



USING JUMPER CABLES

HOSTA Task Sheet 4.6.4

NATIONAL SAFE TRACTOR AND MACHINERY OPERATION PROGRAM

Introduction

If batteries are not cared for properly (see Task Sheet 4.6.2) or if they are nearing the end of their useful life expectancy, (e.g., a 60-month guaranteed battery which has 54 months of use), the battery may fail to start the tractor. Many times battery failure will come at the onset of cold weather.

Batteries can also lose a charge when not used for extended time periods. Using a booster battery and jumper (booster) cables to start the tractor, truck, or car may be necessary.

This task sheet discusses the correct procedures to boost or jumpstart a 6- or 12-volt battery to start an engine. For other voltage ratings, consult the tractor's or battery's Owner's Manual or manufacturer recommendations.

Jumpstarting a tractor:
The red cable goes to the POSITIVE (+) battery terminal, and the black cable goes to the NEGATIVE (-) battery terminal on the good (charged) battery.

Battery Jumping Diagram

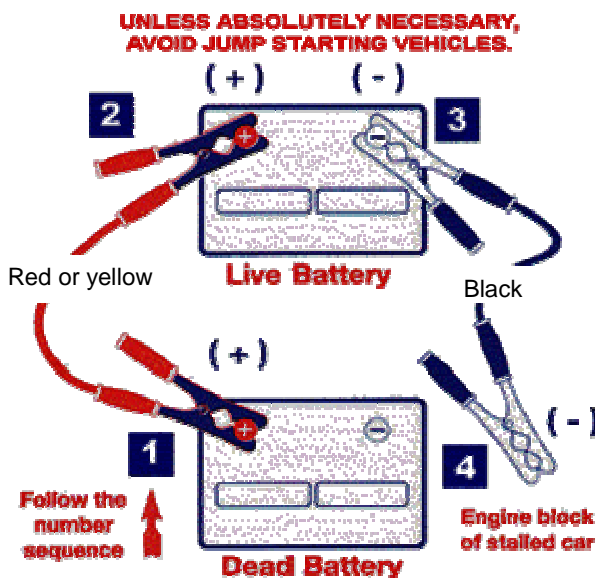


Figure 4.6.4.a. Battery Polarity: A battery has two poles or posts. The positive battery post is usually marked POS, P, or (+ or red) and is larger than the negative post, which is usually marked NEG, N, or (- or black). Connect positive to positive and negative to negative terminals to jumpstart the battery.

Tools you will need:

- Safety glasses
- Approved booster cables of 4-, 6-, or 8-gauge wire. Lighter wire (higher wire gauge number) will not carry enough current to jumpstart the battery.
- Wrenches to remove battery cables
- Battery terminal cleaner
- Booster battery usually from another tractor or vehicle.
- Rubber gloves

Learning Goals

- To safely use booster cables to jumpstart a weak battery
- To use all safety procedures to prevent chemical burn, explosion or fire, and electrical shock

Related Task Sheets:

Lead Acid Batteries	4.6.2
Using a Battery Charger	4.6.3

Steps to Jumping a Battery

Jumpstarting an engine with a drained battery is the same whether the drained battery is in a tractor, truck or car. Normally, you will use another tractor, truck or car battery to try and start the tractor with the drained battery.

IMPORTANT: Most vehicles have negative ground batteries. Be sure both the drained battery and the booster battery have negative grounds.

Follow these steps for jump-starting a tractor with a drained battery:

1. Pull the tractors next to each so they are not touching, and turn off both ignitions.
2. Connect the positive (+, yellow or red) clamp of the jumper cable to the drained battery's positive terminal.
3. Connect the other positive (+, yellow or red) clamp of the cable to the positive terminal of the booster battery.

4. Connect the negative (- or black) clamp of the cable to the negative terminal of the booster battery.
5. Connect the other negative (- or black) clamp of the cable to the vehicle's engine block or other metal surface of the tractor to be started away from the drained battery. This serves as your ground or connection point.

CAUTION: Do not connect clamp to carburetor, fuel lines, or sheet metal body parts. Connect to a heavy gauge metal part of the frame or engine block.

6. Make certain all cables are clear of fan blades, belts and other moving parts of both engines and that everyone is standing away from the vehicles.
7. Start the tractor with the booster battery.
8. Allow 1-5 minutes for the drained battery to accept a charge.
9. Try to start the tractor with the drained battery.

IF VEHICLE STARTS:

Allow the engine to return to idle speed. Remove the cables in the reverse order that you put them on.

1. Remove the negative (- or black) clamp from the frame of the vehicle with the drained battery.
2. Remove the negative (- or black) clamp from the booster battery.
3. Remove the positive (+, yellow or red) clamp from the booster battery.
4. Remove the positive (+, yellow or red) clamp from the formerly drained battery.

IF ENGINE DOES NOT START:

Wait a few moments and try again. If it still doesn't start, check for other problems.

Be sure to connect the jumper cables using the correct procedure to avoid sparks and damage to the battery or yourself.

Safety Activities

1. With the help of an adult mentor, use booster cables to boost a weak battery.
2. Use the Internet site www.autoeducation.com to ask questions about boosting a battery.

References

1. www.ask.com
2. www.autoeducation.com
3. www.battery-chargers.com
4. www.autobatteries.com

Contact Information

National Safe Tractor and Machinery Operation Program
The Pennsylvania State University
Agricultural and Biological Engineering Department
246 Agricultural Engineering Building
University Park, PA 16802
Phone: 814-865-7685
Fax: 814-863-1031
Email: NSTMOP@psu.edu

Credits

Developed, written and edited by WC Harshman, AM Yoder, JW Hilton and D J Murphy, The Pennsylvania State University. Reviewed by TL Bean and D Jepsen, The Ohio State University and S Steel, National Safety Council. Version 4/2004

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