Operator's Manual

barracuda

Propane Stripping Machine

For all Barracuda Models

Failure to read and understand this manual before operating this machine or performing service on this machine may result in injury to the operator or nearby personnel or result in damage to the machine or nearby property. Each operator must be trained in the operation of this machine before being allowed to use it. Contact Amano Pioneer Eclipse Customer Service at 1-800-367-3550 or 1-336-372-8080 or an authorized Amano Pioneer Eclipse Distributor to inquire about training or to request a replacement manual.

La falta de leer y de entender este manual antes de usar esta máquina o de realizar servicio en esta máquina puede dar lugar a lesión al operador o al personal próximo o a resultado en daño a la máquina o propiedad próxima. Cada operador debe ser entrenado en la operación de esta máquina antes de ser permitido utilizarla. Ponerse en contacto con el servicio de Amano Pioneer Eclipse 1-800-367-3550 o 1-336-372-8080 o un distribuidor autorizado por Amano Pioneer Eclipse para investigar sobre el entrenamiento o para solicitar un manual.

Manquer de lire et de comprendre ce manuel d'utilisation avant l'utilisation de cette machine ou avant faire de maintenance sur la machine peut être résulter en blessure à l'opérateur ou au personnel proche ou peut endommagé la machine ou la propriété proche. Chaque utilisateur doit être entraîné dans l'opération de cette polisseuse avant l'utilisation. Veuillez contacter le service àpres-vente de Amano Pioneer Eclipse à 1-800-367-3550 ou 1-336-372-8080 et/ou un distributeur de Amano Pioneer Eclipse pour vous renseigner concernant l'entraînement ou pour obtenir un autre manuel d'utilisation.

Pioneer Eclipse®

FOR YOUR SAFETY

IF YOU SMELL GAS:

1. **Open window.**
2. **Don't touch electrical switches.**
3. **Extinguish any open flame.**
4. **Immediately call your gas supplier.**

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

Record This Important Information

Date of Purchase _____

Purchased From _____

Address _____

City _____ State _____ Zip _____

Phone _____ Contact _____

Machine Model _____

Machine Serial Number _____

Engine Type _____

Engine Serial Number _____

Important Phone Numbers

Medical Emergency _____

Police _____

Fire Department _____

Safe Operating Practices

- Allow only qualified and trained personnel to operate equipment.
- Follow maintenance and operating instructions.
- Keep accurate records of maintenance and service in the provided log book.
- Remember, routine maintenance NOW will prevent a breakdown LATER.
- Check oil level before starting.
- Keep nuts and bolts tightened and hose connections snug.
- Refer to engine manufacturer's service manual or contact Amano Pioneer Eclipse for engine repairs or adjustments not listed in this manual.
- Never alter or reconstruct the fuel system. To do so may be dangerous and will void the factory warranty.
- Use UL, CTC/DOT listed Safe-Fill™ cylinders supplied by Amano Pioneer Eclipse.
- Be careful not to cross thread the Rego coupling on the fuel cylinder.
- Store the fuel cylinder outside away from heat and direct sunlight.
- Have the machine serviced by a certified technician, including an emission check, every three (3) months.
- Before attempting any service on the machine, turn the ignition switch "OFF" and remove the key to avoid accidental start-up.

WARNING: **Operate in a well ventilated area.** (Catalytic mufflers need to warm up before they are effective. Failure to do so may cause nausea or carbon monoxide poisoning.)

WARNING: Keep hands and feet clear of rotating brush! Inspect brushes regularly. (A fractured brush may result in loose fragments causing injury.)

WARNING: Do not engage clutch to rotate brushes unless brushes are in contact with floor. This can damage the brushes and/or the deck.

WARNING: Do not operate machine on a dry floor, as this may result in damage to the brush and/or the deck.

WARNING: Failure to follow the instructions and warnings appearing in this operating manual or on machine labels may result in serious injury to the person using the machine and possibly to other persons and property.

NOTE: This machine is manufactured for commercial use only.

Propane powered floor strippers are designed and manufactured for commercial floor stripping only. These machines are designed to strip most modern types of floors including composition tile, stone, marble, terrazzo, concrete and resilient floor covering.

Even though NFPA 58 8-4.5 says ..."these machines shall be permitted to be used in buildings frequented by the public, including the times when such buildings are occupied by the public," Amano Pioneer Eclipse suggests usage when occupancy of a given work area is minimal.

These machines should not be used:

- in nursing homes, hospitals, day-care centers, etc.
- by unqualified or untrained personnel.
- unless properly maintained and adjusted.
- on areas with obstructions such as thresholds, floor outlet boxes, etc.
- in areas where loose tile or other objects are present.
- in rooms without proper ventilation.

These machines should not be left running unattended.

CAUTION: Do not allow the stripper to operate without moving the machine. It may damage the floor covering.

PROPOSITION 65 WARNING

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

Contents

Specifications

BA30KWA(E)/KWC(E)

Brush Size	2 x 16” (40,6 cm)
Brush Speed	325 RPM
Width	32” (81,3 cm)
Length	62” (158 cm)
Engine	Kawasaki 17 HP
Starting	12 V Battery
Weight	280 lbs. (127 kg)
Handle	Bent Tube with Bail
Deck	Cast Aluminum
Vibration	Less than 2.5 m/s
Sound Level	87 dB(A)

BA38KWA(E)/KWC(E)

Brush Size	2 x 20” (51 cm)
Brush Speed	325 RPM
Width	40” (101,6 cm)
Length	64” (162,6 cm)
Engine	Kawasaki 17 HP
Starting	12 V Battery
Weight	335 lbs. (161 kg)
Handle	Bent Tube with Bail
Deck	Cast Aluminum
Vibration	Less than 2.5 m/s
Sound Level	87 dB(A)

Propane Machine Safety

Purpose

The accepted demand for and use of propane powered floor machines underscores the need for responsible manufacturers and users to stress the importance of safety. This manual is designed to provide the information you need to ensure proper and safe use of propane powered floor machines.

In addition, we recommend operators of propane powered floor machines complete a program of training and certification for the safe operation of this equipment.

Refueling and Storage of Fuel Cylinders

Propane cylinders should be filled only by an authorized propane dealer. When not in use, they should always be stored outside in an upright position in a secure, tamper-proof, steel mesh storage cabinet. This cabinet may be located next to the building but with at least five feet (1.5 m) of space between the cabinet and the nearest building opening (door or window).

The National Fire Protection Association (NFPA) Standard for Storage and Handling of LP Gas is the appropriate authority for safe propane use. A copy of this publication is available through the National Fire Protection Association in Quincy, Massachusetts (1-800-344-3555).

Safety in Engineering

Amano Pioneer Eclipse engineers and manufactures machines utilizing UL (Underwriters Laboratories) and CGA (Canadian Gas Association) approved components where possible. When a tag or tags bearing the CE and/or CGA insignia is/are affixed to the machine, it indicates that the entire machine has been researched, tested, and is listed by one or both organizations as having met all of their safety criteria.

In some cases, the tag will be affixed to a particular component. This means that only the component is listed. Component recognition for the following parts is important: fuel cylinders, couplings, regulators, and fuel lines. We strongly recommend that you use only machines meeting the above minimum requirements.

Even though propane powered floor machines manufactured by Amano Pioneer Eclipse meet the OSHA Time Weighted Average (TWA) standard for noise, we strongly recommend that hearing protection be worn by the operator.

Use and Care

All machines manufactured by Amano Pioneer Eclipse come with a detailed Operator's Manual. Safety dictates that before using any new equipment, it is important to read and understand the Operator's Manual. We strongly recommend this practice.

Canadian Safety Regulations

1. A sign indicating "NO SMOKING" shall be permanently displayed at the storage area. The sign shall be in accordance with the sign required in Clause 10.12.3 of CAN/CGA-B149.2-M91, Propane Installation Code.
2. When the cylinder is attached to the floor maintenance machine for use, the operator shall not leave the unit unattended except for short periods of time such as rest stops, washroom or meal stops.
3. The requirements of 1.10.1 (e) and (g) do not apply in industrial buildings.
4. A floor maintenance machine shall only be used in buildings:
   a) provided with continuous mechanical ventilation that removes the products of combustion to the outdoors of not less than 300 CFM for each 10,000 Btu-hr input or fraction thereof.
   b) provided with natural ventilation of not less than 300 CFM for each 10,000 Btu-hr input or fraction thereof, based on a maximum of one quarter air exchange per hour for the net building volume.
5. The owner of a floor maintenance machine shall ensure that the operator has participated in a course authorized by the manufacturer of the unit on the safe handling of propane and the safe operation of the machine.
6. The owner of a floor maintenance machine shall ensure that the unit is maintained in accordance with the manufacturer's recommended maintenance procedures in a safe operating condition and the owner shall maintain a record of the maintenance for a period of two years.
7. Before transporting a floor maintenance machine, the cylinder shall be securely fastened with the system valve closed, and the cylinder shall be located in a well ventilated space.

Test for Operator-Ear Sound

Pressure Level

Amano Pioneer Eclipse measures and rates the operator-ear sound pressure level for hand-guided floor treatment and floor cleaning machines for industrial use. All tests are performed in accordance with European Machinery Directive (98/37/EC).

- Outdoor test area consists of a flat open space free from effects of signboards, buildings or hillsides for at least 15m (50 ft) from the center of the test surface. Indoor tests are conducted in a semi-anechoic or sound deadening room.
- The test surface is a single sheet of floor covering at least 1 m (3.3 ft) wider and longer than the equipment being tested. In order to not affect the sound reading, the observer taking readings is at least 2 m (6.6 ft.) from the equipment being tested, or standing directly behind the operator.
- All machines are tested while stationary and centered on the test surface. With the traction drive in neutral (where applicable) the test is conducted with the machine at maximum engine or motor speed as specified by the manufacturer.
- The operator is located in the normal operating position with the microphone or meter supported independent of the machine, 1,68 m (66 in) above the test surface, 25 cm (10 in) to the right and left centerline of the operator's position, and 20 cm (8 in) to the rearmost point of the handle, with the handle in the most forward position.
- The sound level meter is observed for a minimum of 5 seconds or until a stabilized reading is obtained. The maximum repeatable sound level observed during the test at each microphone position is recorded and documented.

Test for Hand-Arm Vibration at the Grip Surface of Hand-Guided Machinery

Amano Pioneer Eclipse measures and rates the vibration at the machine-hand contact surface of hand-guided machines that are provided with handles in accordance with European Machinery Directive (98/37/EC).

- The Test area consists of a flat open floor area that allows the machine to be operated normally.
- The transducer is mounted firmly at a point halfway along the length of the handle where the handle would normally be held.
- Machines are tested while stationary, with all mechanisms necessary for the equipment to perform its intended functions engaged and the traction drive in neutral (if applicable). The machine will be tested at maximum engine or motor speed as specified by the manufacturer of the subject machine.
- The measurements are recorded from the dominant axis.

Machine Preparation

Adding Oil

When the machine is shipped by **overland freight**, the correct amount of oil is in the engine. **Air freight** shipments require the machine to be shipped without oil.

The machine is also shipped with the battery disconnected.

When filling a "dry" machine or changing oil, **for the Kawasaki engine add no more than 1.5 quarts (1,4 L) when not changing the oil filter, or 1 3/4 US quarts (1,8 L) when the oil filter is changed**, then check the dip stick in the fill cap. Add oil if necessary but **DO NOT OVERFILL! ALWAYS CHECK OIL BEFORE USING THE MACHINE. Refer to the engine operator's manual. IMPORTANT**: When checking oil on Kawasaki models, remove oil filler cap and clean dipstick with clean cloth, then insert dipstick into tube without screwing in. Then check oil level. **ALWAYS make sure the machine is sitting level when checking oil.**

Connecting the Battery

1. Connect the **RED** positive battery cable **FIRST.**
2. Connect the **BLACK** negative battery cable **LAST.**

Adjusting the Handle and Rok Bak

The stripper handle adjusts for comfort and optimum control. Height may be changed to suit the individual operator. The handle may also be adjusted to an upright position to allow the stripper to be rocked back for easy brush changing and maintenance. (See page 9)

Filling the Safe-Fill™ Fuel Cylinder

Amano Pioneer Eclipse uses the 20 lb. capacity aluminum Safe-Fill cylinder which meets the DOT 4E240
standards. These cylinders are also listed by UL Filling should be done ONLY by a qualified propane dealer. **FILL THROUGH THE SERVICE VALVE ONLY.** (See page 13) A properly filled cylinder should not exceed 80% of the rated capacity.

DO NOT attempt Safe-Fill cylinder repair. Return the cylinder to your propane dealer if repair is necessary. Please note that DOT regulations prohibit shipping of cylinders after the cylinder has been filled with propane.

Installing the Safe-Fill Fuel Cylinder

Strap the Safe-Fill cylinder in place. Tighten the adjustable straps securely. Connect the fuel hose coupling to the service valve by turning to the right (clockwise). **HAND TIGHTEN ONLY**. Make sure coupling is not cross threaded and check for leakage by noting any propane odors immediately after cylinder is connected. (It is sometimes easier to install if the connection to the service valve is made before strapping the cylinder in place.)

TO REMOVE THE SAFE-FILL CYLINDER, reverse above procedure. **Always** connect or change cylinders in a well ventilated area.

Operating Instructions

Starting Instructions

1. Check oil (engine and gearbox) and fuel levels.
2. Check and clean engine air filter. **NEVER RUN CONTINUOUSLY FOR MORE THAN 1 HOUR WITHOUT CLEANING OR CHANGING ENGINE DUST FILTER**. (See “Scheduled Maintenance”)
3. Check carburetor air filter. Change if necessary. (See “Scheduled Maintenance”)
4. Turn propane service valve counterclockwise to open. NOTE: ALWAYS OPEN SLOWLY TO ALLOW PRESSURE TO EQUALIZE IN HOSES. OPENING QUICKLY MAY CAUSE THE FLOW CHECK VALVE TO ENGAGE, LIMITING FUEL FLOW.
5. Leaving the bail throttle at idle, engage starter by turning the key-switch to the starting position for up to 5 seconds. If the machine fails to start, let the ignition switch return to the run position (Do not turn off). Wait approximately 5 seconds and try again for another 5 seconds. (**NOTE**: Do not engage starter for more than 10 seconds. Allow a 60 second cool-down period for each 10 second start-up cycle.)
6. **SAFE SENSE® ONLY**: After engine starts, the YELLOW alert light will flash for a 3 minute warm-up cycle of the SAFE SENSE system. (The machine may be operated during this warm-up period.) After the warm-up cycle, the alert light will go out. None of the SAFE SENSE lights will be illuminated as long as the machine is running safely.

Operation

After engine has started, pull the bail throttle to operating speed and begin to move the machine forward slowly. The clutch will engage automatically at a preset speed.

CAUTION! DO NOT RUN THE STRIPPER WITHOUT MOVING THE MACHINE. IF THE MACHINE IS ALLOWED TO RUN IN ONE SPOT DAMAGE TO THE FLOOR MAY OCCUR.

To stop stripping, release the bail handle.

SAFE SENSE ONLY: NOTE: This stripper is equipped with the SAFE SENSE emission monitoring system and catalytic muffler.

Upon starting the engine, the YELLOW SAFE SENSE LED light will flash for 3 minutes during a warm-up period. After that, it will be off unless a warning is being signaled. If the carbon monoxide in the exhaust is approaching an elevated level the YELLOW alert light will flash, indicating service is needed. The machine will continue to operate safely in this mode, but should be serviced as soon as possible. If the carbon monoxide levels exceed a pre-set service level, the RED LED service light will start flashing. The machine will shut down after the RED light has flashed continuously for one minute.

WARNING! Catalytic mufflers require a few minutes to warm up before effectively removing harmful emissions. Make sure of proper ventilation during this warm-up period!

It is recommended to start stripping on the right side of the aisle, turn and come back down the aisle in the opposite direction, overlapping the previous path slightly. Continue this pattern until the floor area to be stripped has been covered with the last pass being on the right side of the machine.

Idling and Stopping the Machine

If for any reason the machine needs to idle for a short period of time (less than 3 minutes), simply release the bail handle.

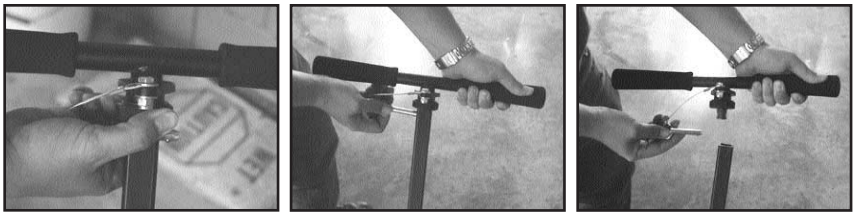
SAFE SENSE ONLY: The SAFE SENSE system will not allow the engine to idle unnecessarily. After 4 minutes the Tilt/Idle LED will start flashing. After another minute, the engine will shut down.

To stop the engine, close the service valve on the fuel cylinder by turning it clockwise. (The engine will stop when the fuel in the lines is used up).

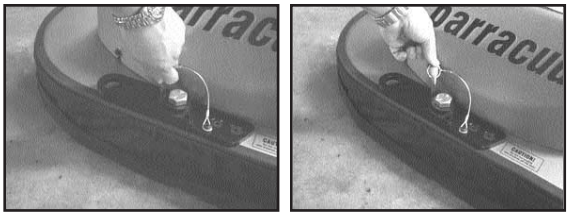
Lifting / Lowering the Machine

To lift the machine:

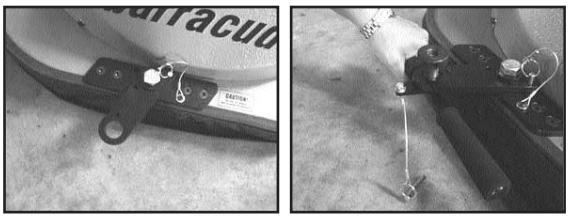
1. Remove the handle from the transport cart by loosening the knurled nut under the handle. Remove the pull pin from under the handle and pull the handle outward.



2. With engine OFF and in the operating position, move the transport arm on the front of the deck to an outward position by removing the pull pin and rotating the arm. Reinsert the pin to lock the arm in the outward position.



3. Remove the knurled knot from the transport handle. Insert the handle upside down up through the bottom of the machine's transport arm pivot hole. The small locating pin on the handle must be aligned with the small slot in the transport arm. Place the knurled nut on top of the transport arm and handle stud and hand tighten.



4. Move the machine handle to its Rok Bak position. (See page 12). Using the handle on the front of the machine, lift the machine to a full upright position. **NOTE: The barracuda stripping machine is heavy and may require two people to lift or lower the machine safely.**

5. To lower the machine, repeat steps 1 - 4 in reverse.

Installing and Changing Brushes

To remove brushes:

1. With engine OFF and handle in the Rok Bak position (See page 12), lift the machine into a full upright position as described in "Lifting / Lowering the Machine".
2. While facing the brushes from the front of the machine, turn the brush on the right counter-clockwise with a quick motion and pull the brush towards you. Turn the brush on the left clockwise with a quick motion and pull the brush towards you.
3. The machine can now be lowered to the floor and the handle returned to its operating position. The brushes will not be flattened during storage or transportation.

To install brushes:

1. With engine OFF and handle in the Rok Bak position (See page 12), lift the machine into a full upright position as described in "Lifting / Lowering the Machine".
2. While facing the machine from the front, place the brush on the right into the slots and turn clockwise with a quick motion. Make sure the brush snaps into place. Place the brush on the left into the slots and turn counter clockwise with a quick motion. Make sure the brush snaps into place.
3. The machine can now be lowered to the floor and the handle returned to its operating position.

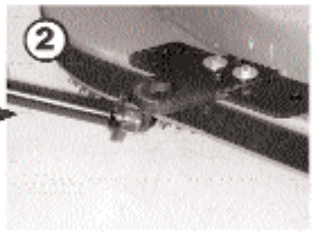
Operating Instructions

Using the Transport Cart

This stripper comes equipped with a transport cart for moving the machine.

To move the machine using the transport cart:

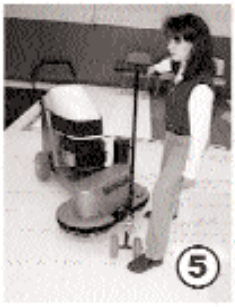
The transport cart is attached at the front of the deck.



Line up the connecting rod on the transport cart with the hole on the transport plate.

Line up the transport cart handle with the machine muffler as shown.

Brace the wheels of the transport cart with your foot as shown.



In one smooth motion, pull the cart handle up and over. The cart will rotate on its back wheels into the transport position.

Your machine is now easy to move.

To remove the transport cart:

Facing the machine, line up the transport cart handle with the machine muffler.

In one smooth motion, pull the cart handle up and over while walking past the deck on the right, as shown. The cart will rotate onto its back wheels, and disconnect from the machine.

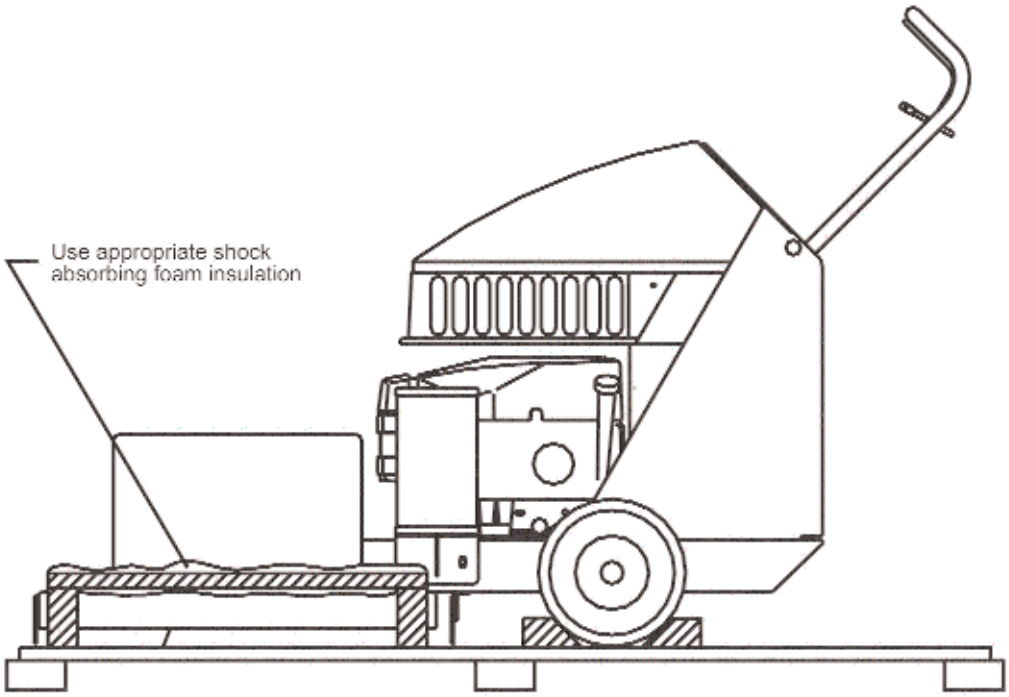
Storage

Only authorized, trained personnel should have access to propane cylinders and machines.

1. **Remove propane fuel cylinder when not in use and store it outside in a storage cage in accordance with NFPA Section 5 or Subsection 9.5.2 of CAN/CGA B149.2. Do not release or bleed propane inside the building.**
   Please consult your local Fire Marshal to ensure that you are in compliance with local fire codes.
2. Store machine away from objects that may fall and damage it.
3. Never store machine or fuel cylinders near an open flame or heat producing devices.
4. Make sure machine is cleaned properly before storing.
5. Never store machine with cylinders installed, or store spare cylinders in an enclosed van or trailer.

Repacking

1. Use shipping and package information attached to packing slip to repack machine.
2. Store machine in a dry location. Temperature should not exceed 50° C.



Transportation

When transporting a propane powered floor machine with the fuel cylinder installed, the cylinder should be securely fastened with the service valve closed and the burnisher should be secured in the vehicle. Any propane fuel cylinders not installed should be securely fastened to avoid movement and damage. The service valves should be closed. Never store machines with cylinders installed, or store spare cylinders in an enclosed van or trailer. It is a good practice to check propane cylinders for overfilling before transporting them. If overfilled, correct before loading them in the vehicle by venting the excess propane outside in a safe area using the fixed liquid level gauge.

Proper Lifting of Machine

The machine should be lifted properly by attaching two (2) lifting hooks under the front of the deck and two (2) lifting hooks around the lowest portion of the handle.

Scheduled Maintenance

Following proper scheduled maintenance procedures will provide years of uninterrupted service.

Kawasaki Engine		Regular Service Period					
Item or Type of Service		Break in 8 hrs.	Each Use	25 hrs.	50 hrs.	100 hrs.	300 hrs.
Engine Oil	Check Level		2				
	Change	2,4,5			2,4,5		
Oil Filter	Change					4,5	
Engine Dust Filter	Inspect		1				
	Clean/Change		1,2				
Carburetor Air Cleaner	Inspect		2				
	Clean/Change Element				2,4,5		
	Clean Pre-Foam Element			2			
Belt	Inspect	2	2				
	Adjust/Replace	As Required (5)					
Fuel Hose & Connections	Inspect	2	2				
	Replace	If signs of wear are present (3)					
Cooling Fins	Clean				2		
Gear Head Assembly Gear Box	Inspect					6	
	Check Oil Level		2				
Brushes	Inspect	When Changing Brushes					
	Replace	If cracked or broken					
Bolts & Connections	Inspect				6		
	Tighten				6		
Spark Plug	Clean/Replace				5,6	4,5	
Battery & Battery Cables	Inspect				2		
Exhaust Emissions	Check						3,5
Check & Adjust Valve Clearance Retorque Heads							5,6,7

1. Perform daily or after each use.
2. Refer to “General Maintenance Procedures.”
3. These items should be serviced by an authorized Amano Pioneer Eclipse Service Center.
4. Refer to Engine Manufacturer’s Owner’s Manual for recommended replacement.
5. Always enter maintenance performed in Service Log Book.
6. Routine Maintenance
7. Refer to Engine Service Manual.

General Maintenance Procedures

Fuel System

The fuel system works from vacuum created by the engine running. Turning the fuel cylinder service valve ON pressurizes the system for flow to the carburetor once the engine starts to crank.

Adjusting the Regulator

NOTE: The regulator and carburetor have been factory preset and should not require any modification. Only Amano Pioneer Eclipse authorized personnel, trained and certified in propane systems, should modify or adjust the system or its setting.

N.F.P.A. 58 8-1.4 states, “In the interest of safety, each person engaged in installing, repairing, filling, or otherwise servicing an LP-Gas engine fuel system shall be properly trained in the necessary procedures.”

Engine Dust Filter

The engine dust filter should be **cleaned each hour** and after each use by shaking out the dust and then rinsing with mild detergent. Squeeze out the excess water (do not wring). Allow the filter to air dry. **Failure to maintain a clean engine filter will cause the engine to overheat. Also, it may cause the exhaust emissions to elevate to harmful levels**.

Carburetor Air Filter

a. Loosen toggle clamps on each side of the air cleaner cover.
b. Remove foam pre-cleaner and paper filter element.
c. Clean foam pre-cleaner using the same procedure as #2 above.
d. Clean filter seal, making sure no dust is allowed in the carburetor inlet.
e. Inspect paper element. Replace if dirty, bent or damaged.
f. Install the clean paper element, pre-cleaner and air filter cover. Reclamp.

SAFE SENSE ONLY: NOTE: Failure to service the carburetor air cleaner may produce excessive carbon monoxide emissions and cause the SAFE SENSE system to shut the engine down.

Fuel Hose and Connections

a. Inspection
   1) Inspect hoses for abrasions and other signs of wear; replace all worn or damaged hoses.
   2) Check for gas leaks by spreading soapy water solution around all the connections while the service valve is turned ON and the fuel system is pressurized.
b. Fixing Leaking Joints
   1) Uncouple bad joint and clean it. Then apply pipe sealing compound (Loc-Tite Pipe Sealant with Teflon or equivalent) to the clean joint.
   2) Recouple the joint finger tight plus 1/2 turn.
   3) **Recheck for leaks using soapy water solution. Watch for bubbles at the joint with the fuel cylinder service valve turned on and the fuel system pressurized.**

Engine Maintenance

Cooling Fin Maintenance

a. Remove the blower housing and other cooling shrouds.
b. Clean the cooling fins as necessary using compressed air or pressure washer.
c. Reinstall all housings and shrouds.

Head Bolt Maintenance

Refer to Engine Manufacturer’s Service Manual.

Changing the oil

a. Run engine for 5 minutes to warm oil, then stop the engine by closing the fuel service valve, allowing the engine to stop by itself.
   SAFE SENSE ONLY: NOTE: Must be running above 2150 RPM or SAFE SENSE will shut the engine down.
b. Locate the oil drain pipe located on the right side of the machine.
c. Remove the cap by turning it counterclockwise with a wrench.
d. Allow oil to drain completely into the receptacle.
e. Replace the cap by turning clockwise.
f. Remove oil fill cap. Slowly add no more than 1 1/2 quarts (1,4 L) of motor oil when not changing the oil filter, or 1 3/4 quarts (1,8 L) when the oil filter is changed. Refer to engine Owner’s Manual for recommended oil.
g. Check oil level with dip stick in oil fill cap. Add additional oil if necessary.
h. Replace fill cap. Hand tighten only.

DO NOT OVERFILL AND NEVER RUN ENGINE LOW ON OIL!

IMPORTANT: ALWAYS MAKE SURE THE MACHINE IS SITTING LEVEL WHEN CHECKING OIL.

General Maintenance Procedures

Belt Maintenance: Removal and Replacement

To inspect the belt it is necessary to rock the machine back. The machine should be rocked back to the full-up position. This can easily be accomplished by moving the handle into its Rok Bak position and lifting the front of the machine. If the belt is badly cracked or worn it should be replaced.

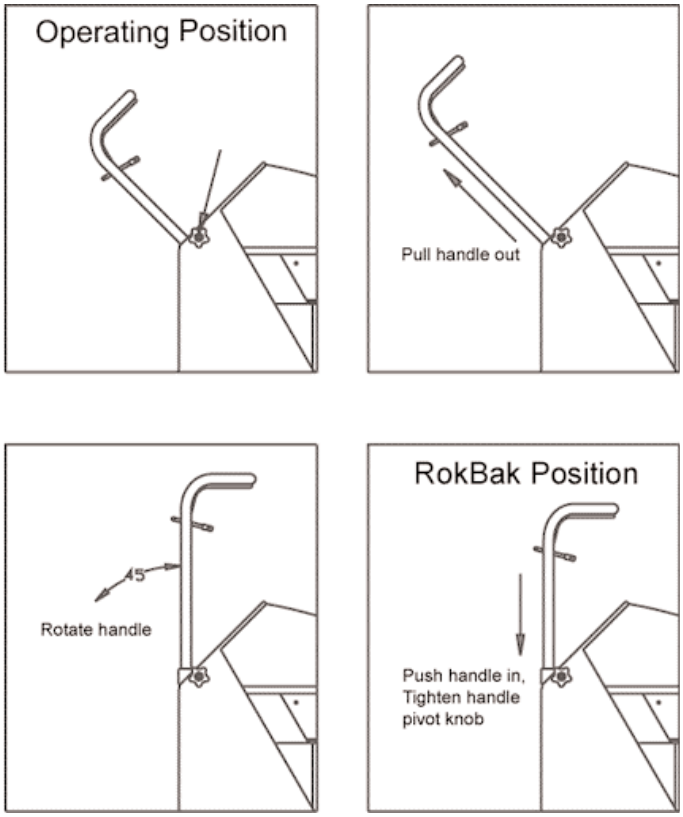
To check for the proper tightness squeeze the belt together. The belt should depress between 1/4" (,6 cm) and 1/2" (1,3 cm). Always use the recommended belt size.

To change belt:

1. With engine OFF and in the operating position, move the handle to its Rok Bak position and lift the front of the machine into a full-up position. (See Adjusting the Handle, this page).
2. Remove the pulley cover by removing the four (4) 1/4" screws.
3. Expose the belt by removing the splash plate and rear splash skirt, located on the underside of the frame.
4. Remove the belt by slipping it off the center gear box pulley, and then off the tensioner and clutch.
5. Install the new belt, and re-attach the splash plate and skirt
6. Return the machine to its operating position by lowering it back to the floor. Return the handle to its operating position.

Adjusting the Handle

1. To move the handle from the operating position to the Rok Bak position:
   a) Loosen the handle pivot knob on each side of the bulkhead.
   b) Pull handle out to the full-up position.
   c) Rotate handle 45° as shown, push handle in, and tighten the two (2) handle pivot knobs.
2. To move the handle from the Rok Bak position, perform the reverse of Step 1 above.
3. To adjust the operating position of the handle simply loosen the two (2) handle pivot knobs, slide the handle to the desired position and tighten the two (2) handle pivot knobs.



Battery Maintenance and Replacement

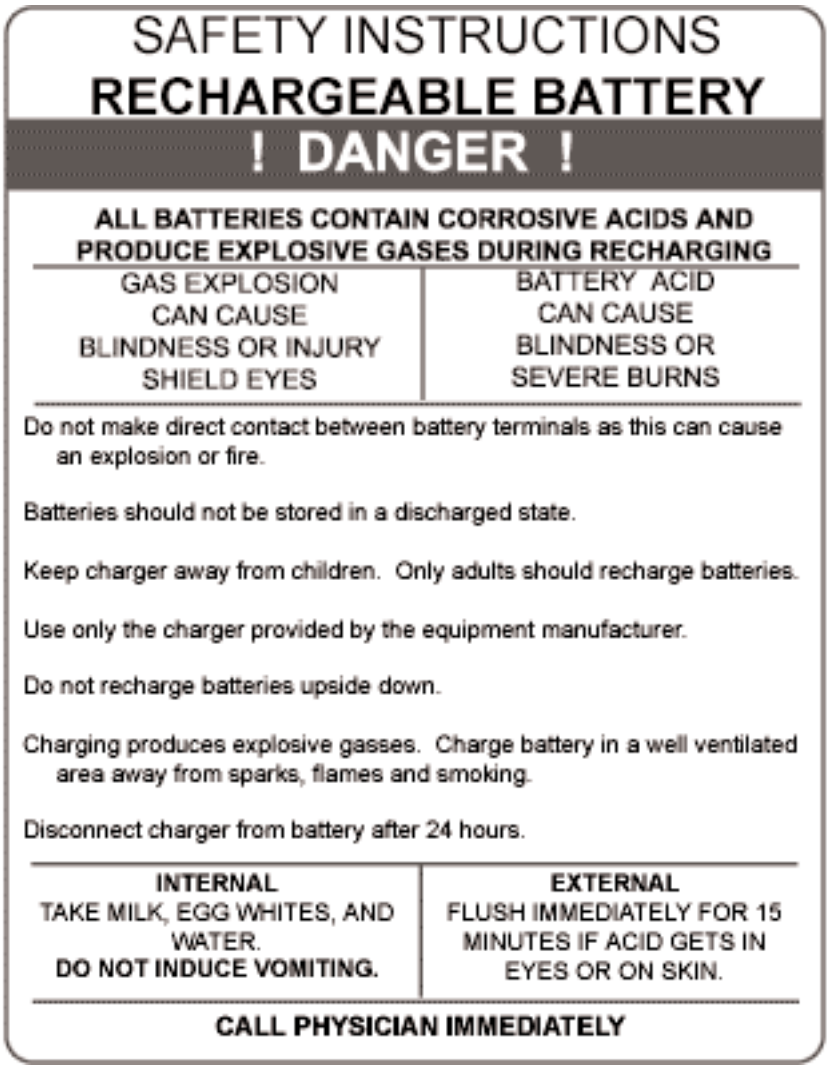
The battery supplied with this machine is a sealed gelled electrolyte maintenance free type. It never needs servicing.

When battery replacement becomes necessary, the replacement should have the same specifications as the original. If in doubt, contact Amano Pioneer Eclipse Customer Service at 1-800-367-3550 or 1-336-372-8080.

To replace:

1. Remove the propane fuel cylinder from the machine.
2. Raise battery cover to expose battery.
3. Disconnect battery cables from terminals. Always disconnect the **BLACK** cable first.
4. Remove battery hold-down clamp.
5. Lift old battery out and replace with new battery.
6. Reinstall hold-down clamp.
   NOTE: DO NOT OVERTIGHTEN HOLD-DOWN CLAMP. Doing so may cause the battery to rupture.
7. Connect the **RED** positive battery cable **first.**
   Connect the **BLACK** negative battery cable **last.**

Dispose of old battery in the proper manner. Most auto



SAFETY INSTRUCTIONS

RECHARGEABLE BATTERY

! DANGER !

ALL BATTERIES CONTAIN CORROSIVE ACIDS AND PRODUCE EXPLOSIVE GASES DURING RECHARGING

GAS EXPLOSION CAN CAUSE BLINDNESS OR INJURY SHIELD EYES	BATTERY ACID CAN CAUSE BLINDNESS OR SEVERE BURNS

Do not make direct contact between battery terminals as this can cause an explosion or fire.

Batteries should not be stored in a discharged state.

Keep charger away from children. Only adults should recharge batteries.

Use only the charger provided by the equipment manufacturer.

Do not recharge batteries upside down.

Charging produces explosive gasses. Charge battery in a well ventilated area away from sparks, flames and smoking.

Disconnect charger from battery after 24 hours.

INTERNAL	**EXTERNAL**
TAKE MILK, EGG WHITES, AND WATER. **DO NOT INDUCE VOMITING.**	FLUSH IMMEDIATELY FOR 15 MINUTES IF ACID GETS IN EYES OR ON SKIN.

CALL PHYSICIAN IMMEDIATELY

PROPOSITION 65 WARNING

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

parts stores accept used batteries for recycling.

Brush Maintenance

When servicing brush bearings, always inspect brushes for loose bolts, cracks and brush wear. It is recommended that brushes be replaced when bristles are worn to 1/2" (1,3 cm) length.

Tire Maintenance

Tire pressure should be observed before each use. Tires should have equal pressure; recommended tire pressure is 40 lbs. As the brushes wear, a slightly lower pressure may be used to help level the machine.

Gear Box Maintenance

1. In order to drain the gear box oil, the gearboxes need to be removed from the machine. To do this:
   a) Remove brush assembly from output shaft.
   b) Loosen lovejoy couplings that couple the three (3) boxes together.
   c) Loosen the pulley on the center gearbox.
   d) Remove all retaining bolts.
   e) Slip the boxes from the machine.
2. Remove the drain plugs (located in the sides of gearboxes) and drain the oil into a drain pan. Allow to drain completely.
3. With plug removed fill with AGMA 5EP or equivalent gear lubricant as follows:
   BA30: 5 oz. (14,8 ml) per box
   BA38: 16 oz. (47 ml) per box
4. Replace plug and retighten. Re-assemble pulley, couplings, brush assemblies, and gearboxes.
5. Dispose of used oil properly.

NOTE: Check gearbox oil level before each use. Add oil if needed.

WARNING! THE DRIVE MUST BE FILLED TO PROPER LEVEL WITH RECOMMENDED LUBRICANT BEFORE OPERATION.

Relubrication: Service life and efficiency of gears and bearings will be affected by oxidation or contamination of the lubricating oil. Improved performance will be obtained by periodic relubrication in accordance with the following recommendations:

After an initial operating period of approximately 500 hours or six months, the housing should be completely drained, preferably while warm. Refill housing to proper level with fresh oil.

Under normal conditions, the drive should be relubricated at intervals of approximately 2500 hours of operation or every six months (whichever occurs first).

Note: If the unit has a grease zerk, it should be regreased at these times.

CAUTION! RELUBRICATE MORE FREQUENTLY IF UNIT IS OPERATED IN ABNORMALLY HIGH AMBIENT TEMPERATURES OR UNUSUALLY CONTAMINATING ATMOSPHERE.

Maintenance: Lash and end play should be checked every time the drive is relubricated. If too much lash or end play is felt, the drive should be inspected. Adjustment or factory replacement parts may be the answer. The lash and end play can be adjusted as described in the Assembly Instructions for the unit.

Operating Temperature: During the initial break-in period, the operating temperature of the unit should not exceed 250° F (121° C). After break-in, the normal operating temperature should not exceed 220° F
(104° C).

Splash Guard Maintenance

In order to remove wax, the splash guard should be removed and soaked in hot water and the velcro band of the machine also should be rinsed with hot water after each use.

Machine Cleaning

1. Remove all dust from exterior surfaces using a damp, lint free cloth.
2. Dry all surfaces with a dry cloth.

Troubleshooting

Symptom	Possible Causes
1. Hard to start	
	Opening propane cylinder too quickly (OPEN SLOWLY)
	Low oil
	Insufficient vacuum
	Coil, air gap needs adjusting
	Spark plug or head bolts loose
	Blown head gasket
2. Will not start	
	No fuel
	Low oil
	Wires broken or disconnected
	Fuse blown in Safe Sense
	Insufficient vacuum
	Defective spark plug
	Defective coil
	Blown head gasket
	Incorrect spark plug gap (Gap should be .025)
3. Engine lacks power	
	Insufficient vacuum
	Dirty air filters
	Governor needs adjusting
	Leaking head gasket
	No compression - worn rings
4. Smell of burned rubber	
	Belt out of adjustment - check automatic tensioner
5. Machine vibrates	
	Loose nuts
	Brush not centered
6. Machine “Bogs Down” when in use	
	Operator bearing down too hard
	Dirty air filters
7. Machine pulls to one side	
	Bent wheel bracket, worn wheel
8. Engine stops running	
	Out of fuel
	Low oil
	High exhaust emissions
	Dirty air filter

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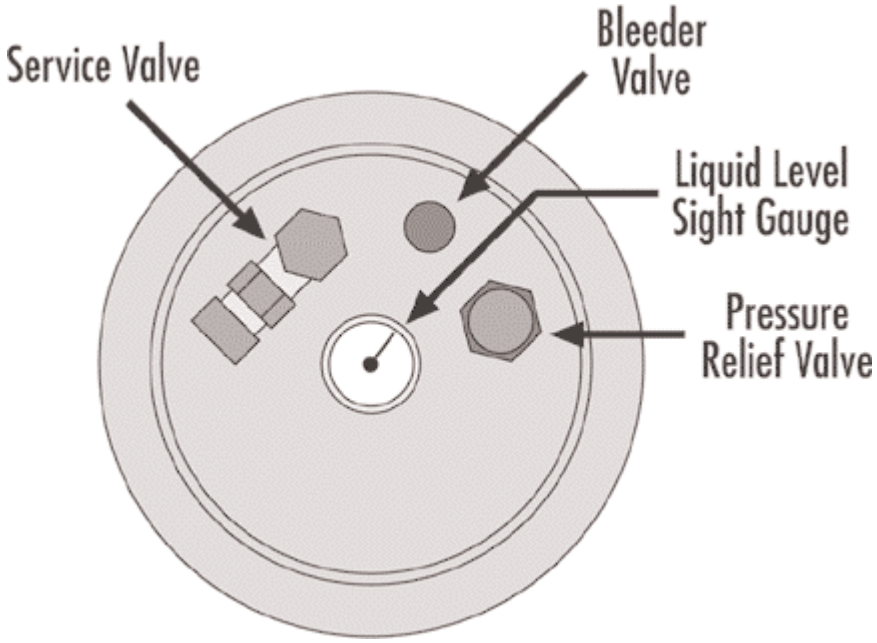
Safe Fill Cylinder Head Layout



Dash Panel: KWA/E Models

NOTE: After engine starts, the YELLOW alert light will flash for a 3 minute warm-up cycle of the SAFE SENSE system. (The machine may be operated during this warm-up period.) After the warm-up cycle, the alert light will go out. None of the SAFE SENSE lights will be illuminated as long as the machine is running safely.

OIL: Light comes on when there is low oil pressure. If the engine loses oil pressure, the engine shuts down until the condition is corrected. The light comes on each time the engine is stopped.

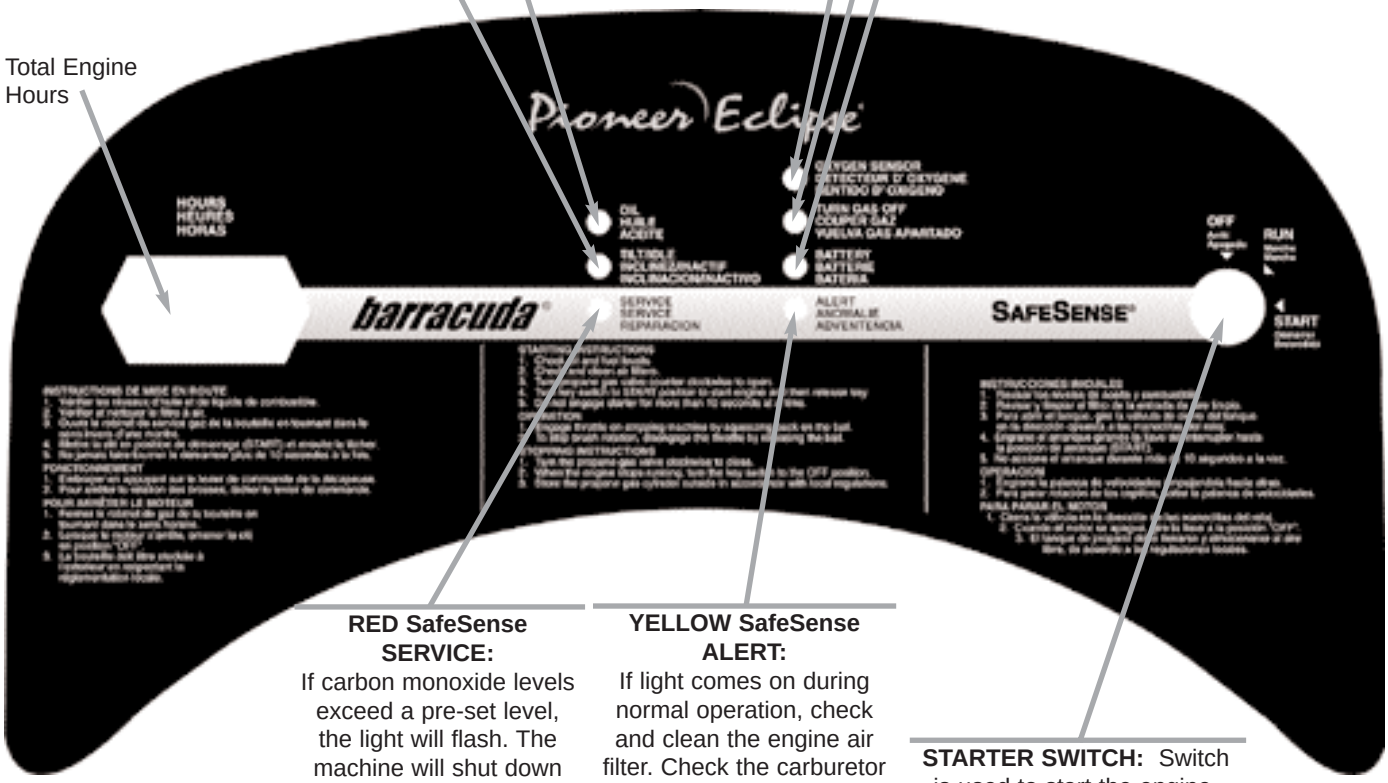
TILT/IDLE: Light comes on when the machine is tilted to the pad change position and the engine shuts down. If the machine is allowed to idle for more than 4 minutes, the light flashes for 1 minute then the engine shuts down.

OXYGEN SENSOR: If light comes on during normal operation, check the oxygen sensor wire for a snug fit into the harness and for a snug fit of the harness into the SafeSense board. If the light still remains on, the machine must be serviced by a qualified technician.

TURN GAS OFF: Light comes on to remind the operator to turn off the gas after the engine shuts down.

BATTERY: Light comes on when the battery voltage is low indicating the need to service charging system.

Total Engine Hours



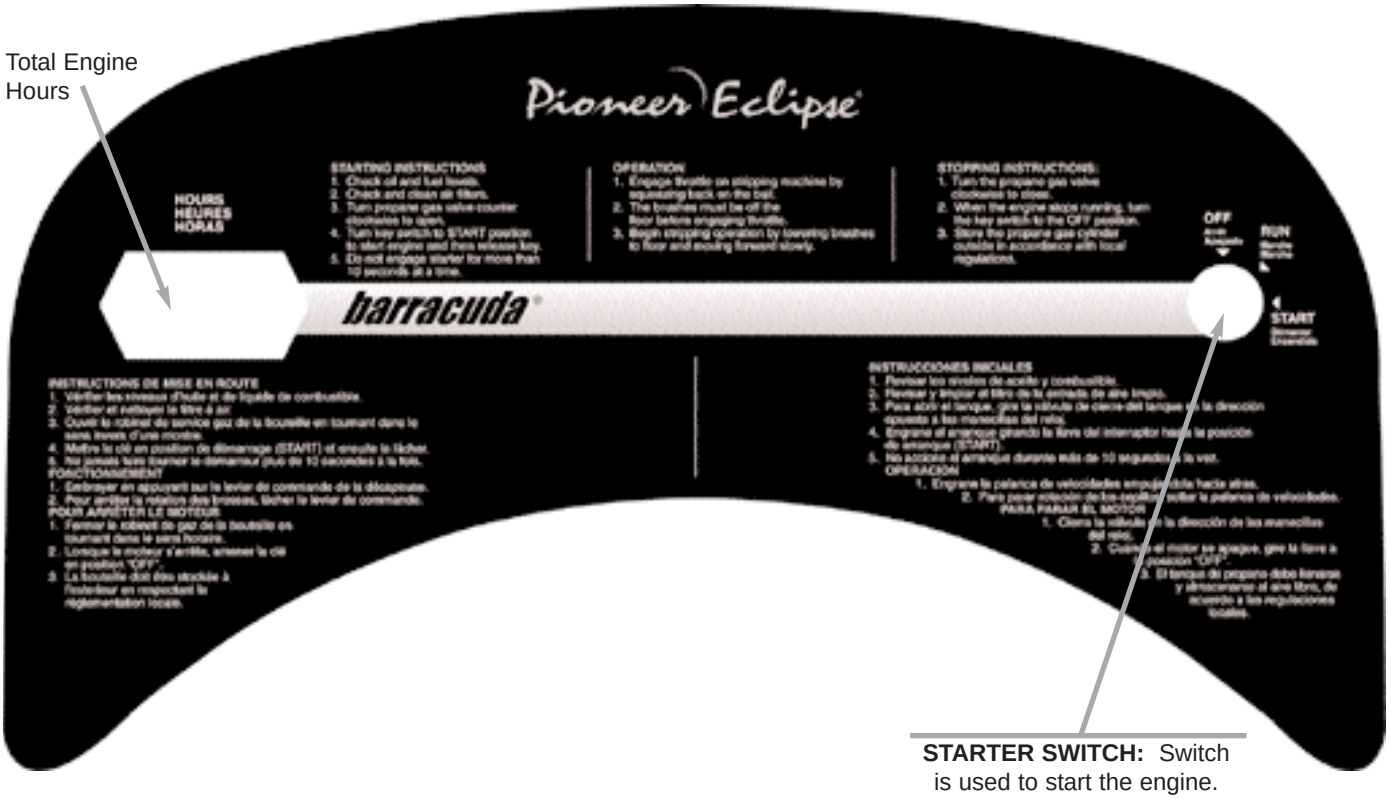
RED SafeSense SERVICE: If carbon monoxide levels exceed a pre-set level, the light will flash. The machine will shut down after the light flashes continuously for one minute. If the machine does not operate normally after the engine air filter is checked and cleaned, it must be serviced by a qualified technician.

YELLOW SafeSense ALERT: If light comes on during normal operation, check and clean the engine air filter. Check the carburetor air filter for holes, tears, or punctures and replace if damaged. If the light still remains on, the machine must be serviced by a qualified technician.

STARTER SWITCH: Switch is used to start the engine. To shut the engine down, turn off the gas. When the engine stops, turn the switch to “OFF”.

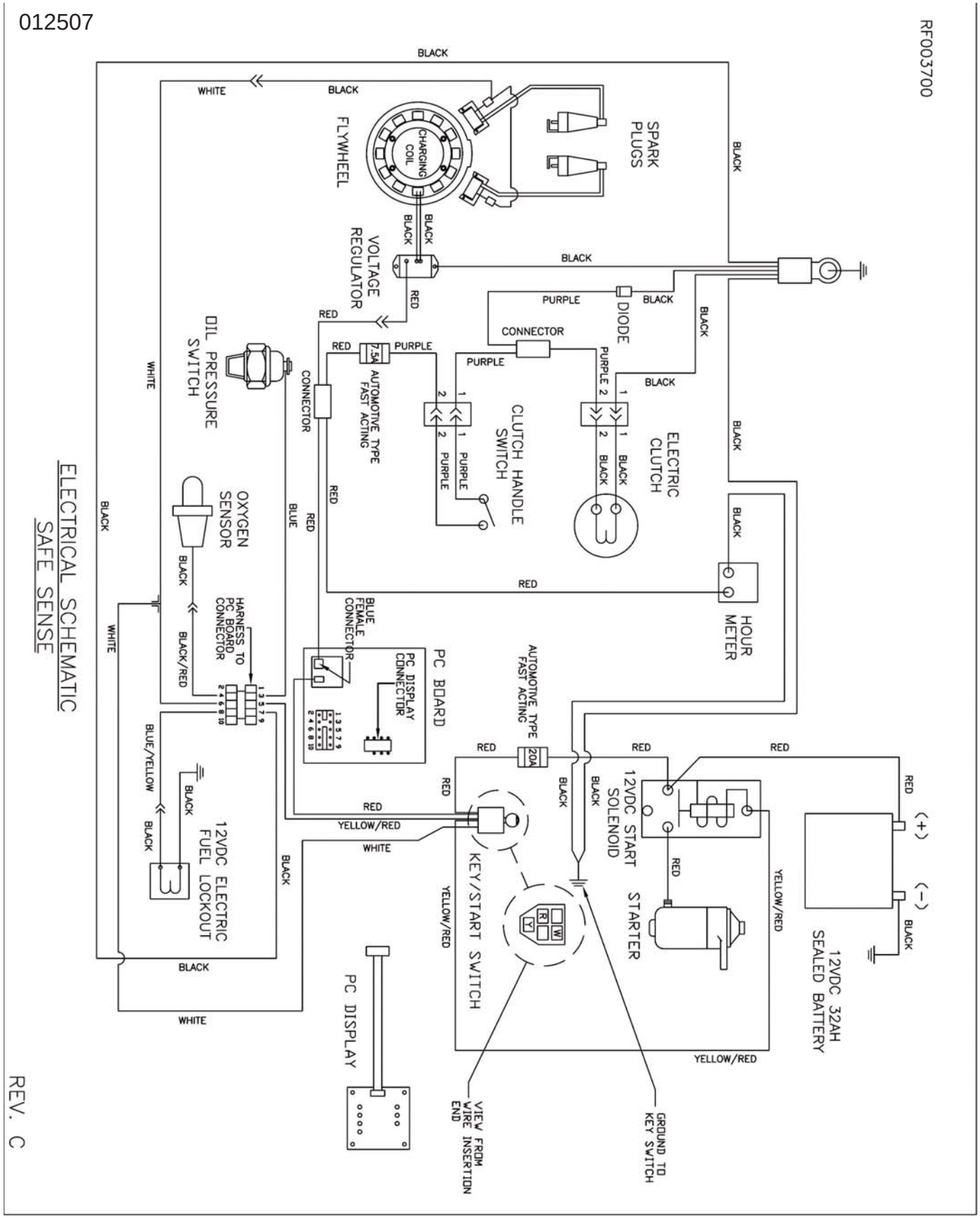
NOTE: Any light that is on when the engine stops will remain illuminated for 20 seconds to indicate the reason for machine shut down.

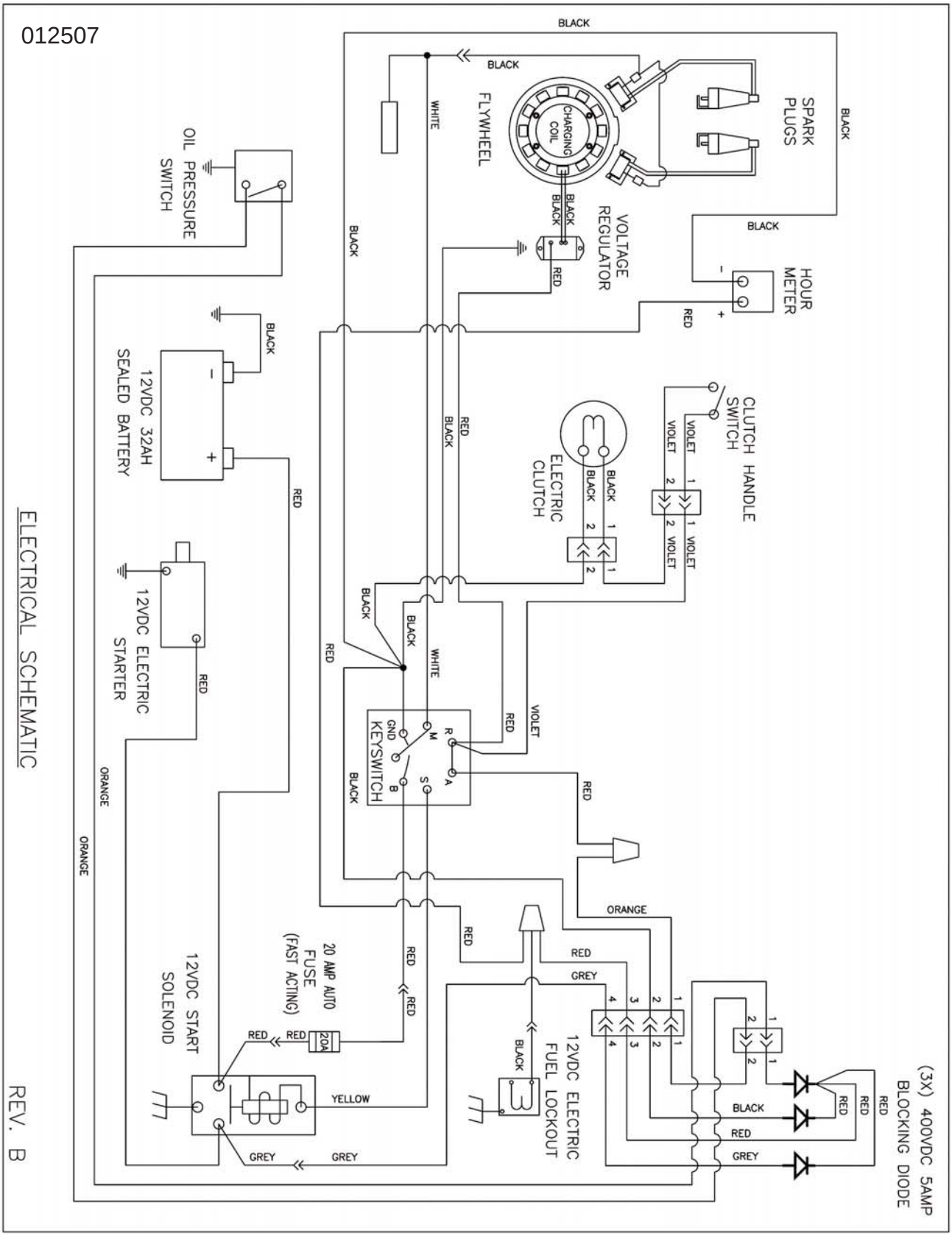
Total Engine Hours



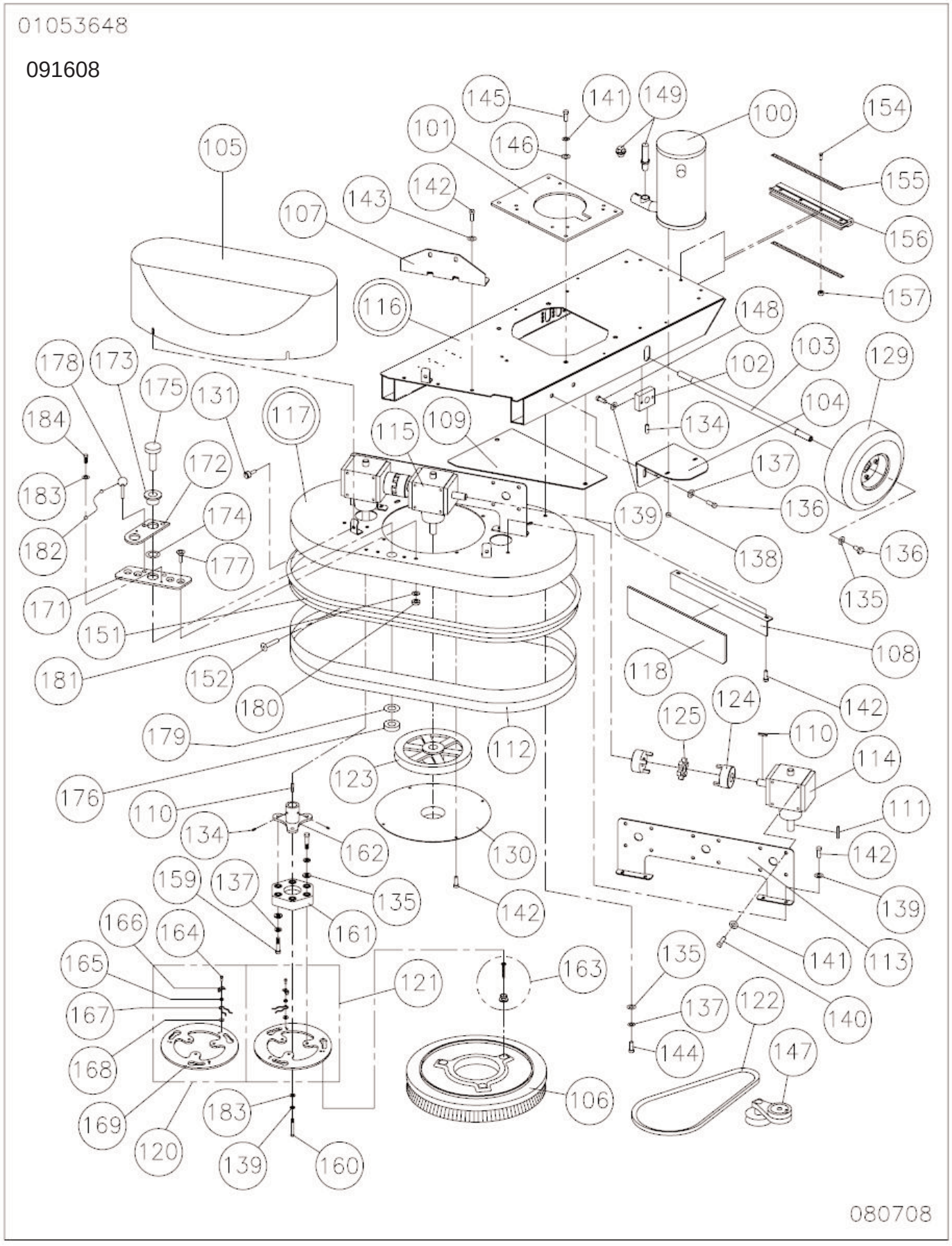
STARTER SWITCH: Switch is used to start the engine. To shut the engine down, turn off the gas. When the engine stops, turn the switch to “OFF”.

Wiring Diagram/Schematic: Barracuda KWA/E Models




012507
ELECTRICAL SCHEMATIC
REV. B
SPARK PLUGS
FLYWHEEL
CHARGING COIL
VOLTAGE REGULATOR
HOUR METER
OIL PRESSURE SWITCH
12VDC 32AH SEALED BATTERY
12VDC ELECTRIC STARTER
12VDC START SOLENOID
20 AMP AUTO FUSE (FAST ACTING)
20A
ELECTRIC CLUTCH
CLUTCH HANDLE SWITCH
KEYSWITCH
GND
M
R
B
S
A
12VDC ELECTRIC FUEL LOCKOUT
(3X) 400VDC 5AMP BLOCKING DIODE
BLACK
WHITE
RED
VIOLET
ORANGE
GREY
YELLOW

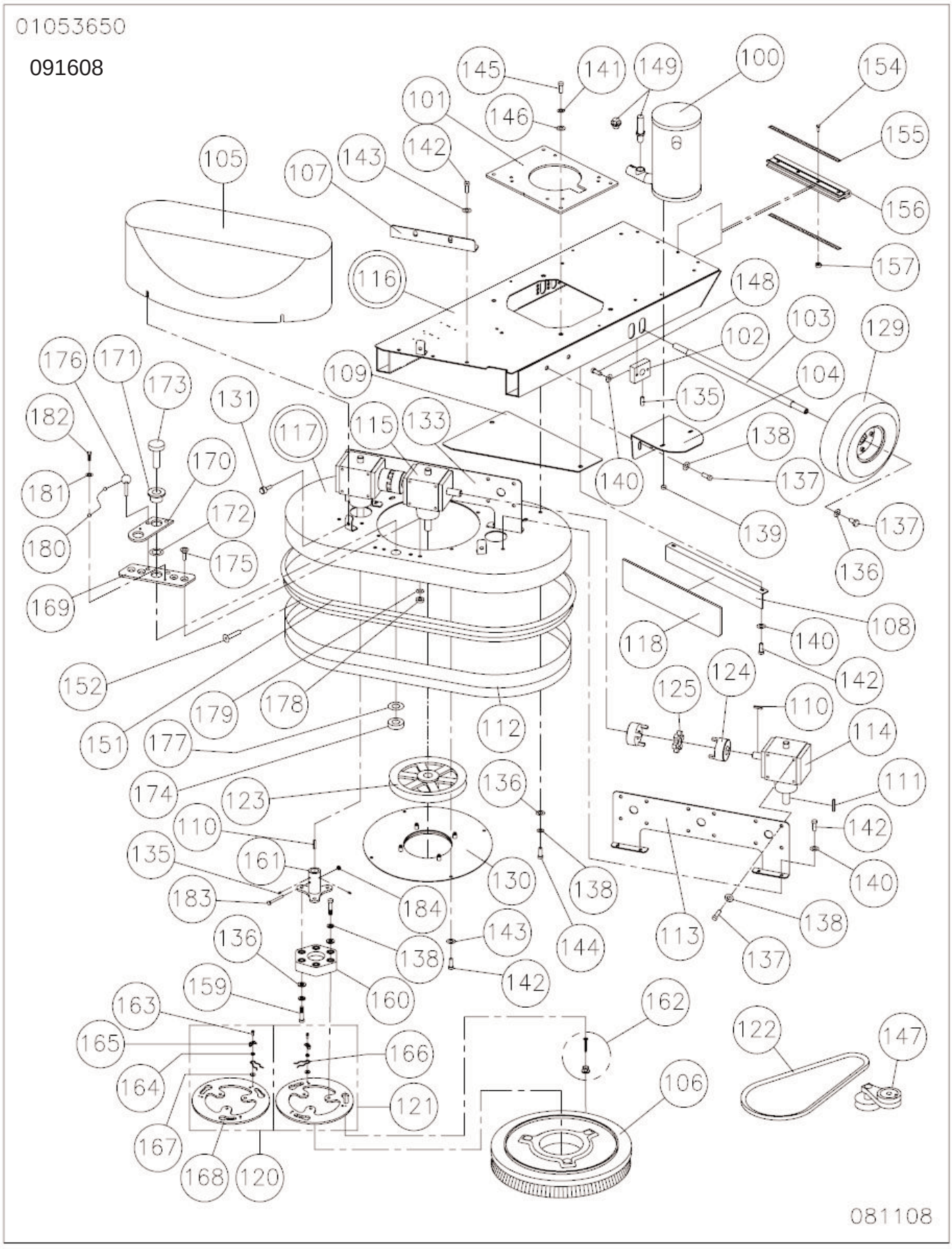
Deck Sub-Assembly: Barracuda 30 Models



Deck Sub-Assembly: Barracuda 30 Models

REF	PART#	DESCRIPTION	QTY
100	BA000700	ADT Muffler	1
101	BA000800	Motor Plate	1
102	BA018700	Axle Mounting Block	2
103	BA001300	Axle	1
104	BA001900	Muffler Mount with Weldment	1
105	BA018100	Cover, Gearbox, Molded, BA30	1
106	BA013000	16” Flo-Pac Brush, Strata Grit Plus, w/P-74 Lugs	2
107	BA002500	Brace	1
108	BA002800	Splash Skirt Mount Not applicable after SN55171	1
109	BA002900	Splash Plate	1
110	BA003300	3/16” x 1 1/2” Key	3
112	BA010900 BA014500	Skirt, BA30 (before SN55171) Skirt, BA30, Quick Change (After SN55171)	1 1
113	BA003900	Gearbox Mounting Plate	2
114	BA017000	Right Angle Gearbox	2
115	BA017100	Center Gearbox	1
116	BA005801	Base Assembly Weldment	1
117	BA005900	Deck Assembly with Weldment	1
118	BA006300	Rear Splash Guard Not applicable after SN55171	1
120	MP201200	Plate, Clutch, Brush, Asm., Left	1
121	MP201300	Plate, Clutch, Brush, Asm., Right	1
122	MP037200	BX63 Belt	1
123	MP037600	Pulley 3/4”	1
124	MP196700	Hub L099, 0.75” Bore	4
125	MP037500	Spider, Logg, 1” Bore	2
126	NB009100	Reid Thumb Screw LPS-40	4
127	BA009700	Plate, Hook, Weldment	1
129	SS1315	Wheel	2
130	BA014801	Pulley Cover	1
131	NB003700	Screw, Flange, 1/4-20x1”, Hex/Slotted	3
134	NB2463	5/16”-18 x 3/8” Setscrew	6
135	NB3450	3/8” Flat Washer	36
136	NB6851	3/8”-16 x 3/4” HH Screw	4
137	MX1075	3/8 Lock Washer	18
138	NB9545	1/4”-20 Nut	2
139	NB6110	1/4” Lock Washer	16
140	NB9745	5/16”-18 x 3/4” HH Screw	24
141	NB6111	5/16” Lock Washer	28
142	NB3001	1/4”-20 x 3/4” BH Screw	17
143	NB3350	1/4” Flat Washer	10
144	NB6044	3/8”-16 x 1 1/4” HH Screw	4
145	NB6545	5/16”-18 x 1” HH Screw	6
146	NB9267	5/16” Flat Washer	4
147	MP071800	Belt Tensioner Assembly	1
148	NB9000	1/4”-20 x 1.5” HH Screw	4
149	MP018000	Oxygen Sensor (KWA, KWAE)	1
	MP015200	Oxygen Sensor Plug (KWC, KWCE)	1
151	MP031803	Bumper, Shroud, Low Profile,BA30	1
152	NB008900	Rivet, Pop, 3/16”, 3/8 Head	16
154	NB020700	Screw, Phillips, Pan, 6-32 x 1	4
155	MP035300	Band, Clamp, Skirt	2
156	MP084700	Molding, Bumper, RokBak	1
157	NB020800	Nut, Lock, Nylon, 6-32	4
158	N/A	N/A	-
159	NB024500	Bolt, Retainer, Flexi, 3/8” x 15/16”	12
160	NB039400	Bolt, Hex, 1/4-20 UNC x 1 3/4	2
161	MP317700	Coupling, Element, Flexi, 96mm B.C.	2
162	BA018500	Hub, Drive, Weld., Painted, BA30	2
163	MP098600	Lug, P-74, w/Screws (Flo-Pac) (Set of 3)	2
164	NB060500	Screw, BH, 10-24 x 5/8	2
165	NB060600	Washer, Star Lock, #10	2
166	MP098700	Retainer, Hitch Pin, Plate Clutch	2
167	NB024100	Pin, Hitch, External	2
168	NB060700	Spacer, Retainer, Hitch Pin	2
169	MP317800	Plate, Clutch, Brush	2
170	NB015700	Screw, Cap, HH, 1/4 - 20 - 5/8	1
171	BA014900	Plate, Mount, Hook	1
172	BA015000	Plate, Pivot, Hook	1
173	BA015200	Bushing, Pivot, Hook	1
174	NB033500	Washer, Wave, 3/4	1
175	NB035400	Bolt, Hex, 3/4-10- x 2 1/2	1
176	NB035500	Nut, Lock, Nylon, 3/4 - 10	1
177	NB035700	Screw, Socket, Flat, C/S, 3/8 - 16 x 1 1/2	4
178	NB035800	Pin, Pull, Loop, 3/8 x 1 1/2	1
179	NB018600	Washer, Flat, 3/4	1
180	NB3267	Nut, Lock, 3/8 NC	4
181	NB3450	Washer, Flat, 3/8	4
182	MP066900	Lanyard, Cable, 6”	1
183	NB3350	Washer, Flat, 1/4”	2
184	NB019200	Screw, BH, 1/4 - 20 x 3/8	1

Deck Sub-Assembly: Barracuda 38 Models

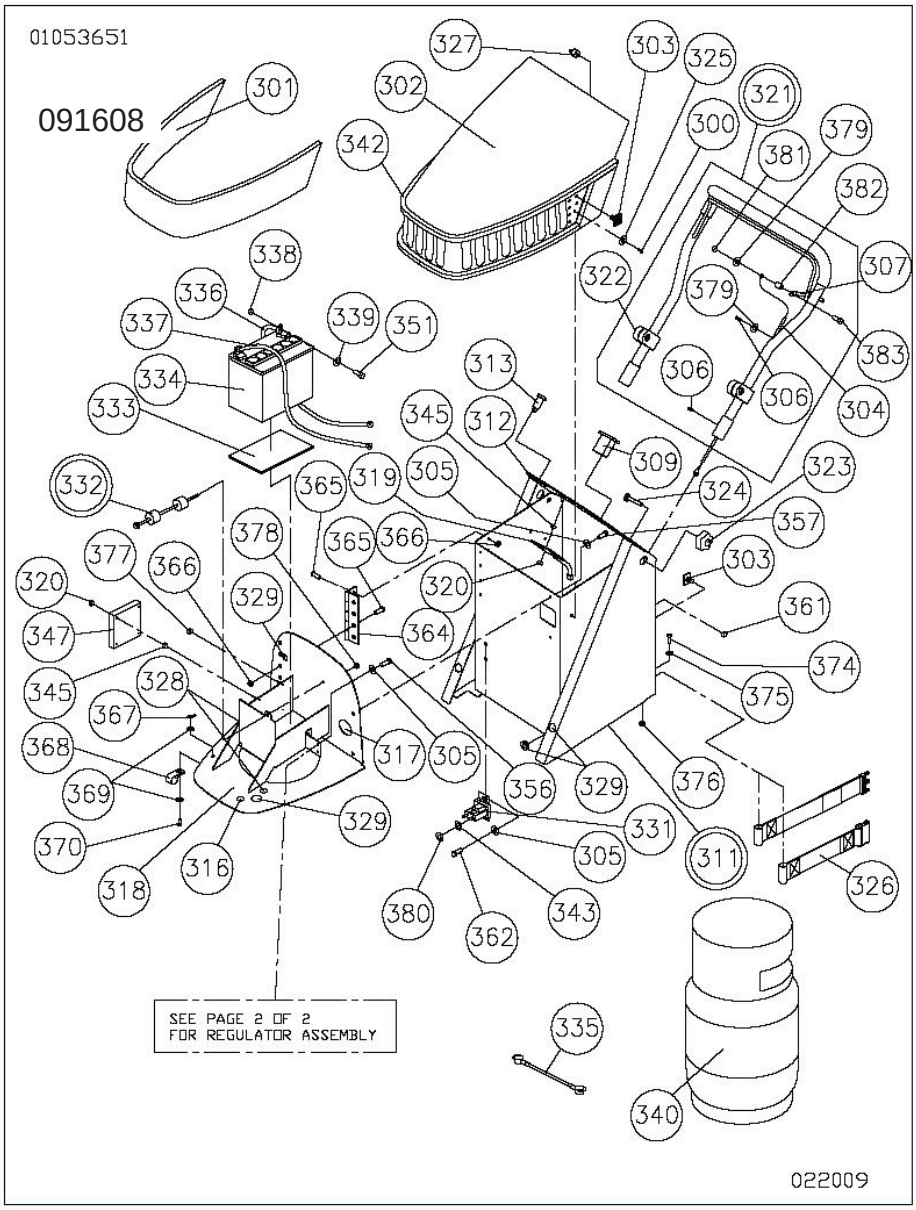


Deck Sub-Assembly: Barracuda 38 Models

REF	PART#	DESCRIPTION	QTY
100	BA000700	ADT Muffler	1
101	BA000800	Motor Plate	1
102	BA018700	Axle Mounting Block	2
103	BA001300	Axle	1
104	BA001900	Muffler Mount with Weldment	1
105	BA017700	Cover, Gearbox, BA38, WLDMT.	1
106	BA012800	20” Brush w/Lugs	2
107	BA002000	Brace	1
108	BA002800	Splash Skirt Mount	1
	Not applicable after SN55171		
109	BA002900	Splash Plate	1
110	MP7802	1/4” x 1 1/2” Key	3
112	BA011100	Skirt, BA38 (before SN55171)	1
	BA014700	Skirt, BA34, Quick Change (After SN55171)	1
113	BA004200	LH Gearbox Mounting Plate	1
114	BA017500	Gearbox, Right Angle, BA34/38	2
115	BA017400	Gearbox, T-Drive, BA34/38	1
116	BA005800	Base Assembly Weldment	1
117	BA006100	Deck Assembly with Weldment	1
118	BA006300	Rear Splash Guard	1
	Not applicable after SN55171		
120	MP201200	Plate, Clutch, Brush, Asm., Left	1
121	MP201300	Plate, Clutch, Brush, Asm., Right	1
122	MP037200	BX63 Belt	1
123	MP037300	Pulley 1”	1
124	MP037400	Lovejoy Hub L099 1”	4
125	MP037500	Lovejoy Spider L099 1”	2
126	NB009100	Reid Thumb Screw LPS-40	4
127	BA009700	Plate, Hook, Weldment	1
129	SS1315	Wheel	2
130	BA014801	Pulley Cover	1
131	NB011900	Screw, Flange, 1/4-20x1”, Hex/Slotted	3
133	BA004300	RH Gearbox Mounting Plate	1
134	N/A	N/A	N/A
135	NB2463	5/16”-18 x 3/8” Setscrew	6
136	NB3450	3/8” Flat Washer	30
137	NB6851	3/8”-16 x 3/4” HH Screw	28
138	MX1075	3/8 Lock Washer	22
139	NB9545	1/4”-20 Nut	2
140	NB6110	1/4” Lock Washer	12
141	NB6111	5/16” Lock Washer	4
142	NB3001	1/4”-20 x 3/4” BH Screw	16

REF	PART#	DESCRIPTION	QTY
143	NB3350	1/4” Flat Washer	7
144	NB6044	3/8”-16 x 1 1/4” HH Screw	4
145	NB6545	5/16”-18 x 1” HH Screw	4
146	NB9267	5/16” Flat Washer	4
147	MP071800	Belt Tensioner Assembly	1
148	NB9000	1/4”-20 x 1.5” HH Screw	4
149	MP018000	Oxygen Sensor (KWA, KWAE)	1
	MP015200	Oxygen Sensor Plug (KWC, KWCE)	1
151	MP031805	Bumper, Shroud, Low Profile, BA38	1
152	NB008900	Rivet, Pop, 3/16”, 3/8 Head	20
154	NB020700	Screw, Phillips, Pan, 6-32 x 1	4
155	MP035300	Band, Clamp, Skirt	2
156	MP084700	Molding, Bumper, RokBak	1
157	NB020800	Nut, Lock, Nylon, 6-32	4
158	N/A	N/A	N/A
159	NB024500	Bolt, Retainer, Flexi, 3/8” x 15/16”	12
160	MP317700	Coupling, Element, Flexi, 96mm B.C.	2
161	BA019100	Hub, Drive, Weld., Painted, BA34/38	2
162	MP098600	Lug, P-74, w/Screws (Flo-Pac) (Set of 3)	2
163	NB060500	Screw, BH, 10-24 x 5/8	2
164	NB060600	Washer, Star Lock, #10	2
165	MP098700	Retainer, Hitch Pin, Plate Clutch	2
166	NB024100	Pin, Hitch, External	2
167	NB060700	Spacer, Retainer, Hitch Pin	2
168	MP317800	Plate, Clutch, Brush	2
169	BA014900	Plate, Mount, Hook	1
170	BA015000	Plate, Pivot, Hook	1
171	BA015200	Bushing, Pivot, Hook	1
172	NB033500	Washer, Wave, 3/4	1
173	NB035400	Bolt, Hex, 3/4-10- x 2 1/2	1
174	NB035500	Nut, Lock, Nylon, 3/4 - 10	1
175	NB035700	Screw, Socket, Flat, C/S, 3/8 - 16 x 1 1/2	4
176	NB035800	Pin, Pull, Loop, 3/8 x 1 1/2	1
177	NB018600	Washer, Flat, 3/4	1
178	NB3267	Nut, Lock, 3/8 NC	4
179	NB3450	Washer, Flat, 3/8	4
180	MP066900	Lanyard, Cable, 6”	1
181	NB3350	Washer, Flat, 1/4”	1
182	NB019200	Screw, BH, 1/4 - 20 x 3/8	1
183	NB011800	Bolt, Hex, 5/16”-18 x 2, GD5	1
184	NB3265	Nut, Lock, 5/16”-18 NC	1

Bulkhead Sub-Assembly: Barracuda



Bulkhead Sub-Assembly: Barracuda

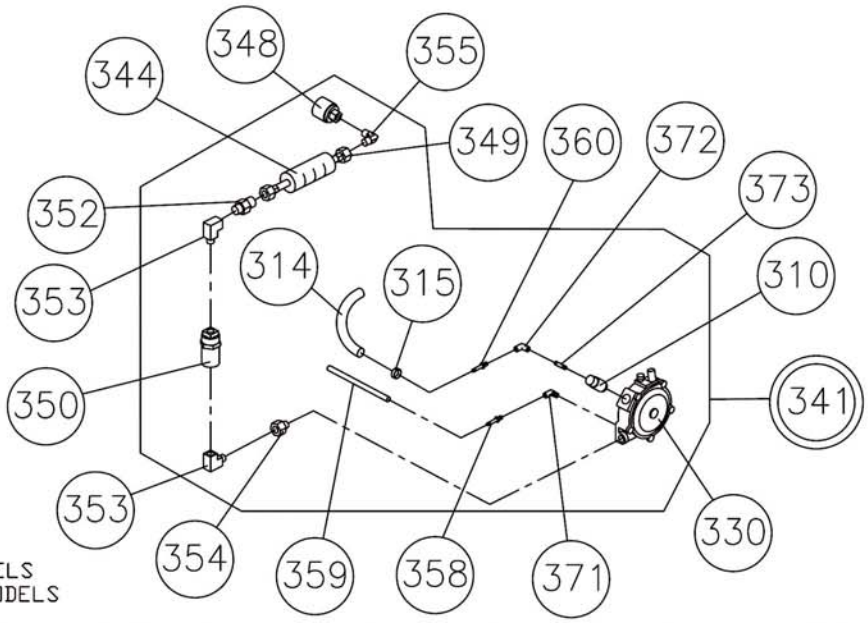
REF	PART#	DESCRIPTION	QTY
300	NB061100	Screw, BH, 1/4-20 x 1/2	2
301	MP042500	Filter, Foam, Air, Intake	1
302	MP063300	Hood, Battery, Speedstar, Black	1
303	MP8310	Velcro Hook Studs	14
304	MP106500	Cable, Throttle, Control	1
305	MX1115	Washer, 1/4" Star Lock	8
306	NB4382	Screw, Kwik Drill, 8 x 18 x 1/2	5
307	SA008200	Bail, ST/BA, Asm.	1
308	NB2643	Rivet, Pop, 1/8 x 1/4	6
309	MP280800	Hour Meter	1
310	MP017900	Fuel Adjustment Assembly	1
311	MP048900	Bulkhead Asm., KWC	1
	MP052200	Bulkhead Asm., KWA	1
312	IN1015	Trim, Battery Tray	1
313	KC2509904	Switch, Starter	1
314	NB2470	3/8 Fuel Line	1
315	NB7282	Hose, Clamp, No. 38	2
316	MP044700	Plug, 3/4, Nylon, Black	1
317	NB6514	Grommet, 1-1/2 I.D. x 1/8 W x 1-3/4 O.D.	1
318	SA017900	Tray, Battery, Swing-out, w/ inserts	1
Not Shown:		NB024700 - Plug, Hole, Large	1
Not Shown		NB024800 - Plug, Hole, Small	2
319	MP042800	Display Board	1
320	NB010300	Nut, Nylon, 6-32	7
321	MP041800	Handle Assembly	1
322	MP042100	Block, Slide, Handle, Pivot	2
323	RV005100	Handle Knob	2
324	NB010100	3/8-16 x 2 Carriage Bolt	2
325	NB3350	Washer, Flat, 1/4	2
326	MP041100	Tank Strap	1
327	IN3510	Mount, Type s, 1/4-20	2
328	NB009800	3/8 I.D. x 1/8" Groove Grommet	3
329	NB009900	5/8 I.D. A 1/8 Groove Grommet	5
330	MP037900	Regulator, Nolff	1
331	MP6431	12V Solenoid	1
332	MP040400	Battery Retainer Assembly	1
333	SS1212	Battery Pad	1
334	SS0012	Battery	1
335	MP043200	Starter Cable, 6"	1
336	MP2011	Positive Battery Cable	1
337	MP2012	Negative Battery Cable	1
338	NB3260	5/16-18 Nut	2
339	NB6111	5/16 Lock Washer	2
340	MP021703	Painted Cylinder w/Decal	1
341	MP099700	Regulator Assembly (17 HP)	1
	MP099701	Regulator Assembly (17 HP E Models)	1
	MP157100	Regulator, Barracuda, Amano, Swing Out, Assy (KWAE3J Models)	1
	MP179400	13 HP Regulator Assy (13 HP)	
	MP179401	13 HP Regulator Assy (13 HP E Models)	1

REF	PART#	DESCRIPTION	QTY
342	MP038300	Battery Cover Molding	1
343	NB6110	1/4" Lock Washer	2
344	MP045500	Pipe Insulation, 1/2 I.D., 3/8 Wall	1
345	MP026300	#8 x .25 Spacer	8
347	SA008600	SafeSense Module Kit (KWA)	1
348	MP4500	Quick Rego Female Coupler	1
349	MP4340	12" Regulator Hose	1
	MP4300	Hose, 18", Regulator (E Models)	1
350	MP4712	12V Fuelock	1
351	NB9745	5/16"-18 x 3/4" Cap Screw	2
352	MP4320	48 x 6 Reg to Fuelock Fitting	1
353	MP027200	Fitting, 90 Deg. Elbow, 1/4 x 1/4 NPT	2
354	MP027100	Fitting, Extension, 1/4 x 1/4 NPT	1
355	MP4330	54 x 6 Reg to Fuelock Fitting	1
356	NB003200	1/4"-20 x 5/8" HH Bolt	2
357	NB3001	1/4"-20 x 3/4" BH Screw	2
358	MP019500	1/8" NPT 1/4" Hose Barb	1
359	NB2460	5/32" Vacuum Hose	1
360	MP018900	1/8" NPT 3/8" Hose Barb	1
361	NB9845	Nut, Keps, 1/4-20	2
362	NB52816	Screw, BH, 1/4-20 x 1/2	2
363	N/A	N/A	-
364	MP093000	Hinge, Tray, Battery	1
365	NB023700	Stud, 8-32 x 1/2	8
366	NB9710	Nut, Keps, 8-32, Zinc	8
367	NB8175	Pin, Presto, 3/32 x 1 5/8	1
368	NB8130	Clamp, 3/4" I.D., Retainer	1
369	NB3350	Washer, Flat, 1/4	2
370	NB024600	Pin, Clevis, 1/4 x 5/8	1
371	MP098900	Fitting, 1/8" MPT x 1/8" FPT, 90°	1
372	MP099000	Fitting, 1/8" FPT x 1/8" FTP, 90°	1
373	MP099100	Fitting, 1/8 x 1/8 Nipple	1
374	NB5282	Scew, BH 5/16 - 18 x 1	4
375	NB9267	Washer, Flat, 5/16	4
376	NB3265	Nut, Lock, 5/16 - 18 NC	4
377	NB013000	Caplug, .125" x .375"	1
378	NB3275	Nut, Lock, 1/4"	1
379	NB9645	Washer, Flat, #10	1
380	MX1045	Nut, Hex, 1/4 - 20	2
381	NB9735	Nut, Lock, #10-24	1
382	NB028300	Bushing, Cable, Bail	1
383	NB033300	Screw, BH, #10-24 x 7/8	1
384	MP3375	Elbow, Brass, Reg to Fuel	1

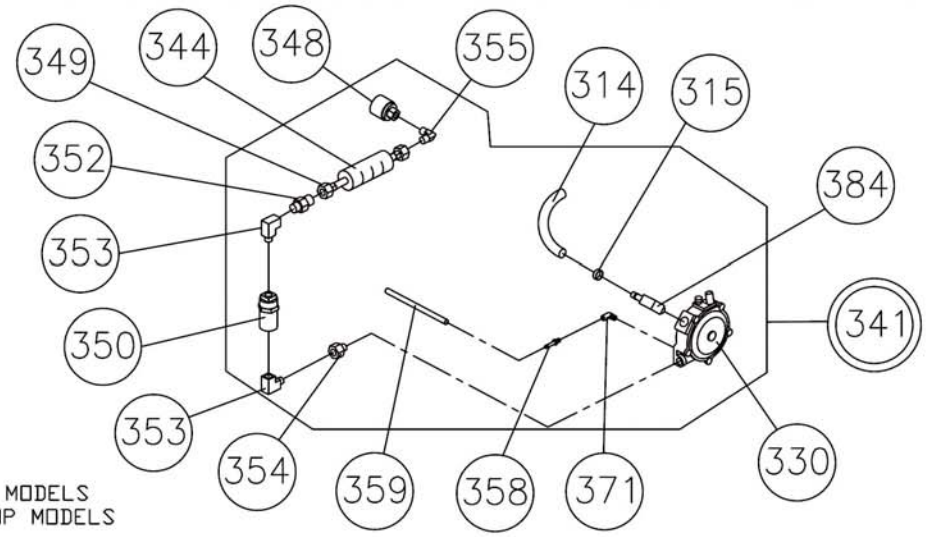
022709

Regulator Assembly: Barracuda

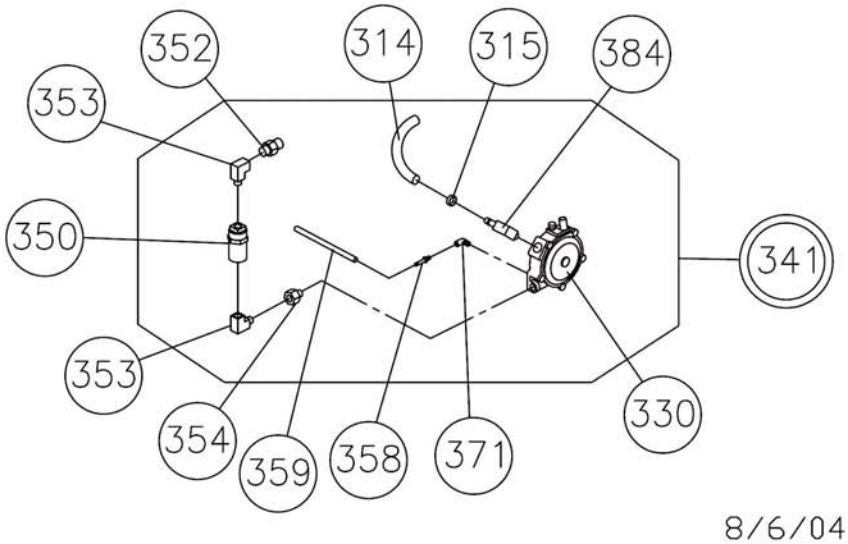
01053651 080604



REGULATOR ASSEMBLY FOR
MP099700 KWA AND KWC 17HP MODELS
MP099701 KWAE AND KWCE 17HP MODELS



REGULATOR ASSEMBLY FOR
MP179400 KWA AND KWC 13HP MODELS
MP179401 KWAE AND KWCE 13HP MODELS



REGULATOR ASSEMBLY FOR
MP157100 KWAE3J MODELS

8/6/04

Regulator Assembly: Barracuda

REF	PART#	DESCRIPTION	QTY
300	NB52816	Screw, BH, 1/4-20 x 1/2	4
301	MP042500	Filter, Foam, Air, Intake	1
302	MP042400	Battery Cover	1
303	MP8310	Velcro Hook Studs	14
304	MP106500	Cable, Throttle, Control	1
305	MX1115	Washer, 1/4" Star Lock	8
306	NB4382	Screw, Kwik Drill, 8 x 18 x 1/2	5
307	SA008200	Bail, ST/BA, Asm.	1
308	NB2643	Rivet, Pop, 1/8 x 1/4	6
309	TB9610	Hour Meter	1
310	MP017900	Fuel Adjustment Assembly	1
311	MP048900	Bulkhead Asm., KWC	1
	MP052200	Bulkhead Asm., KWA	1
312	IN1015	Trim, Battery Tray	1
313	KC2509904	Switch, Starter	1
314	NB2470	3/8 Fuel Line	1
315	NB7282	Hose, Clamp, No. 38	2
316	MP044700	Plug, 3/4, Nylon, Black	1
317	NB6514	Grommet, 1-1/2 I.D. x 1/8 W x 1-3/4 O.D.	1
318	MP099300	Tray, Battery, Weld, Swing Out	1
Not Shown:		NB024700 - Plug, Hole, Large	1
Not Shown		NB024800 - Plug, Hole, Small	2
319	MP042800	Display Board	1
320	NB010300	Nut, Nylon, 6-32	7
321	MP041800	Handle Assembly	1
322	MP042100	Block, Slide, Handle, Pivot	2
323	RV005100	Handle Knob	2
324	NB010100	3/8-16 x 2 Carriage Bolt	2
325	RV009500	Footman Loop	2
326	MP041100	Tank Strap	1
327	NB010400	Screw, Phil. Oval HD, 10-24 x 5/8	4
328	NB009800	3/8 I.D. x 1/8" Groove Grommet	3
329	NB009900	5/8 I.D. A 1/8 Groove Grommet	5
330	MP037900	Regulator, Nolff	1
331	MP6431	12V Solenoid	1
332	MP040400	Battery Retainer Assembly	1
333	SS1212	Battery Pad	1
334	SS0012	Battery	1
335	MP043200	Starter Cable, 6"	1
336	MP2011	Positive Battery Cable	1
337	MP2012	Negative Battery Cable	1
338	NB3260	5/16-18 Nut	2
339	NB6111	5/16 Lock Washer	2
340	MP021703	Painted Cylinder w/Decal	1
341	MP099700	Regulator Assembly (17 HP)	1
	MP099701	Regulator Assembly (17 HP E Models)	1
	MP157100	Regulator, Barracuda, Amano, Swing Out, Assy (KWAE3J Models)	1
	MP179400	13 HP Regulator Assy (13 HP)	
	MP179401	13 HP Regulator Assy (13 HP E Models)	1

REF	PART#	DESCRIPTION	QTY
342	MP038300	Battery Cover Molding	1
343	NB6110	1/4" Lock Washer	2
344	MP045500	Pipe Insulation, 1/2 I.D., 3/8 Wall	1
345	MP026300	#8 x .25 Spacer	8
347	SA008600	SafeSense Module Kit (KWA)	1
348	MP4500	Quick Rego Female Coupler	1
349	MP4340	12" Regulator Hose	1
	MP4300	Hose, 18", Regulator (E Models)	1
350	MP317500	Fuelock, 12V, Asm.	1
351	NB9745	5/16"-18 x 3/4" Cap Screw	2
352	MP4320	48 x 6 Reg to Fuelock Fitting	1
353	MP027200	Fitting, 90 Deg. Elbow, 1/4 x 1/4 NPT	2
354	MP027100	Fitting, Extension, 1/4 x 1/4 NPT	1
355	MP4330	54 x 6 Reg to Fuelock Fitting	1
356	NB003200	1/4"-20 x 5/8" HH Bolt	2
357	NB3001	1/4"-20 x 3/4" BH Screw	2
358	MP019500	1/8" NPT 1/4" Hose Barb	1
359	NB2460	5/32" Vacuum Hose	1
360	MP018900	1/8" NPT 3/8" Hose Barb	1
361	MP4511	Clip, Oil Drain	1
362	NB9200	Screw, Machine, Rd Hd, 6-32 x 5/8	1
363	NB9530	Nut, Lock/Washer, 6-32	1
364	MP093000	Hinge, Tray, Battery	1
365	NB023700	Stud, 8-32 x 1/2	8
366	NB9710	Nut, Keps, 8-32, Zinc	8
367	NB8175	Pin, Presto, 3/32 x 1 5/8	1
368	NB8130	Clamp, 3/4" I.D., Retainer	1
369	NB3350	Washer, Flat, 1/4	2
370	NB024600	Pin, Clevis, 1/4 x 5/8	1
371	MP098900	Fitting, 1/8" MPT x 1/8" FPT, 90°	1
372	MP099000	Fitting, 1/8" FPT x 1/8" FTP, 90°	1
373	MP099100	Fitting, 1/8 x 1/8 Nipple	1
374	NB5282	Scew, BH 5/16 - 18 x 1	4
375	NB9267	Washer, Flat, 5/16	4
376	NB3265	Nut, Lock, 5/16 - 18 NC	4
377	NB013000	Caplug, .125" x .375"	1
378	NB3275	Nut, Lock, 1/4"	1
379	NB9645	Washer, Flat, #10	3
380	MX1045	Nut, Hex, 1/4 - 20	2
381	NB9735	Nut, Lock, #10-24	1
382	NB028300	Bushing, Cable, Bail	1
383	NB033300	Screw, BH, #10-24 x 7/8	1
384	MP3375	Elbow, Brass, Reg to Fuel	1

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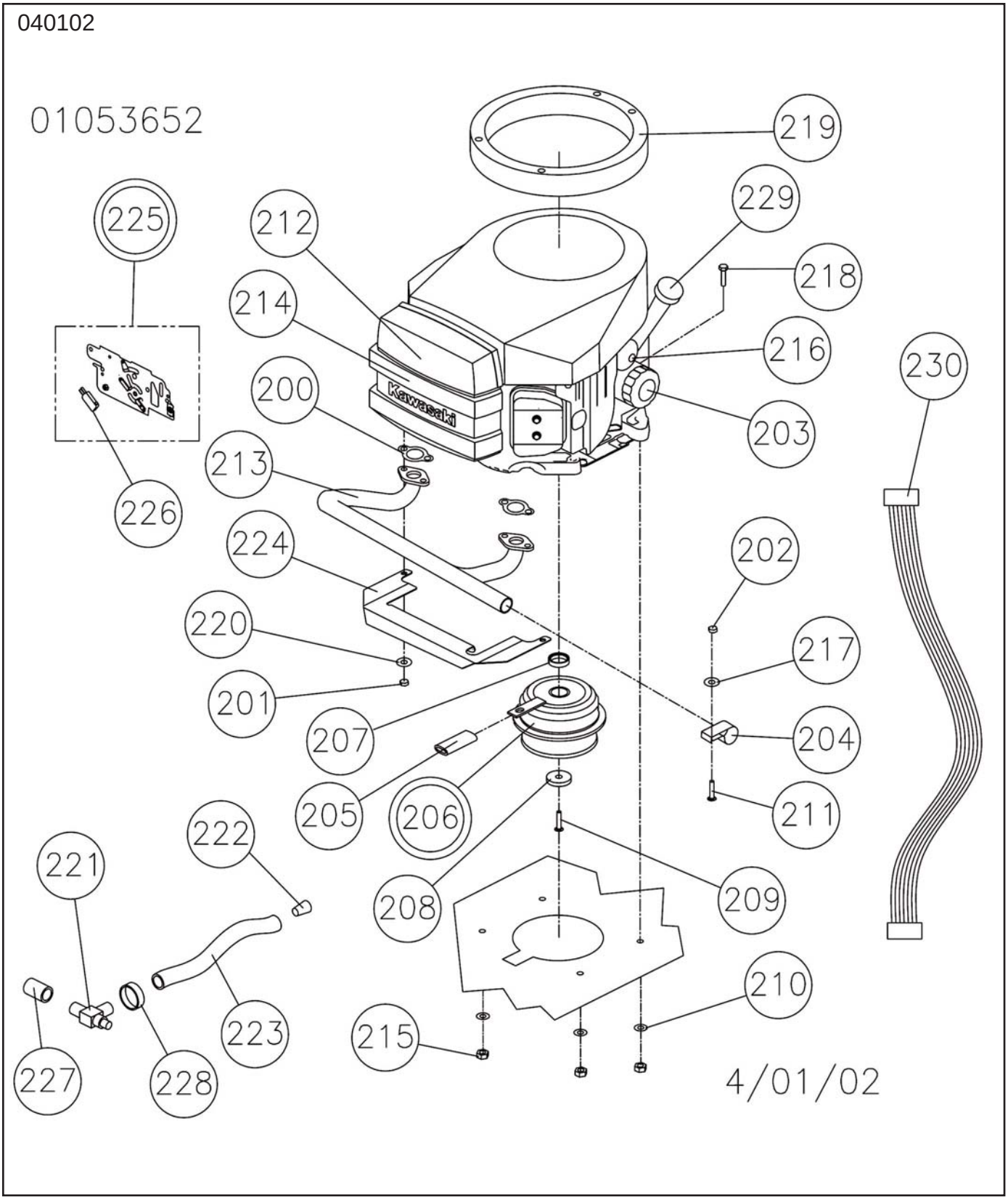
Engine Sub-Assembly: Barracuda

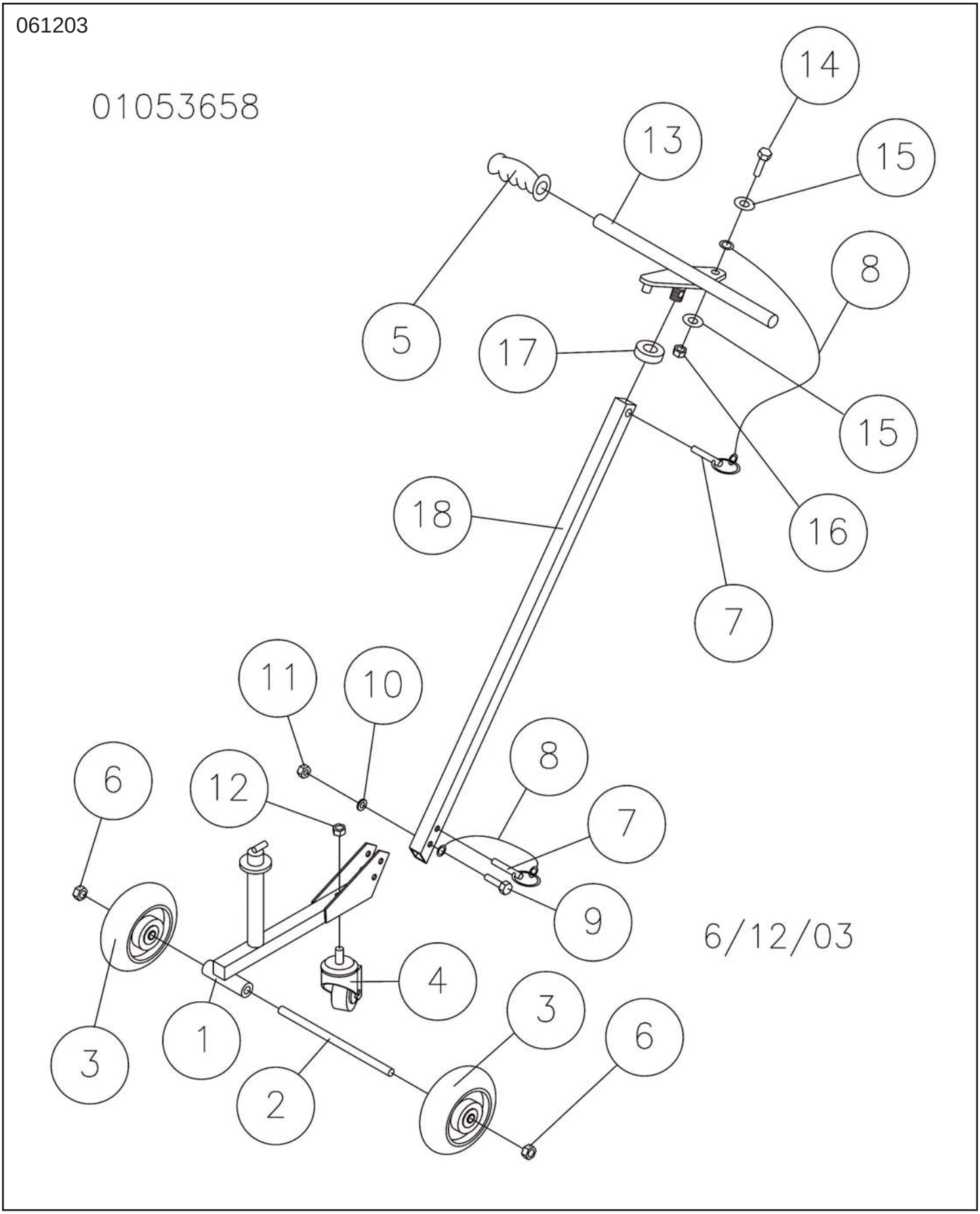
040102



Engine Sub-Assembly: Barracuda

REF	PART#	DESCRIPTION	QTY
200	KA110607021	Gasket	2
201	KA317R0800	Nut, 8mm	4
202	NB3260	Nut, 5/16”-18	1
203	KA490652078	Oil Filter	1
204	MP017000	Clamp, Muffler	1
205	MP4790	Norprene Tubing	1
206	MP4787	Clutch, Model 5215-63	1
207	MP4800	Spacer, Clutch Top	1
208	MP4805	Spacer, Bottom Clutch	1
209	NB005800	Screw, HH, 7/16”-20 x 1 1/2”	1
210	NB9267	Washer, Flat 5/16”	4
211	NB004100	Bolt, Carriage 5/16”-18 x 2”	1
212	KA110137001	Air Precleaner	1
213	KA180497001	Kawasaki Side Mount Manifold (17hp)	1
	KA180887001	Kawasaki Side Mount Manifold (13hp)	1
214	KA110137006	Air Filter Element, Kawasaki, UL	1
215	NB3265	Nut, Lock, 5/16”-18	4
216	MP019200	Oil Pressure Switch (KWC/E Models)	1
	MP028700	Oil Pressure Switch (KWA/E/J Models)	1
217	NB6111	Washer, Flat, 5/16”	1
218	NB000100	Screw, HH, 5/16”-18 X 1 3/4”	4
219	MP043100	Engine Air Intake Seal	1
220	KA461F0800	Lock Washer	4
221	MP072300	Valve, Drain, Oil	1
222	NB1621	Caplug, K8, Red	1
223	MP4515	Tubing, Drain, Oil	26”
224	MP043400	Manifold Heat Shield (17hp)	1
	MP121900	Manifold Shield (13hp)	1
225	SA007900	Plate, Throttle, Repl. Bail Style Kit	1
226	MP036200	Switch, Micro, 12V, 15A	1
227	KA590717004	Oil Drain Adapter	1
228	NB7282	Clamp, Hose, No. 38	1
229	SA009900	Dipstick, Kawasaki, Complete	1
230	MP034200	Harness, Wiring, ST/BA, w/SafeSense (KWA/E/J Models)	1
	MP049300	Harness, Wiring, ST/BA, non-SafeSense (KWC/E Models)	1
231	KA920707003	Plug, Spark (RCJ8Y) (Not Shown)	2

Transport Cart Assembly: Barracuda



Transport Cart Assembly: Barracuda

REF	PART#	DESCRIPTION	QTY
1	BA016500	Cart Frame, Painted, Weldment	1
2	BA009500	Axle, Barracuda Transport Cart	1
3	RV009600	Wheel, 6”, Grey	2
4	MP012800	Caster, 2 1/2”, 1 1/2” Stem	1
5	MP237400	Handle Grip	2
6	NB014600	Lock Nut, 1/2, Bonding	2
7	NB035800	Pin, Pull, 3/8 x 1 1/2	2
8	MP066900	Lanyard, Cable, 6”	2
9	NB014000	Screw, Shoulder	1
10	NB9267	Flat Washer, 5/16	1
11	NB3265	Lock Nut, 5/16 - 18 NC	1
12	NB003100	Nut, Hex, 1/2 - 13, JAM	1
13	BA016600	Handle, Transport, Weldment	1
14	NB019100	Bolt, Hex, 1/4 - 20 x 3/4	1
15	NB3350	Washer, Flat, 1/4	2
16	NB3275	Nut, Lock, 1/4	1
17	NB035900	Nut, Jam, Knorled, 3/4 - 10	1
18	BA016400	Tube, Frame, Vertical, Transport	1

012507

Limited Warranty

Burnishers - Scrubbing Machines - Stripping Machines

To qualify for this warranty:

1) Machine must be registered at the time of purchase on a form provided by Amano Pioneer Eclipse® Corporation. Your Amano Pioneer Eclipse Distributor is responsible for the registration of your machine. Please cooperate with your Distributor in supplying necessary information on the card.
2) The machine must have been purchased from Amano Pioneer Eclipse or an authorized Amano Pioneer Eclipse Distributor.
3) This warranty extends to the original purchaser only and is not transferable to subsequent owners.

TIME PERIODS

TWO (2) YEAR WARRANTY - For the following models PE1700, Laser X, Magna 2000. Warranted to be free from defects in material and workmanship for a period of two (2) years from the date of purchase by the original owners. (See Exclusions.)

ONE (1) YEAR WARRANTY - For the following models SP, ST, BA, and the StarStrip 2400. Warranted to be free from defects in material and workmanship for a period of one (1) year from the date of purchase by the original owners. (See Exclusions.)

EXCLUSIONS (Not Covered by Warranty)

1) Parts that fail through normal wear by reason of their characteristics (cords, pads, brushes, belts, bumpers, body molding, skirting, squeegees or other consumable parts).
2) This warranty does not extend to parts affected by misuse, neglect, abuse or improper maintenance. All defective parts must be returned to the Distributor for credit.
3) Batteries warranted by battery manufacturer for (1) year.
4) Propane Engine warranted by engine manufacturer for *2 years (*Note: The engine warranty period can be extended to a four (4) years providing the customer uses only approved Kawasaki oil. Contact your Amano Pioneer Eclipse distributor for more information regarding this optional extended warranty program.)
5) Valve train warranted by Amano Pioneer Eclipse for (1) year.
6) Electric motors warranted by motor manufacturer.
7) Deck Frame warranted by Amano Pioneer Eclipse for (5) years.

THE OBLIGATION OF AMANO PIONEER ECLIPSE CORPORATION

1) The obligation of Amano Pioneer Eclipse under this warranty is limited to repairing or replacing, at its option, any part which is proven to be defective in material or workmanship under normal use for the applicable period stated above.
2) Warranty repairs will be made by your Amano Pioneer Eclipse Distributor without charge for parts and labor.
3) Parts repaired or replaced under this warranty are warranted only during the balance of the original warranty period. All defective parts replaced under these warranties become the property of Amano Pioneer Eclipse.

WARRANTY SERVICE

To obtain warranty service, take your machine and proof of purchase to any authorized Amano Pioneer Eclipse Distributor. Amano Pioneer Eclipse will not reimburse expenses for service calls or travel. For the Distributor in your area, call Amano Pioneer Eclipse Customer Service Department at 800-367-3550 or 1-336-372-8080. If you are dissatisfied with the service that you receive, call or write Amano Pioneer Eclipse Customer Service Department for further assistance.

DISCLAIMER OF CONSEQUENTIAL

AMANO PIONEER ECLIPSE DISCLAIMS ANY RESPONSIBILITY FOR LOSS OF USER TIME OF THE AMANO PIONEER ECLIPSE MACHINE OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGE EXCEPT AS STATED IN THE WARRANTY APPLICABLE TO EACH MACHINE. EXCEPT AS STATED IN SUCH WARRANTIES, THE COMPANY DOES NOT OTHERWISE WARRANT ANY MACHINE AND NO WARRANTY, EXPRESS, IMPLIED OR STATUTORY IS MADE BY THE COMPANY.

Amano Pioneer Eclipse Corporation
P.O. Box 909
Sparta, NC 28675
1-336-372-8080
1-800-367-3550
www.pioneer-eclipse.com

Article #: _____

Serial #: _____

DOM: _____

Built in NC, USA

**CE Certification applies only to machines for export with SafeSense®
as indicated by KWAE extension on part number.
Machine Directive 98/37/EC as amended by Directive 89/392/EEC,
Directive 91/368/EEC, Directive 93/44/EEC, and by Directive 93/68/EEC.**