

SEA-DOO

GSX Limited

Shop
MANUAL

SUPPLEMENT



This supplement must be used
in conjunction with the
1997 Sea-Doo Shop Manual
P/N 219 100 048

1998

2 1 9 1 0 0 0 6 3



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SAFETY NOTICE

SAFETY NOTICE

This manual was primarily published to be used by watercraft technicians trained by the manufacturer who are already familiar with all service and maintenance procedures relating to Bombardier made Sea-Doo watercraft.

Please note that the instructions will apply only if proper hand tools and special service tools are used.

It is understood that this manual may be translated into another language. In the event of any discrepancy, the English version shall prevail.

The content depicts parts and/or procedures applicable to the particular product at its time of manufacture. It does not include dealer modifications, whether authorized or not by Bombardier, after manufacturing the product.

The use of Bombardier parts is most strongly recommended when considering replacement of any component. Dealer and/or distributor assistance should be sought in case of doubt.

Torque wrench tightening specifications must be strictly adhered to. Locking devices (ex.: locking disk, lock nut) must be installed or replaced with new ones, where specified. If the efficiency of a locking device is impaired, it must be renewed.

This manual emphasizes particular information denoted by the wording and symbols;

 WARNING
--

Identifies an instruction which, if not followed, could cause serious personal injury including possibility of death.

 CAUTION
--

Denotes an instruction which, if not followed, could severely damage watercraft components.

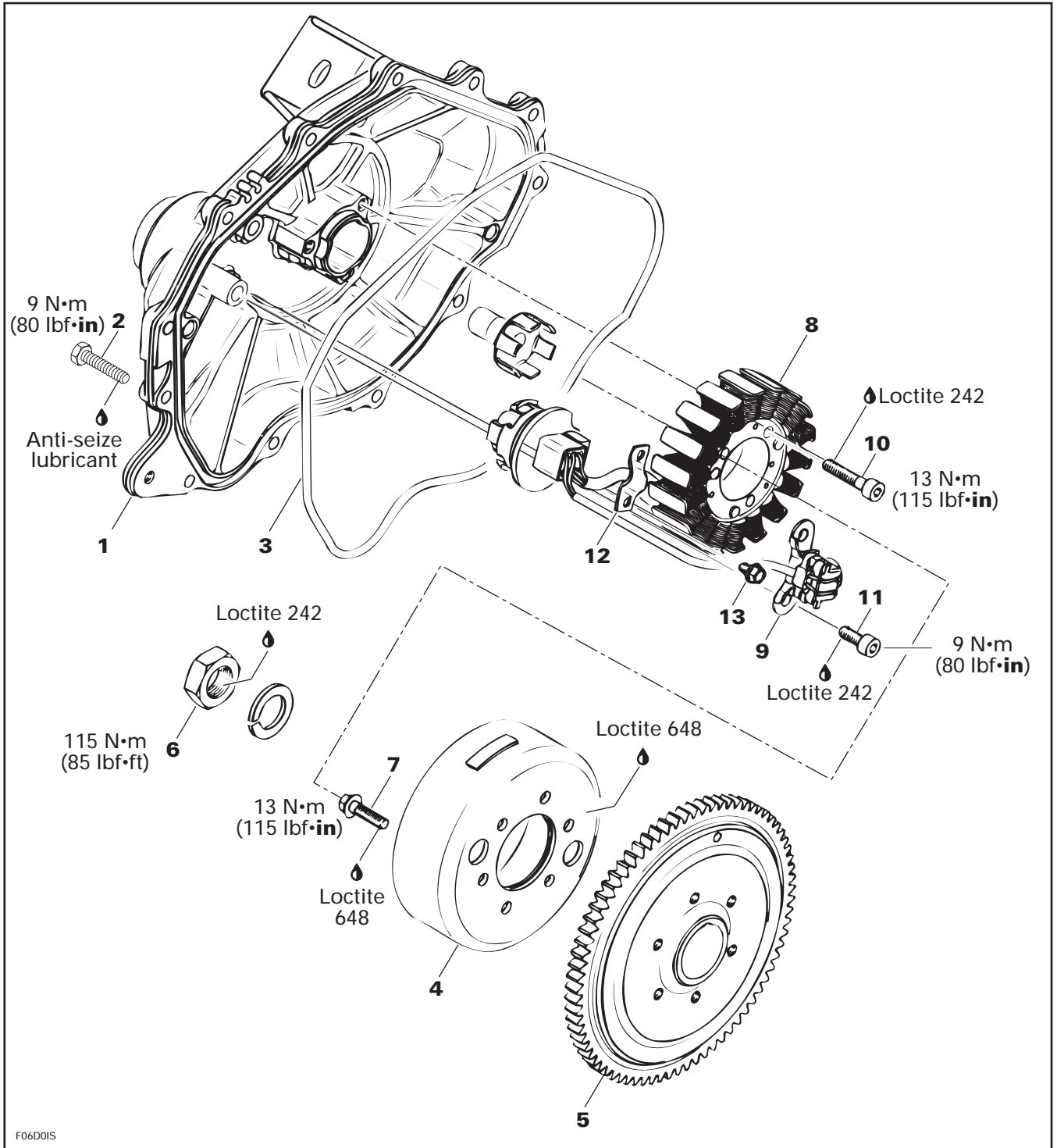
NOTE: Indicates supplementary information needed to fully complete an instruction.

Although the mere reading of such information does not eliminate the hazard, your understanding of the information will promote its correct use. Always use common shop safety practice.

This information relates to the preparation and use of Bombardier watercraft and has been utilized safely and effectively by Bombardier Inc. However, Bombardier Inc. disclaims liability for all damages and/or injuries resulting from the improper use of the contents. We strongly recommend that any services be carried out and/or verified by a highly skilled professional technician. It is understood that certain modifications may render use of the watercraft illegal under existing federal, provincial and state regulations.

MAGNETO SYSTEM

947 Engine



F06D0IS

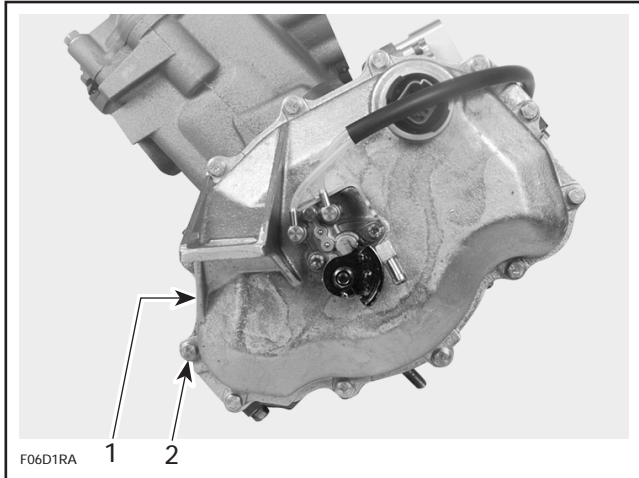
Section 01 ENGINE

Subsection 01 (MAGNETO SYSTEM)

DISASSEMBLY

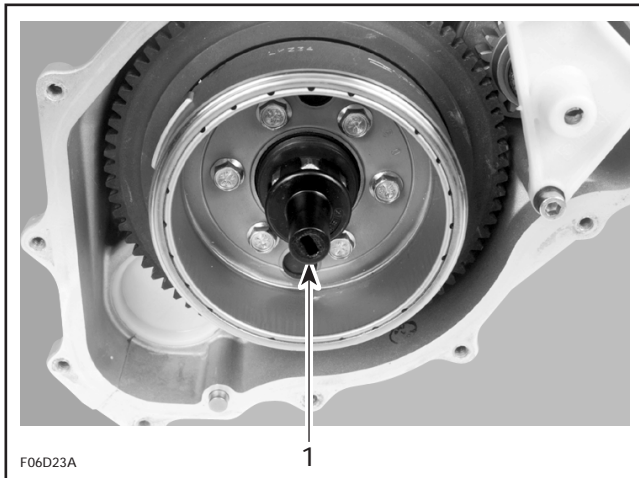
1, Cover

Loosen screws no. 2. Remove engine magneto cover.



1. Cover
2. Screw

Remove oil pump shaft from flywheel nut.

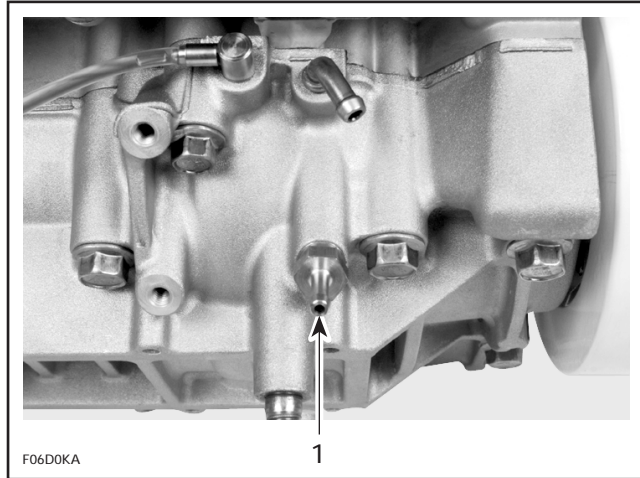


1. Remove oil pump shaft

4,5, Rotor and Flywheel

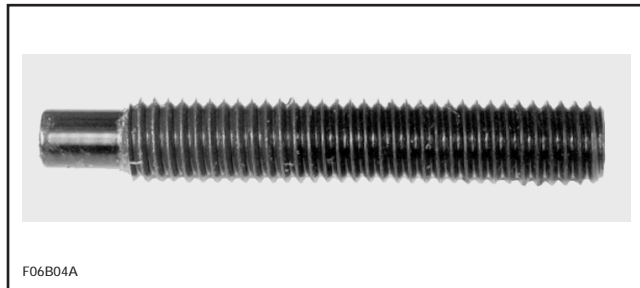
To remove the rotor or the flywheel, the crankshaft must be locked.

Remove the pulse fitting beside the starter bracket on the lower crankcase half.

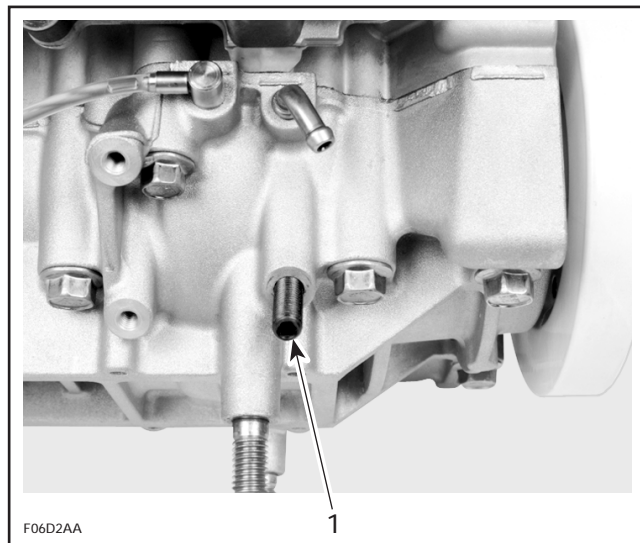


1. Remove pulse fitting

Turn engine manually until slot in crankshaft counterweight is aligned with the crankcase hole. Insert a M8 x 50 fixation screw to lock crankshaft.

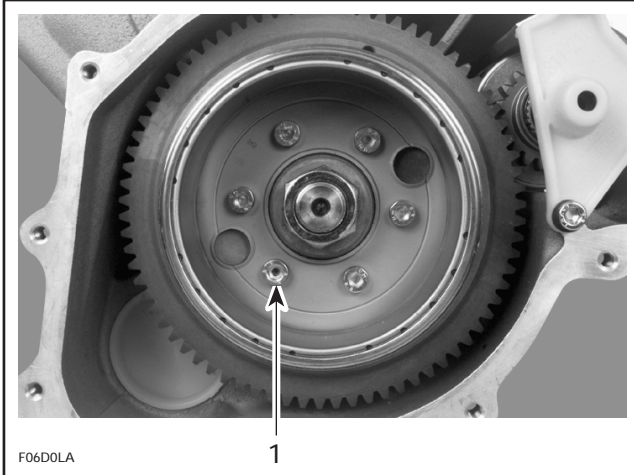


CRANKSHAFT FIXATION SCREW (P/N 290 240 882)



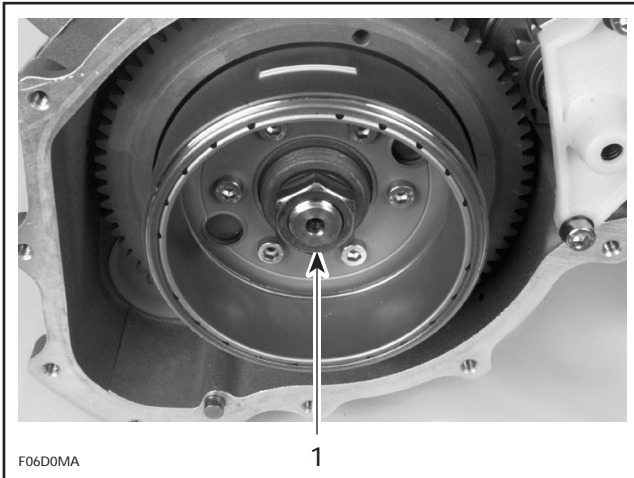
1. Crankshaft locked

If necessary, the magneto rotor can be removed without the engine flywheel. Remove the 6 screws no. 7.



1. Screw

To remove the flywheel/rotor assembly, unscrew nut no. 6 counterclockwise when facing it.

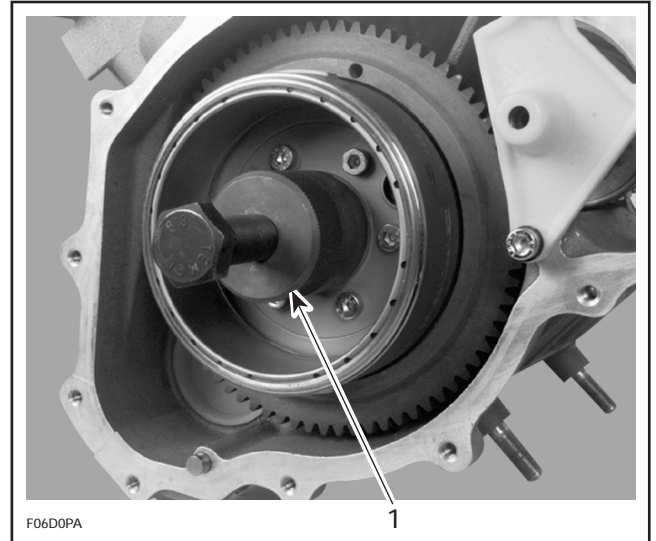


1. Nut

The flywheel is easily freed from crankshaft with puller (P/N 420 976 235).

Install protective cap (P/N 290 877 414) to crankshaft.

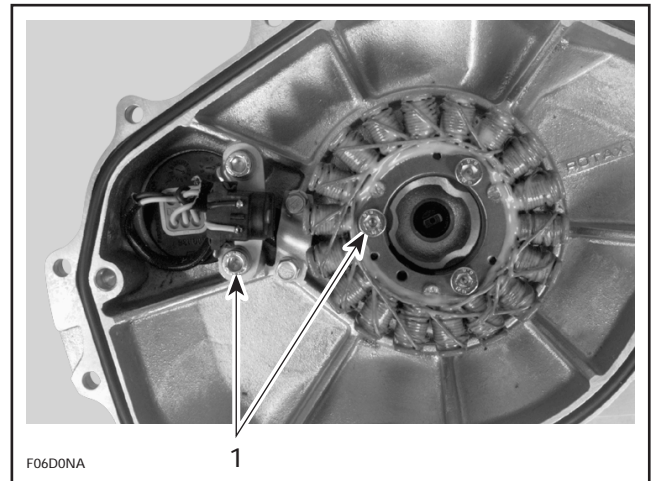
Fully thread puller in engine flywheel.



1. Puller

8,9, Stator and Trigger Coil

Loosen screws no. 10 and no. 11 to remove the stator and trigger coil from the engine magneto cover.



1. Screws

CLEANING

Clean all metal components in a solvent.

▼ CAUTION

Clean coils and magnet using only a clean cloth.

Clean crankshaft taper and threads.

Section 01 ENGINE

Subsection 01 (MAGNETO SYSTEM)

ASSEMBLY

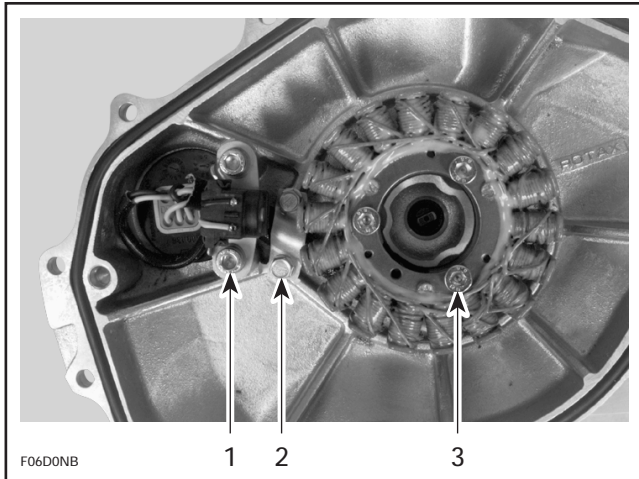
8,9, Stator and Trigger Coil

Install the stator and trigger coil in engine magneto cover. Torque screws to 9 N•m (80 lbf•in).

Reinstall wiring harness bracket no. 12 using tap-tite screws no. 13.

Torque trigger coil screws no. 11 to 9 N•m (80 lbf•in).

Torque stator screws no. 10 to 13 N•m (115 lbf•in).

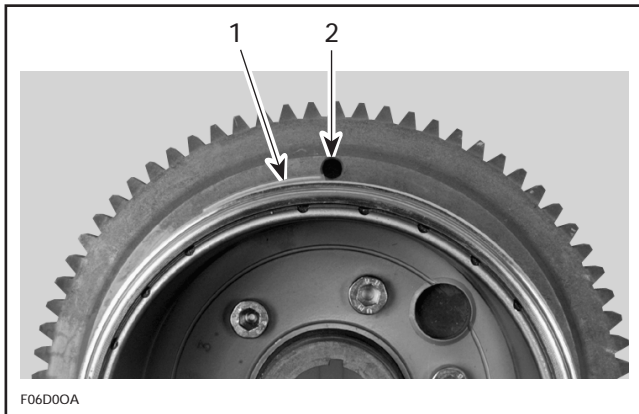


1. Torque to 9 N•m (80 lbf•in)
2. Tap-tite screws
3. Torque to 13 N•m (115 lbf•in)

4,5, Rotor and Flywheel

Apply Loctite 648 (green) on mating surface of the rotor no. 4.

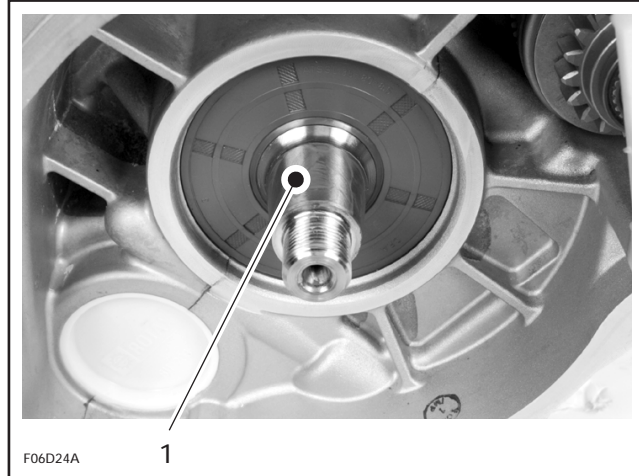
When reinstalling rotor to flywheel, one of the protrusion end of rotor must be aligned with hole in flywheel.



1. Protrusion
2. Hole

Apply Loctite 648 (green) on screws no. 7 retaining rotor to flywheel and torque screws in a criss-cross sequence to 13 N•m (115 lbf•in).

Apply Loctite 242 (blue) on crankshaft taper.



1. Loctite 242 (blue) on crankshaft taper

Install flywheel and make sure to align keyway with the crankshaft Woodruff key.

Apply Loctite 242 (blue) on nut no. 6. Install nut with lock washer and torque to 115 N•m (85 lbf•ft).

▼ CAUTION

Never use any type of impact wrench.

Unlock crankshaft. Reinstall pulse fitting with washer and torque to 23 N•m (17 lbf•ft).

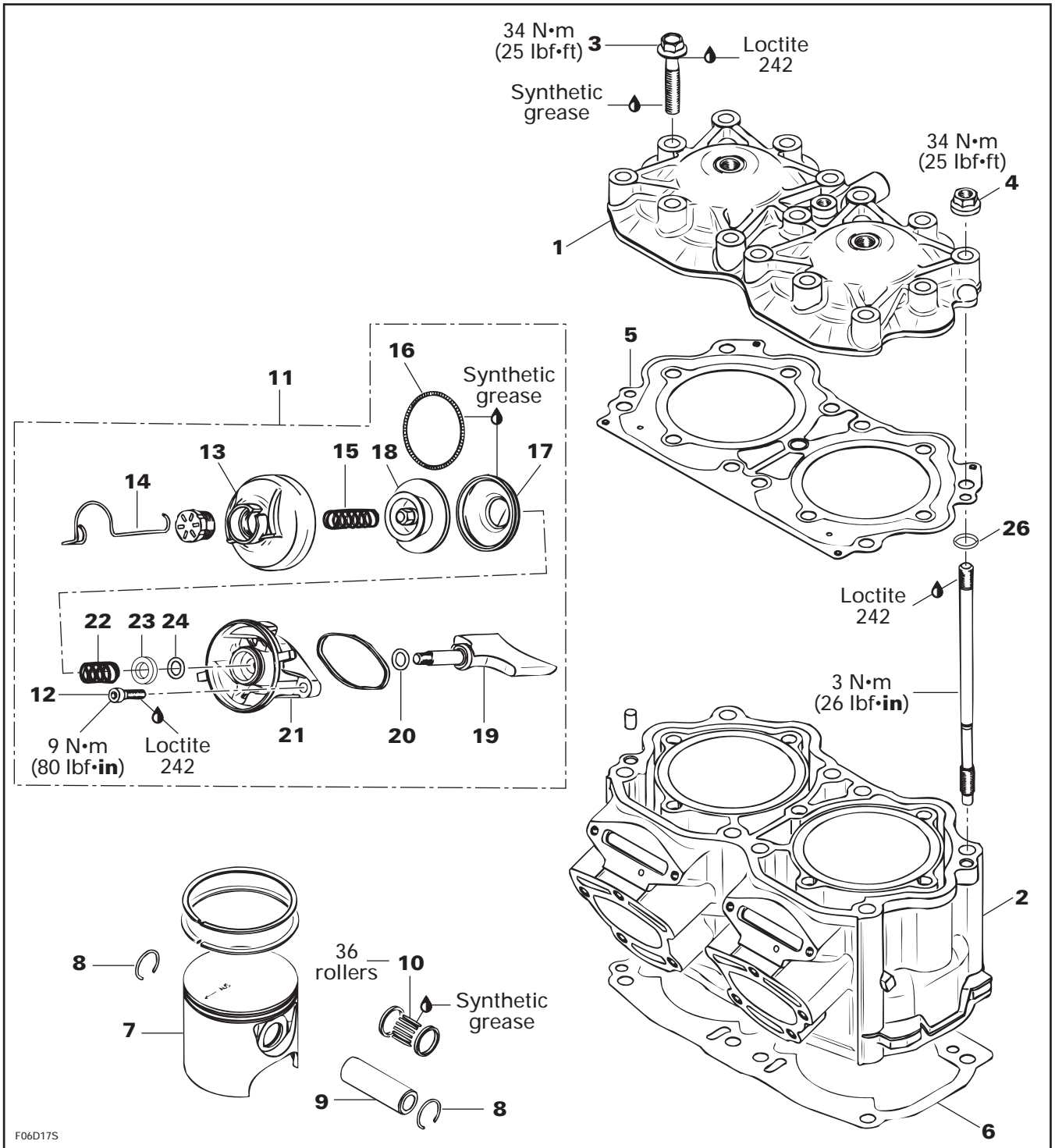
1, Cover

Before installation, properly install O-ring no. 3 in engine magneto cover.

Apply Loctite 767 anti-seize compound on screws no. 2. Torque screws in a criss-cross sequence to 9 N•m (80 lbf•in).

TOP END

947 Engine



F06D17S

Section 01 ENGINE

Subsection 02 (TOP END)

THEORY OF OPERATION

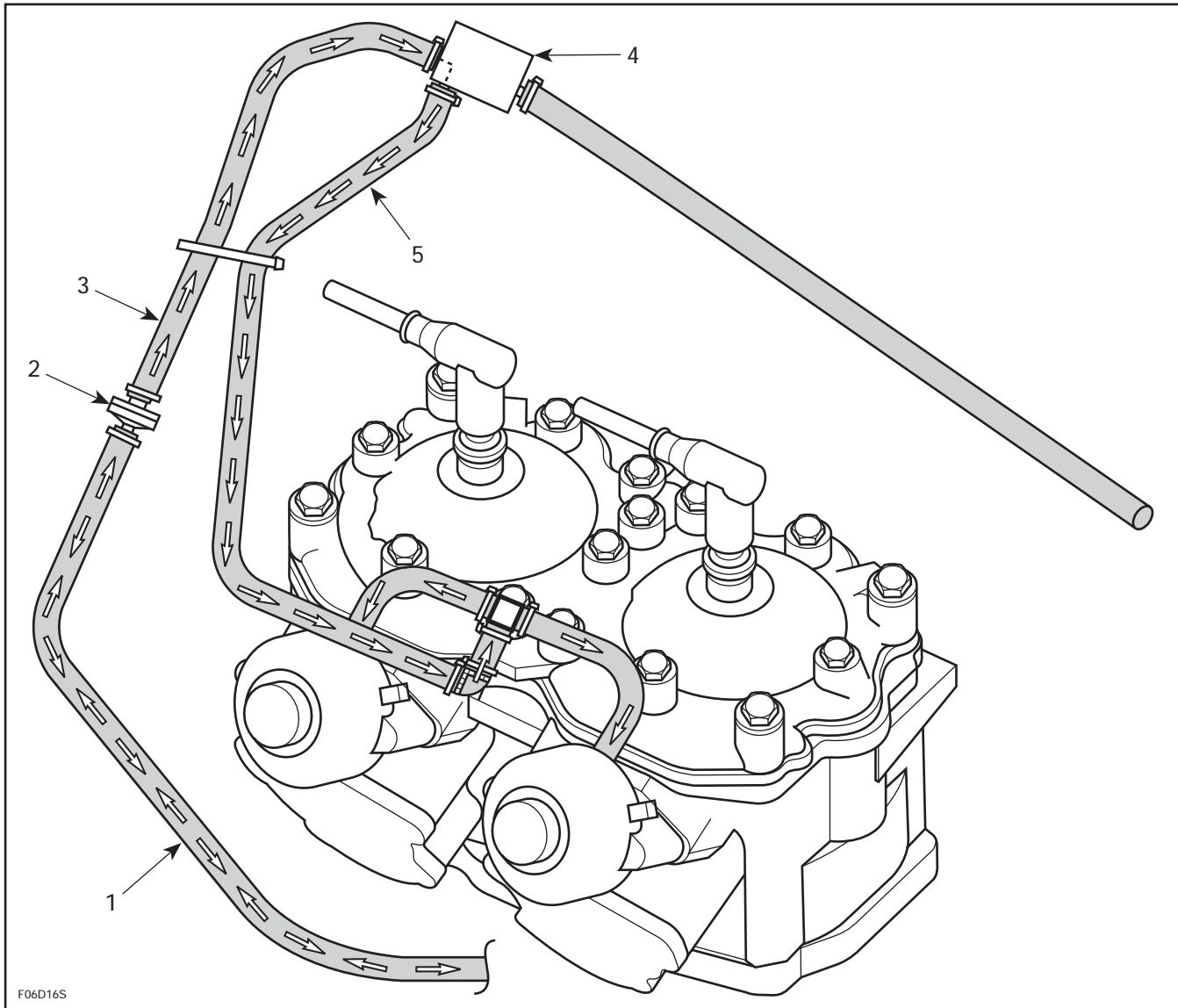
RAVE Valve System

On this engine, the RAVE valves are controlled by the Multi-Purpose Electronic Module (MPEM).

The MPEM measures 2 factors to control the RAVE valves: engine speed (RPM) and its rate of acceleration.

To open the RAVE valves, the MPEM activates a solenoid which directs the positive pressure from engine crankcase to the valves.

NOTE: A check valve on the pressure line eliminates the negative pressure from the crankcase.

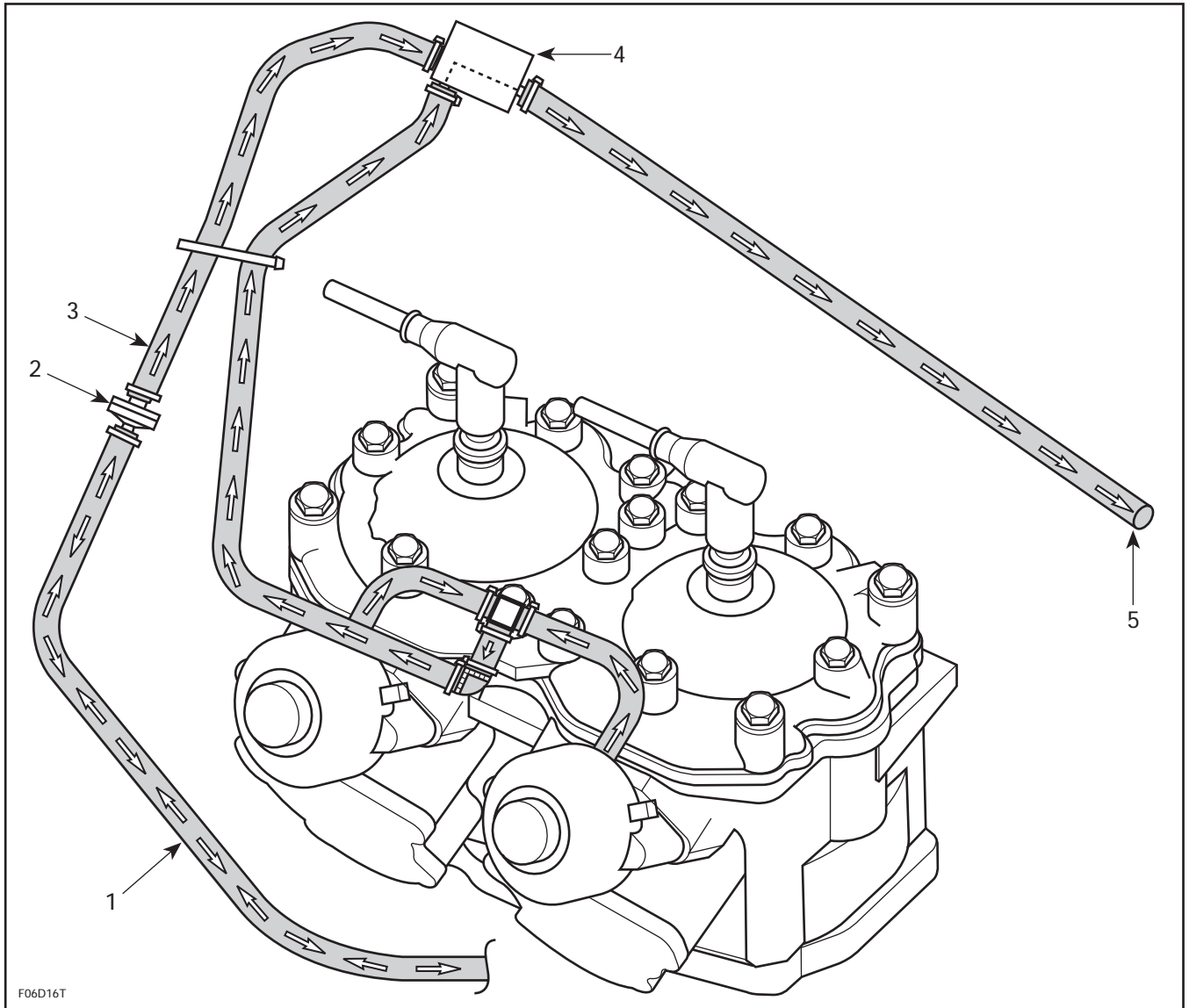


F06D16S

RAVE VALVE OPENED

1. Pulse from crankcase
2. Check valve
3. Positive pressure to solenoid
4. Solenoid activated
5. Positive crankcase pressure to RAVE valves

To close the RAVE valves, the MPEM deactivates the solenoid which blocks the crankcase positive pressure. The RAVE valves are opened to the atmosphere.



RAVE VALVE CLOSED

1. Pulse from crankcase
2. Check valve
3. Positive pressure blocked by the solenoid
4. Solenoid deactivated
5. RAVE valves are opened to atmosphere

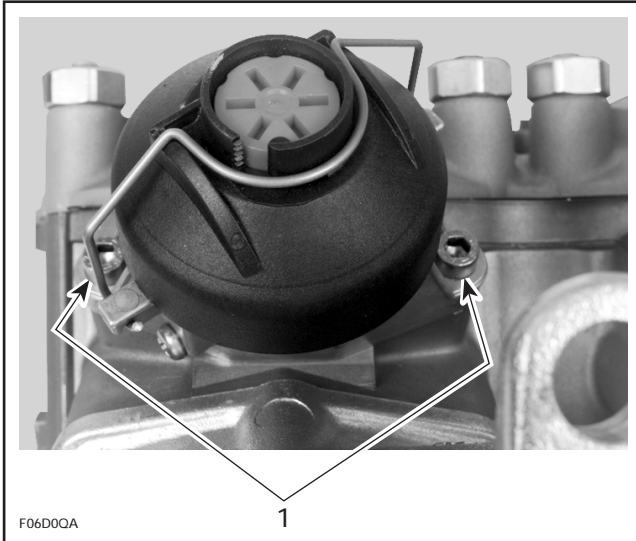
Section 01 ENGINE

Subsection 02 (TOP END)

DISASSEMBLY

11, RAVE Valve

Loosen Allen screws no. 12 each side of RAVE valve.



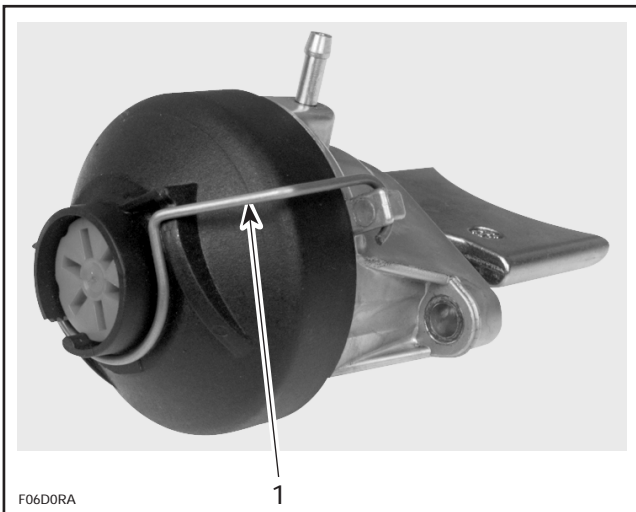
1. Remove screws

Remove RAVE valve no. 11.

Remove the cover no. 13 of the valve by releasing the spring no. 14.

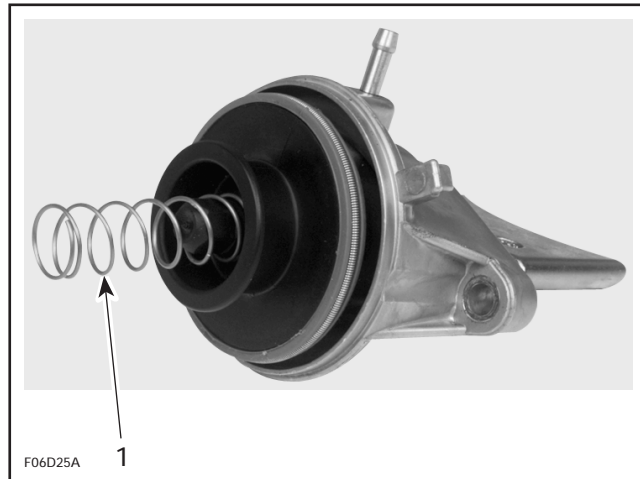
◆ WARNING

Firmly hold cover to valve base. The compression spring inside the valve is applying pressure against the cover.



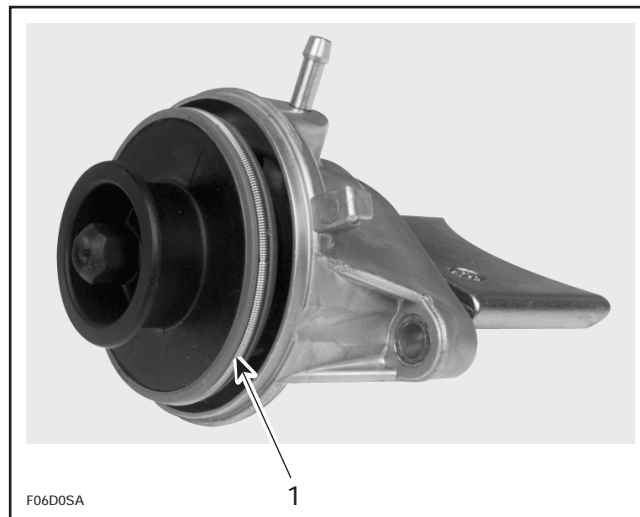
1. Spring

Remove the compression spring no. 15.



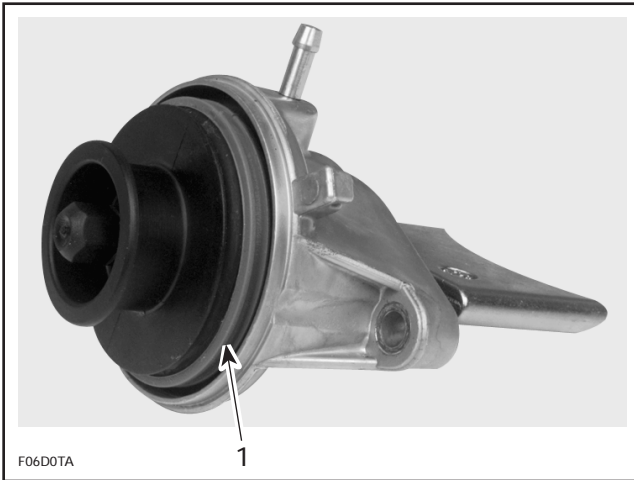
1. Remove spring

Remove spring no. 16 retaining bellows no. 17 to valve piston no. 18.



1. Spring

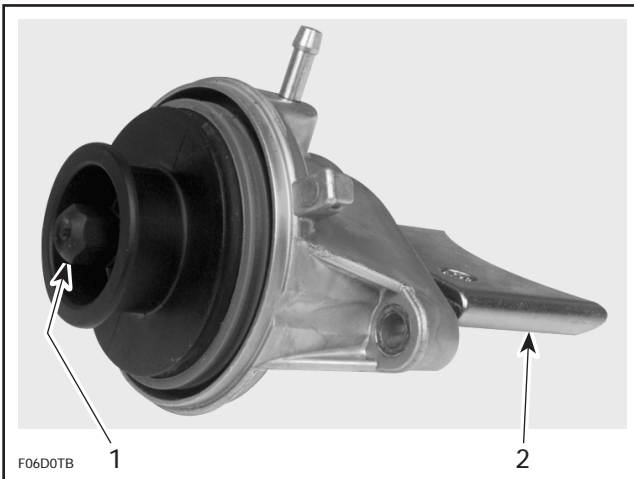
Remove bellows from valve piston.



1. Bellows removed from piston

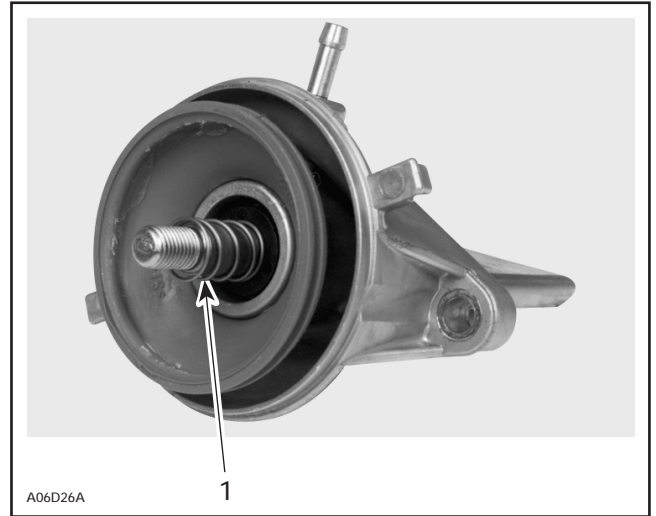
Unscrew valve piston no. 18 from sliding valve no. 19.

NOTE: Hold the sliding valve to prevent it from turning.



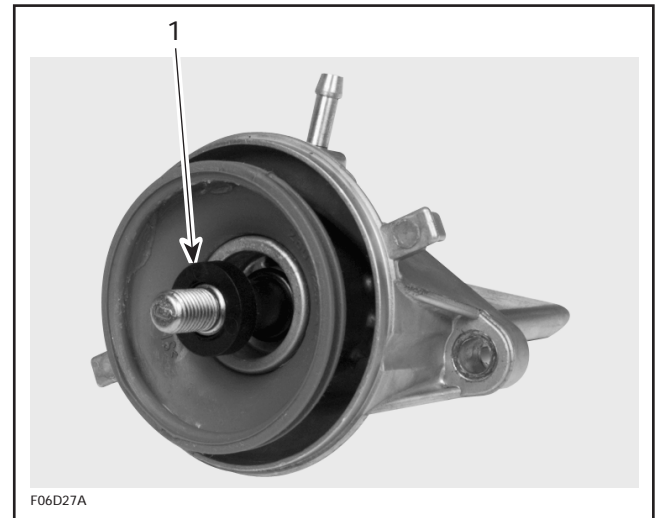
1. Unscrew piston
2. Hold sliding valve

Remove compression spring no. 22.



1. Remove spring

Remove supporting ring no. 23.

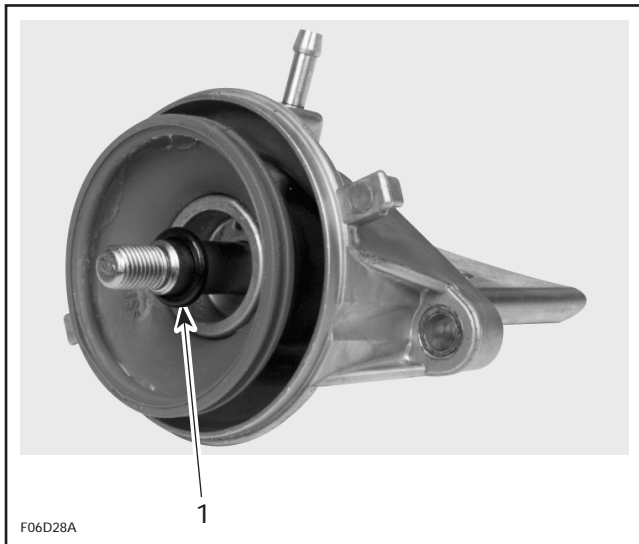


1. Remove supporting ring

Section 01 ENGINE

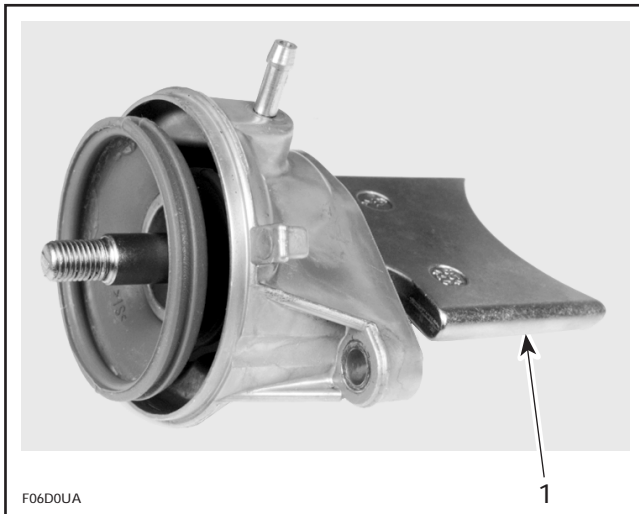
Subsection 02 (TOP END)

Remove O-ring no. 24.



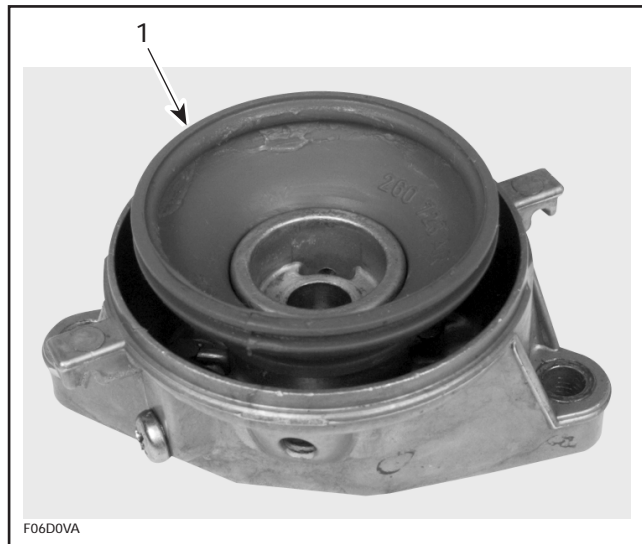
1. Remove O-ring

Remove sliding valve no. 19.



1. Remove sliding valve

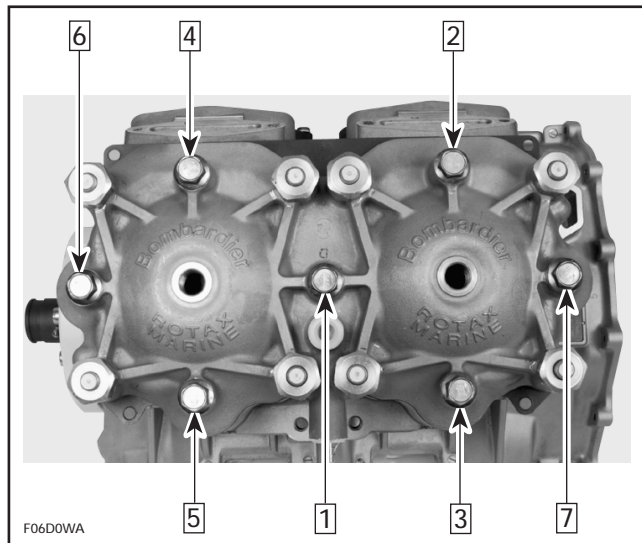
Remove bellows no. 17.



1. Remove bellows

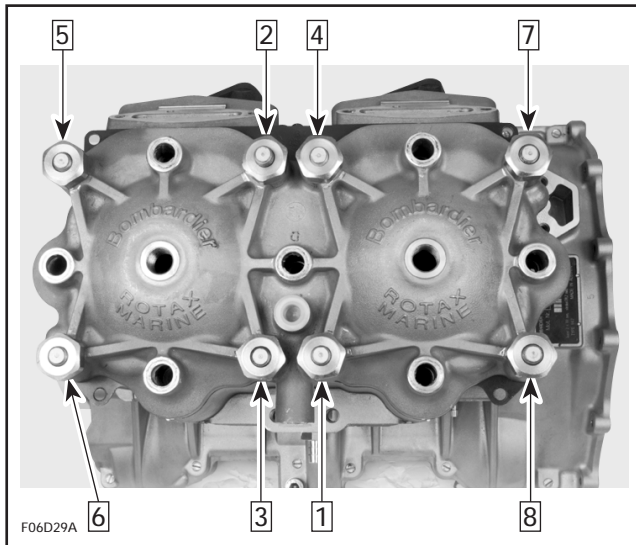
1,2, Cylinder Head and Cylinder Block

Loosen cylinder head bolts no. 3 following the sequence shown in the next photo.



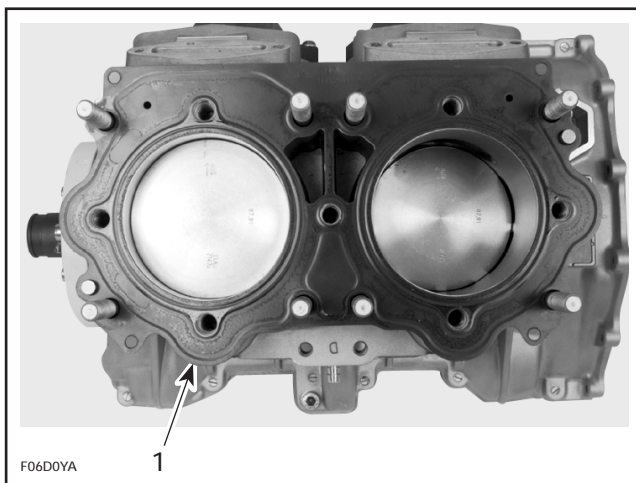
UNTORTQUING SEQUENCE FOR THE CYLINDER HEAD BOLTS

Loosen nuts no. 4 following the sequence shown in the next photo.



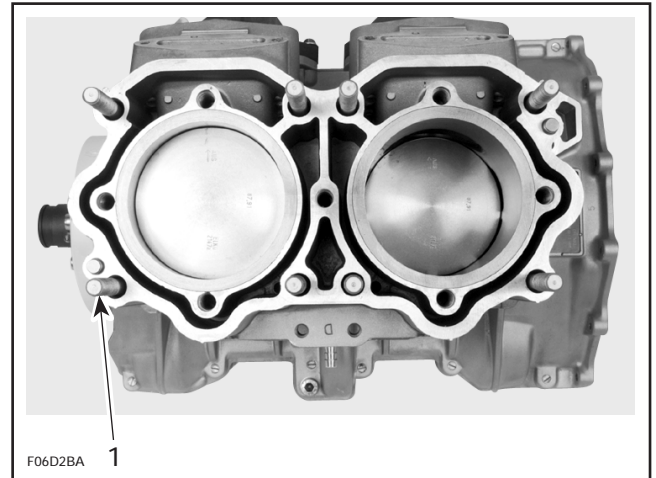
UNTORTQUING SEQUENCE FOR THE NUTS

Remove cylinder head no. 1.
Remove cylinder head gasket no. 5.



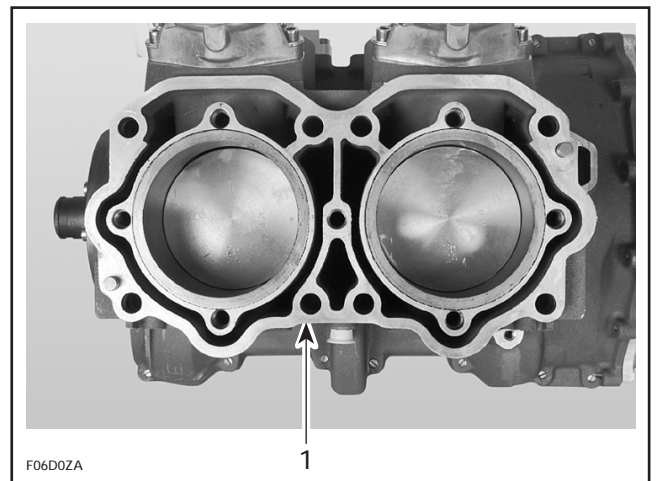
1. Remove gasket

Remove studs no. 25.
NOTE: Studs must be removed prior cylinder block.



1. Remove studs

Remove cylinder block no. 2.



1. Remove cylinder block

NOTE: To ease removal, a plastic tip hammer can be used.

Remove cylinder base gasket no. 6.

7, Piston

To remove piston circlip no. 8, insert a pointed tool in piston notch then pry it out and discard.

◆ **WARNING**

Always wear safety glasses when removing piston circlips.

Section 01 ENGINE

Subsection 02 (TOP END)



1. Piston notch

To extract piston pin no. 9, use puller. Refer to the *1997 Sea-Doo Shop Manual* for procedure.

NOTE: Piston pin features cageless bearing (36 rollers).

INSPECTION

ENGINE MEASUREMENT	TOLERANCES		
		NEW PARTS (min.) (max.)	WEAR LIMIT
Cylinder Taper	N.A.	0.05 mm (.002 in)	0.1 mm (.004 in)
Cylinder Out of Round	N.A.	0.008 mm (.0003 in)	0.08 mm (.003 in)
Piston/Cylinder Wall Clearance	0.10 mm (.004 in)	0.12 mm (.005 in)	0.20 mm (.008 in)
Ring/Piston Groove Clearance	0.03 mm (.001 in)	0.07 mm (.003 in)	0.20 mm (.008 in)
Ring End Gap	0.25 mm (.010 in)	0.40 mm (.016 in)	1.0 mm (.039 in)

N.A.: Not Applicable

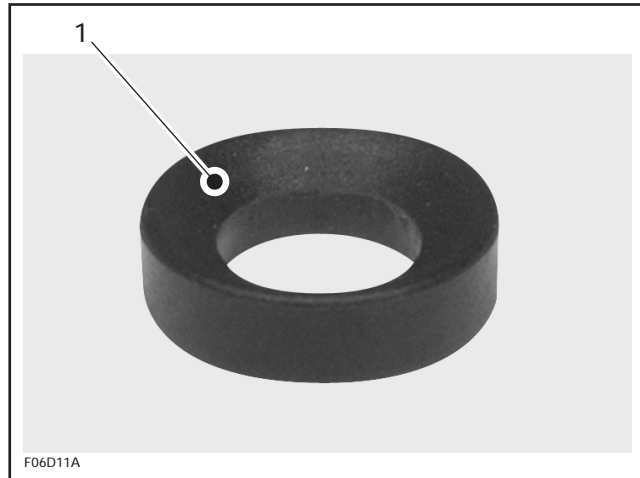
Refer to the *1997 Sea-Doo Shop Manual* for proper measurement procedures.

ASSEMBLY

Assembly is essentially the reverse of disassembly procedures. However pay particular attention to the following.

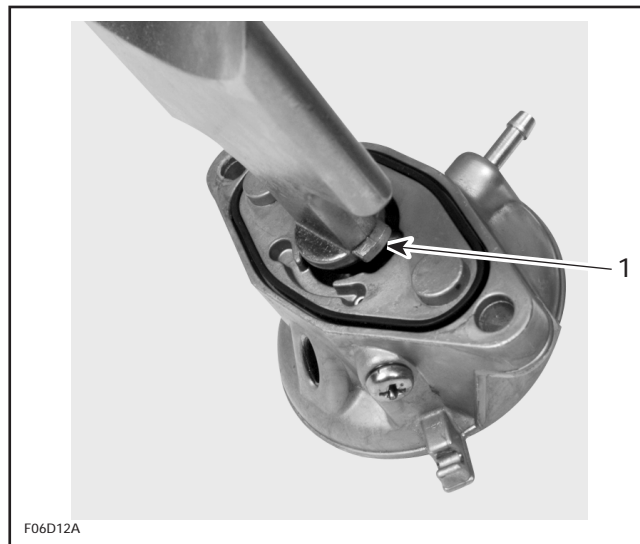
11, RAVE Valve

Install the supporting ring no. 23 with the bevel side facing the O-ring no. 24.



1. Bevel facing the O-ring

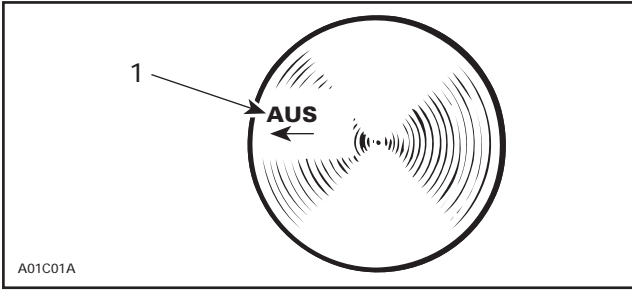
There is only one way to insert the sliding valve no. 19 in valve housing no. 21.



1. Sliding valve ridge toward housing groove

7, Piston

Install the pistons to the crankshaft connecting rods with the letters "AUS" (over an arrow on the piston dome) facing in direction of the exhaust port.



A01C01A
TYPICAL — PISTON DOME SHOWN
1. Exhaust side

9,10, Piston Pin and Roller Bearing

To install roller bearing and piston pin, use piston pin puller (P/N 290 877 094) used at removal. For installation procedure, refer to the *1997 Sea-Doo Shop Manual*.

8, Circlip

Secure circlips no. 8 taking into consideration the following.

▼ CAUTION

To minimize the stress on the circlips, install them so that their openings are located at 6 o'clock (at bottom). Always use new circlips. At installation, take care not to deform them.

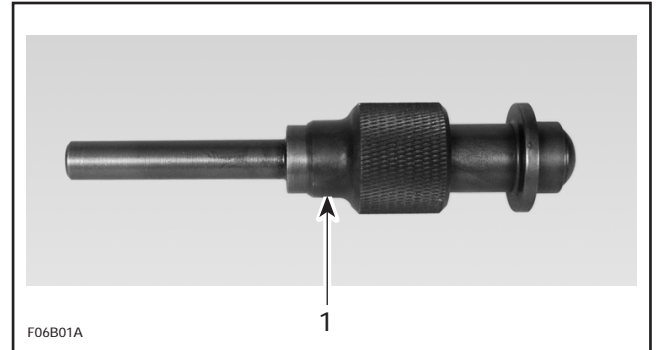


F06D18A
1. Circlip opening at 6 o'clock (at bottom)

◆ WARNING

Always wear safety glasses when installing piston circlips.

To easily insert circlip no. 8, use circlip installer (P/N 290 877 517).



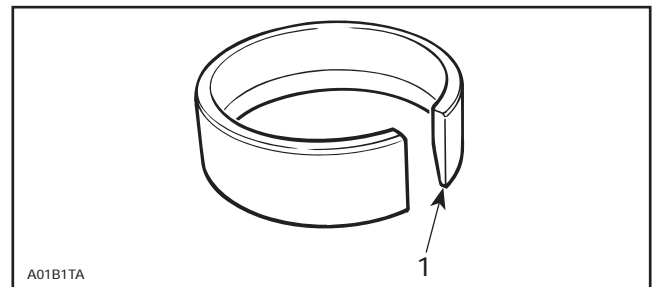
F06B01A
1. Circlip installer

1,2, Cylinder Head and Cylinder Block

Both the cylinder head and cylinder block are positioned with locating dowels.

There is only one way to install cylinder base gasket no. 6 and cylinder head gasket no. 5. They are also properly positioned by locating dowels.

To easily slide cylinder block no. 2 over pistons no. 7, install on piston ring compressor (P/N 290 876 965).



A01B1TA
1. Ring compressor

NOTE: For each ring, make sure to align ring end gap with piston locating pin.

Install studs no. 25.

Install cylinder block no. 2.

Install O-rings no. 26.

NOTE: The O-rings must be installed and properly positioned in the cylinder block. The O-rings are meant to dampen stud vibration.

Apply Loctite 242 (blue) on the threads of the cylinder block studs no. 25.

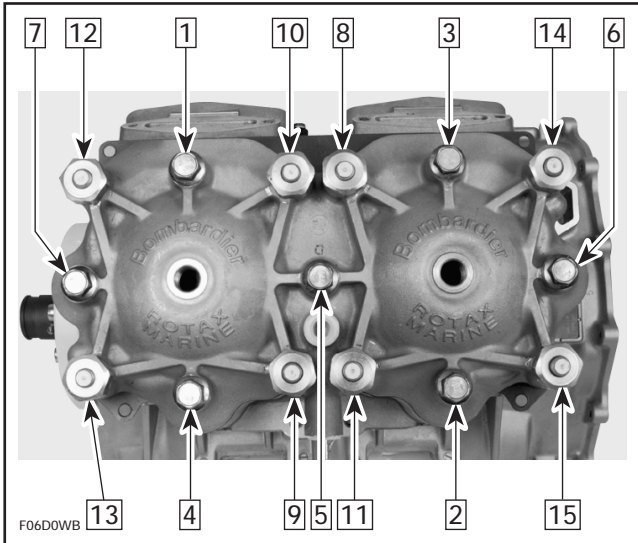
Apply Loctite 242 (blue) below head of cylinder head bolts no. 3.

Apply synthetic grease on threads of cylinder head bolts no. 3.

Section 01 ENGINE

Subsection 02 (TOP END)

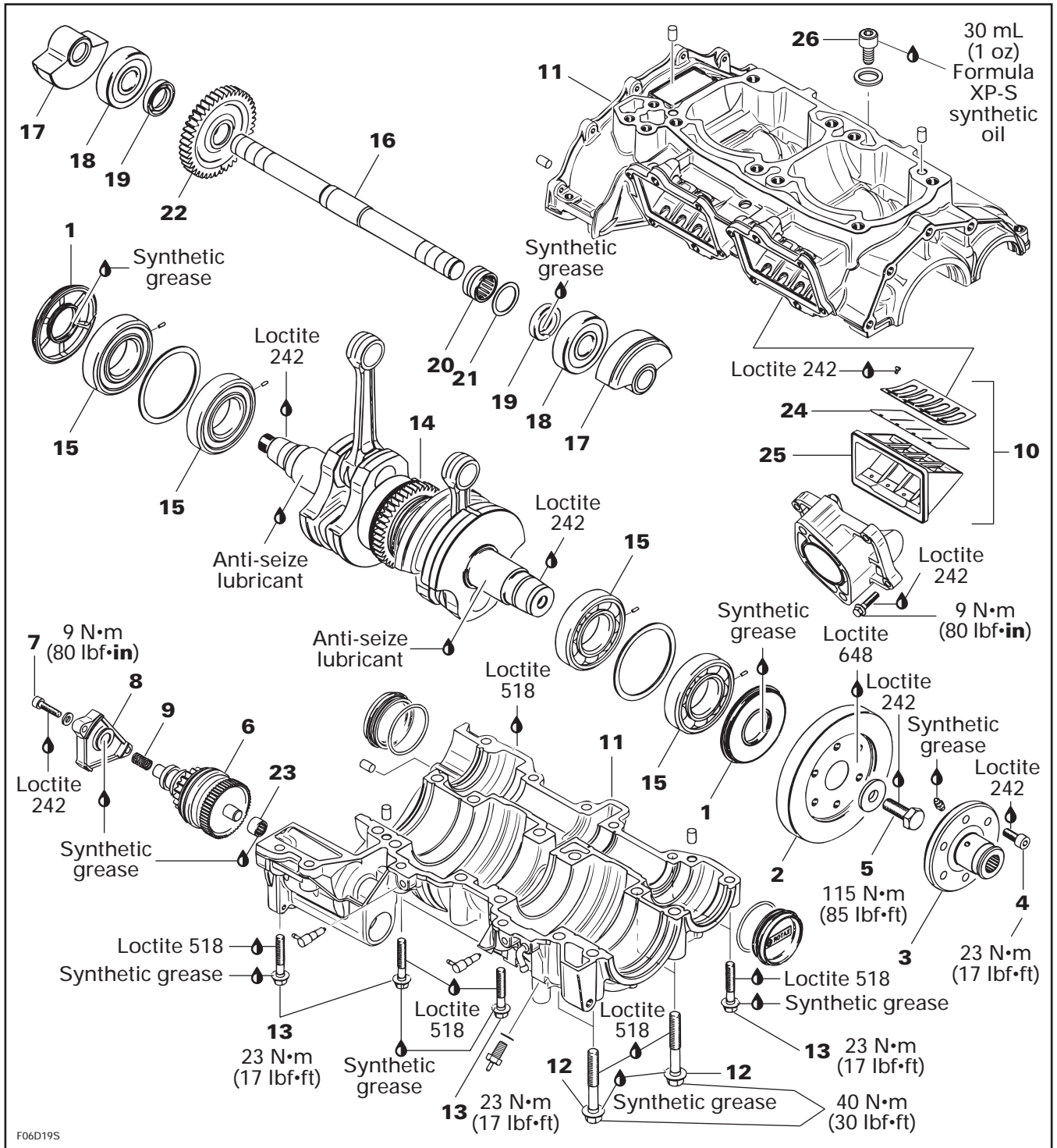
Torque bolts and nuts to 15 N•m (11 lbf•ft) as per following sequence in the next photo. Repeat the torquing sequence by retightening to 34 N•m (25 lbf•ft).



TORQUING SEQUENCE

BOTTOM END

947 Engine



F06D19S

Section 01 ENGINE

Subsection 03 (BOTTOM END)

DISASSEMBLY

The following components should be removed prior to opening bottom end:

- magneto cover
- magneto flywheel
- starter

1, Seal

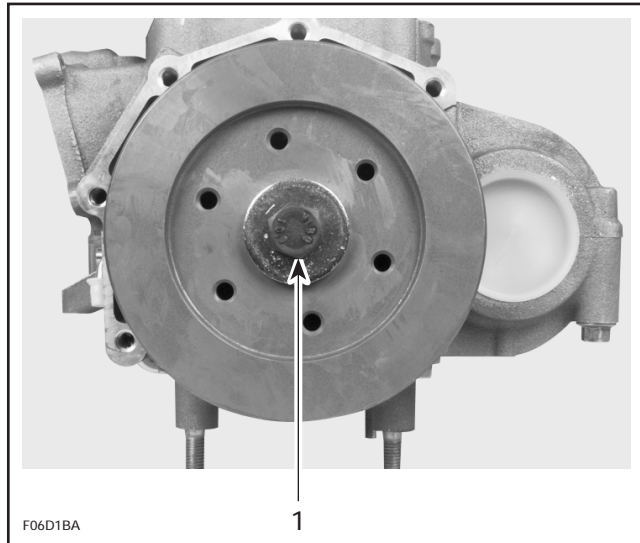
If a crankshaft end seal has to be replaced, bottom end must be opened.

2, PTO Flywheel

Lock the crankshaft using the same procedure for the magneto flywheel removal. Refer to ENGINE 01-01.

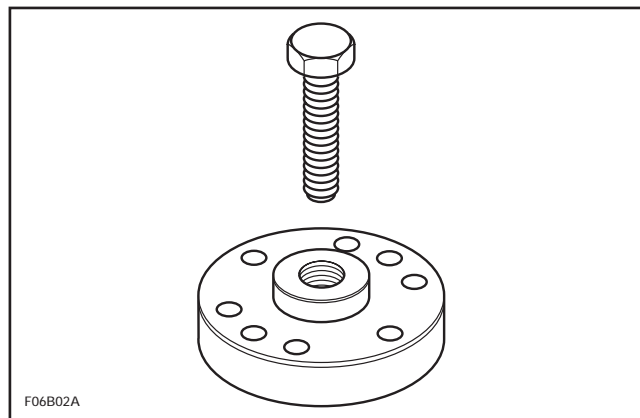
Loosen the 6 Allen screws **no. 4** retaining the coupling flange **no. 3** to the PTO flywheel.

Loosen bolt **no. 5** retaining the PTO flywheel to the crankshaft.

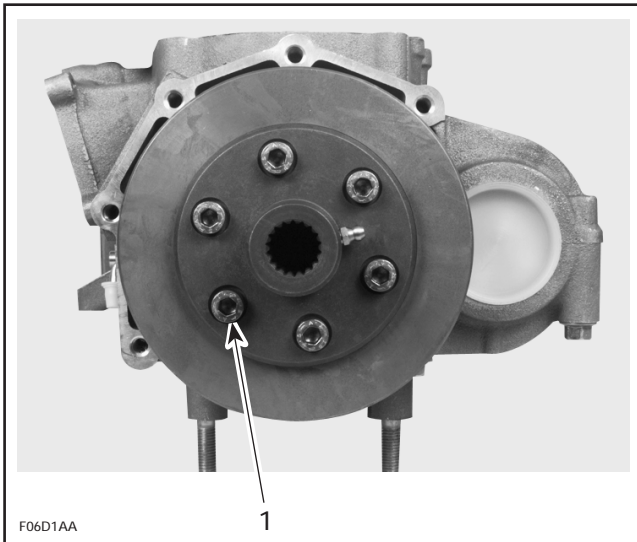


1. Bolt

Remove the PTO flywheel **no. 2** using puller (P/N 290 976 237).



Install puller to PTO flywheel. Insert 6 M8 x 30 screws (P/N 290 940 481) through puller holes and tighten screws in PTO flywheel to extract it from crankshaft.

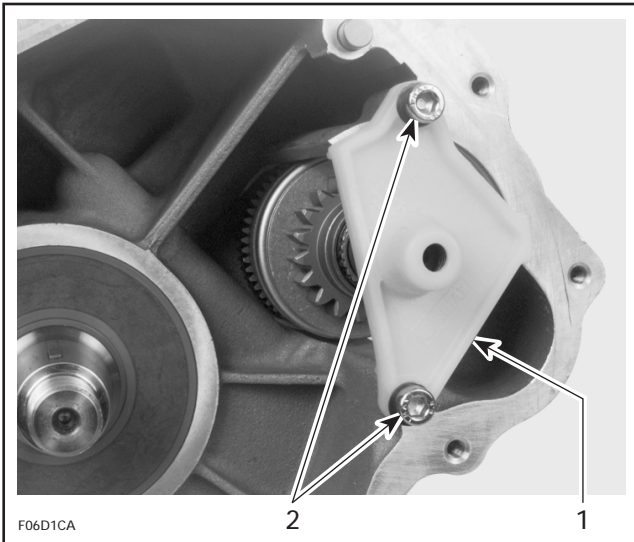


1. Allen screw (6)

Remove the coupling flange **no. 3**.

6, Starter Drive Assembly

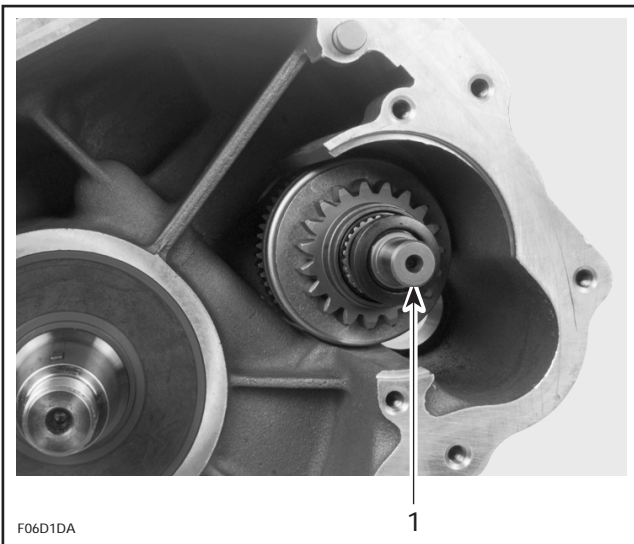
Loosen 2 Allen screws no. 7 retaining starter drive cover no. 8.



1. Cover
2. Allen screw

Remove starter drive cover no. 8 and spring no. 9.

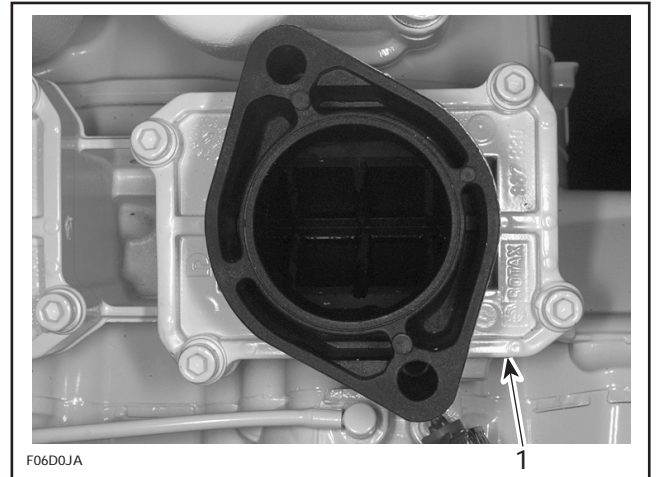
Remove starter drive assembly no. 6.



1. Starter drive assembly

10, Reed Valve

Remove both carburetor flanges.



1. Carburetor flange

Remove reed valves from crankcase.

11, Crankcase

Place engine upright on crankcase magneto side.



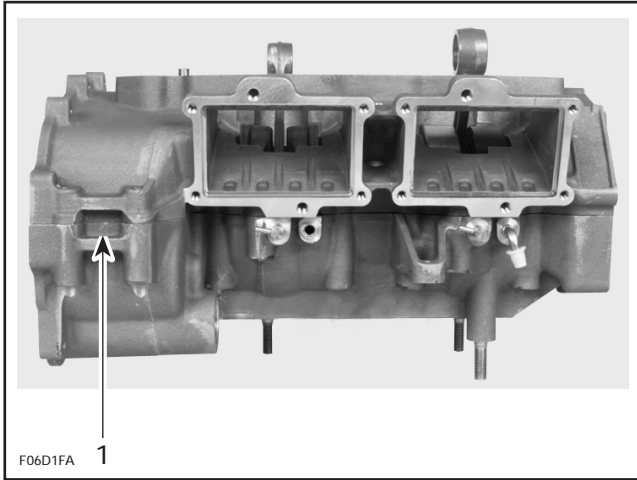
Loosen crankcase bolts no. 12 and no. 13 starting from center to the outside.

Put engine back on a trestle and remove the upper crankcase half.

Insert a pry bar between crankcase lugs to separate halves. Be careful not to damage precision machined surfaces.

Section 01 ENGINE

Subsection 03 (BOTTOM END)



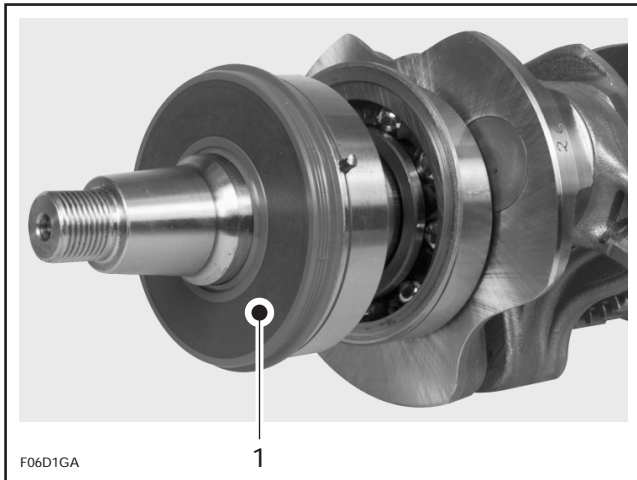
1. Separate halves by prying at provided lugs (both sides)

Remove crankshaft and counterbalance shaft.

14, Crankshaft

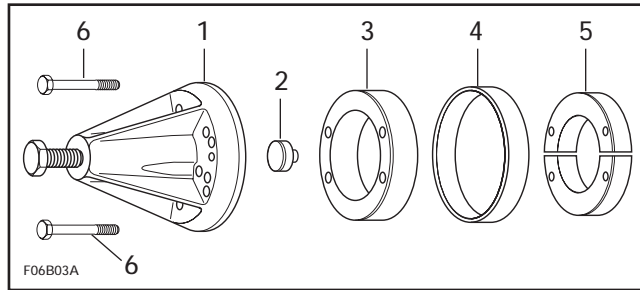
NOTE: Do not needlessly remove crankshaft bearings.

Remove end seals no. 1.



1. End seal (MAG side)

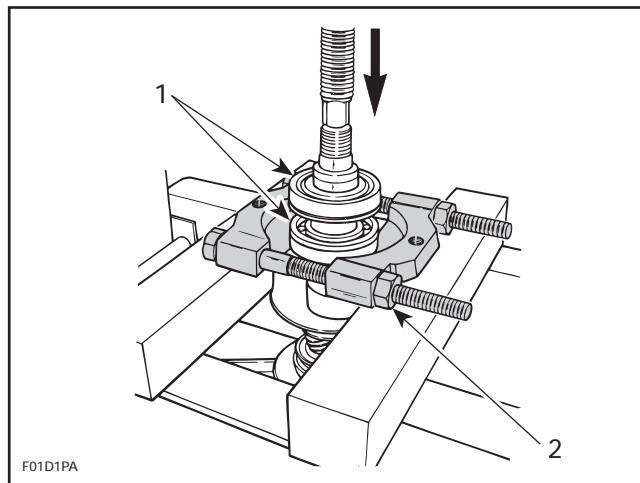
To remove end bearings no. 15 from crankshaft, use the following tools:



1. Puller (P/N 420 877 635)
2. Protective cap (P/N 290 877 414)
3. Distance ring (P/N 290 876 569)
4. Ring (P/N 290 977 480)
5. Ring halves (P/N 290 876 330)
6. Screw (P/N 290 940 755)

NOTE: To facilitate ring or distance ring installation, lubricate their inside diameters.

Or, use a bearing extractor such as Proto no. 4332 and a press to remove 2 bearings at a time.



TYPICAL

1. Press bearings out
2. Bearing extractor

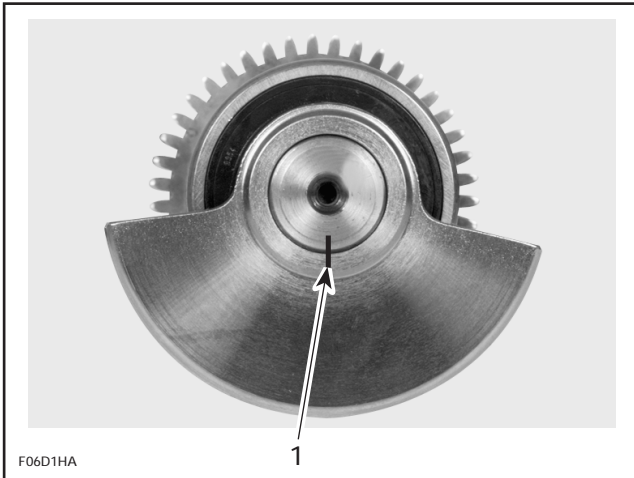
16, Counterbalance Shaft

NOTE: Do not needlessly remove counterbalance shaft bearings.

Use a press to remove counterweights no. 17 and bearings no. 18.

▼ CAUTION

There is no woodruff key to position the counterweights. An index mark must be traced to retain the proper position of the counterweight.

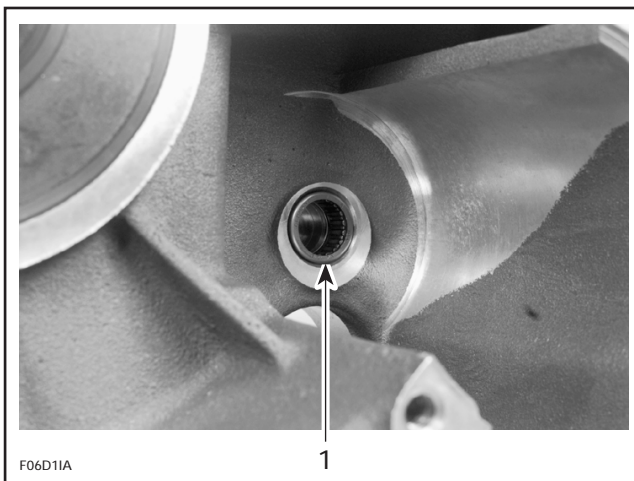


1. Trace an index mark

Remove seals no. 19.
 Remove bearing no. 20 and washer no. 21.
 Use a press to remove gear no. 22.

INSPECTION

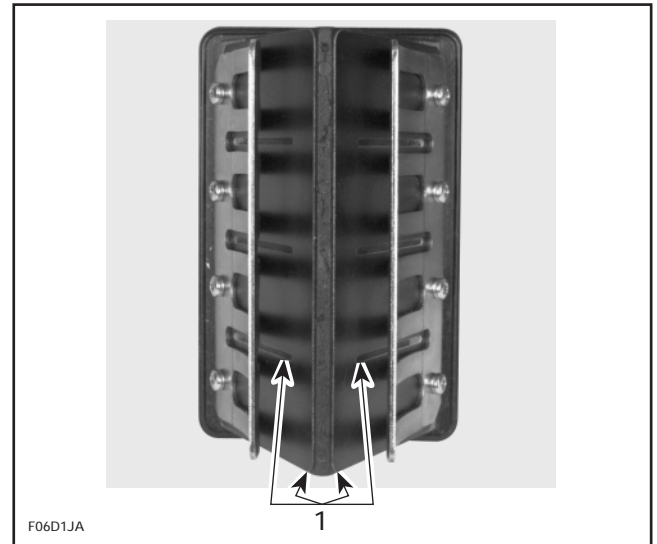
Visually inspect parts for corrosion damage.
 Inspect plane surfaces for warpage. Small deformation can be corrected by grinding surface with a fine sandpaper.
 Inspect bearings. Check for scoring, pitting, chipping or other evidence of wear.
 Check bearing no. 23 of starter drive assembly no. 6 in crankcase.



1. Bearing of starter drive assembly

10, Reed Valve

Check reed valve petals no. 24 for cracks or other defects. The reed petals must lie completely flat against the reed valve body no. 25. To check, hold against light.



1. No play

In case of a play, turn reed petals upside down and recheck. If there is still a play, replace petals.
 Check perfect condition of rubber coating on reed valve body.

Check stopper distance from center of reed valve block.



A. $13 \pm 0.25 \text{ mm}$ (.512 \pm .010 in)

NOTE: Distance should be the same on both sides.

Section 01 ENGINE

Subsection 03 (BOTTOM END)

Bent stopper as required to obtain the proper distance.

14, Crankshaft

Refer to the *1997 Sea-Doo Shop Manual* for complete procedure of crankshaft inspection.

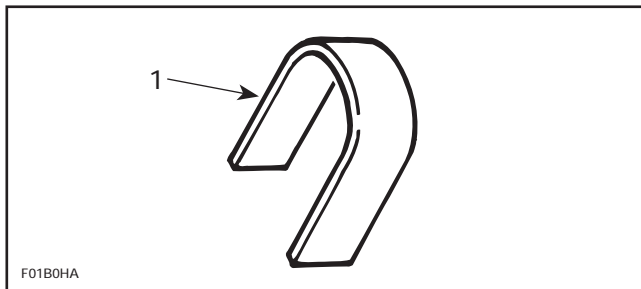
ASSEMBLY

15, Bearing

Apply Loctite 767 anti-seize on part of crankshaft where bearings fit.

Prior to installation, place bearings into a container filled with oil, previously heated to 75°C (167°F). This will expand bearings and ease their installations.

To properly position the outer PTO and MAG bearings, a distance gauge should be temporarily installed against the inner bearing. Slide the outer bearing until stopped by the distance gauge, then remove it.



1. Distance gauge

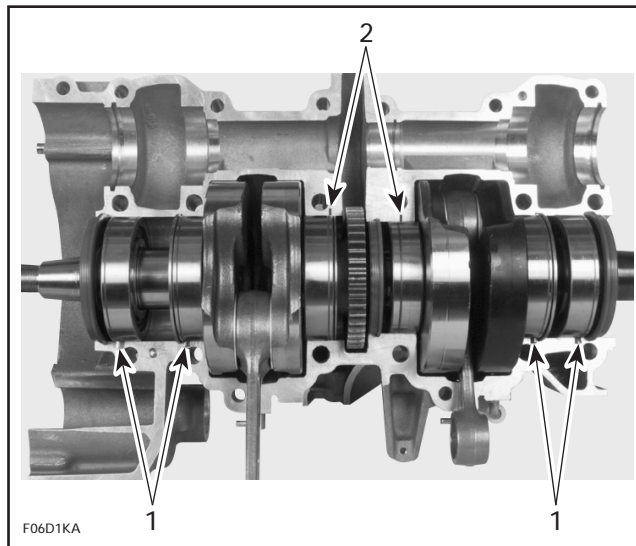
1, Seal

At seal assembly, apply a light coat of synthetic grease on seal lips.

14, Crankshaft

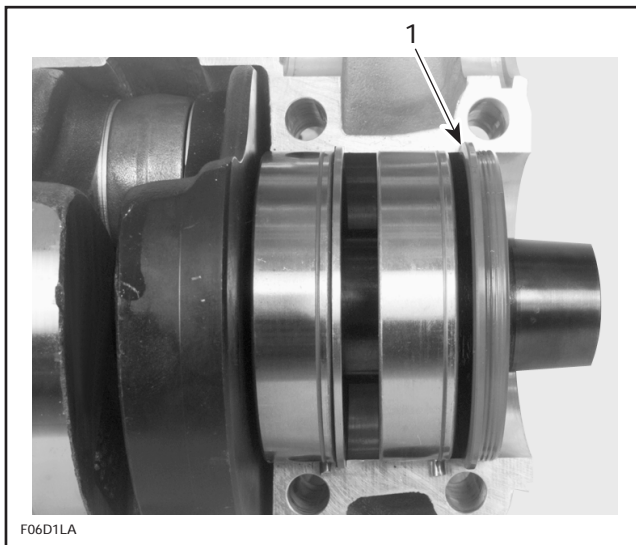
Install crankshaft in crankcase lower half.

Pay attention to properly position drive pins of center and outer bearings. Drive pins of outer bearings must be on the opposite side of the counterbalance shaft. Drive pins of inner bearings must be on the same side as the counterbalance shaft.



1. Outer bearing drive pins on this side
2. Inner bearing drive pins on this side

Seals no. 1 are positioned with the outer lip in the crankcase recess.



1. Seal lip in crankcase recess

16, Counterbalance Shaft

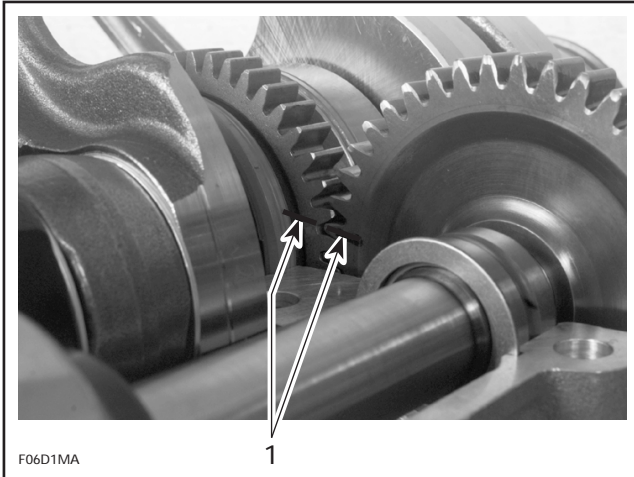
Install bearing no. 20 and washer no. 21.

When installing seals no. 19, apply a light coat of synthetic grease on seal lips.

Place bearings no. 18 into a container filled with oil, previously heated to 75°C (167°F). This will expand bearings and ease their installation.

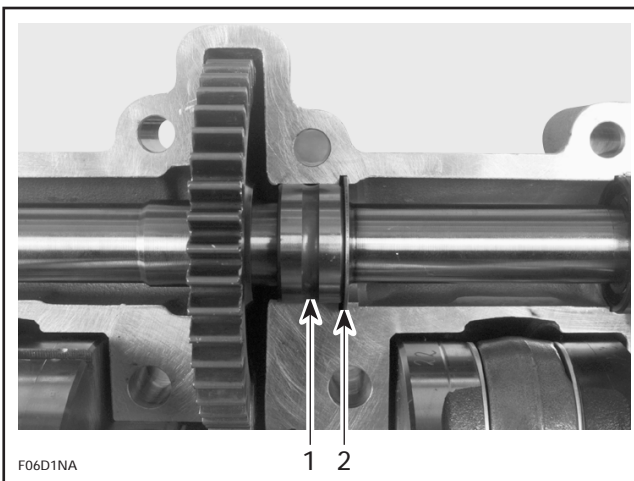
Reinstall counterweights no. 17 using a press and take care to align index marks previously traced.

Install the counterbalance shaft in crankcase lower half. Make sure to properly index crankshaft and counterbalance shaft by aligning marks of gears.



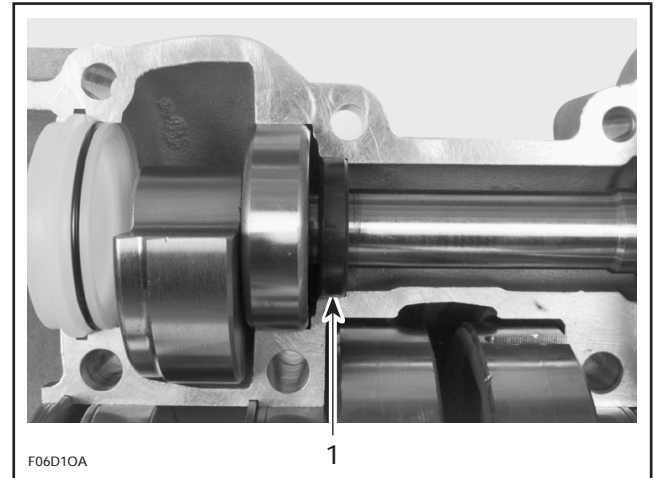
1. Marks must be aligned

Properly position bearing no. 20 and washer no. 21.



1. Bearing
2. Washer in crankcase groove

Place seals no. 19 in their respective positions.

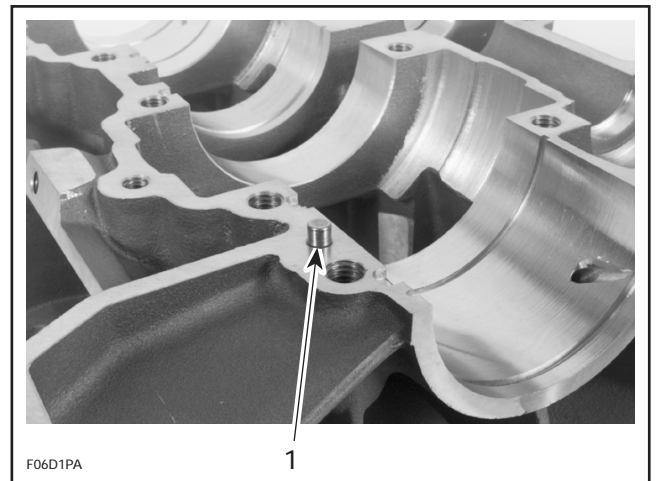


1. Seal in place

11, Crankcase

Crankcase halves are factory matched and therefore, are not interchangeable or available as single halves.

Make sure all locating dowels are in place.



1. Dowel

Prior to joining crankcase halves, apply a light coat of Loctite 518 on mating surfaces. Do not apply in excess as it will spread out inside crankcase.

NOTE: On aluminum material it is recommended to use Loctite Primer N to reduce curing time and increase gap filling capability. Refer to manufacturer's instructions.

Position crankcase halves together.

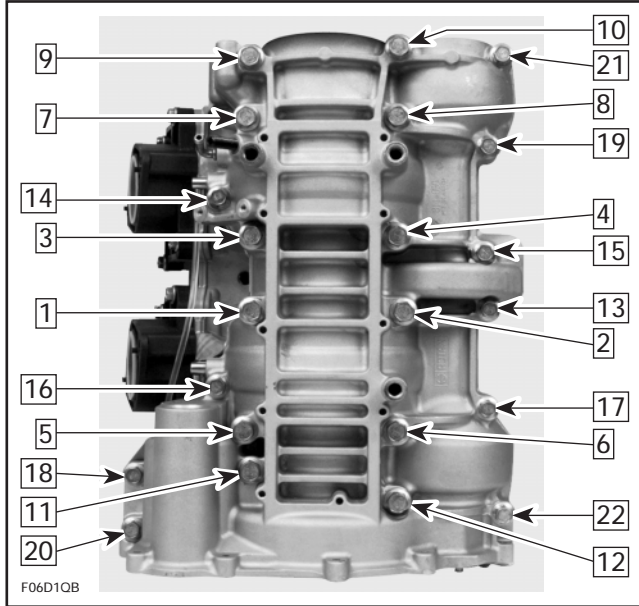
Section 01 ENGINE

Subsection 03 (BOTTOM END)

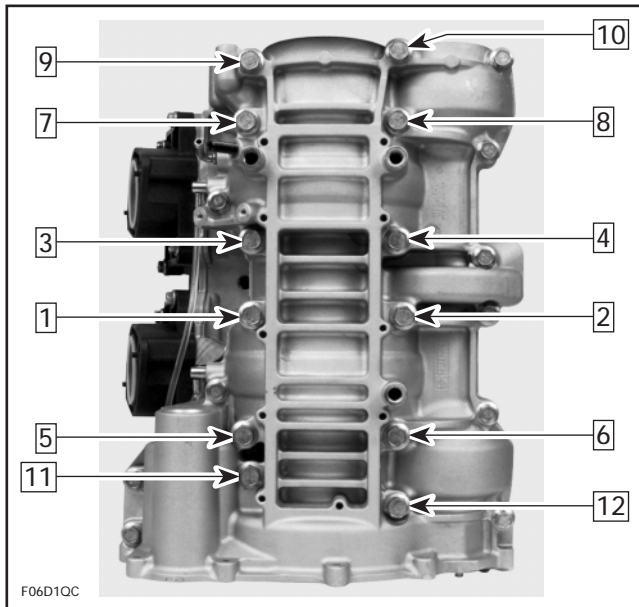
Apply synthetic grease below head of bolts no. 12 and no. 13.

Apply also Loctite 518 on threads of bolts no. 12 and no. 13.

Torque crankcase bolts to 12 N•m (9 lbf•ft) as per following sequence. Repeat procedure, retightening all bolts to 23 N•m (17 lbf•ft).

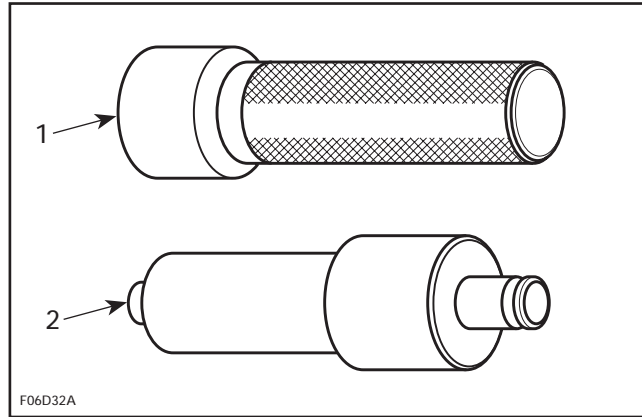


As a final step, torque only the M10 x 73,5 bolts no. 12 to 40 N•m (30 lbf•ft) as per following sequence.



23, Bearing

To install bearing no. 23 of starter drive assembly, use pusher (P/N 290 876 502) and handle (P/N 290 877 650).



1. Handle
2. Pusher

2, PTO Flywheel

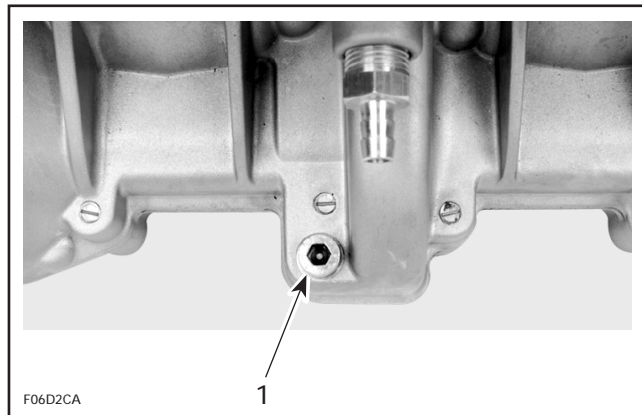
Apply Loctite 242 (blue) on bolt no. 5.

Torque bolt no. 5 to 115 N•m (85 lbf•ft).

Apply Loctite 648 on mating surface of PTO flywheel and coupling flange.

26, Filler Plug

When engine assembly is completed, add 30 mL (1 oz) of Formula XP-S synthetic oil to the counter-balance shaft gear through the crankcase filler plug.

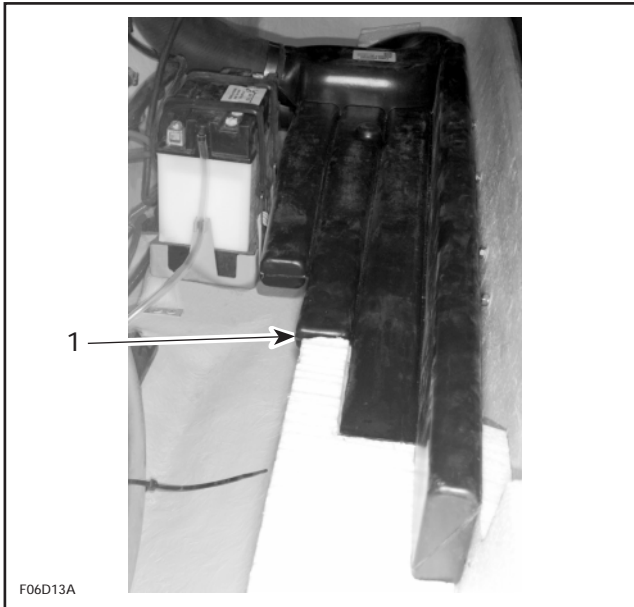


1. Remove filler plug and add 30 mL (1 oz) of injection oil

EXHAUST SYSTEM

GENERAL

To enhance performance and reduce noise level, the GSX Limited is equipped with a new plastic made resonator.



1. Resonator

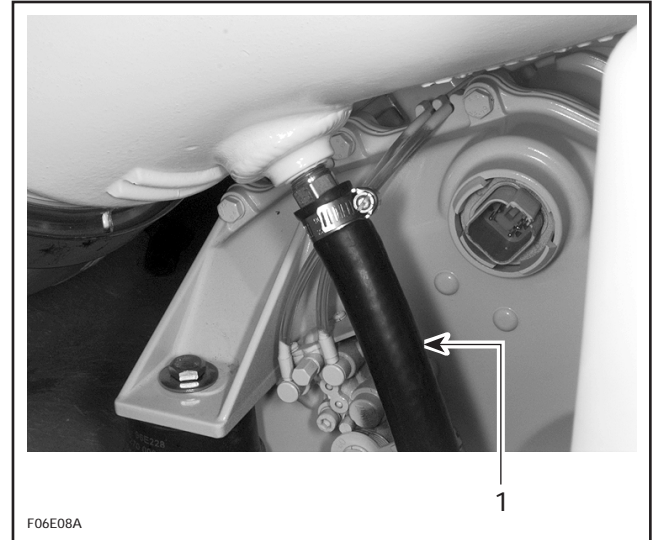
REMOVAL

Tuned Pipe

Remove seat.

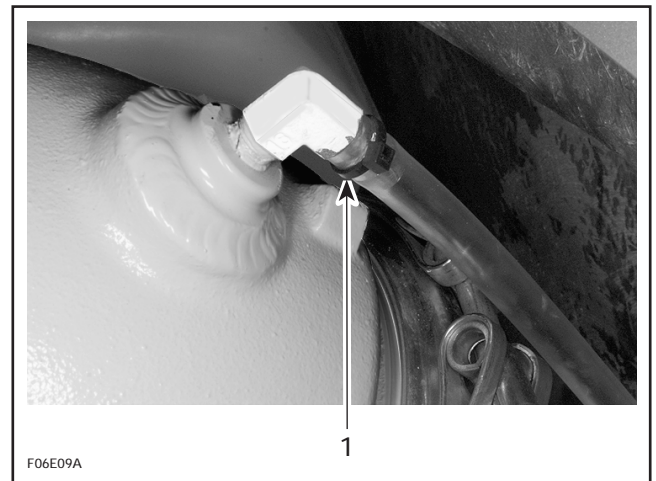
Remove air vent tube support from body opening.

Disconnect water inlet hose at tuned pipe head.



1. Water inlet hose

Disconnect at the tuned pipe head the water supply hose of the water flow regulator valve.



1. Water supply hose for the regulator valve

Section 01 ENGINE

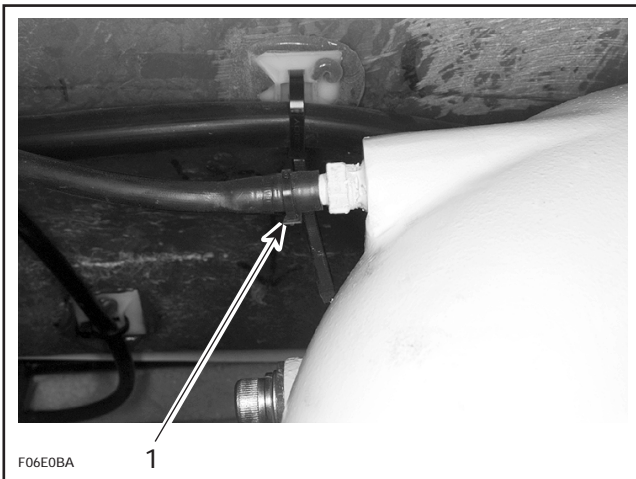
Subsection 04 (EXHAUST SYSTEM)

Disconnect the water injection hose at tuned pipe head.



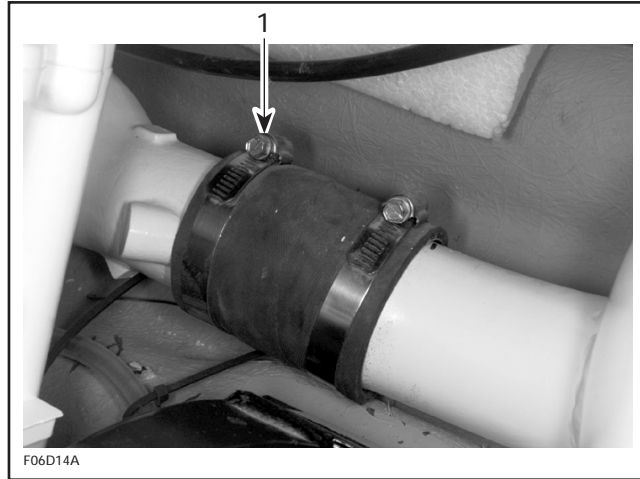
1. Water injection hose

Disconnect the water bleed hose.



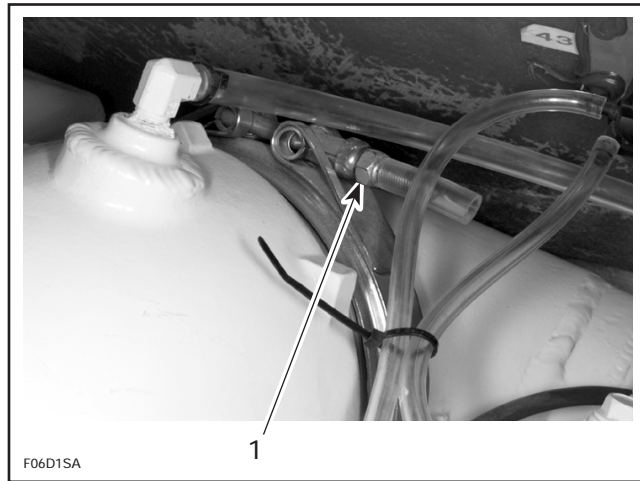
1. Water bleed hose

Loosen clamp retaining exhaust hose to tuned pipe cone.



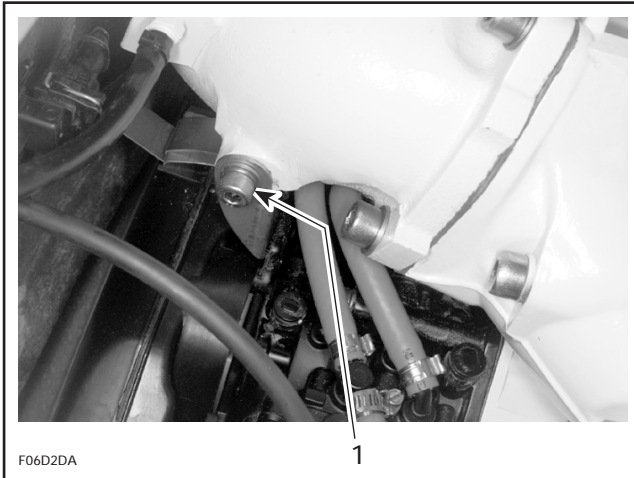
1. Loosen clamp

Loosen and remove clamp retaining tuned pipe head to tuned pipe cone.



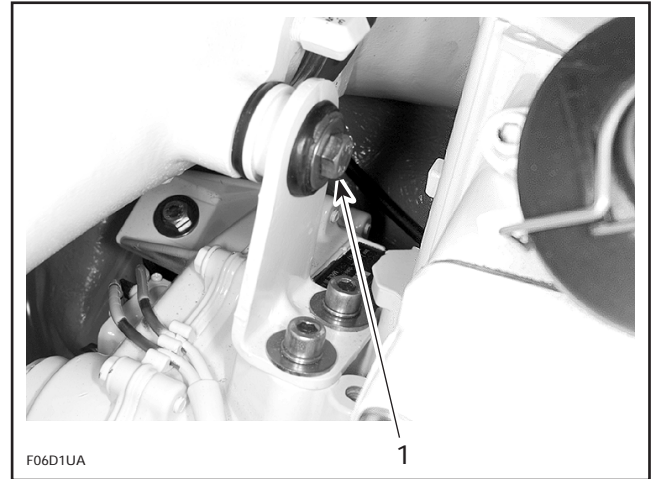
1. Loosen and remove clamp

Loosen Allen screw of carburetor bracket.



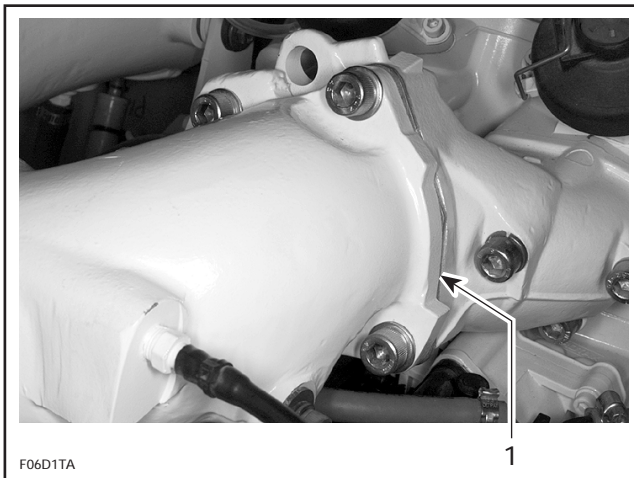
1. Loosen Allen screw

Loosen bolt of tuned pipe head above the engine magneto.



1. Remove bolt

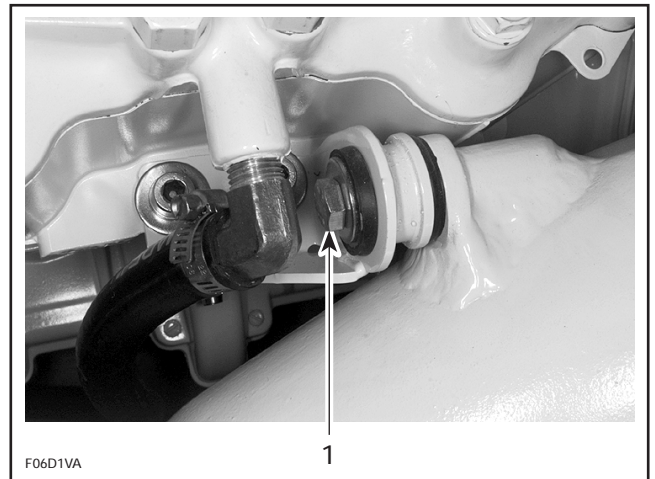
Loosen Allen screws and nut at tuned pipe flange.



1. Tuned pipe flange

Remove tuned pipe head.

Loosen bolt of tuned pipe cone beside the engine water outlet hose.



1. Loosen bolt

Remove tuned pipe cone.

Exhaust Manifold

Remove tuned pipe head (if not removed).

Remove 8 Allen screws with lock washers then withdraw exhaust manifold.

Section 01 ENGINE

Subsection 04 (EXHAUST SYSTEM)

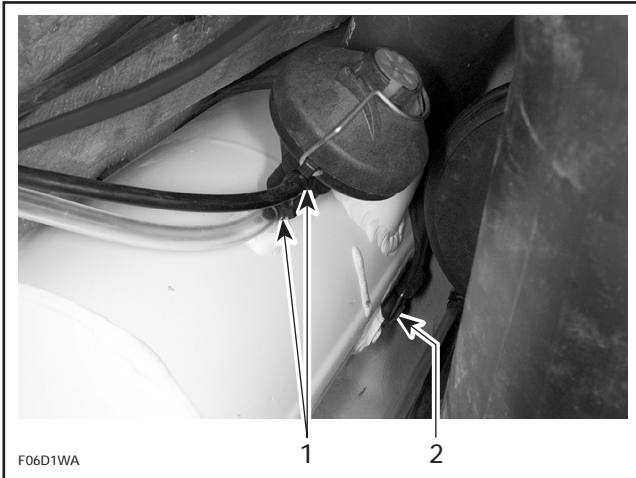
Muffler

Disconnect front exhaust hose (if tuned pipe is not removed).

Disconnect top exhaust hose from muffler.

Disconnect hoses of the water flow regulator valve (if tuned pipe is not removed).

Disconnect retaining strap.



1. Disconnect hoses (if tuned pipe is not removed)
2. Disconnect strap

Remove VTS motor. Refer to *1997 Sea-Doo Shop Manual*, PROPULSION SYSTEM 08-05.

Remove muffler.

Resonator

Remove battery.

◆ WARNING

Always disconnect battery cables exactly in the specified order, BLACK negative cable first.

Disconnect exhaust hose.

Remove resonator.

REPAIR

Tuned Pipe

Refer to the *1997 Sea-Doo Shop Manual*, section ENGINE 03-08 for procedure.

INSTALLATION

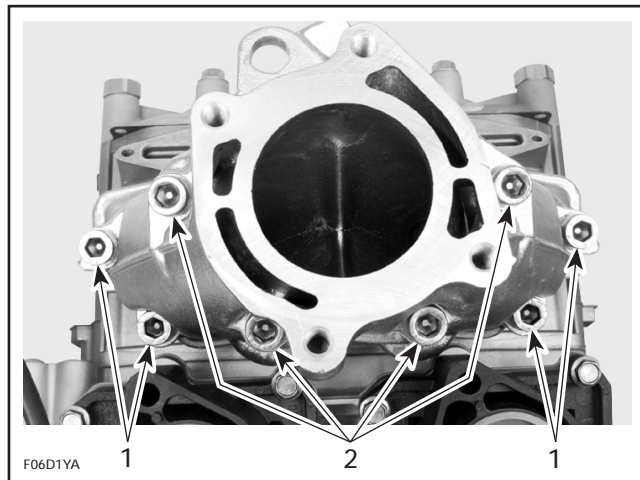
Installation is essentially the reverse of removal procedures. However, pay particular attention to the following.

Exhaust Manifold

Make sure new gaskets are properly positioned prior finalizing manifold installation.

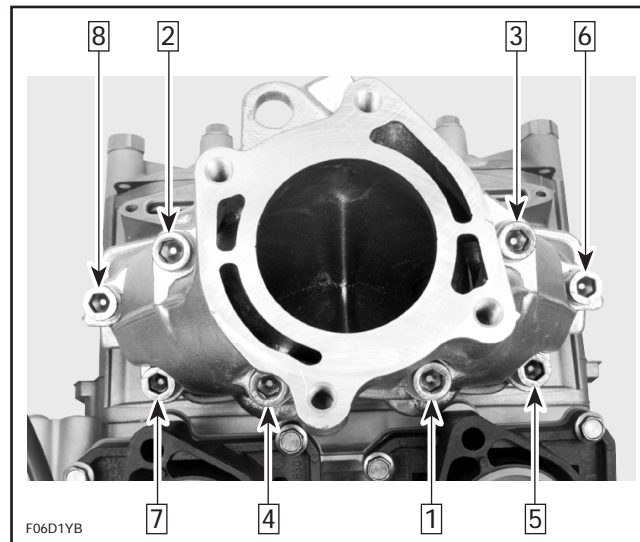
Apply synthetic grease on threads of Allen screws.

Install and hand tighten Allen screws as per following photo.



1. M10 x 60 Allen screws
2. M10 x 110 Allen screws

Torque Allen screws to 24 N•m (17 lbf•ft) as per following illustrated sequence. Repeat the procedure, retightening Allen screws to 40 N•m (30 lbf•ft).



Tuned Pipe

Make sure to install the sealing ring on tuned pipe cone if it was removed.

Apply a thin layer of heat resistant sealant (P/N 413 709 200) all around sealing ring.

Ensure rubber bushings and sleeves are not damaged and are properly installed into tuned pipe supports.

▼ CAUTION

Damage to bushings and or sleeves will eventually cause stress to tuned pipe and may cause cracking.

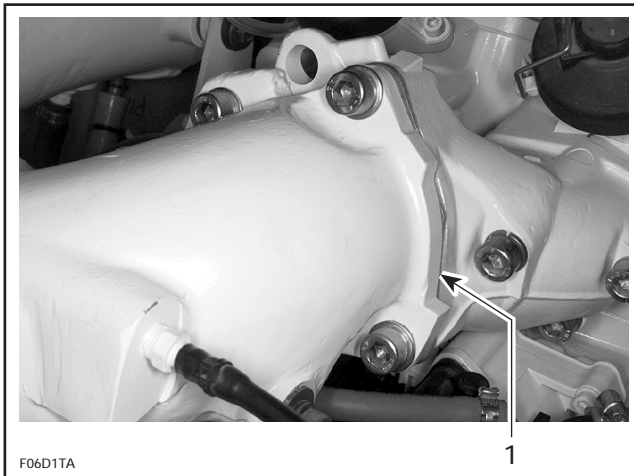
Make sure that gasket is properly located on exhaust manifold prior to finalizing tuned pipe head installation.

Apply Loctite 242 (blue) on bolts, Allen screws and nut.

Tune Pipe Torquing Sequence

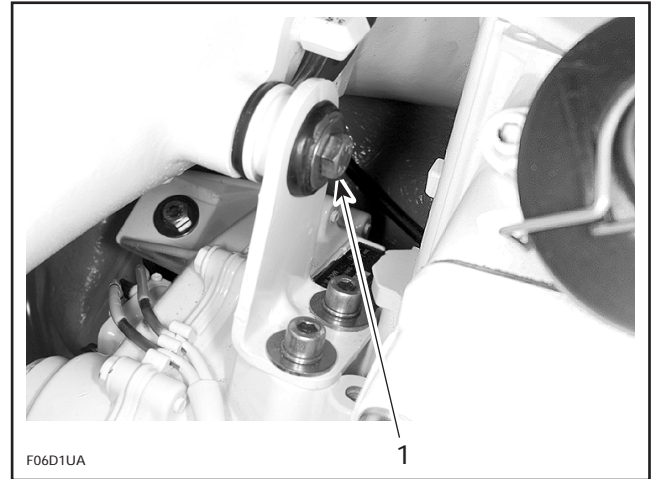
Hand tighten all fasteners before torquing any of them.

Torque Allen screws and nut at tuned pipe head flange to 25 N•m (18 lbf•ft).



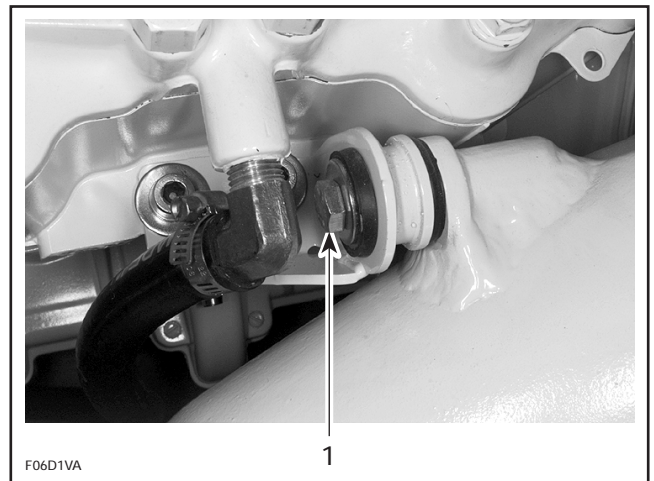
1. Torque Allen screws and nut to 25 N•m (18 lbf•ft)

Torque bolt of tuned pipe head above the engine magneto to 25 N•m (18 lbf•ft).



1. Torque bolt to 25 N•m (18 lbf•ft)

Torque bolt of tuned pipe cone beside the engine water outlet hose to 25 N•m (18 lbf•ft).

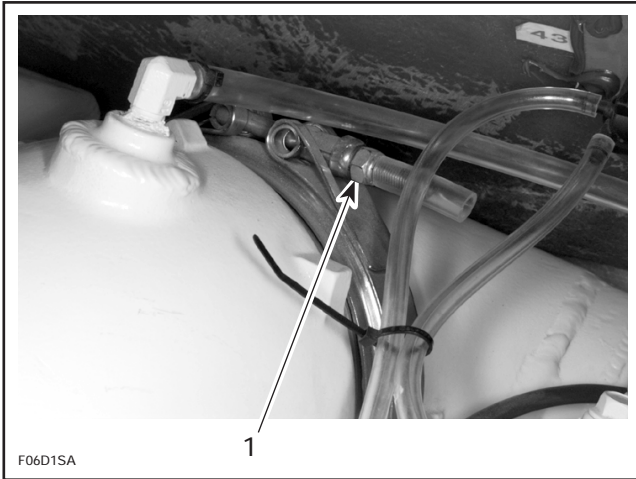


1. Torque bolt to 25 N•m (18 lbf•ft)

Section 01 ENGINE

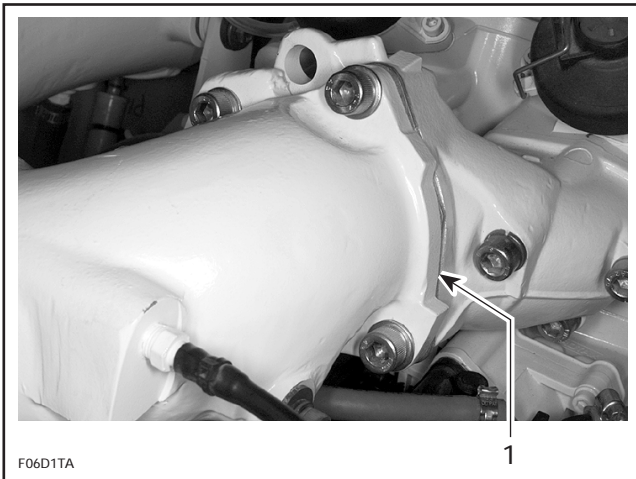
Subsection 04 (EXHAUST SYSTEM)

Torque clamp of tuned pipe head to 14 N•m (10 lbf•ft).



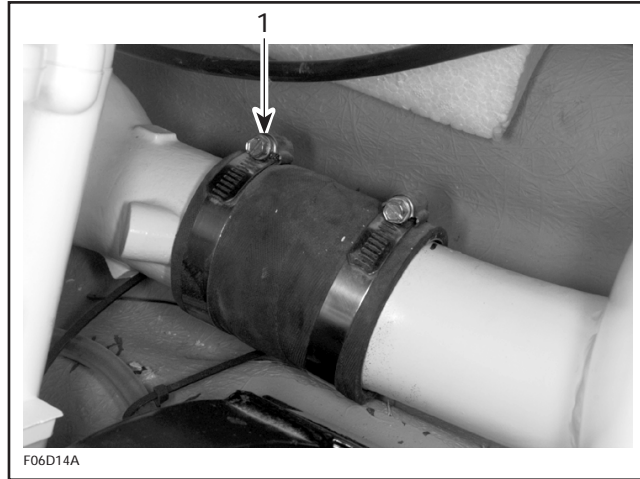
1. Torque clamp to 14 N•m (10 lbf•ft)

As a final step, torque Allen screws and nut at tuned pipe head flange to 40 N•m (30 lbf•ft).



1. Torque Allen screws and nut to 40 N•m (30 lbf•ft)

Torque exhaust hose clamp of tuned pipe cone to 4 N•m (35 lbf•in).



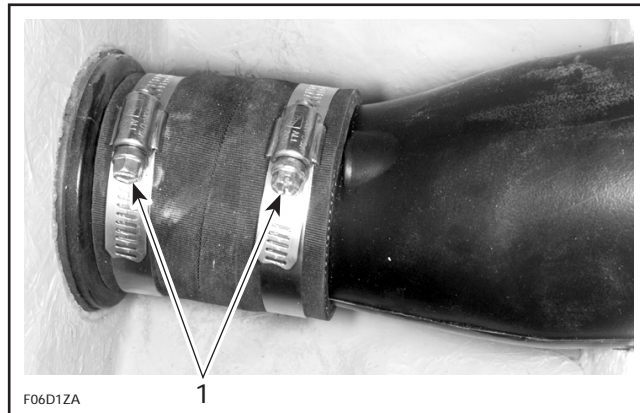
1. Torque clamp to 4 N•m (35 lbf•in)

Muffler

Torque exhaust hose clamps of muffler to 4 N•m (35 lbf•in).

Resonator

Torque exhaust hose clamps of resonator to 3 N•m (27 lbf•in).



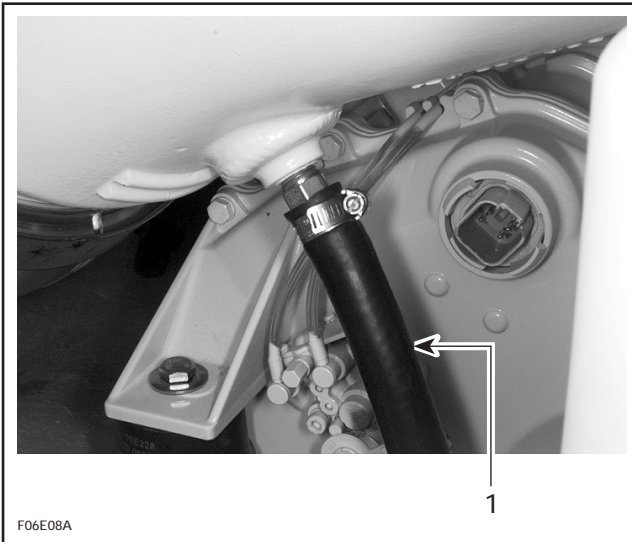
1. Torque clamps to 3 N•m (27 lbf•in)

CIRCUIT

947 Engine Cooling System

As with other models, the water supply is provided by a pressurized area in the jet pump between the impeller and venturi.

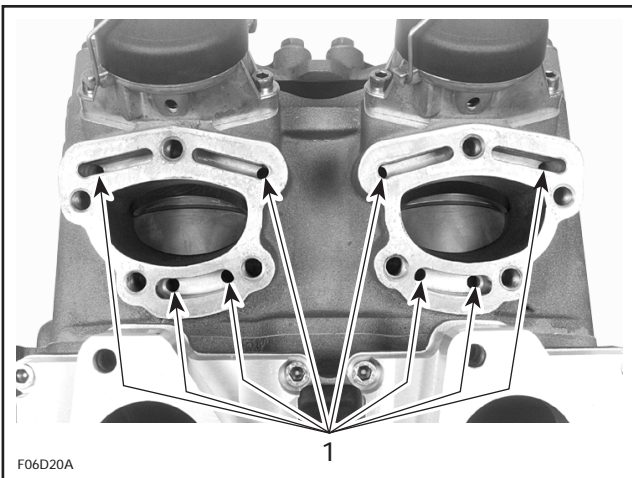
Water is directed to the water jacket of the tuned pipe head.



1. Water inlet hose

Water circulates in the jackets of the tuned pipe head and the exhaust manifold. It is consequently pre-heated by the exhaust system.

Then, water enters the cylinder-block water jackets through passages located above and below exhaust ports.

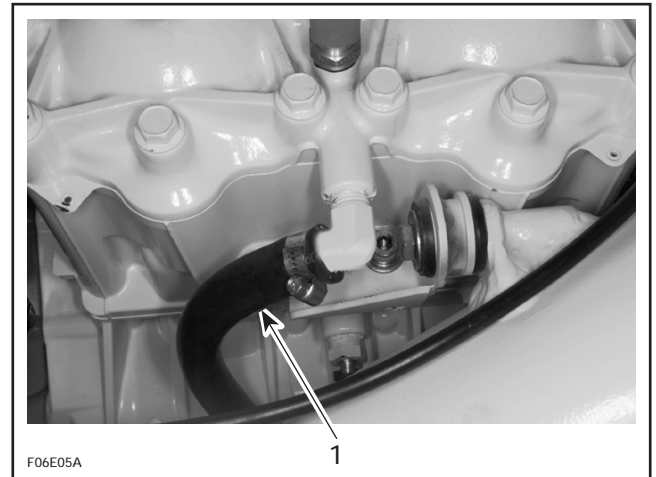


1. Water passages

After water has circulated in the cylinder-block water jackets, it is directed in the 1 piece cylinder head which features improved combustion chamber and spark plug cooling.



Water exits cylinder head water jackets through an outlet fitting.



1. Engine water outlet

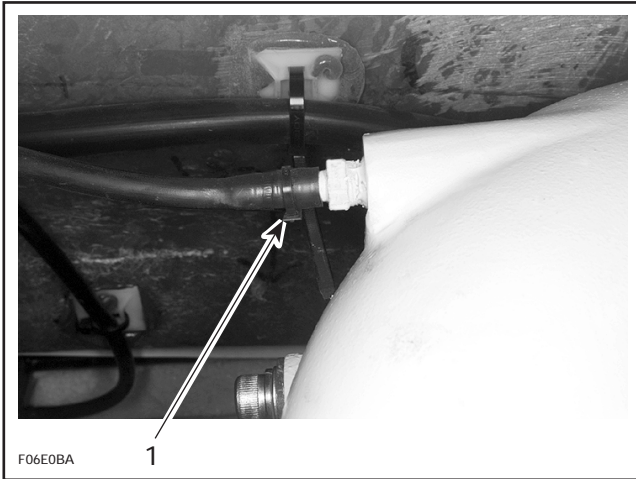
Water circulates in the water outlet hose and is expelled out of the cooling system through a fitting located in the jet pump support on the transom of the watercraft.

Draining of the cooling system is accomplished by the drain hose connected to a fitting at the bottom of the cylinder-block, on tuned pipe side.

Section 02 COOLING SYSTEM

Subsection 01 (CIRCUIT)

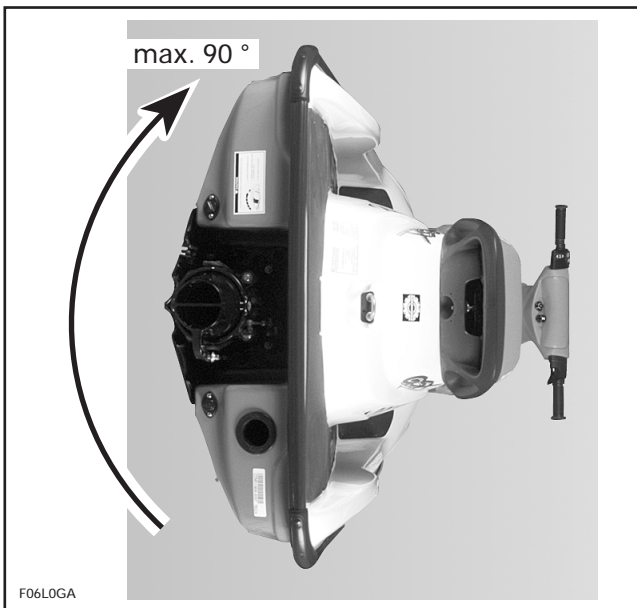
Bleeding of the cooling system is accomplished by the bleed hose located at the uppermost point of the circuit at the tuned pipe. The bleed hose also serves as the Cooling System Indicator (CSI).



1. Bleed hose

▼ CAUTION

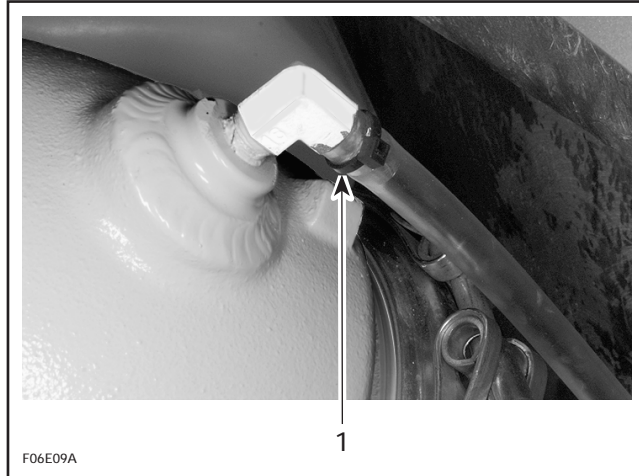
When servicing the hull, always rotate watercraft **CLOCKWISE** (seen from rear). Rotating the watercraft on the opposite side could allow residual water in the tuned pipe to enter the engine.



TYPICAL

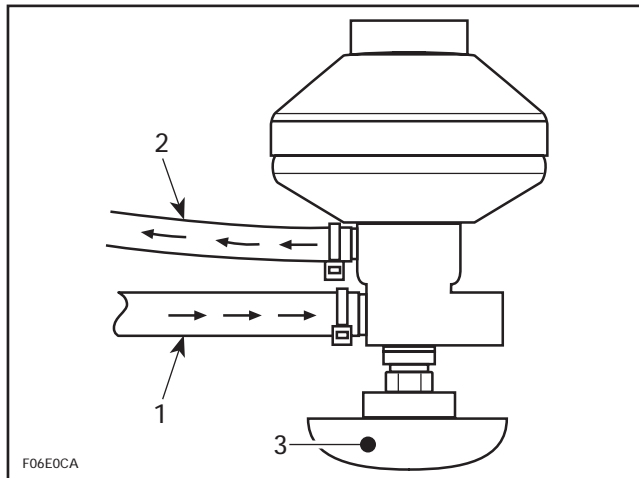
Water Flow Regulator Valve

The water supply of the water flow regulator is provided by the water jacket of the tuned pipe head.



1. Water supply of the water flow regulator valve

The lower hose of the valve is the water supply and the upper hose is the regulated injection water for the tuned pipe.



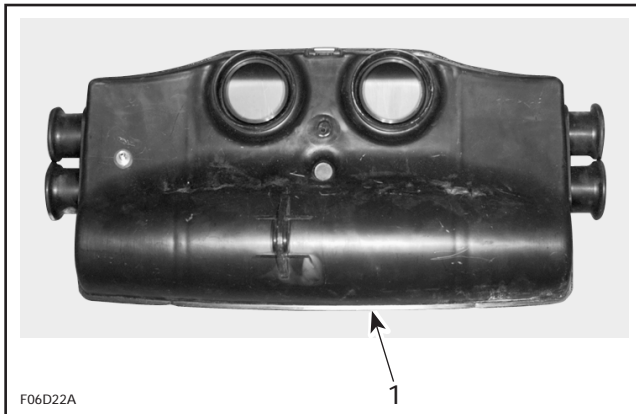
1. Water supply from tuned pipe water jacket
2. Regulated injection water to the tuned pipe
3. Muffler

CARBURETION

AIR INTAKE SILENCER

The air intake silencer is a molded piece and it can not be opened.

It contains a new flame arrester, which can not be removed.



1. Air intake silencer

FUEL ACCELERATOR PUMP

General

The carburetors are equipped with a fuel accelerator pump.

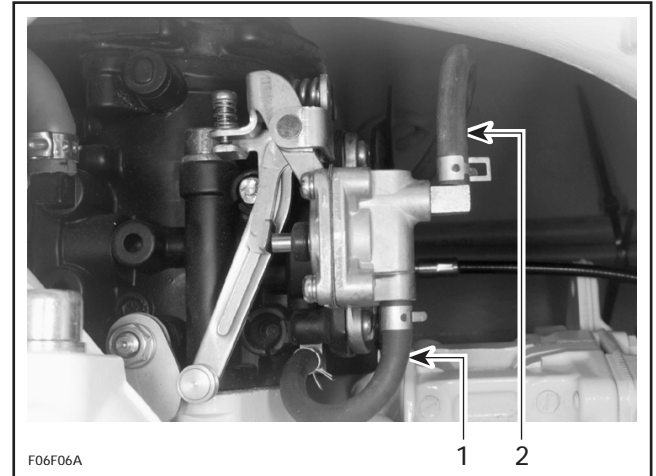
The fuel accelerator pump is mounted on the magneto side carburetor. It is linked to the throttle valve via a linkage.

A metering jet in the fuel inlet hose controls fuel supply to the pump.

A check valve on the fuel outlet hose prevents air from entering in the system.

Inspection

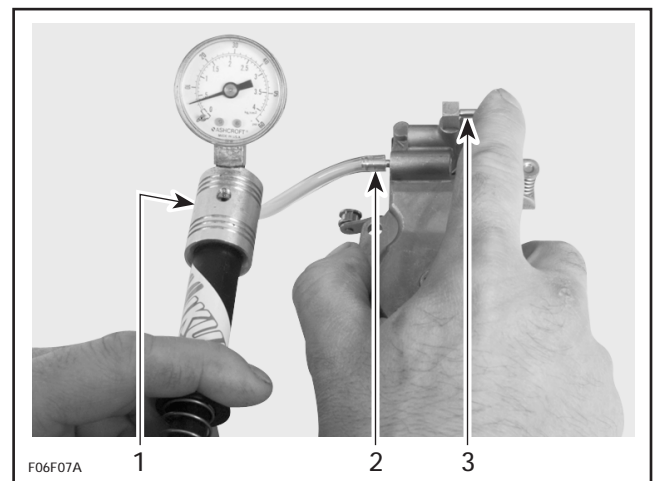
Disconnect inlet and outlet hoses from accelerator pump nipples.



1. Fuel inlet hose
2. Fuel outlet hose

Using a suitable pump gauge tester, perform the following test proceeding as follows:

- Install pump gauge tester (P/N 295 000 083) on inlet nipple.
- Obstruct outlet nipple with a finger and hold while pumping.
- Pump tester until it reaches 28 kPa (4 PSI).



1. Pump gauge tester
2. Hose installed to inlet nipple
3. Outlet nipple obstructed

Diaphragm must stand pressure for 10 seconds. If pressure drops, replace diaphragm.

Section 03 FUEL SYSTEM

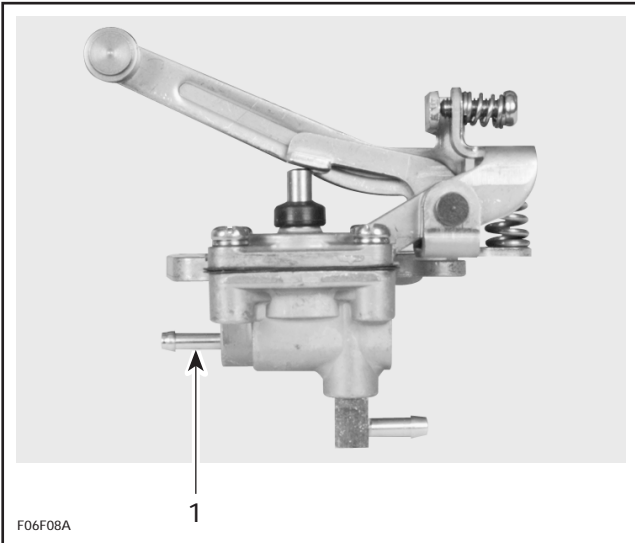
Subsection 01 (CARBURETION)

Verify accelerator pump check valves operation as follows:

Connect a clean plastic tubing to the valve inlet nipple and alternately apply pressure and vacuum. The check valve should release with pressure and hold under vacuum.

◆ WARNING

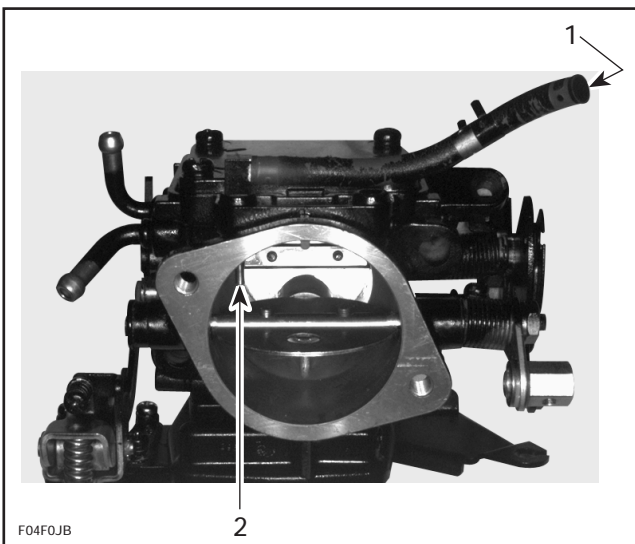
Some fuel may be present in fuel pump.



TYPICAL

1. Apply pressure and vacuum at inlet nipple

Repeat the same procedure for the injector.



TYPICAL

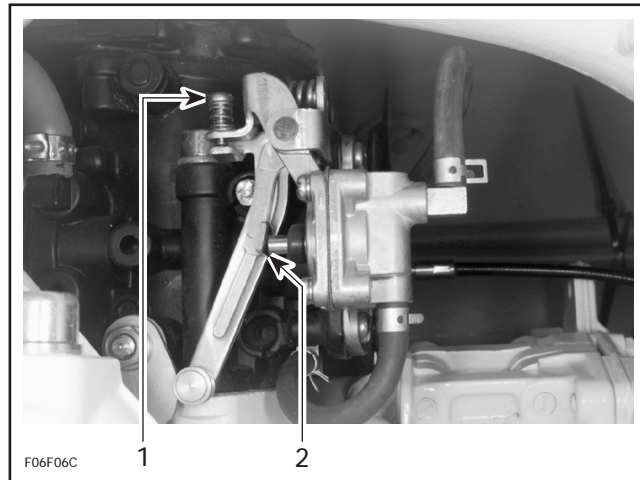
1. Apply pressure and vacuum through disconnected hose
2. Injector

NOTE: Injectors are also equipped with check valves.

Adjustment

Ensure throttle cable is properly adjusted and idle speed is set at 1500 RPM in water.

With the engine not running, start adjustment by loosening adjustment screw until there is a small gap between lever tab and pump plunger.



1. Turn adjustment screw
2. Small gap here

Turn adjustment screw clockwise until lever tab touches plunger.

Then, turn adjustment screw an additional 1/4 turn clockwise. The adjustment is now completed.

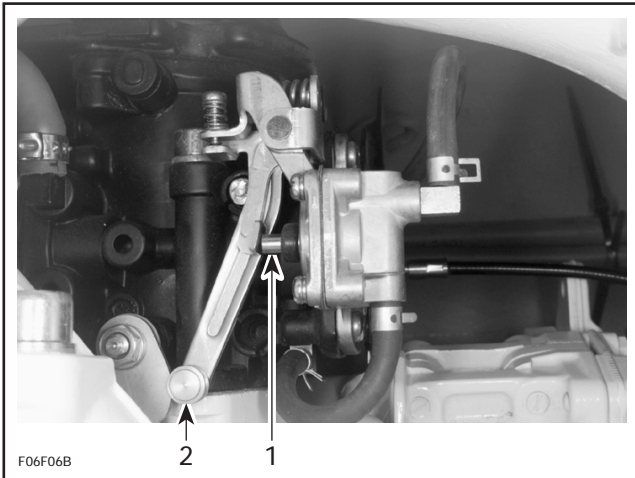
Accelerator Pump Verification

With engine stopped, remove air intake silencer, then activate throttle lever and look through carburetor venturi to ensure accelerator pump is injecting fuel. Reinstall air intake silencer.

NOTE: Activate throttle lever only a few times to prevent engine flooding.

Accelerator Pump Lubrication

Lubricate pump plunger, roller and cam with synthetic grease (P/N 293 550 010) and roller shaft with BOMBARDIER LUBE (P/N 293 600 016).



TYPICAL

1. Apply synthetic grease to plunger
2. Apply BOMBARDIER LUBE on roller shaft

BN-46I CARBURETORS

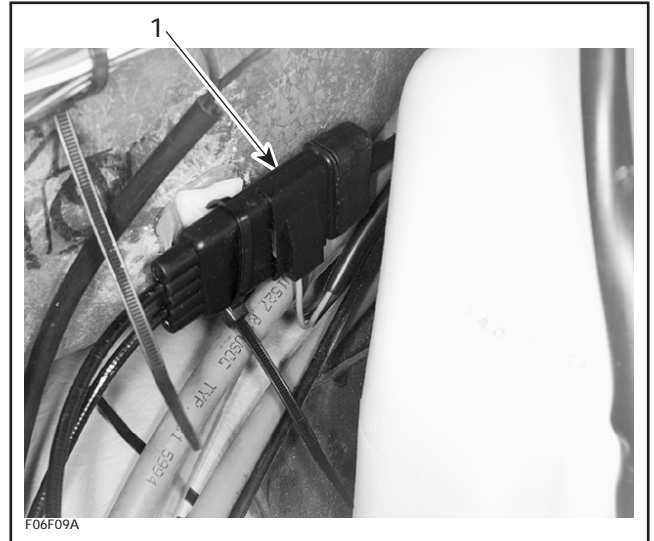
On these carburetors, diaphragms are either opened to the atmosphere or to the air intake silencer, depending upon throttle position.

The advantage of this system is to keep the right air/fuel ratio on the entire RPM's range of the engine.

To transfer the venting of the diaphragms, 3 main components are used:

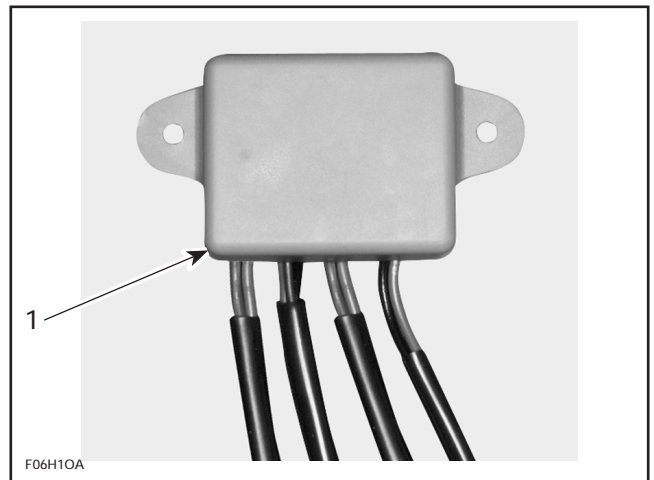
- throttle position switch
- amplifier
- solenoid

The throttle position switch is built-in the throttle cable. Its purpose is to signal the amplifier.



1. Throttle position switch

The amplifier boost the signal received from the throttle position switch and activates the solenoid. The switch is mounted opposite to the oil injection reservoir.

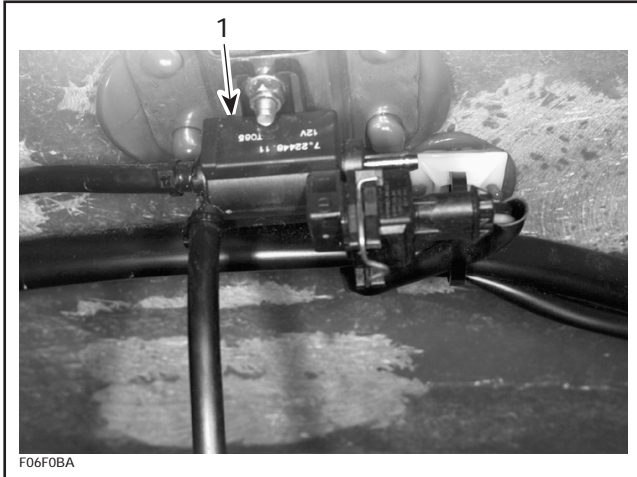


1. Amplifier

Section 03 FUEL SYSTEM

Subsection 01 (CARBURETION)

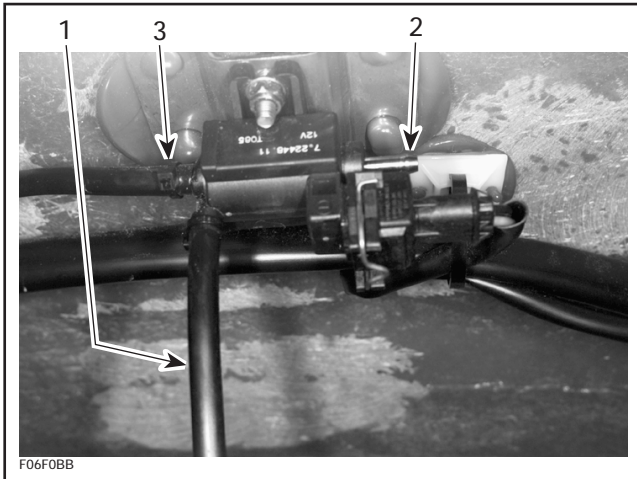
The solenoid is responsible for changing the venting position of the carburetors. The solenoid is located on the body, on left side.



TYPICAL

1. Solenoid

Up to 80% throttle opening, the solenoid is not activated and the diaphragms of the carburetors are opened to atmosphere.

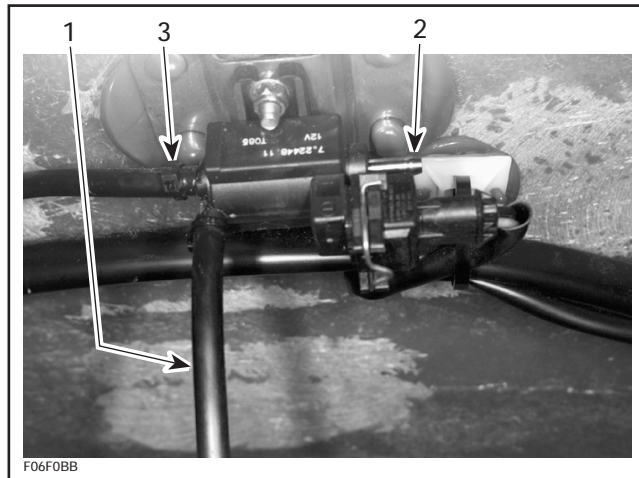


SOLENOID NOT ACTIVATED

1. Inlet (carburetor diaphragms)
2. Outlet to atmosphere
3. Outlet to air intake silencer blocked

From 80% to full throttle opening, the throttle position switch signals the amplifier. The amplifier boost the signal to activate the solenoid.

The solenoid transfers the venting of the regulator diaphragms from atmosphere to the air intake silencer (vacuum).



SOLENOID ACTIVATED

1. Inlet (carburetor diaphragms)
2. Outlet to atmosphere blocked
3. Outlet to air intake silencer opened

When the diaphragms are opened to the air intake silencer, the resulted vacuum moves the diaphragms, slightly leaning the mixture of the carburetors.

Inspection

Throttle Position Switch

Disconnect the 3-wire connector housing from the amplifier.

Using a 12 V battery and jumpers, connect the POSITIVE to the connector housing RED wire (POSITION A) and the negative to the connector housing BLACK wire (POSITION B).

Using a voltmeter, connect the positive probe to the RED wire (POSITION A) of the connector housing and the negative probe to the BLUE wire (POSITION C) of the connector housing.

The voltmeter should indicate 0 Volt.

Depress the throttle lever progressively. At 80% to full throttle opening, the voltmeter should indicate the battery voltage. If not, replace throttle cable.

Amplifier

First, ensure the throttle position switch is in good condition.

Disconnect the wiring harness (PURPLE and BLACK wires) of the amplifier.

Using a 12 V battery and jumpers, connect the POSITIVE to the amplifier PURPLE wire and the NEGATIVE to the amplifier BLACK wire.

Section 03 FUEL SYSTEM

Subsection 01 (CARBURETION)

Disconnect the wiring harness of the solenoid.

Using a voltmeter, connect the positive probe to the PURPLE/BLUE wire and the negative probe to the BLACK/BLUE wire.

With the safety lanyard removed, depress start/stop button to activate the MPEM timer.

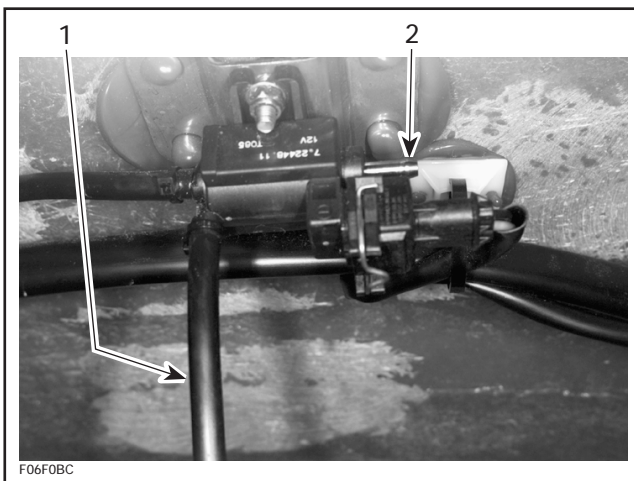
The voltmeter should indicate 0 Volt.

Depress the throttle lever progressively. At 80% to full throttle opening, the voltmeter should indicate the battery voltage. If not, replace the amplifier.

Solenoid

Disconnect the wiring harness of the solenoid.

Apply pressure to the inlet nipple. Air should be released to the outlet nipple for the atmosphere.

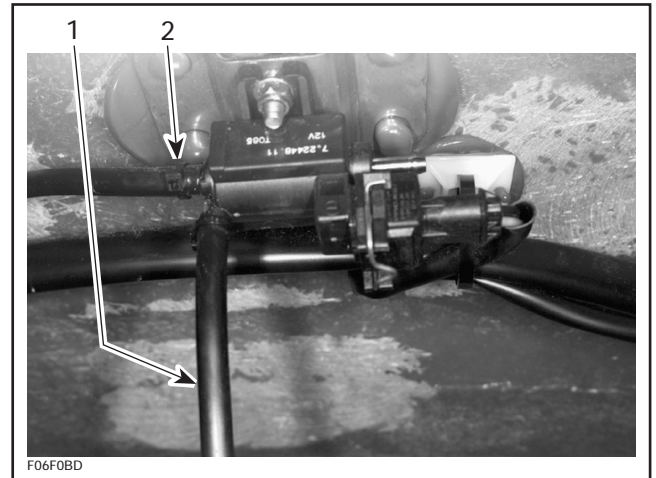


SOLENOID NOT ACTIVATED

1. Apply pressure to inlet nipple
2. Air should be released here

Connect a 12 V battery to solenoid terminals.

Apply pressure to the inlet nipple. Air should be released to the outlet nipple leading to the air intake silencer.



SOLENOID ACTIVATED

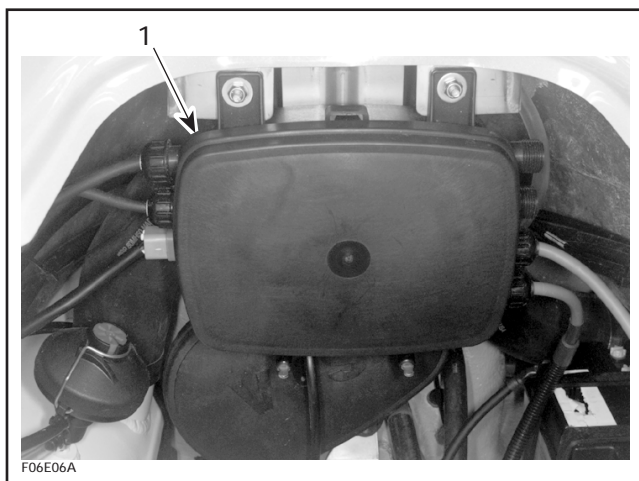
1. Apply pressure to inlet nipple
2. Air should be released here

IGNITION AND CHARGING SYSTEMS

The ignition and charging systems of the 947 engine are of the same type as the 787 engine.

The high amperage/voltage components (ignition coil and solenoid) are located into a rear electrical box.

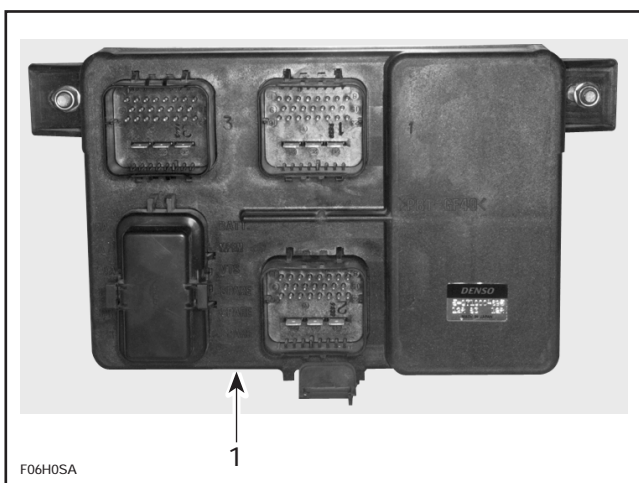
To access the rear electrical box, remove seat and vent tube support.



1. Rear electrical box

The other components are integrated to the Multi-Purpose Electronic Module (MPEM).

On this model, the MPEM is a Nippondenso unit, which features a built in rectifier/regulator.



1. Nippondenso Multi-Purpose Electronic Module

The MPEM is directly powered by the battery. It has a micro-processor inside of its sealed case.

The MPEM is responsible of the following electrical functions:

- interpreting information
- distributing information
- start/stop function
- timer
- Digitally Encoded Security System
- ignition
- engine rev limiter
- rectifying AC to DC
- regulating charging current

Fuses are directly mounted onto the MPEM.

To test the rectifier/regulator, proceed the same way as explained in the *1997 Sea-Doo Shop Manual* (P/N 219 100 048).

Digitally Encoded Security System

For a stronger and more reliable signal of the safety lanyard, the amplifier of the throttle position switch is also used for the Digitally Encoded Security System.

When installing the safety lanyard cap on the switch, the amplifier boosts the signal sent to the MPEM.

STARTER

GENERAL

The 947 engine is equipped with a MITSUBA 12 V starter.

The starter is coupled to the drive assembly, which contains the overrunning clutch and gear reduction.

To remove the drive assembly, the engine magneto cover must be removed.

REMOVAL

Remove seat.

Remove air vent tube support.

Remove air intake silencer.

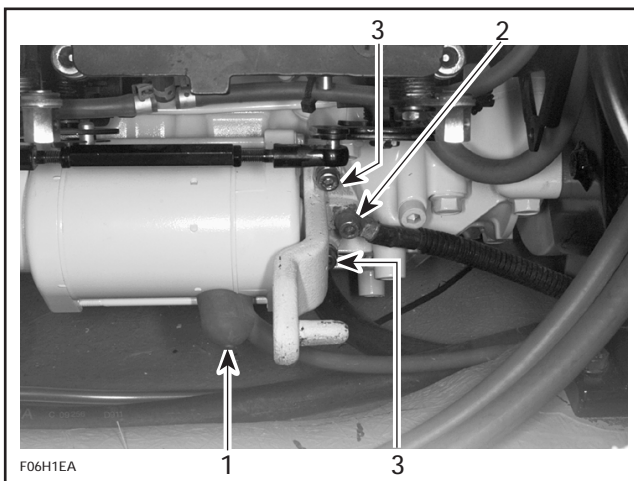
Disconnect the BLACK negative battery cable.

◆ WARNING

Always disconnect battery cables exactly in the specified order.

Disconnect the RED positive battery cable.

Disconnect starter cables and loosen Allen screws retaining starter bracket to engine.

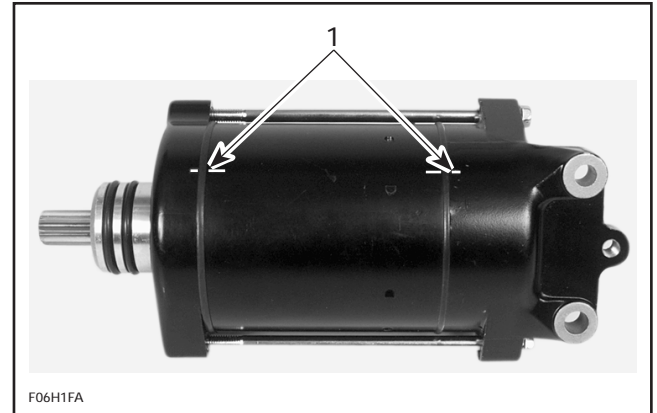


- 1. Positive starter cable
- 2. Negative starter cable
- 3. Allen screw

Remove starter.

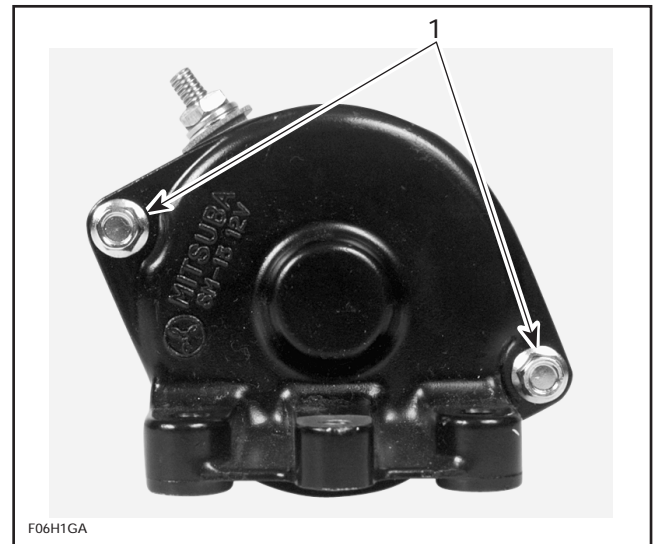
DISASSEMBLY

Locate index marks on yoke and end covers.



- 1. Index marks

Loosen through bolts.



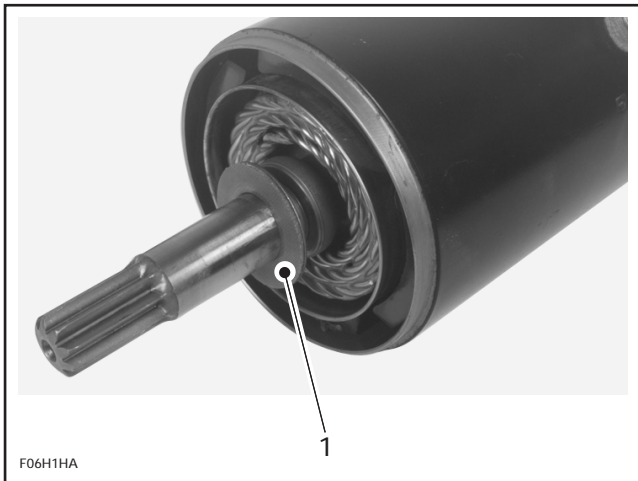
- 1. Through bolts

Remove end cover and gasket on armature shaft side.

Section 04 ELECTRICAL SYSTEM

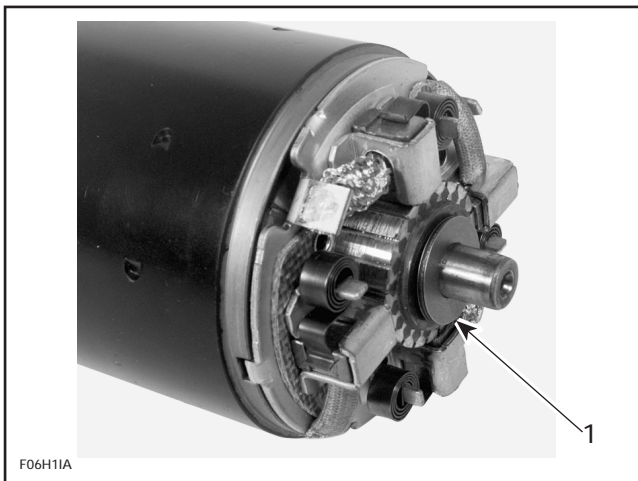
Subsection 02 (STARTER)

Remove thrust washer from armature shaft.



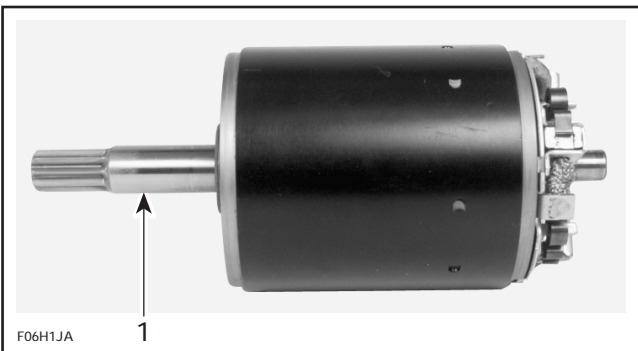
1. Thrust washer

Remove the other end cover and gasket.
Remove the 3 washers from armature shaft.



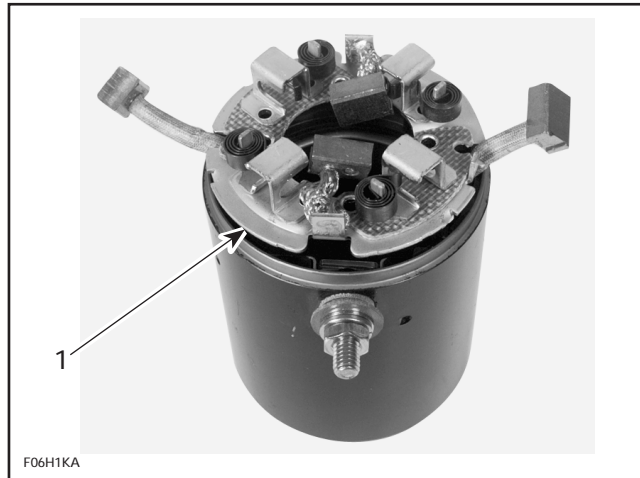
1. Washers

Remove armature.



1. Pull armature shaft

Release brush wires of yoke from brush holder.
Remove brush holder.



1. Remove brush holder

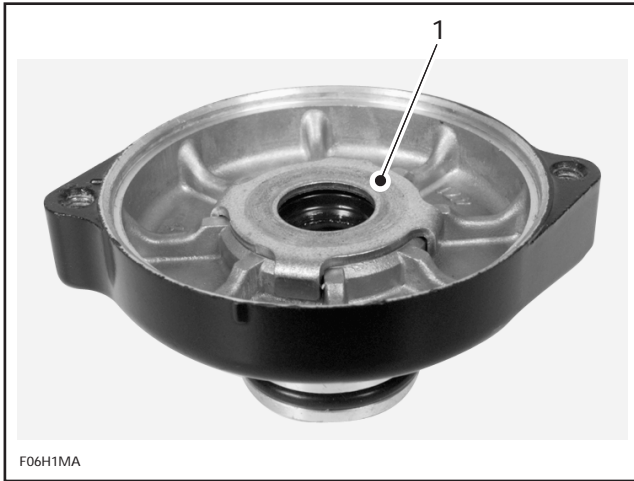
To remove brushes from yoke, loosen nut and remove washers.



1. Loosen nut and remove washers

Remove brushes.

To remove bearing and seal in end cover, release tabs of retainer.



1. Retainer

INSPECTION

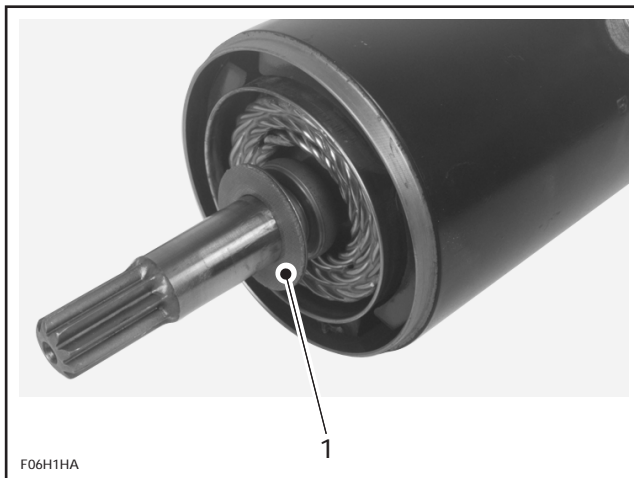
For parts inspection, refer to the *1997 Sea-Doo Shop Manual*, ELECTRICAL SYSTEM 07-04.

ASSEMBLY

Reverse the order of disassembly to reassemble starter. However, pay particular attention to the following.

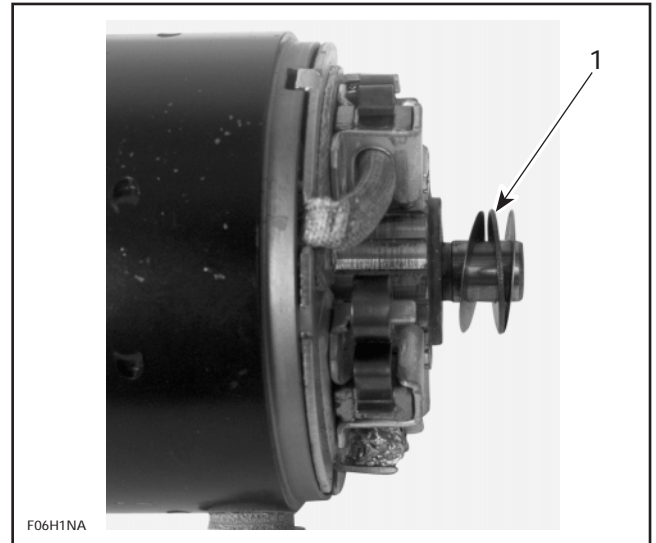
Install new O-rings and gaskets.

Insert thrust washer onto armature shaft with the non-metallic surface facing the end cover.



1. Non-metallic surface on this side

Install the 3 washers onto armature shaft, with the thicker one in the middle.



1. Thick washer in the middle

When installing end covers to yoke, align index marks.

Apply Loctite 271 (red) on through bolts and torque to 6 N•m (53 lbf•in).

Apply Loctite 242 (blue) on Allen screws of starter bracket and torque to 10 N•m (89 lbf•in).

Section 04 ELECTRICAL SYSTEM

Subsection 02 (STARTER)

STARTER SPECIFICATION

Nominal output	0.8 kW			
Voltage	12 V			
Rated time	30 seconds			
Rotation	Counterclockwise (viewed from pinion side)			
Weight	1.7 kg (3.7 lb)			
Performance specification at 20°C (68°F)	No load	10.9 V	45 A max.	8600 RPM
	Load	9 V	120 A max.	5350 RPM
	Stall	2.25 V	390 A max.	0 RPM
Battery	12 V, 19 Ah			

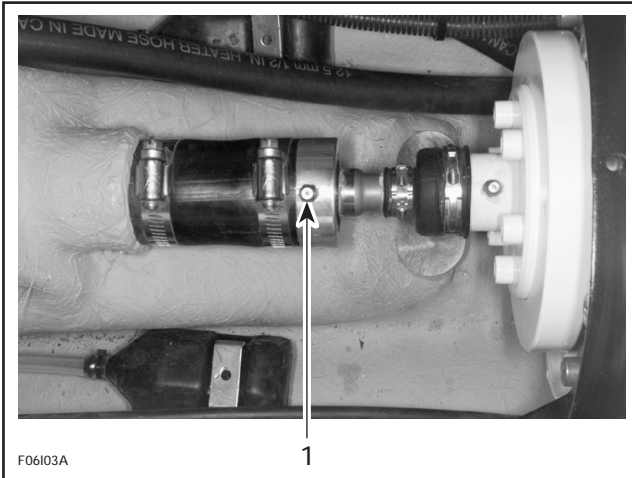
DRIVE SYSTEM AND JET PUMP

DRIVE SYSTEM

Seal Carrier and Bearing

The drive system is equipped with a seal carrier and a needle bearing.

Seal carrier should be lubricated with synthetic grease every 10 hours.



1. Grease seal carrier

For disassembly and assembly procedures of the seal carrier, refer to the *1997 Sea-Doo Shop Manual*, section 08-03.

JET PUMP

For performance improvement, the GSX Limited features a new jet pump with an impeller diameter of 155.6 mm (6-1/8 in).

The jet pump housing and venturi are made of aluminum.

Servicing the jet pump is identical as with the other models. For disassembly, inspection and assembly procedures, refer to the *1997 Sea-Doo Shop Manual*, section 08-02.

Section 06 TECHNICAL DATA

Subsection 01 (GSX LIMITED)

GSX LIMITED

ENGINE		GSX Limited (5625)
Engine type		Bombardier-Rotax 947
Induction type		Reed valve
Exhaust system	Type	Water cooled, water injected with regulator
	Water injection fitting (head)	3.5 mm (.139 in)
	Water injection fitting (cone)	N.A.
	Water injection fitting (muffler)	3.5 mm (.139 in)
Exhaust valve		Rotax Adjustable Variable Exhaust (RAVE)
Starting system		Electric start
Lubrication	Fuel/oil mixture	VROI (Variable Rate Oil Injection)
	Oil injection pump	Direct driven
	Oil type	BOMBARDIER-ROTAX FORMULA XP-S Synthetic injection oil (or equivalent synthetic oil)
Number of cylinders		2
Bore	Standard	88 mm (3.465 in)
	First oversize	88.25 mm (3.474 in)
	Second oversize	N.A.
Stroke		78.20 mm (3.079 in)
Displacement		951.2 cm ³ (58 in ³)
Corrected compression ratio		6.0: 1
Cylinder head warpage (maximum)		N.A.
Piston ring type and quantity		2 Semi-trapez
Ring end gap	New	0.25 - 0.40 mm (.010 - .016 in)
	Wear limit	1.00 mm (.039 in)
Ring piston groove	New	0.025 - 0.070 mm (.001 - .003 in)
	Wear limit	0.2 mm (.008 in)
Piston/cylinder wall clearance	New (minimum)	0.110 mm (.0043 in)
	Wear limit	0.200 mm (.008 in)
Cylinder taper (maximum)		0.100 mm (.004 in)
Cylinder out of round (maximum)		0.080 mm (.003 in)
Connecting rod big end axial play	New	0.311 - 0.678 mm (.012 - .027 in)
	Wear limit	1.2 mm (.047 in)
Crankshaft deflection		MAG side: 0.050 mm (.002 in); PTO side: 0.030 mm (.001 in)
Connecting rod/crankshaft pin radial clearance	New	0.017 - 0.034 mm (.0007 - .0013 in)
	Wear limit	0.050 mm (.002 in)
Connecting rod/piston pin radial clearance	New	0.003 - 0.012 mm (.00012 - .00047 in)
	Wear limit	0.015 mm (.00059 in)
ADDITIONAL INFORMATION:		

Section 06 TECHNICAL DATA

Subsection 01 (GSX LIMITED)

ELECTRICAL		GSX Limited (5625)
Magneto generator output		180 W @ 6000 RPM or 5.0 A @ 6000 RPM
Ignition system type		Digital DC-CDI
Spark plug	Make and type	NGK BR8ES
	Gap	0.5 - 0.6 mm (.020 - .024 in)
Ignition timing (BTDC)	mm (in)	3.60 (.142)
	Degrees	22° ± 1 @ 3500 RPM
Generating coil		N.A.
Battery charging coil		0.1 - 1 Ω
Trigger coil		190 - 300 Ω
Ignition coil	Primary	0.33 - 0.62 Ω
	Secondary	8.4 - 15.6 k Ω
Engine rev limiter setting		7200 (± 50) RPM
Battery		(Yuasa/Exide) 12 V, 19 A•h
Fuse	Starting system	5 A
	Charging system	2 x 15 A
	VTS system	7.5 A
ADDITIONAL INFORMATION:		

CARBURETION		GSX Limited (5625)
Carburetor	Type	Mikuni BN-46I (diaphragm) Fuel acceleration pump
	Quantity	2
Main jet		160 MAG 162.5 PTO
Pilot jet		80
Spring		130 g (or 95 g with 1.75 mm aluminum shim)
Adjustment	Low-speed screw	1-3/4 turn ± 1/4
	High-speed screw	0
	Idle speed (in water)	1500 RPM
	Idle speed (out of water)	3000 RPM
Fuel	Type	Regular unleaded gasoline
	Minimum octane no.	87
Fuel return line orifice		MAG and PTO: 0.8 mm (.031 in)
ADDITIONAL INFORMATION:		

Section 06 TECHNICAL DATA

Subsection 01 (GSX LIMITED)

COOLING	GSX Limited (5625)
Type	Open circuit — Direct flow from jet propulsion unit
Thermostat	None
Monitoring beeper setting	86-94°C (187-201°F)
ADDITIONAL INFORMATION: Do not mix different brands or oil types.	

PROPULSION	GSX Limited (5625)	
Propulsion system	Bombardier Formula Pump	
Jet pump type	Axial flow single stage	
Impeller rotation (seen from rear)	Counterclockwise	
Transmission	Direct drive	
Coupling type	Crown splines	
Oil type	SEA-DOO JET PUMP SYNTHETIC POLYOLESTER OIL 75W90 GL5	
Steering nozzle pivoting angle	20°	
Minimum required water level	90 cm (35 in)	
Drive shaft deflection (maximum)	0.5 mm (.020 in)	
Impeller outside diameter	155.6 mm (6.126 in)	
Impeller/wear ring clearance	New	0.0 - 0.4 mm (.000 - .016 in)
	Wear limit	1.00 mm (.040 in)
Impeller shaft end play (new)	0.12 - 0.54 mm (.005 - .021 in)	
Impeller shaft side play	0.05 mm (.002 in)	
Impeller pitch/material	Progressive pitch 9° - 21°/stainless steel	
ADDITIONAL INFORMATION: Do not mix different brands or oil types.		

DIMENSIONS	GSX Limited (5625)
Number of passenger (driver incl.)	2
Overall length	267 cm (105 in)
Overall width	116 cm (45.7 in)
Overall height	94 cm (37 in)
Dry weight	237 kg (523 lb)
Load limit (passenger and 10 kg (22 lb) luggage)	159 kg (351 lb)
ADDITIONAL INFORMATION:	

Section 06 TECHNICAL DATA

Subsection 01 (GSX LIMITED)

CAPACITIES		GSX Limited (5625)
Fuel tank		56.5 L (15 U.S. gal)
Oil injection reservoir		6 L (1.6 U.S. gal)
Impeller shaft reservoir	Capacity	70 mL (2.4 U.S. oz)
	Oil level height	Up to plug
ADDITIONAL INFORMATION:		

MATERIALS		GSX Limited (5625)
Hull		Composite
Inlet grate		Aluminum
Impeller housing/stator/venturi/nozzle		Aluminum/brass/aluminum/aluminum
Air intake silencer		Thermoplastic
Exhaust muffler		Aluminum
Resonator		Plastic
Steering padding		Thermoplastic with polyethylene foam
Fuel tank		Polyethylene
Oil injection reservoir		Polyethylene
Seat		Polyurethane foam
ADDITIONAL INFORMATION:		

STANDARD EQUIPMENT		GSX Limited (5625)
Safety lanyard		Standard
Digitally Encoded Security System (DESS)		Standard
Fuel tank reserve		Standard
Monitoring beeper		Standard
Speedometer		Standard
Info Center gauge		Standard
Variable Trim System (VTS)		Standard
Reverse		N.A.
Storage compartment		Standard
Rearview mirrors		Standard
Rear grab handle		Standard
Extinguisher holder		Standard
Tool kit		Standard
ADDITIONAL INFORMATION: Info Center standard functions: Fuel level/low fuel level/low oil level/low voltage/ high temperature/tachometer/hour meter/clock/maintenance information/speedometer/average speed/ peak speed/trip meter/water temperature/chronometer/trim indicator.		

Section 06 TECHNICAL DATA

Subsection 01 (GSX LIMITED)

PERFORMANCE		GSX Limited (5625)
Estimated pump power		40.5 kW (54 hp)
Maximum fuel consumption at wide open throttle		55 L/h (14.5 U.S. gal/h)
Cruising time at full throttle	Fuel tank without reserve	49 minutes
	Fuel tank reserve	13 minutes
ADDITIONAL INFORMATION:		

TIGHTENING TORQUES		GSX Limited (5625)	
ENGINE	Exhaust manifold screw	40 N•m (30 lbf•ft) (4)	
	Magneto flywheel nut	115 N•m (85 lbf•ft) (1)	
	PTO flywheel bolt	115 N•m (85 lbf•ft) (1)	
	Crankcase Allen screws	M8	23 N•m (17 lbf•ft) (3) (4)
		M10	40 N•m (30 lbf•ft) (3) (4)
	Crankcase/engine support nuts	25 N•m (18 lbf•ft) (1)	
	Engine mount/hull	25 N•m (18 lbf•ft) (1)	
	Cylinder head bolts	34 N•m (25 lbf•ft) (1) (4)	
	Cylinder-block nuts	34 N•m (25 lbf•ft) (1)	
	Tuned pipe flange screws/nut	40 N•m (30 lbf•ft) (1)	
	Tuned pipe fixation bolts/screws	25 N•m (18 lbf•ft) (1)	
	Magneto cover screws	9 N•m (80 lbf•in) (5)	
	Starter mounting screws	10 N•m (88 lbf•in) (1)	
Spark plugs	24 N•m (17 lbf•ft) (5)		
JET PUMP	Impeller	70 N•m (52 lbf•ft) (2)	
	Pump/hull nuts	31 N•m (23 lbf•ft) (1)	
	Venturi/pump housing screws	21 N•m (16 lbf•ft) (1)	
	VTS ring screws	14 N•m (10 lbf•ft) (1)	
	Pump housing cover screws	4 N•m (35 lbf•in) (1)	
	Inlet grate screws	8 N•m (71 lbf•in) (1)	
	Riding plate screws	22 N•m (16 lbf•ft) (1)	
STEERING	Cable retaining block bolts	6 N•m (53 lbf•in)	
	Steering cable/stem arm bolt	3 N•m (26 lbf•in)	
	Steering stem arm bolts	6 N•m (53 lbf•in)	
	Handlebar clamp bolts	26 N•m (19 lbf•ft)	
	Steering cable ball joint bolt (nozzle)	7 N•m (62 lbf•in)	
	Steering support bolts	15 N•m (11 lbf•ft) (1)	
	Handlebar grip screw	14 N•m (10 lbf•ft)	

ADDITIONAL INFORMATION: apply where indicated; (1) Loctite 242 (blue)
 (2) Loctite 271 (red)
 (3) Loctite 518
 (4) Synthetic grease
 (5) Anti-seize lubricant

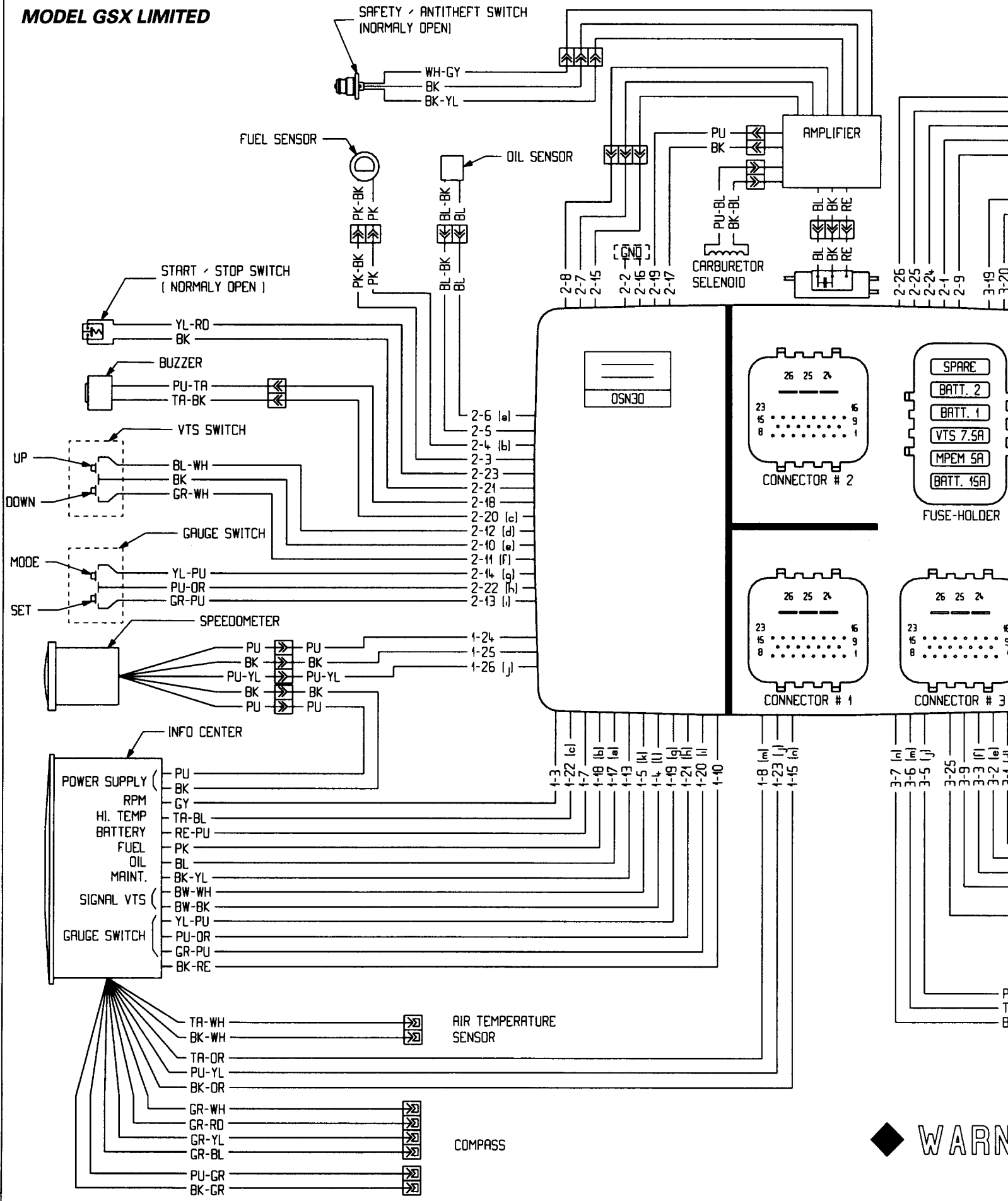
◆ WARNING

Correct torques and use of Loctite must be strictly followed.

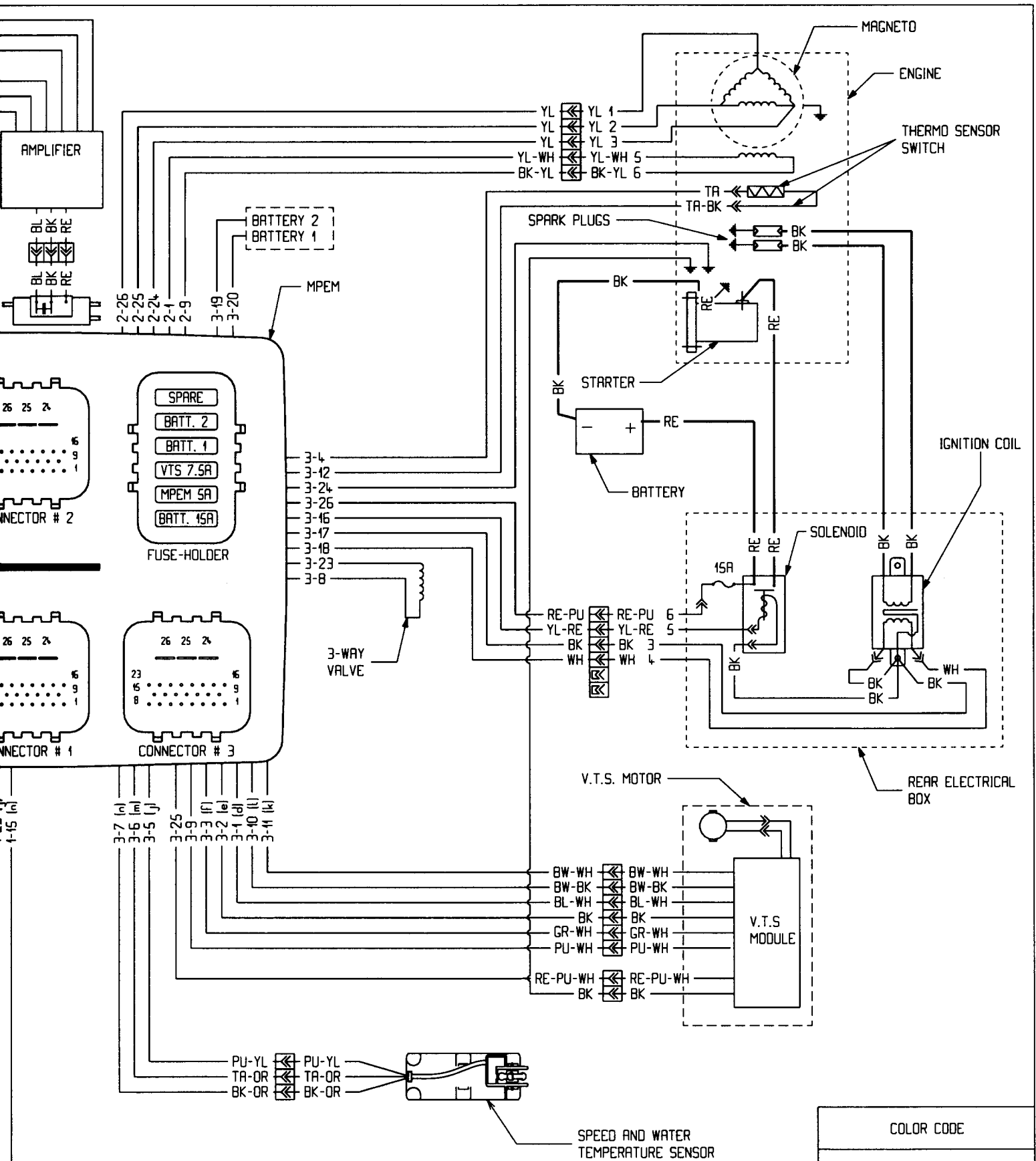
5625

GSX LIMITED

MODEL GSX LIMITED



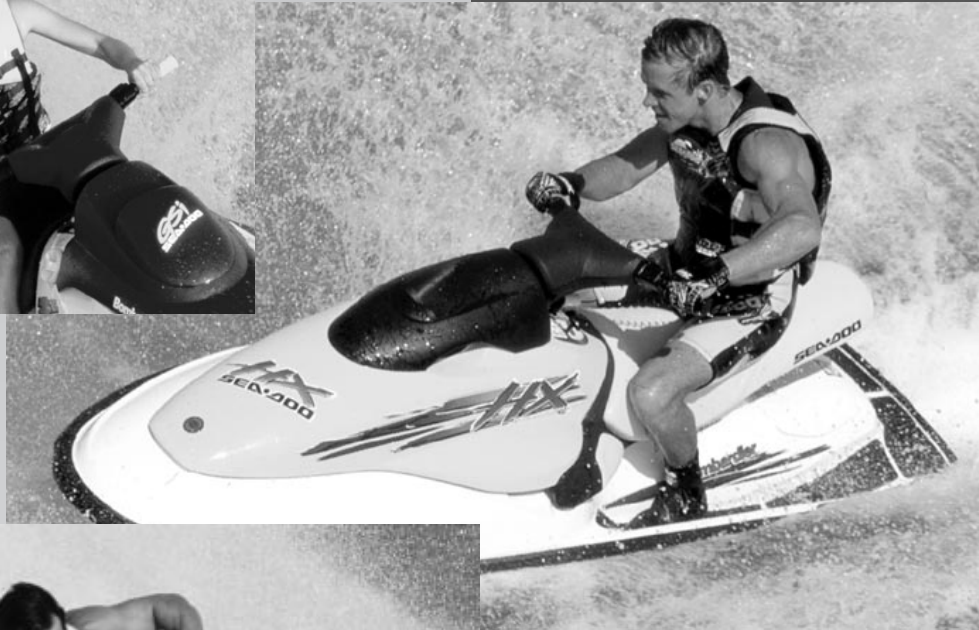
◆ WARN



WARNING

- o ENSURE ALL TERMINALS ARE PROPERLY CRIMPED ON THE WIRES AND ALL CONNECTOR HOUSING ARE PROPERLY FASTENED.

COLOR CODE	
WH = WHITE	BK = BLACK
RE = RED	YL = YELLOW
PU = PURPLE	TA = TAN
GR = GREEN	BW = BROWN
GY = GREY	BL = BLUE
PK = PINK	OR = ORANGE



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VERSION FRANÇAISE ÉGALEMENT DISPONIBLE

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