

BACKHOE

This Evaluation Guide for Skills Demonstration is to be used in the evaluation of an operator for certification on the specific piece of equipment stated above. It is intended that this Guide be followed closely during an evaluation, and the operator is expected to demonstrate competency in each of the items listed. However, variances may be made in some situations when, in the opinion of an evaluator, site conditions, operational constraints or the demonstrated skill of the operator requires that an item(s) be deleted or added to ensure a comprehensive evaluation.

1. Performs a thorough pre-op inspection and preventive maintenance, as needed

- Visually inspects exterior of machine for loose, leaking, hanging, or broken parts
 - Enters cab using steps and grab handles for safety (3 point climbing procedure)
 - Removes keys from ignition for safety
 - Ensures that parking brake is applied
 - Ensures that transmission is in neutral or lowest forward gear or reverse, as per policy
 - Ensures that battery disconnect is turned off
 - Performs general safety checks including unsecured objects
 - Inspects the following machine components
 - Engine
 - * Checks oil, coolant, power steering, and window washer levels (and fills as needed)
 - * Checks the radiator fins for cracks, distortion, debris and any signs of leakage
 - * Checks fan for presence and distortion
 - * Checks air restriction indicator (monometer) cleans dust valve daily and cleans air precleaner
 - * Checks that oil and fuel filters are in good condition, secured tight, and without leaks
 - * Checks batteries for corrosion and to be properly secured
 - * Checks that shutters are not bent and are free from debris
 - * Inspects condition and tightness of belts
 - * Checks turbo charger for leaks and cracks
 - * Checks hydraulic pump for leaks

 - Steering, Suspension and Rear Axle
 - * Checks power steering assist cylinder and steering box for leaks and that it is secured to frame
 - * Checks tires for tread depth, proper inflation and obvious defects
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- * Checks wheels/rims for tightness, cracks, valve stem alignment, slippage or any damaged, broken or missing parts
- * Inspects drive shaft visually for damage, debris or any sign of failure
- Exterior
 - * Checks fuel tank for damage or leaks and fuel levels
 - * Checks lights, warning lights, and reflectors are clean and intact, properly attached and operating correctly
 - * Checks exhaust system for damage or leaks
 - * Greases fittings on hoe and bucket assembly daily
 - * Greases tractor fittings weekly
 - * Inspects complete bucket, outriggers, ROPS, assemblies
 - * Ensures that boom lock is in place and secure
 - * Ensures that front bucket cylinder safety link is in place and secure
 - * Teeth on bucket are not broken or excessively worn
- Cab Interior
 - * Performs general safety check including unsecured objects
 - * Describes functions of controls
 - * Inspects presence and condition of seat belts and other safety equipment, including horn, charged and secured fire extinguisher, first aid kit, emergency triangles, ROPS and FOPS
 - * Inspects for excessive free play in the steering wheel
 - * Inspects for 1-1/2" clutch free play
 - * Inspects for clean and undamaged glass and mirrors, working wipers/washers and heater/defroster
- Checks that warning and safety decals are in place
- Verifies vehicle is safe to operate
- States all safety warnings for machine

2. Transports machine over-the-road to and from job site safely and in operable condition

- Checks that backhoe boom is locked in 'up' position and at proper height for clearance
 - Checks that front bucket is high enough to not strike ground
 - Locks individual wheel brakes together
 - Secures outriggers with support chains in 'up' position
 - Checks that slow moving vehicle emblem is present
 - Travels at a safe and appropriate speed
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3. Makes sure that the work site is suitable for backhoe operation

- Makes sure excavation approvals have been obtained, including contacting underground utilities
- Checks area around work site for: obstacles, smoothness, overhead wires, indicators of underground lines and pipes
- Identifies dangerous site conditions such as frozen berms, frozen overhangs on stockpiles, etc.

4. Stabilizes machine using side stabilizers and front bucket without raising machine tires off the ground

- Positions machine for the task to be completed as close to level as possible
- Positions seat so operator can see work area
- Lowers stabilizers to the ground
- Adjusts stabilizers until entire machine is felt to be level (the tires of the machine should remain on the ground unless a slope, or uneven ground dictates otherwise)
- Lowers front bucket to ground so it is felt to support the machine (tires of machine should remain on the ground unless a slope or uneven ground dictates otherwise)

5. Excavates a marked trench by coordinating the backhoe's boom, pull, and bucket

- Manipulates the boom and bucket in a smooth and continuous motion
- Checks all functions for proper operation
- Raises RPMs to approximately 1800 to power hydraulics
- Extends/unfolds pull dipper so bucket is positioned over work area
- Demonstrates proper digging cycle
- Keeps edge of ditchline free of material
- Raises boom so bucket is higher than spoil pile
- Swings boom over spoil pile so bucket is in position to dump
- Uncurls bucket to dump material into the spoil pile
- Completes the excavated trench to dimensions within a reasonable distance of marked trench

6. Returns excavated material to trench without jeopardizing or damaging any aspect of the work

- Moves spoil material back into trench using the steps in the digging cycle
- Distributes material evenly throughout trench so elements of the work (pipes, cables, walls of the trench) are not jeopardized
- "Feathers" the uncurling of bucket so spoil material is released evenly
- Distributes material evenly throughout the trench when backfilling

7. Readies machine for transport using the reverse of Step 4.

8. Shuts down and secures machine

- Puts parking brake on
- Places transmission in neutral
- Completes post operational check

The below signatures indicate the operator has successfully completed the skills demonstration.

Signature of Evaluator: _____ Date: _____

Signature of Operator: _____ Date: _____

Reference: New York State Department of Transportation

