

OWNER'S MANUAL

ULTRAGRIND Propane Concrete Grinder and Polisher



***Powered by the
EPA/Carb certified
Kawasaki
603cc Engine***

 Meets U.S. Green Building Council LEED IEQ Credit 3.4 Requirements
CE, LEED, CARB, EPA, & GS-42 Compliant

aztec 

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Wear approved respiratory protection when the machine is operating.

RESPIRATORY HAZARD INFORMATION:

Grinding/cutting/drilling of masonry, concrete, metal and other materials can generate dust, mists and fumes containing chemicals known to cause serious or fatal injury or illness, such as respiratory disease, cancer, birth defects or other reproductive harm. If you are unfamiliar with the risks associated with the particular process and/or material being cut or the composition of the tool being used, review the material safety data sheet and/or consult your employer, the material manufacturer/supplier, governmental agencies such as OSHA, EU-OSHA and NIOSH and other sources on hazardous materials. California and some other authorities, for instance, have published lists of substances known to cause cancer, reproductive toxicity, or other harmful effects.

Control dust, mist and fumes at the source where possible. In this regard use good work practices and follow the recommendations of the manufacturers or suppliers, OSHA, NIOSH, and occupational and trade associations. Water should be used for dust suppression when wet cutting is feasible. When the hazards from inhalation of dust, mists and fumes cannot be eliminated, the operator and any bystanders should always wear a respirator that is approved for the materials being used.

SILICOSIS WARNING INFORMATION:

Grinding/cutting/drilling of masonry, concrete, metal and other materials with silica in their composition may give off dust or mists containing crystalline silica. Silica is a basic component of sand, quartz, brick clay, granite and numerous other minerals and rocks. Repeated and/or substantial inhalation of airborne crystalline silica can cause serious or fatal respiratory diseases, including silicosis. When using the equipment with such materials, always follow all dust control and respiratory precautions.

IMPORTANT SAFETY INSTRUCTIONS

Read and observe all **DANGER, WARNING, AND CAUTION** statements included in the Owner's Manual and affixed to the machine. These statements indicate that there is a possibility of death, bodily injury, and damage to the machine or property if these instructions are ignored.


WARNING

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this machine. Always store equipment away from heater rooms, boilers, gas-fired water heaters or any other source of open flame. Propane is highly flammable. Always store LPG tanks (full or empty) outside in a secure, well ventilated area.

NO SMOKING, NO SPARKS, NO FLAMES NEAR UNIT OR LPG TANK.

Operate only in well ventilated areas. Buildings must be provided with:

- A. A continuous mechanical ventilation that removes the products of combustion to the outdoors of not less than 300 CFM for each 10,000 BTUH or fraction thereof; or
- B. Natural ventilation of not less than 300 CFM for each 10,000 BTUH input or a fraction thereof; based on a maximum of one-quarter air exchange per hour for the net building volume.

If you smell LPG gas, stop the unit and check for leaks. Also open windows, don't touch electrical switches, extinguish any open flames. Call your gas supplier if no leaks are found.

Do not adjust the fuel system without the proper analysis equipment.


DANGER

This machine emits CO (carbon monoxide), which is a colorless, odorless, non-irritating gas. Symptoms of CO exposure include headache, drowsiness, dizziness and nausea. If you experience any of these symptoms during machine operation, immediately shut off the machine and go outside for fresh air. Have a qualified service technician test the machine for CO emissions before using it again.

High exposure to CO may result in vomiting, confusion, collapse, loss of consciousness and muscle weakness. If such symptoms occur, call for emergency medical attention. **DO NOT** operate this machine or other propane powered equipment until cleared to do so by a physician. Excessive exposure to CO can result in death.

Never change or alter the propane control components.

This machine is factory equipped with engine components and emission controls that maintain harmful exhaust emissions below certified acceptable levels. Never tamper, adjust, or remove any factory installed engine components for purposes other than maintenance, repair or replacement.

Never tilt the equipment on its side for pad, belt or brush replacement. It is designed to tilt back on its rear wheel and handle for maintenance and repair. A second person should aid in lifting and securing equipment for repair.

Never tilt & transport while engine is running.

Keep hands and feet clear of all moving parts.

Never try to replace parts or repair equipment with machine running.


Turn the gas off at the tank to kill the engine.

Remove the LPG tank and store it in an approved area when not in use. A "NO SMOKING" sign should be permanently displayed at the storage area.

Always vent an over-full bottle using the tank's bleed valve, out of doors away from all closed places and away from any fire or flame producing device. Vent until the white vapor turns clear.

This machine is intended for use with vapor withdraw propane cylinders only. NEVER use a liquid withdraw propane cylinder with this equipment. **DO NOT** overfill the cylinder. If the regulator or regulator connection freezes, stop the machine and take the cylinder outdoors. Inspect cylinder and purge the cylinder using the bleeder valve if necessary.



 VAPOR ONLY !
VAPEUR SEULEMENT !
VAPOR SOLO !



 NO LIQUID !
NINGUN LIQUIDO !
AUCUN LIQUIDE !

Keep all objects clear of the exhaust system during and after operation.

Do not leave this machine unattended while the engine is running.



WARNING

Do not operate equipment in one location for more than a few seconds. Damage to floor surface can occur.

Always store equipment away from possible damage by falling objects in warehouse-type areas. Always store LPG tanks outside in a secure, well-ventilated area.

The muffler and engine become hot enough during operation to cause severe burns. These parts remain hot for a long time after the machine has been shut off. DO NOT touch these parts until they have cooled.

Safety goggles, safety shoes and safety clothing are recommended while operating the machine.

Continuous exposure to high noise levels can cause hearing loss. Hearing protection must be worn while the machine is in operation. The operational weighted sound level of this machine is less than 89dB(A). All noise area precautions must be followed.

Prolonged exposure to machine vibration may cause tingling or numbness in the fingers and hands. Use of gloves and limits to operator vibration exposure are recommended to prevent such symptoms. The operational hand/arm vibration level of this machine is less than 2.5m/s².

When LPG tank is attached to the machine and not running, the operator should not leave the machine unattended except for short periods of time such as rest stops, washroom or meal stops.

The operator must completely understand all instructions, warning and operating procedures before using this machine.

This machine must be maintained in accordance with this manual's recommended maintenance instructions and the engine manufacturer's recommended maintenance procedures. Failure to do so may cause damage to the machine, equipment, furniture, buildings or personal injury. A maintenance record should be kept indicating date of service, hours on engine, and work done.



WARNING

Before attempting any maintenance procedures, close the service valve on the fuel cylinder and stop the engine.

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

Exhaust parts are extremely HOT. Do NOT allow them to come into contact with anything or anyone.

Do not attempt to change diamonds while the engine is running.

Do not stand on machine.

GUIDE TO GRAPHICAL SYMBOLS AND PRODUCT LABELS



Read all instructions before using



Hot surface – Do Not Touch



Wear hearing protection when operating



Wear safety goggles when operating



Wear respiratory protection



Switch "On" Position



Switch "Off" position

Refer to page 13 of this manual for a location and description of all safety labels and controls.



WARNING

Follow the instructions given in this booklet, the Engine's Owners Manual and the training given by your supervisor for the safe operation of this machine. Failure to do so can result in personal injury and/or damage to the machine or property.

DO NOT OPERATE THIS MACHINE IN AN EXPLOSIVE ENVIRONMENT!

THIS PROPANE MACHINE IS INTENDED FOR COMMERCIAL USE.

TRANSPORTING THE MACHINE

NEVER TRANSPORT WHILE ENGINE IS RUNNING.

To transport the machine it is necessary to install the transport wheel so the drive plates are not in contact with the floor. In this "balanced" position the equipment can be readily moved from site to site.

A. Tilting the Machine

This is a heavy piece of equipment. Caution should be used in tilting the machine. This can be accomplished safely and easily as follows:

1. One man method:

- Standing behind the machine, place one foot on the brace at the base of the propane tank.
- Place one hand on the handle and the other on the "T" frame handle support.
- While pulling and leaning back, lift the other foot off the floor and extend it directly behind. This will shift the balance and naturally tilt the equipment to transport or full "tilt back" position without undue strain.

2. Two man method:

Two people side by side perform the above procedure simultaneously. This is a safer, more comfortable technique to use until more experience is gained with the equipment.



WARNING

Do not use excessive vertical pressure.

B. Position for Maintenance & Cleaning

To perform certain maintenance & cleaning tasks or to change diamonds, the machine should be placed in the full "tilt back" position. See page 8 for more information about maintenance and cleaning.

PREPARATION

Flange bearing must be lubricated before every use. See page 8 for more information about the flange bearing.

A. Check that the suggested maintenance schedule has been observed. See page 8-9 for more information about suggested machine and engine maintenance instructions.

All machines are equipped with a multi-function maintenance meter. The functions include the following: hour meter, service alert and tachometer. (See Engine Maintenance Meter instructions pg. 9).

B. Check the engine oil before every operation.

Make sure the machine is level when checking the oil. Always take 2 readings of the dipstick before adding oil. If the oil level is below the full mark, add just enough oil to the engine to bring the oil level up to the full mark. **Never over fill.** Follow the guidelines in your Engine Owners Manual. Check for foreign material on the dipstick.

C. Properly fill and check your LPG tank and all LPG fuel lines for leaks.

- Every tank has been pressure and leak tested. However, every time a tank is filled and/or connected to the machine it should be soap tested. All LPG lines must be pressurized and every inch of line and connections must be sprayed. If you find a leak, make the proper repairs before operating the machine. NOTE: The connection and disconnection of the LPG tank must be done in a well ventilated area with NO source of ignition within 10 feet (3 meters) from the point of connection.
- Never over fill the LPG tank!** The LPG tank is designed to hold just 20 pounds of propane. Make sure to weigh the tank as it is being filled. The gross weight of a full tank should not exceed 48 pounds. If while operating the machine, you notice frost forming on the LPG lines or the regulator, your tank has been over filled. If you continue to operate the machine in this condition, damage will occur. The excess propane in the tank must be removed before normal operations resume. The bleeding of a propane tank should be done in a safe location outside the building. In some cases the regulator must defrost before restarting the engine.

D. Connecting the high pressure hose to the LPG Tank:

Make sure the couplers are in line and screwed together hand tight. If this is not done properly, fuel will not pass through to the regulator. Never complete the connection of the tanks to the machine by using a wrench. Always do it by hand. Listen for the rush of fuel to the lock-out device when you open the tank valve. If you hear this, it indicates a good connection has been made at the tank.



WARNING

NEVER CHANGE OR ALTER THE PROPANE CONTROL EQUIPMENT.

NEVER TILT THIS MACHINE ON ITS SIDE.

SAFETY

Provide and use ear protection during operation.

Never let an untrained person operate or perform repairs on the machine. They may hurt themselves, damage the floor or the equipment.

Engine speed not to exceed 3400 RPM.

DO NOT use machine with a damaged or disintegrated pad to avoid excess vibration.



WARNING

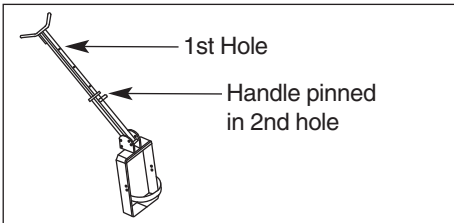
Do not use on surfaces with a gradient exceeding 2%.

OPERATING PROCEDURES

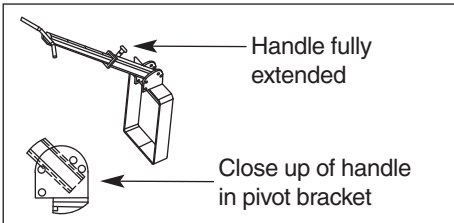
A. Adjusting the Handle Height

The UltraGrind is equipped with a telescoping and adjustable handle.

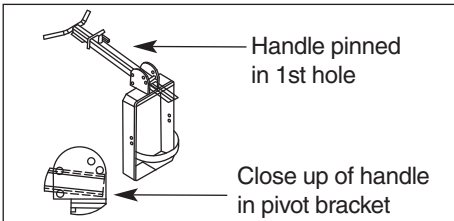
UltraGrind Transport Handle Position



Diamond Change Handle Position



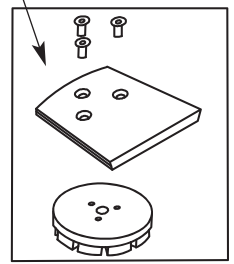
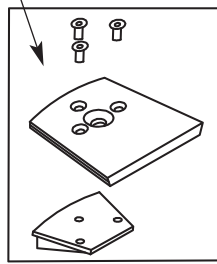
Operating Handle Position



B. Plate Assembly and Diamond Installation

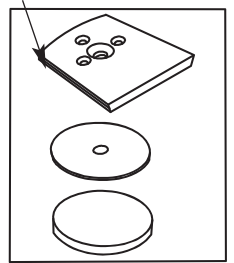
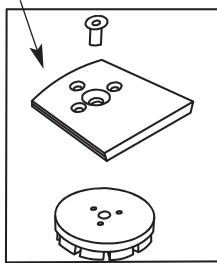
Resin Bond

Metal Bond with 3 Screws



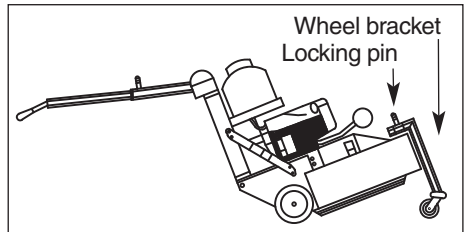
Metal Bond with 1 Screw

Resin Bond



1. Close service valve on fuel cylinder to prevent liquid from getting into the regulator.
2. Tilt machine back to access the drive pad
3. Align diamond shoe with slots in drive pad and push firmly into slot.
4. Examine red flex plate disc for signs of wear; see daily maintenance requirements.

C. Transport Wheel



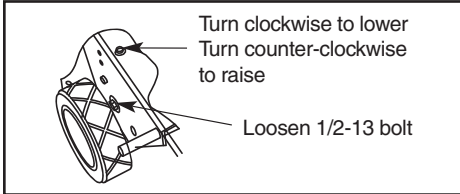
WARNING

Remove transport wheel before operating machine

1. Extend handle to fully extended position.
2. Press downward on the handle bar until it rests on the ground.
3. Release locking pin on transport wheel bracket & remove transport wheel.

4. Transport wheel can be turned so wheel is in the up position & installed into bracket for storage; make sure the locking pin is securely engaged. The transport wheel may also be stored separate from the machine.

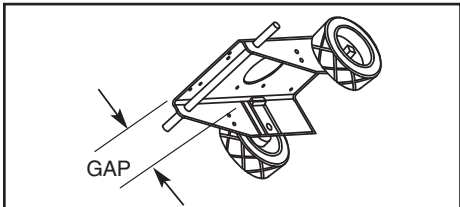
D. Wheel Adjustment



Wheel adjustment must be made to both wheels on level floor.

1. Loosen 1/2-13 x 1 1/4" bolt
2. Loosen 1/2-13 jam nut just above axle bracket
3. Adjust machine height by turning the 1/2-13 x 5" bolt counter clockwise to raise machine or clockwise to lower machine
4. Tighten 1/2-13 jam nut
5. Tighten 1/2-13 x 1 1/4" bolt

E. Rear Wheel Setting



Gap factory setting is 2". Set gap as shown in diagram.

F. Installing the Fuel Cylinder

1. Take UltraGrind to well ventilated area
2. Check cylinder for overfill
3. Place cylinder on the machine in tank holding area and secure the safety strap
4. Connect fuel cylinder to the machine, tighten hand tight. Do not use a wrench or pliers or cross thread
5. Open the service valve slowly, be alert for the odor of propane which may indicate a leak
6. To remove the cylinder, reverse the procedure

G. Before Operating the UltraGrind

- Check oil level
- Check carburetor air filter
- Check diamonds and diamond plates
- Adjust handle height
- Install fuel cylinder in a well ventilated area

H. Before you start the engine



Do NOT allow machine to come into contact with loose tiles or other obstructions on the floor. The abrasives will be turning at approximately 650 RPM. If objects are hit, they could become dangerous projectiles!

- Extend the handle and tilt machine back until handle rests on floor.
- Install diamonds and remove transport wheel.
- Bring machine back to operating position.
- Fill water tank if wet grinding.

I. Preparing to start the engine

1. First - check fuel cylinder for overfill and install cylinder onto machine.
2. Place machine on level surface and check for correct oil level.
3. Attach lanyard kill switch clip to the operator. The lanyard kill switch is a safety switch used if the operator would fall or lose control of the machine; the lanyard will pull away from the switch and kill the engine. The lanyard must be securely fastened to the operator with the attached clip fastener. If the lanyard should become disengaged from the switch, it can simply be reattached to the switch and engine can be restarted. The lanyard kill switch, when activated, will ground the ignition coils, resulting in no spark to the spark plugs, stopping the engine. If the lanyard should become disengaged from the switch and the machine is no longer going to be used, the tank valve must be closed and the ignition key turned to the off position.

J. Transporting the machine

1. The tank should be securely fastened.
2. The tank valve must be closed.

STARTING THE ENGINE

1. Open propane (LPG) tank valve (counter clockwise).
2. Turn the key to start position and move throttle towards fast position.
3. If engine does not start, release the key, then try again.
4. Equipment is supplied with a centrifugal clutch. When engine RPM is lower than 1800 RPM clutch will disengage; drivers will stop.

5. Increase throttle to about 75% while walking very slowly.

A. Never tilt back machine while engine is running.

STOPPING THE ENGINE

Turn the propane tank valve clockwise to a closed position and turn the key OFF.

NOTE: The exhaust system will be very hot and takes several minutes to cool, so keep yourself and all materials clear.

MAINTENANCE

A. Cleaning the equipment

1. Place machine in "tilt back" position.
2. Rinse the drive unit and drivers.
3. Rinse around splash skirt and body.
4. Return machine to operating position, then start engine and run machine briefly to expel any excess water.

B. Storing the machine and tank

1. The engine should be stopped properly and the tank valve closed.
2. Remove the LPG tank from the machine and store the tank in a well ventilated approved area.
3. Store your machine in a safe area: away from enclosed high heat, away from sparks or flames, and away from traffic lanes of heavy equipment.

C. Flange Bearings

The Flange Bearings must be lubricated with grease before every use or every 4 hours of run time, whichever comes first, or warranty of Flange Bearings will be voided.

D. Machine & Engine Maintenance

1. Refer to engine manufacturer's Owners Manual and comply completely with the instructions. Change the oil and filter according to the engine Owners Manual.
2. Keep a good service log on each machine with the date, hour meter reading, type(s) of service performed and the name of the person who performed them.
3. Clean the entire unit after each use. When cleaning the unit, check for possible loose nuts and bolts.
4. The foam engine dust filter should be removed and cleaned periodically by shaking out the accumulated dust and rinsing with water and a mild detergent. Squeeze out excess water (do not wring out). Allow the filter to air

dry before replacing. Failure to the engine filter clean may result in engine overheating.

Changing Gear Drive Lubricant

After the first 100 hours of operation, drain out initial oil, flush out the gear case with an approved nonflammable, non-toxic solvent and refill. Thereafter, oil should be changed at least every 500 operating hours, or every 6 months, whichever comes first, with Mobilgear 630 oil or equivalent.

E. Maintenance Schedule

Repairs and adjustments to the fuel system must be performed by an authorized, properly trained service technician. To keep the machine in good working condition, follow the daily, weekly and monthly maintenance procedures listed below. Keeping the machine clean and free of accumulated dust, lint and oil allows free air to flow across the engine and proper cooling. Always use clean recoil dust filters.

These can be cleaned by washing them in flowing water and shaking them dry. Keep a log book of maintenance and/or repairs.

Daily Maintenance

Every two hours of operation:

Change or vacuum clean the recoil dust filter.

Check and clean carburetor pre-filter.

Every four hours of operation:

Check oil level.

Lubricate Flange Bearings.

Make sure all components (shroud, handle, fuel cylinder, belt, etc) are tight and secure.

Check drive plates and flex material for cracks or diamond wear.

Clean machine – if compressed air is available, blow dust from machine and engine, concentrating on the inside of engine shrouds, and wash undercarriage.

Weekly Maintenance: every 20–50 hours of operation

Perform all daily maintenance services.

Change oil and oil filters at 50 hours of service.

Check for loose nuts and bolts on entire machine.

Examine all propane fuel components for leaks or wear, replace if necessary.

Monthly Maintenance: every 80 hours of operation

Perform all daily and weekly services.

Change carburetor air filter.

Consult engine owner's manual for maintenance services.

Quarterly Maintenance: every 250 hours of operation

Perform all daily, weekly and monthly services.
Have engine checked by an authorized service center professionals.

Have engine emissions checked by an authorized service center professionals.

Servicing the UltraGrind

Proper maintenance of the UltraGrind is the responsibility of the owner and/or the operator.

Be sure to go through this checklist on a regular basis:

Check oil level.

Check and clean air and dust filters.

Keep machine clean and lubricated.

Clean entire machine after each use, including under the gear drive assembly—engine must be cool before water is used to prevent warping and other damage.

Clean carburetor air filters after four hours running time, and clean or replace daily before operation.

Check for wear on drive plates and flex hubs daily, replace if damaged.

Promptly report any damaged or worn parts to supervisor.

Servicing and adjusting of the propane fuel system should only be done by a trained, authorized professional.



WARNING

Never attempt to adjust the fuel system of a propane engine! If equipped with an emission monitoring or controlling system, never attempt to disconnect or circumvent it. Promptly report problems to supervisor.

F. Engine Maintenance Meter

This multi-function meter acts as a preventive maintenance tool, which benefits you with increased fuel economy, less down-time and longer engine life.

The meter's displays are:

Hour Meter: Displays total run hours when machine is off.

Tachometer: Indicates engine RPM during operation.

Service Alert: The display flashes to alert you to lube and change the oil at 25 hour intervals. The service alert only flashes during operation and it warns you to change the oil for only two hours. After the two hours is reached, the alert will automatically reset to the next 25 hour interval. Therefore, it is recommended that a separate maintenance log be kept to track oil changes.

maintenance log be kept to track oil changes.



WARNING

Remember that being safe is a full-time, every day job. Follow all information posted on the machine and the LPG tank.

Never allow anyone to operate this machine who has not read or cannot understand the given instructions.

G. Troubleshooting the electrical system

1. Check all wire connections for obvious problems. Remove LPG tank, then remove battery box cover. Check all connections visibly and physically. If any "loose", damaged or unconnected wires are noticed, replace or repair as needed.
2. Check the battery posts and wires. Always wear a face shield, safety glasses and protective clothing when working around a battery. The gases can be explosive and the acid is highly corrosive to metals, cloth and ALL HUMAN TISSUE (skin, eyes, etc.) If the battery post(s) are corroded, remove the wires and clean posts and wires. Applying some axle grease on the posts of the battery after they are cleaned will slow down the battery corrosion process.

If nothing obvious is noted, a more detailed investigation is warranted. Before any such troubleshooting begins, the following things should be done:

- a. Replace propane LPG tank with one from a machine that runs.
- b. Charge the battery or provide an absolute source of 12 volt DC power capable of 50 amperes total output. (A pair of good jumper cables from your car or truck battery will suffice.) Equip yourself with an inexpensive 12 volt test light.
- c. If the trouble seems to be in the electrical control equipment, you may disconnect the starter from the system so as to check the system without spinning the engine.
- d. Battery rundown. A common problem is letting the battery run down. What usually happens is that it takes the crew a few jobs to get used to the whole system, so the machine is stopped and started quite often. Key left in On position, when engine is turned off, will result in battery running down—dying.

H. Troubleshooting main drive belt

If the engine runs, but the drive unit will not engage, this is usually related to the main drive belt. Without removing the drive unit you can check and fix the following:

1. Remove the two (2) 3/8" bolts holding the belt cover to the body. Remove the one (1) 3/8" bolt holding the muffler bracket to the belt cover. Check if belt tension by pinching belt together. Belt should depress only 1/2".
2. Check to see if belts have come off of input pulley or centrifugal clutch. If so, install belts back on the pulley. Note: If belts come off again they are probably worn or stretched and need replacement.

KAWASAKI 603cc ENGINE

Tune-up Specifications

ITEM	SPECIFICATIONS
Ignition Timing	Unadjustable
Spark Plugs:	NGK BPR4ES
Gap	0.75 mm (0.30 in)
Low Idle Speed	1550 RPM
High Idle Speed	3400 MAX RPM
Valve Clearance	IN: 0.10-0.15 mm (0.004-0.006 in) EX: 0.10-0.15 mm (0.004-0.006 in)

NOTE: High and low idle speeds may vary depending on the equipment on which the engine is used. Refer to the equipment specifications.

Engine Oil

Check the engine oil daily before starting the engine otherwise shortage of the engine oil may cause serious damage to the engine such as seizure.

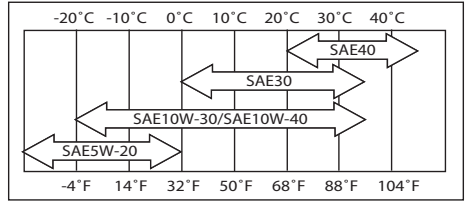
- Place the engine on a level surface. Clean the area around the oil gauge before removing it.
- Remove the oil gauge and wipe it with a clean cloth.
- Pour the oil slowly to "FULL" mark on the oil gauge.
- Insert the oil gauge into the tube WITHOUT SCREWING IT IN.
- Remove the oil gauge to check the oil level. The oil level should be between "ADD" and "FULL" marks. Do not overfill.
- Install and tighten the oil gauge.

Recommended Oils

The following engine oils are recommended. API Service Classification: SF, SG, SH, or SJ.

Oil Viscosity

Choose the viscosity according to the temperature as follows:



NOTE: Using multi grade oils (5W-20, 10W-30, and 10W-40) will increase oil consumption. Check oil level more frequently when using them.

Engine Oil Capacity

FS481V 1.7 L (1.8 US qt.) when oil filter is removed

Oil Change

Change oil after **first 8 hours of operation**. Thereafter change oil **every 50 hours**.

- Run the engine to warm oil.
- Be sure the engine (equipment) is level.
- Stop the engine.
- Open the oil drain valve and drain the oil into suitable container while engine is warm.

⚠ WARNING!

Hot engine oil can cause severe burns. Allow engine temperature to drop from hot to warm level before draining and handling oil.

Oil Drain Plug

- Close the oil drain valve.
- Remove oil gauge and refill with fresh oil (See "Recommended Oils").
- Check the oil level (see "Preparation" on page 3 for oil level check).

Oil Filter Change

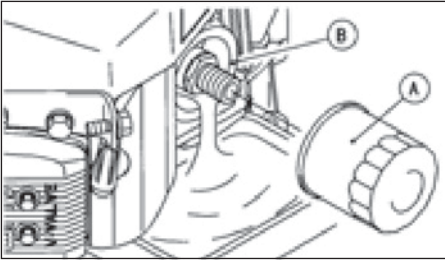
- Change the oil filter **every 100 hours** of operation.

⚠ WARNING!

Hot engine oil can cause severe burns. Allow engine temperature to drop from hot to warm level before attempting to remove oil filter.

CAUTION! Before removing the oil filter, place a suitable pan under filter connection.

- Drain engine oil into a suitable container.
- Rotate the oil filter (A) counterclockwise to remove it.



- Coat a film of clean engine oil on seal of new filter.
- Install new filter rotating it clockwise until seal contacts mounting surface (B). Then rotate filter 3/4 turn more by hand.

- Supply engine oil as specified.
- Run the engine for about 3 minutes, stop engine, and check oil leakage around the filter.
- Add oil to compensate for oil level drop due to oil filter capacity (See "Preparation" for oil level check on pg. 3).

⚠ WARNING!

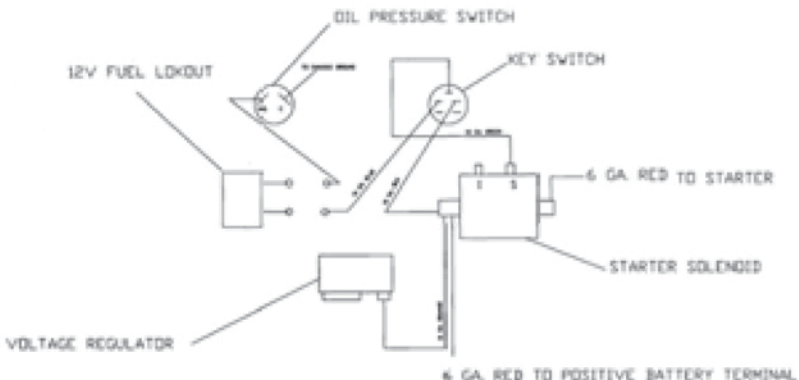
Engine oil is a toxic substance. Dispose of used oil properly. Contact you local authorities for approved disposal methods or possible recycling.

KAWASAKI ENGINE MAINTENANCE SCHEDULE

MAINTENANCE	INTERVAL						
	Daily	First 8 hr.	Every 25 Hr.	Every 50 hr.	Every 100 hr.	Every 200 hr.	Every 300 hr.
Lubricate Pillow Block Bearings	•						
Check and add engine oil	•						
Check for loose or lost nuts and screws	•						
Check for fuel and oil leakage	•						
Check or clean air intake screen	•						
Clean air cleaner foam element			•				
Clean air cleaner paper element				•			
Clean dust and dirt from cylinder and cylinder head fins					•		
Tighten nuts and screws					•		
Change engine oil		•		•			
Clean and gap spark plugs					•		
Change oil filter					•		
Replace air cleaner paper element					•		
Clean combustion chambers							•
Clean and adjust valve clearance				•*			•
Clean and lap valve seating surface							•

*After the 1st 50 hours

KAWASAKI ENGINE BATTERY START WIRING DIAGRAM

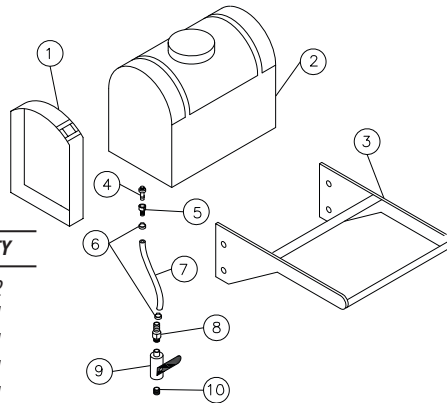


ENGINE TROUBLESHOOTING

COMMON PROBLEMS & PROBABLE CAUSES	SOLUTIONS
<p>Engine cranks but will not start</p> <ul style="list-style-type: none"> • Fuel cylinder is empty • Shutoff valve is closed • Clogged, obstructed, kinked or cut fuel or vacuum line • Spark plug lead disconnected • Faulty choke or throttle settings • Faulty ignition coil • Faulty kill switch • Faulty regulator 	<p>Refill cylinder Open valve Remove obstruction or replace line Connect lead to spark plug Set controls to correct positions Replace coil Replace switch Replace regulator</p>
<p>Engine starts hard</p> <ul style="list-style-type: none"> • Faulty choke or throttle settings • Clogged, obstructed, kinked or cut fuel or vacuum line • Faulty regulator • Low compression 	<p>Set controls to correct position Remove obstruction or replace line Replace regulator Have engine serviced by a trained technician</p>
<p>Engine will not crank</p> <ul style="list-style-type: none"> • Battery is discharged • Loose or faulty connections or wires • Faulty ignition key switch or starter control switch 	<p>Charge or replace battery Tighten, repair or replace wires Repair or replace switch(es)</p>
<p>Engine overheats</p> <ul style="list-style-type: none"> • Incorrect fuel settings • Air intake filter screen or cooling fins clogged • Low oil level 	<p>Have engine serviced Clean and clear debris or replace filter Check and add oil</p>
<p>Exhaust emissions or propane odor</p> <ul style="list-style-type: none"> • Carburetor or regulator setting incorrect • Dirty or clogged air filter • Choke engaged • Loose fittings, clamps or hoses cracked, hoses cut or leaking 	<p>Have engine serviced by a trained technician Replace air filter Adjust to correct settings Tighten or seal; check with soap and water solution, if bubbles appear, part is still leaking; replace</p>

WATER TANK PARTS



REF	DESCRIPTION	PART #	QTY
1	WATER TANK STRAP	010-MG-STRAP	2
2	8 GALLON WATER TANK	010-971MGT	1
3	WATER TANK BRACKET	288-040-2280	1
4	QUICK COUPLING INSERT	050-290	1
5	QUICK COUPLING BODY	050-270	1
6	HOSE CLAMP	050-320	2
7	TUBING	216-0609	2
8	HOSE BARB	050-250	1
9	WATER VALVE	030-20-1171	1
10	CLOSE NIPPLE	177-58020	1



Warning Label Locations

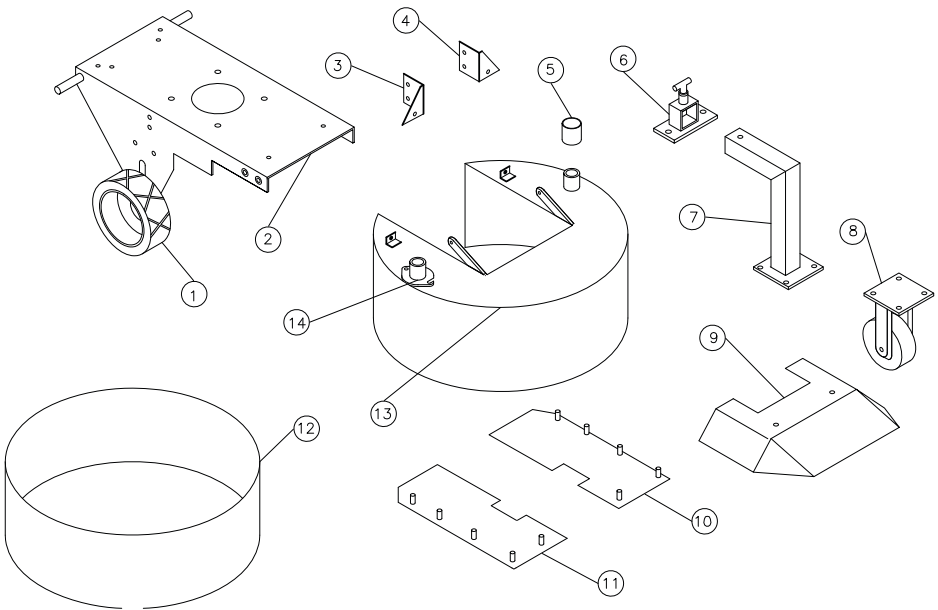


Quick Start Guide

1. Read, understand and observe all Important Safety Instructions before operating the machine (See Pg. 2).
2. Make sure the machine is properly maintained prior to use (See Pg. 2).
3. Make sure the LPG tank ① is filled, connected and checked for leaks. (See Pg. 3).
4. Open the LPG tank by turning the knob ② anti-clockwise.
5. Set throttle lever ③ to idle [] position
6. Turn key ④ to start [|] position
7. Move throttle lever ③ toward run [] position. If motor fails to start, return to Step 5 above.
8. Set throttle lever ③ to desired operating speed and follow the moving machine (straight ahead) at moderate walking pace (keep moving).

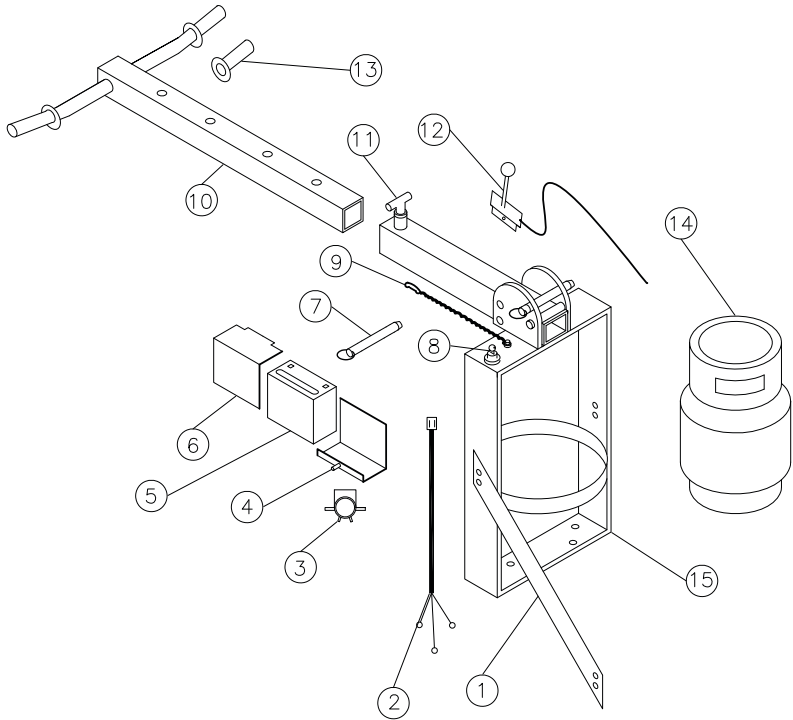


BODY ASSEMBLY PARTS



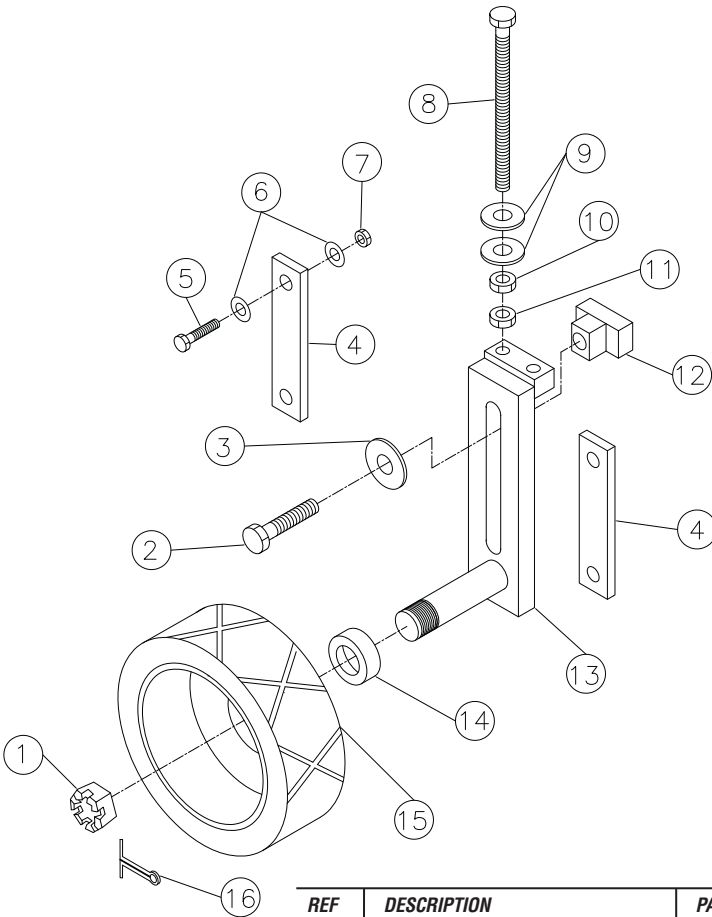
REF	DESCRIPTION	PART #	QTY
1	WHEEL ASSEMBLY	156-040	2
2	BODY FRAME ASSEMBLY	288-040-100	1
3	RIGHT END PLATE	283-040-900R	1
4	LEFT END PLATE	283-040-900L	1
5	VACUUM CAPS	040-3015	2
6	WHEEL BASE BRACKET	288-040-10	1
7	TRANSPORT WHEEL BRACKET	288-040-2300	1
8	TRANSPORT WHEEL	156-040-1	1
9	BELT COVER	288-040-300	1
10	LEFT SHIELD	288-040-2290L	1
11	RIGHT SHIELD	288-040-2290R	1
12	SPLASH SKIRT	040-200	1
13	DRIVE COVER ASSEMBLY	288-040-200	1
14	ACCESS COVER	288-040-2270	1

HANDLE ASSEMBLY PARTS



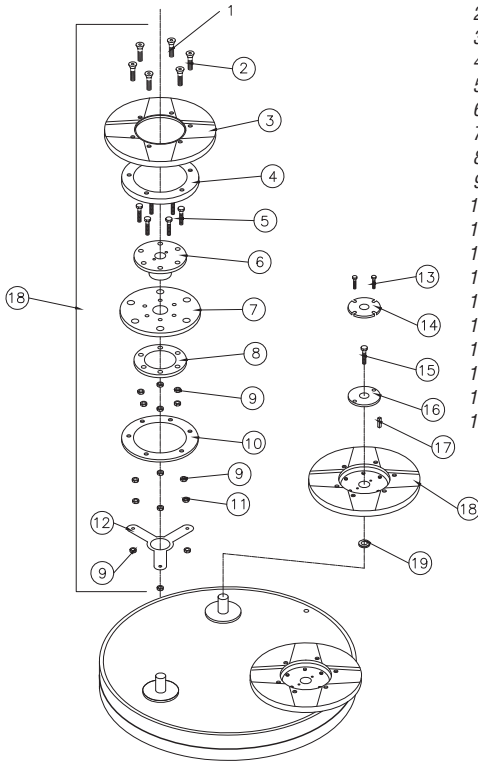
REF	DESCRIPTION	PART #	QTY
1	HANDLE STRUT	283-040-600	2
2	WIRE HARNESS	011-762 WHK	1
3	STARTER SOLENOID	296-SS-581	1
4	BATTERY BOX BOTTOM	283-11-2127B	1
5	BATTERY 12V	276-GTX14	1
6	BATTERY BOX TOP	283-11-2127T	1
7	QUICK RELEASE PIN	625-97320A760	2
8	KEY SWITCH	312-308-0385	1
9	LANYARD KILL SWITCH	153-73459	1
10	HANDLE EXTENSION	288-040-1200	1
11	T-KNOB PIN	625-09300088	1
12	THROTTLE CABLE	196-60314	1
13	HANDLE GRIP	224-1	2
14	20# LP CYLINDER	293-20#STLMF	1
15	HANDLE BASE ASSEMBLY	288-040-400	1

WHEEL AXLE ASSEMBLY PARTS



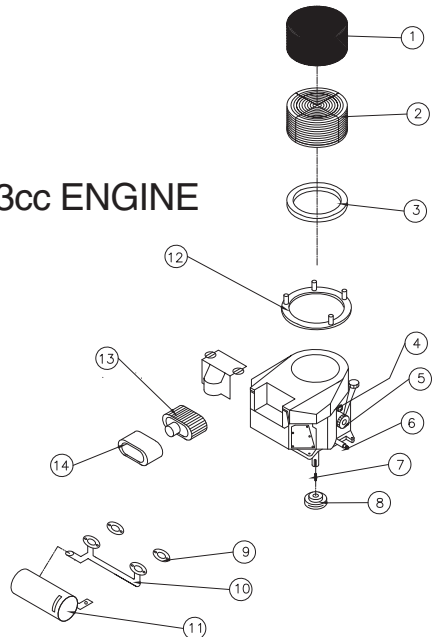
REF	DESCRIPTION	PART #	QTY
1	AXLE NUT	164-36869	2
2	1/2-13 X 2 HCS	164-110120382	2
3	1/2" FLAT WASHER	164-20159	2
4	ADJUSTMENT SIDE BAR	283-040-1000	4
5	3/16 X 1 HCS	164-10115	8
6	3/16 FLAT WASHER	164-20156	16
7	3/16 STOVER LOCK NUT	164-22834	8
8	1/2-13 X 5 TAP BOLT	164-50C500BTA52	2
9	1/2" FLAT WASHER	164-20159	4
10	1/2-13 STOVER LOCK NUT	164-22836	2
11	1/2-13 HEX NUT	164-22008	2
12	T-SLOT NUT	164-731-54338	2
13	AXLE BRACKET ASSEMBLY	288-040-15	2
14	AXLE SPACER	040-3010	2
15	WHEEL ASSEMBLY	156-040	2
16	COTTER PIN	164-18R200PC02	2

DIAMOND DRIVERS PARTS



PART #	DESCRIPTION	PART #	QTY
1	3/8-16 x 2 1/4 FSCS	164-37C225KSCST	3
2	3/8-16 X 2 1/2 FSCS	164-37C25KSC	3
3	DRIVE PLATE	283-040-2255	1
4	Mount Spacer	283-040-2220	1
5	3/8-16 x 1 1/4 HCS	164-10117-SS	6
6	HUB	283-040-2230	1
7	FLEX PLATE	040-2210	1
8	HUB RING	283-040-2215	1
9	3/8-16 STOVER LOCK NUT	164-22834	12
10	Mount Ring	283-040-2245	1
11	3/8-16 HEX NUT	164-22004	3
12	SAFETY STRAP	283-040-2225	1
13	5/16-18 x 1 HCS	164-110120325	2
14	SHAFT LOCK PLATE	283-040-2240	1
15	3/18-16 X 1 1/4 HCS	164-10117-SS	1
16	SHAFT END PLATE	283-040-2235	1
17	1/4" KEY	199-NHNT-SE UND	1
18	DRIVE PLATE ASSEMBLY	040-2255	3
19	SHAFT SEAL	040-4000	3

KAWASAKI 603cc ENGINE



PART #	DESCRIPTION	PART #	QTY
1	Foam Hat Filter	186-271964	1
2	Debris Screen	309-18540	1
3	Foam Hat Seal	175-7.75*9.25*1	1
4	Oil Pressure Switch	152-N3-0082	1
5	Oil Filter	309-49065-7007	1
6	Oil Drain Valve	312-504-0185	1
7	1/4 x 1 1/4 Key	199-NHNT-SE UND	1
8	Centrifugal Clutch	311-180007	1
9	Exhaust Manifold Gasket	309-11060-7016	2
10	Exhaust Manifold	152-603-MAN	1
11	Catalytic Muffler	152-603-MUF	1
12	Debris Screen Adapter	283-040-2250	1
13	Air Filter Element	309-11013-7049	1
14	Foam Pre Filter	309-11013-7046	1

ULTRAGRIND WARRANTY

This quality product is warranted to be free from defects in workmanship and materials. The warranty is limited as follows:

Component	Term of Warranty
Engine	2 yrs from engine manufacturer
Fuel System	1 yr
LP Tank	1 yr on valve, 3 yrs on cylinder from date of mfg.
Body Parts	1 yr
Battery	1 yr from battery mfg.
Centrifugal Clutch	1 yr
Bearings	6 months
Drive Blocks	6 months

The warranty does not apply to certain consumable or wear parts such as:

*Belts
Engine tune up parts*

All engines are warranted by the manufacturer (Kawasaki) for a period of two years when engine maintenance schedules are followed.

Aztec Products, Inc. agrees, at its discretion, to repair or replace at its own expense any product or part(s) which examination proves to be defective in workmanship or materials provided that the purchaser notifies Aztec Products, Inc. directly within the warranty period and follows the Return Goods Policy. Engine repairs may be performed at engine manufacturer's service centers. For your closest center you may call the following number:

Kawasaki 616-949-6500

The warranty does not apply to damage or failure caused by abuse, misuse, neglect, disassembly, alteration, unauthorized modification, lack of proper maintenance, theft, or damage by freight carriers. The warranty applies to parts, labor and ground freight only. It does not cover incidental or consequential damages.

In order to obtain parts warranty, the following procedures must be followed:

- 1. Customer must call Aztec Products, Inc. for an RGA (Return Goods Authorization) Number.*
- 2. We maintain the serial number, date of shipment or sale, and customer name on each piece of equipment sold. If you were the purchaser, please reference that information on your request for replacement or repair. If you purchased the equipment through a distributor, please contact them first. If you are not satisfied, contact Aztec and give us the distributor name, purchase date, and the serial number of the product.*
- 3. The defective part must be returned via ground freight prepaid to Aztec Products, Inc. with an RGA number accompanied by a copy of the original purchase invoice. Aztec is not responsible for the cost of packaging inbound freight, nor inbound freight damage. Pack machine carefully.*
- 4. Only Aztec Products, Inc. or its authorized dealers may make warranty repairs on Aztec Products, Inc. products. Others do so at their own risk and expense.*
- 5. We also offer to do warranty related repairs free of charge at our facility. Arrangements must be made in advance as outlined above. We will not accept freight collect returns or returns that do not indicate the RGA number on the packing list.*

The need for proper maintenance and care for this product cannot be overstated. Poor maintenance, neglect or abuse can prove to be very expensive.

You have purchased a quality product. Each of its components has been tested and approved for use by Aztec Products, Inc. It is unlikely that you will ever have a warranty claim if you properly maintain our machine.

This warranty is non-transferable.

AZTEC PRODUCTS, INC.

201 Commerce Drive • Montgomeryville, PA 18936 • 800-331-1423 • Fax 215-393-4800