

SEA-DOO®

SP
5879

SPX
5834
5661

GS
5621

GSI
5622

GSX
5624

GTS
5818

GTI
5641

GTX
5642

XP
5662

HX
5882

Shop MANUAL



1997

2 1 9 1 0 0 0 4 8



SEA-D00[®]

**SHOP
MANUAL**

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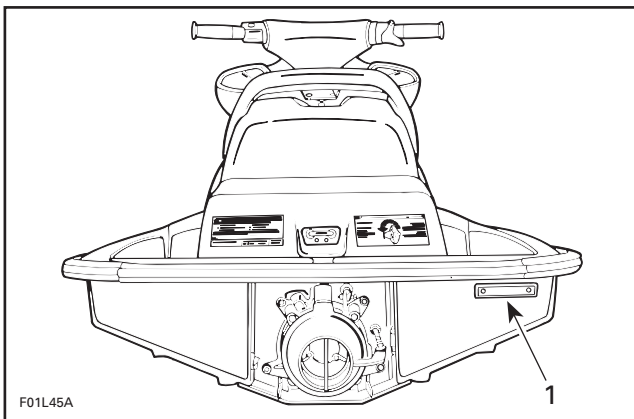
INTRODUCTION

This *Shop Manual* covers BOMBARDIER made SEA-DOO® watercraft models SP 5879, SPX 5834/5661, XP 5662, GS 5621, GSI 5622, GSX 5624, GTS 5818, GTI 5641, GTX 5642 and HX 5882.

HULL IDENTIFICATION NUMBER (H.I.N.)

SP, SPX, GTS and HX Models

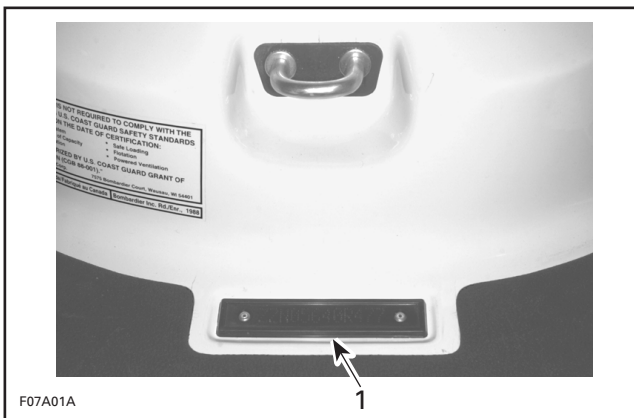
It is located at right rear side of hull.



1. Hull Identification Number (H.I.N.)

XP, GS, GSI, GSX, GTI and GTX Models

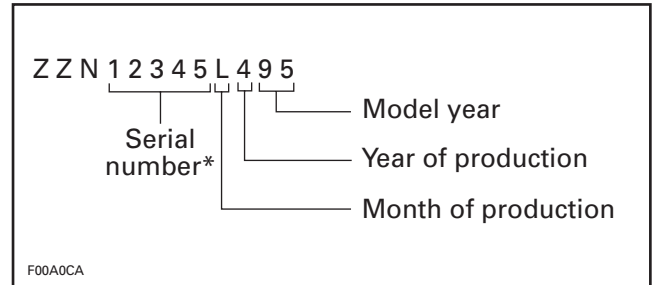
It is located on floorboard at the rear of the watercraft.



1. Hull Identification Number (H.I.N.)

All Models

The Hull Identification Number is composed of 9 digits:

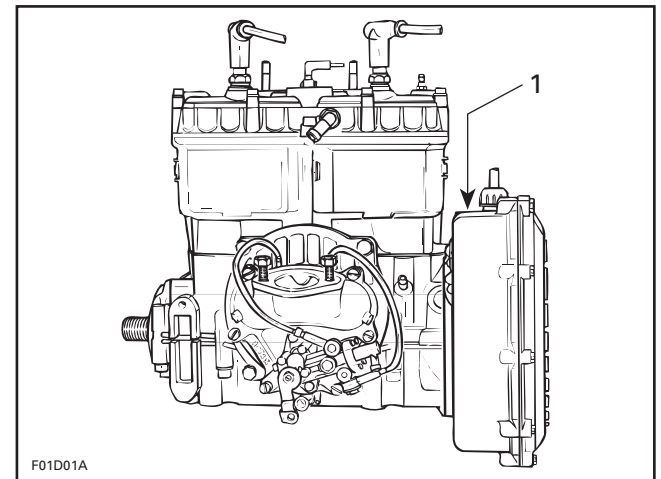


*A letter may also be used as a digit.

ENGINE IDENTIFICATION NUMBER (H.I.N.)

717 Engines

The Engine Identification Number is located on the upper side of the magneto housing.



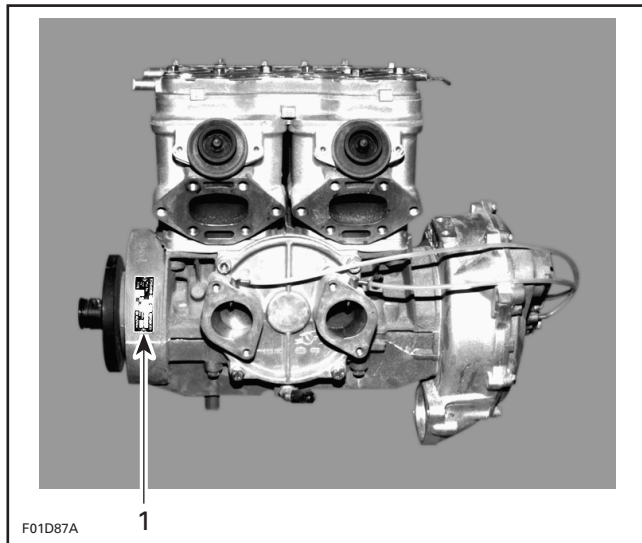
TYPICAL

1. Engine Identification Number (E.I.N.)

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787 Engine

The Engine Identification Number is located on the crankcase on PTO side.



1. Engine Identification Number (E.I.N.)

ARRANGEMENT OF THIS MANUAL

The manual is divided into 13 major sections:

- 01 MAINTENANCE
- 02 TROUBLESHOOTING
- 03 ENGINE
- 04 COOLING SYSTEM
- 05 FUEL SYSTEM
- 06 LUBRICATION SYSTEM
- 07 ELECTRICAL SYSTEM
- 08 PROPULSION SYSTEM
- 09 STEERING SYSTEM
- 10 SUSPENSION
- 11 HULL/BODY
- 12 TECHNICAL DATA
- 13 WIRING DIAGRAMS

Several sections are divided in various sub-sections. There is a table of contents at the beginning of many sections.

TYPICAL PAGE

Page heading indicates section and sub-section detailed.

Sub-section title indicates beginning of the sub-section.

MAGNETO SYSTEM

717 Engine

Italic sub-title above exploded view indicate pertaining models.

Section 03 ENGINE
Sub-Section 04 (MAGNETO SYSTEM)

MAGNETO SYSTEM

717 Engine

Drop represents a liquid product to be applied to a surface. In this case Loctite 242 to screw threads.

Explored view assists you in identifying parts and related positions.

Bold face number indicates special procedure concerning this part.

Illustration number for publishing process.

Tightening torque nearby fastener. In this case, nut must be torqued to 145 N·m (107 lbf·ft).

CAUTION

Pay attention to torque specifications. Some of these are in lbf·in instead of lbf·ft. Use appropriate torque wrench.

Page numbering system:
03: ENGINE section
04: MAGNETO SYSTEM sub-section
1: First page of this sub-section

TYPICAL PAGE

Sub-title with part number(s) from exploded view followed by part name(s).

Section 06 FUEL SYSTEM Sub-Section 03 (CARBURETORS)

Title indicates main procedure to be carried-out.

CARBURETOR REMOVAL

To remove carburetors from engine, proceed as follows:
 Remove air vent tube support.
 Unlock retaining slides holding air intake silencer base.
 Remove air intake silencer base from watercraft.
 Remove screws holding flame arrester base support to cylinder head cover.
 Unscrew base retaining screws then remove base from carburetors and move to front of watercraft.
 Turn the valve to OFF position.

Service tool to be used to perform a certain procedure.

NOTE: For fuel line removal, use pliers (P/N 295 000 054).

Disconnect pulse line from fuel pump.
 Disconnect fuel supply line from fuel pump.
 Disconnect fuel return line.
 Disconnect oil injection pump cable, throttle cable and choke cable.

Title in italic indicates a particular procedure concerning a model.

XP Model Only

Remove screws no. 6 and lock washers no. 7 retaining carburetors.

Sub-sub-title in this case indicates that particular procedure for XP is finished, so from this point, all others models are concerned.

All Others Models

Remove 4 bolts no. 8 and lock washers no. 12 from rotary valve cover then move carburetors and rotary valve cover on top of engine.

NOTE: When removing rotary valve cover, pay attention that the rotary valve stay in place, otherwise it must be timed.

Remove carburetors from intake manifold.
 Disconnect fuel bypass line between carburetors (twin carburetors).
 Remove carburetor(s) from rotary valve cover.

DISASSEMBLY AND INSPECTION

Inspect parts for corrosion damage (shaft, butterfly, spring, etc., check valve housing, etc.).

3, Diaphragm

PUMP DIAPHRAGM LEAK TEST

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

- Install pump gauge tester (P/N 295 000 083) on pulse nipple.
- Pump tester until it reaches 28 kPa (4 PSI).

Sub-sub-title in capital indicates a particular testing, adjustment or repair procedure.

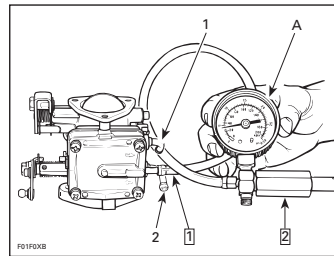


Illustration always follows text it is pertained to.

"TYPICAL" mention indicates a general view which does not represent full detail.

TYPICAL
 Step 1: Install pump gauge tester to pulse nipple
 Step 2: Pump tester until it reaches the desired pressure
 1. Fuel outlet nipple
 2. Fuel inlet nipple
 3. 28 kPa (4 PSI)

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

Numbers in a frame are used to give a sequence to be performed.

Letters are used for any measures.

Bold numbers in the text refer to the parts shown in the exploded view at the beginning of the sub-section.

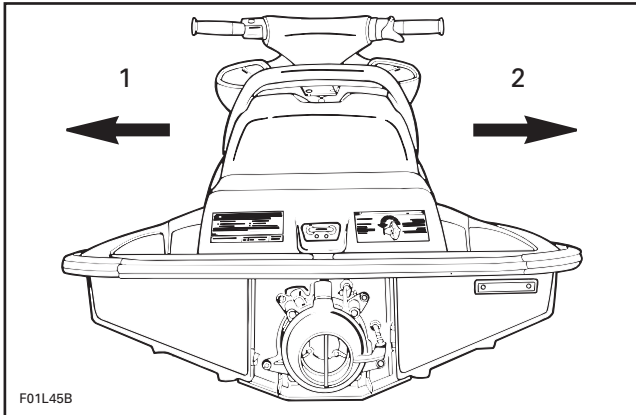
Numbers are used for description of components.

06-03-4

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GENERAL INFORMATION

The use of RIGHT and LEFT indications in the text, always refers to driving position (when sitting on watercraft).



1. Left (port)
2. Right (starboard)

The information and component/system descriptions contained in this manual are correct at time of publication. Bombardier Inc. however, maintains a policy of continuous improvement of its products without imposing upon itself any obligation to install them on products previously manufactured.

Bombardier Inc. reserves the right at any time to discontinue or change specifications, designs, features, models or equipment without incurring obligation.

This *Shop Manual* uses technical terms which may be different from the ones of the *Parts Catalogs*.

When ordering parts always refer to the specific model *Parts Catalogs*.

ILLUSTRATIONS AND PROCEDURES

The illustrations show the typical construction of the different assemblies and, in all cases, may not reproduce the full detail or exact shape of the parts shown, however, they represent parts which have the same or a similar function.

▼ CAUTION

These watercraft are designed with parts dimensioned in both the metric and the imperial systems. When replacing fasteners, make sure to use only those recommended by Bombardier.

As many of the procedures in this manual are interrelated, we suggest, that before undertaking any task, you read and thoroughly understand the entire section or sub-section in which the procedure is contained.

A number of procedures throughout the book require the use of special tools. Before undertaking any procedure, be sure that you have on hand all the tools required, or approved equivalents.

Technical Publications
Bombardier Inc.
Valcourt (Quebec), Canada

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PERIODIC INSPECTION CHART

NOTE: Servicing period is given in hours. Shaded area shows the maintenance frequency.

DESCRIPTION	FREQUENCY			
	Every 10 hours	Every 25 hours	Every 50 hours	Every 100 hours or seasonally
Lubrication/corrosion protection of metallic components	①			
Engine ignition timing				
Spark plug replacement				
Throttle/choke cables, inspection/lubrication	①			
Flame arrester inspection				
Carburetor adjustment including choke/throttle cable adjustments and linkage				
RAVE valve cleaning (787 engine)				
Water flow regulator valve inspection (787 engine)				
Oil injection pump adjustment				
Fuel filter and oil filter inspection				
Fuel filter and oil filter replacement				
Engine head bolts, retorque				
Steering system inspection				
Reverse system/reverse cable adjustment (if applicable)				
Variable trim system (if applicable)				
Fastener tightening (flame arrester support, carburetor(s), engine mount, exhaust system, etc).				
Muffler, battery and reservoir fastening devices				
Fuel/oil lines, check valve and hose inspection, fuel system pressurization				
Fuel/vent line pressure relief valve inspection				
Inspect/clean engine drain hose	①			
Water tank trap drain inspection (GTS)				
Bailer pick up inspection				
Battery condition				
Electrical connections (starter, battery, etc.)				
Monitoring beeper				
Impeller shaft reservoir oil level/oil condition				Replace
Impeller condition and impeller/wear ring clearance		②		
Drive shaft boot/spline condition (both ends)		②		
PTO flywheel and mid bearing (HX/XP models only) lubrication				
Water intake grate condition		②		
Hull condition				
Cooling system flushing	③			

① Every 10 hours in salt water use.

② These items have to be initially checked after 25 hours. Thereafter, servicing to be made as specified in this chart.

③ Daily flushing in salt water or foul water use.

FLUSHING AND LUBRICATION

GENERAL

Flushing the cooling system with fresh water is essential to neutralize corroding effects of salt or other chemical products present in water. It will help to clean up sand, salt, shells or other particles in water jackets (engine, exhaust manifold, tuned pipe) and/or hoses.

Flushing and engine lubrication should be performed when the watercraft is not expected to be used further the same day or when the watercraft is stored for any extended time.

▼ CAUTION
Failure to flush cooling system, when necessary, will severely damage engine and/or exhaust system. Never flush a hot engine. Make sure engine operates during entire procedure.

PROCEDURE

◆ WARNING
Perform this operation in a well ventilated area. Do not touch any electrical parts or jet pump area when engine is running.

Clean jet pump by spraying water in its inlet and outlet and then spray BOMBARDIER LUBE lubricant.

◆ WARNING
Always remove safety lanyard cap from switch to prevent accidental engine starting before cleaning the jet pump area. Engine must not be running for this operation.

SP, SPX and GTS Models

Remove seat to allow access of cooling system.

XP Model

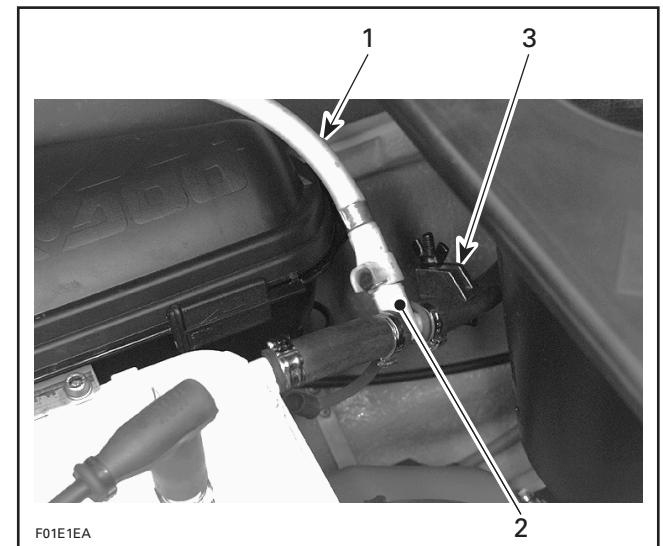
Remove rear access cover.

SP, SPX, GTS and XP Models

Remove dust cap from fitting spigot and attach coupler hose (P/N 295 500 258). Make sure coupler hose is properly locked to fitting spigot.

Install a hose pincher on water outlet hose.

▼ CAUTION
This prevents water from exiting through outlet socket. Remove hose pincher after flushing operation.



TYPICAL

1. Coupler hose
2. Fitting spigot
3. Hose pincher

Attach other end of coupler hose to a garden hose.

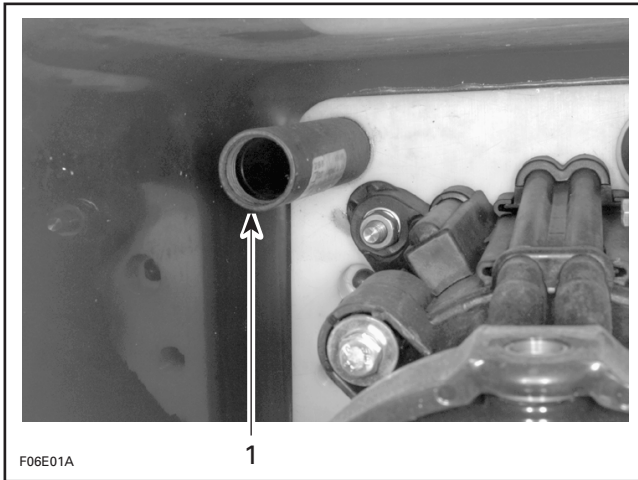
▼ CAUTION
Do not open water tap yet.

GS Series, GTI and GTX Models

Connect a garden hose to the water outlet located at the rear of the watercraft.

Section 01 MAINTENANCE

Sub-Section 03 (FLUSHING AND LUBRICATION)

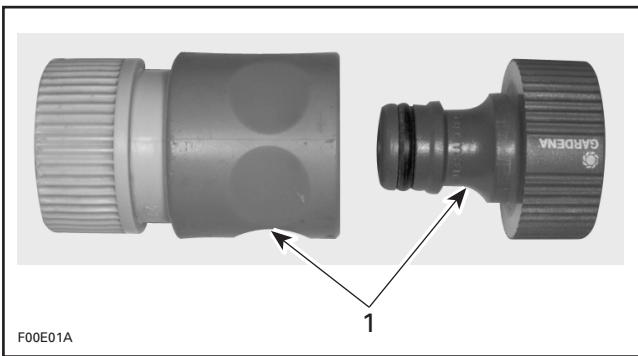


F06E01A

1

1. Water outlet

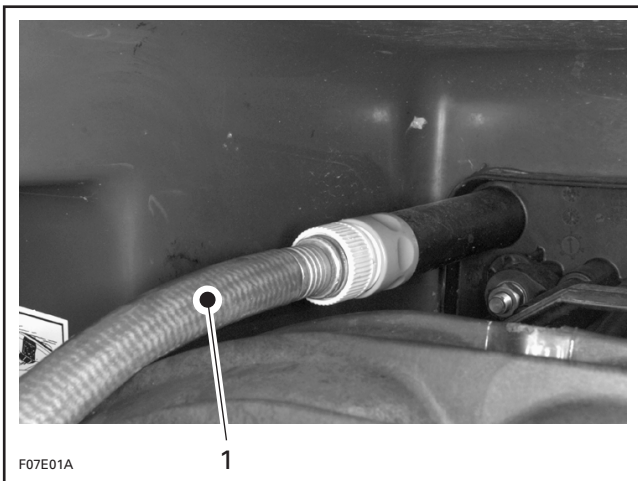
NOTE: A quick hose connector can be used to ease garden hose installation.



F00E01A

1

1. Quick hose connector



F07E01A

1

1. Garden hose installed

All Models

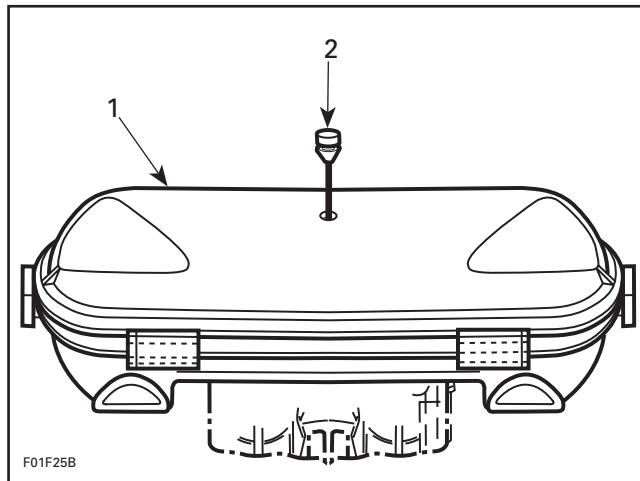
Start the engine then immediately open the water tap.

▼ CAUTION

Always start the engine before opening the water tap. Open water tap immediately after engine is started to prevent overheating.

Run the engine about 3 minutes at a fast idle around 3500 RPM.

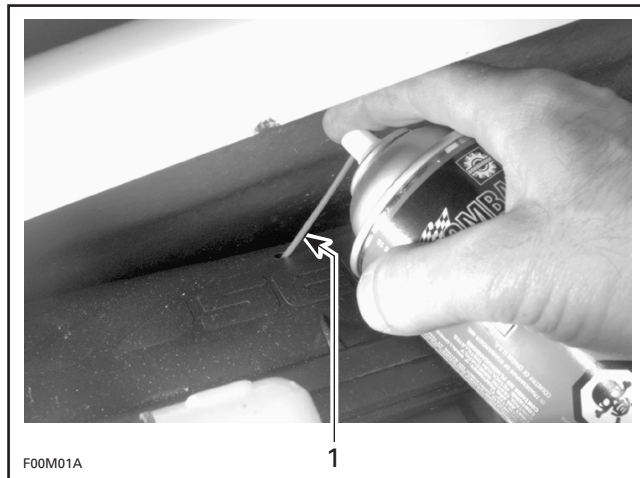
Pull plug from air intake silencer cover.



F01F25B

1. Air intake silencer cover
2. Pull plug

Spray BOMBARDIER LUBE lubricant through air intake silencer cover keeping engine at fast idle.



F00M01A

1

1. Spray Bombardier Lube

NOTE: Lubrication of engine should be done at least for one minute.

Section 01 MAINTENANCE
Sub-Section 03 (FLUSHING AND LUBRICATION)

After approximately half a minute, close fuel valve to run engine out of fuel while lubricating.

▼ CAUTION

When engine begins to run irregularly, immediately close the water tap to stop water flow before engine dies.

Disconnect the garden hose.

▼ CAUTION

If used, remove the quick hose connector from watercraft.

SP, SPX, GTS and XP Models

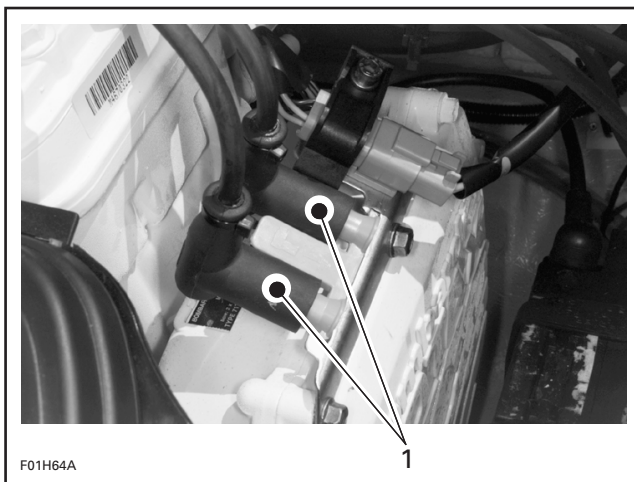
Unlock and remove coupler hose. Reinstall dust cap over fitting spigot.

Remove hose pincher from water outlet hose.

All Models

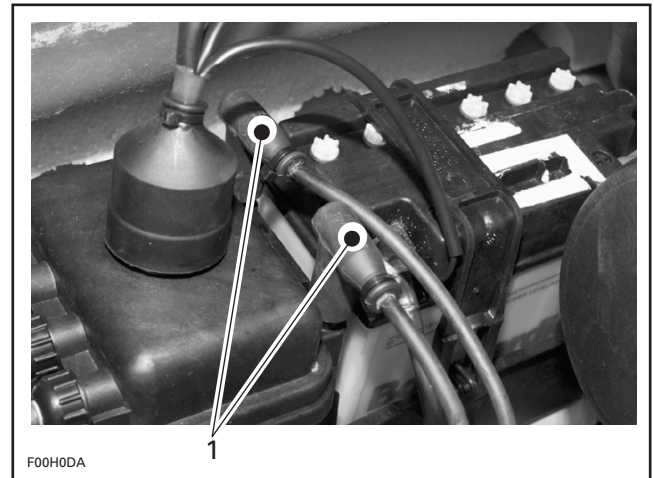
Wipe up any residual water from the engine.

Remove spark plug cables and connect them on the grounding device.



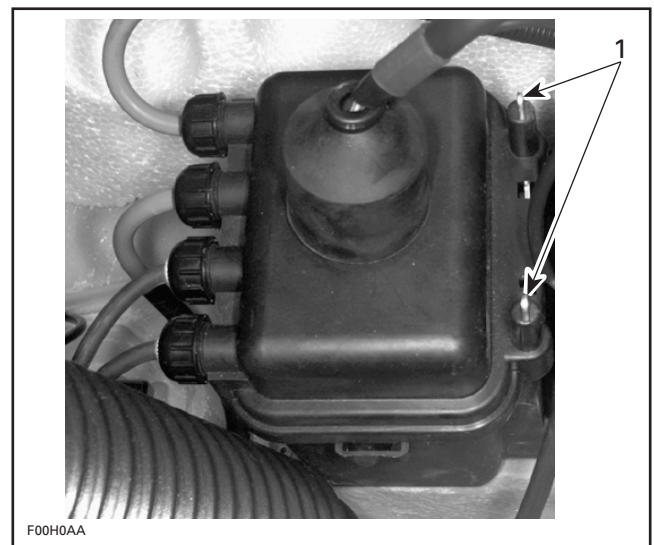
SP, GTS AND HX MODELS

1. Spark plug cables on grounding device



SPX, GS, GSI, GSX, GTI AND GTX MODELS

1. Spark plug cables on grounding device



XP MODEL

1. Grounding device

Remove both spark plugs and spray BOMBARDIER LUBE lubricant into each cylinder.

Crank the engine a few turns to distribute the oil onto cylinder wall.

Apply anti-seize lubricant on spark plug threads then reinstall them.

Reinstall plug on air intake silencer cover.

Section 01 MAINTENANCE

Sub-Section 03 (FLUSHING AND LUBRICATION)

NOTE: Engine fogging should be done with BOMBARDIER LUBE lubricant whenever the watercraft is to be stored for a few days or a long period.



CAUTION

Never leave rags or tools in the engine compartment or in the bilge.

WATER-FLOODED ENGINE

GENERAL

If engine is water-flooded, it must be serviced within a few hours after the event. Otherwise engine will have to be overhauled.

▼ CAUTION

A water-flooded engine must be properly lubricated, operated then lubricated again, otherwise parts will be seriously damaged.

PROCEDURE

Check fuel and oil reservoirs for water contamination. If necessary, siphon and refill with fresh fluids.

Turn fuel valve to OFF position then drain fuel filter bowl. Refer to FUEL SYSTEM 05-02.

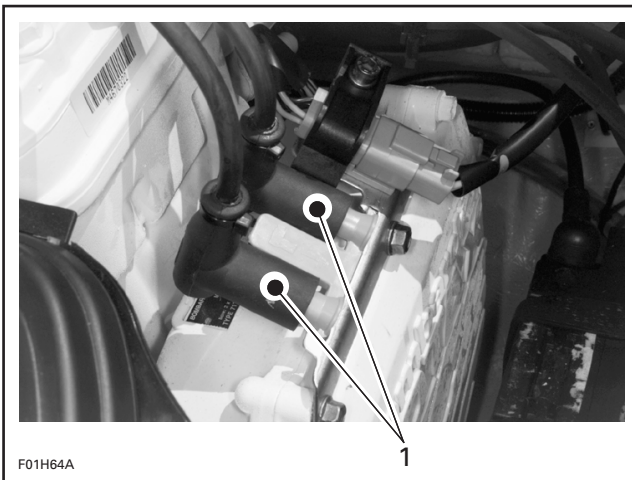
Drain bilge if water is present.

Remove spark plug cables and connect them on the grounding device.

◆ WARNING

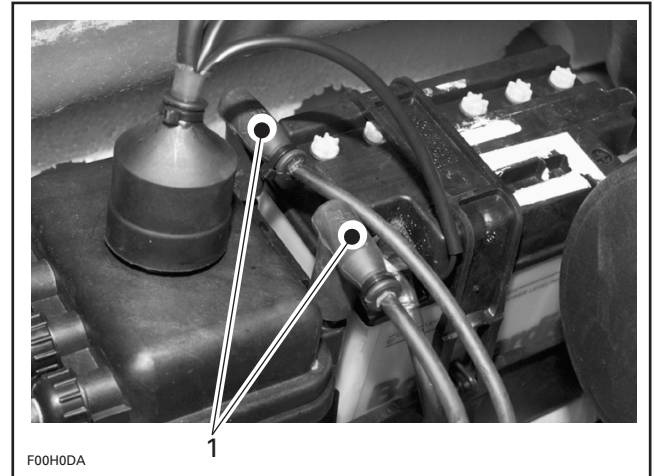
Never crank engine with spark plugs removed unless spark plug cables are connected to the grounding device.

SP, GTS and HX Models



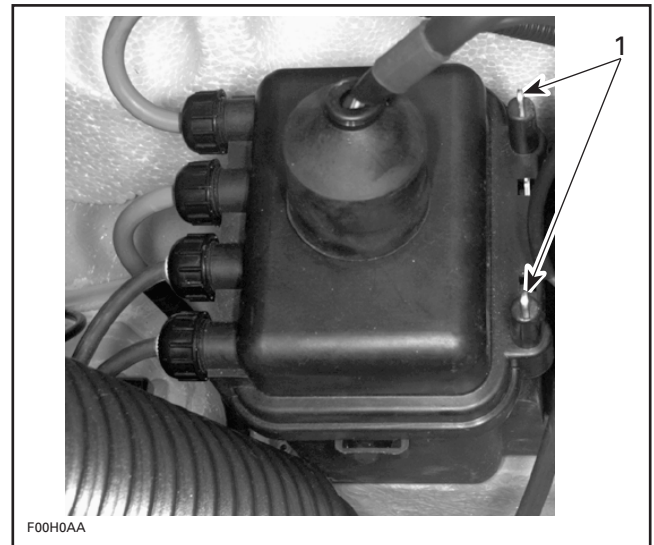
1. Spark plug cables on grounding device

SPX, GS, GSI, GSX, GTI and GTX



1. Spark plug cables on grounding device

XP Model



1. Grounding device

All Models

Remove spark plugs and dry them with a clean cloth. A contact cleaner spray can be used. It may be preferable to replace spark plugs. Do NOT install spark plugs on engine.

Crank engine to drain crankcase.

▼ CAUTION

Be careful when cranking engine, water will spray out from spark plug holes.

Section 01 MAINTENANCE

Sub-Section 04 (WATER-FLOODED ENGINE)

Spray BOMBARDIER LUBE lubricant (P/N 293 600 016) into spark plug holes.

Crank engine again.

Reinstall spark plugs and spark plug cables.

SPX, GSX, GTX and XP Models

On the 787 engine, remove the drain plug of the counterbalance shaft located on the PTO side of the lower crankcase.

Drain completely the crankcase oil of the counterbalance shaft. Reinstall drain plug.

Remove the filling plug located on the upper crankcase.

Add 30 mL (1 oz) of SAE 30 motor oil.

Reinstall filling plug.

All Models

Turn fuel valve to ON position.

Start engine; It may be necessary to use the choke. If engine does not start, repeat previous steps as necessary.

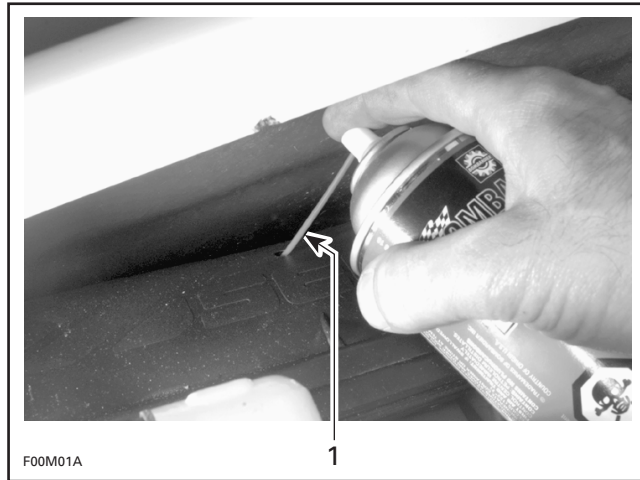
▼ CAUTION

To avoid starting motor overheating, the cranking period should not exceed 5-10 seconds and a rest period of 30 seconds should be observed between cranking cycles.

NOTE: If engine does not start after several attempts, check ignition system for spark occurrence. Refer to ELECTRICAL SYSTEM 07-02.

Check crankshaft if needed, it may be misaligned or deflected. Refer to ENGINE 03-06.

After engine has started, spray BOMBARDIER LUBE lubricant through air intake silencer while engine is running.



1. Spray Bombardier Lube

Run engine until it reaches its normal operating temperature.

▼ CAUTION

Engine must be cooled using the flush kit.

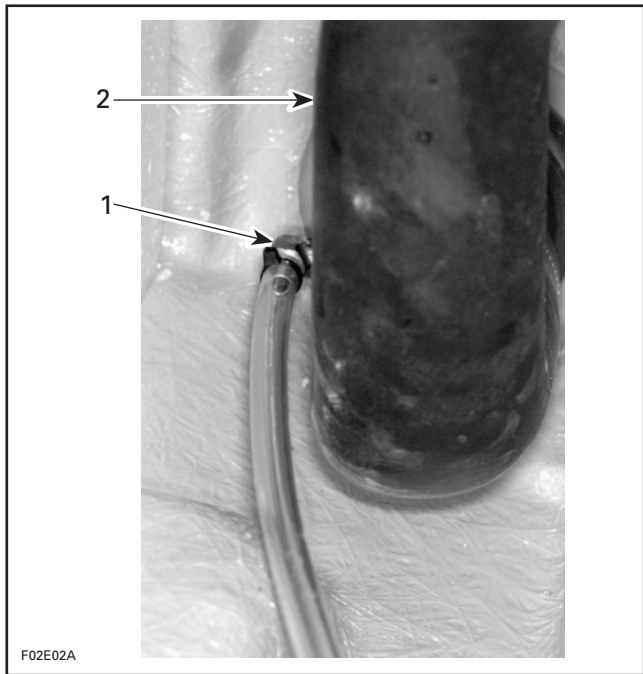
STORAGE

Engine Draining

Check engine drain hose. Make sure there is no sand or other particles in it and that it is not obstructed so that water can leave the engine. Clean hose and fitting as necessary.

▼ CAUTION
Water in engine drain hose must be free to flow out, otherwise water could be trapped in engine. Should water freeze in engine, severe damage will occur. Check engine drain hose for obstructions.

All Models Except XP and HX



TYPICAL
1. Engine drain hose
2. Exhaust outlet

XP and HX Models



TYPICAL
1. Engine drain hose

Fuel System

Sea-Doo Fuel Stabilizer (P/N 413 408 600) should be added in fuel tank to prevent fuel deterioration and carburetor gumming. Follow manufacturer's instructions for proper use.

NOTE: Fuel stabilizer should be added prior engine lubrication to ensure carburetor protection against varnish deposit.

◆ WARNING
Fuel is flammable and explosive under certain conditions. Always work in a well ventilated area.

Always turn the fuel valve to OFF position when storing the watercraft.

Cooling System Flushing and Engine Internal Lubrication

Cooling system has to be flushed with fresh water to prevent salt, sand or dirt accumulation which will clog water passages.

Engine must be lubricated to prevent corrosion on internal parts.

For proper procedure, refer to MAINTENANCE 01-03.

Section 01 MAINTENANCE

Sub-Section 05 (STORAGE)

Propulsion System

Lubricant in impeller shaft reservoir should be drained. Reservoir should be cleaned and refilled with SEA-DOO synthetic 75W90 GL5 polyolester oil. Refer to PROPULSION SYSTEM 08-02.

▼ CAUTION

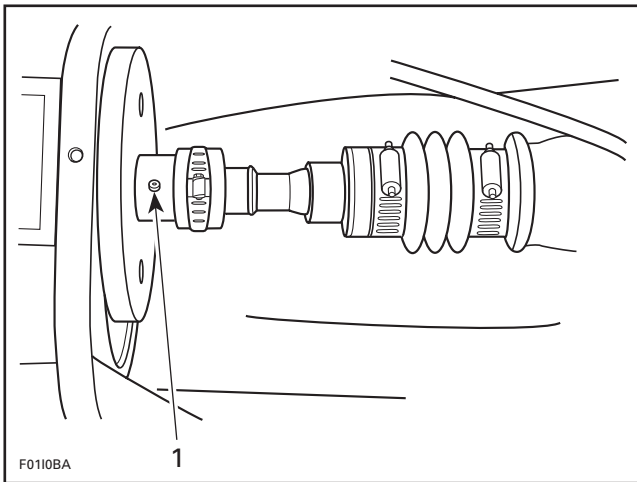
Use only SEA-DOO jet pump oil or equivalent synthetic gear oil, otherwise component life span could be reduced. Do not mix oil brands or types.

All Models Except XP and HX

Lubricate PTO flywheel at grease fitting with synthetic grease (P/N 293 550 010).

▼ CAUTION

Do not lubricate excessively. Immediately stop when a slight movement is noticed on rubber boot.



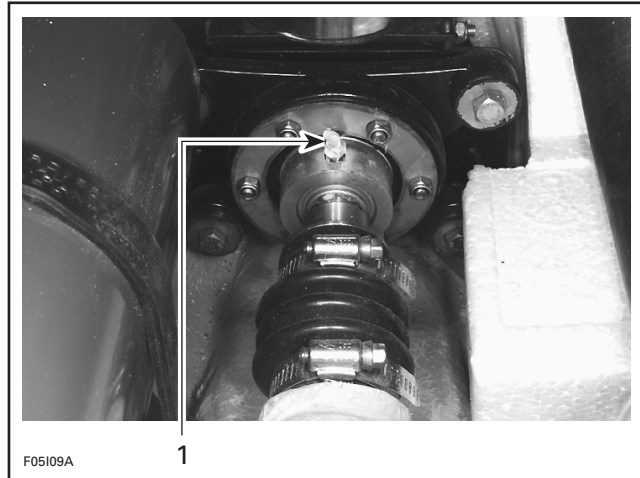
1. Grease PTO flywheel

▼ CAUTION

Never leave any clothing, tool or other objects near PTO flywheel and drive shaft.

XP and HX Models

Lubricate mid bearing of drive system at seal carrier grease fitting with synthetic grease.



1. Grease fitting

Battery

For battery removal, cleaning and storage, refer to ELECTRICAL 07-03.

Watercraft Cleaning

Clean the bilge with hot water and mild detergent or with bilge cleaner. Rinse thoroughly. Lift front end of watercraft to completely drain bilge. If any repairs are needed to body or to the hull, touch up paint and Gelcote® repair kit are available. Replace damaged labels/decals.

Wash the body with soap and water solution (only use mild detergent). Rinse thoroughly with fresh water. Remove marine organisms from the hull. Apply a nonabrasive wax.

▼ CAUTION

Never clean apparent fiberglass and plastic parts with strong detergent, degreasing agent, paint thinner, acetone, etc.

If the watercraft is to be stored outside, cover it with an opaque tarpaulin to prevent sun rays and grime from affecting the plastic components, watercraft finish as well as preventing dust accumulation.

▼ CAUTION

The watercraft must never be left in water for storage. Never leave the watercraft stored in direct sunlight.

Anticorrosion Treatment

Wipe off any residual water in the engine compartment.

Spray BOMBARDIER LUBE lubricant over all metallic components in engine compartment.

Lubricate the throttle cable with BOMBARDIER LUBE lubricant.

NOTE: A cable luber can be used on throttle cable end to inject BOMBARDIER LUBE lubricant.

The seat should be partially left opened during storage (the engine cover for the XP and HX models). This will avoid engine compartment condensation and possible corrosion.

NOTE: If the watercraft is stored outside with seat (or the engine cover for the XP and HX models) partially opened and without a tarpaulin, unscrew the rear drain plug(s) in order to avoid water build up in the bilge during rainfall. Tilt the watercraft to the rear so that water can flow out.

Additional Recommended Protection

In cool regions (where freezing point temperature may be encountered), cooling system should be filled with water and antifreeze solution.

▼ CAUTION

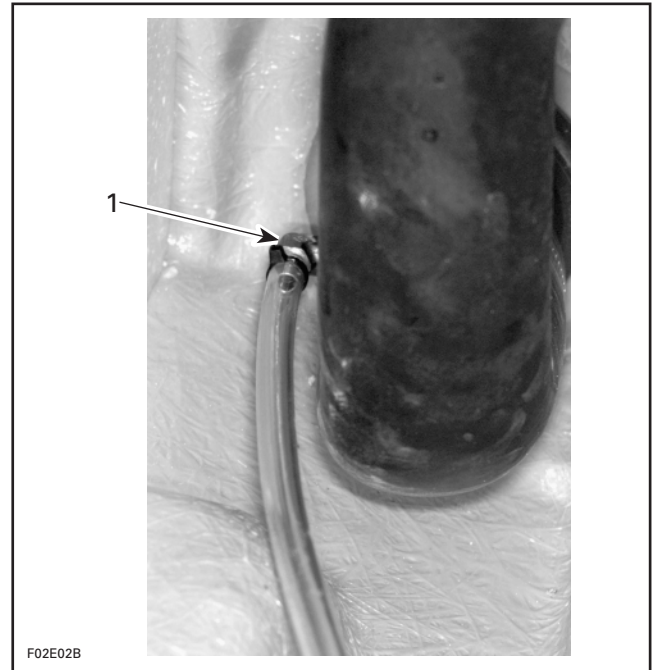
Always use ethylene-glycol antifreeze containing corrosion inhibitors specifically recommended for aluminum engines.

NOTE: The engine will not have to run during this operation.

All Models Except XP and HX

Three hoses have to be disconnected to allow air to escape and antifreeze solution to completely fill cooling system water jackets.

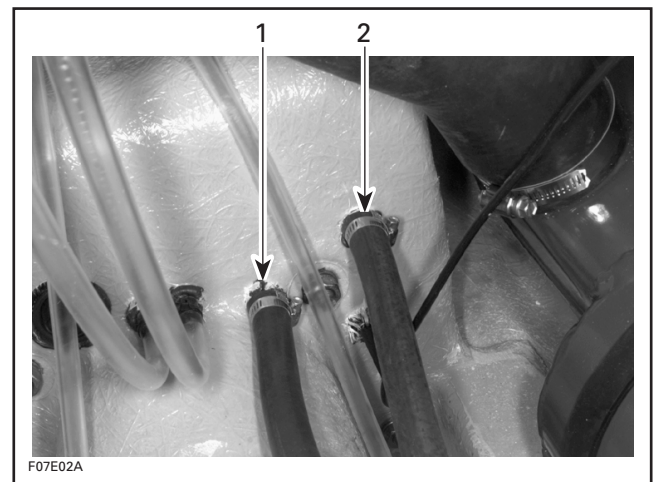
Disconnect drain hose.



TYPICAL

1. Drain hose

Disconnect engine water supply hose and engine water return hose.



TYPICAL

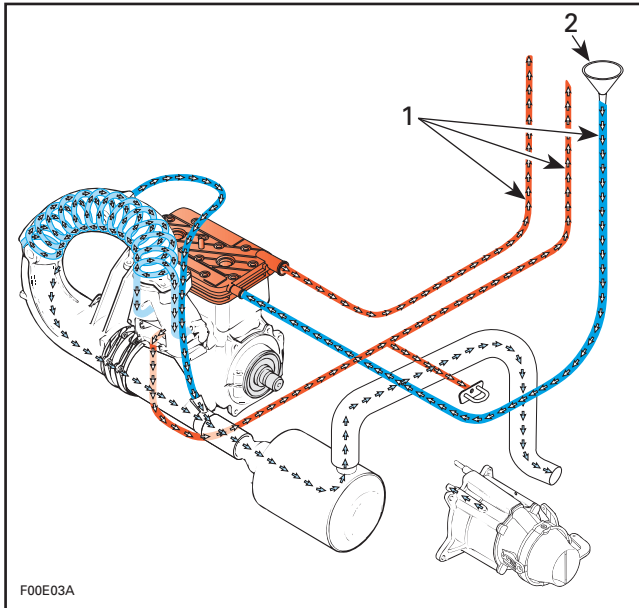
1. Engine water supply hose
2. Engine water return hose

Raise all hoses above the highest point of tuned pipe and tie them together.

Insert a funnel into the engine water supply hose. Pour about 1 liter (1 quart) of antifreeze mixed with water in the engine.

Section 01 MAINTENANCE

Sub-Section 05 (STORAGE)



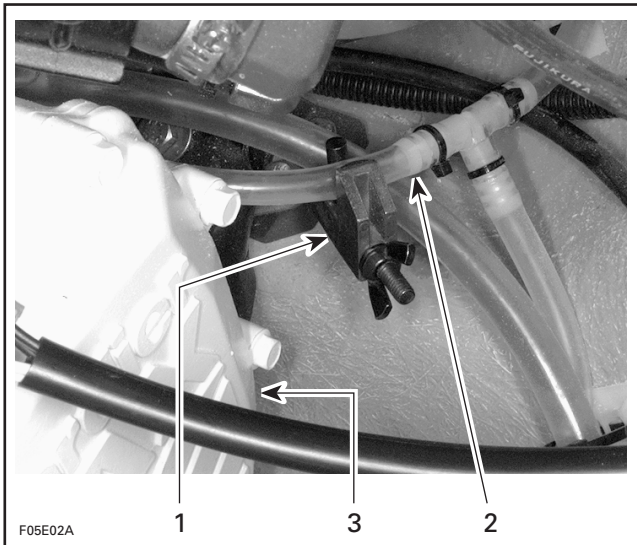
TYPICAL

1. Hold hoses higher than tuned pipe
2. Insert funnel into engine water supply hose

NOTE: If hoses are not attached higher than tuned pipe, coolant will drain out.

XP and HX Models

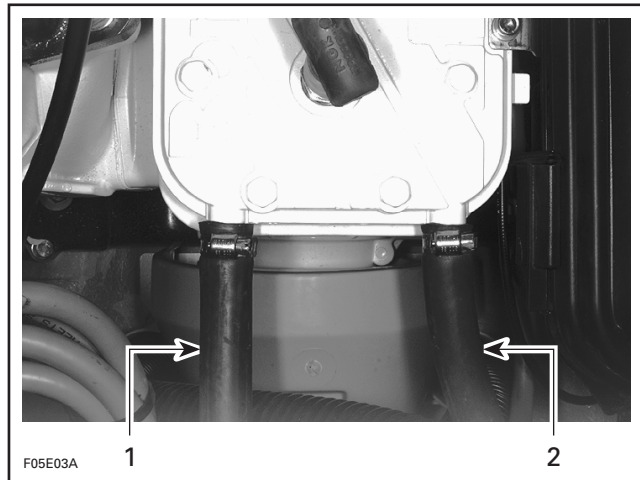
Install a hose pincher to engine drain hose.



TYPICAL

1. Hose pincher
2. Drain hose
3. Magneto housing cover

Disconnect engine water supply hose and engine water return hose.



TYPICAL

1. Engine water supply hose
2. Engine water return hose

Install temporarily one hose to engine water inlet at cylinder head.

Insert a funnel into hose and pour about 1 liter (1 qt) of antifreeze mixed with water in engine.

Remove temporary hose and reconnect engine water supply hose and engine water return hose.

Remove hose pincher.

All Models

Most of the antifreeze will drain out when removing hose pinchers. Use a container to recover it. Dispose antifreeze as per your local laws and regulations.

NOTE: Although antifreeze will mainly drain out, the antifreeze has flowed to mix with water that was possibly trapped in cooling system cavities and thus preventing freezing problems.

NOTE: For pre-season preparation, drain antifreeze from cooling system prior to launching boat in water as explained above.

Section 02 TROUBLESHOOTING

Sub-Section 01 (TROUBLESHOOTING CHART)

ENGINE MISFIRES, RUNS IRREGULARLY

OTHER OBSERVATION	POSSIBLE CAUSE	REMEDY
Weak spark	<ul style="list-style-type: none">Fouled, defective, worn spark plugsFaulty rev limiter or ignition moduleSheared flywheel key	<ul style="list-style-type: none">Check/verify heat range/gap/replaceCheck, refer to section 07-02Check timing mark, refer to section 07-02
Lean fuel mixture Dry spark plug (except when water fouled)	<ul style="list-style-type: none">Low fuel levelStale or water fouled fuelFuel filter dirty or restrictedCarburetion dirty or out of adjustmentLeaking crankshaft seal(s), intake or rotary valve cover O-ringRestricted fuel valveLoose carburetor	<ul style="list-style-type: none">Check/refillCheck/siphon and refillCheck/clean/replaceCheck/clean/adjust, refer to section 05-04Pressure check engine, refer to 03-02 Check/replaceTighten carburetor(s)
Rich fuel mixture Fouled spark plug	<ul style="list-style-type: none">Partially closed chokeFlame arrester dirty or restrictedCarburetor adjustment or settingLoose main jet (if applicable)Rotary valve shaft seal leakingOil pump adjustmentWorn needle(s) and seal(s)Excessive rotary valve clearance	<ul style="list-style-type: none">Check/adjust choke cableCheck/clean/replaceCheck/clean/adjust, refer to section 05-04Check, refer to section 05-04Check/replace, refer to section 03-07Check/adjust, refer to section 06-03Check, refer to section 05-04Check, refer to section 03-07
Difficult to start	<ul style="list-style-type: none">Incorrect rotary valve timingExcessive rotary valve clearance	<ul style="list-style-type: none">Check/adjust, refer to section 03-07Check, refer to section 03-07

ENGINE OVERHEATS

OTHER OBSERVATION	POSSIBLE CAUSE	REMEDY
Monitoring beeper sounds continuously	<ul style="list-style-type: none">Restricted jet pump water intakeCooling system restrictionGrounded temperature sensor or sensor wire	<ul style="list-style-type: none">Check/cleanCheck/flush, refer to section 01-03Check/repair/replace

ENGINE CONTINUALLY BACKFIRES

OTHER OBSERVATION	POSSIBLE CAUSE	REMEDY
Weak spark	<ul style="list-style-type: none">Fouled, defective spark plugsMalfunction of rev limiter	<ul style="list-style-type: none">Clean/replaceClean/replace, refer to section 07-02
Ignition timing	<ul style="list-style-type: none">Incorrect settingSheared flywheel key	<ul style="list-style-type: none">Check/reset, refer to section 07-02Check/replace, refer to section 07-02 and 03-04
Rotary valve	<ul style="list-style-type: none">Incorrect timing	<ul style="list-style-type: none">Check/reset, refer to section 03-07
Carburetor	<ul style="list-style-type: none">Carburetion to lean	<ul style="list-style-type: none">Check/adjust, refer to section 05-04
Engine	<ul style="list-style-type: none">Intake leak/crankshaft seal failure	<ul style="list-style-type: none">Pressure check engine, refer to 03-02

Section 02 TROUBLESHOOTING
Sub-Section 01 (TROUBLESHOOTING CHART)

ENGINE DETONATION OR PINGING

OTHER OBSERVATION	POSSIBLE CAUSE	REMEDY
Ignition	<ul style="list-style-type: none"> Timing too far advanced Spark plug heat range too high Defective ignition module 	<ul style="list-style-type: none"> Check/reset Check/change to correct range Check/replace, refer to section 07-02
Engine temperature	<ul style="list-style-type: none"> Engine overheats Fuel of poor quality 	<ul style="list-style-type: none"> Check, refer to engine overheats Use good quality fuel

ENGINE LACKS ACCELERATION OR POWER

OTHER OBSERVATION	POSSIBLE CAUSE	REMEDY
<p>Engine revs lower than its maximum operational RPM (787 engine)</p> <p>Peak performance is delayed until higher RPM range is reached (787 engine)</p>	<ul style="list-style-type: none"> Weak spark Carburetion, jetting too rich/lean Throttle does not open fully Low compression Exhaust system restriction Water in fuel or oil Debris in carburetor needle valve Impeller leading edge damaged Twisted crankshaft RAVE valve does not open RAVE valve is stuck opened 	<ul style="list-style-type: none"> Check/replace, refer to section 07-02 Check/adjust, refer to section 05-04 Check/readjust, refer to section 05-04 Check/repair, refer to section 03-05 Check/clean Check/siphon/replace Check/clean, refer to section 05-04 Check/replace, refer to section 08-02 Check, refer to section 03-06 Check, refer to section 03-05 Check, refer to section 03-05

ENGINE RUNS TOO FAST

OTHER OBSERVATION	POSSIBLE CAUSE	REMEDY
Engine RPM too high	<ul style="list-style-type: none"> Faulty rev limiter Improper impeller pitch (too low) 	<ul style="list-style-type: none"> Check, refer to section 07-02 Check/replace, refer to section 08-02
Jet pump cavitation	<ul style="list-style-type: none"> Damaged leading or trailing edge of impeller Sealing of ride shoe or jet pump support/jet pump 	<ul style="list-style-type: none"> Check/replace <p>NOTE: Leading edge damage contributes to poor performance from start. Trailing edge damage contributes to poor top performance and stator vanes erosion.</p> <ul style="list-style-type: none"> Check/reseal, refer to section 08-02 or 11-02

ABNORMAL NOISE FROM PROPULSION SYSTEM

OTHER OBSERVATION	POSSIBLE CAUSE	REMEDY
	<ul style="list-style-type: none"> Weeds/debris caught in intake grate or impeller Low oil level in pump housing Worn anti-knocking system Damaged or bent drive shaft Broken motor mounts 	<ul style="list-style-type: none"> Check/clean Check/troubleshoot source of leak/refill supply, refer to section 08-02 Check/replace pusher in cover, refer to section 08-02 Check/replace, refer to section 08-03 Check/replace, refer to section 03-03



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