

# Tech Tip®

## HOW TO JUMP START YOUR VEHICLE

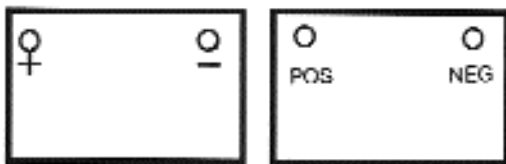
Figure 1

FLUID LEVELS SHOULD BE  
APPROXIMATELY 1" BELOW  
TOP OF BATTERY



Figure 2

POSITIVE & NEGATIVE  
MARKINGS ON  
TOP BATTERY



### ITEMS NEEDED:

- booster cables
- Safety Goggles
- Protective clothing
- Old rags or towels

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If your car has ever not started because of a low or dead battery, an expensive starting or towing bill may have been the result. To help avoid that expensive service bill and get the boost you need to get going, we suggest you purchase and carry with you at all times, a high quality set of booster cables. **A Reminder:** Caution should be taken when charging or boosting batteries. A battery being charged can produce explosive gases which can explode if subjected to nearby flame or sparks. Always provide adequate ventilation when working around batteries and do not smoke in the area.

Let's take a look at a few simple guidelines to help make jump starting a safe procedure.

1. First, examine the battery to be jumped or boosted. Remove the battery's vent caps if so equipped and check to see that there is sufficient fluid covering the plates (see Figure 1). If not, add distilled water to raise the fluid to the correct level, but be careful not to overfill. Never use battery acid (sulfuric acid) to raise the level. In cold weather, the fluid inside a discharged battery can freeze. Always check for frozen battery fluid. If the fluid is frozen, do not attempt to jump start the vehicle until the battery has thawed out in addition, a battery that has frozen may have experienced internal damage that would require it to be replaced. Remember to reinstall the vent caps on the battery, making sure they are on level and tight.

2. Make sure the vehicles are not touching each other, as this could act as the ground circuit between the vehicles

3. Whenever jump starting a vehicle, protect your face and eyes. Place an old cloth or towel over the tops of both batteries. Wear eye protection if available, or turn your face away from the batteries when making connections.

4. Identify the positive and negative posts on both batteries. **DO NOT** assume the color of the vehicle's battery cables reflect their polarity. Always check the top of the battery for the positive or negative markings or the positive and negative symbols marked near the terminals (see Figure 2).

5. Connect the positive or red ends of the booster cables to the positive terminals for both batteries (1 and 2 in Figure 3).

6. Now connect the negative ends of the booster cables.

**IMPORTANT:** First connect the black clamp for the booster cables to the negative terminal of the good or booster battery (3 in Figure 3). Connect the other black clamp to the engine block or frame of the vehicle being jump started (4 in Figure 3). **DO NOT** connect this end to the negative battery terminal of the bad battery as the spark created from this connection could cause the battery to explode. Allow the engine from the booster vehicle to run for approximately five minutes before attempting a jump start. Double check the engine compartment to make sure any tools or equipment are removed before starting.

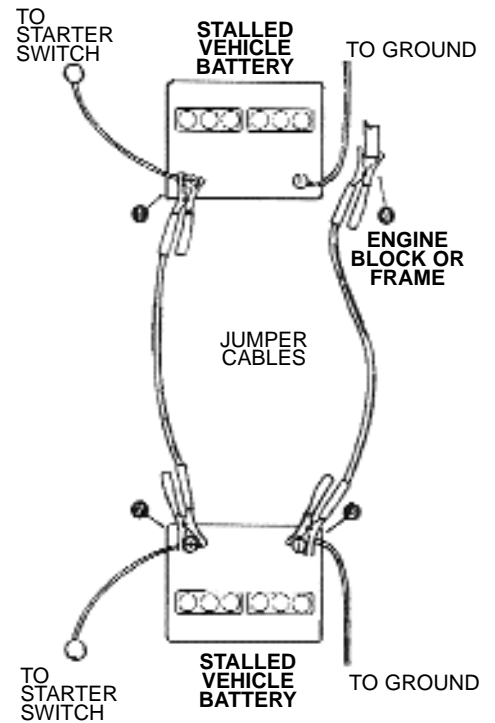
7. Stand clear of the car being boosted and attempt to restart.

8. To avoid damage to the components of the starting system, do not crank the engine for more than 30 seconds at a time. Allow the starter to cool for a minimum of two minutes in between cranking sessions if the vehicle cranks very slow or a clicking noise is heard, allow the battery in the disabled vehicle to accept a charge from the vehicle with the good battery for at least five minutes prior to attempting a restart.

9. Once the vehicle is started, disconnect the booster cables. Do not allow the ends of the booster cables to touch each other. Disconnect them in reverse order of the connections by removing the negative clamp from the engine block of the disabled vehicle first, then remove the negative clamp from the good or booster battery, and last, remove the positive clamps from each vehicle.

Figure 3

**THIS HOOK-UP FOR NEGATIVE GROUND VEHICLES**



**CAUTION:**  
**MAKE CERTAIN VEHICLES**  
**DO NOT TOUCH.**