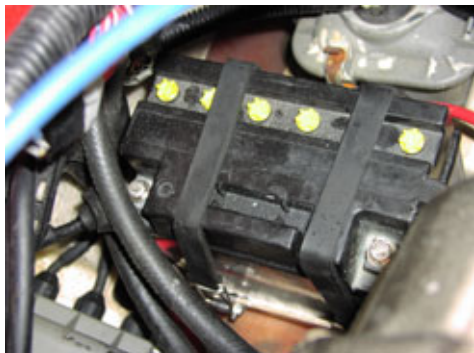


Engine Removal / Installation

Kawasaki 1200

Step 1

Battery Removal

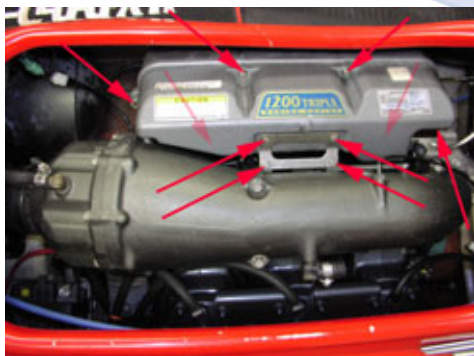


1.1 (Above) Remove the two retaining straps, disconnect the battery and remove it from the hull. Disconnect the negative (black) cable first, then the positive (red).

Step 2

Intake / Exhaust Removal

2.1 (Below) Remove the ten 10mm bolts securing the flame arrestor cover and brace to the base and remove them. Pull out the flame arrestor screens.



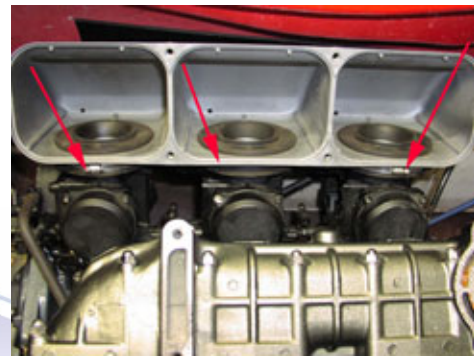
2.2 (Below) Remove the cable bracket from the pipe with a 10mm socket.



2.3 (Below) Unscrew the clamps securing the pipe cooling line and waterbox coupler.



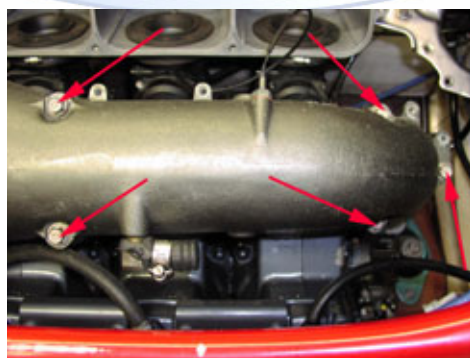
2.5 (Below) Unscrew the three clamps and pull off flame arrestor base from the carbs.



2.6 (Below) Remove the six allen head bolts securing the carbs to the intake manifold. Remove the throttle cable from the carbs.



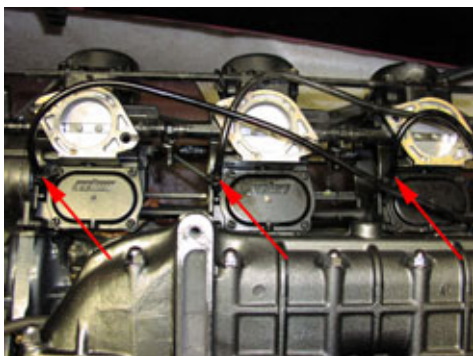
2.4 (Below) Remove the five 12mm pipe mounting bolts and remove the pipe.



Engine Removal / Installation

Kawasaki 1200

2.7 (Below) Tilt the carbs and remove the three oil injection lines from the carbs.



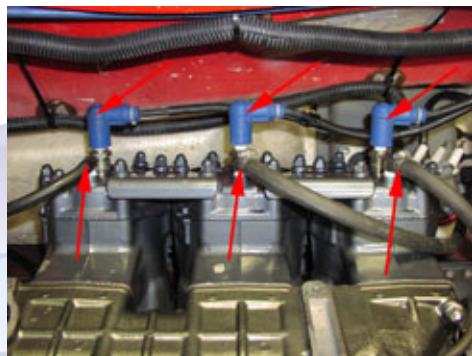
2.8 (Below) Loosen the gas tank cap to relieve pressure. Be sure the fuel switch is turned to the "OFF" position, and be aware of any fuel that may spill from the hoses. Make sure the hull is clear of any gasoline fumes before continuing work, especially with power tools. Remove the carb electrical connection, pulse line, fuel in and return lines. Remove the carbs from the hull.



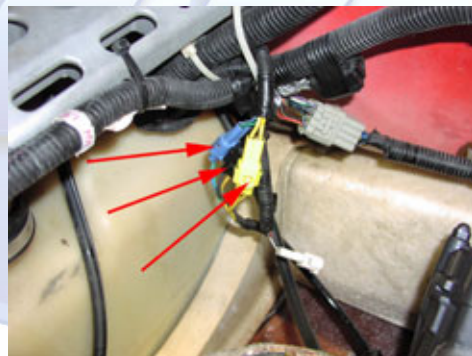
Step 3

Engine Removal

3.1 (Below) Remove the spark plug wires and head cooling lines with a screwdriver.



3.2 (Below) Disconnect the three flywheel cover electrical harnesses at the front of the engine.



3.3 (Below) Remove the two 8mm bolts from the oil pump and lay it aside in the hull.



3.4 (Below) Disconnect the water line from the manifold. Remove the positive battery cable from the starter with a 8mm socket.



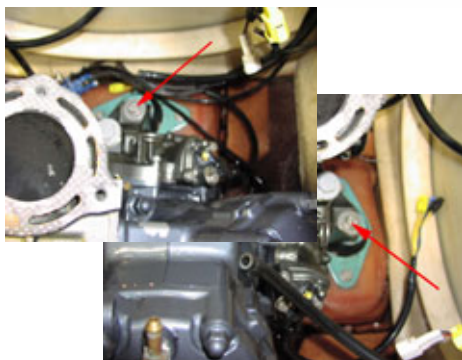
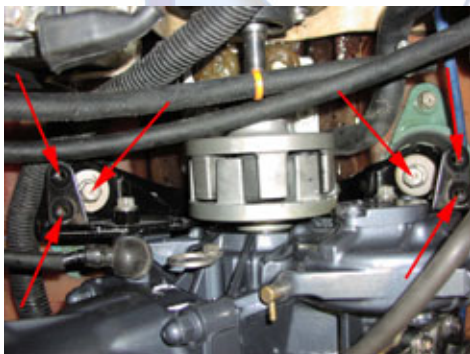
Engine Removal / Installation

Kawasaki 1200

3.5 (Below) Remove the engine ground wire with a 10mm socket. with a 10mm socket.



3.6 (Below) Remove four PTO shroud bolts (shroud removed for illustration) with a 10mm socket. Remove the two rear, and two front motor mount bolts with a 14mm socket. Remove the engine from the hull.

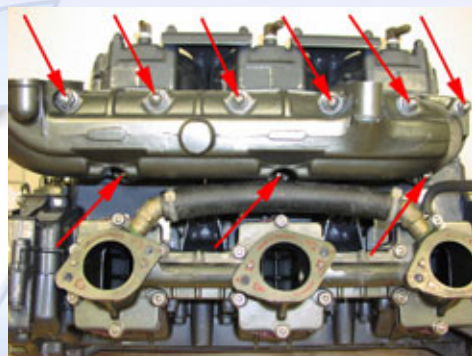


Step 4

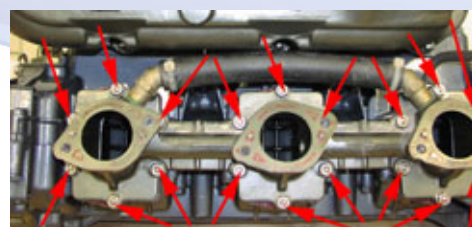
Accessory Removal

With the engine on the ground, workbench or some other solid surface, begin removing the external accessories that will NOT be shipped with the core.

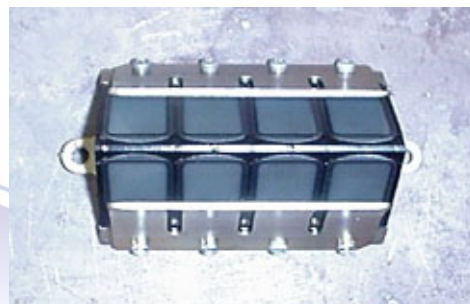
4.1 (Below) Remove the nine 12mm nuts from the exhaust manifold, then remove all the studs.



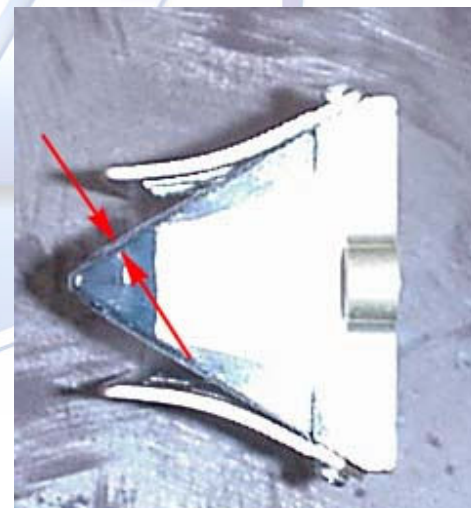
4.2 (Below) Remove the 18 10mm nuts from the intake manifolds, pull them off and remove the reed cage assemblies underneath. Remove all the studs.



4.3 (Below) Inspect each reed assembly for damage and wear. Look at each reed petal and inspect the edges for signs of cracking, chipping or any missing parts. If any damage is present, replace the petals.



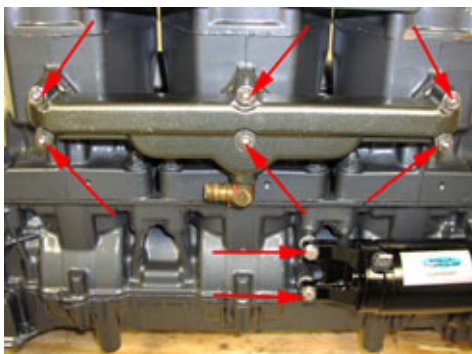
4.4 (Below) Look at each petal-to-cage surface and check for gap. If a gap of more than 0.015" is present, replace the petals.



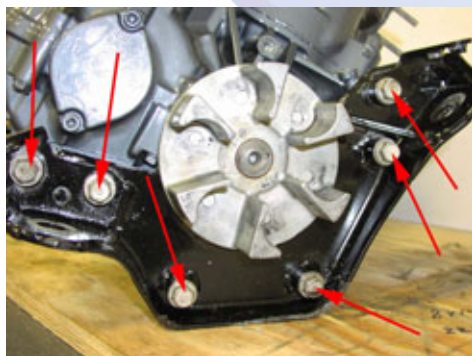
Engine Removal / Installation

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4.5 (Below) Remove the six 10mm nuts from the cylinder cooling rail. Remove the rail and the studs. Remove the two 12mm bolts securing the starter to the case and slide it out.



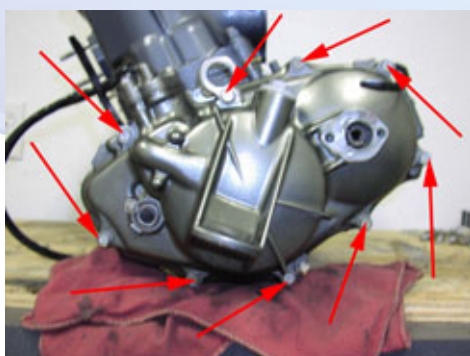
4.6 (Below) Remove the six 12mm bolts securing the rear mount bracket to the case and pull it off. Stuff a rag into one of the exhaust ports. Make sure the rag penetrates through the port, into the combustion chamber on top of the piston. This will prevent the engine from turning over while you remove the flywheel nut & PTO coupler.



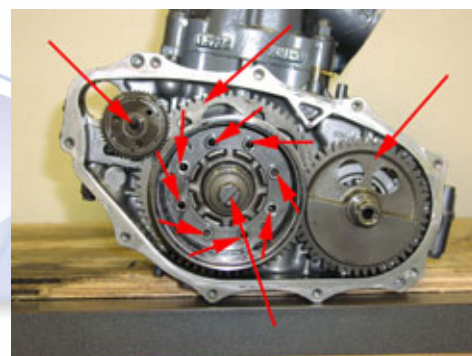
4.7 (Below) Using a breaker bar or chain wrench, remove the PTO flywheel from the crank.



4.8 (Below) Remove the nine 10mm bolts from the flywheel cover and remove it. NOTE: The chamber is filled with oil. When you separate the cover from the case, the oil will drain, so be sure to have something to catch it with.



4.9 (Below) Remove the flywheel nut with a 17mm socket. Remove the eight allen head bolts securing the magneto cup to the flywheel and remove the cup. Use a universal flywheel puller to remove the flywheel from the shaft. Pull the idler gear, flywheel gear and counter-balance gear out of the housing.



Now, with all of the external accessories removed, the engine is now ready to be packaged and shipped to SBT!

Engine Removal / Installation

Kawasaki 1200

Engine Installation

Paper Gaskets

It is SBT's recommendation that all paper gaskets be treated with Loctite® High-Tack Gasket Sealer prior to installation. Read and follow all instructions on the product canister to insure good gasket sealing on your new engine.

Special Gaskets

It is SBT's recommendation that all exhaust gaskets be sealed with Loctite® Copper Gasket Adhesive prior to installation. Read and follow all instructions on the product canister to insure good gasket sealing on your new engine.

Bolts

It is SBT's recommendation that all bolts be treated with Loctite® Medium Strength Threadlocker Blue (242) during assembly.

Break-In Oil

It is SBT's requirement that the new engine be broken-in with additional oil in the fuel supply for the first tank. Follow the mixing chart on the back of the bottle to determine quantity needed.

Electrical Connections

It is SBT's recommendation that all electrical connections be sanded, cleaned and secured during the assembly process. It is a common problem to not have solid connections due to corrosion, paint, poor wire condition, etc.

Disclaimer

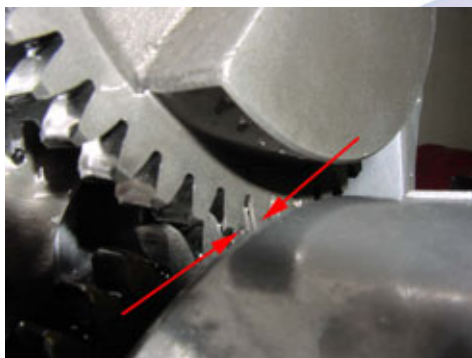
While every precaution has been taken in the preparation of these guides, SBT assumes no responsibility for errors or omissions. Neither is any Liability assumed for damages resulting from use of the information contained herein. Publication of the procedures in these guides does not imply approval of the manufacturers of the products covered. Persons engaging in the procedures herein do so at their own risk.

Engine Removal / Installation

Kawasaki 1200

Follow the removal steps in reverse order to install your new SBT short block assembly:

4.9 Place the idler gear, counterbalance gear, and flywheel gear into the housing. The flywheel gear and counterbalance gear must be meshed with the two indentations next to each other for proper timing.



Place the flywheel on the shaft using a new keyway, and install the flywheel bolt.

- Torque to 90 ft. lbs.

4.8 Using a new o-ring reinstall the flywheel cover and bolts. Remove the fill cap and pour in 200ml of oil into the cavity. Replace the cap.

- Torque to 9 ft. lbs.

4.7 Install the PTO coupler.

- Torque to 94 ft. lbs.

4.6 Install the rear engine mount bracket.

- Torque to 25 ft. lbs.

4.5 Using new gaskets, install the cylinder water rail.

- Torque to 87 in. lbs.

4.2 – 4.4 Install the reeds cage assemblies in the case. Using new gaskets, install the intake manifold.

- Torque to 87 in. lbs.

4.1 Using a new gasket, install the exhaust manifold.

- Torque to 25 ft. lbs.

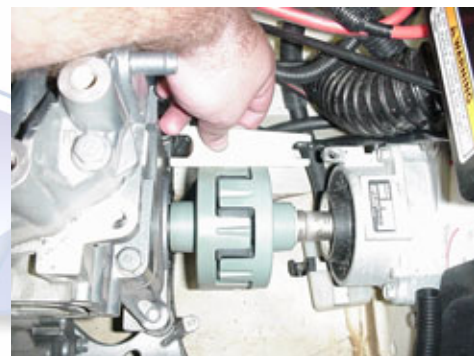
3.6 Spin the engine mount bolts into the mounts, and rock them back & forth with your hands; try to break them. If any mount(s) fails, replace it before installing the new engine. Place the engine in the hull and slide it back onto the driveshaft coupler.

Your new engine may require re-shimming. Shims are necessary between the engine mounts and brackets to properly align the engine and pump shafts. If you do not have enough factory shims with your hull, very thin, wide washers may be substituted.

Take a small straight edge and place it on the coupler. You are looking for an even

match all the way around the coupler. Place shims where necessary to align the couplers.

Install the motor mount bolts and PTO shroud.



- Torque to 11 ft. lbs (shroud)
- Torque to 27 ft. lbs (Engine mounting bolts)

3.5 Install the engine ground cable

- Torque to 11 ft. lbs.

3.4 Connect the exhaust manifold waterline and clamp it. Connect the starter positive wire.

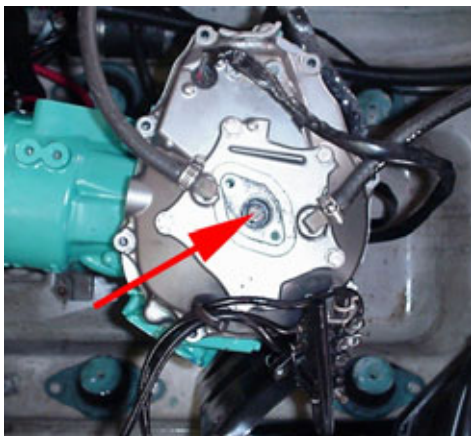
- Torque to 69 in. lbs.

Engine Removal / Installation

Kawasaki 1200

3.3 Align the oil pump key and, using a new gasket, install the oil pump. Torque to 69 in. lbs.

- Torque to 69 in. lbs.



3.2 Connect the flywheel housing electrical connections

3.1 Connect the spark plug wires and head cooling lines.

2.8 Using new gaskets, install the carbs on the intake manifold and connect the fuel lines, pulse line and electrical connection.

2.7 Connect the oil injection lines.

2.6 Install the carb bolts.

- Torque to 78 in. lbs.

2.5 Install the flame arrestor base and clamps.

2.4 Using a new gasket, install the exhaust

pipe to the manifold.

- Torque to 25 ft. lbs.

2.3 Connect the exhaust pipe waterline and waterbox coupler hose.

2.2 Install the car cable bracket to the end of the exhaust pipe.

- Torque to 69 in. lbs.

2.1 Install the flame arrestor screens, cover and bracket.

- Torque to 87 in. lbs.

1.1 Install the battery, making sure it is fully charged.

Engine Removal / Installation

Kawasaki 1200

Tools Needed:

Sockets

- 14mm socket
- 12mm socket
- 10mm socket
- 8mm socket

Sealers / Lubricants

- Loctite® Copper Gasket Adhesive
- Loctite® Medium Threadlocker (Blue) 242
- Loctite® High-Tach
- SBT Break-In Oil

Misc.

- Ratchet
- Long socket extension
- Short socket extension
- Screwdrivers
- 6mm stud socket*
- 8mm stud socket*

Parts

- Installation Gasket Kit
- Zip-Ties

* If no stud sockets are available, you may double-nut the studs to remove/install them. Place two nuts on the stud and tighten them together. Wrench against the bottom one to remove the stud, wrench against the top nut to install the stud.

Wrenches

- 10mm wrench
- Torque wrench
- Chain wrench
- Allen wrench set