

Getting Started on the Right Foot: Dangers of Bypass Starting¹

Carol J. Lehtola and Charles M. Brown²

Agriculture requires a lot of work, and shortcuts may be tempting, but they are often dangerous. Bypass starting is one of the more hazardous shortcuts, and people are killed and injured in bypass-starting incidents every year.

In bypass starting, you touch a wrench or a screwdriver to the terminals of the starter motor, to the solenoid of a tractor, or to other equipment. This bypasses all tractor-neutral starting switches. Sparks fly and electricity snaps as the circuit is completed, the starter engages and the engine starts.

The term "bypass starting" points to its danger. It bypasses all the safety-start and neutral-start switches in the tractor's electrical and hydraulic systems. The problem comes when a person tries to bypass-start a tractor or other piece of equipment **that is in gear**. The person can then get pulled down by the drive wheel, be crushed, or be injured or killed. The runaway tractor can also injure or kill others in the area.

Often operators or mechanics bypass-start an engine because of a maintenance problem with the tractor's neutral-start switch. It's a good idea to

immediately repair mechanical problems that might make bypass starting tempting.

Every death due to bypass starting is preventable. It just takes a few seconds to start a tractor correctly while sitting in the operator's seat. It's a few seconds that could save a life.



Case Reports

Examples and detailed analysis of deaths due to bypass starting are provided in the following reports:

1. "Farmer is Run Over by a Tractor While Starting It When Not in the Operator's Seat." Case Report No.: 98IA073, Report Date: September 1999. Fatality Assessment and Control Evaluation (FACE) Project, University of Iowa, Iowa City, IA. <www.cdc.gov/niosh/face/stateface/ia/98ia073.html>.

1. This document is ABE299 (formerly AE299), one of a series of the Agricultural and Biological Engineering Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. First published September 2001. Minor revision: August 2006. Reviewed: August 2009. Please visit the EDIS Web site at <http://edis.ifas.ufl.edu>.
2. Carol J. Lehtola, associate professor and Extension Agricultural Safety Specialist; and Charles M. Brown, coordinator for publication/information services, Agricultural and Biological Engineering Department, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, 32611.

Note: This farmer purchased a tractor that had a safety interlock on the transmission which had been bypassed by the previous owner.

2. "A Farmer Was Killed While Bypass-Starting His Tractor." Oklahoma Case Report 05-OK-038-01. Oklahoma Fatality Assessment and Control Evaluation (FACE), Oklahoma State Department of Health, Oklahoma City, OK. <www.cdc.gov/NIOSH/FACE/stateface/ok/05ok038.html>.

Note: This farmer was trying to start a tractor with a dead battery using another tractor and jumper cables. He attempted to bypass-start the tractor while standing on the ground instead of using the ignition.

For More Information

For more information about tractor safety, visit the Florida AgSafe Web site: <www.flagsafe.ufl.edu>; or the National Agricultural Safety Database (NASD): <www.cdc.gov/nasd>.

This publication is a part of the Safer Tractor Operator series. A complete list of publications in this series is given below. All are available at your county Extension office, at the EDIS Web site, <<http://edis.ifas.ufl.edu>>, and at the Florida AgSafe Web site.

- Safer Tractor Operations: Introduction <<http://edis.ifas.ufl.edu/AE241>>
- Getting Started on the Right Foot: Dangers of Bypass Starting <<http://edis.ifas.ufl.edu/AE173>>
- Filling Gas Cans Safely <<http://edis.ifas.ufl.edu/AE174>>
- Lighting and Marking Farm Equipment for Road Travel -- Summary of ASAE Standard S279.10 <<http://edis.ifas.ufl.edu/AE175>>
- Road Safety for Tractors <<http://edis.ifas.ufl.edu/AE176>>
- Frequently Asked Questions (FAQs) about Rollover Protective Structures (ROPS) <<http://edis.ifas.ufl.edu/AE177>>
- Avoid the Invisible Hazard: Know About Soil Shear Lines (ABE305) <<http://edis.ifas.ufl.edu/AE178>>
- Shortcuts Are Shortsighted! or Invest Seconds, Save Lives <<http://edis.ifas.ufl.edu/AE179>>
- Ready or Not? Get Ready with a Tractor Operator Checklist <<http://edis.ifas.ufl.edu/AE180>>
- Yee-Haa! Formula for a Successful Tractor Rodeo <<http://edis.ifas.ufl.edu/AE181>>
- Hand-me-down Hazards: Dangers of Used Equipment <<http://edis.ifas.ufl.edu/AE182>>
- Safety Tips for Tractor Loading and Towing <<http://edis.ifas.ufl.edu/AE183>>
- Safer Tractor Operations for Agricultural Employers <<http://edis.ifas.ufl.edu/AE195>>
- Safer Tractor Operations for Privately Owned and Operated Farms and Ranches <<http://edis.ifas.ufl.edu/AE196>>
- Safer Tractor Operations for Acreages and Homeowners <<http://edis.ifas.ufl.edu/AE197>>
- Safer Tractor Operations for Landscape Maintenance and Horticultural Industries <<http://edis.ifas.ufl.edu/AE198>>
- Safer Tractor Operations for Emergency and Rescue Personnel <<http://edis.ifas.ufl.edu/AE199>>
- Safer Tractor Operations for Farm Workers and Employees <<http://edis.ifas.ufl.edu/AE200>>