

On-Site Orientation

## **Grader Operator**

**Ministry of Training, Colleges and Universities**

On-Site Orientation

## **Grader Operator**

**Program/Programme #P600106**

Development Date:           October 2008  
Implementation Date:       April 2009

This document is the property of the trainee/employee named inside and represents the official record of his/her training.

**CONTENTS**

**PAGE**

Preface..... 1

Notice/Declaration for Collection of Personal Information ..... 2

Employer Notice  
Completed On-Site Orientation: Worker and Employer/Designate Verification ..... 3

On-Site Orientation .....3-18

**PREFACE**

The Workplace Training Branch of the Ministry of Training, Colleges and Universities (MTCU) developed this equipment-specific orientation/training document, in consultation with representatives from the logging industry. It is intended to be used by employers for on-site orientation/training of their workers/trainees before registration to the on-the job training or operating the machine related to their duties.

The care and maintenance of this document is the joint responsibility of the worker/trainee and the employer. The document is an official record of a worker's/trainee's orientation/training.

Employers or designates and workers/trainees are required to attest to successful on-site machine specific orientation by filling their names and signing on the appropriate lines.

**NOTICE/DECLARATION FOR COLLECTION OF PERSONAL INFORMATION**

1. This information is collected under the authority of the Order-In-Council Number 701/85.
2. The information is collected for the purpose of administering this modular training program within the Province of Ontario.
3. Questions regarding collection and use of this information may be directed to:

Director  
Ministry of Training, Colleges and Universities  
Service Delivery Branch  
33 Bloor St. E 2<sup>nd</sup> Floor  
Toronto, Ontario  
M7A 2S3  
(416) 326-5605

**GRADER**

**NOTE**

This guide and checklist is designed to refer employers and employees to the most obvious and critical component in each skill area. However, since machine model and make vary greatly, the primary reference material for specific machine safety related operating requirements should be the operator's manual supplied by the manufacturer of the particular machine in question.

**Employer Information:**

**Company:** \_\_\_\_\_

**Address:** \_\_\_\_\_  
\_\_\_\_\_

**Telephone:** \_\_\_\_\_

**Completed On-site Orientation Checklist: Worker and Employer/Designate Verification:**

- Inspect workplace for hazardous and/or potential hazardous conditions
- Verify zero energy state
- Identify grader components and terminology
- Conduct circle check
- Perform visual and operational checks of attachments and moving components for fluid leaks and damage
- Perform site planning and set up
- Travel with grader
- Observe machine limitations
- Observe danger zone
- Shut down grader
- Refuel grader
- Perform minor maintenance and adjustments

**Worker Name (Please Print):** \_\_\_\_\_

**Worker Signature:** \_\_\_\_\_

**Date of Completion:** \_\_\_\_\_

**Employer/Designate (Please print):** \_\_\_\_\_

**Employer/Designate Signature:** \_\_\_\_\_

**INSPECT WORKPLACE FOR HAZARDOUS AND/OR POTENTIAL HAZARDOUS CONDITIONS**

**Performance Objective**

Inspect workplace for hazardous and/or potentially hazardous conditions. Take corrective action by removing and/or addressing hazard according to legislative requirements, manufacturer specifications and recommendations.

**Guidelines for Performance Objective:**

1. Ensure that there is no unauthorized personnel in the work area. Access to the entire area must be guarded and controlled.
2. Review potential hazards such as under cut, overburden, angle of repose, and height of face. Height of working face of gravel pit or sand pit presents a risk to workers even if they are not working on top of it. Absolutely no undercutting of the working face is permitted. If the sand or gravel is being removed by powered equipment, the working face must be sloped at its angle of repose and the vertical height of the face must not be more than 1.5 metres above the maximum reach of the equipment. Identify and report hazards to supervision.

**Component Checklist:**

- Unauthorized personnel and equipment
- Undercut
- Overburden
- Angle of repose
- Height of face
- Unstable ground

**VERIFY ZERO ENERGY STATE****Performance Objective**

Verify zero energy state, by ensuring machine is parked on level ground lowering hydraulic components to the ground or rest position, secure wing safety chains, turn electrical switches and engine off, according to legislative requirements and manufacturer specifications and established lockout procedures, in order to protect self and others during inspection and maintenance.

**Guidelines for Performance Objective:**

1. The machine must be immobilized and all moving parts de-energized before an operator can begin to work close to the machine and its components. Most importantly all hydraulic implements must be lowered (or blocked). Follow lockout procedure.

NOTE: Check with your manufacturer supplied operator's manual and immediate supervisor regarding correct procedures to apply the step-by-step lockout and verification procedure for your operation. Machines of different model or manufacturer may have different steps and requirements. The above is essential to ensure the safety of the operator and co-workers, as well as to confirm zero energy state prior to initiating the circle check procedures and other maintenance and trouble shooting functions. Operators must have proper out-of-the-cab PPE *e.g.* -safety boots laced to the top, hard hat, high visibility vest or clothing, as well as hand, hearing, and eye protection where required.

**Component Checklist:**

- Lower attachments to the rest position to manufacturer specifications.
- Put engine in idle (cool down).
- Activate transmission interlock and braking system.
- Turn engine off.
- Follow lockout procedure.

**IDENTIFY GRADER COMPONENTS AND TERMINOLOGY****Performance Objective**

Identify grader components and terminology, visually and verbally, as described in the operator's manual, in order to ensure safe and efficient operation and maintenance. (Employer, supervisor or trainer refer to manufacturer supplied operator's manual to provide specifics regarding each component identified)

**Guidelines for Performance Objective:**

1. Having an understanding of the terminology used to describe major components is a vital part of using the manufacturer supplied owner's manual effectively and ensuring that such things as safety information, maintenance schedules, machine capacities and operating directions are understood and correctly applied. Review the major (key) components from the manufacturer supplied machine owner's manual that will assist the operator in identifying the key components, knowing their location on the machine and describing their purpose. (See appropriate pages in manufacturer supplied manual for specific terminology and diagrams)

**Component Checklist:**

- Moldboard/wing/push blade and hydraulic cylinders.
- Tires and tire chains.
- Cab and Operator Controls.
- Blade lift and turn table.
- Wing components.
- Engine.
- Transmission.
- Differential.
- Fire Suppression equipment.

**CONDUCT CIRCLE CHECK****Performance Objective**

Perform visual and operational checks of attachments, ensuring that all attachments are lowered to the ground or in the rest position and the machine is properly shut down prior to initiating the circle check procedure. All substandard conditions and problems must be reported to the immediate supervisor. The circle check must be conducted at the beginning of each shift.

NOTE: Operators must have proper out-of-the-cab PPE e.g.- safety boots laced to the top, hard hat, high visibility vest or clothing, as well as hand, hearing, and eye protection where required.

**Guidelines for Performance Objective:**

1. Cracks: Explain how to check and identify cracks and point out common locations where cracks may form (stress points). Explain that repairs must be done as soon as possible to prevent costly breakdowns and to prevent even further damage or the potential of injury to the operator and others.
2. Leaks: Point out the locations where leaks (hydraulic fluid, brake fluid, fuel) can occur. Explain that leaks can lead to further more serious problems, cause fires or damage the environment. Leaks can also cause slip and fall injuries to operator and others due to fluid on machine. Explain the danger of checking for leaks where fluid is under high pressure (e.g. hydraulic fluid) and the proper method for checking.
3. Grease fittings: Identify the location (including remote connections), condition and purpose of grease fittings as described in the routine maintenance section of the owner's manual. Check to ensure they are in good condition and connected properly. Excessive grease build-up should be cleaned regularly to prevent the potential of slips, falls and fire.
4. Tires, wheels, chains: Explain the requirements for correct pressure, adequate tread, no punctures or defects, rim in good condition, cap on valve stem. Follow the manufacturer guidelines when inflating/deflating tires. Ensure that chains are properly installed and tightened(if applicable). If too loose, debris can be caught in chains and thrown out with considerable force. Watch for excessive wear, missing or damaged clevis pieces or loose parts of the chain. Also check for loose or missing wheel lugs.
5. Pins and Bushings: Examine holding pins and bushings to ensure that they are not damaged and are properly engaged and in place.
6. Check engine compartment: Check engine compartment and exhaust manifold/turbo for debris. Inspect engine components for oil and dust build up to reduce the potential for fire, paying particular attention to the exhaust manifold/turbo/radiator areas.
7. Check fluid levels: Identify the location of site glass and/or dip stick/cap and filler locations and examine each for proper levels. Keep these areas clean of debris, spilled fluids and grease build-up. Determine and confirm the type of fluid at each filling location. Follow the manufacturer

guidelines for proper checking procedures of pressurized systems and know the hazards of hot fluids. No smoking during these procedures. NOTE: When checking and identifying hydraulic hose requirements, the operator must be familiar with the type of hose fittings. (Three types - GIC, OFS and pipe thread)

8. Condition of moldboard, turn table, wing and push blade: Check for cracks, condition of pins, condition of cylinders, grease fittings.
9. Condition of guards, catwalks, handholds and steps: Examine all guards to ensure that they are properly installed and in good condition. Do not operate without guards installed. Check the condition of all handholds, steps and walkways to ensure they are not damaged, free from debris, ice snow, grease and oil.
10. Fire extinguisher and/or fire suppression system: The operator must know how to access this equipment and how to use it. It should be checked daily to ensure a proper charge, maintenance tag updated, the pin is in place and the device is properly secured in the cab. A full water pack in working condition may be required for fire season. For machines equipped with a fire suppression system, the operator must know the location(s) of activation plungers and ensure that they are in good condition and check outlets for good condition.
11. Escape hatch: The operator must know the location of the escape hatch. Check to ensure that the hatch opens, the latches, hinges, handles, and pins are in good condition, and the procedure to exit..
12. Seat belt: Examine the seat belt to ensure that it is in good working condition (wear, anchors, frayed, buckle works freely).
13. Lights, beacons and signage: Turn on all lights to check that they are in good working order. Make sure the guards are in place (if equipped), and the lenses are cleaned and wiring harnesses are intact. Ensure proper on board signage is available.
14. Windows/doors: Examine the windows and doors to ensure they are clean and in good condition. Broken or missing windows must be reported and repaired. Check to see doors open and close properly. Make sure the wipers and wiper blades are in working order, and that window guards/screens (if equipped) are properly installed.
15. Housekeeping and loose equipment in cab: Keep all tools outside the cab or properly secured in the cab. No loose items in the cab. Keep floor clean and air conditioning/heater filters clear of materials. Aerosol containers should be secured and away from heat sources.
16. Radio communications: Check the radio to ensure that it is in good working order and equipped for channels used in your area (if applicable).
17. First aid kit: Know the location, condition and required contents of the first aid kit. It should be easily accessible. Know trained first aid caregivers on-site.
18. Spill Kit: Know the location, condition, how to use it, required contents of the spill kit. It should be easily accessible.

19. Reflective/flare kit: Know the location, condition, how to use the required contents. It should be easily accessible.
20. Back-up Alarm: Check back-up alarm to ensure that it is in good working order and audible.

**Guidelines for Performance Objective:**

- Check for cracks and leaks.
- Identify grease fittings.
- Check tire condition, tire chains and wheel lugs.
- Check condition of pins and bushings.
- Check engine compartment.
- Check fluid levels.
- Check condition of moldboard, teeth/cutting edge, wing and push blade.
- Check condition of guards, handholds and steps.
- Check condition of fire extinguisher and/or fire suppression system.
- Check condition of escape hatch.
- Check condition of seat belt.
- Check lights, beacons and signage
- Check condition of windows, wipers and doors.
- Check housekeeping and stow any loose equipment in cab.
- Check radio communications (if applicable).
- Check first aid kit.
- Check spill kit.
- Check reflective /Flare kit
- Check back-up alarm

**PERFORM VISUAL AND OPERATIONAL CHECKS OF ATTACHMENTS AND MOVING COMPONENTS FOR FLUID LEAKS AND DAMAGE**

**Performance Objective**

Check attachments for proper operation, fluid leaks and damage, according to manufacturer specifications, in order to ensure safe and efficient operation of equipment

**Guidelines for Performance Objective:**

1. Activate parking brake and/or hydraulic/transmission interlocks: Check the danger zone to ensure it is free of co-workers or other equipment prior to activating the system. Check for proper operation of components. If defects are detected report immediately to your supervisor.
2. Check attachments for damage: Make sure the attachments are not damaged and that no leaks are apparent.
3. With the transmission locked or in neutral, all controls in the rest position, engine running, lights turned on and emergency braking applied, dismount from cab using 3-point contact, complete one more walk around the machine, checking for fluid leaks or other obvious damage.

**Component Checklist:**

- Activate parking brake and/or hydraulic/transmission interlocks
- Check attachments for damage and leaks
- Visual inspection, when walking around machine, with engine running

**PERFORM SITE PLANNING AND SET UP****Performance Objective**

Plan and organize grading, using maps, photographs, and established road/pit boundaries, in order to facilitate material extraction and minimize ground disturbances. Evaluate and recognize ground conditions by observing changes in terrain and weather conditions, in order to prevent equipment and environmental damage and to protect self and others. Observe road/pit boundaries, according to pre-established prescriptions and legislative requirements in order to prevent entry into protected and non-allocated areas.

**Guidelines for Performance Objective:**

1. Identify grading: Check with your immediate supervisor to determine any environmental or other potential hazards in the immediate area utilizing maps, photographs and established road/pit boundaries to assist you. (*i.e.* chicots, hang-ups, terrain, traffic or other equipment, power lines).
2. Identify travel route: Check with your immediate supervisor and/or cross-shift operator regarding hazardous terrain that must be taken into consideration (*i.e.* Rough terrain, wet areas, etc).
3. Minimize rutting and ground disturbances: Be aware of ground disturbance guidelines for your operation and if unsure check with your immediate supervisor. RUTS CAN POSE UNSAFE CONDITION FOR MACHINE OPERATION
4. Maintain a safe operating distance between neighbouring equipment: Be aware of other equipment working in your work area. Check with your immediate supervisor and co-workers to identify appropriate danger zones for your operation. Follow the danger zone communication rules for your operation.
5. Working on hills: When possible, working on inclines should be conducted in direction of slope to reduce potential of roll over. Working should be conducted straight up and down steep hills. Avoid travelling over high stumps, rocks and windfalls. Discuss ground condition concerns with your immediate supervisor or the previous shift co-worker at beginning of each shift.
6. Seasonal concerns (winter, summer) requires extra caution to be exercised due to poor visibility and hidden hazards. Be aware of these hidden hazards due to seasonal conditions (*i.e.* hidden culverts, hidden areas of concerns such as recently planted areas, hidden rock outcrops/cliffs)
7. Operate equipment within identified boundaries: Check with your immediate supervisor in relation to boundary identification rules. (*i.e.* colour of ribbon used to identify concerns and boundaries). Observe established rules and if unsure confirm with your immediate supervisor.

**Component Checklist:**

- ❑ Identify grading
- ❑ Identify travel route
- ❑ Minimize rutting and ground disturbance
- ❑ Maintain a safe operating distance between neighbouring equipment
- ❑ Working on hills should be conducted in direction of slope to reduce potential of roll over
- ❑ Seasonal concerns (winter, summer) require extra caution due to poor visibility, hidden hazards and slippery surfaces
- ❑ Operate equipment within identified road/pit boundaries

**TRAVEL WITH GRADER****Performance Objective**

Travel with grader by selecting appropriate speed, placing attachments in the travel position according to manufacturer specifications, in order to protect self and others and to prevent equipment damage.

**Guidelines for Performance Objective:**

1. Place all attachments in the travel position: Ensure that the moldboard is elevated to an appropriate height and angle when in the travel position.
2. Select a speed appropriate to ground conditions while maintaining control of the machine. Maintain a speed and engine RPM that allows the operator to maintain full control of the machine at all times taking into consideration ground conditions and weather.
3. Maintain control, travel at a safe speed and keep right while travelling on roadways or on route to work location to ensure public safety. Be aware of local traffic and observe traffic and warning signs posted within your work area. Keep speed appropriate to road condition, weather, concentration of traffic, seasonal conditions (dust/snow) and be aware of soft shoulders.
4. Maintain communication with other equipment operators: Check to ensure your radio is in good working order and proper channel is used. Monitor the local channel for traffic (if applicable). Check with your immediate supervisor for communication protocol within your work area.
5. Activate warning devices: Engage all warning lights and beacons.

**Component Checklist:**

- Place all attachments in travel position
- Select a speed appropriate to ground conditions while maintaining control of the machine
- Maintain control, travel at a safe speed and keep right while traveling on the roadway or on route to and from the work site while maintaining radio communication to ensure public safety
- Maintain communication with other equipment operators/personnel
- Activate warning devices (use of slow moving vehicle signs)

## **OBSERVE MACHINE LIMITATIONS**

### **Performance Objective**

Observe machine limitations according to manufacturer specifications by identifying equipment capacities, recognizing conditions that affect machine capabilities such as steep terrain and soil conditions, in order to protect self and others and prevent equipment damage.

### **Guidelines for Performance Objective:**

1. Apply the manufacturer standards for machine capacity and limitations for the movement of materials.
2. While grading, winging or moving materials, be aware of obstacles that may cause roll over. Also when turning, be aware of other personnel and nearby machines.

### **Component Checklist:**

- Understand the load limitations of the machine according to ground conditions

**OBSERVE DANGER ZONE****Performance Objective**

Observe danger zone by keeping a safe distance between self, others and equipment, taking into consideration limited visibility and blind spots, according to legislative requirements and manufacturer specifications and established procedures, in order to protect self and others and prevent damage to equipment.

**Guidelines for Performance Objective:**

1. Review danger zone requirements and identify site-specific hazards. Know the danger zone as it applies to other equipment and operating equipment near other workers. Consult operator's manual for recommended danger zone for this equipment.

**Component Checklist:**

- Review dangers zones requirements and identify site-specific hazards

## **SHUT DOWN GRADER**

### **Performance Objective**

Shut down and immobilize grader in a normal and emergency situation, according to manufacturer specifications and requirements.

### **Guidelines for Performance Objective:**

1. Lower attachments to the ground: Park machine on level bare mineral soil and lower attachments to ground, engage transmission lock or parking braking system and shut off master switch when completing shutdown procedure. Maintain 3-point contact during dismount.

### **Component Checklist:**

- Lower attachments to the ground
- Shut down procedures
- Safe dismount, maintaining 3-point contact

**REFUEL GRADER****Performance Objective**

Refuel grader in a well ventilated area; shutting off engine; maintaining the area free of smoking; and preventing spills or damage to the environment; according to legislative requirements, manufacturer specifications and recommendations.

**Guidelines for Performance Objective:**

1. Back up grader to the fuel tank to prevent damage to the fuel tank.
2. Shutdown grader: Follow previously noted shutdown procedures.
3. Fuelling procedures: Follow local fuelling procedures, no smoking, never leave the nozzle unattended; properly store the hose after use.

**Component Checklist:**

- Back up grader to the fuel tank
- Shut down procedures
- Safe dismount, maintaining 3-point contact
- Fuelling procedures

**PERFORM MINOR MAINTENANCE AND ADJUSTMENTS****Performance Objective**

Perform minor maintenance and adjustment on the grader, after immobilizing (locking out) machine, lubricating equipment and attachment, maintaining fluid levels, ensuring replacement of belts and hoses, and checking and completing maintenance and/or deficiencies report, according to legislative requirements, manufacturer specifications and recommendations,

**Guidelines for Performance Objective:**

1. Shut down grader: Immobilize machine, lower attachments to the ground, shut down engine, and follow lock out procedures.
2. Dismount using 3-point contact.
3. Lubricate/maintain fluid levels: following manufacturers' specifications for greasing. It is a good opportunity to check for cracks, leaks, wear in pins and bushings.
4. Report deficiencies: Complete report according to local procedures, perform repairs that you are qualified to do and/ report to the supervisor/ mechanic/ service person.

**Component Checklist:**

- Shut down grader and lock out
- Safe dismount, maintaining 3-point contact
- Lubricate/maintain fluid levels
- Report deficiencies

**NOTE: All skill areas in the Modular Training Standards book will be continuously discussed during the training process.**