

PB27

ORDER #87052

27" Propane Burnisher

FEATURES

- 27" Burnishing Path
- 20 hp Onan Engine
- Electric Starter
- Lightweight Aluminum Alloy Deck
- Free Floating Spin-On 16 Gauge Steel Pad Driver
- Total-Grip Adjustable Handle Assembly

Betco propane burnishers are designed for maximum burnish performance and productivity. The powerful 20 hp Onan engine delivers the power necessary to maintain high speed floor finishes. The lightweight aluminum deck and fully adjustable handle make this unit easy and comfortable to operate.

WARRANTY

The 20 hp Onan engine is warranted by Onan for 3 years against manufacturer's defect. All other components (except wear items)* are warranted by Betco for 3 years.

*Wear items not covered under warranty are: wheels, filters, throttle cable, pad driver and handle grips.

*Please refer to Betco Equipment Price/Product Guide for complete equipment warranty information.



SPECIFICATIONS

- Pad Size: 27"
- Engine: 20 hp Onan
- Electric Start System: Battery
- Propane Tank: Included
- Weight: 228 lbs.
- Emissions: Carbon monoxide readings near zero ppm. Mechanically regulated carburetor.

APPLICATIONS

- Dry burnishing
- Restorative burnishing

Authorized Betco Distributor:

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PB27C

ORDER #87054

27" Propane Burnisher with Clutch

FEATURES

- 27" Burnishing Path
- 20 hp Onan Engine
- Electric Starter
- Lightweight Aluminum Alloy Deck
- Free Floating Spin-On 16 Gauge Steel Pad Driver
- Total-Grip Adjustable Handle Assembly
- Centrifugal Clutch

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27" Propane Burnishers

Parts Schematic

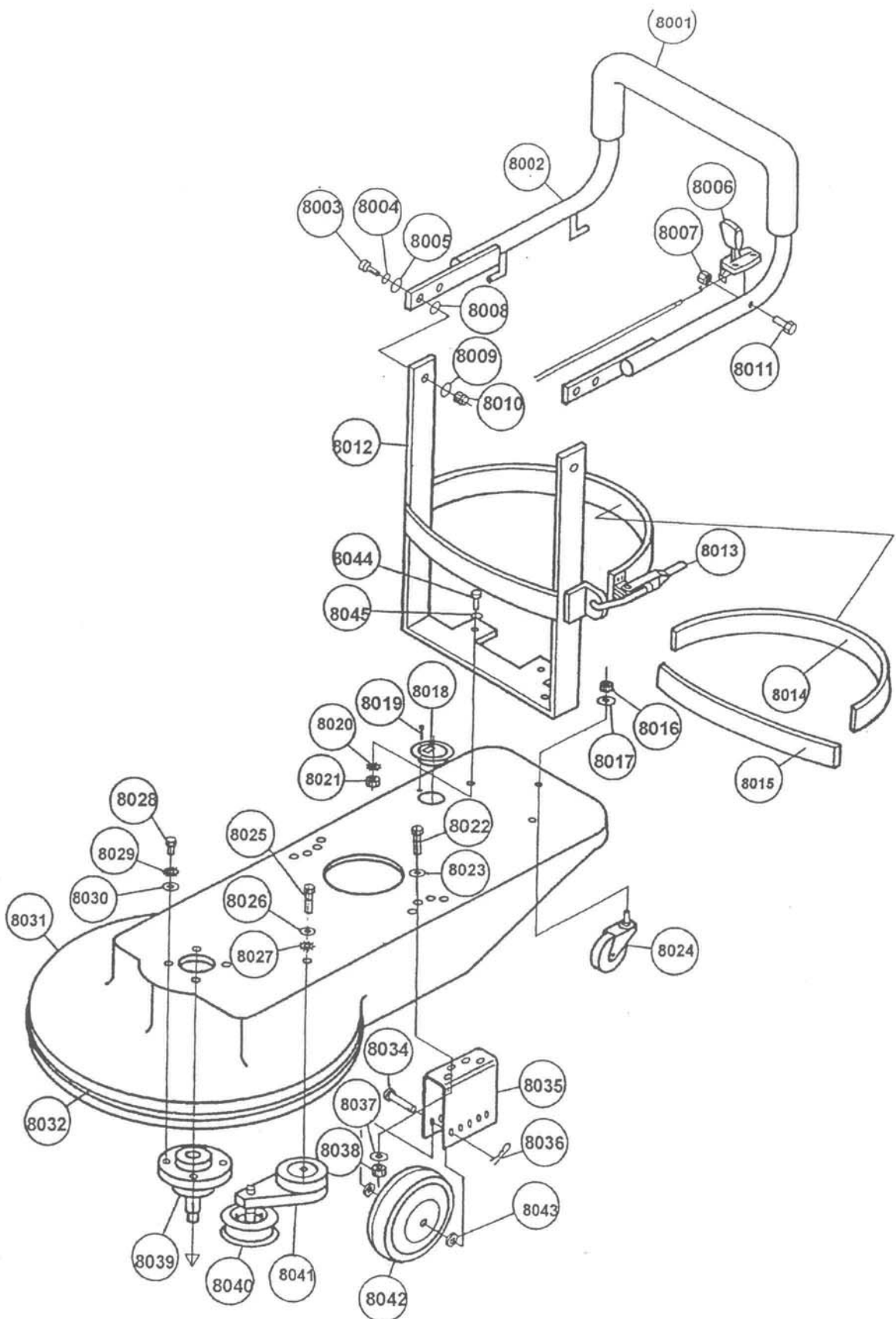


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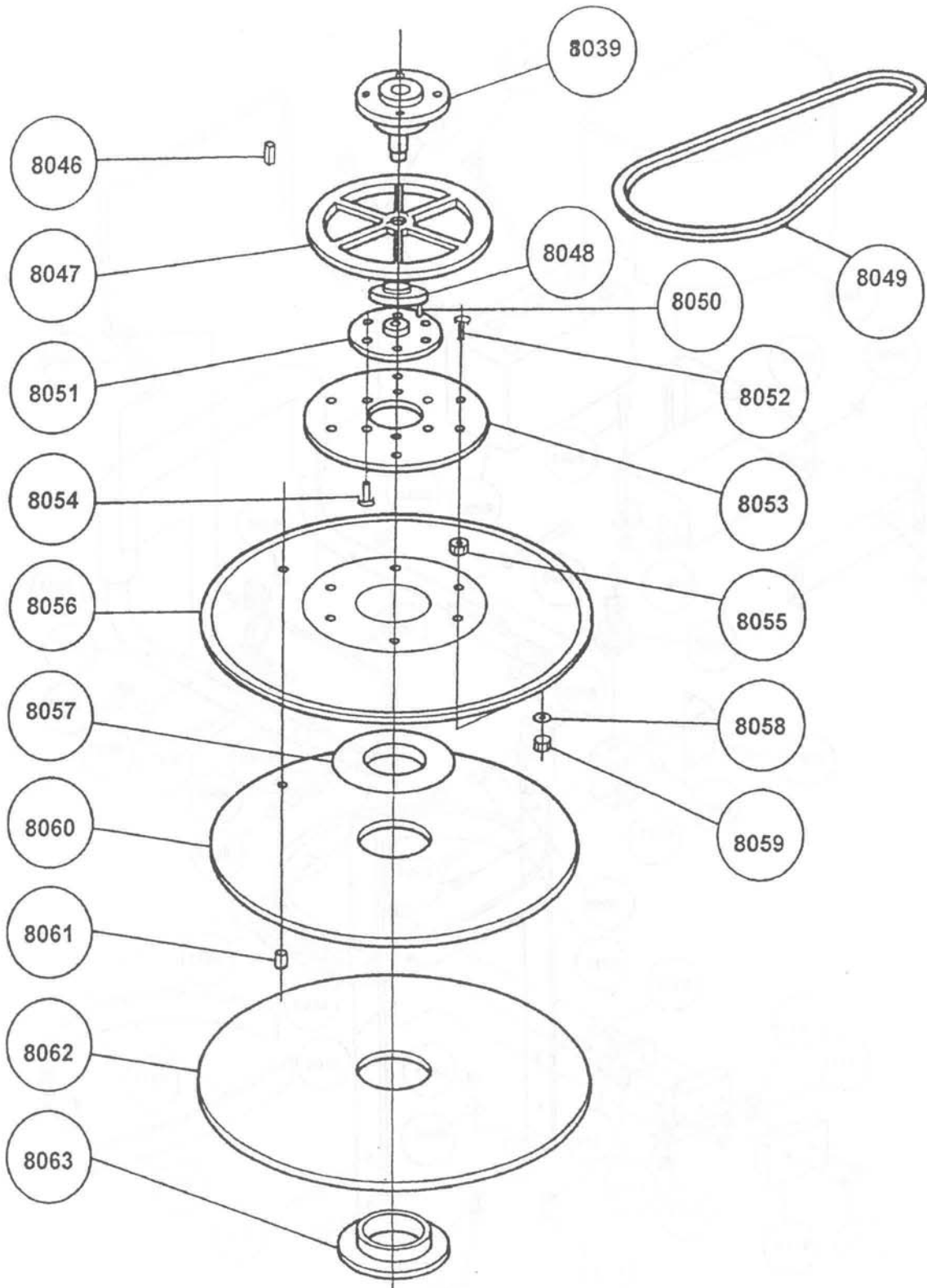
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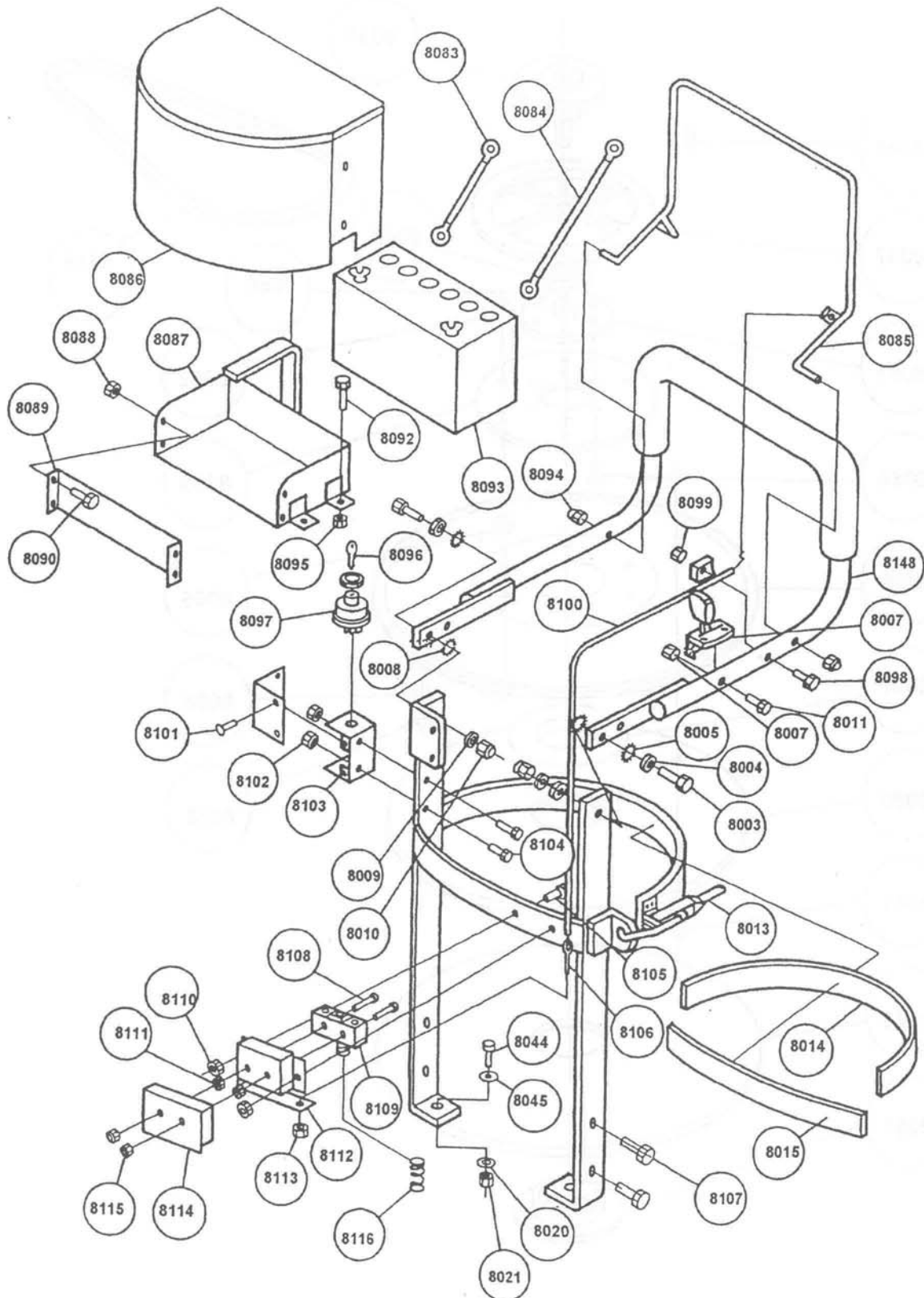
87052 & 87054 (w/clutch) 27" Propane Burnisher Parts Schematic



87052 & 87054 (w/clutch) 27" Propane Burnisher Parts Schematic



87052 & 87054 (w/clutch) 27" Propane Burnisher Parts Schematic



87052 & 87054 (w/clutch) 27" Propane Burnisher Parts Schematic

<u>REF #</u>	<u>Description</u>	
8000	28" SCHEMATIC	P2002
8001	HAND GRIP	P1077
8002	UPPE HANDLE (STD)	P1063
8003	BOLT	P2003
8004	LOCK WASHER	P2004
8005	FLAT WASHER	P2005
8006	THROTTLE CABLE	P1068-44
8007	NUT	P2006
8008	LOCK WASHER	P2007
8009	LOCK WASHER	P2008
8010	NUT	P2009
8011	BOLT	P2010
8012	LOWER HANDLE (STD)	P1063-L
8013	LATCH SCREW	P1130
8014	FELT	P2011
8015	FELT	P2012
8016	NUT	P2020
8017	FLAT WASHER	P2023
8018	MAINTENANCE METER	P1076-1
8019	RIVET (3)	P2024
8020	LOCK WASHER	P2025
8021	NUT	P2019
8022	BOLT	P2026
8023	FLAT WASHER	P2025
8024	SWIVEL CASTER	P1074-1
8025	BOLT	P2028
8026	LOCK WASHER	P2029
8027	FLAT WASHER	P2030
8028	BOLT	P2031
8029	LOCK WASHER	P2032
8030	FLAT WASHER	P2033
8031	DECK	P1004
8032	BUMPER GUARD 76"	P1143
8033		
8034	WHEEL AXLE	P2034
8035	WHEEL BRACKET	P1051
8036	COTTER PIN	P2035
8037	FLAT WASHER	P2025
8038	NUT	P2019
8039	FRONT END	P1050
8040	IDLER PULLEY	P1025
8041	BELT TENSIONER	P1071

87052 & 87054 (w/clutch) 27" Propane Burnisher Parts Schematic

<u>REF #</u>	<u>Description</u>	<u>PBI #</u>
8042	6" WHEEL	P1073
8043	WHEEL SPACER (2)	P2033
8044	BOLT	P2026
8045	FLAT WASHER	P2025
8046	KEY STOCK	P1036
8047	PULLEY	P1021
8048	BUSHING	P1017
8049	BELT	P1111
8050	BOLT	P2034
8051	PLATE	P1047
8052	BOLT (6)	P2027
8053	FLEX COUPLER	P1061
8054	BOLT (6)	P2027
8055	FLEX SPACER (6)	P1062
8056	PAD DRIVER	P1058
8057	CENTER DEVICE (MALE)	P1066-M
8058	WASHER	P2035
8059	NUT	P2019
8060	GRIPPER RING	P1065-27
8061	RIVET (6)	P2036
8062	FLOOR PAD	PAD28
8063	CENTER DEVICE (FEMALE)	P1066-F
8064		
8065		
8066	HOSE	P1006
8067	FITTING	P1013
8068	FUEL SHUTOFF	P1082-2
8069	FITTING	P1008
8070	HOSE	P1006
8071	VACUUM HOSE	P2013
8072	FITTING	P1011
8073	FUEL REGULATO	148-0992
8074	FUEL HOSE	P2014
8075	FITTING	P1010
8076	VACUUM TEE	P2037
8077	VACUUM HOSE	P2015
8078	FITTING	P1012/P1011
8079	BOLT	P2021
8080	LOCK WASHER	P2022
8081	BOLT	P2021
8082	LOCK WASHER	P2022
8083	BATTERY CABLE	P1133-9
8084	BATTERY CABLE	P1133-20
8085	CLUTCH ARM	P1064-4
8086	BATTERY COVER	P1053

87052 & 87054 (w/clutch) 27" Propane Burnisher Parts Schematic

<u>REF #</u>	<u>Description</u>	<u>PBI #</u>
8087	BATTERY TRAY	P1054
8088	NUT	P2038
8089	BATTERY BRACKET	P1054
8090	BOLT	P2039
8091	VACUUM HOSE	P1087
8092	BOLT	P2040
8093	BATTERY	P1133
8094	NUT	P2041
8095	NUT	P2006
8096	KEY	48-340-01
8097	KEY SWITCH	308-0385
8098	BOLT	P2042
8099	NUT	P2006
8100	CABLE	P1132
8101	RIVET	P2043
8102	NUT	P2044
8103	KEY SWITCH BOX	P1055
8104	BOLT	P2040
8105	BOLT	P2045
8106	" I" BOLT	P2017
8107	SCREW	P2046
8108	SCREW	P2047
8109	SWITCH	P1064-2
8110	NUT	P2038
8111	NUT	P2048
8112	CLUTCH SWITCH BOX	P1064-2
8113	NUT	P2049
8114	SWITCH BOX COVER	P1064-3
8115	NUT	P2048

Propane Burnisher

Operator's Manual

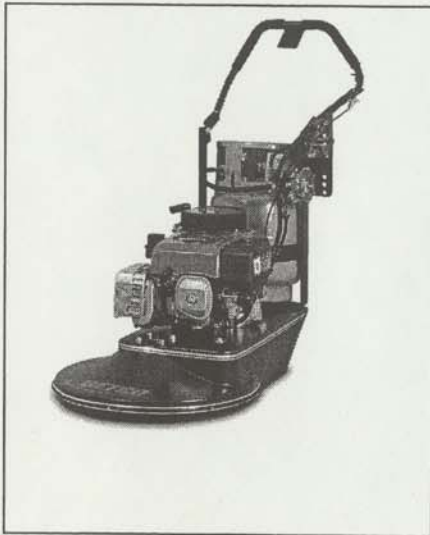
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OPERATION

PRECAUTIONARY INSTRUCTIONS

 This symbol is used throughout this manual to warn of hazards or unsafe practices which could result in personal injury to yourself or others.

 **ATTENTION!** Please read and follow all the instructions in this manual as well as the "*Safety Awareness Manual*" included in the documentation shipped with this machine before operating the machine.

1. Check fuel cylinder for overfill before taking it into the building or placing it in storage.
2. Install fuel cylinder in a well ventilated place.
2. Be aware of possible leaks of propane gas if odor is present.
3. Check carburetor air filter for cleanness before starting engine.
4. Never run the engine with the throttle in the choke position.
5. Never leave the machine unattended while the engine is running.
5. If the machine is stored inside the building, remove the fuel cylinder & store properly outside.
7. Secure cylinders when being transported. If attached to the machine service valves should be OFF.
8. Never store fuel cylinders in your van where they me be exposed to high temperature.
9. Maintain the propane powered floor machine as directed by the manufacturer.
10. Only trained operators should be allowed to operate propane powered floor machines.

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This publication is designed to provide accurate and authoritative information in regard to the subject matter covered. It is provided with the understanding that the publisher is not engaged in rendering legal or other professional services.

This manual is furnished with each new propane powered floor machine. It provides necessary operation and maintenance instructions. **Read and understand the information in this manual before operating or servicing this machine!**

Additional copies may be ordered through Customer Service.

When ordering replacement parts use the standard Parts list in this manual. Before ordering parts or supplies, be sure to have your machine model number and serial number handy. Parts and supplies may be ordered by phone, Fax, or mail from any Authorized Service Center or Distributor.

You have purchased one of the finest floor machines engineered and manufactured. It will provide excellent service for years to come. However the best results will be obtained if:

1. The machine is operated with reasonable care.
2. The machine is maintained regularly as suggested by the manufacturer.

MACHINE DATA

Please fill out for future reference.

Model No. _____

Date of purchase _____

Serial No. _____

NOTE: Specification are subject to change without notice.

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OPERATION

SAFETY PRECAUTIONS

1. This propane fueled machine is intended for commercial use only. It is designed to clean floors. Do not use the machine other than described in this Operator Manual.

2. All operators must read, understand & practice following the safety precautions in this section as well as the "Safety Awareness Manual" included in the literature packet.


3. Only trained authorized operators should operate propane powered floor machines.


4.  Check fuel cylinders for overfill before taking them into the building or your van. (See page 11 for instructions).


BEFORE OPERATING THE MACHINE:

- Check oil level
- Check air filter
- Check pad & pad holder
- Adjust handle height
- Install fuel cylinder in a well ventilated area.


WHILE OPERATING THE MACHINE:

 Even though the 89 db sound level is below OSHA's PEL it is the course of wisdom to wear hearing protection while operating any internal combustion engine.

 If you smell propane gas stop the engine, remove the cylinder and take it outside for inspection.

 Be aware of odors other than propane. Toxic emissions are produced by internal combustion engines. Properly maintained engines produce a small amount of these gasses. Although Carbon Monoxide has no odor, the hydrocarbons do, and an elevation of the odor may indicate increased CO as well.

Do not allow the machine to run unattended except for short times while moving an obstruction.

 Exhaust parts are extremely HOT, be careful not to allow them to come in contact with anything or anyone.

Do not attempt to change pads while engine is running.

BEFORE LEAVING THE MACHINE:

Stop the engine by closing the service valve on the fuel cylinder.

Remove the key from the switch if applicable.


Remove the cylinder from the machine and store outside in a secure cabinet. (See page 12)


Inspect and clean air and dust filters.

SERVICING THE MACHINE:

Preventive maintenance is the responsibility of the operator. It includes:

1. Checking oil level
2. Checking and cleaning air & dust filters
3. Keeping the machine clean and lubricated
4. Reporting any damage or worn parts.
5. See page 9 for service intervals & instructions.

 Servicing or adjusting the propane fuel system can only be done by a trained service technician!

 **Never attempt to adjust the fuel system of a propane engine! If equipped with an emission monitoring or control system never attempt to disconnect it or circumvent it!**


MACHINE SETUP

CHECKING OIL LEVEL & FILTERS:

Check oil level prior to starting engine. Use specified oil if necessary to add. **DO NOT OVER FILL OIL LEVEL**, to do so may cause damage to the engine.

When checking oil refer to the engine manufacturers instructions for proper way to check the level. Some engines differ in the correct procedure.

Use 10W30 oil. Always check oil daily before using the machine.

 Be sure the carburetor air filter is free of dust/oil etc. Dirty air filters is the most frequent cause of elevated toxic emissions.

Check & clean recoil dust filter if necessary (see engine owners manual)

ADJUSTING HANDLE HEIGHT

The machine is equipped with an adjustable handle for comfort and use. Most find it necessary to adjust the handle to "belt height" for optimum control. A 9/16 wrench is used to loosen and tighten the pivot points..

INSTALLING THE FUEL CYLINDER

NOTE: For refueling cylinder see Page 11.

1. Take machine to a well ventilated area.
2. Check cylinder for overfill. (See page 11)
3. Install cylinder on machine with tank strap.
4. Connect the fuel cylinder to the machine using the "Rego" connection. Tighten "hand-tight". (Be careful not to cross thread the Rego connection)
5. Open the service valve slowly. Be alert for propane leaks.
6. To remove cylinder reverse procedure.

INSTALLING OR REMOVING PAD DRIVER AND PADS

Consult an authorized distributor to assist you in selecting the correct pad for your specific needs.

Pad driver installation:

1. Tip machine on the right side (dip stick down).
2. Place pad driver on drive shaft and spin pad driver clockwise to install.

Pad Removal & Installation:


1. Tilt machine back on rear caster or service position.
2. Remove center-lock from pad driver.
3. Remove pad from pad holder.
4. Center new pad on pad driver & secure with center-lock ring.

Pad Driver Removal:

1. Apply down pressure on bell of machine deck.
2. Use 3/4" open end wrench on top of drive shaft exposed on top of deck.
3. Strike the wrench with rubber mallet to break loose the shaft from the pad driver. (Counterclockwise)
4. Remove pad driver by spinning it off counterclockwise.

OPERATION

MACHINE OPERATION


 **FOR SAFETY: do not operate the machine until you have read & understood this manual.**

STARTING MACHINE:

1. Check the fuel cylinder for overfill. (See page 11)
 2. Install cylinder on the machine (See page 5).
 3. Place machine on level surface and check for correct oil level.
 4. Tilt machine back on rear caster.
 5. *Slowly* open the service valve on the fuel cylinder.
- NOTE: Opening** the service valve too quickly may cause the excess flow valve to stop the flow of propane. If this occurs, close the service valve, wait a few seconds and re-open it **SLOWLY!**

NOTE: some models have 110 volt starting, in this case it is necessary to use the short cord supplied with the machine. Use the necessary precautions when using electricity.

6. Push the throttle lever to the choke position and engage the starter. (Either by using the start button or by turning the key switch to start if equipped). Do not engage starter for more than 20 seconds at a time, allowing 10-20 seconds between attempts to start the engine.
7. When engine starts, ease the throttle back to running position.


 **NOTE: Do not run engine with throttle in the choke position! Excessive harmful emissions will be produced putting you and others in harms way!**

8. Increase throttle to about 3/4 and carefully lower the machine pad to the floor while walking forward slowly.

OPERATING THE ELECTRIC CLUTCH

If equipped with an optional clutch. Move throttle to slow and engage the clutch by squeezing the "trigger switch" on the operation handle. Move the throttle to 3/4 speed, slowly lower the pad to the floor while walking forward slowly,

CAUTION: Never engage clutch in the fast run position or with the pad on the floor, this may cause damage to the clutch and the floor!

 **WARNING!** Be careful not to allow the machine to come in contact with loose tiles or other obstruction on the floor. The pad is turning at approximately 2000 RPM. If loose objects are hit by the revolving pad they could become dangerous missiles.

OPERATING THE TRACKER 3000 MODEL STRIPPING MACHINE

ATTENTION: This machine is only as fast as you allow it to be. It is imperative that you keep the floor wet with stripping solution while stripping and remove the sludge quickly and completely. Rinsing thoroughly before recoating with sealer or floor finish.

1. Clear area of all displays. Remove any dust and stickers from floor.
2. Prepare stripping solution according to instructions on the label.
3. Apply solution to the floor using a mop or other method of application. **KEEP FLOOR WET WITH SOLUTION!**
4. Allow 10 minutes or so for solution to penetrate floor coating.
5. Using a "doodle bug" scrape the edges clear of floor finish.
6. Begin stripping with the machine (one pass is generally all that is needed).

7. Follow the machine with the recovery of the sludge and damp mop floor.

NOTE: *Rinse floor thoroughly!*

OPERATING THE DUST CONTROL MODEL

For best results the dust control skirt should be set 1/4" off the floor.

Dust is collected in cloth bag inside the deck enclosure. Do not operate the machine without a bag attached to the dust receptacle.

Remove and empty the bag as frequently as needed. Shake or vacuum the bag before reinstallation.

OPERATING THE EASY GLOSS SPRAY SYSTEM (OPTIONAL)

The Easy Gloss Spray System is used to clean, shine and maintain all floors with a simple two step process.

1. Install a clean cleaning pad on the machine.
2. Mix Easy Gloss Solution according to instructions on the label.
3. Fill container on the machine with solution.
4. Dust mop area to be cleaned.
5. Start the machine and set the throttle lever to MEDIUM speed.

6. Pull easy gloss trigger to apply solution. Once the solution reaches the floor, move the machine forward at a slow pace. At intervals of every fourth step, pull the trigger and hold for about 2 seconds.

NOTE: If too much solution is applied the wheels will leave a track, and if too little the floor will not be cleaned.

7. While applying solution, stay about 3" away from edges.

NOTE: *Remove and clean pad every time you refill the solution tank.*

8. When the cleaning process is complete, remove the cleaning pad and replace it with a fine polishing pad.

9. Restart the machine, set the throttle at medium high speed and buff the entire floor to a deep shine.

NOTE: *If pad overloads and leaves marks on the floor, stop buffing and clean the pad. It may be necessary to use a weaker solution mix.*

The Easy Gloss System is a preventive maintenance procedure, it does not replace scrubbing and finishing.

STOPPING THE MACHINE

1. Close the service valve on the fuel cylinder while the engine is running. This serves to "purge" the fuel system of all flammable gas.
2. Tilt the machine back on its rear caster and allow the engine to run until it stops.
3. Turn the key switch OFF if equipped.

EMERGENCY STOPPING


In case of an emergency the machine can be brought to an instant stop by:

1. Pull the throttle back to stop position or turn key switch to OFF if equipped.
2. Close service valve on the fuel cylinder.

NOTE: *The engine may backfire when stopped in this manner.*

3. If the machine is equipped with a "KILL SWITCH", activate the switch.

WHILE OPERATING THE MACHINE

 **WARNING:** Exhaust emissions contain harmful toxic gasses. The worst being carbon monoxide. Do not operate the machine in confined areas for prolonged times. Always make certain that adequate ventilation is had.

1. Refer to "SAFETY PRECAUTIONS" on page 4 and the *Safety Awareness Manual*.
2. Keep machine moving. Running in one place more than a few seconds may damage the floor.

OPERATION

3. Do not leave the machine unattended while the engine is running for long periods of time. If necessary to leave the machine for short periods to move a display etc. move the throttle lever to idle position and tip machine back on the rear caster.

⚠ ATTENTION: It is possible to damage the engine by allowing it to idle for long periods of time by affecting proper lubrication.

4. It has been the accepted practice to start buffing from the right side of the aisles. Most smaller machines are offset to the right to allow buffing close on that side.

CONVERTING THE PRIDE 2100 MODEL (STRIP BUFFER)

Tools Required:

1. 5/8" (16mm) & 3/4" (19mm) open end wrench
2. 9/16" wrench
3. 15/16" (24mm) deep-well socket & ratchet
4. Belt tensioner wrench (provided with machine).
5. Rubber mallet.

CONVERTING FROM BUFF TO STRIP MODE

1. With machine upright on the floor, loosen mounting bolt of belt tensioner on top side of machine deck. (See fig. 8-1)

2. Apply downward pressure with knee on bell of deck.

3. Remove pad driver (See page 5)

4. Remove short belt (BX 40) from upper set of pulleys (small pulley).

5. Replace with long belt (BX 52) for strip mode. Belt must be placed on lower pulleys (larger pulleys).

6. Using belt tensioner wrench provided, tension belt until 1/2" slack in belt on long side. Retighten mounting bolt on top side of deck.

7. Replace pad driver with stripping pad or attach optional brush and turn machine upright.

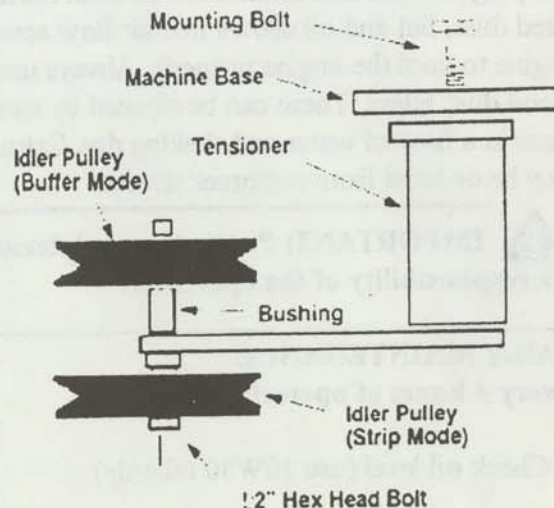
CONVERTING FROM STRIP TO BUFF MODE

1. Repeat steps 1 & 2 above.

2. Remove long belt (BX 52) from lower pulleys (large pulleys)

3. Replace with short belt (BX 40) for buffing mode. Belt must be placed on upper pulleys (small pulleys).

4. Complete steps 5 - 7 from above.



(fig. 8 - 1)

MAINTENANCE

! WARNING: Before attempting any maintenance procedures on the machine, close the service valve on the fuel tank and stop the engine.

! Repairs and adjustments to the fuel system must be made by an authorized, properly trained service technician.

To keep the machine in good working condition, simply follow the daily, weekly, and monthly maintenance procedures.

Keeping the machine clean and free from accumulated dust, lint and oil allows free air flow across the engine to cool the engine properly. Always use clean recoil dust filters. These can be cleaned by washing them in a flow of water and shaking dry. Extra filters may be ordered from customer service.

! IMPORTANT: Preventive maintenance is the responsibility of the operator!

DAILY MAINTENANCE
(every 4 hours of operation)

1. Check oil level (use 10W30 oil only)
2. Clean recoil filter.
3. Check & clean carburetor air filter.
4. Check belt tension by pinching belt together. Belt should deflect only 1/2" (13mm).
5. Make sure all components are secure and tight, (pad holder, fuel cylinder etc.)
6. Check pad holder and pad daily (clean or replace)
7. Clean machine, if compressed air is available blow dust from machine and engine, concentrating on the inside of engine shrouds. Wash undercarriage.
8. On dust collection units, clean dust collection bag.

WEEKLY MAINTENANCE
(every 20 hours of operation)

1. All checks made on a daily basis plus:
2. Change oil and oil filters at 50 hours of service. Use 10W30 Motor Oil or other no ash motor oils designed for use in propane engines. Use of non-recommended oil may void the engine warranty. (See engine manual supplied with documentation).
3. Check for loose nuts and/or bolts on entire machine
4. Examine all propane fuel components for leaks or wear. Replace if necessary.
5. Grease wheels. Use white lithium grease only and no more than 1 pump of grease. More grease than recommended will push the seals and dust covers out, allowing dust and other foreign materials to penetrate the bearing, shortening the life of the bearings as well as allowing grease to drop from wheels to the floor.

MONTHLY MAINTENANCE
(every 80 hours of operation)

1. Perform all daily and weekly services.

Consult engine owners manual for the following:

2. Torque head bolts.
3. Check valve clearance.
4. Torque valve cover bolts.
5. Inspect spark plug. Repace if necessary.
6. Remove engine shroud and clean cooling fins.

QUARTERLY MAINTENANCE
(EVERY 250 HOURS OF OPERATION)

1. Perform all of the monthly maintenance items.
2. Have engine serviced by Authorized Service Center. Including emissions check.

OPERATION

Maintenance Continued:

LIFE TIME OF MACHINE:

1. Change oil regularly.
2. Clean recoil filter regularly.
3. Clean carburetor air filter regularly.
4. Keep machine clean from dust, oil, and debris.
5. Keep a log book of maintenance and repairs.

PROPANE FUEL SYSTEM

! Adjustments and repairs to the propane fuel system can only be made by properly trained and certified Service Technicians!

! Improper adjustments will cause increased toxic emissions of carbon monoxide and may result in carbon monoxide poisoning.

HANGING OIL

The manufacturer recommends 10W30 oil.

1. Run engine for 5 minutes to warm the oil.
2. Make sure machine is on a level surface, pad on the floor. Place container under drain and open the oil drain valve. Allow oil to drain completely.
3. Close drain valve and add 1 qt. of 10W30 Motor Oil. Check level and add if necessary.
4. Replace oil-fill cap assembly. Hand tighten only.

ATTENTION: Do not over fill oil and never run engine with low oil level.

NOTE: When checking oil, remove dip stick, wipe clean, then reinsert the dip stick into the engine, **DO NOT SCREW IN**, remove dip stick and observe oil level as indicated on the dip stick.

NOTE: Some engines require the dip stick to be screwed in for accurate readings. Check the engine manual supplied with your machine for the recommended procedure.

ADJUSTING BELT TENSION

(See fig. 10-1)

Tools required:

3/4" (19mm) open end wrench

15/16" (24mm) deep-well socket

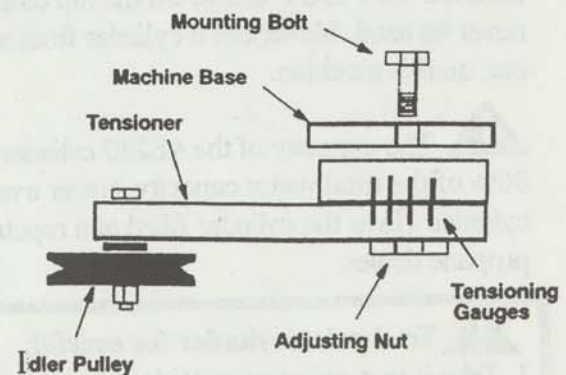
1. Loosen Mounting Bolt on top side of machine deck while holding adjusting nut on underside of deck.

NOTE: The mounting bolt must be loosened before adjustment can be made.

2. Rotate adjusting nut counter clockwise with socket to apply tension to belt.

3. While holding the tension on the adjusting nut, tighten the mounting bolt on the top of the deck.

4. Check belt tension by pinching belt together. Belt should depress only 1/2" (12mm)



(fig. 10-1)


REFUELING AND STORING CYLINDERS


The following information refers to regulations within the United States of America and Canada. For other Countries the owner must assure that the required regulations are met.


National Fire Protection Association (NFPA) has established standards for the Storage and Handling of Liquefied Petroleum Gasses. This standard is NFPA 58.

Liquefied propane will expand 270 times into flammable vapor, which is used as fuel for propane engines. Proper training is recommended for those operating propane powered machines in order to limit the hazards related to the handling and storage of propane fuel cylinders. (See the "Safety Awareness Manual" included with the documentation shipped with this machine). **If you do not have a copy of this document call Customer Service at 1-800-633-0519 for a free copy.**

REFILLING PROPANE CYLINDERS

 The fuel cylinder supplied with this machine is a DOT 4E240 propane cylinder. Cylinders not branded with DOT 4E240 on the top collar should never be used. Never use a cylinder from a barbecue etc. on this machine.


 The capacity of the 4E240 cylinder is 20#, 80% of the total water capacity. Never overfill the cylinder. Have the cylinder filled at a reputable propane dealer.


 **To check a cylinder for overfill:**

1. Take it to a safe area outside
2. Open the fixed liquid level gauge. (bleeder valve)
3. Observe the gas from the valve:
 If white cloud, overfilled!
 If clear vapor, safe!
4. If overfilled, allow to vent until vapor is clear.

Do not attempt to repair a propane cylinder yourself. Return the cylinder to your propane vendor for authorized service.

STORING FUEL CYLINDERS

 **ATTENTION:** Propane fuel cylinders whether full or empty should be stored outside the building in a secure cylinder storage cabinet in accordance with NFPA 58 5-4.2.1

 **CAUTION:** Vertical propane fuel cylinders must always be stored in a vertical position. This position assures that the discharge from the pressure relief valve or other items will be largely vapor and not liquid which will expand to 270 times to flammable vapor.

The manufacturer reminds you that the fuel cylinders should be removed from the machine and placed in the proper storage cabinets outside the building.

NOTE: Local Authorities may have additional requirements for storage of fuel cylinders. Always check with the local Authorities!

STORING THE MACHINE

1. Remove the propane cylinder and store outside as above.
2. Perform all daily maintenance procedures.
3. Store machine in a cool, dry, secure area where it will not be damaged by other traffic.
4. Tilt the machine back on the rear caster with the pad off of the floor.

TRANSPORTING THE MACHINE

When transporting the machine from one job to another secure the machine in your truck or van with the fuel cylinder installed and the service valve OFF!

Allow the engine to cool down some before loading it.

OPERATION

TROUBLE SHOOTING GUIDE		
PROBLEM	CAUSE	SOLUTION
Will not start	No fuel or dirt in fuel line Blown head gasket Engine overload Dirty air cleaner Faulty spark plug Fuel susyem out of adjustment Defective ignition coil	See engine owners manual for servicing. NOTE: only properly trained service technicians should adjust or repair fuel system!
Hard to start	No fuel or dirt in fuel line Engine overload Dirty air cleaner Faulty spark plug Spark plug or head bolts loose Blown head gasket Timing, coil or valves need adjustment Regulator need adjustment Insufficient vacuum	See engine owners manual for servicing. NOTE: only properly trained service technicians should adjust or repair fuel system!
Lacks power	Improper valve clearance Dirt in fuel line Faulty spark plug Improper oil level Worn rings	See engine owners manual for servicing. NOTE: only properly trained service technicians should adjust or repair fuel system!
Odor of burned rubber	Belt out of adjustment	See "Adjusting Belt Tension"
Engine overheats	Incorrect oil level Engine overload Build up of dirt inside engine shroud	See engine owners manual for servicing.
High fuel consumption	Faulty spark plug Dirty air cleaners Improper fuel system adjustment	See engine owners manual for servicing. NOTE: only properly trained service technicians should adjust or repair fuel system!
Machine stops suddenly	Out of fuel	Change fuel cylinders
	Faulty spark plug	Clean adjust or replace spark plug
	Pad not centered on pad driver	Center pad on pad holder
	Incorrect pad size	Replace with proper pad
	Low oil	Add oil (see page 9)
Excess vibration	Bolts loose on engine or deck	Tighten all bolts
	Pad not centered or damaged pad	Center or replace pad
	Incorrect oil level	Check and adjust oil level
	Engine overload	See engine owners manual for servicing.
	Dirty filters	
	Faulty spark plug	