

SNOWBLOWER (ROTARY PLOW)

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-use inspection

- a. Removes keys from ignition for safety
- b. Checks that warning and safety decals are in place
- c. Distinguishes when vehicle should not be operated
- d. Verifies vehicle is safe to operate
- e. States all safety warnings for machine
- f. Inspects the following machine components:
 - i. Engine
 - (1) Checks oil and coolant levels
 - (2) Checks that oil, fuel, coolant and air filters are in good condition, secured tight, and without leaks
 - (3) Checks that air intake ducts are tight, and that no clamps are missing
 - (4) Checks that belts are tight and in good condition
 - (5) Ensures that battery cables are secure
 - (6) Checks turbo charger for leaks and cracks, if applicable
 - ii. Clutch (if equipped)
 - (1) Checks front for a minimum of 1½ inch free play
 - (2) Checks that rear clutch snaps over center with 60 ft.lb. pull
 - iii. Transmission
 - (1) Main
 - (a) Automatic - checks oil level while idling in neutral, with parking brake on (refer to operator's manual for type of fluid)
 - (b) Manual - demonstrates how to check oil level
 - (2) Transfer case
 - (a) Demonstrates how to check oil level
 - iv. Power train
 - (1) Front Differential
 - (a) States where to check oil level
 - (b) Checks for presence of rubber bumpers

- (c) Checks that spring hangers are not broken
 - (d) Checks that shocks are properly attached, are not damaged and do not have leaks
 - (e) Checks that u-joints are greased and have no excess play
 - (f) Inspects drive shaft for damage
 - (g) Checks that carrier bearings are properly attached, greased, and have no free play
 - (h) Checks master cylinder brake fluid level for locking front wheels (if equipped) Rear Axle
 - (i) Checks oil level
 - (j) Checks for presence of rubber bumpers
 - (k) Checks that spring hangers are not broken
 - (l) Checks that shocks are properly attached, are not damaged and do not have leaks
 - (m) Checks that u-joints are greased, have no excess play
 - (n) Inspects drive shaft for damage
 - (o) Checks that carrier bearings are properly attached, greased, and have no free play
 - (p) Checks that locking pin is in transport position
- (2) Inspects pitman arm for tightness
- (3) Inspects drag arm ball joints for tightness
- (4) Inspects tie rod ends for tightness
- (5) Checks that steering knuckle fittings are greased, oil seals not leaking
- v. Brakes
- (1) Checks for air leaks (general)
 - (2) Checks air lines for leaks, chaffing
 - (3) Checks that slack adjusters are greased and properly adjusted (w/brakes applied, push rod and slack adjuster should be at right angle)
 - (4) Checks that parking brake holds machine
 - (5) Checks that service brake meets CDL guidelines for air loss
- vi. Tires
- (1) Checks for damage, abrasions, cuts, etc.
 - (2) Verifies proper tread: minimum 4/32 " front tires, 2/32" back tires
 - (3) Checks for proper inflation (in accord with manufacturer's tire guidelines)
 - (4) Checks for presence of chains in vehicle
 - (5) Checks for presence of valve caps
 - (6) Looks for signs of looseness or egg-shaping in the holes of the lug nuts
- vii. Fuel tanks
- (1) Checks that tanks are full, with no apparent leaks
 - (2) Inspects for chaffing on fuel lines
 - (3) Checks for moisture in drain (monthly during operating season)
- viii. Body Exterior
- (1) Checks that ladders, steps and grab holds are secure and clean
 - (2) Checks that lights, warning lights, and reflectors are intact, properly attached, and operating correctly
 - (3) Checks that rear engine moisture caps are in place (if applicable)
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- (4) Checks that tools (to maintain blower in the field); towchain, gloves and snow shovel are in toolbox
- ix. Blower drive train
- (1) Checks engine oil, coolant levels
 - (2) Inspects condition and tightness of belts
 - (3) Checks that engine shutter system is open when engine is warm
 - (4) Checks that penn switch clicks to the “run” position (if applicable)
 - (5) Checks that air intake system is tight, without holes
 - (6) Checks that exhaust system is tight, without leaks
 - (7) Checks batteries for:
 - (a) electrolyte level (if applicable)
 - (b) secure, clean terminal connections
 - (c) chaffing wires
 - (8) Checks clutch for:
 - (a) proper adjustment of over-the-center clutch (app. 60 ft.lb.)
 - (b) greased cross shaft
 - (c) greased throw-out bearing
 - (d) proper reduction gear box oil level, chain adjustment, and belt tension (if applicable)
 - (9) Checks blower drive shaft for damage and for balanced weights
 - (a) Checks that u-joints are tight, greased
 - (b) Checks that pillow block bearing is tight, greased, not worn excessively (if applicable)
 - (c) Checks that right angle drive gear box is secured tightly; removes plug to check oil
 - (d) Checks that balanced weights are present and securely attached
 - (10) Inspects blower head for overall condition
 - (a) Starts front or rear engine
 - (i) Checks that housing turns freely from right to left, and is without holes
 - (ii) Checks that roller guides move freely
 - (iii) Turns chute right/left, up/down to check hydraulics on chute
 - (b) Turns engines off
 - (c) Checks that drive shaft from drive train to augers is tight, straight, and checks condition of u-joints
 - (d) Checks augers for:
 - (i) oil level, chain tension, and greased bearings
 - (ii) bent auger shafts
 - (iii) proper timing (refer to operator’s manual)
 - (iv) proper balance (refer to operator’s manual)
 - (v) presence and wear of the cutting edges
 - (vi) properly installed skate shoes
 - (vii) bolted ice cutters (if applicable)
 - (e) Checks that safety (transport) pins are with the machine
 - (f) Checks push frame bolts for tightness
 - (g) Checks for presence of push frame pins and cotter pins in holes
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- (h) Checks fan blade bolts for tightness and blades for damage
 - (11) Checks hydraulics for:
 - (a) Proper fluid levels
 - (b) Filters that are clean and without leaks
 - (c) Line leaks, rubbing and chaffing (checks either visually or with cardboard)
 - (d) Lift cylinder leaks, pitting or flaking of chrome on piston rod
 - (e) Hydraulic motor leaks
 - (12) Checks that shear pins are present, and are the proper size and grade (refer to operator's manual)
- x. Cab Interior
- (1) Inspects cab interior for:
 - (a) presence and condition of seat belts and other safety equipment, including fire extinguisher
 - (b) properly working gauges
 - (c) no free play in the steering wheel, if applicable
 - (d) 1½ inch clutch free play (if applicable)
 - (e) cleanliness of cab interior
 - (f) Clean and undamaged glass and mirrors, working wipers and heater/defroster
 - (g) transfer case low range and engagement of 4 wheel drive. On newer machines, cannot be done without front engine running

2. **Transports machine by driving**

- a. Checks that locking pin has been installed (if applicable)
- b. Visually inspects for weight carried on transport pins (no weight on hydraulics)
- c. Places in hold position
- d. Controls ground speed to prevent machinery from jarring hydraulics

3. **Installs tire chains on all wheels**

4. **Prepares equipment for operation**

- a. Starts both engines, lift blower head with hydraulics. Most newer blowers have the alternator on the front engine and none on the back engine to charge the batteries; alternative, start front engine first.
 - b. Removes transport pins
 - c. Lowers blower head to ground
 - d. Places in float position (if applicable; if not, lift cylinders must be completely collapsed)
 - e. Places machine in 4 wheel drive, low range (according to operator's manual)
 - f. Checks area for debris, hazards
 - g. Engages master clutch on rear engine at idle
 - h. Accelerates rear engine slowly to operating RPM
 - i. Listens/feels for irregular vibrations, noises
 - j. Adjusts housing and/or chute for appropriate operation
 - k. Places transmission in lowest forward gear
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5. **Synchronizes truck front engine with blower engine**
 - a. Engages blower head into snow
 - b. Adjusts truck front engine to coincide with blower engine working range
 - c. Disengages master clutch immediately with any unusual vibration or noise

 6. **Operates equipment to open a road**
 - a. Ensures that there is a back-up vehicle for safety
 - b. Identifies and avoids houses and obstacles (guardrail, mailboxes) in blowing path
 - c. Blows snow with the wind, on the low side of the road
 - d. Straightens machine and moves forward into drift (up to length of blower vehicle)
 - e. Makes an 8 foot cut
 - f. Backs out, moves to the left of the cut
 - g. Moves into drift 4 feet
 - h. Backs out, moves to the right
 - i. Moves into drift 4 feet
 - j. Repeats as necessary

 7. **Cleans center lane and/or widens roads using proper procedure**
 - a. Clears area of bystanders, checks for obstructions
 - b. Discharges snow into truck (as applicable)
 - c. Blows with the wind, on the low side of the road (if possible)
 - d. Raises blower head when objects are being picked up
 - e. Steers rear wheels away from bank as much as is needed (usually one tire width) (if applicable)
 - f. Visually checks rear-steering locking pins to make sure they are engaged for over the road travel and disengaged during actual operation.

 8. **When cleaning bridges, locates end of bridge by manual digging**

 9. **Discharges snow into truck (for relevant operations)**
 - a. Clears area of bystanders, checks for obstructions
 - b. Adjusts chute to discharge into truck
 - c. Positions truck so that blower operator's view is not obstructed
 - d. Does not over fill the truck dump box
 - e. Makes adjustments to blow snow in proper direction
 - f. Blows snow with traffic, into truck

 10. **Shuts down equipment**
 - a. Applies parking brake, places transmission in neutral (if applicable)
 - b. Throttles engine down
 - c. Disengages master clutch
 - d. Uses proper engine shutdown procedure (idles engine 3-5 minutes)
 - e. Positions blower head to transport position and inserts transport pins
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- f. Shuts rear engine off
- g. Cleans off machine
- h. Completes post operational check according to local policy

11. Prepares equipment for off-season storage

- a. Greases all lubrication points
- b. Parks unit under cover
- c. Lowers blower head on blocks of wood to relieve weight on chassis

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

Signature of
Evaluator: _____ Date: _____

Signature of
Operator: _____ Date: _____

Reference: New State Department of Transportation