



OPERATOR'S INSTRUCTION MANUAL

MODEL : 330 000/333 000

ENGINE MODEL : _____

SERIAL : _____

ENGINE SERIAL : _____

DATE OF PURCHASE : _____

PURCHASED FROM : _____



⚠ WARNING ⚠

THIS PRODUCT IS DESIGNED AND MANUFACTURED TO PROVIDE SAFE AND DEPENDABLE SERVICE IF OPERATED ACCORDING TO INSTRUCTIONS. THE MANUFACTURER PROVIDES THE FOLLOWING INSTRUCTIONS FOR USE AND CARE OF THIS EQUIPMENT AND RELIES UPON THE PURCHASER TO SEE TO IT THAT THESE INSTRUCTIONS ARE MADE CLEAR TO THE PERSONS WHO WILL ACTUALLY BE USING THE EQUIPMENT. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR EQUIPMENT DAMAGE.



INDEX

INTRODUCTION	3
PREPARATION	4
OPERATOR	4
WEAR PROPER ATTIRE	4
ROOF PREPARATION	4
INSPECT ROOF DECK	4
WARNING LINE SYSTEM	4
HOISTING MACHINE TO ROOF	5
INSPECT THE HOIST	5
CONNECTING TO LIFT RINGS	5
SAFETY PRECAUTIONS	6
OPERATION	6
BEFORE OPERATION	6
LOAD LIMITS AND CAPACITIES	7
BASIC POWER UNIT OPERATION	7
GRAVEL SPREADER OPERATION	7
DUMP HOPPER OPERATION	8
HOT STUFF TANK OPERATION	8
BEFORE OPERATION OF HOT TANK	8
FILLING OF THE HOT TANK	9
TRANSPORTING AND DRAINING THE TANK	9
THE CONTROLS	10
GRAVEL SPREADER ATTACHMENT #330 500	11
DUMP TRAY ATTACHMENT #330 700	11
55 GAL INSULATED TANK #146 500	11
ENGINE START-UP AND OPERATION	12
MAINTENANCE	13
ENGINE SERVICE	13
LUBRIFICATION	13
DRIVE BELT	13
BRAKE MAINTENANCE	13
SAFETY HAZARDS	14
FALLS	14
BURNS	14
HEAVY LIFTING	14
FIRE/EXPLOSION	15
ELECTROCUTION	15
FALLING OBJECTS	15
FLYING OBJECTS	15
UNGUARDED MACHINERY	15



INTRODUCTION

330 000 / 333 000 - WORKHORSE

Thank you for purchasing this quality GRIZZLY product. With proper use and care this Workhorse will provide many years of reliable service. For the safety of all job-site personnel it is mandatory that the instructions provided for the use and handling of the equipment be read and thoroughly understood by the operators.



CAUTION

INTENDED USE: THIS MACHINE IS INTENDED TO BE USED ON FLAT, LEVEL ROOFS ONLY FOR THESE APPLICATIONS: FELT CARRIER, INSULATION CARRIER, RUBBISH AND GRAVEL CARRIER, HOT STUFF TANK CARRIER AND GRAVEL SPREADER WHEN USED WITH THE PROPER ACCESSORIES.

ANY OTHER USE OF THIS EQUIPMENT VOIDS THE MANUFACTURER'S WARRANTY AND IS THE SOLE RESPONSIBILITY OF THE OWNER/USER, SHOULD ANY DAMAGE OR INJURY OCCUR.



PREPARATION

OPERATOR

START BY READING AND FULLY UNDERSTANDING OPERATING INSTRUCTIONS. IF SOMETHING IS NOT UNDERSTOOD, HAVE SOMEONE ELSE READ AND EXPLAIN THE INSTRUCTIONS TO THE OPERATOR OR CALL THE MANUFACTURER FOR INFORMATION. AN UNINFORMED OPERATOR CAN SUBJECT HIMSELF AND OTHERS TO DEATH OR SERIOUS INJURY.

WEAR PROPER ATTIRE

Safety glasses are recommended and must be worn if any roof cutting or scraping is being done in the vicinity. Safety glasses and or face shield are also necessary when working with hot stuff.

Wear properly fitting clothes. Tight clothing can restrict movement and slow down reaction time in a dangerous situation.

Loose fitting clothing can be dangerous and cause serious injury if it gets caught in moving mechanical parts. Wear a long-sleeved shirt, buttoned at the cuffs, safety shoes, and pants without cuffs, and knit wrist type gloves.

A hard hat must be worn by operator when working on a job site.

ROOF PREPARATION

INSPECT ROOF DECK

Before allowing equipment and personnel access to roof, make certain roof is strong enough to support the weight. Check load limits of deck with owner, builder or architect. Clear the work area of all potentially dangerous obstacles that could cause personal injury to the operator or others. Keep unauthorized people away from construction area. Check to see that all roof openings are guarded to protect against falls.

WARNING LINE SYSTEM

When operating parallel to roof edge warning line system must be at least six feet from edge. When operating perpendicular to edge warning line must be ten feet from roof edge.



HOISTING MACHINE TO ROOF

WARNING: ALWAYS CHECK DECK LOAD LIMITS WITH BUILDER, OWNER, OR ARCHITECT BEFORE DECIDING TO USE ON THE ROOF.

INSPECT THE HOIST

Make certain hoist is in safe operating condition, to be operated by trained personnel. The hoist should be clear of ground objects and overhead obstacles, such as power lines; it should be secure and properly counterbalanced. Hoist should be inspected for frayed cables, bent frame members or faulty mechanical parts. Make sure everyone on the ground is completely clear of the hoisting area. Do not exceed the weight and size capacity of your hoist. Do not use if you are in doubt.

CONNECTING TO LIFT RINGS

Two lift rings are provided on the workhorse frame as shown in Fig. 2. Connect hooks from hoist line to hoist rings when lifting power unit only. Hot stuff carriers and other attachments must be hoisted separately.

WARNING: HOT STUFF TANKS ARE NOT DESIGNED TO BE LIFTED IN COMBINATION WITH POWER UNIT. HOIST ATTACHMENTS SEPARATELY. NEVER LIFT THESE ATTACHMENTS WITH HOT STUFF CONTAINED. HOT STUFF TANKS MUST BE LIFTED WITH METAL SLINGS ONLY.



Fig. 2

WEIGHT:	330 000 Workhorse	325 lbs
	330 500 Gravel spreader	110 lbs
	330 700 Dump tray	90 lbs
	330 800 Large Dump tray	
	333 000 Workhorse (wheels under)	335 LBS
	146 500 Hot Tank	72 lbs
	330 150 Insulated Tank Support Kit	

Refer to section on load limits, for loaded Workhorse weights.



SAFETY PRECAUTIONS

- Do not allow other people to be near the machine during operation (except operator)
- Never carry or transport people with this machine.
- Be certain all guards, shields and pins are secure and locked before starting.
- Never operate a workhorse that is damaged in any way. Repairs or replacement of damaged components must be made by a qualified mechanic
- Do not modify the equipment. Do not operate a modified piece of equipment.
- Never reach into the belt area when the engine is operating, keep hands and feet away from the brake, belts and the chains.
- Wear safety footwear, eye protection and snug fit clothing.
- Operate the Workhorse only from the "Walk Behind" position.
- Operate on flat, level roofs only.
- Use only GRIZZLY attachments.
- Keep away from electrical lines.
- Use caution when handling fuel. Gasoline is very flammable. Shut off engine, and allow cooling before refuelling. Clean up gasoline before restarting.
- Guard all openings on the roof.
- Do not allow anyone to walk in front of the workhorse.
- Do not operate within 10 feet of roof edge (or within 6 feet, if operating parallel to the edge).
- Try to operate machine in such a way that you are always walking forward.
- Do not operate this machine if you are under the influence of alcohol, marijuana, or drugs that could impair judgment and ability.
- Keep the equipment in good condition.
- Never carry objects that may restrict or obstruct your vision.
- The owner or operator must see that all warning decals are in place and legible. Write to GRIZZLY Equipment for replacement decals and instructions.

OPERATION

BEFORE OPERATION

Check to see that engine is serviced properly. Read Honda operation and safety instructions. Handle gasoline with extreme caution. Make certain belt guards and blade guards are in place and secure and that there are no signs of damage or wear of these parts. Never operate machine with damaged or missing guards. Serious injury may otherwise result.



LOAD LIMITS AND CAPACITIES

WARNING: ON WIDE SPAN DECKS CHECK LOAD LIMITS WITH BUILDER, OWNER, OR ARCHITECT BEFORE SETTING UP UNIT.

For calculating loads, the following data may be used.

- (1) gravel weighs approximately 108 lbs/cu.ft.
- (2) asphalt weighs approximately 8.0 lbs/US gal.

Check with your material sources for actual weight of material you are using.

Fully loaded, the 330 000 Workhorse weighs approximately as listed:

Loaded weights include asphalt and gravel

Loaded Weights

Workhorse (330000) + gravel spreader (330500) loaded to capacity	1083 lbs (approx.)
Workhorse (330000) + dump tray + charge	1415 lbs (approx.)
Workhorse (330000) + hot stuff tank (146500) + charge	947 lbs (approx.)

Capacities

Gravel Spreader	6 cu. ft.
Gravel Spreader hopper extension	7.5 cu. ft.
Hot Stuff tank	55 gal.
Dump Tray (or felt & insulation carrier)	1000 lbs.load

It is ultimately the operator's responsibility to check loaded weight of the workhorse and to respect the deck's load limits.

BASIC POWER UNIT OPERATION

The 330 000 Workhorse is designed for use inside a perimeter warning system. Do not operate within 10 feet of roof edge (or 6 feet if operating parallel to roof). Never attempt to override dead-man brake handle. Engage clutch handle with hand only. Keep hands and feet away from chain drive area. Keep well clear of other people on the roof while operating.

Turn machine off when not in actual use by qualified operator.

GRAVEL SPREADER OPERATION

Gravel spreader is ideal for spreading pea gravel and stone up to 1» diameter and will handle up to 1-½" size. The dispensing lever is designed to be all the way forward or all the way back, so make adjustments in door opening if needed.



DUMP HOPPER OPERATION

Do not exceed maximum rated load of 1000 lbs. Hopper can be used for carrying tear off materials from roof, or for insulation or felt.

HOT STUFF TANK OPERATION

DANGER: ERUPTION OF OVERHEATED ASPHALT HAS BEEN REPORTED. READ AND UNDERSTAND INSTRUCTIONS.

CAUTION: GRIZZLY HOT TANKS SHOULD BE USED ONLY WITH GRIZZLY CARRIERS AND GRIZZLY CARRIERS SHOULD BE USED ONLY WITH GRIZZLY HOT TANKS.

BEFORE OPERATION OF HOT TANK

1. Make sure the tank is dry before using and that there is no trash or foreign matter in the tank. Even small amounts of moisture will react violently with hot material.
2. Inspect tank lining for any coke build-up or condensation. Clean if necessary.
3. Always wear proper cotton (100% cotton is best) as recommended by roofing association when on a roof:
 - a) Hard hat with face shield
 - b) Long sleeve work shirt buttoned at the wrist and collar
 - c) Long work pants with no cuffs
 - d) Safety high top shoes
 - e) Work gloves with knit wrist (to prevent hot material from spilling into the glove)
4. Be sure hot line is secure and cannot move splashing operator during the filling of hot tank.
5. Be sure carrier is secure and that brake is set (brake handle released).
6. Use tank only on a flat, level roof and within a perimeter warning system. Never operate within 6 feet of the roof edge.
7. Check temperature of material at the kettle or tanker. Do not accept hot material unless it is within the recommended temperature range of the manufacturer.
8. Keep an approved fire extinguisher available in case of fire. Never use water.
9. Make sure lid and draincock are closed.
10. Inspect tank for any exterior damage and do not use if you suspect damage.
11. Check that roof deck is rated to handle the weight of the lugger, carrier, and asphalt (8 lbs per US gallon) before using.
12. Do not allow any external ignition source (matches, cigarettes) near heated asphalt or your hot tank.



FILLING OF THE HOT TANK

1. Never stand downwind of hot source when filling as fumes and/or hot material may cause injury.
2. Do not fill hot tank more than $\frac{3}{4}$ full to avoid splashing of hot material.
3. Never fill with overheated material. Flash points vary and proper temperature level information must be obtained from asphalt manufacturer. **OVERHEATED ASPHALT MAY ERUPT.**

TRANSPORTING AND DRAINING THE TANK

1. Transport the hot tank very smoothly and slowly so splashing can not occur. Make sure no obstacles are in the path and bumps are encountered with caution. Do not make sudden turns. Avoid transporting hot stuff on ramps.
2. Keep lid closed during transporting hot stuff on ramps.
3. Never tip hot tank when transporting, filling, or draining. Tip only when tank is empty and cool.
4. Be sure brake is set before discharging "hot" (brake handle released).
5. Never stand downwind from draincock while discharging hot material toward the operator. Stand clear of the path of discharging hot material.

ERUPTION/FLASHING - AN ERUPTION REQUIRES THESE THREE COMPONENTS TO HAPPEN

Examples :

1. **Fuel** - Flammable gases from overheated, poorly refined hot material.
2. **Air** - Can come from tipping, sloshing, or discharging asphalt with filler lid open.
3. **Ignition** - Overheated material or material in tank with lower flash point (coked material on walls of tank, trash, cigarette, match).

Obtain information from your supplier of hot material for specific instructions on ways to avoid eruption or flashing of their particular product.



THE CONTROLS

Refer to Fig. 3 while familiarizing yourself with power unit control functions. The throttle control is located on the engine with a stop switch on the back of the engine.

To go forward, pull back on clutch handle. Brake will release automatically as clutch is engaged. To stop, release clutch handle and clutch will disengage as brake comes on. Speed is controlled by throttle setting and the degree to which the clutch is engaged. For maximum belt life clutch should be fully engaged during operation. Pulling back on the brake handle only will allow the operator to push/pull the unit without engaging the engine, releasing the brake handle will automatically engage the brake.



Fig. 3 : Power unit controls
A- Clutch handle
B- Brake handle

Gravel dispensing lever is located furthest to the right (Fig. 4.) Pulling back on handle opens discharge door of gravel dispenser. Pushing forward on lever closes door. For instructions on installation of linkage and lever, refer to next section (Gravel spreader attachment)



Fig. 4 **A-** Gravel dispensing lever
B- Dump hopper released lever





Fig. 5 Gravel spreader 330 500



Fig. 6 Dump tray (or felt & insulation carrier) 330 700

GRAVEL SPREADER ATTACHMENT #330 500

Wrenches are required for installation. Install gravel spreader as shown in fig. 5. Shaft ends of spreader drop into mount brackets on the frame. To install handle and linkage, first attach linkage to dispenser and then connect the other end with handle and secure with bolt and nut provided. Clockwise adjustment of the screw will make dispenser door open less; counter-clockwise makes door open more. Yoke assembly on back of dispenser is preset to proper door tension. If more tension is needed for door closure, remove the bolt and nut on the yoke and tighten as needed.

DUMP TRAY ATTACHMENT #330 700

Install dump tray as shown in fig. 6. Shaft ends drop into mount brackets on sides of power unit. Hopper is self-locking: releases with lever to right of engine cover

55 GAL INSULATED TANK #146 500

Install insulated tank support kit as shown in Fig. 7
(Refer to operation section on use of hot tanks)



Fig. 7 Hot stuff tank attachment



ENGINE START-UP AND OPERATION

Make sure the clutch and brake levers aren't being pulled back (held) against the handle bar (pulling on the brake lever will release the brake and pulling on the clutch lever will release the brake and engage the clutch) (see fig. 8).



Fig. 8 Levers in brake on, clutch disengaged position

At this point, after you have read through all of the instructions, the workhorse should be ready for operation. Check to see that engine is serviced properly. Read "HONDA Owner's manual". Check oil level and fuel level. Check to see that spark plug is tight.

Start the engine and allow to warm up. (Please refer to the engine manufacturer's owner's manual). Inspect the machine and attachments for damage, make sure attachments are well anchored to the workhorse. When engine reaches operating temperature, pull back on the brake lever (right hand) to release the brake and pull back on the clutch lever (left hand) to engage the clutch. Adjust speed by pushing or pulling on the throttle control, always reduce speed when attempting to turn. This machine is equipped with a dead-man style brake. You can come to an immediate stop by releasing the handles. Always turn engine off when loading, unloading or dumping. Never keep levers engaged by attaching them to the handlebars by any means. This would render the safety features of the dead-man brake useless and could cause injury or death.

When operating machine for the first time, position the machine on the ground or in an open level area away from obstructions and roof edges.

With no load on the workhorse, practice manoeuvring the machine by operating controls as described previously. All operators must check to see that the brake is functioning properly. When clutch handle is released the Workhorse should stop instantly. If it doesn't do not operate the machine until repairs or adjustments are made.



MAINTENANCE

ENGINE SERVICE

CAUTION: DISCONNECT SPARK PLUG WIRE BEFORE WORKING ON MACHINE.

For the engine, read "Honda Owner's manual". Engine oil should be changed in conformity with "Honda Owner's manual". Keep the cylinder head clean so that it can cool the engine properly. Frequent oil changes will significantly prolong life of engine. SAE 10W30 is recommended by Honda (see Honda engines Owner's manual). Unleaded gasoline is also recommended to increase valve life.

If service or repair of engine is needed, contact an authorized Honda centre. You will need the model, and serial number of your engine.

Grizzly equipment warranty does not cover the engine, which is covered by a separate warranty from Honda.

LUBRIFICATION

Lubrication recommendations are as follows: Grease roller bearings on wheels weekly or as needed. Zerk for 18/8.50 X 8 wheels is located on hub assembly between wheel and chain drive. Also grease clutch linkage. Zerks are provided for both. Grease pillow-block bearings on trans-axle assembly weekly or as required. Roller chain should be lubricated with a spray chain lube. Clean monthly with wire brush.

DRIVE BELT

Belt may be replaced by removing belt cover and relaxing tension on the idler pulley. Leave "L" bracket over idler pulley in its present position so that you won't need to readjust it. Use a screwdriver to pry enough clearance of idler to fit new belt in. After installing new belt, check tension (with engine off) by engaging clutch. With about 20 lbs pressure with your fingers there should be a $\frac{3}{4}$ " deflection of belt when properly adjusted. Engine mounting plate slides forward and back if tension adjustment is needed. Fasten guard securely before operating.



Fig. 9

BRAKE MAINTENANCE

Check for brake wear at least once a week. Replace brake band before lining is completely worn. Do not operate without brake in proper working condition. Check brake spring everyday to see that adequate tension is applied to brake band. Replace worn or broken parts before operating..

Always check tire manufacturer's recommendations for correct tire pressure before inflating tire. (Correct tire pressure should be imprinted on the side of the tire.)



SAFETY HAZARDS

Safety hazards are not always obvious to workers. Unlike exposure to health hazards, where illness or injury develop slowly, safety hazards usually result in immediate injury or death.

Broken bones, cuts bruises, sprains, burns and loss of limbs, eyesight and hearing are the kinds of injuries caused by safety hazards.

The rate of occupational injuries in roofing, in fact, ranks in the top ten of all major occupational groups.

FALLS

Falls are the number one cause of serious injury and death to roofers. An estimated 10 percent of all roofing accidents result from falls off roof edges, through roofing openings or off ladders, more than half of the non-fatal accidents result in serious injury.

Unprotected and unguarded roof edges and roof openings create extremely hazardous conditions.

Ladders with cracked, loose or missing steps: with side rails broken or cracked and not attached firmly to the steps; with broken, loose or missing locks, or coated with grease, oils or hardened bitumen can lead to serious injury. Ladders should always be inspected to make sure they're properly maintained and constructed and that they're long enough to extend three feet above the roof's surface.

Improperly balanced or unstable hoists overturn and will often carry the worker along. Rolls of roofing felt should never be used as counterweight. Workers should know the load capacity; it should be posted.

BURNS

Skin contact with hot asphalt and hot coal tar pitch usually results in second and third degree burns. They usually involve deeper portions of the skin and are easily infected.

An estimated 16 percent of all injuries are burns from hot stuff. The major causes of burns have been from:

Kettle flashes

- Kettle splashes from dropping pieces of coal pitch or asphalt into the kettle
- Slips and trips while carrying hot bitumen in open containers
- Splashes involving transfer operations like from the hot pipe outlet to a hot lugger, from a hot lugger to a mop cart or a pail, or from the kettle to a pail.

HEAVY LIFTING

Sprains and strains, a majority of which involve the back, are the most common roofing injury and one of the most severe. Almost 30 percent of these injuries result in 10 or more days away from work.



FIRE/EXPLOSION

Two conditions must be met in order for fires and explosions to occur. First, there must be an ignition source, a welding arc, spark, cigarette, flame or simply a hot spot as in a kettle or tanker. Secondly, there must be the right mixture of vapours (from asphalt, pitch, solvents) and oxygen.

For kettles and tankers, fire/explosion conditions arise when:

- oversized burners are used to fire the kettle, causing localized overheating of the heating tubes creating a hot spot
- the temperature of the bitumen is brought up to the desired operation temperature too quickly allowing the level of bitumen to drop to the level of the firing tubes, allowing excessively high surface temperatures
- heating the bitumen to its flash point (for asphalt, about 525°-540°; for pitch, about 450°-475°)
- the temperature of the bitumen is hot enough to reach the auto-ignition level
- in tankers, the vent pipe is clogged or plugged so that flammable vapours can build up to explosive levels

Many solvents evaporate quickly at roof temperatures. Explosive mixtures of vapours can be readily formed within confined spaces like high parapet walls, in atriums or in any space where little or no ventilation exists. And any kind of spark or flame can ignite the vapours.

ELECTROCUTION

Low voltage electricity can cause shock, muscle contractions, breathing difficulty, irregular heartbeat, severe burns and death. The route that the current takes through the body affects the degree of injury. Current flowing from one finger to another would not pass vital organ, while from one hand to another would pass through the heart and lungs.

Electrical tools should be properly grounded. The electrical cord should end in a three-prong grounding contact, or the wires should be enclosed in a metal case with a special grounding attachment.

Employers are required to provide ground fault circuit interrupters for all outlets on construction sites that are not part of the permanent wiring of the building. This is actually a fast-acting circuit breaker, which can shut off electricity in a fraction of a second.

Aluminum or other metal ladders pose a serious electrical hazard around electrical equipment and energized lines.

FALLING OBJECTS

Tools, bricks, materials, buckets, boxes, pallets or almost anything dropped from a sufficient height can cause severe damage. Head injuries, one of the highest compensated injuries to workers, often include brain damage. Workers need protective head gear when working beneath people, tools and equipment.

FLYING OBJECTS

Objects can be projected by machines, from welding or grinding operations and can be windblown. Tear-off operations, where power cutters, power brooms and power spudders are generally used, are the major source of flying substances. The part of the body most often injured is the eyes.

UNGUARDED MACHINERY

Exposed blades and chains on powered machinery like hoists and roof cutters can severely lacerate and crush parts of the body. Guards should always be fitted over moving parts to protect workers.

