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Operation and Maintenance Manual
For Commercial Use Only



Model PG7435 Pro-Glazer H13-24

Catalog No.

97435

See L7435DCP for Parts List

Effective 1/16/06

This illustrated instruction book covers:

MODEL	Pro Glazer H13-24
PAD SIZE	24"
CATALOG NO.	97435
HONDA ENG. TYPE	HONDA
CLUTCH	OPTIONAL
ENGINE SIZE (CC)	390
ENGINE (HP)	13

All specifications are subject to change without notice.

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Long-term buyer protection warranties

Tornado® Standard Warranty Program*	
<p>Warranties do not cover components subject to normal wear or abuse and misuse, and have other limitations not specified here. For full details, contact your Authorized Tornado Distributor, Service Center, or the Tornado Technical Service Department.</p> <p>Tornado sales and service representatives are not authorized to waive or alter the terms of this warranty, or to increase the obligations of Tornado under the warranty.</p>	<p>10 Years: <i>All plastic tanks and rotationally-molded bodies^{1) 2)}</i></p>
	<p>2 Year: <i>Parts on all Tornado and Tornado/Karcher cleaning equipment^{1) 2) 3)}</i></p>
	<p>1 Year: <i>Labor on all Tornado and Tornado/Karcher cleaning equipment²⁾</i></p>
	<p>1 Year: <i>Warranty on batteries and chargers, one year pro-rated.</i></p> <p>** 6 Month Warranty on Gel Batteries</p> <p>All battery warranties are handled by the battery manufacturer, please call customer service for more information.</p>

Thank you for choosing Tornado products. We are proud to offer the most complete line of commercial and industrial cleaning equipment in the industry. Our reputation for quality, innovation and durability is unsurpassed.

* Effective January 1st, 2005. Terms subject to change without notice.

- 1) Windshear™ Blower-Dryer, Insulation Blowers, T191, T201, T12/1, CV 30, CV 38, CW 50, CW 100, Pro PAC Vacs, Duo-Upright Carpetkeepers™, Gas & Electric Pressure Washers, and all chargers are warranted for 1 (one) year for both parts and labor.
- 2) Warranties on all riding sweepers including the ICC1, KM 100/100 R, KMR 1250, and KMR 1700 are 24 months parts/6 months labor OR 1000 hours of operation, whichever comes first. Warranties on the 75/140 & 90/140 are 24 months parts/12 months' labor OR 1,000 hours of operation whichever comes first.
- 3) All non-wear item parts purchased after warranty expiration are warranted for 90 days.
- 4) Warranty starts from the date of sale to the consumer or, at Tornado's discretion, 6 months after dealer purchased the unit from Tornado, whichever comes first.

Note: Tornado, The Latest Dirt, Floorkeeper, Carpetkeeper, Carpetrinsler, Carpetrinsler/Dryer, Headmaster, Taskforce, PAC-VAC, T-Lite, Glazer, Windshear, Max-Vac, CV 30, CV 38, and Trot-Mop are trademarks of Tornado Industries.

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IMPORTANT SAFETY INSTRUCTIONS

READ ALL INSTRUCTIONS BEFORE USING THIS APPLIANCE

WARNING:

Keep hands, feet, strings and ties away from all moving parts while the machine is in operation. The exhaust system gets very hot so keep hands, clothing and any items that can burn away from the engine while hot.

Tornado machines are built tough and durable, however do not abuse the machine and the machine won't abuse you. With proper care and maintenance this unit will give you trouble free operations for the years to come.

WARNING:

LETHAL EXHAUST GASES

Engine exhaust gases contain poisonous carbon monoxide. Carbon monoxide is odorless, colorless, tasteless, and can cause death if inhaled. Although NFPA 588-4.5 says..." these machines shall be permitted to be used in buildings frequented by the public", the Tornado Co. suggests to avoid inhaling exhaust flames and never run the engine in a closed building or confined area without proper ventilation.

Although LPG burns more efficiently and emits less carbon monoxide than gasoline, some carbon monoxide is produced. Avoid inhaling exhaust gases - especially over prolonged periods of time. Do not allow engine to run unattended.

WARNING:

TO REDUCE THE RISK OF FIRE OR INJURY

If handle switch lever is activated accidentally, high starting torque will cause machine to move and may cause damage or injury.

The machine must not be running while :

- Leaving machine unattended
- Changing pads
- Attempting any maintenance or adjustment

These machines should not :

- Be used by unqualified or untrained personnel
- Be used unless properly maintained and adjusted
- Be used on areas with obstructions such as thresholds, etc.
- Be used in areas with loose tiles
- Be used in rooms without proper ventilation

WARNING:

Do not put hands under base - rotating parts could cause injury. Always keep hands feet and loose fitting clothing away from moving parts to prevent possible injuries. Use care to keep any electrical supply from contacting moving parts, such as floor brushes or pads.

- Do not use machine in areas where flammable and/or explosive vapors or dust are present.
- Never use a device to lock the switch lever in the "ON" position.
- Do not add weight to this machine - this will upset the balance and may cause motor overload.
- Pad holders and brushes must be properly maintained to insure maximum cleaning results.
- To avoid fire, do not use with a flammable or combustible liquid to clean a floor.
- Risk of explosion. Floor sanding can result in explosive mixture of fine dust and air. Use this machine only in a well ventilated area, free from any flame or match.
- Do not add weight.
- Do not store with brush, pad holder or pad on floor.
- Refer to this manual for additional instructions.

SAVE THESE INSTRUCTIONS

Machine Specifications:

Pad Size	24"
Pad Speed	2000 RPM
Width	26.5"
Length	46"
Engine	Honda GXV390
Starting Voltage	110 Volts
Deck Material	Cast Aluminum Alloy

OPERATING AND MAINTENANCE INSTRUCTIONS

OPERATION OF MACHINE

Your Tornado® Floor machine is ready for operation as soon as it is unpacked. Remove the machine from the pallet and discard bolts.

Before any operation should begin, please read your Engine Operation Manual and your Owner's Manual.

The unit comes shipped without fuel in the tank. Be careful not to overfill the tank. The best method for filling the tank is to have the full tank weighed at the filling station. The steel tank should weigh no more than 43 pounds. Also, adjust the handle to a comfortable position and insert the locking pins. Then, with two ¾" wrenches tighten the two main bolts in the handle support to 40-50 ft/lbs.

Check the engine oil level. The unit will come shipped with oil. Always keep the engine oil level between the full and add marks on the dipstick. Replace the oil by performing the following steps :

- Park your Pro-Glazer on a level surface and make sure the engine is stopped.
- Turn the oil cap counter clockwise and then lift from the fill tube.
- Wipe the dip stick clean and push it back into the oil fill tube until the cap seats and then withdraw it to check the oil level. (Do not screw in to check level.) Add oil if necessary.
- Replace oil cap.
- If the oil is low, add API Class SG or SH oil having a SAE viscosity grade appropriate for the expected temperatures as indicated in the *Engine Operators Manual*.

The machine is shipped with the battery connected.

Inspect all fuel hoses and fittings for leaks. Repair any leaks immediately.

Check the carb filter and air filter for debris. Clean and replace if necessary.

Connect fuel hose to tank by (hand tightening) the hose fitting to the tank. Make sure the connection is tight to prevent leaks.

PRO-GLAZER STARTING PROCEDURE

The Pro-Glazer is equipped with a 110 Volt Starter and push button switch.

1. Tilt machine back so the floor pad is off the floor.
2. Turn the fuel tank knob slowly until you hear the flow of the fuel into the fuel system.
3. Put throttle cable into the choke position. Note : Never operate this machine with the idle set to the choke position.
4. Plug the starter cord into a 110 Volt outlet. Push starter button and hold it there until the engine starts. Do not crank more than 30 seconds at a time and wait at least one minute between tries when cranking. See Trouble Shooting Table if the engine does not start after several tries.
5. After the engine starts, unplug the starter cord and move the throttle to the slow position. Do not operate buffer until the engine has warmed up sufficiently.
6. Lower pad to floor in the slow position, and operate at full throttle.

STOPPING ENGINE

1. Turn fuel valve on tank to the closed position and allow the engine to continue running until it runs out of fuel.
2. Turn the key to the off position.

Caution:

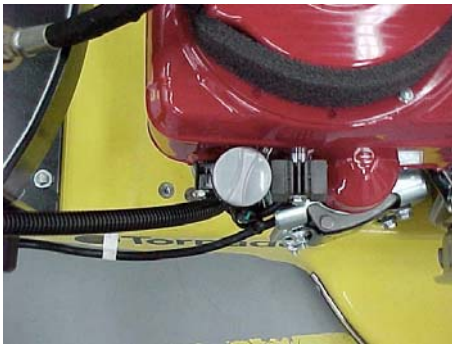
In an emergency, turn the key to the off position. Backfiring may occur when using this method.

MOUNTING BRUSH AND OTHER ATTACHMENTS

(WARNING: TURN OFF UNIT BEFORE STARTING PAD INSTALL)

To mount or remove a pad, tilt the machine back until it rests on the back wheels. Unscrew the pad-lock nut while gripping the pad and pad driver. Position a new pad concentric with the pad driver and retighten with the pad-lock nut.

To remove the pad driver, first make sure the oil cap is tightly sealed.



Tilt the machine on its side. NOTE: Look for the, “THIS SIDE UP” decal on the side of the machine.



The Honda engine can only be tilted on one side due to its carb filter location.



Use a 3/4” wrench to hold the main shaft, which is located between the four bolts in the front and on the top of the machine. Then, rotate the pad driver counterclockwise to unscrew it from the main shaft.

For long life and best results always use genuine TORNADO® accessories.

MAINTENANCE OF THE PAD HOLDER

Remove the pad holder when the machine is not in use and hang on wall peg or similar holder

POLISHING

Use 3/4" to 1" thick BEIGE high speed burnishing pads. Floors should be dry mopped to remove grit.

SPRAY BUFFING

Use 3/4" to 1" thick HOG HAIR high speed burnishing pad. The spray buff solution should be applied to the floor ahead of the machine. Do not run the machine into the spray or mist of the spray buff solution.

DAMP BUFFING

Use 3/4" to 1" thick BEIGE high speed burnishing pad. Use a well wrung out mop to apply damp buffing solution. Go over dampened surface with machine until surface is dry and has a high glaze.

STORING

Store with pad off the floor by tilting machine back on the support wheels.

BELT MAINTENANCE

(WARNING : REMOVE LP TANK BEFORE TURNING OVER THE MACHINE)

To change a broken or worn belt, turn the machine on its side and remove the pad and pad driver. NOTE: look for the, "THIS SIDE UP" decal on the side of the machine. The Honda engine can only be tilted on one side due to its carb filter location. Using a wrench, loosen the hex bolt for the pulley tensioner. Once the tensioner is loose, the belt can be easily removed. Slip the old belt off the pulleys and reattach the new belt. Attach the pulley tensioner back into position and retighten its bolt. The tensioner should provide the belt with a 0.16 inch belt deflection when a force of 2 pounds is applied against outside of belt. Turn machine upright immediately after the service is completed.

Maintenance Table :

Type of Service	Daily	First 20 Hrs.	Every 50 Hrs.	Every 100 Hrs.	Every 300 Hrs.	Every 500 Hrs.	Every 1000 Hrs.
Check Oil Level	*						
Check Bonnet Air Filter for Dirt	*						
Check Engine Cooling Fins	*						
Check Cleaning Pad	*						
Check Belt Tension	*						
Check Carb Filter	*						
Change Engine Oil ++		*	*				
Inspect Bolts & Connections		*	*				
Clean and Adjust Spark Plug				*			
Change Oil Filter		*		*			
Replace Carb Filter					*		
Adjust Engine Valve Clearance					*		
Replace Spark Plugs						*	
Clean Cylinder Heads of Deposit							*

++ MOTOR OIL : SAE 10W30

OIL CAPACITY 1.1 QTS GXV340 11HP

OIL CAPACITY 1.5 QTS GXV390 13HP

Trouble Shooting Table:

SYMPTOM	POSSIBLE CAUSES
Engine Stops Running	Dirty air filter. High exhaust emissions. Out of fuel. Low oil.
Engine Lacks Power	Leaking head gasket. Insufficient vacuum. Governor needs adjusting. No compression - worn rings. Check air filters.
Smell of Burned Rubber	Belt out of adjustment.
Machine Vibrates	Loose bolts. Pad not centered.
Machine "Digs In" While Running	Operator is bearing down too hard. Dirty air filters.
Hard to Start	Spark plug or head bolts loose. Blown head gasket. Insufficient vacuum. Coil, air gap needs adjusting. Low oil. Battery low.
Will Not Start	No fuel. Blown head gasket. Insufficient vacuum. Coil, air gap needs adjusting. Low oil.

Daily Inspection Checklist:

ITEM	CHECK BOX
- Check condition of pad (Replace if torn or dirty)	
- Wipe entire unit down with cleaning solution (engine must be cool)	
- Verify pad retainer is still in place	
- Store Propane tank outside of building	
- Store Proglazer back on casters, so the pad is off the floor	
- Store the Proglazer in a clean dry place	
- Report any problems with unit	