



**Lesson 1: Goals & Objectives of this Lesson**

- Safe Productivity.
- Introduction.
- Goals and Objectives.
- What is a professional?

**Lesson 2: Components & Control Identification**

- Goals and Objectives of this Lesson.
- Operator's Manual.
- Basic Machine Parts.
- Buckets.
- Return to Dig / Bucket Level Indicator.
- ROPS & FOPS.
- Frame.
- Power Train Components.
- Engine.
- Transmission.
- Front / Rear Differentials.
- Hydraulic Systems.
- Hydraulic Warning.
- Increase Tire Life.
- Instrument Panels.
- Backhoe Control Levels.
- Typical Control Movements.
- Controls.
- Steering.
- Throttle Control.
- Parking Brake.
- Braking System.
- Check Your Knowledge.

**Lesson 3: Safety & Warning Symbols**

- Goals and Objectives of this Lesson.
- Basics of Safety.
- Frequent Causes of Accidents.
- Safe Environment.
- Medication Warning.
- Personal Protective Equipment.
- Operator's Station Safety.
- Safety Warning Decals.
- Fire Prevention.

**Lesson 3: Safety & Warning Symbols (Continued)**

- Refueling Safety.
- Pinch Points and Moving Parts.
- No Riders.
- Hand Signals.
- Operator Fatigue.
- Responsibility.
- Check Your Knowledge.

**Lesson 4: Pre-Start Procedures**

- Goals and Objectives of this Lesson.
- Pre-Start Procedures.
- Checklist.
- Operator's Manual.
- Checks.
- Fluid Levels.
- Lubrication System.
- Lubrication and Maintenance Chart.
- Checking Fluid Levels.
- Wheels and Levels.
- Inspecting the Frame.
- Electric Cables and Wiring.
- Lights.
- Pre-Start Procedures.
- Radiator.
- Engine.
- Inspect Buckets.
- Wear Characteristics for Major Components.
- Belts / Hoses / Filters.
- Operator's Station.
- Housekeeping.
- Portable Fire Extinguishers.
- Pre-Start Procedures.
- Lockout / Tag-Out.
- Proper Mount and Dismount.
- ROPS
- Seat and Seat Belts.
- Safety Warning Decals.
- Hydraulic Warning.
- Battery Safety.
- Brakes and Braking System.
- Steering.
- Check Your Knowledge.

**Lesson 5: Starting Procedures**

- Goals and Objectives of this Lesson.
- Machine Start-Up.
- Master Switch.
- Starting Procedures.
- Checks.
- Starting the Engine in Warm Weather.
- Check Gauges.
- Starting the Engine in Cold Weather.
- Jump Starting.
- Final Start-Up Safety Reminders.
- Check Your Knowledge.

**Lesson 6: After Starting Checks**

- Goals and Objectives of this Lesson.
- After Starting Checks.
- Check Your Knowledge.

**Lesson 7: Operation & Safety**

- Goals and Objectives of this Lesson.
- Before You Operate.
- Inspect the Jobsite.
- Planning Ahead.
- General Precautions.
- Traveling Down a Grade.
- Operating on a Slope.
- Traveling Up a Grade.
- Traveling on a Jobsite.
- Boarding the Machine.
- Traveling on Public Roads.
- Rules of the Road.
- Using a Spotter.
- Adverse Weather Conditions.
- Backing Up.
- Front Visibility.
- No Riders!
- Working in Congested Areas.
- Equipment Uses.
- Overhead Utilities.
- Underground Utilities.
- Tolerance Zones.
- Master Switch.
- Tips to Live By.
- Operating Tips: Loading the Bucket.
- Carrying a Loaded Bucket.



**Lesson 7: Operation & Safety (Continued)**

- Dumping a Loaded Bucket.
- Completing a Dump Cycle.
- Operating Technique: Flat Ground.
- Reading the Machine for Backhoe Work.
- Description of a Fatal Accident.
- Basic Digging Cycle.
- Dig Cycle in Depth.
- Grading the Ditch.
- Back Filling the Ditches.
- Spreading Material.
- Lifting With the Backhoe.
- Loading Trucks.
- Digging Stumps.
- Operating Tips.
- Operating Techniques.
- Check Your Knowledge.

**Lesson 8: Machine Shutdown**

- Goals and Objectives of this Lesson.
- Parking.
- Proper Shutdown.
- Preventing Vandalism.
- Check Your Knowledge.

**Lesson 9: Advantages & Limitations**

- Goals and Objectives of this Lesson.
- Knowing Your Machine.
- Operator's Manual.
- Machine Dimensions.
- Center of Gravity.
- Check Your Knowledge.

**Lesson 10: Attachments**

- Goals and Objectives of this Lesson.
- Attachments.
- Typical Attachments.
- Attachment and Weight Dimensions.
- Check Your Knowledge.



**Lesson 11: Load Securement & Tie-Down**

- Goals and Objectives of this Lesson.
- Transporting on a Trailer.
- Boom Transport Lock.
- Working Load Limit.
- Ratchet Binders.
- Check Your Knowledge.

**Lesson 12: Preventive Maintenance**

- Goals and Objectives of this Lesson.
- Introduction to Preventive Maintenance.
- Benefits of a Good Program.
- Setting Up the Program.
- Keeping Records.
- Component Failure Modes and Warning Signs.
- Engine Failure.
- Lubrication.
- Transmission.
- Final Drives.
- Spot Check.
- Pre-Service.
- Equipment Inspection Form.
- Check Your Knowledge.