Operator's Manual

HAMMER HEAD

Propane Burnisher with Kawasaki Engine and Dust Collection System

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.

CE

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 or cylinders that are authorized in your specific market/country.
- Be careful not to cross thread the Rego coupling on the fuel cylinder.
- Store the fuel cylinder outside away from heat and direct sunlight.
- Check pad holder for cracks each time the pad is changed.
- Have the machine serviced by a certified technician, including an emission check, every three (3) months.

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 pad! Inspect pad holders regularly. (A fractured pad holder may result in pad holder fragments causing injury.)

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/or property.

NOTE: This machine is manufactured for commercial use only.

Propane powered floor burnishers are designed and manufactured for ultra high speed commercial floor burnishing only. These machines are designed to burnish most modern types of floors including composition tile, stone, marble, terrazzo, and resilient floor covering using floor coatings designed for ultra high speed burnishing.

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 burnisher to operate without moving the machine. It may burn the floor and damage the floor covering.

Contents

Specifications

HH40KWC/E

Performance	50,000 ft^2/hr (4600 m^2/hr)
Engine	Kawasaki 19 HP 585 cc air-cooled
Engine Speed	3600 rpm
Burnishing Width	40” (102 cm)
Pad Size	2 x 21” (53,3 cm)
Pad Speed	1850 rpm
Start	12 V Battery
Sound Level	87 dB(A)
Vibration	Less than 2.5 m/s^2
Length	61.75” (157 cm)
Width	46.5” (118 cm)
Height	41” (104 cm)
Weight	340 lbs (154 kg)
Deck	Welded Steel

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 UL, 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.

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 burnisher 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.

When filling a “dry” burnisher or changing oil, **add no more than 1.6 US quarts (1,5 L) when not changing the oil filter, or 1.8 US quarts (1,7 L) when the oil filter is changed**, then check the dipstick 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 RokBak

The burnisher handle adjusts for comfort and optimum control. Height may be changed to suit the individual operator. The handle may also be adjusted to a full-up (about 45°) position to allow the burnisher to be rocked back for easy pad change (See page 9).

The fuel cylinder should be removed before placing the burnisher in the RokBak, pad change position.

Rock the burnisher to the vertical position from the front of the unit. The burnisher must be off prior to using the RokBak Tilt System.

Filling the Safe-Fill Fuel Cylinder

Amano Pioneer Eclipse uses the 20 lb. capacity aluminum or steel 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 11.) 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 by a commercial carrier of cylinders after the cylinder has been filled with propane.

Installing the Safe-Fill Fuel Cylinder

Secure tank by connecting the two ends of the tank retaining strap buckle. Once buckle is secured, remove slack by pulling on the loose end of the strap and attach to the velcro.

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 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. Allow machine to tilt backward (pads off floor) and move throttle to SLOW position.
6. Engage starter by turning the key-switch to the starting position for up to 5 seconds.
   If the machine fails to start, 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 second failed start-up attempt. Continue cycling through Step 6 until engine starts.)

Operation

After engine has started, allow approximately 30 seconds for the engine to warm up. Advance the throttle to operating speed.

NOTE: If the unit has new pads installed see **CAUTION** statement below.

Grasp either one of the handle levers to engage the clutch. When the pads begin to spin, lower the burnishing head to the floor while moving the machine forward slowly.

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

CAUTION! THE HAMMERHEAD BURNISHER IS DESIGNED FOR USE WITH PADS THAT ARE NO MORE THAN ONE INCH THICK WHEN NEW. USING PADS THAT ARE THICKER CAN CAUSE THE BURNISHING PAD DRIVERS TO COME INTO CONTACT WITH THE DUST SKIRT RESULTING IN DAMAGE TO THE SKIRT.

WHEN NEW PADS ARE INSTALLED IT IS BEST NOT TO OPERATE THE UNIT AT FULL SPEED. NEW PADS ARE AGGRESSIVE AND MAY BURN THE FLOOR IF OPERATED AT FULL SPEED. OPERATE NEW PADS AT HALF THE NORMAL OPERATING SPEED FOR A SHORT PERIOD TO ALLOW PADS TO HAVE A BREAK-IN PERIOD BEFORE ADVANCING THE THROTTLE TO OPERATING SPEED. NEVER LIFT UPWARD ON THE HANDLE WHILE BURNISHING TO ADD PRESSURE TO THE BURNISHING HEADS, THIS WILL DRIVE THE BEARING ASSEMBLY PULLEYS INTO THE TOP OF THE DUST SKIRT, WHICH WILL RESULT IN DAMAGE TO THE DUST SKIRT.

To stop burnishing, push down on handle to raise the burnishing head off the floor and disengage the clutch by releasing the handle levers.

It is recommended to start burnishing 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 burnished has been covered with the last pass being on the right side of the machine. The forward speed is generally at normal walking speed.

Idling and Stopping the Machine

If for any reason the machine needs to idle for a short period of time, simply raise the burnishing head and disengage the clutch by releasing the handle levers.

Allowing the engine to idle excessively will increase carbon monoxide emissions!

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).

Installing/Changing Pads

1. With engine OFF and in the operating position, tilt the machine to the RokBak position (See page 9).
2. Remove pad centering device and carefully pull the old pad off the velcro pad holding material.
3. **CAREFULLY INSPECT THE PAD HOLDERS FOR CRACKS OR DAMAGE!** Replace if necessary.
   NOTE: A damaged pad holder rotating at high speeds may be an extreme hazard if it should come apart.
   NOTE: IF THE PADS ARE REMOVED FROM THE HAMMERHEAD FOR SERVICE ATTENTION MUST BE PAID TO THE PAD SPACERS. THERE IS A YELLOW SPACER ON THE LEFT BEARING ASSEMBLY AND BLACK SPACER ON THE RIGHT BEARING ASSEMBLY (when viewed from

the pad change position). THESE MUST BE REINSTALLED IN THIS MANNER IF THEY ARE REMOVED WHEN SERVICING THE PAD HOLDERS. IF THIS IS NOT DONE, DAMAGE TO THE UNIT MAY RESULT.

4. Pull center from new pad, center pad on pad holder and secure with centering device.
5. Press pad onto velcro.
6. Repeat with second pad.
7. Return machine to upright position.

Servicing Dust Box and Dust Filter

NOTE: The dust control system of the HammerHead is designed to collect the dust generated by the unit when burnishing a floor. The system is NOT a sweeper unit. Always pre-sweep floor before burnishing.

1. The dust box need not be removed to service the dust filter. In order to service the dust filter, unscrew the thumb knob located on the top of the dust box. The dust filter can be removed from the filter retainer and washed then reinstalled or a new filter can be installed. The filter does not need to be dried. If the filter is wet from cleaning or wetted when installing a new filter, it will aid the filter in its function. If the filter has been removed from the retainer, be sure align the filter in the retainer and press the filter onto the Velcro attachment strips in the retainer.
2. Insert the bottom edge of the filter retainer against the metal guide on the bottom of the filter mounting area. Compress the filter retainer inward and downward to align the hole at the top of the retainer so that the thumb screw can be reinstalled. Tighten the screw until the filter retainer is secured.
3. The dust box should be cleaned daily but does not need to be cleaned each time the filter is cleaned. The dust box collects the heavy particles and pad debris. To remove the dust box, release the latches that secure the dust box to the unit and slide the dust box away from the unit.
4. Once the dust box is removed from the unit, remove the dust filter and service as above. Empty the dust box into a trash container. The dust box can be washed if needed. Install the filter into the filter retainer and install onto the box. The complete assembly can now be installed on the unit.

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 burnisher or fuel cylinders near an open flame or heat producing device.
4. Make sure burnisher is cleaned properly before storing.
5. Never store burnisher with cylinder 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 not to exceed 120° F (50° C).

Transportation

When transporting a propane powered floor burnisher 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 burnishers 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.

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		
Burnishing Head Asm.	Inspect				6		
Pad Holder	Inspect	**When changing pad**					
	Replace	**If cracks appear (2)**					
Bolts & Connections	Inspect				6		
	Tighten				6		
Spark Plug	Clean/Replace				5,6	4,5	
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 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.

NFPA 58 8-1.4 states, “In the interest of safety, each person engaged in installing, repairing, filling, or otherwise servicing a 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.
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, air filter cover and reclamp.

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 a pressure washer.
c. Reinstall all housings and shrouds.

Head Bolt Maintenance

Refer to Engine Manufacturer’s Service Manual.

Changing 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.
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 dipstick 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 THE OIL.

Belt Maintenance

To inspect the belt, see "Adjusting the Handle and RokBak" page 4. To check for the proper tightness squeeze the belt together. The belt should depress between 1/4” (0,6 cm) and 1/2” (1,3 cm). Always use the recommended belt size.

To change belt:

1. Remove the pad holders by holding the end of the shaft on the top of the machine with a 3/4" wrench and turn the pad holder counterclockwise.
2. Remove the dust skirt by removing the three skirt support springs.
   NOTE: Pay special attention to these springs, there are two different types of springs used to support the skirt, two of one type on the rear and a single heavier spring in the front. When removing the springs, note the number of turns that are needed to remove the retainer nut so that it can be re-installed properly.
   NOTE: Before removing the belt be sure to note how the belt is routed around spindles, idlers, clutch and tensioner to insure proper belt re-installation.
3. Use a 3/4" wrench to turn the end of one of the spindle shafts on top of the machine while working the old belt from one of the spindle pulleys.
4. If totally removing the belt, it will be necessary to remove the bolt that secures the idler pulley that is located under the back edge of shroud before the belt can be totally removed from the unit.
5. Finish removing the belt from the engine pulley, and remove the belt from the unit.
6. Check hardware attaching pulleys for proper tightness.
7. Install the new belt onto the bearing assembly on the right side first. Then, feed the left side of the belt to the center and re-install the idler that was removed under the belt. Loop the belt under the idler and around the tensioner. The belt is then routed upward over the second idler before continuing down to the clutch. Once the belt has been installed around the clutch, it is then routed by the idler that protects the wheel on the left side. Next, the belt passes to the right of the blower drive pulley before being worked onto the bearing assembly on the left.
8. To reinstall the new belt on the spindle pulley on the left side of the unit, use a 3/4" wrench to turn the right spindle assembly while working the belt onto the left bearing assembly pulley. Make sure the belt is correctly placed on the idler pulley between the bearing assemblies. Turn the belt through several revolutions to make sure that the belt tracks properly.
9. Make sure the bearing assembly spacers are replaced on the correct assemblies if they have been removed. The yellow spacer is placed on the left bearing assembly and black is placed on the right bearing assembly. Failure to reinstall in this manner can result in damage to the unit.
10. Reinstall the skirt assembly in reverse of removal. (See number 2 above)
11. Reinstall pad holders onto spindle shafts.
12. Return the machine to upright, burnishing position.
13. Check all top mounted hardware for proper tightness.
14. Install tank, and start unit. Engage clutch to check for correct operation before attempting toreturn to service.

Adjusting the Handle and RokBak

1. With the engine OFF, loosen the handle adjustment lever on the side of the handle.
2. Move the handle to the full-up position (about a 45° angle) and retighten handle adjustment lever securely.
3. Lift up on the front of the deck, rocking the machine back until it rests on the handle grips.

Battery Maintenance and Replacement

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

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

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. Disconnect battery cables from terminals. Always disconnect the **BLACK** cable first.
3. Remove battery hold-down clamp.
4. Lift old battery out and replace with new battery.
6. Reinstall hold-down clamp.
8. Connect the **RED** positive battery cable first. Connect the **BLACK** negative battery cable last. Dispose of old battery in the proper manner. Most

auto parts stores accept used batteries for recycling.

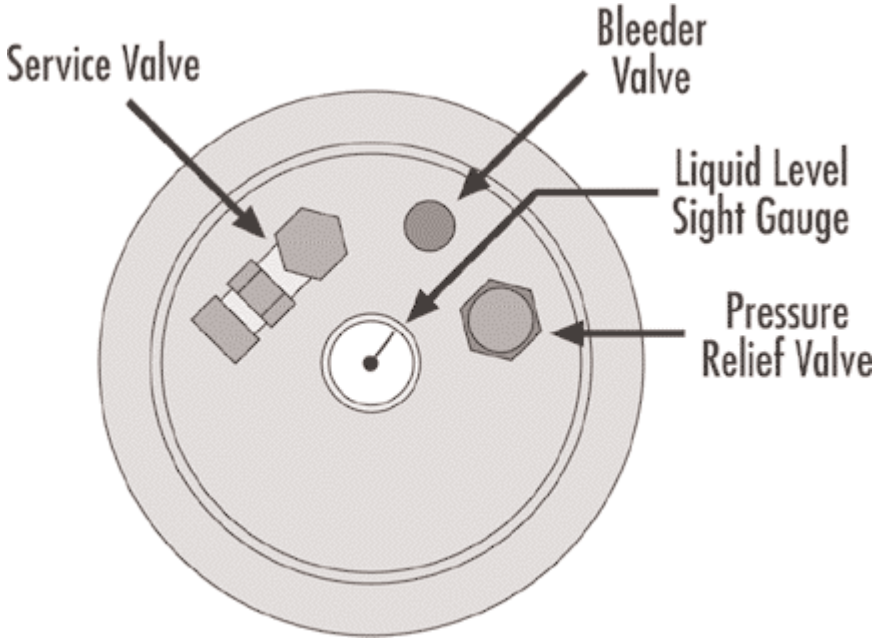
Installing & Removing the Dust Skirt

1. With machine in RokBak position, the dust skirt can be serviced.
2. The pad holders must be removed in order to remove the dust skirt. (See number 1 under Belt Maintenance)
3. In order to remove the skirt, the three skirt support springs must be removed. It is best to note the number of turns its takes to remove each nut in order to reinstall so that the skirt will operate as before it was removed. Also, note, that there are two different types of springs used in this assembly, two springs on the rear of the skirt and one heavier spring on the front of the skirt. Once the springs and guide bushings are removed, set them aside for reinstallation. The skirt can now be removed for service.
4. To reinstall reverse the removal instructions.
5. The felt edge can be serviced or replaced without removing the dust skirt assembly.
6. To remove the felt edge, simply, pull outward away from the skirt.
7. To reinstall or install new edge, start at the center of the back of the skirt and insert felt into felt grove. It may be necessary to rock the outer edge of the felt into the grove then use a thin blade to guide the felt into the grove. Once the edge is in the grove, push with the palm of your hand to seat it into the grove. Continue around the skirt until the felt meets the starting point. If installing a new felt edge, the excess felt will need to be cut off. It is always best to cut slightly and re-cut if necessary for a good fit. As a final step run the thin blade all the way around the outside then the inside to seat the felt.
8. If skirt is not touching the floor, the skirt springs may have been over-tightened. It is best to make these adjustments slowly, one turn at a time, testing between adjustments. The skirt should always rise when the clutch is disengaged. When engaged, the skirt should touch the floor lightly, not drag.
9. NOTE! If new velcro studs have been installed onto the pad holders, the studs on the top of the pad holders must be trimmed to avoid contact with the dust skirt. Failure to trim the studs after installation can result in damage to the pad holders, dust skirt or both.

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
	Incorrect spark plug gap (Gap should be .025)
	Insufficient vacuum
	Defective spark plug
	Defective coil
	Blown head gasket
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
	Pad 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 or worn wheel
	Adjust wheels forward
8. Engine stops running	
	Out of fuel
	Low oil
	Dirty air filter

Safe Fill Cylinder Head Layout



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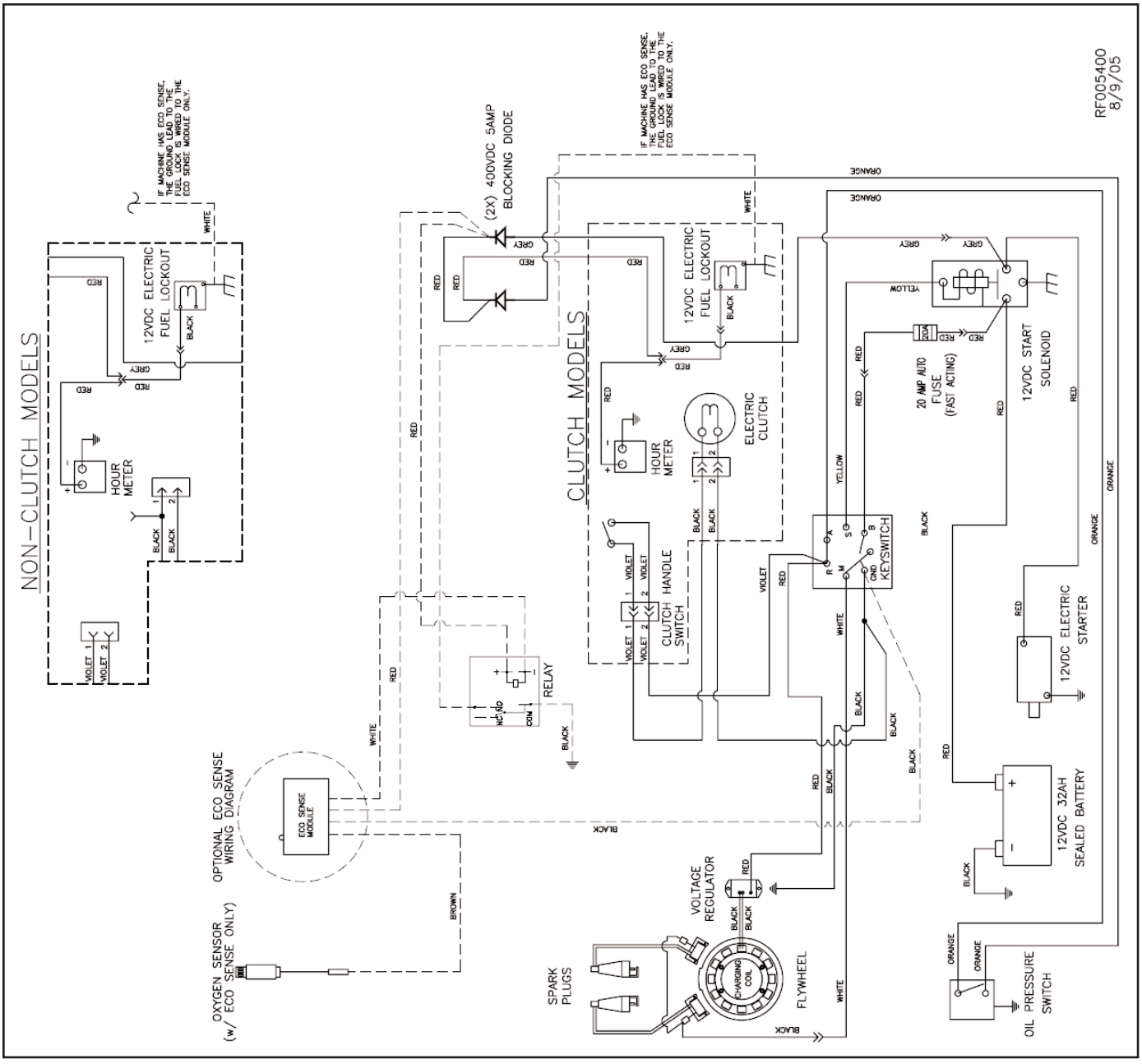
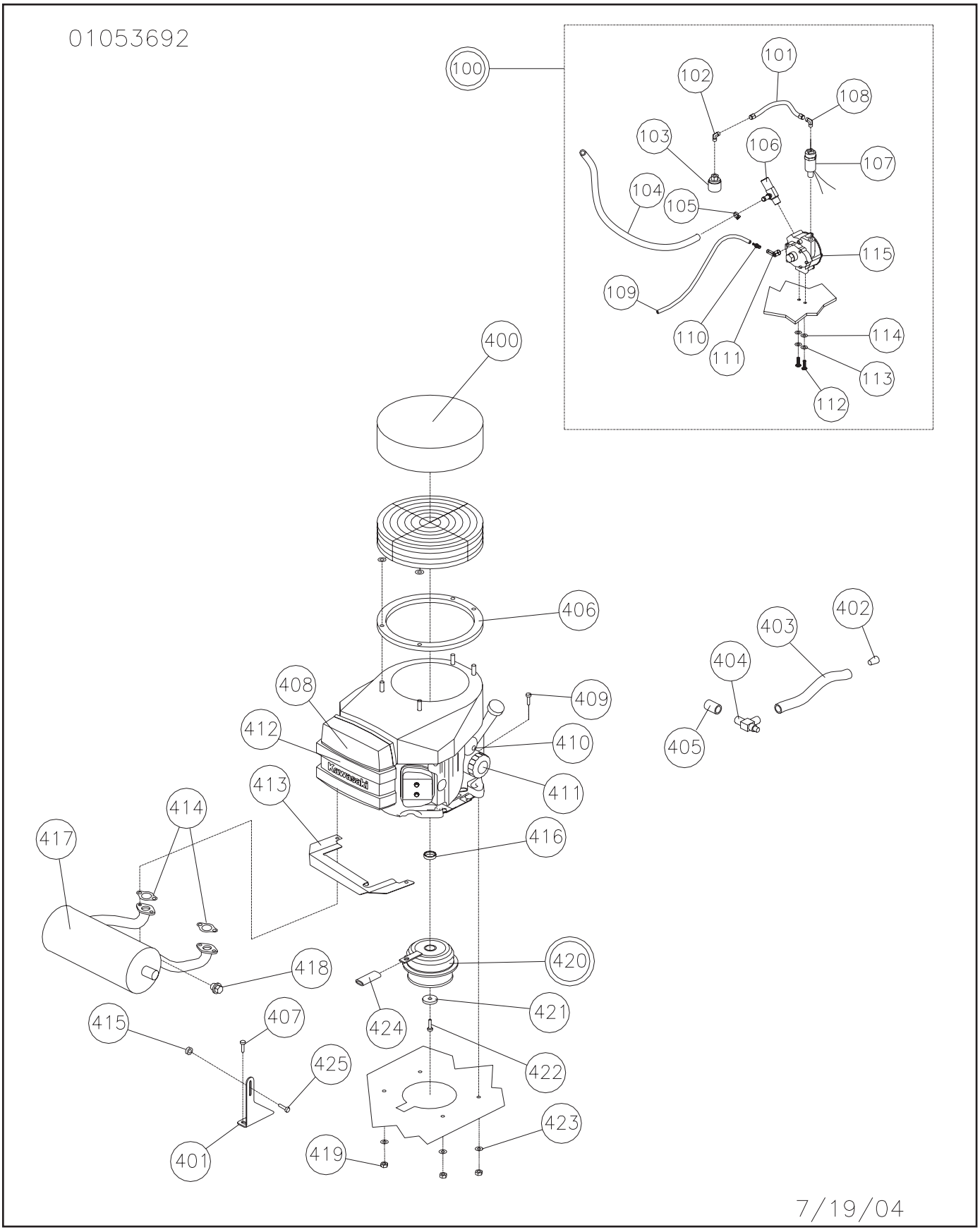

NON-CLUTCH MODELS
CLUTCH MODELS
IF MACHINE HAS ECO SENSE, THE GROUND LEAD TO THE FUEL LOCK IS WIRED TO THE ECO SENSE MODULE ONLY.
12VDC ELECTRIC FUEL LOCKOUT
(2X) 400VDC 5AMP BLOCKING DIODE
HOUR METER
ELECTRIC CLUTCH
CLUTCH HANDLE SWITCH
RELAY
KEYSWITCH
20 AMP AUTO FUSE (FAST ACTING)
12VDC START SOLENOID
12VDC ELECTRIC STARTER
12VDC 32AH SEALED BATTERY
OIL PRESSURE SWITCH
VOLTAGE REGULATOR
CHARGING COIL
FLYWHEEL
SPARK PLUGS
OPTIONAL ECO SENSE WIRING DIAGRAM
ECO SENSE MODULE
OXYGEN SENSOR (w/ ECO SENSE ONLY)
RF005400
8/9/05

Engine / Regulator Sub-Assembly: Hammerhead

Serial # 65611 and Earlier



Engine / Regulator Sub-Assembly: Hammerhead

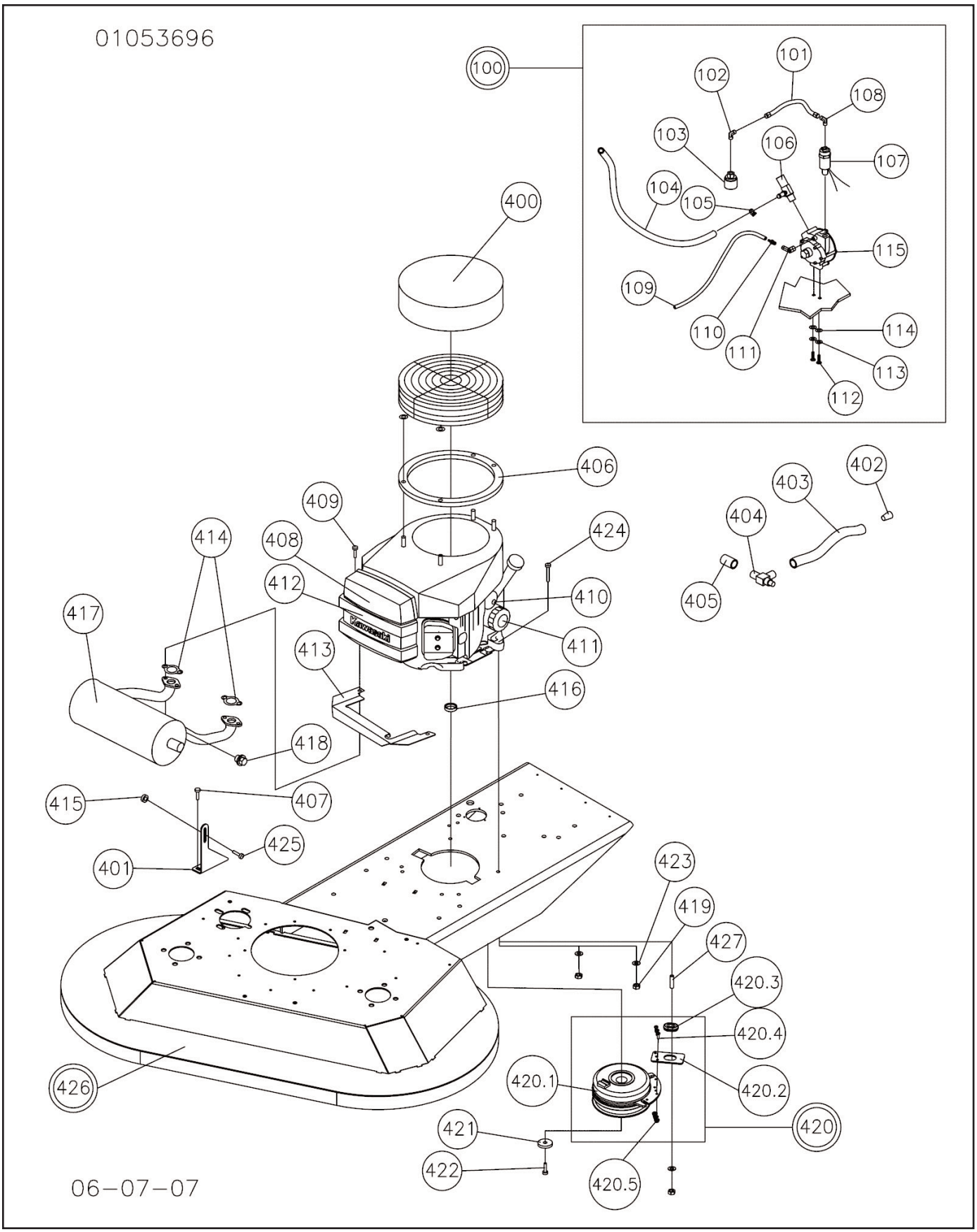
Serial # 65611 and Earlier

REF#	PART#	DESCRIPTION	QTY
100	MP114100	Regulator Assy.	1
101	MP4340	Hose, Regulator, 12”	1
102	MP4330	Fitting, 49 x 6, Reg to Fuelock	1
103	MP4500	Coupler, Quick Rego, Female	1
104	NB2470	Fuel Line, 3/8”	1.33 ft
105	NB7282	Clamp, Hose, No. 38	2
106	MP017900	Fuel, Adjustment Assy.	1
107	MP4712	Fuelock, 12 Volt	1
108	MP4320	Fitting, 48 x 6	1
109	NB2460	Hose, Vacuum, 5/32	1.583 ft
110	MP019500	Hose Barb, 1/8 NPT - 1/4 BARB	1
111	MP098900	Fitting, 1/8” MPT x 1/8” FPT 90	1
112	NB6530	Screw, HH Cap, 1/4 - 20 x 1	2
113	NB6110	Washer, Lock, 1/4	2
114	NB3350	Washer, Flat, 1/4	2
115	MP245100	Regulator, Beam, T60	1

REF#	PART#	DESCRIPTION	QTY
400	MP109700	Filter, Recoil (17 HP)	1
401	MP120500	Bracket, Muffler	1
402	NB1621	Caplug, K8, Red	1
403	MP4515	Tubing, Oil Drain	1
404	MP072300	Valve, Oil Drain, Kawasaki	1
405	KA590717004	Oil Drain Adapter	1
406	MP109500	Seal, Foam	1
407	NB5282	Bolt, BH, 5/16 - 18 x 1 3/4”	2
408	KA110137001	Element, Air Filter - Foam (17 HP)	1
409	NB000100	Screw, HH, 5/16 - 18 x 1 3/4”	4
410	MP019200	Oil Pressure Switch	1
411	KA490652078	Oil Filter	1
412	KA110137002	Element, Air Filter - Main (17 HP)	1
413	MP043400	Shield, Manifold (17 HP)	1
414	KA110607006	Gasket - Exhaust	2
415	NB9545	Nut, Spin Lock, 1/4 - 20	1
416	MP4800	Spacer, Clutch, Top	1
417	MP107300	Muffler, Catalytic (17 HP)	1
418	MP015200	Plug, Oxygen Sensor	1
419	NB3265	Nut, Lock, 5/16 - 18	3
420	MP4787	Clutch Assy.	1
421	MP4805	Spacer, Clutch Bottom	1
422	NB005800	Screw, HH, 7/16 - 20 x 1 1/2	1
423	NB9267	Washer, Flat, 5/16	4
424	MP4790	Tubing	1
425	NB52816	Screw, BH, 1/4 - 20 x 1/2”	1

Engine / Regulator Sub-Assembly: Hammerhead

Serial # 65612 and Later



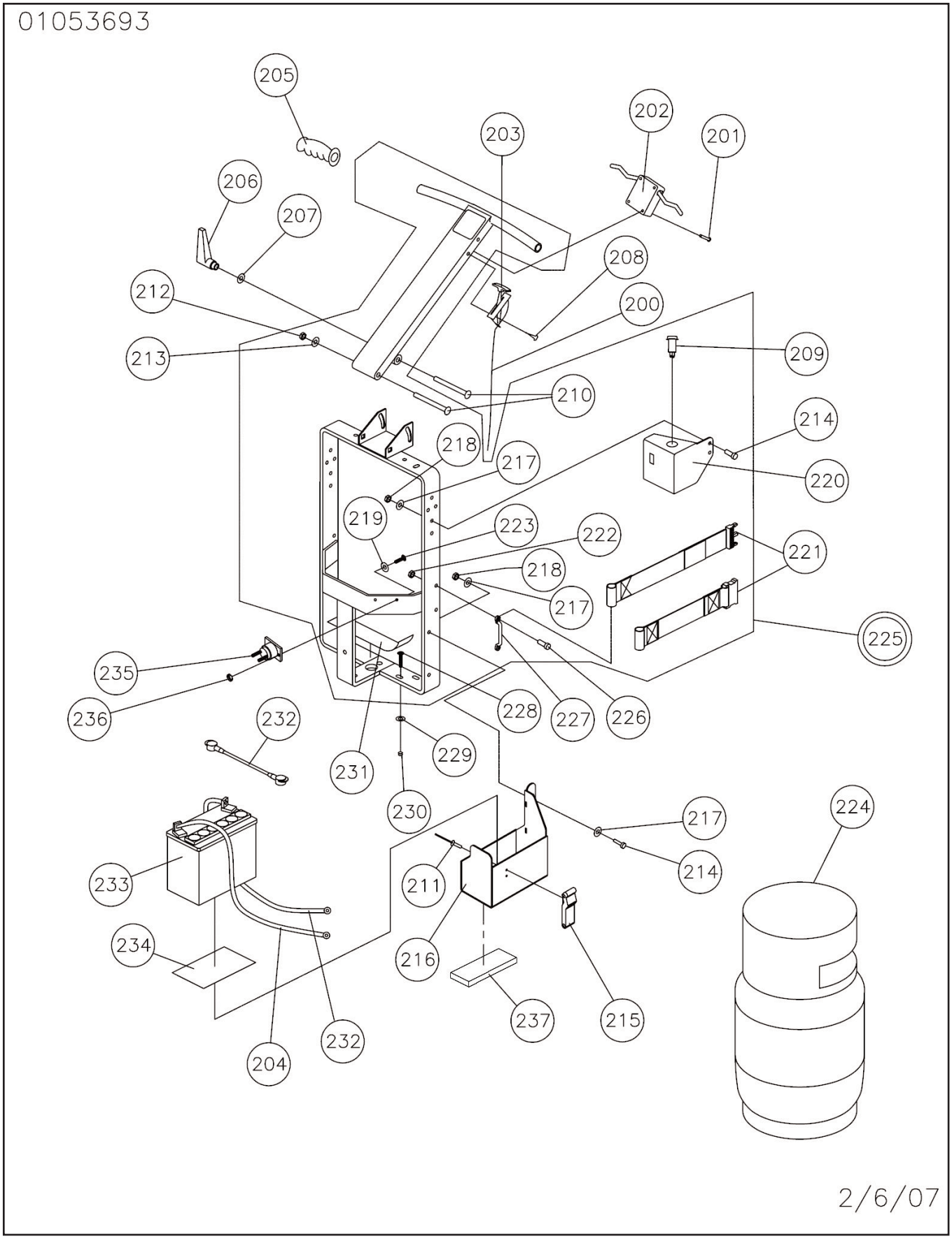
Engine / Regulator Sub-Assembly: Hammerhead

Serial # 65612 and Later

REF#	PART#	DESCRIPTION	QTY
100	MP114100	Regulator Assy.	1
101	MP4340	Hose, Regulator, 12”	1
102	MP4330	Fitting, 49 x 6, Reg to Fuelock	1
103	MP4500	Coupler, Quick Rego, Female	1
104	NB2470	Fuel Line, 3/8”	1.33 ft
105	NB7282	Clamp, Hose, No. 38	2
106	MP017900	Fuel, Adjustment Assy.	1
107	MP317500	Fuelock, 12 Volt, Asm.	1
108	MP4320	Fitting, 48 x 6	1
109	NB2460	Hose, Vacuum, 5/32	1.583 ft
110	MP019500	Hose Barb, 1/8 NPT - 1/4 BARB	1
111	MP098900	Fitting, 1/8” MPT x 1/8” FPT 90	1
112	NB6530	Screw, HH Cap, 1/4 - 20 x 1	2
113	NB6110	Washer, Lock, 1/4	2
114	NB3350	Washer, Flat, 1/4	2
115	MP245100	Regulator, Beam, T60	1

REF#	PART#	DESCRIPTION	QTY
400	MP109700	Filter, Recoil (17 HP)	1
401	MP120500	Bracket, Muffler	1
402	NB1621	Caplug, K8, Red	1
403	MP4515	Tubing, Oil Drain	1
404	MP072300	Valve, Oil Drain, Kawasaki	1
405	KA590717004	Oil Drain Adapter	1
406	MP109500	Seal, Foam	1
407	NB5282	Bolt, BH, 5/16 - 18 x 1 3/4”	2
408	KA110137001	Element, Air Filter - Foam (17 HP)	1
409	NB000100	Screw, HH, 5/16 - 18 x 1 3/4”	3
410	MP019200	Oil Pressure Switch	1
411	KA490652078	Oil Filter	1
412	KA110137002	Element, Air Filter - Main (17 HP)	1
413	MP043400	Shield, Manifold (17 HP)	1
414	KA110607006	Gasket - Exhaust	2
415	NB9545	Nut, Spin Lock, 1/4 - 20	1
416	MP269300	Spacer, Clutch, Top, HammerHead	1
417	MP107300	Muffler, Catalytic (17 HP)	1
418	MP015200	Plug, Oxygen Sensor	1
419	NB3265	Nut, Lock, 5/16 - 18	3
420	MP267300	Clutch, HammerHead, Asm.	1
420.1	MP265500	Clutch, Asm., Model 5219-43A	1
420.2	MP265600	Tang, Clutch	1
420.3	NB009900	Grommet, 11/16” x 1”	1
420.4	NB020500	Screw, BH, 10-24 x 5/8”	3
420.5	NB9510	Nut, Spinlock, 10-24	3
421	MP4805	Spacer, Clutch Bottom	1
422	NB005800	Screw, HH, 7/16 - 20 x 1 1/2	1
423	NB9267	Washer, Flat, 5/16	4
424	NB053800	Bolt, Hex, 5/16-18 x 3 1/2, GD5	1
425	NB52816	Screw, BH, 1/4 - 20 x 1/2”	1
426	HH000200	Deck Assembly	1
427	MP265200	Bushing, Steel, I.D. .34 x .50 O.D.	1

Handle Sub-Assembly: Hammerhead

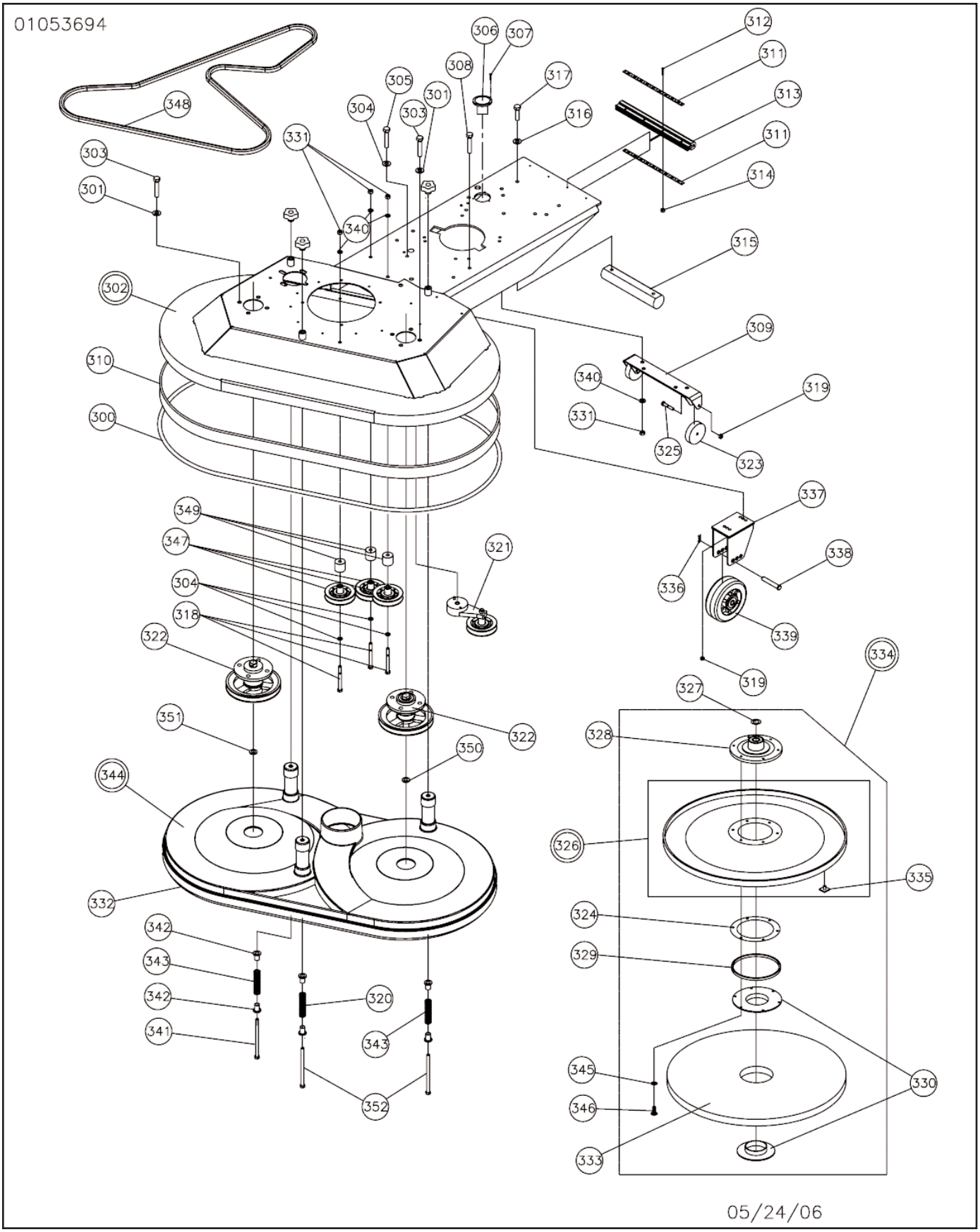


Handle Sub-Assembly: Hammerhead

REF#	PART#	DESCRIPTION	QTY
200	MP044600	Cable, Throttle, 46”	1
201	NB5366	Screw, Sheet Metal, 8 x 1 1/4	4
202	LX2102	Box, Switch, Complete	1
203	MP013800	Knob, Handle, Tee	1
204	IN2012	Cable, Battery, Negative	1
205	MP6300	Grip, Handle	2
206	MP5950	Handle, Adjustable Lever	1
207	NB9267	Washer, Flat, 5/16	1
208	NB4382	Screw, Drill Kwik, 8 - 18 x 1	2
209	KC2509904	Switch, Start	1
210	NB9460	Bolt, Carriage, 3/8 - 16 x 4	2
211	NB045000	Pop, Rivet, 5/32	2
212	NB9470	Nut, Acorn, 3/8 - 16	1
213	NB3450	Washer, Flat, 3/8	1
214	NB5282	Screw, BH, 5/16 - 18 x 1	4
215	MP074400	Latch, Draw	1
216	MP187900	Battery Tray	1
217	NB9267	Washer, Flat, 5/16	6
218	NB3265	Nut, Lock, 5/16 - 18 NC	4
219	MX1115	Washer, Star Lock, 1/4	2
220	MP108800	Bracket, Switch	1
221	MP108100	Strap, Tank	1
222	NB9510	Nut, Spin Lock, 10 - 24	4
223	NB52816	Screw, BH, 1/4 - 20 x 1/2	2
224	MP021702	Cylinder, Safety Fill, Aluminum	1
225	MP187700	Handle Assy.	1
226	NB033200	Screw, Socket, 10 - 24 x 3/4	4
227	RV009500	Footman Loop	2
228	NB9630	Bolt, Carriage, 3/8 - 16 x 1 1/2	5
229	NB9267	Washer, Flat, 5/16	5
230	NB3267	Nut, Lock, 3/8 NC	5
231	MP6600	Velcro, Felt, Black	1
232	MP120900	Cable, Battery, Positive, 14”	2
233	MP120800	Battery, 12 V	1
234	MP120700	Pad, Battery	1
235	MP113600	Solenoid, 12 V, Side Terminal	1
236	NB3275	Nut, Lock, 1/4	2
237	MP280900	Pad, Vibration, Box, Battery	1

Deck Sub-Assembly: Hammerhead

Serial # 65611 and Earlier



Serial # 65611 and Earlier

REF#	PART#	DESCRIPTION	QTY
300	HH005800	Bumper, Round	1
301	NB9269	Washer, Flat, 7/16	12
302	HH000200	Deck Assembly	1
303	NB6864	Bolt, Hex, 1/2 x 1 1/4, NC	8
304	NB3450	Washer, Flat, 3/8	3
305	NB6044	Screw, Cap, 3/8 x 1 1/4	1
306	MP9610	Meter, Hour	1
307	NB2643	Rivet, Pop, 1/8 x 1/4	3
308	NB5282	Screw, BH, 5/16 - 18 x 1	4
309	MP186600	Bracket, Wheel, Rear	1
310	HH005900	Track, Bumper	1
311	MP035300	Band, Clamp, Skirt	2
312	NB020700	Screw, Phillips, Pan, 6 - 32 x 1	4
313	MP084700	Molding, Bumper, RokBak	1
314	NB020800	Nut, Lock, Nylon, 6 - 32	4
315	HH006600	Weight	1
316	MX1075	Washer, Lock, 3/8	2
317	NB6042	Screw, Cap, 3/8 x 1	2
318	NB0044900	Bolt, Hex, 3/8 - 16 x 4", GD5	3
319	NB3265	Nut, Lock, 5/16	6
320	MP187200	Spring, Support, Skirt, Front	1
321	MP071800	Tensioner, Belt, w/4" Pulley	1
322	MP034600	Spindle, w/7.25" Pulley, Asm.	1
323	MP038700	Wheel, Performa, 3", Flat Tread, Grey	2
324	MP081300	Ring, Relief, Stress, Padholder	1
325	NB000100	Screw, Hex, 5/16 - 18 x 1 3/4	2
326	SA016700	Padholder, 21" w/Studs	2
327	NB5700	Washer, 0.755 x 1.005 x 0.06, SS	2
328	MP195800	Flexi Disc	2
329	MP066300	Ring, Spacer, Center Loc II	2
330	MP012700	Retainer, Pad, Center Loc II	2
331	NB3267	Nut, Lock, 3/8 NC	7
332	HH006000	Felt	1
333	PD006021	Pad, 21" Blue Blend	2
334	MP18900	Padholder, 21", Complete, Asm.	2
335	MP8310	Velcro Hook Studs	100
336	LX2105	Clip, Hitch Pin, Strain Relief	2
337	MP263200	Bracket, Wheel, Adjustable	2
338	NB053400	Pin, Clevis, 1/2" x 3 1/2"	2
339	MP324000	Wheel, 5" x 2", w/ Ball Bearing	2
340	MX1080	Washer, Flat, 3/8	7
341	NB048001	Bolt, Spring Guide, 6"	1
342	HH004000	Bushing, Rod, Skirt	6
343	MP311900	Spring, Compression, .761" x 3" Long	2
344	HH000600	Shroud, Skirt, Dust, Asm.	1
345	MX1115	Washer, Star Lock, 1/4	6
346	NB3001	Screw, BH, 1/4 - 20 x 3/4	6
347	MP009100	Pulley, 4" w/1.526" Spacer	2
348	MP186900	Belt, BB105	1
349	HH002600	Spacer, Idler	2
350	MP195300	Spacer, Bearing	1
351	MP195200	Spacer, Bearing	1
352	NB048101	Bolt, Spring Guide, 5"	2

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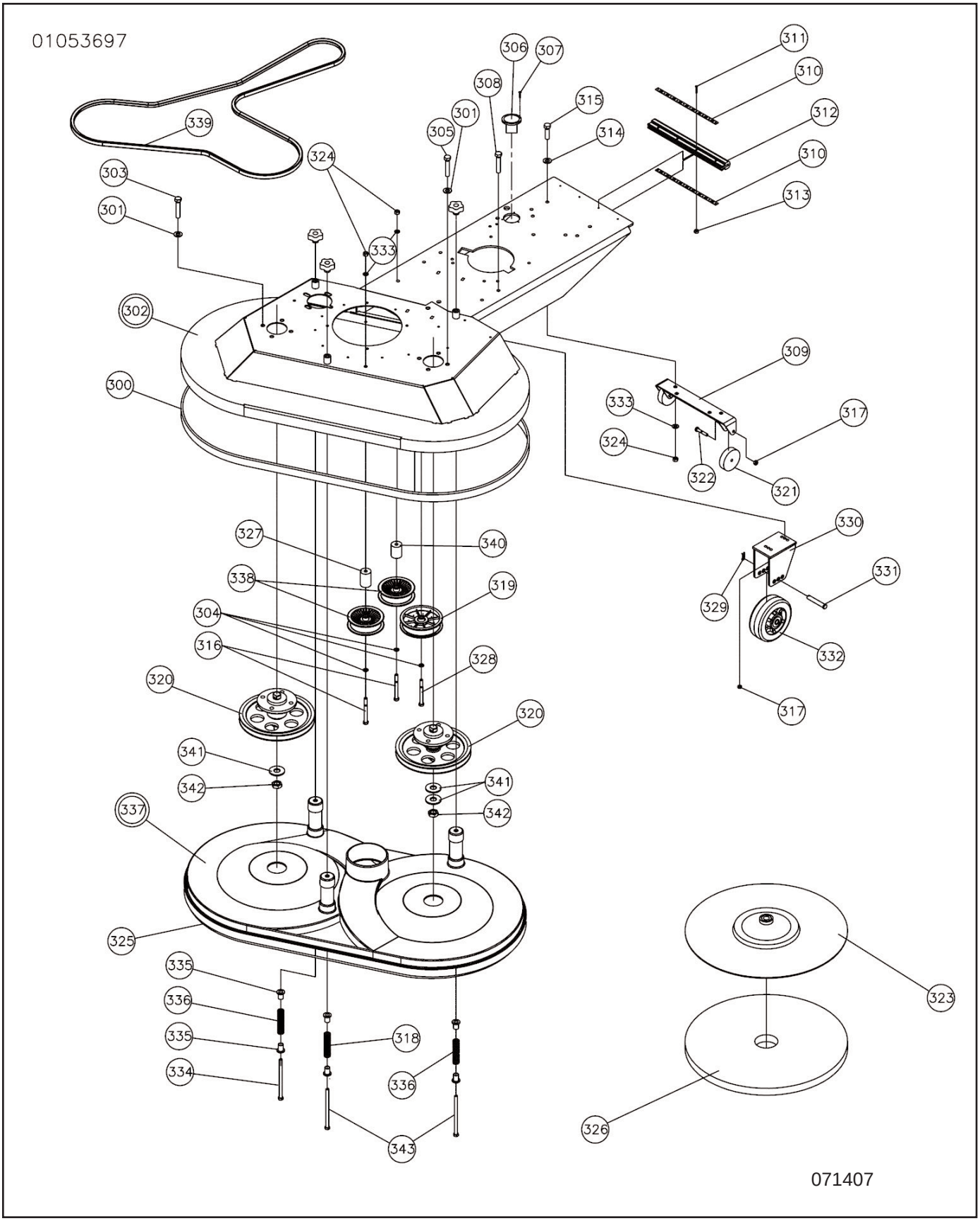
Deck Sub-Assembly: Hammerhead

Serial # 65612 and Later

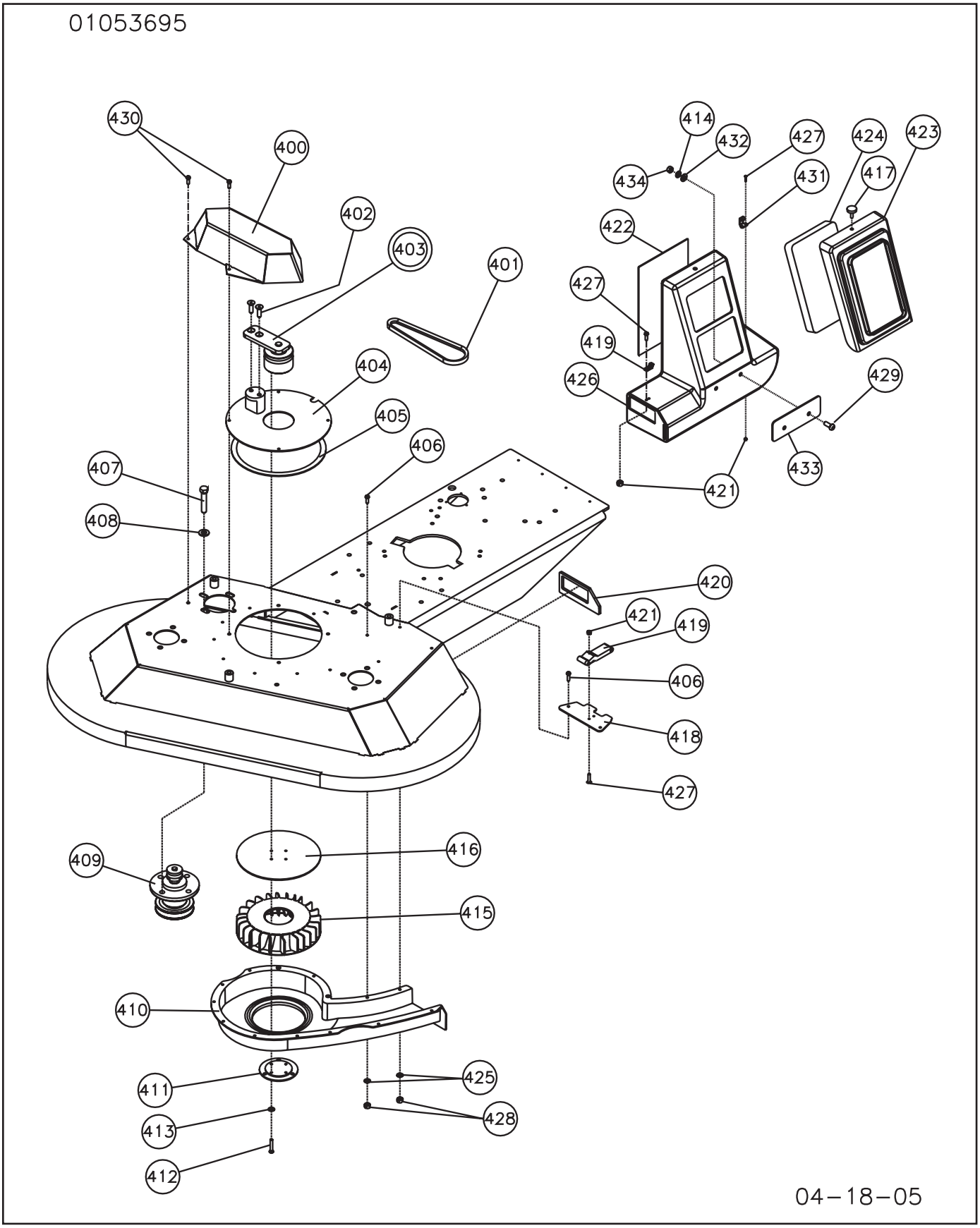


Serial # 65612 and Later

REF#	PART#	DESCRIPTION	QTY
300	MP13970	Molding, Bumper, Skirt, Steel	8.5ft
301	NB9269	Washer, Flat, 7/16	12
302	HH000200	Deck Assembly	1
303	NB6864	Bolt, Hex, 1/2 x 1 1/4, NC	8
304	NB3450	Washer, Flat, 3/8	3
305	NB6044	Screw, Cap, 3/8 x 1 1/4	1
306	MP9610	Meter, Hour	1
307	NB2643	Rivet, Pop, 1/8 x 1/4	3
308	NB5282	Screw, BH, 5/16 - 18 x 1	3
309	MP186600	Bracket, Wheel, Rear	1
310	MP035300	Band, Clamp, Skirt	2
311	NB020700	Screw, Phillips, Pan, 6 - 32 x 1	4
312	MP084700	Molding, Bumper, RokBak	1
313	NB020800	Nut, Lock, Nylon, 6 - 32	4
314	MX1075	Washer, Lock, 3/8	2
315	NB6042	Screw, Cap, 3/8 x 1	2
316	NB0044900	Bolt, Hex, 3/8 - 16 x 4", GD5	2
317	NB3265	Nut, Lock, 5/16	6
318	MP187200	Spring, Support, Skirt, Front	1
319	MP267000	Pulley, 5", w/ .51" Spacer	1
320	MP269100	Spindle, w/ 9.75" Pulley, Asm.	2
321	MP038700	Wheel, Performa, 3", Flat Tread, Grey	2
322	NB000100	Screw, Hex, 5/16 - 18 x 1 3/4	2
323	MP269400	Padholder, 21", Malish w/ Riser RH Threads	2
324	NB3267	Nut, Lock, 3/8 NC	7
325	HH006000	Felt	1
326	PD006021	Pad, 21" Blue Blend	2
327	MP265400	Spacer, Idler, 2.095", Length	1
328	NB010100	Bolt, Carriage, 3/8-16 x 2"	1
329	LX2105	Clip, Hitch Pin, Strain Relief	2
330	MP263200	Bracket, Wheel, Adjustable	2
331	NB053400	Pin, Clevis, 1/2" x 3 1/2"	2
332	MP262900	Wheel, 5" x 2"	2
333	MX1080	Washer, Flat, 3/8	7
334	NB048001	Bolt, Spring Guide, 6"	1
335	HH004000	Bushing, Rod, Skirt	6
336	MP311900	Spring, Compression, .761" x 3" Long	2
337	HH000600	Shroud, Skirt, Dust, Asm.	1
338	MP266900	Pulley, 4" w/ .51" Spacer	2
339	MP268800	Belt, B111, HammerHead	1
340	MP265300	Spacer, Idler, 1.965, Length	1
341	NB018600	Washer, Flat, 3/4"	3
342	NB053700	Nut, Hex, Jam, 3/4-10	2
343	NB048101	Bolt, Spring Guide, 5"	2
344	NB053800	Bolt, Hex, 5/16-18 x 3 1/2, GD5	1

Dust Collection Sub-Assembly: Hammerhead

Serial # 65611 and Earlier



Serial # 65611 and Earlier

REF#	PART#	DESCRIPTION	QTY
400	HH001200	Blower Pulley Cover	1
401	MP189600	Belt, Blower, 1240	1
402	NB017500	Bolt, Flat, C/S, 3/8 - 16 x 3/4”	2
403	HH004300	Bearing, Pulley Assembly	1
404	HH004200	Plate, Mount, Pulley, Weld.	1
405	MP075200	Foam, Skinned, 1/2 x 1/4 x 38”	1
406	NB020500	Screw, BH, 10 - 24 x 5/8	15
407	NB6864	Bolt, Hex, 1/2 x 1 1/4, NC	4
408	NB9269	Waher, Flat, 7/16	4
409	MP187000	Spindle, Hammerhead, Asm	1
410	HH005100	Blower Housing	1
411	HH004100	Plate, Retaining, Fan, Weldment	1
412	NB9308	Screw, BH, 1/4 - 20 x 1”	4
413	NB6110	Washer, Lock, 1/4”	4
414	MX1075	Washer, Lock, 3/8	2
415	KA590417010	Fan	1
416	HH003500	Fan Plate	1
417	MP195700	Knob, Screw, Thumb	1
418	HH000100	Support, Dust Box	1
419	MPO074400	Latch, Draw, Handle	1
420	HH005300	Seal, Box, Dust	1
421	NB9710	Nut, Keps, 8-32, Zinc	6
422	HH006300	Insulation, Heat	1
423	HH006800	Retainer, Filter	1
424	HH005600	Filter	1
425	NB9645	Washer, Flat, #10	10
426	HH004600	Container, Dust	1
427	NB007400	Bolt, Phillips, Pan HD, #8-32 x 1/2	6
428	NB9735	Nut, Lock, 10 - 24, Nylon	10
429	NB6042	Screw, Cap, 3/8 x 1	2
430	NB3001	Screw, BH, 1/4 - 20 x 3/4	5
431	MP190400	Keeper, Latch, Right Angle	1
432	NB3450	Washer, Flat, 3/8	2
433	MP195500	Plate, Retainer, Frame, Filter	1
434	NB5530	Nut, Heavy, 3/8 - 16	2

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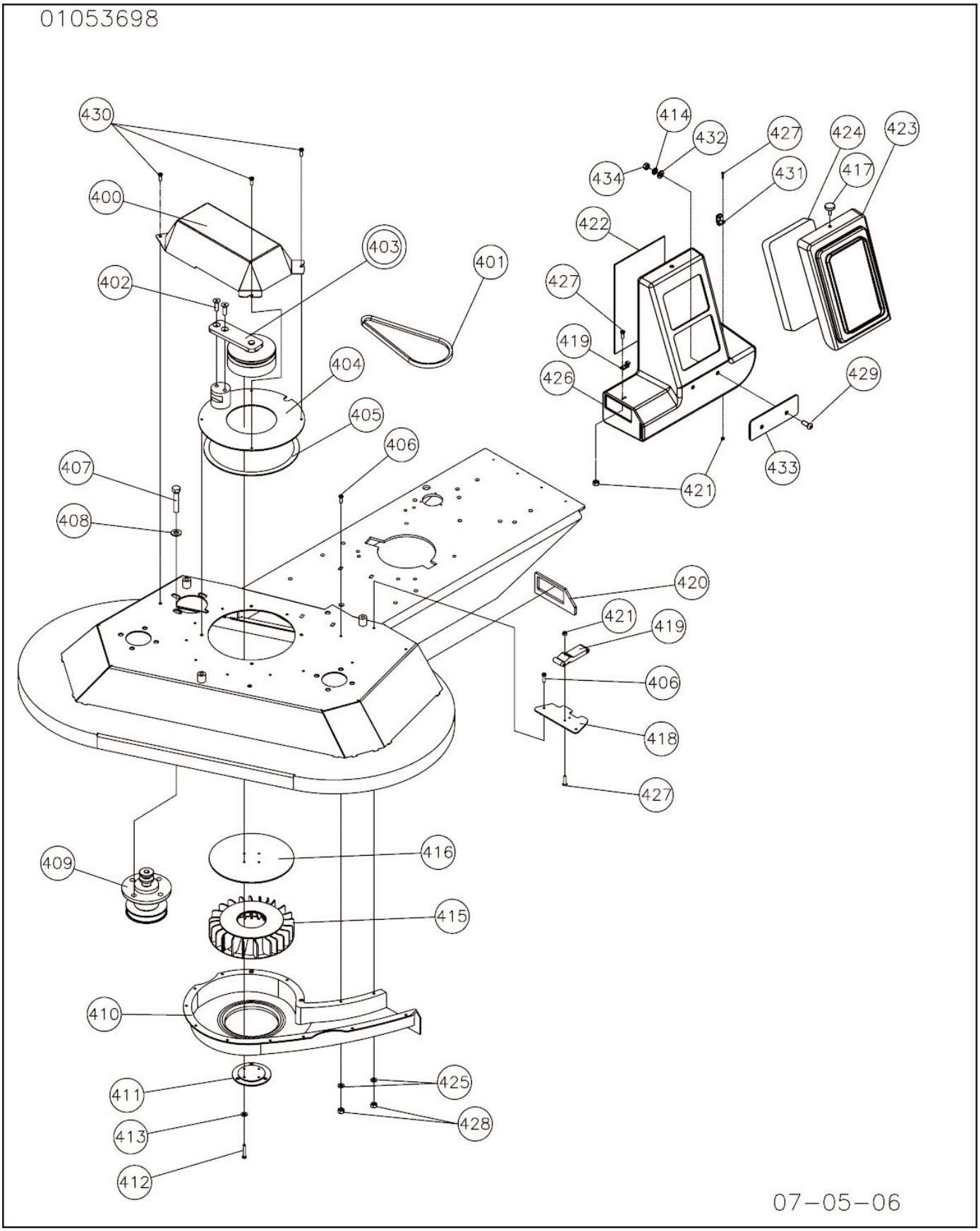
Dust Collection Sub-Assembly: Hammerhead

Serial # 65612 and Later



Serial # 65612 and Later

REF#	PART#	DESCRIPTION	QTY
400	HH008600	Cover, Pulley, Blower, Weldment	1
401	MP268900	Belt, Blower, 3L270, HammerHead	1
402	NB017500	Bolt, Flat, C/S, 3/8 - 16 x 3/4”	2
403	HH007400	Pulley, Blower Asm.	1
404	HH007600	Plate, Mounting, Pulley, Weldment	1
405	MP075200	Foam, Skinned, 1/2 x 1/4 x 38”	1
406	NB020500	Screw, BH, 10 - 24 x 5/8	15
407	NB6864	Bolt, Hex, 1/2 x 1 1/4, NC	4
408	NB9269	Waher, Flat, 7/16	4
409	MP268700	Spindle, Blower, w/ Pulleys, Asm.	1
410	HH005100	Blower Housing	1
411	HH004100	Plate, Retaining, Fan, Weldment	1
412	NB9308	Screw, BH, 1/4 - 20 x 1”	4
413	NB6110	Washer, Lock, 1/4”	4
414	MX1075	Washer, Lock, 3/8	2
415	KA590417010	Fan	1
416	HH003500	Fan Plate	1
417	MP195700	Knob, Screw, Thumb	1
418	HH000100	Support, Dust Box	1
419	MPO074400	Latch, Draw, Handle	1
420	HH005300	Seal, Box, Dust	1
421	NB9710	Nut, Keps, 8-32, Zinc	6
422	HH006300	Insulation, Heat	1
423	HH006800	Retainer, Filter	1
424	HH005600	Filter	1
425	NB9645	Washer, Flat, #10	10
426	HH004600	Container, Dust	1
427	NB007400	Bolt, Phillips, Pan HD, #8-32 x 1/2	6
428	NB9735	Nut, Lock, 10 - 24, Nylon	10
429	NB6042	Screw, Cap, 3/8 x 1	2
430	NB3001	Screw, BH, 1/4 - 20 x 3/4	5
431	MP190400	Keeper, Latch, Right Angle	1
432	NB3450	Washer, Flat, 3/8	2
433	MP195500	Plate, Retainer, Frame, Filter	1
434	NB5530	Nut, Heavy, 3/8 - 16	2

Torsion Bar Adjustment Assembly

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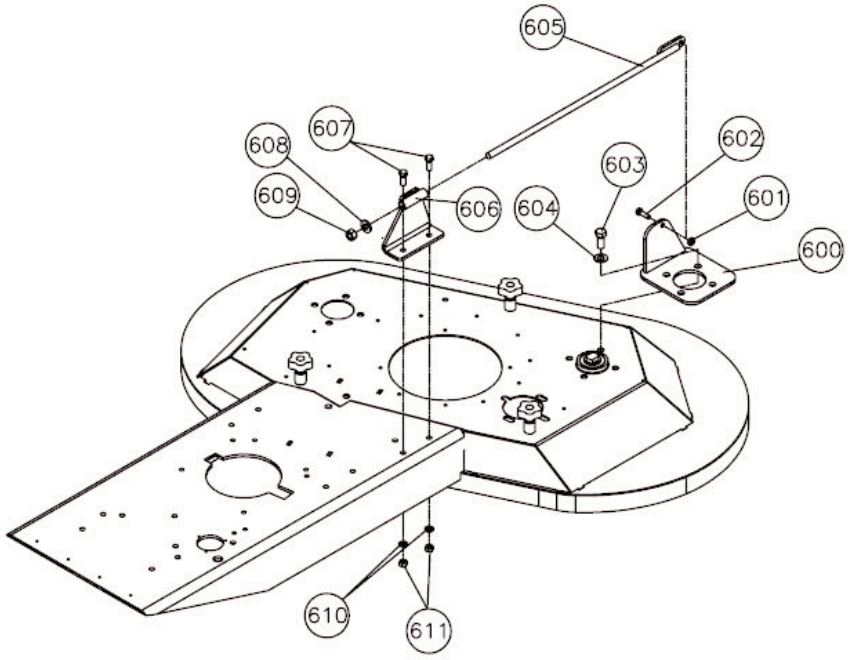

07/05/06

Torsion Bar Adjustment Assembly

REF#	PART#	DESCRIPTION	QTY
600	MP266500	Plate, Base, Torsion, Weldment	1
601	NB3265	Nut, Lock, 5/16-18 NC	1
602	NB6545	Screw, Cap, HH, 5/16-18 x 1	1
603	NB6864	Bolt, Hex, 1/2 x 1 1/4, NC	4
604	NB9269	Washer, Flat, 7/16	4
605	MP266800	Bar, Torsion, Weldment	1
606	MP266600	Brace, Bar, Torsion, Weldment	1
607	NB6044	Screw, Cap, 3/8 x 1 1/4	2
608	NB017100	Washer, Flat, Narrow, 1/2”	1
609	NB047100	Nut, Jam, 1/2-20 UNF	1
610	MX1075	Washer, Lock, 3/8	2
611	NB046200	Nut, Hex, 3/8-16, GD5	2

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Pioneer Eclipse®

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 SB, MM, MB, SP, ST, BA, HH, 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 as indicated by "E" 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.