnel are able to recognize any potential hazards regarding this practice and in doing so, minimize the risk of injury to themselves and others.

**Acknowledgment:**

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