



# #4 BATTERY BOOSTING

## Talk Leader Instructions:

*This is background information ONLY. Be sure to customize to your operation and facilities.*

- ✓ Print copies of this sheet for yourself and each of the participants.
- ✓ Lead a discussion with your workers about the materials on this sheet at a location that is appropriate to the topic. Be sure to give real life examples whenever possible.
- ✓ Be open to questions.
- ✓ Conclude with a brief review of the main points or a summary based on the discussion.
- ✓ Fill in your operation name, location and the date on your sheet. Have each worker sign your sheet to confirm their attendance.
- ✓ File your sheet in your worker training records to document the training experience.

## WORK ACTIVITY

If a battery is not cared for properly, not used for a long time or is nearing the end of its useful life expectancy, then it can become weak and lose its charge. This Toolbox Talk discusses the correct procedures to boost a single 6 or 12-volt battery to start an engine. For other voltage ratings or machines with multiple batteries, consult the Owner's Manual or manufacturer recommendations.

## BACKGROUND

Improperly boosting a battery can be dangerous and cause chemical burns, explosion, fire, and/or electrical shock. The proper procedure is not difficult.

## KEY POINTS - IMPORTANT

- ✓ Review the complete Standard Operating Practices for this work at least every year when you will be doing this type of work.
- ✓ Ensure the booster cables are made of a large enough gauge of wire (4, 6 or 8 gauge wire) to withstand the current of the larger of the two power source. Smaller wire booster cables (higher wire gauge number) may melt or catch fire when carrying a large current.
- ✓ Also, ensure that both the drained battery and the booster battery have negative ground terminals.
- ✓ Ensure the dead battery is not frozen. Look for indicator wavy battery walls.

## PROCEDURE *(please read ALL of the following instructions before attempting to boost a battery)*

1. Pull the vehicles next to each other so they are not touching.
2. Turn off the engine of both vehicles and turn off all accessories.
3. Connect the positive (+, red or yellow) clamp of the jumper cable to the drained battery's positive terminal.  
**BE VERY CAREFUL** never to allow the ends of both cables to touch while attached to the batteries; sparks and short circuits will result!
4. Connect the other positive (+, red or yellow) clamp of the cable to the positive terminal of the booster battery.
5. Connect the negative (-, black) clamp of the cable to the negative terminal of the booster battery.
6. 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. *(cont'd on page 2)*



# #4 BATTERY BOOSTING PAGE 2

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**CAUTION: Do NOT** connect to the negative terminal of the dead battery! Batteries can and do emit gas - and if you get a spark while connecting the cable, the battery **may explode**. It is equally important **NOT** to clamp the cable to the carburetor, fuel lines, moving parts or sheet metal body parts. Connect only to a heavy gauge metal part of the frame or engine block.

7. 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.
8. Start the vehicle with the booster battery.
9. Allow 1-5 minutes for the drained battery to accept a charge.
9. Try to start the vehicle with the boosted battery.

**IF VEHICLE STARTS:** Allow the engine to return to idle speed. Remove the cables in the reverse order that you put them on in steps 6, 5, 4, and 3.

**IF VEHICLE DOES NOT START:** Wait a few minutes and try again. If it still doesn't start, check for other problems.

### EMERGENCY PROCEDURES / CONTACTS

If any battery acid comes in contact with your skin, flush with water immediately.  
In case of fire or explosion, call 911 or your local emergency services and call your supervisor.

### MORE RESOURCES

Safe Booster Starts <http://www.ag.ndsu.edu/pubs/ageng/safety/ae1021w.htm>

#### COMMENTS / SUGGESTIONS:

Operation Name \_\_\_\_\_

Location \_\_\_\_\_

Meeting Leader \_\_\_\_\_

Date \_\_\_\_\_

#### TOOLBOX TALK PARTICIPANTS

Print name \_\_\_\_\_ Signature \_\_\_\_\_

Print name \_\_\_\_\_ Signature \_\_\_\_\_

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