

Kawasaki

JETSKI
watercraft®

1100STX



**JET SKI® Watercraft
Service Manual
Supplement**

Quick Reference Guide

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This quick reference guide will assist you in locating a desired topic or procedure.

- Bend the pages back to match the black tab of the desired chapter number with the black tab on the edge at each table of contents page.
- Refer to the sectional table of contents for the exact pages to locate the specific topic required.



1100STX

JET SKI® Watercraft Service Manual Supplement

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The right is reserved to make changes at any time without prior notice and without incurring an obligation to make such changes to products manufactured previously. See your "JET SKI" watercraft dealer for the latest information on product improvements incorporated after this publication.

All information contained in this publication is based on the latest product information available at the time of publication. Illustrations and photographs in this publication are intended for reference use only and may not depict actual model component parts.

Foreword

This "JET SKI" 1100STX watercraft Service Manual Supplement is designed to be used in conjunction with the "JET SKI" 1100ZXi watercraft Service Manual (P/N 99924-1195-01). The maintenance and repair procedures described in this supplement are only those that are unique to the "JET SKI" 1100STX watercraft. Most service operations for this model remain identical to those described in the base Service Manual.

Complete and proper servicing of the "JET SKI" 1100STX watercraft therefore requires both this supplement and the base Service Manual.

The base Service Manual and this Supplement are designed primary for use by "JET SKI" watercraft mechanics in a properly equipped shop. However, they contains enough detail and basic information to make them useful to the operator who desires to perform his own basic maintenance and repair work. A basic knowledge of mechanics, the proper use of tools, and workshop procedures must be understood in order to carry out maintenance and repair satisfactorily. Whenever the operator has insufficient experience or doubts his ability to do the work, all adjustments, maintenance, and repair should be carried out only by qualified mechanics.

In order to perform the work efficiently and to avoid costly mistakes, the mechanics should read the text, thoroughly familiarize themselves with the procedures before starting work, and then do the work carefully in a clean area. Whenever special tools or equipment are specified, makeshift tools or equipment should not be used. Precision measurements can only be made if the proper instruments are used, and the use of substitute tools may adversely affect safe operation.

For the duration of the warranty period, especially we recommend that all repairs and scheduled maintenance be performed in accordance with this service manual. Any owner maintenance or repair procedure not performed in accordance with this manual may void the warranty.

To get the longest life out of your "JET SKI" watercraft:

- Follow the Periodic Maintenance Chart in the Service Manual.
- Be alert for problems and non-scheduled maintenance.
- Use proper tools and genuine Kawasaki "JET SKI" watercraft parts. Special tools, gauges, and testers

that are necessary when servicing Kawasaki "JET SKI" watercraft are introduced by the Special Tool Manual. Genuine parts provided as spare parts are listed in the Parts Catalog.

- Follow the procedures in this manual carefully. Don't take shortcuts.
- Remember to keep complete records of maintenance and repair with dates and any new parts installed.

How to Use this Manual

In preparing this manual, we divided the product into its major systems. These systems became the manual's chapters. All information for a particular system from adjustment through disassembly and inspection is located in a single chapter.

The Quick Reference Guide shows you all of the product's system and assists in locating their chapters. Each chapter in turn has its own comprehensive Table of Contents.

The Periodic Maintenance Chart is located in the General Information chapter. The chart gives a time schedule for required maintenance operations.

If you want spark plug information, for example, go to the Periodic Maintenance Chart first. The chart tells you how frequently to clean and gap the plug. Next, use the Quick Reference Guide to locate the Electrical System chapter. Then, use the Table of Contents on the first page of the chapter to find the Spark Plug section.

Whenever you see these WARNING and CAUTION symbols, heed their instructions! Always follow safe operating and maintenance practices.

▲WARNING

This warning symbol identifies special instructions or procedures which, if not correctly followed, could result in personal injury, or loss of life.

CAUTION

This caution symbol identifies special instructions or procedures which, if not strictly observed, could result in damage to or destruction of equipment.

This manual contains four more symbols (in addition to WARNING and CAUTION) which will help you distinguish different types of information.

NOTE

- *This note symbol indicates points of particular interest for more efficient and convenient operation.*
- Indicates a procedural step or work to be done.
- Indicates a procedural sub-step or how to do the work of the procedural step it follows. It also precedes the text of a NOTE.
- ★ Indicates a conditional step or what action to take based on the results of the test or inspection in the procedural step or sub-step it follows.

In most chapters an exploded view illustration of the system components follows the Table of Contents. In these illustrations you will find the instructions indicating which parts require specified tightening torque, oil, grease or a locking agent during assembly.

General Information

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1-2 GENERAL INFORMATION

Before Servicing

Before starting to service a watercraft, careful reading of the applicable section is recommended to eliminate unnecessary work. Photographs, diagrams, notes, cautions, warnings, and detailed descriptions have been included wherever necessary. Nevertheless, even a detailed account has limitations, a certain amount of basic knowledge is also required for successful work.

Especially note the following:

(1) Adjustments

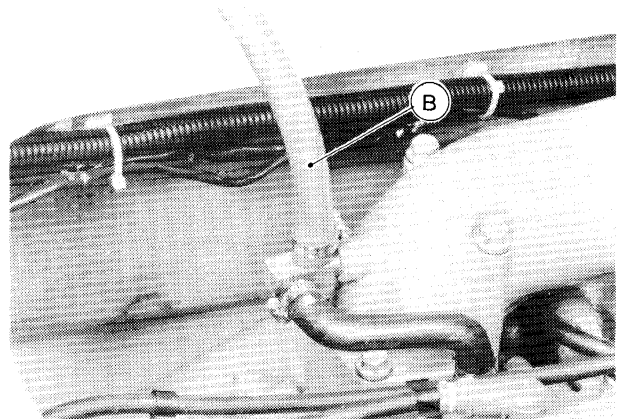
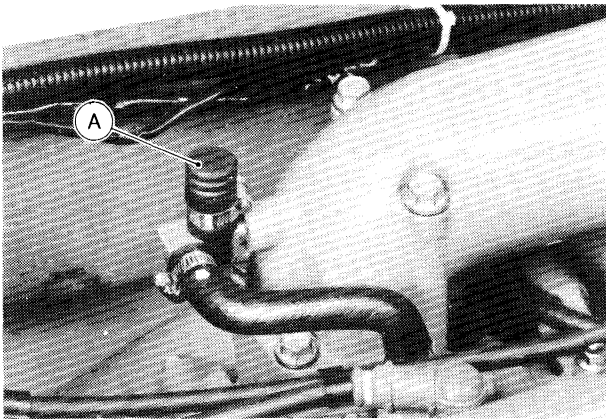
Adjustments shall be made in accordance with the Periodic Maintenance Chart or whenever troubleshooting or presence of symptoms indicate that adjustments may be required. Whenever running of the engine is required during maintenance it is best to have the watercraft in water.

CAUTION

Do not run the engine without cooling water supply for more than 15 seconds or severe engine and exhaust system damage will occur.

(2) Auxiliary Cooling

An auxiliary cooling supply may be used if the watercraft cannot be operated in water during adjustments. If possible, always operate the watercraft in water rather than use an auxiliary cooling supply.

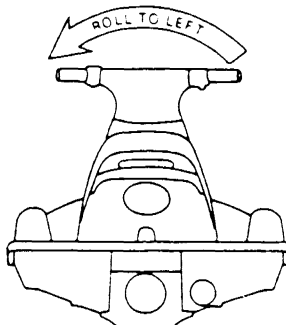


- Loosen the clamp and remove the cap [A].
- Connect the garden hose [B] to the hose fitting (see above).
- Attach the garden hose to a faucet. Do not turn on the water until the engine is running and turn it off immediately when the engine stops. The engine requires 2.4 L/min (2.5 qts/min) at 1800 rpm and 7.0 L/min (7.4 qts/min) at 6000 rpm.

CAUTION

Insufficient cooling supply will cause the engine and/or exhaust system to overheat and severe damage will occur. Excessive cooling supply may kill the engine and flood the cylinder, causing hydraulic lock. Hydraulic lock will cause severe damage to the engine. If the engine dies while using an auxiliary cooling supply, the water must be shut off immediately.

Always turn the boat on its left side. Rolling to the right side can cause water in the exhaust system to run into the engine, with possible engine damage.



(3) Dirt

Before removal and disassembly, clean the "Jet Ski" watercraft. Any sand entering the engine, carburetor, or other parts will work as an abrasive and shorten the life of the watercraft. For the same reason, before installing a new part, clean off any dust or metal filings.

(4) Battery Ground

Remove the ground (-) lead from the battery before performing any disassembly operations on the watercraft. This prevents:

- (a) the possibility of accidentally turning the engine over while partially disassembled.
- (b) sparks at electrical connections which will occur when they are disconnected.
- (c) damage to electrical parts.

(5) Tightening Sequence

Generally, when installing a part with several bolts, nuts, or screws, they should all be started in their holes and tightened to snug fit. Then tighten them evenly in a cross pattern. This is to avoid distortion of the part and/or causing gas or oil leakage. Conversely when loosening the bolts, nuts, or screws, first loosen all of them by about a quarter of turn and then remove them.

Where there is a tightening sequence indication in this Service Manual, the bolts, nuts, or screws must be tightened in the order and method indicated.

(6) Torque

The torque values given in this Service Manual should always be adhered to. Either too little or too much torque may lead to serious damage. Use a good quality, reliable torque wrench.

(7) Force

Common sense should dictate how much force is necessary in assembly and disassembly. If a part seems especially difficult to remove or install, stop and examine what may be causing the problem. Whenever tapping is necessary, tap lightly using a wooden or plastic faced mallet. Use an impact driver for screws (particularly for the removal of screws held by a locking agent) in order to avoid damaging the screw heads.

(8) Edges

Watch for sharp edges, especially during major engine disassembly and assembly. Protect your hands with gloves or a piece of thick cloth when lifting the engine or turning it over.

(9) High Flash-Point Solvent

A high flash-point solvent is recommended to reduce fire danger. A commercial solvent commonly available in North America is Standard solvent (generic name). Always follow manufacturer and container directions regarding the use of any solvent.

(10) Gasket, O-Ring

Do not reuse a gasket or O-ring once it has been in service. The mating surfaces around the gasket should be free of foreign matter and perfectly smooth to avoid oil or compression leaks.

(11) Liquid Gasket, Non-Permanent Locking Agent

Follow manufacturer's directions for cleaning and preparing surfaces where these compounds will be used. Apply sparingly. Excessive amounts may block engine cooling passages and cause serious damage. An example of a non-permanent locking agent commonly available in North America is Loctite Lock N' Seal (Blue).

(12) Press

A part installed using a press or driver, such as a seal, should first be coated with oil on its outer or inner circumference so that it will go into place smoothly.

(13) Ball Bearing

When installing a ball bearing, the bearing race which is affected by friction should be pushed by a suitable driver. This prevents severe stress on the balls and races, and prevents races and balls from being dented. Press a ball bearing until it stops at the stop in the hole or on the shaft.

(14) Oil Seal and Grease Seal

Replace any oil or grease seals that were removed with new ones, as removal generally damages seals.

When pressing in a seal which has manufacturer's marks, press it in with the marks facing out. Seals should be pressed into place using a suitable driver, which contacts evenly with the side of seal, until the face of the seal is even with the end of the hole.

1-4 GENERAL INFORMATION

(15) Seal Guide

A seal guide is required for certain oil or grease seals during installation to avoid damage to the seal lips. Before a shaft passes through a seal, apply a little lubricant, preferably high temperature grease on the lips to reduce rubber to metal friction.

(16) Circlip, Retaining Ring

Replace any circlips and retaining rings that were removed with new ones, as removal weakens and deforms them. When installing circlips and retaining rings, take care to compress or expand them only enough to install them and no more.

(17) Cotter Pin

Replace any cotter pins that were removed with new ones, as removal deforms and breaks them.

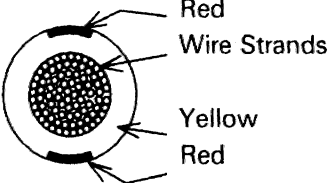
(18) Lubrication

Engine wear is generally at its maximum while the engine is warming up and before all the rubbing surfaces have an adequate lubricative film. During assembly, oil or grease (whichever is more suitable) should be applied to any rubbing surface which has lost its lubricative film. Old grease and dirty oil should be cleaned off. Deteriorated grease has lost its lubricative quality and may contain abrasive foreign particles.

Don't use just any oil or grease. Some oils and greases in particular should be used only in certain applications and may be harmful if used in an application for which they are not intended.

(19) Electrical Wires

All the electrical wires are either single-color or two-color and, with only a few exceptions, must be connected to wires of the same color. On any of the two-color wires there is a greater amount of one color and a lesser amount of a second color, so a two-color wire is identified by first the primary color and then the secondary color. For example, a yellow wire with thin red stripes is referred to as a "yellow/red" wire; it would be a "red/yellow" wire if the colors were reversed to make red the main color.

Wire (cross-section)	Name of Wire Color
	Yellow/Red

(20) Replacement Parts

When there is a replacement instruction, replace these parts with new ones every time they are removed. These replacement parts will be damaged or lose their original function once removed.

(21) Inspection

When parts have been disassembled, visually inspect these parts for the following conditions or other damage. If there is any doubt as to the condition of them, replace them with new ones.

Abrasion	Crack	Hardening	Warp
Bent	Dent	Scratch	Wear
Color change	Deterioration	Seizure	

(22) Service Data

Numbers of service data in this text have following meanings:
"Standards": Show dimensions or performances which brand-new parts or systems have.
"Service Limits": Indicate the usable limits. If the measurement shows excessive wear or deteriorated performance, replace the damaged parts.

Model Identification

JT1100-A1 Left Side View :



1-6 GENERAL INFORMATION

General Specifications

Items	JT1100-A1
Engine:	
Type	2-stroke, 3-cylinder, crankcase reed valve, water cooled
Displacement	1 071 mL
Bore and stroke	80 × 71 mm
Compression ratio	5.8 : 1
Maximum horsepower	88.2 kW (120 PS) @6 750 r/min (rpm)
Maximum torque	129 N·m (13.2 kg·m, 95.5 ft·lb) @6 000 r/min (rpm)
Ignition system	Magneto CDI (Digital)
Lubrication system	Oil injection (break-in period: Oil injection and fuel mixture 50 : 1)
Carburetion system	Keihin CDK38-29 x 3 diaphragm type (33 mm venturi)
Starting system	Electric starter
Tuning Specifications:	
Spark plug: Type	NGK BR9ES
Gap	0.7 ~ 0.8 mm
Ignition timing	17° BTDC @1 250 r/min (rpm) ~ 27° BTDC @3 000 r/min (rpm)
Carburetor : Idle speed	1 250 ±100 r/min (rpm) – in water 1 800 ±100 r/min (rpm) – out of water
Compression pressure	657 ~ 1 040 kPa (6.7 ~ 10.6 kg/cm ² , 95 ~ 151 psi)
Drive System:	
Coupling	Direct drive from engine
Jet pump: Type	Axial flow, single stage
Thrust	3 570 N (364 kg, 803 lb)
Steering	Steerable nozzle
Braking	Water drag
Performance:	
†Minimum turning radius	4.0 m
†Fuel consumption	46 L/h @ full throttle
Dimensions:	
Length	3 100 mm
Width	1 050 mm
Height	1 174 mm
Dry weight	270 kg
Fuel tank capacity	53 L including 7 L reserve
Engine Oil:	
Type	2-stroke, N.M.M.A. Certified for Service TC-WII or TC-W3
Oil tank capacity	3.3 L
Electrical Equipment:	
Battery	12 V 18 Ah
Maximum generator out put	7.2 A/14 V @6 000 r/min (rpm)

† : This information shown here represents results under controlled conditions, and the information may not be correct under other conditions.

Specification subject to change without notice, and may not apply to every country.

Torque and Locking Agent

The following table list the tightening torque for the major fasteners, and the parts requiring use of a non-permanent locking agent or silicone sealant.

Letters used in the "Remarks" column mean:

L : Apply a non-permanent locking agent to the threads.

SS: Apply silicone sealant to the threads.

S : Tighten the fasteners following the specified sequence.

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Fuel System:				
Carburetor Mounting Bolts	8.8	0.9	78 in-lb	L
Intake Manifold Mounting Nuts	9.8	1.0	87 in-lb	
Air Intake Cover Bolts	7.8	0.8	69 in-lb	L
Arrester Case Stay Mounting Bolts	8.8	0.9	78 in-lb	L
Throttle Lever Mounting Screws	3.9	0.4	35 in-lb	
Engine Lubrication System				
Air Bleeding Bolt	4.9	0.5	43 in-lb	
Oil Pump Mounting Bolts	8.8	0.9	78 in-lb	L
Exhaust System				
Exhaust Pipe Mounting Bolts	49	5.0	36	L
Water Pipe Joints	12	1.2	8.5	SS
Exhaust Manifold Mounting Bolts	20	2.0	14.5	S
Expansion Chamber Mounting Bolts	49	5.0	36	L
Engine Top End:				
Cylinder Head Nuts	29	3.0	22	S
Water Pipe Joint	12	1.2	8.5	SS
Cylinder Base Nuts	34	3.5	25	
Cable Holder Mounting Bolts	20	2.0	14.5	L
Engine Removal/Installation:				
Engine Mounting Bolts:	44	4.5	33	
Engine Bed Mounting Bolts	36	3.7	27	L
Engine Mount Bolts	16	1.6	11.6	L
Engine Bottom End:				
Flywheel Bolt	125	13.0	94	L
Stator Mounting Bolts	12	1.2	8.5	
Coupling	125	13.0	94	SS
Magneto Cover Mounting Bolts	8.8	0.9	78 in-lb	L
Crankcase Bolts-6 mm Dia.	8.8	0.9	78 in-lb	L,S
Crankcase Bolts-8 mm Dia.	29	3.0	22	L,S
Magneto Cooling Cover	8.8	0.9	78 in-lb	L
Magneto Cover Stud	-	-	-	L
Cooling and Bilge Systems:				
Water Pipe Joint	12	1.2	8.5	SS
Drive System:				
Coupling Cover Bolts	98	1.0	87 in-lb	L
Coupling	39	4.0	29	SS
Drive Shaft Holder Mounting Bolts	22	2.2	16.0	L

1-8 GENERAL INFORMATION

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Pump and Impeller:				
Steering Nozzle Pivot Bolts	19	1.9	13.5	L
Pump Outlet Mounting Bolts	19	1.9	13.5	
Pump Cap	3.9	0.4	35 in-lb	
Impeller	98	10.0	72	
Pump Mounting Bolts	36	3.7	27.0	L
Pump Cover Mounting Bolts	7.8	0.8	69 in-lb	
Grate Mounting Bolts	9.8	1.0	87 in-lb	
Pump Bracket Mounting Bolts	9.8	1.0	87 in-lb	
Steering:				
Handlebar Clamp Bolts	16	1.6	11.5	L
Steering Neck Mounting Bolts	16	1.6	11.5	L
Steering Holder Mounting Bolts	16	1.6	11.5	
Steering Shaft Lock Nut	49 ~ 59	5 ~ 6	29 ~ 36	
Steering Cable Nuts	18	1.8	13	
Shift Cable Nut	18	1.8	13	
Shift Lever Shaft Lock Nut	18 ~ 22	1.8 ~ 2.2	13 ~ 16	
Reverse Bucket Damper Mounting Bolts	9.8	1.0	87 in-lb	
Hull/Engine Hood:				
Bumper Bushings	-	-	-	L
Bumper Mounting Nuts	-	-	-	L
Electrical System:				
Electric Case Bolts	7.8	0.8	69 in-lb	L
Electric Case Mounting Bolts	7.8	0.8	69 in-lb	L
Electric Case Connector Mounting Bolts	8.8	0.9	78 in-lb	L
CDI Igniter Mounting Bolts	7.8	0.8	69 in-lb	L
Spark Plugs	27	2.8	20	
Starter Motor Mounting Bolts	8.8	0.9	78 in-lb	L
Ignition Coil Mounting Bolts	7.8	0.8	69 in-lb	L
Starter Relay Mounting Nuts	7.8	0.8	69 in-lb	
Starter Lead Mounting Nut	7.8	0.8	69 in-lb	
Battery Ground Lead Mounting Bolt	8.8	0.9	78 in-lb	L
Flywheel Bolt	125	13.0	94	L
Stator Mounting Bolts	12	1.2	8.5 ft-lb	
Multifunction Meter Mounting Bolts	3.9	0.4	35 in-lb	
Speedosensor Mounting Bolts	3.9	0.4	35 in-lb	

The table below, relating tightening torque to thread diameter, lists the basic torque for the bolts and nuts. Use this table for only the bolts and nuts which do not require a specific torque value. All of the values are for use with dry solvent-cleaned threads.

General Fasteners (stainless bolt and nut)

Threads dia. (mm)	Torque		
	N-m	kg-m	ft-lb
6	5.9 ~ 8.8	0.60 ~ 0.90	52 ~ 78 in-lb
8	16 ~ 22	1.6 ~ 2.2	11.6 ~ 15.9
10	30 ~ 41	3.1 ~ 4.2	22 ~ 30

Periodic Maintenance Chart

NOTE

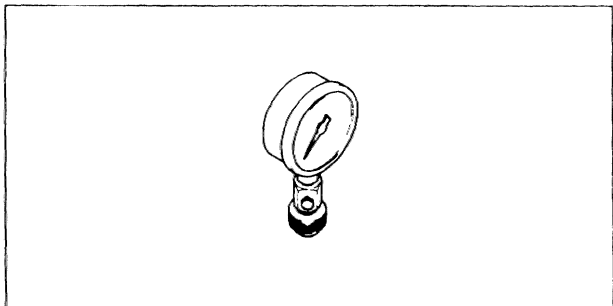
○ Complete the Pre-Ride Checklist before each outing.

Description	Frequency	Initial 10 Hours	Every 25 Hours	Every 100 Hours
Check all hose clamps, nuts, bolts, and fasteners		●	●	
Torque cylinder head nuts		●	●	
Lubricate throttle cable fitting and choke cable fitting at carburetor			●	
Lubricate choke cable and throttle cable and throttle cable fitting at throttle case.			●	
Clean and gap spark plugs (replace if necessary)			●	
Lubricate steering cable / shift cable ball joints and steering nozzle / reverse bucket pivots			●	
Lubricate handlebar pivot (disassemble)			●	
Clean fuel filter screens			●	
Inspect / replace fuel filter				●
Adjust carburetor			●	
Flush bilge line and filter			●	
Flush cooling system (after each use in salt water)			●	
Inspect/clean flame arrester			●	
Inspect impeller blade for damage (remove)				●
Inspect/replace coupling damper			●	
Inspect steering cable / shift cables				●

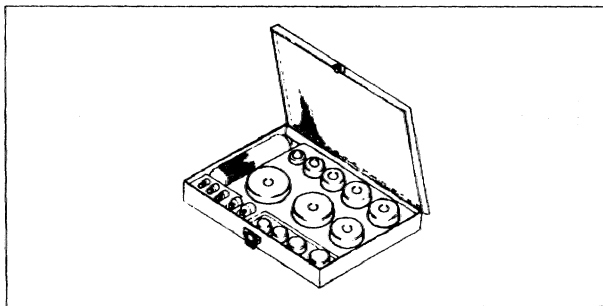
1-10 GENERAL INFORMATION

Special Tools, Sealant

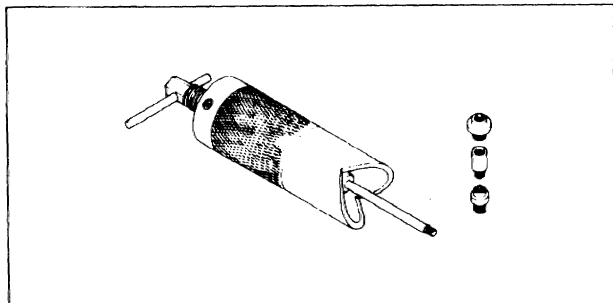
Compression Gauge: 57001-221



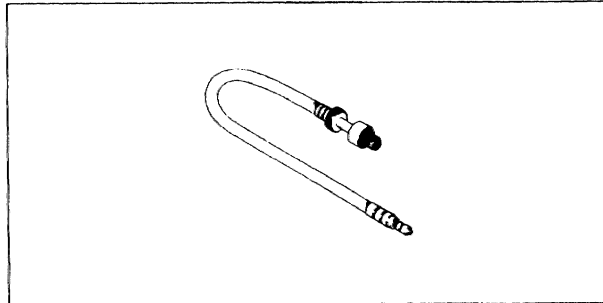
Bearing Driver Set: 57001-1129



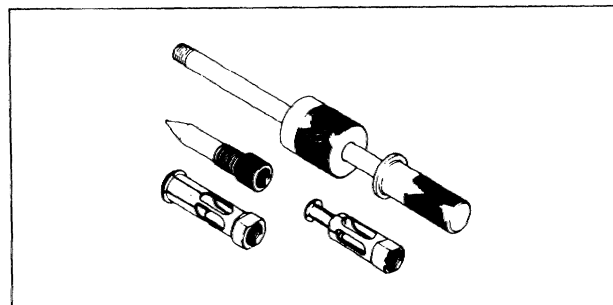
Piston Pin Puller Assembly: 57001-910



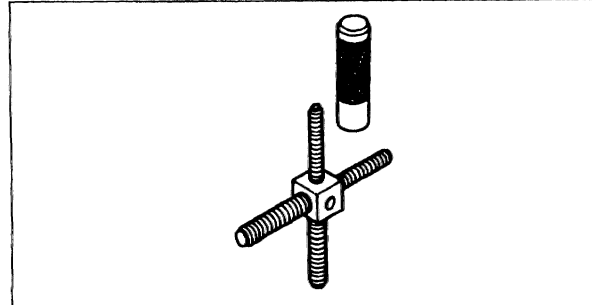
Compression Gauge Adapter, M14 x 1.25: 57001-1159



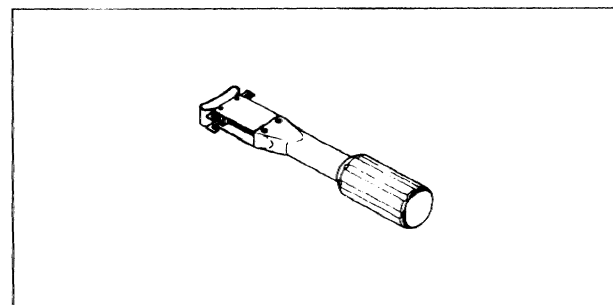
Oil Seal & Bearing Remover: 57001-1058



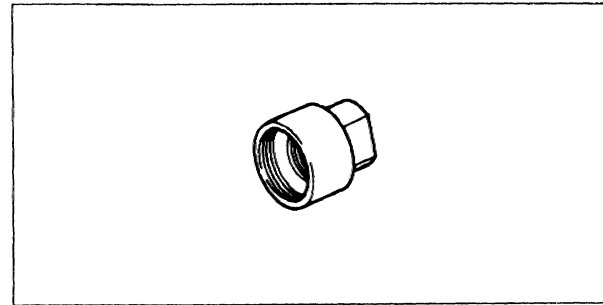
Rotor Puller, M16/M18/M20/M22 x 1.5: 57001-1216



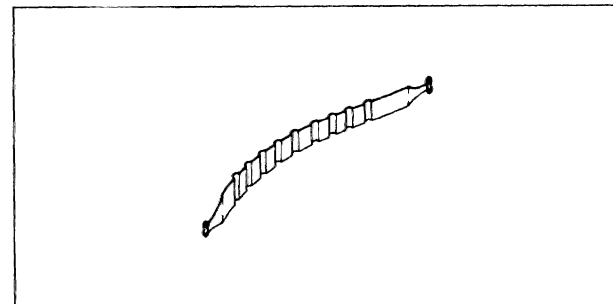
Piston Ring Compressor Grip: 57001-1095



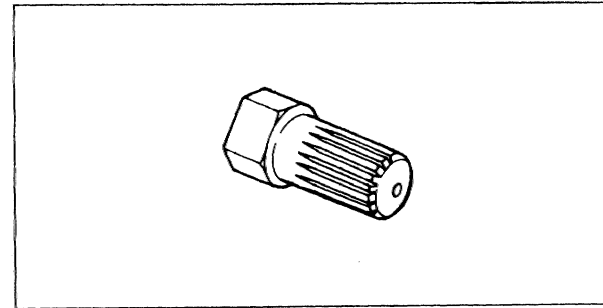
Flywheel Puller, M35 X 1.5: 57001-1223



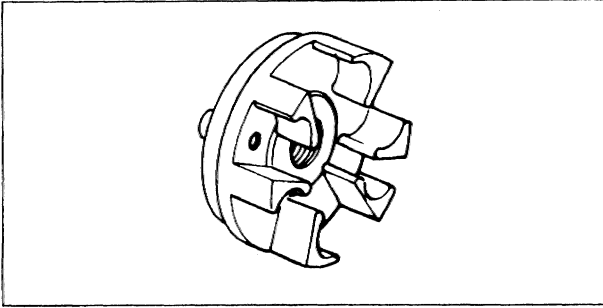
Piston Ring Compressor Belt, $\phi 67 \sim \phi 79$: 57001-1097



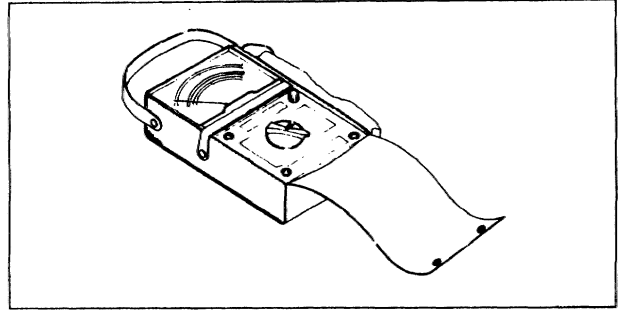
Impeller Wrench: 57001-1228



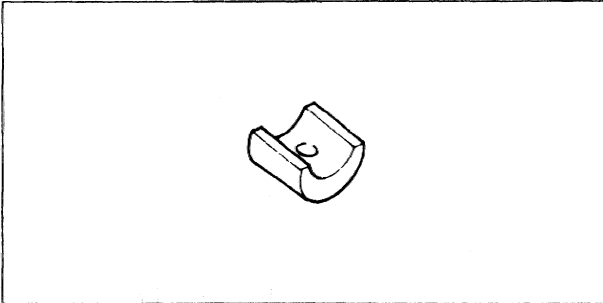
Coupling Holder: 57001-1230



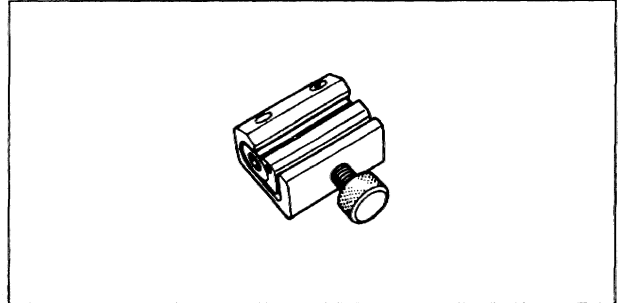
Hand Tester: 57001-1394



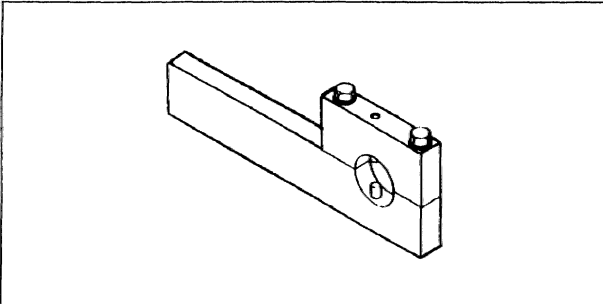
Drive Shaft Holder Adapter: 57001-1231



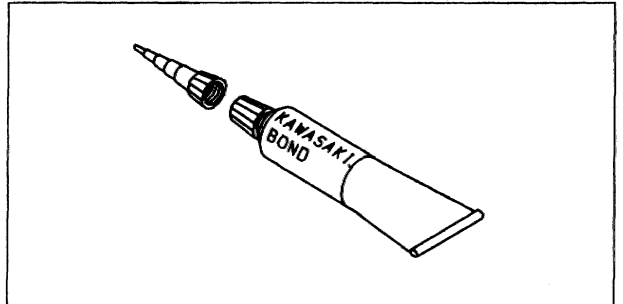
Pressure Cable Luber: K56019-021



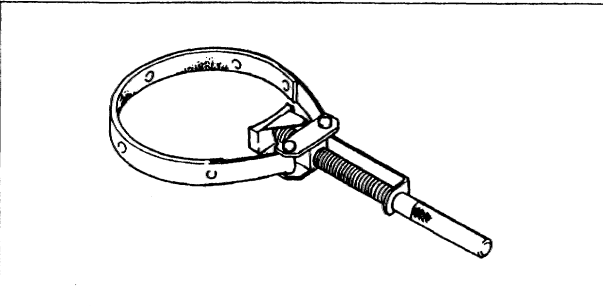
Drive Shaft Holder: 57001-1327



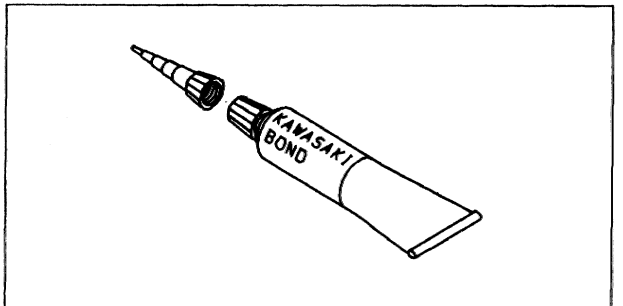
Kawasaki Bond (Silicone Sealant): 56019-120



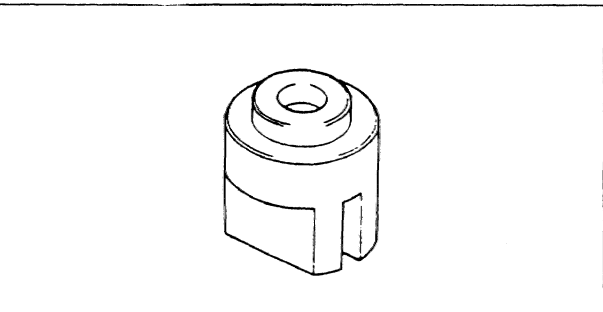
Flywheel Holder: 57001-1313



Kawasaki Bond (Liquid Gasket-Black): 92104-1003



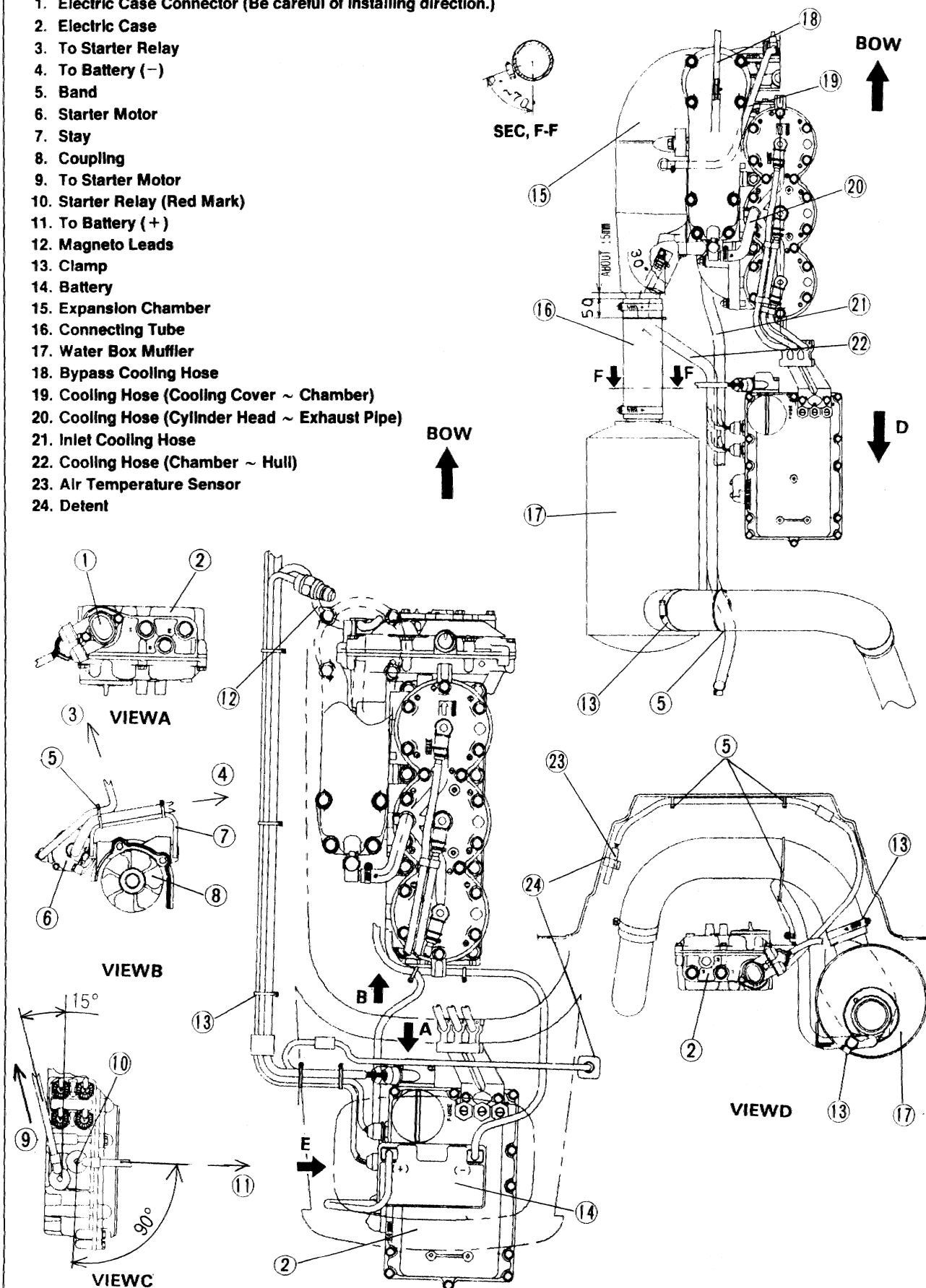
Impeller Holder: 57001-1393



1-12 GENERAL INFORMATION

Cable, Wire and Hose Routing

1. Electric Case Connector (Be careful of installing direction.)
2. Electric Case
3. To Starter Relay
4. To Battery (-)
5. Band
6. Starter Motor
7. Stay
8. Coupling
9. To Starter Motor
10. Starter Relay (Red Mark)
11. To Battery (+)
12. Magneto Leads
13. Clamp
14. Battery
15. Expansion Chamber
16. Connecting Tube
17. Water Box Muffler
18. Bypass Cooling Hose
19. Cooling Hose (Cooling Cover ~ Chamber)
20. Cooling Hose (Cylinder Head ~ Exhaust Pipe)
21. Inlet Cooling Hose
22. Cooling Hose (Chamber ~ Hull)
23. Air Temperature Sensor
24. Detent



Fuel System

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Throttle Case and Cable Lubrication	*	Cleaning	*
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Carburetor Installation Notes	*	Fuel Filter Inspection	*
Carburetor Disassembly	*		

* = Base Manual

2-2 FUEL SYSTEM

Exploded View

1. Main Jet

2. Pilot Jet

3. Diaphragm Needle

4. Check Valve

T1 : 7.8 N-m (0.80 kg-m, 69 in-lb)

T2 : 9.8 N-m (1.0 kg-m, 87 in-lb)

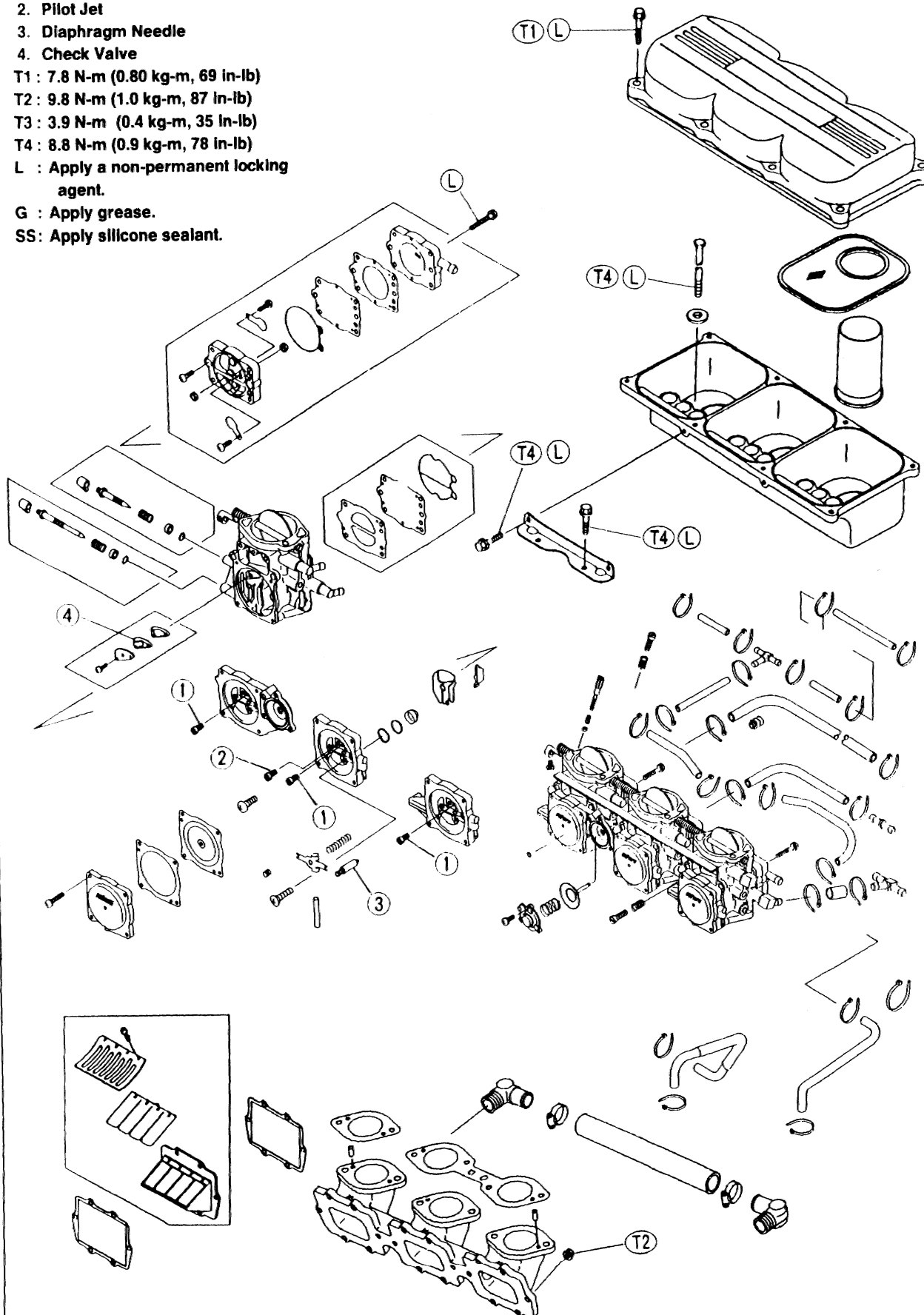
T3 : 3.9 N-m (0.4 kg-m, 35 in-lb)

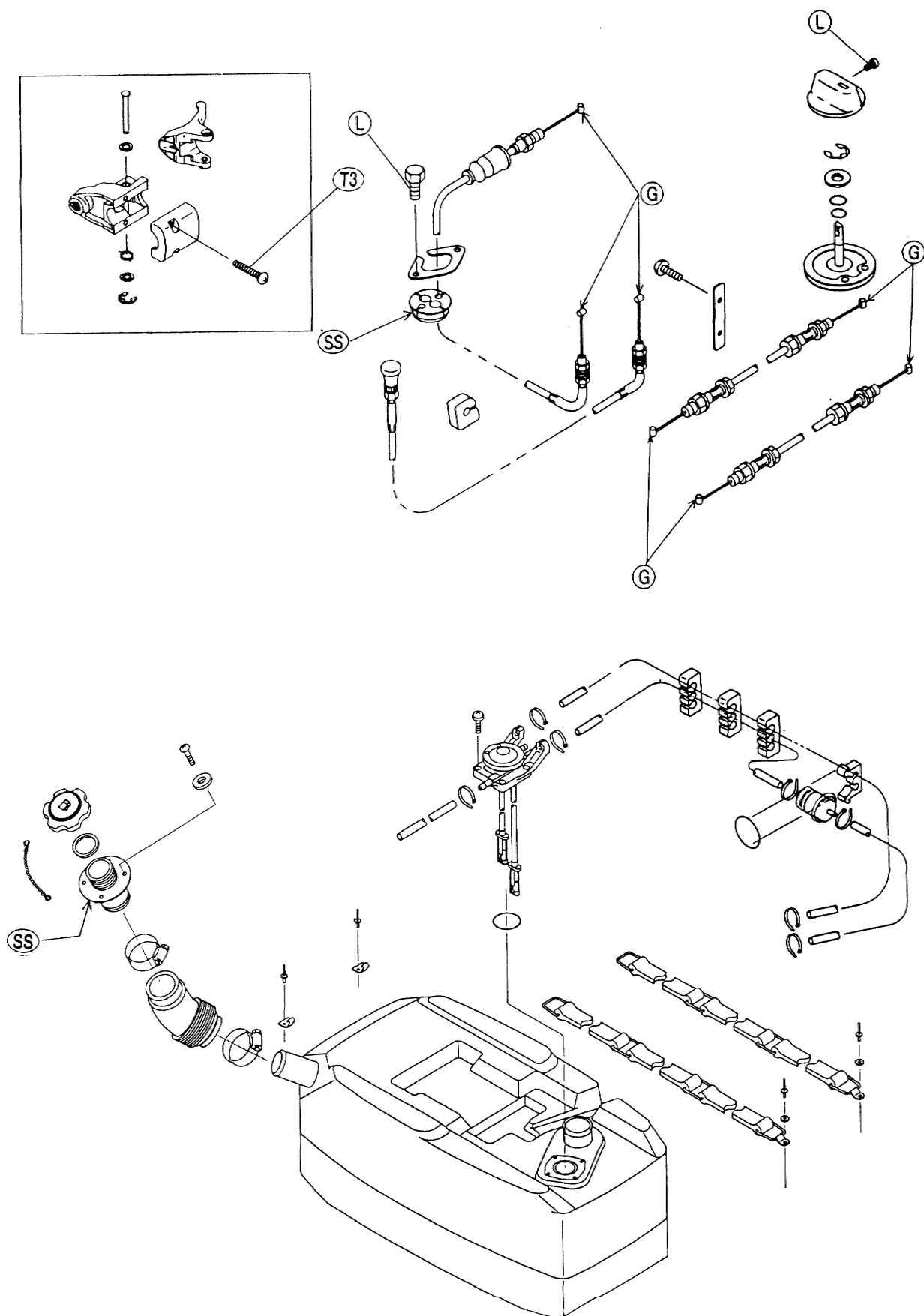
T4 : 8.8 N-m (0.9 kg-m, 78 in-lb)

L : Apply a non-permanent locking agent.

G : Apply grease.

SS: Apply silicone sealant.





2-4 FUEL SYSTEM

Specifications

Item	Standard	Service Limit
Carburetor:		
Make, type	Keihin, CDK II38 - 29	---
Size	33 mm Venturi	---
Mixture screws: Low speed	1 1/4 ± ¼ turn open	lhy. --
High speed	7/8 ± ¼ turn open	---
Main jet Front	# 125	---
Middle	# 120	---
Rear	# 120	---
Pilot jet	# 78	---
Idle speed: in water	1 250 ± 100 rpm	---
out of water	1 800 ± 100 rpm	---
Reed Valve:		
Reed warp	---	0.2 mm
Fuel Tank:		
Capacity	53 L (including 7 L reserve)	---

Special Tool – Pressure Cable Luber: K56019-021

Sealant – Kawasaki Bond (Silicone Sealant): 56019-120

Fuel Tank

Fuel Tank Removal

- If the level of the fuel is above the filler neck, siphon some fuel out to prevent spilling it.

⚠ WARNING

Gasoline is extremely flammable and can be explosive under certain conditions. Pull the lanyard key off the stop button. Do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

- Remove the engine.
- Remove or disconnect:
 - Oil Tank
 - Fuel Tank Straps
- Loosen the clamps on the filler tube.
- Remove the fuel level and the fuel filter assembly and remove the fuel tank.

Engine Lubrication System

3

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Oil Pump	*
Oil Pump and Oil Hose Bleeding	*
Oil Pump Performance Test	*
Oil Pump Removal	*
Oil Pump Installation	*
Oil Tank	*
Oil Tank Removal	*
Oil Tank Cleaning	*
Oil Filter Cleaning	*

* = Base Manual

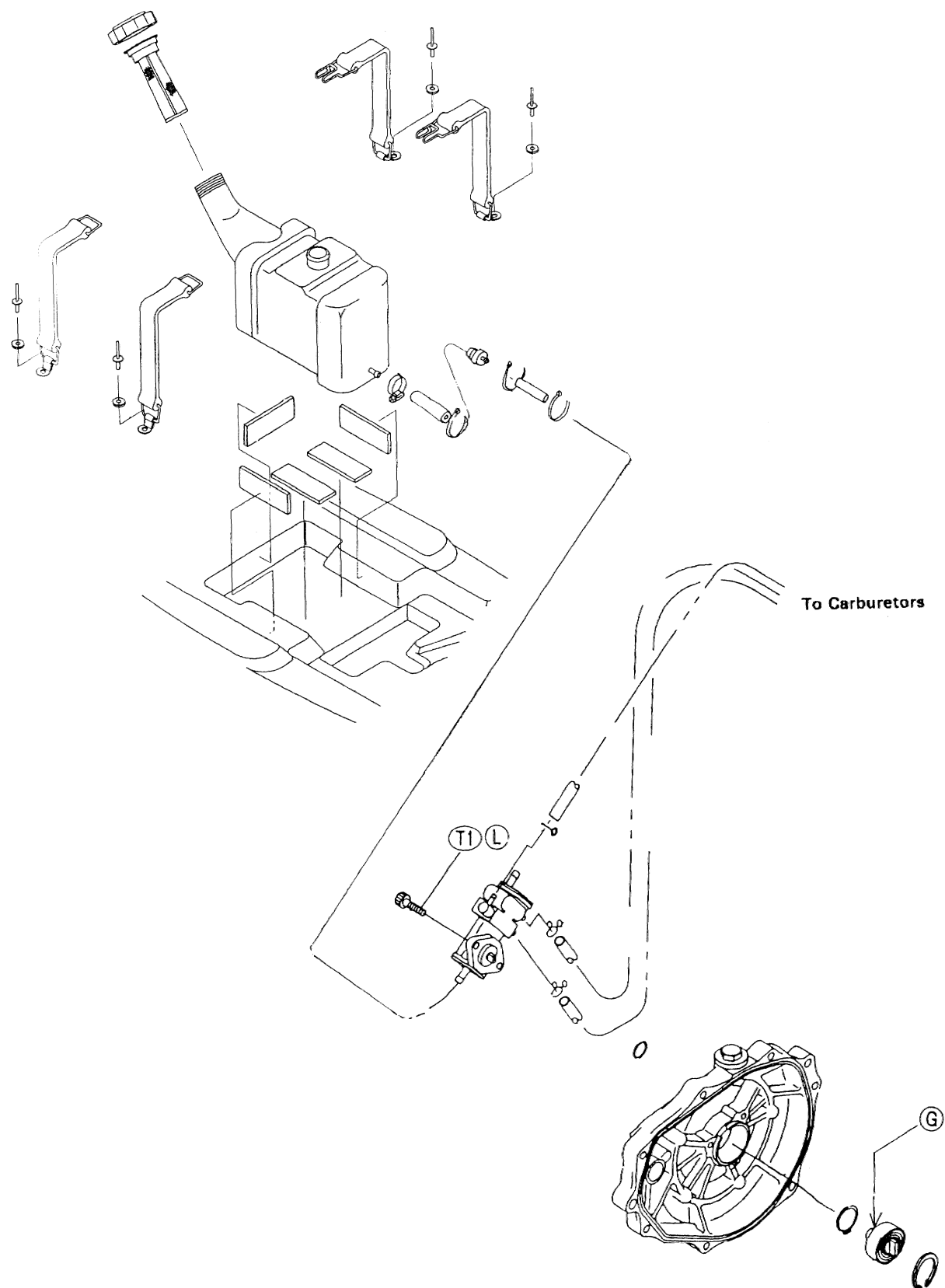
3-2 ENGINE LUBRICATION SYSTEM

Exploded View

T1 : 8.8 N-m (0.9 kg-m, 78 in-lb)

L : Apply an non-permanent locking agent.

G : Apply grease.



Specifications

Item	Standard
Engine Oil: Type Capacity	2-stroke, N.M.M.A. Certified for Service TC-WII or TC-W3 3.3 L
Engine Oil Pump: Oil Pump output @3 000r/min (rpm), 2 min:	10.1 ~ 12.3 mL

Exhaust System

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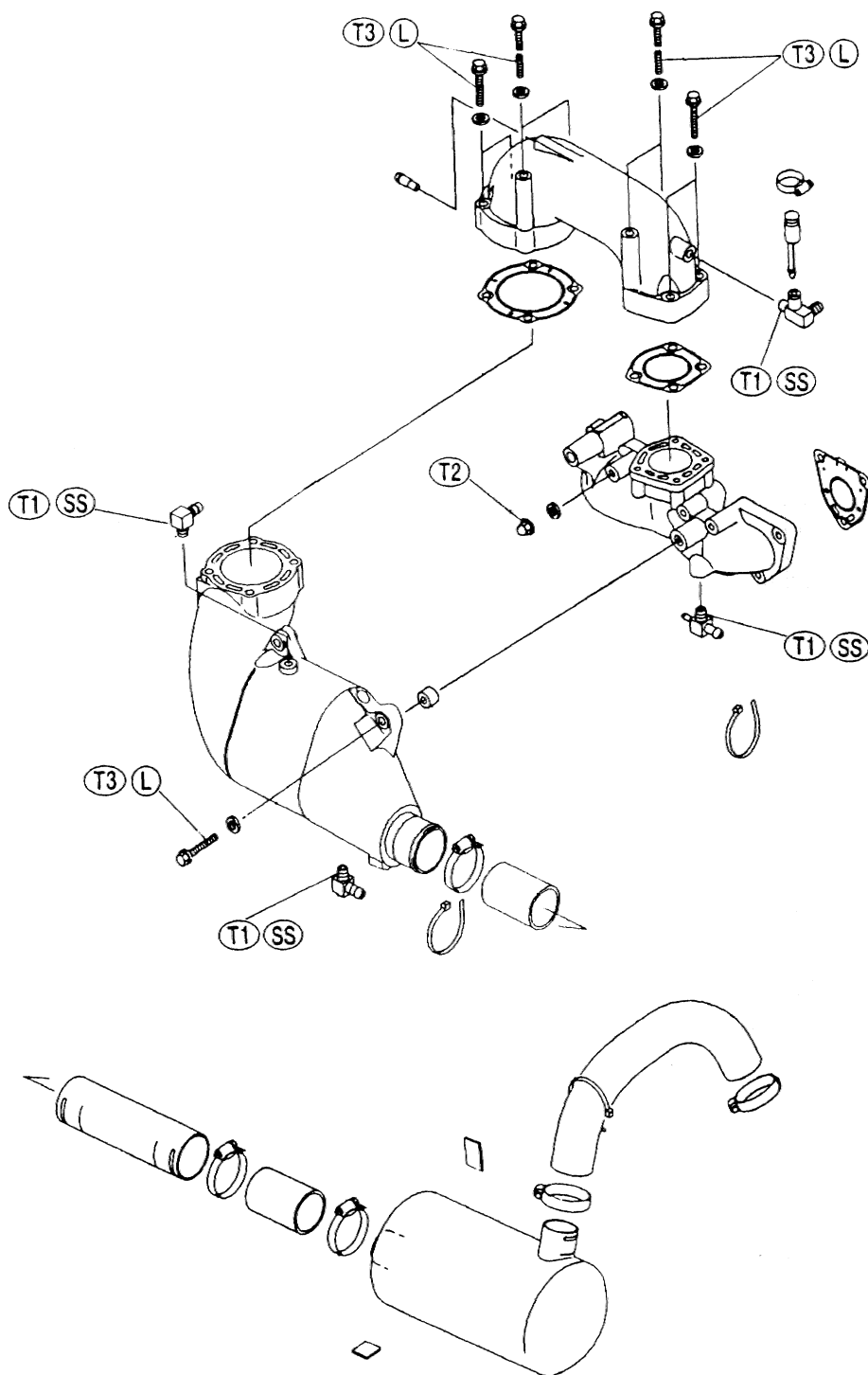
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Expansion Chamber Cleaning and Inspection	*
Exhaust Manifold	*
Removal	*
Installation	*
Exhaust Manifold Cleaning and Inspection	*
Water Box Muffler	*
Removal	*
Installation	*
Inspection	*

* = Base Manual

4-2 EXHAUST SYSTEM

Exploded View

- T1 : 12 N-m (1.2 kg-m, 8.5 ft-lb)
T2 : 20 N-m (2.0 kg-m, 14.5 ft-lb)
T3 : 49 N-m (5.0 kg-m, 36 ft-lb)
L : Apply a non-permanent locking agent.
SS: Apply silicone sealant.



Engine Top End

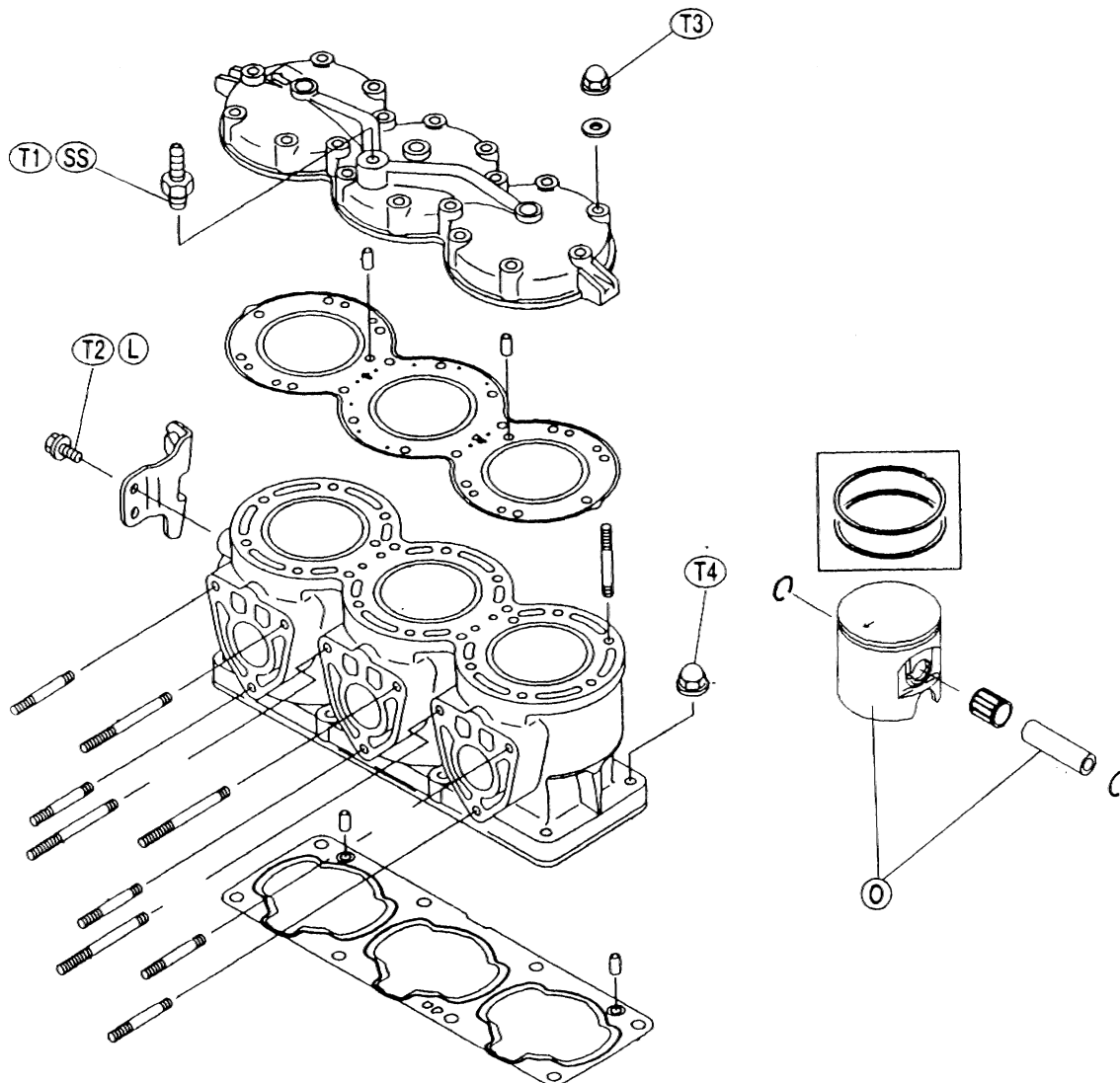
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Disassembly	*
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Maintenance and Inspection:	*
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Cylinder Wear Inspection	*
Piston Diameter Measurement	*
Piston/Cylinder Clearance	*
Boring and Honing	*
Piston Ring, Piston Ring Groove Inspection	*
Piston Ring End Gap	*

* = Base Manual

Exploded View

O : Apply engine oil.



Specifications

Item	Standard	Service Limit
Cylinder Head:		
Cylinder compression	(Usable range) 657 ~ 1040 kPa (6.7 ~ 10.6 kg/cm ² , 95 ~ 151 psi) (Open throttle)	---
Cylinder head warp	---	0.05 mm
Cylinder, Piston:		
Cylinder inside diameter	80.000 ~ 80.015 mm	80.10 mm
Piston diameter (16.9 mm up from bottom of skirt)	79.865 ~ 79.880 mm	79.72 mm
Piston/cylinder clearance	0.130 ~ 0.140 mm	---
Oversize piston and rings	+0.5 mm and +1.0 mm	---
Piston ring/groove clearance: Top (keystone)	---	---
Second (keystone)	---	---
Piston ring groove width: Top (keystone)	---	---
Second (keystone)	---	---
Piston ring thickness: Top (keystone)	---	---
Second (keystone)	---	---
Piston ring end gap: Top	0.25 ~ 0.40 mm	0.7 mm
Second	0.25 ~ 0.40 mm	0.7 mm

Special Tools – **Piston Pin Puller Assembly: 57001-910**
Piston Ring Compressor Grip: 57001-1095
Piston Ring Compressor Belt, $\phi 67 \sim \phi 79$: 57001-1097
Compression Gauge: 57001-221
Compression Gauge Adapter, M14 x 1.25: 57001-1159

Engine Removal/Installation

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Exploded View6-2

Engine Removal/Installation*

 Removal.....*

 Installation*

* = Base Manual

6-2 ENGINE REMOVAL/INSTALLATION

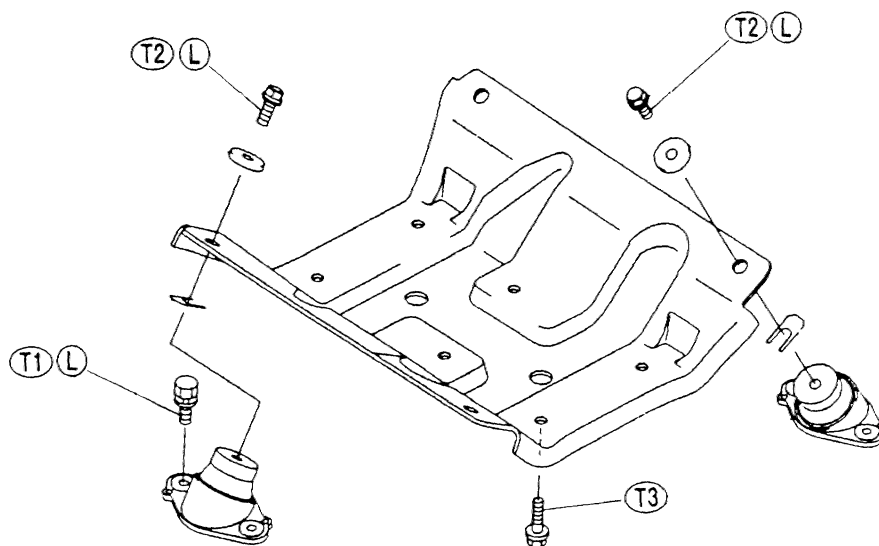
Exploded View

T1 : 16 N-m (1.6 kg-m, 11.6 ft-lb)

T2 : 36 N-m (3.7 kg-m, 27 ft-lb)

T3 : 44 N-m (4.5 kg-m, 33 ft-lb)

L : Apply a non-permanent locking agent.



Engine Bottom End

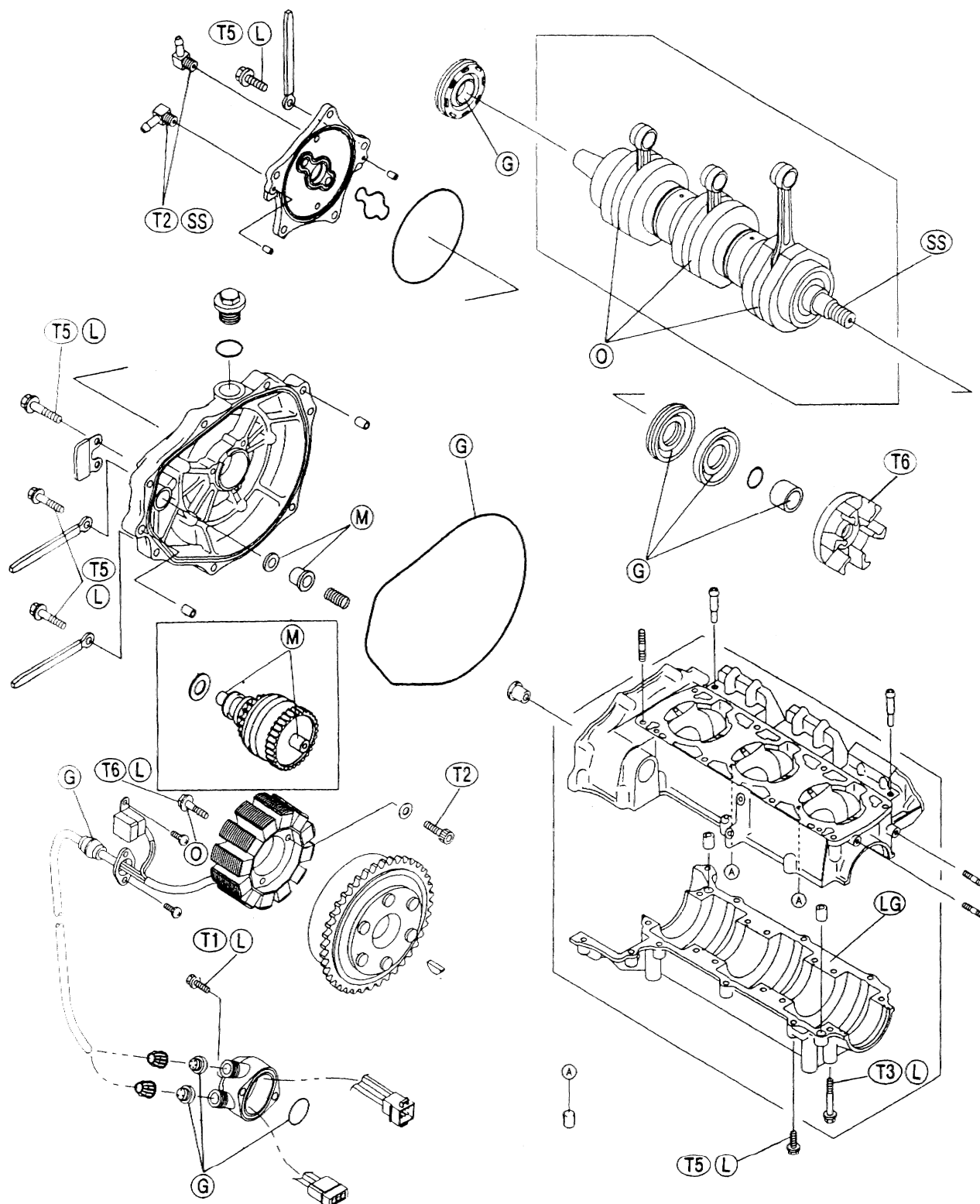
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Connecting Rod Big End Side Clearance	*
Crankshaft Main Bearing Wear	*
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Crankshaft Assembly Specifications	*

* = Base Manual

Exploded View

LG: Apply liquid gasket.
O: Apply oil to the flanged portion.
SS: Apply silicone sealant.
G: Apply grease.



Specifications

Item	Standard	Service Limit
Crankshaft, Connecting Rods:		
Crankshaft runout	0.04 mm	0.10 mm TIR
Connecting rod side clearance	0.45 ~ 0.55 mm	0.8 mm
Connecting rod radial clearance:	0.08 ~ 0.030 mm	0.080 mm
Connecting rod bend	0.05 mm/100 mm	0.2 mm/100 mm
Connecting rod twist	0.15mm/100 mm	0.2mm/100 mm

Special Tools – Flywheel Puller, M35 X 1.5: 57001-1223
Rotor Puller, M16/M18/M20/M22 x 1.5: 57001-1216
Flywheel Holder: 57001-1313
Coupling Holder: 57001-1230

Sealant – Kawasaki Bond (Liquid Gasket-Black): 92104-1003
Kawasaki Bond (Silicone Sealant): 56019-120

Cooling and Bilge System

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Hose Installation.....	*
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Cooling and Bilge System Flushing	*
Cooling System Flushing	*
Bilge System Flushing	*

* = Base Manual

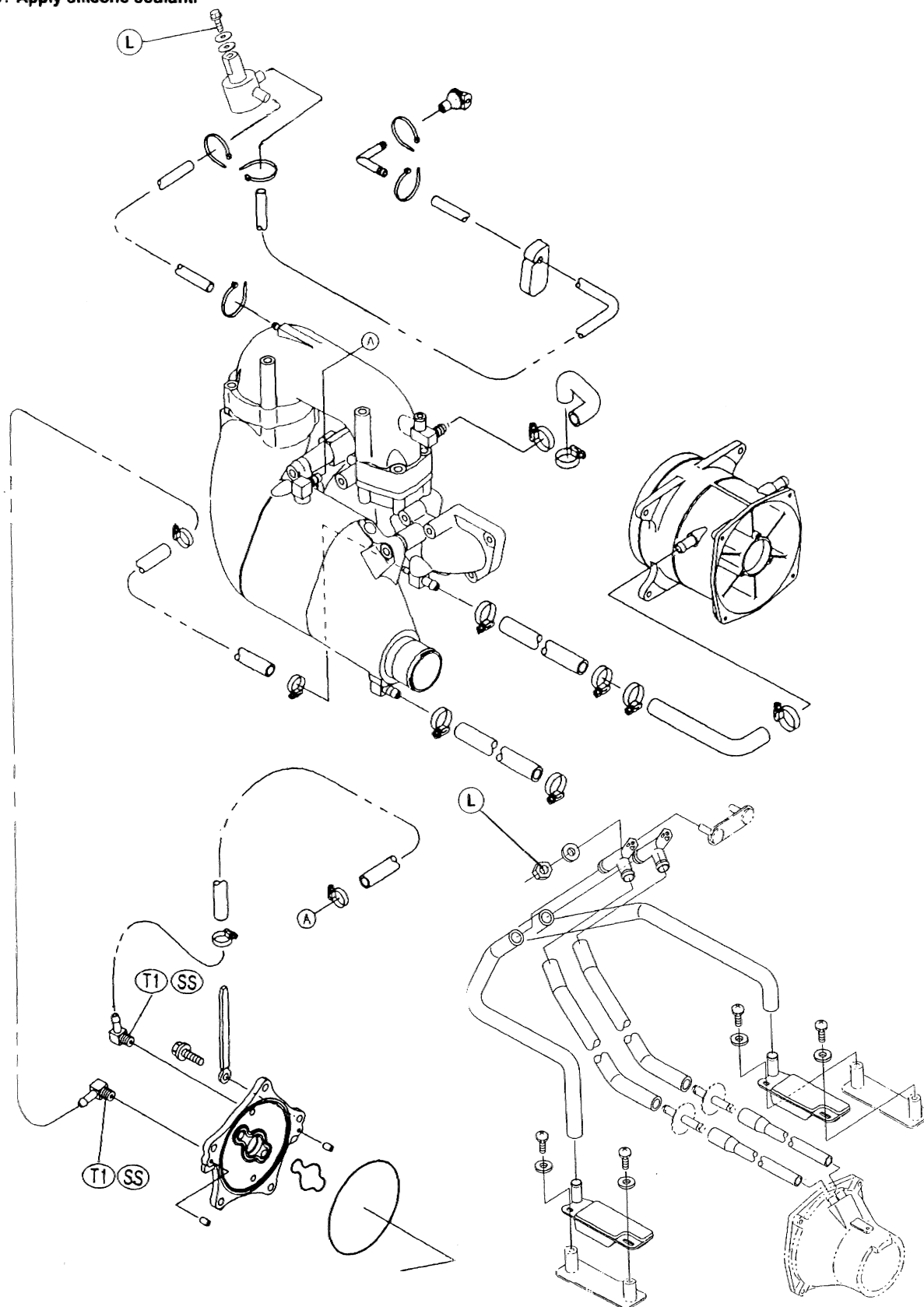
8-2 COOLING AND BILGE SYSTEM

Exploded View

T1 : 12 N-m (1.2 kg-m, 8.5 ft-lb)

L : Apply a non-permanent locking agent.

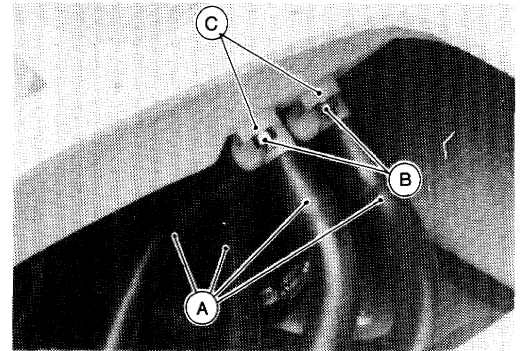
SS: Apply silicone sealant.



Bilge System

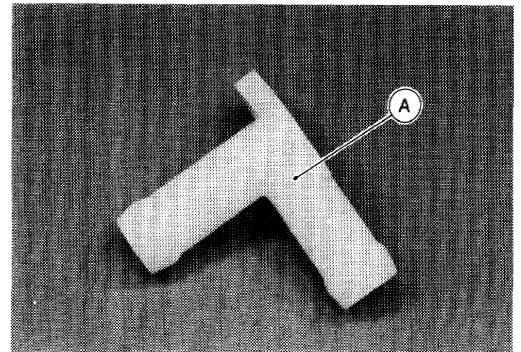
Breather Removal

- Remove:
 - Battery
 - Battery Case
- Pull the hoses [A] off the breather.
- Unscrew the mounting nuts [B], and remove the breather [C].



Breather Installation

- Be sure the small hole [A] in the breather is open before installing it.
- Apply a non-permanent locking agent to the breather mounting nuts and tighten.

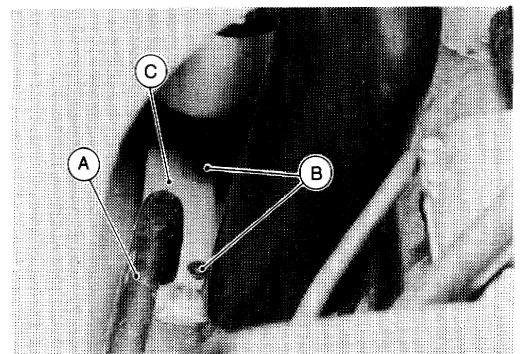


Breather Cleaning and Inspection

- Check that the small hole in the top of the breather is open by blowing in one end of the breather and plugging the other.
- ★ If the hole is plugged, clean it with compressed air. Do not open it with a pointed object (like a needle or a piece of wire), because the hole may be enlarged. If the hole is too large, the bilge system may not suck water out of the hull as it should.

Filter Removal

- Pull the hose [A] off the filter.
- Unscrew the mounting screws [B], and remove the filter [C].
- To remove the left side filter, remove the water box muffler.



Filter Cleaning and Inspection

- Flush the filter through with fresh water and shake it dry.
- Water must flow freely through the filter, but large debris must not.
- ★ If the filter cannot be cleaned, or if it is broken and allows debris to pass through, replace it.

Drive System

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Drive Shaft/Drive Shaft Holder*

 Drive Shaft Removal/Installation*

 Drive Shaft Holder Removal/Disassembly*

 Drive Shaft Holder Assembly/Installation*

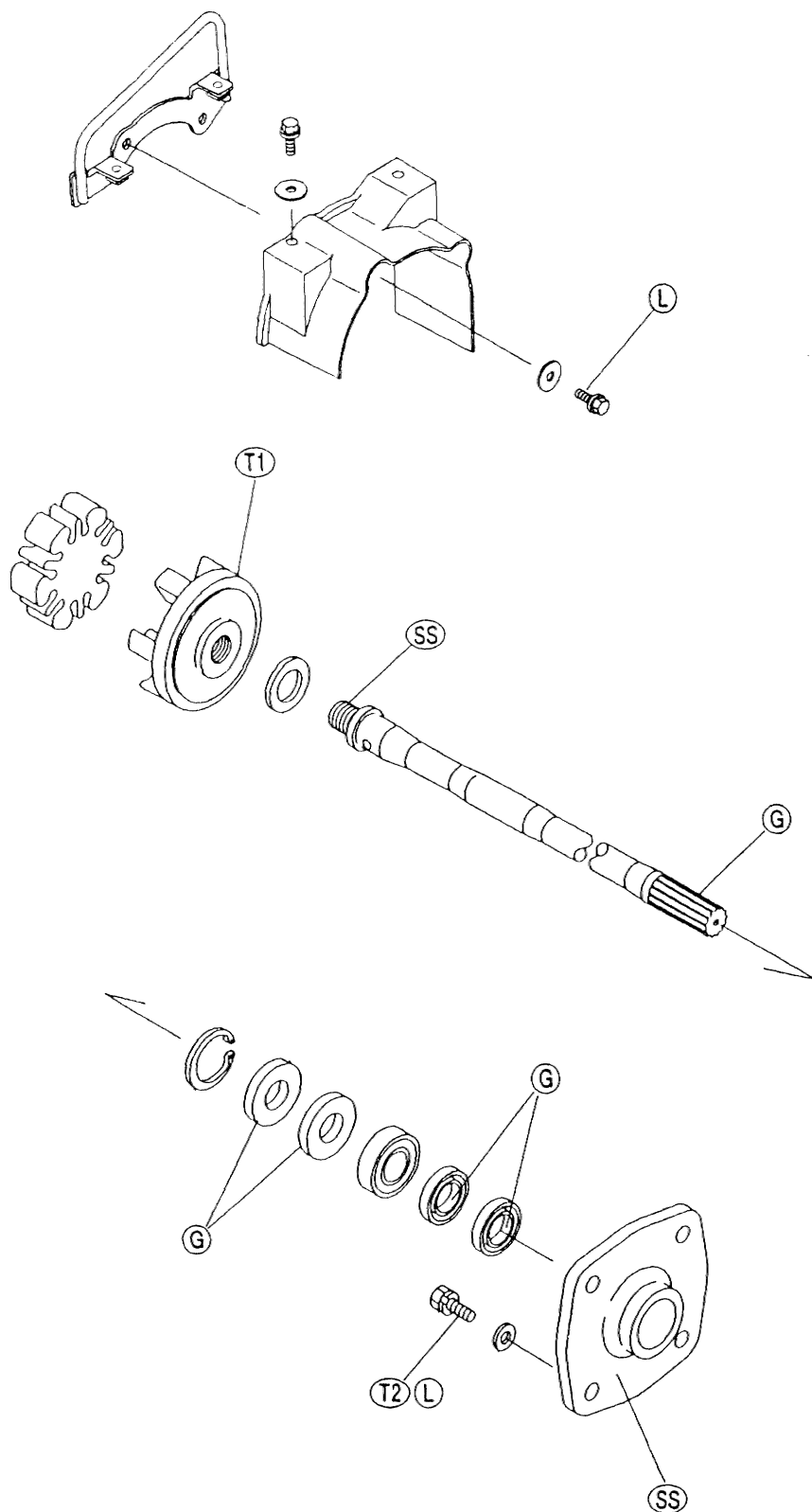
 Drive Shaft Runout*

* = Base Manual

9-2 DRIVE SYSTEM

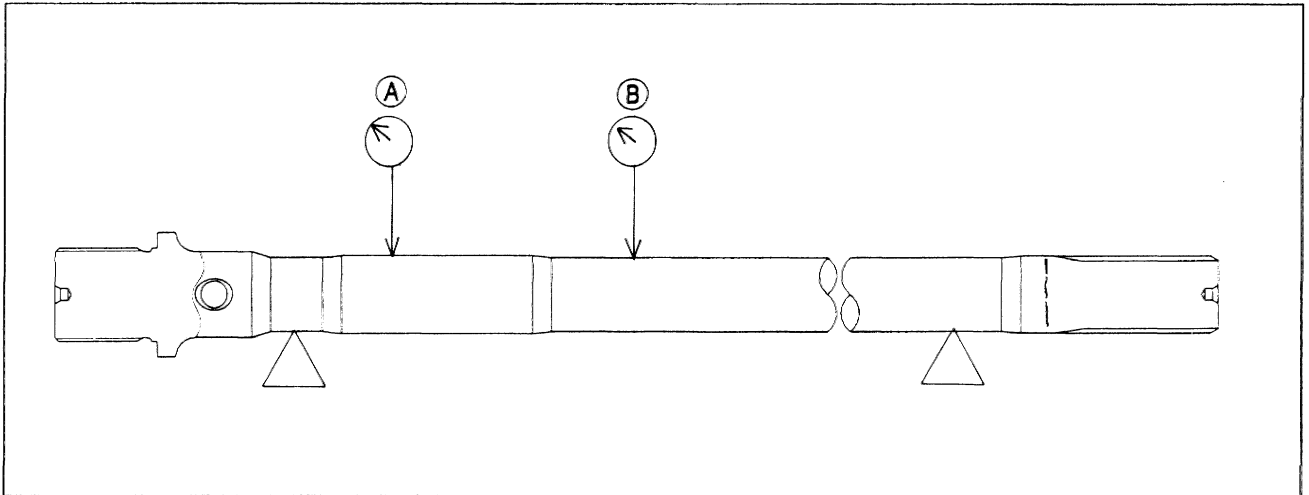
Exploded View

- T1 : 39 N-m (4.0 kg-m, 29 ft-lb)
T2 : 22 N-m (2.2 kg-m, 16.0 ft-lb)
L : Apply a non-permanent locking agent.
G : Apply grease.
SS: Apply silicone sealant.



Specifications

Item	Standard	Service Limit
Drive Shaft: Runout	[A] less than 0.1 mm [B] less than 0.2 mm	0.2 mm 0.6 mm



Special Tools – Coupling Holder: 57001-1230
Drive Shaft Holder: 57001-1327
Drive Shaft Holder Adapter: 57001-1231
Bearing Driver Set: 57001-1129

Sealant – Kawasaki Bond (Silicone Sealant): 56019-120

Pump and Impeller

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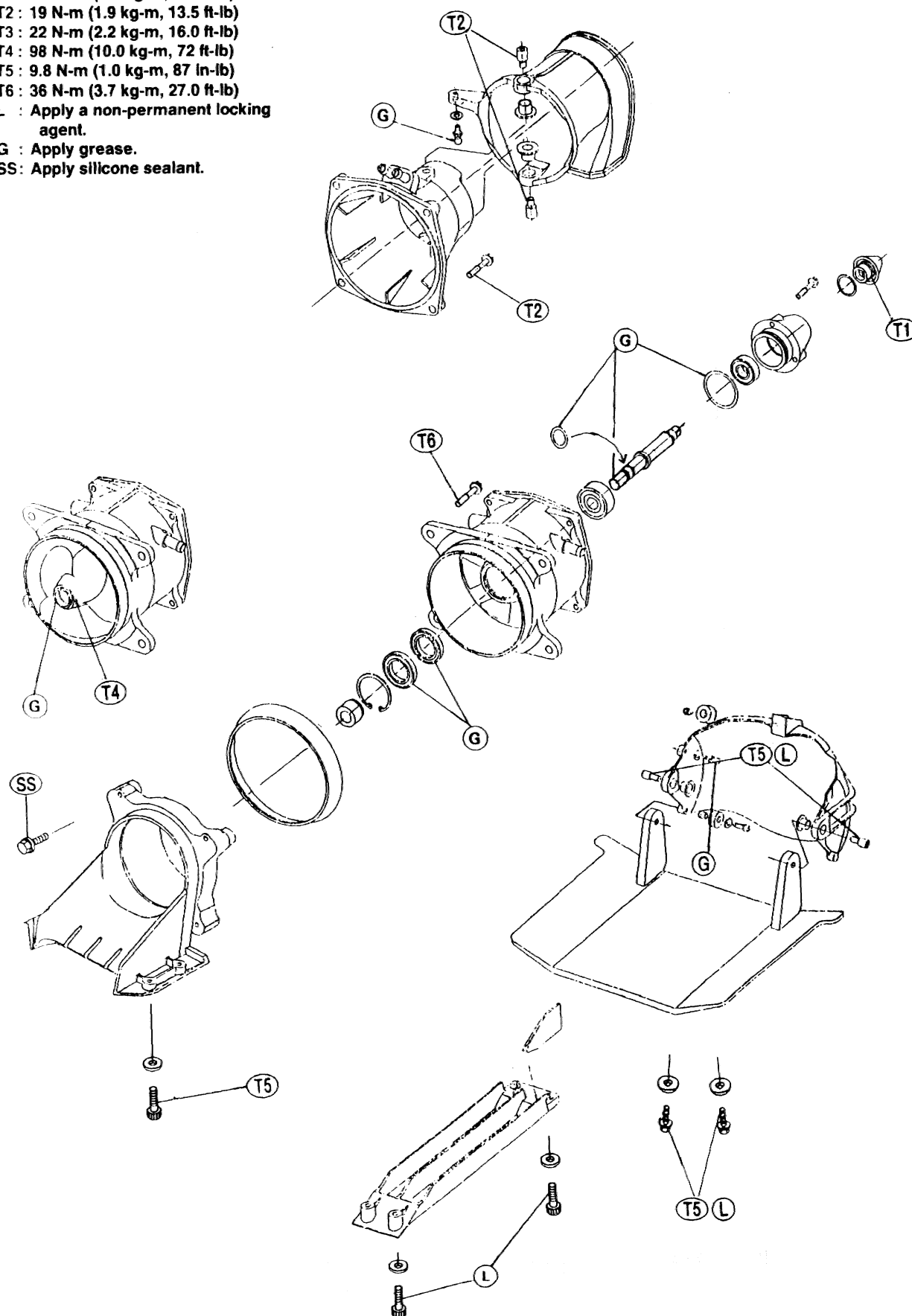
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Pump Disassembly	*
Pump Assembly	10-7
Pump and Impeller Inspection	*
Impeller Clearance	*

* = Base Manual

10-2 PUMP AND IMPELLER

Exploded View

- T1 : 3.9 N-m (0.4 kg-m, 35 in-lb)
T2 : 19 N-m (1.9 kg-m, 13.5 ft-lb)
T3 : 22 N-m (2.2 kg-m, 16.0 ft-lb)
T4 : 98 N-m (10.0 kg-m, 72 ft-lb)
T5 : 9.8 N-m (1.0 kg-m, 87 in-lb)
T6 : 36 N-m (3.7 kg-m, 27.0 ft-lb)
L : Apply a non-permanent locking agent.
G : Apply grease.
SS : Apply silicone sealant.



Specifications

Item	Standard	Service Limit
Jet Pump:		
Impeller Out side Diameter	147.5 ~ 147.7 mm	146.5 mm
Pump Case Inside Diameter	148.0 ~ 148.1 mm	149.1 mm
Impeller Clearance	0.15 ~ 0.3 mm	0.6 mm

Special Tools – Impeller Wrench: 57001-1228
Impeller Holder: 57001-1393
Oil Seal & Bearing Remover: 57001-1058
Bearing Driver Set: 57001-1129

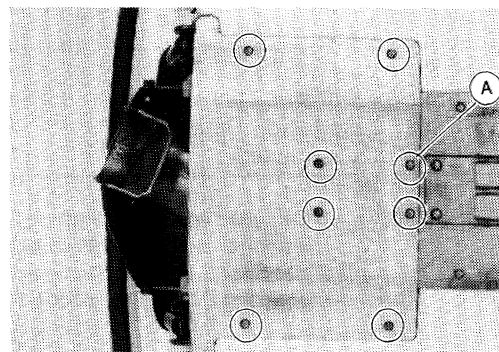
Sealant – Kawasaki Bond (Silicone Sealant): 56019-120

10-4 PUMP AND IMPELLER

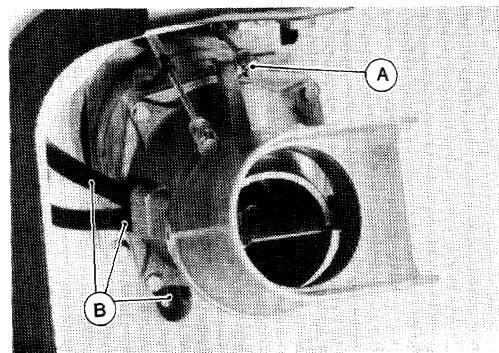
Pump and Impeller

Pump Removal

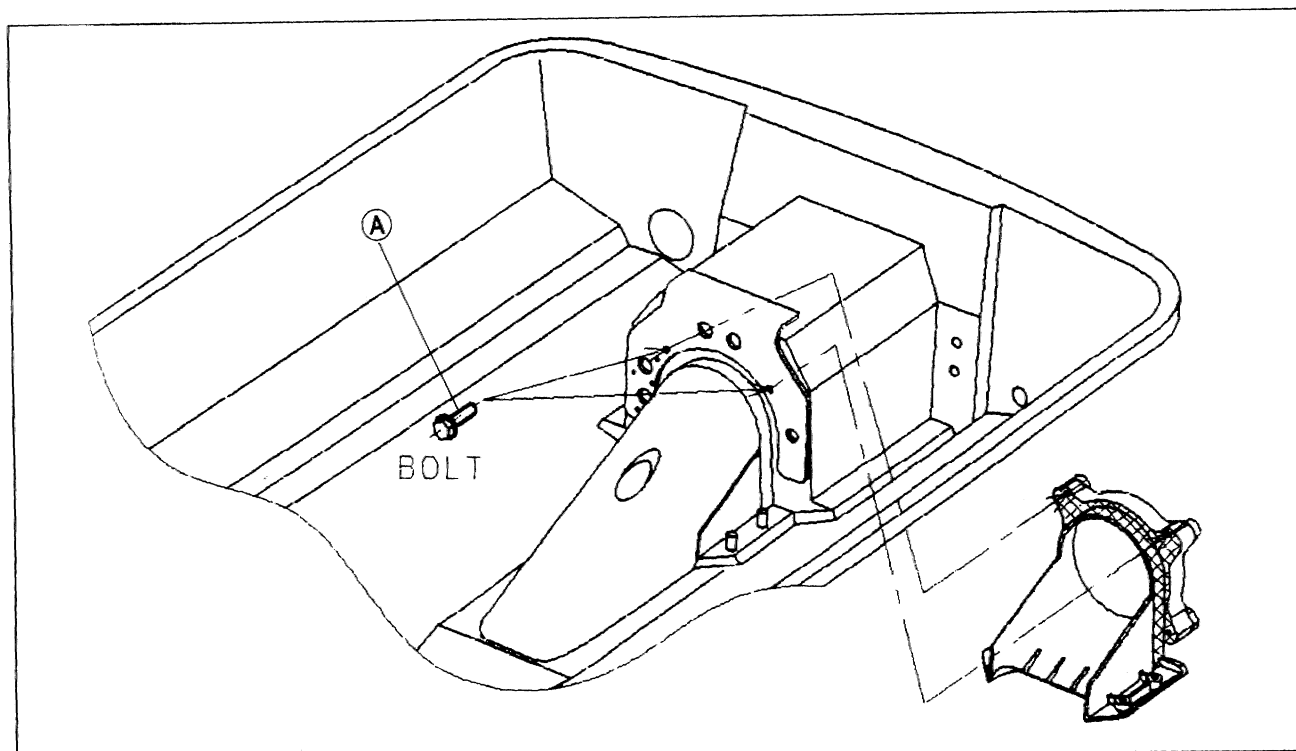
- Refer to the base manual, noting the following.
- Turn the craft on its left side.
- Slip the shift cable connector off the ball.
- Unscrew the mounting bolt [A], and remove the pump cover with the reverse bucket.



- Slip the steering cable connector [A] off the ball.
- Loosen the clamp, and pull off the hoses [B].

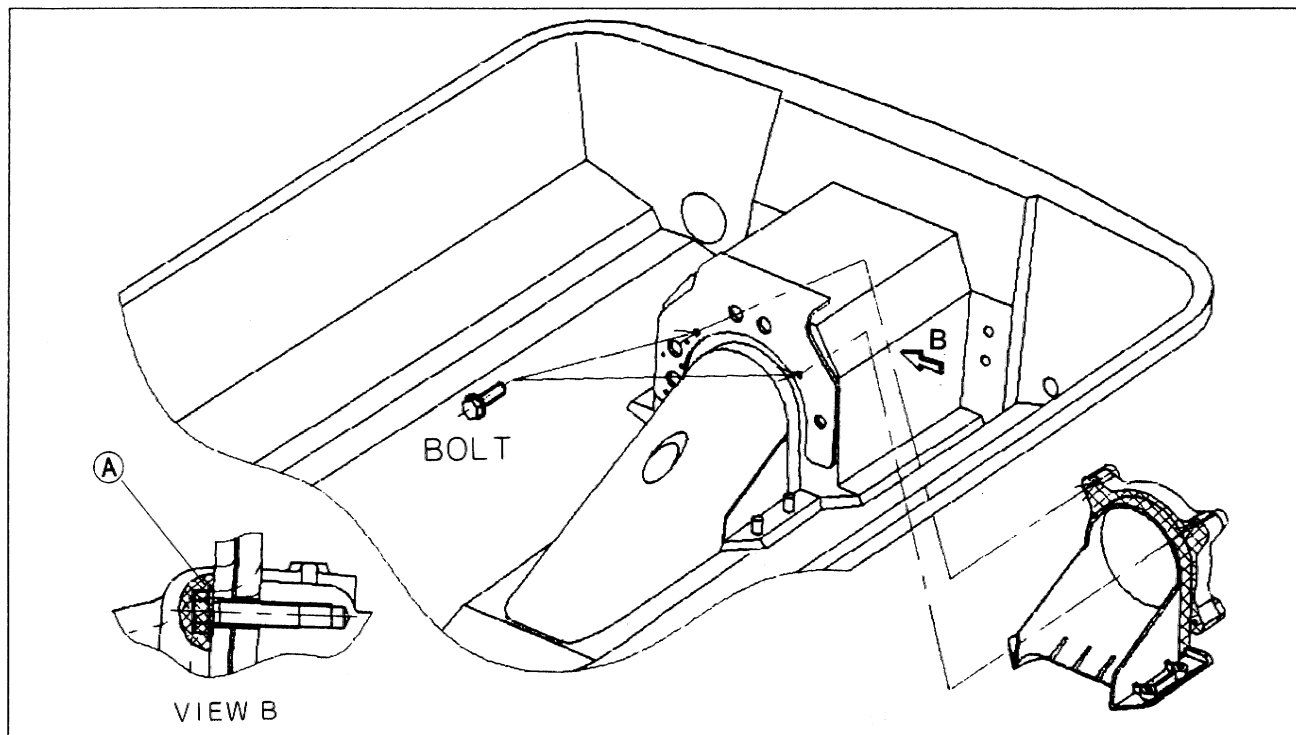


- To remove the pump bracket, remove the following.
- Remove the bolt [A] in the hull.

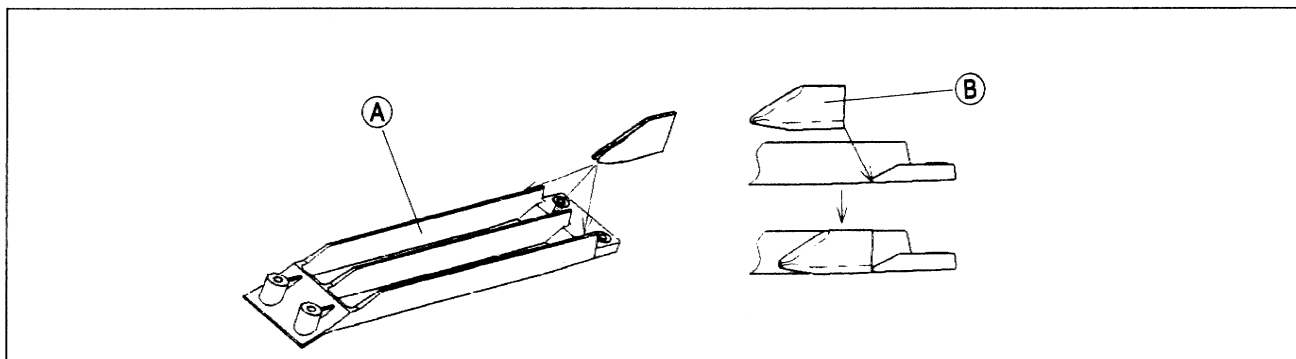


Pump Installation

- Refer to the base manual, noting the following.
- The bolts are wrapped in silicone sealant [A].



- To install the grate [A] to the hull, be sure the trim seals [B] are in the position.



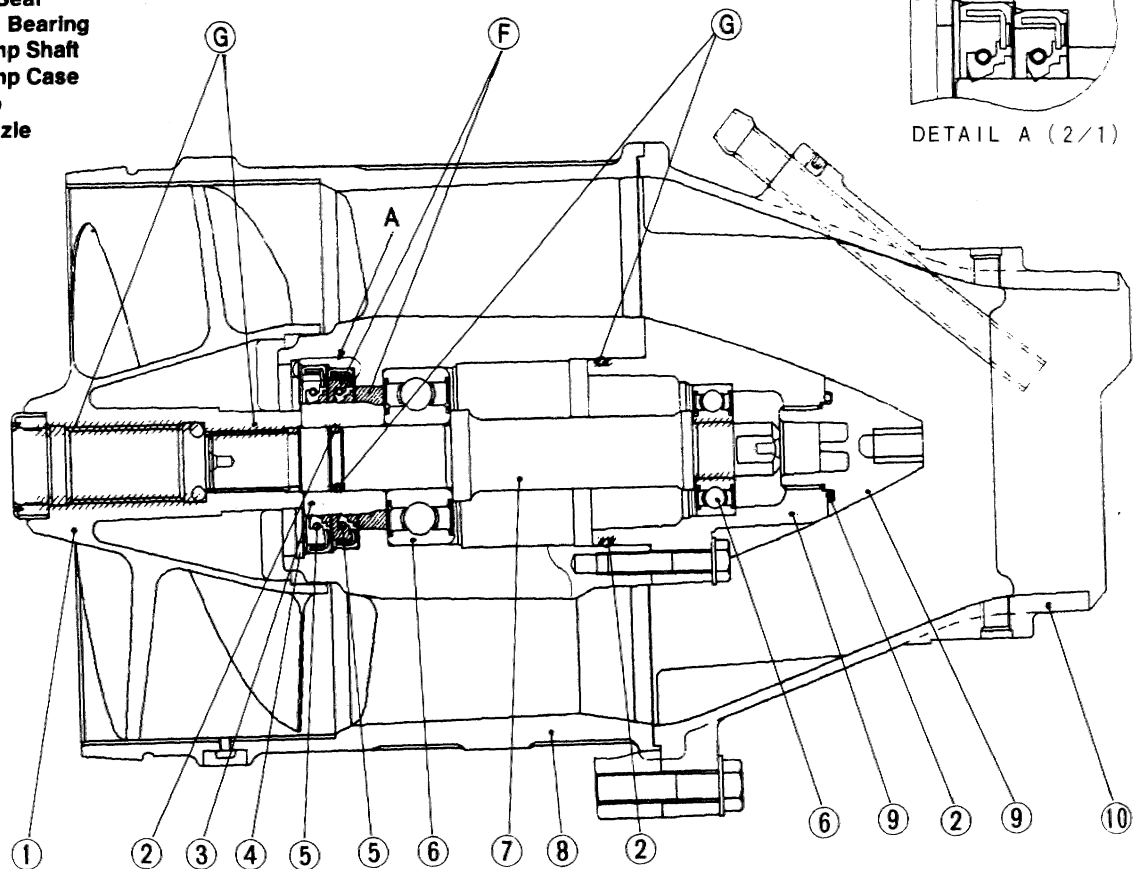
10-6 PUMP AND IMPELLER

Pump Assembly

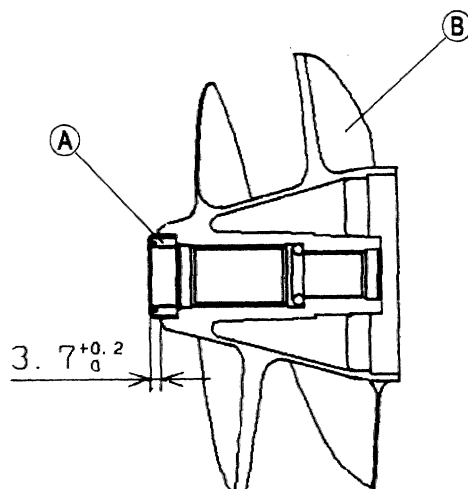
● Refer to the base manual, noting the following.

G: Apply grease.
F: Fill with grease.

1. Impeller
2. O-ring
3. Bushing
4. Snap Ring
5. Oil Seal
6. Ball Bearing
7. Pump Shaft
8. Pump Case
9. Cap
10. Nozzle



○ Press the grease seal [A] into the impeller [B], as shown.



Steering

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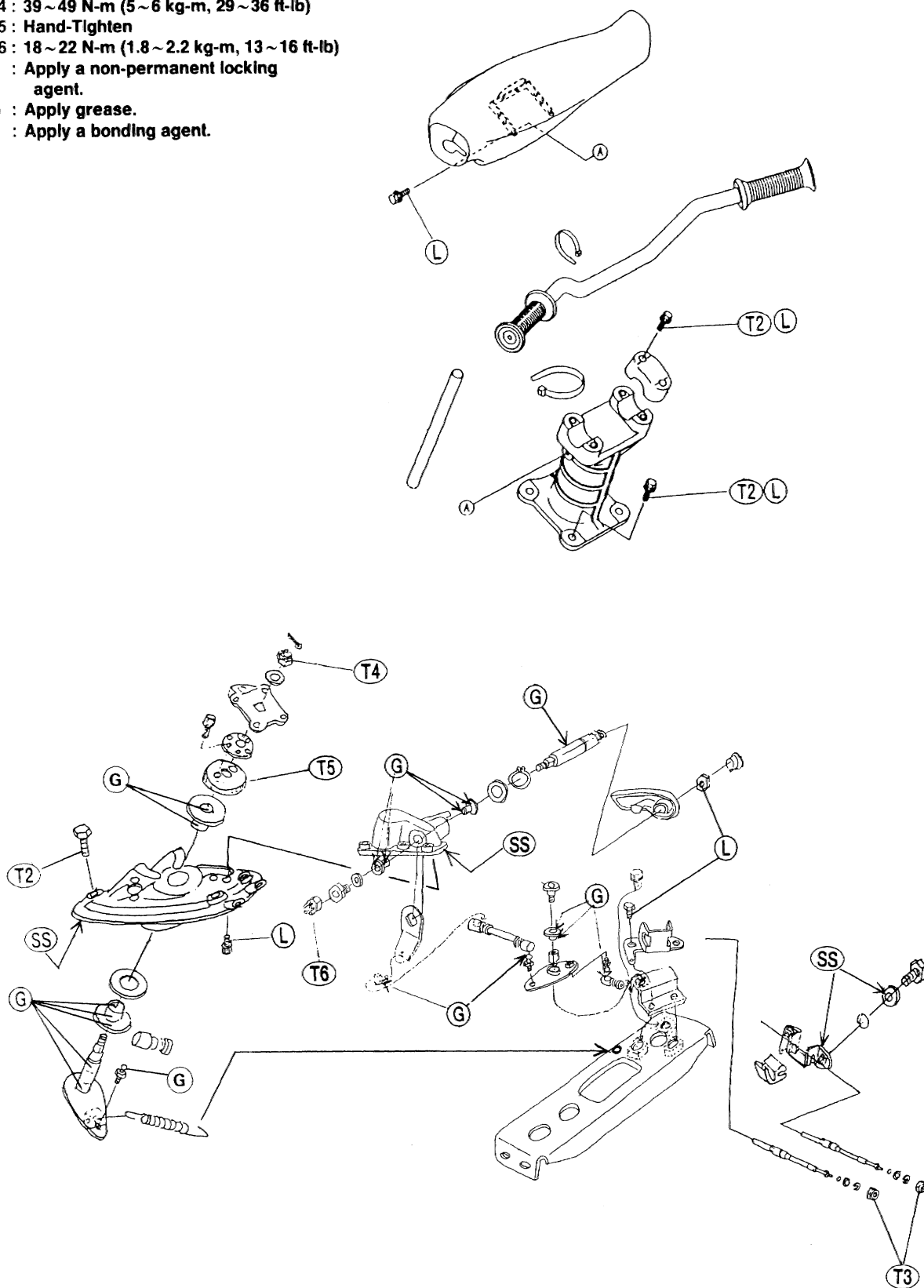
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* = Base Manual

11-2 STEERING

Exploded View

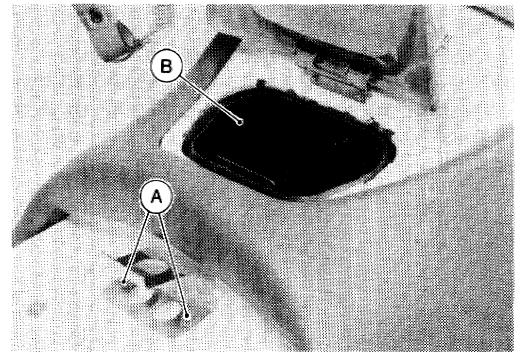
- T1 : 3.9 N-m (0.4 kg-m, 35 in-lb)
T2 : 16 N-m (1.6 kg-m, 11.5 ft-lb)
T3 : 18 N-m (1.8 kg-m, 13.0 ft-lb)
T4 : 39~49 N-m (5~6 kg-m, 29~36 ft-lb)
T5 : Hand-Tighten
T6 : 18~22 N-m (1.8~2.2 kg-m, 13~16 ft-lb)
L : Apply a non-permanent locking agent.
G : Apply grease.
B : Apply a bonding agent.



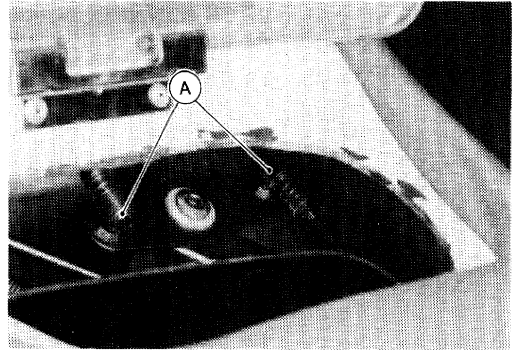
Steering Cable

Steering Cable Removal

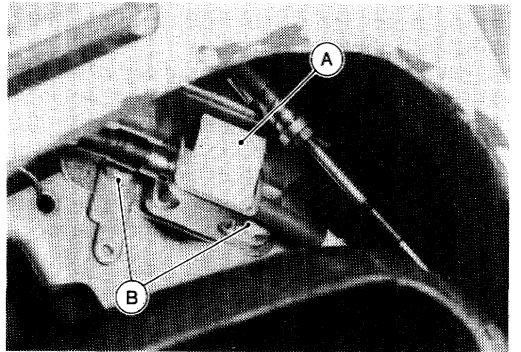
- Refer to the base manual, noting the following.
- Take out the bolts [A] holding the storage case [B] to the hull. The bracket on the inside of the hull will drop when the storage case is removed.



- Disconnect the ball joints [A] of the shift cable and link rod to make the service easy.



- Pull the holder [A] off the bracket and remove the bracket mounting bolts [B]

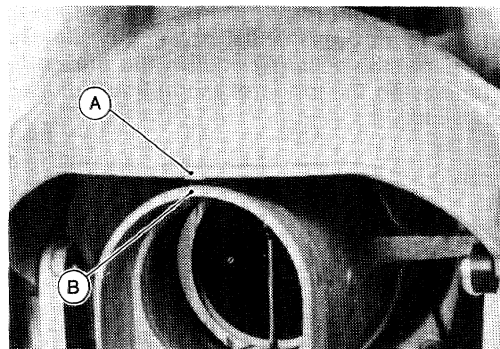


11-4 STEERING

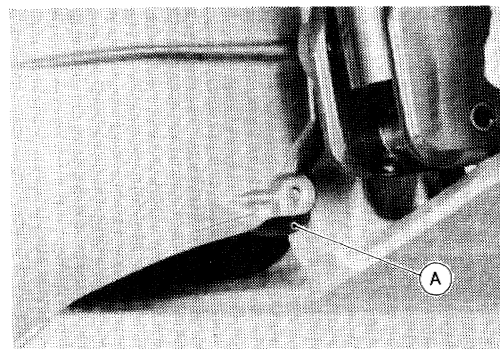
Reverse System

Shift Cable Adjustment

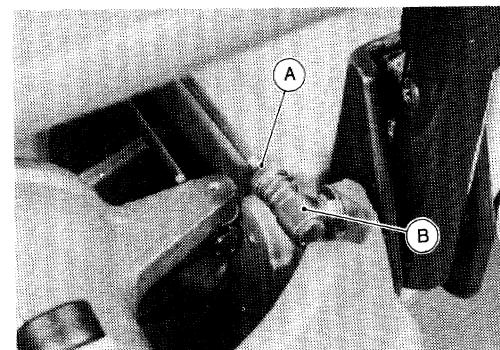
- Check the shift cable adjustment.
- The lower edge of the bucket [A] should be held above the top of the steering nozzle [B] with slight play so it doesn't interfere with the waterflow from the jet pump.



- Put the shift lever in the "R (Reverse)" position.
- The lower damper [A] on the bucket should rest against the pump cover bottom.

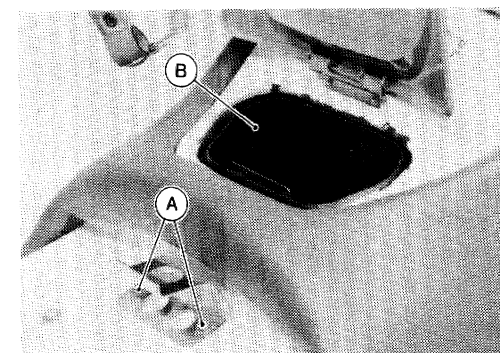


- If either position is incorrect, adjust the shift cable.
- Put the shift lever in Reverse.
- Loosen the locknut [A] on the end of the shift cable.
- Slide back the outer sleeve [B] and take the ball joint off the ball.
- Turn the ball joint and reattach it so the lower edge of the bucket is held above the top of the nozzle allowing the bucket to have 2 ~ 3 mm of play when the shift lever is put in the "F" position.
- Check the adjustment again.
- When adjustment is correct, tighten the locknut.

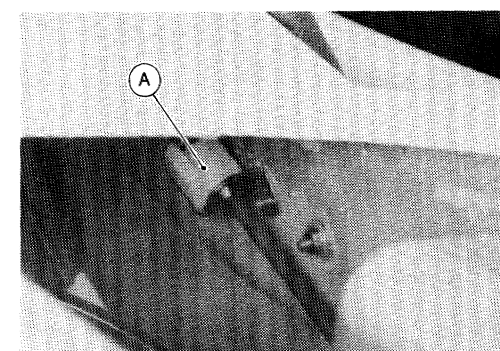


Shift Cable Removal

- Refer to Steering Cable Removal section of the base manual, noting following.
- Take out the bolts [A] holding the storage case [B] to the hull. The bracket on the inside of the hull will drop down when the storage case is removed.



- Pull the holder [A] off the bracket.

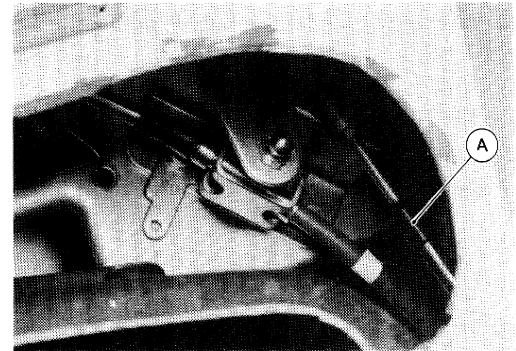


Shift Cable Installation

- Torque the cable nut.
Torque: Cable Nut: 18 N-m (1.8 kg-m, 13.0 ft-lb)
- Adjust the shift cable.

Shift Cable Inspection

- Examine the shift cable.
- ★ If the cable or cable housing is kinked or frayed, replace the cable.
- ★ If the seal [A] at either end of the cable is damaged in any way, replace the cable.
- Be certain that the cable moves freely in both directions.
- Disconnect the ball joint at each end of the cable.
- Slide the outer sleeve away from the ball slightly, and lift the cable from the ball.
- Slide the inner cable back and forth in the cable housing.
- ★ If the cable does not move freely, replace it.

**Shift Cable Lubrication****NOTE**

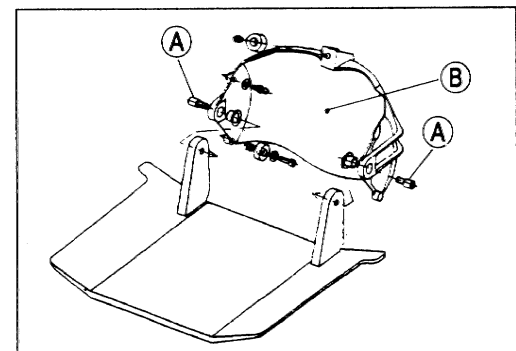
- The shift cable is sealed at each end and does not require lubrication.
If the seals are damaged, the cable must be replaced.

Reverse Bucket Removal/Installation

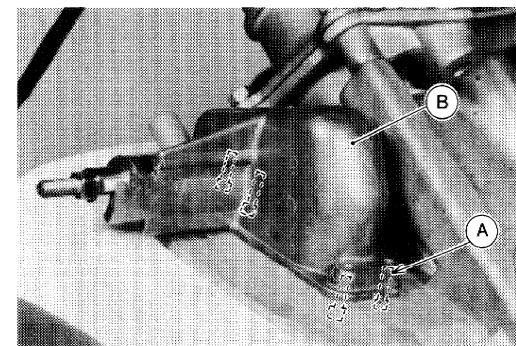
- Disconnect the ball joint at rear end of the shift cable.
- Remove the pump cover.
- Unscrew the pivot bolts [A] and remove the reverse bucket [B].
- Installation is the reverse of removal. Note the following.
- Apply a non-permanent locking agent to the reverse bucket pivot bolts, and torque them.

Torque – Reverse Bucket Pivot Bolts: 9.8 N-m (1.0 kg-m, 87 in-lb)

- After installation, check the shift cable adjustment.

**Shift Lever Shaft Removal/Installation**

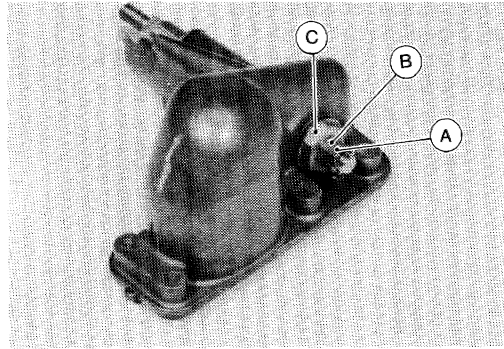
- Remove:
 - Steering Cover
 - Air Intake Duct
 - Shift Link Rod Ball Joint (disconnect)
- Unscrew the mounting bolts [A] on the inside of the hull and remove the shift lever holder [B].



11-6 STEERING

- To remove the shift lever shaft, remove the following.

Cotter Pin [A]
Lock Nut [B]
Nut [C]



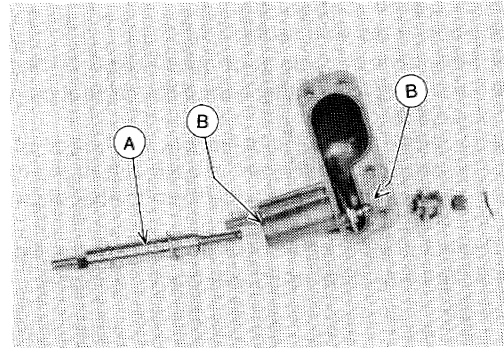
- Assemble the shift lever holder, noting the following.

- Grease:

Shift Lever Shaft [A]
Bushings [B]

- Torque:

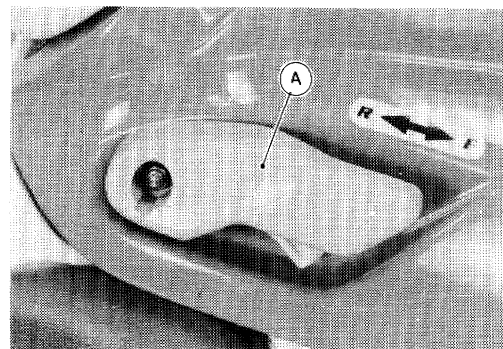
Torque – Shift Lever Shaft Lock Nut: 18 ~ 22 N-m (1.8 ~ 2.2 kg-m, 13 ~ 16 ft-lb)



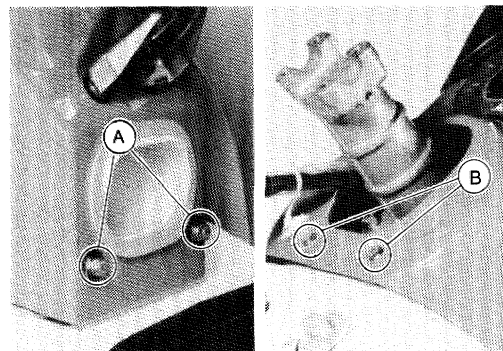
Steering

Removal

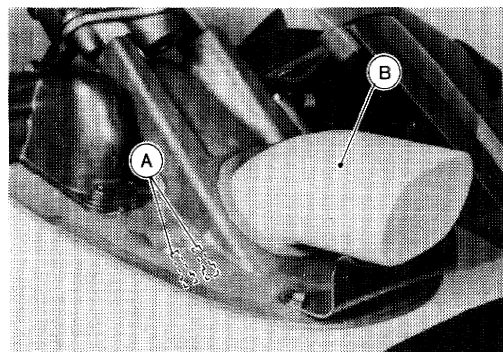
- Refer to the base manual, noting the following.
- Remove the handlebar (see Handlebar Removal).
- Take out the cap and remove the shift lever [A].



- Unscrew the mounting bolts [A] [B] and lift up the steering cover.

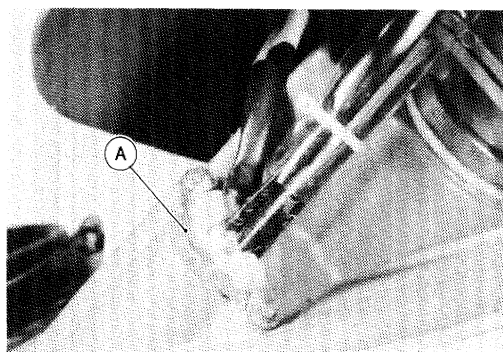


- Take out the mounting bolts [A] and remove the air intake duct [B].



- Take out the grommet mounting plate [A] and disconnect and pull out the following.

Throttle Cable
 Start/Stop Switch Leads
 Multifunction Meter Leads
 Steering Cable Ball Joint
 Shift Link Rod Ball Joint



Hull/Engine Hood

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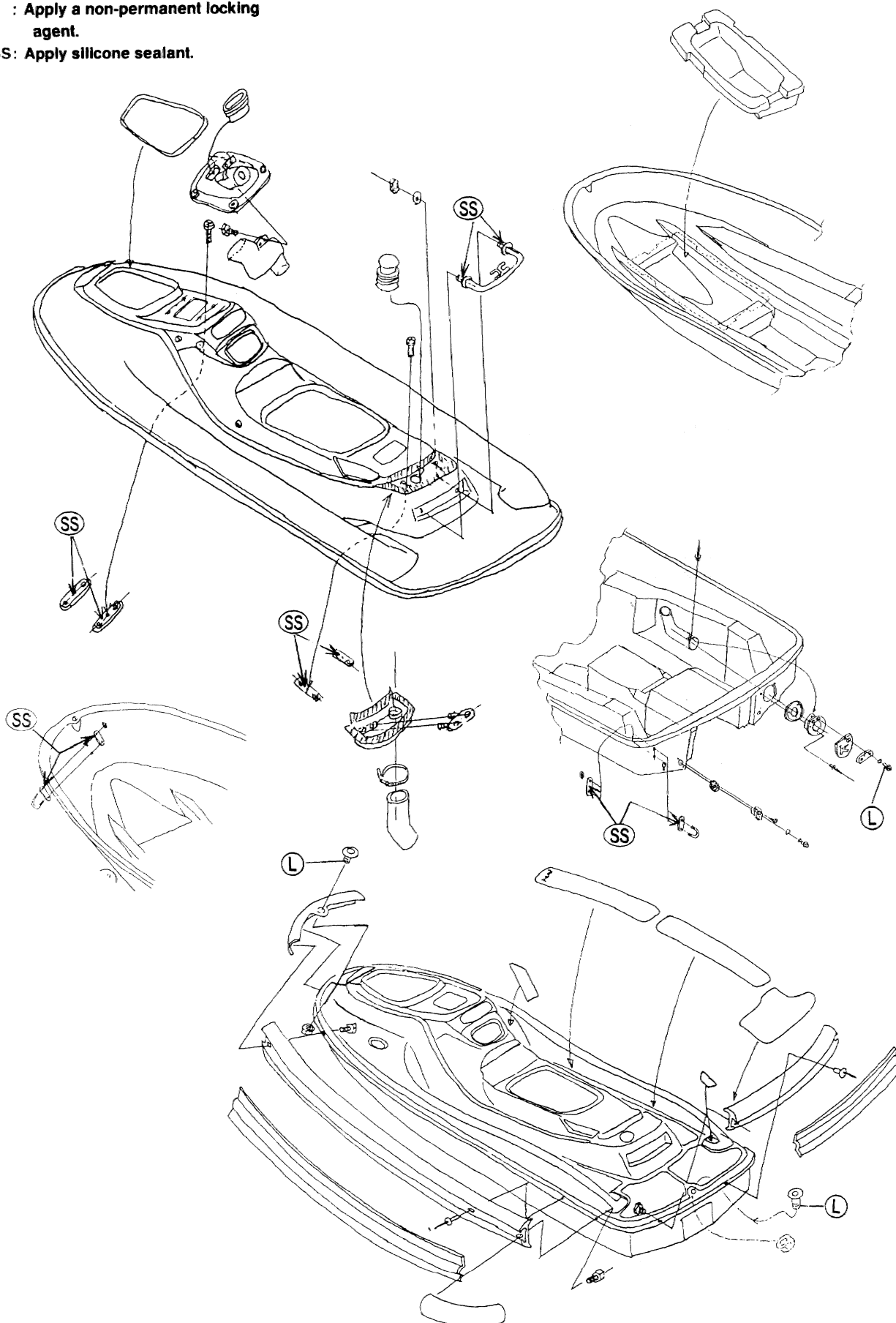
* = Base Manual

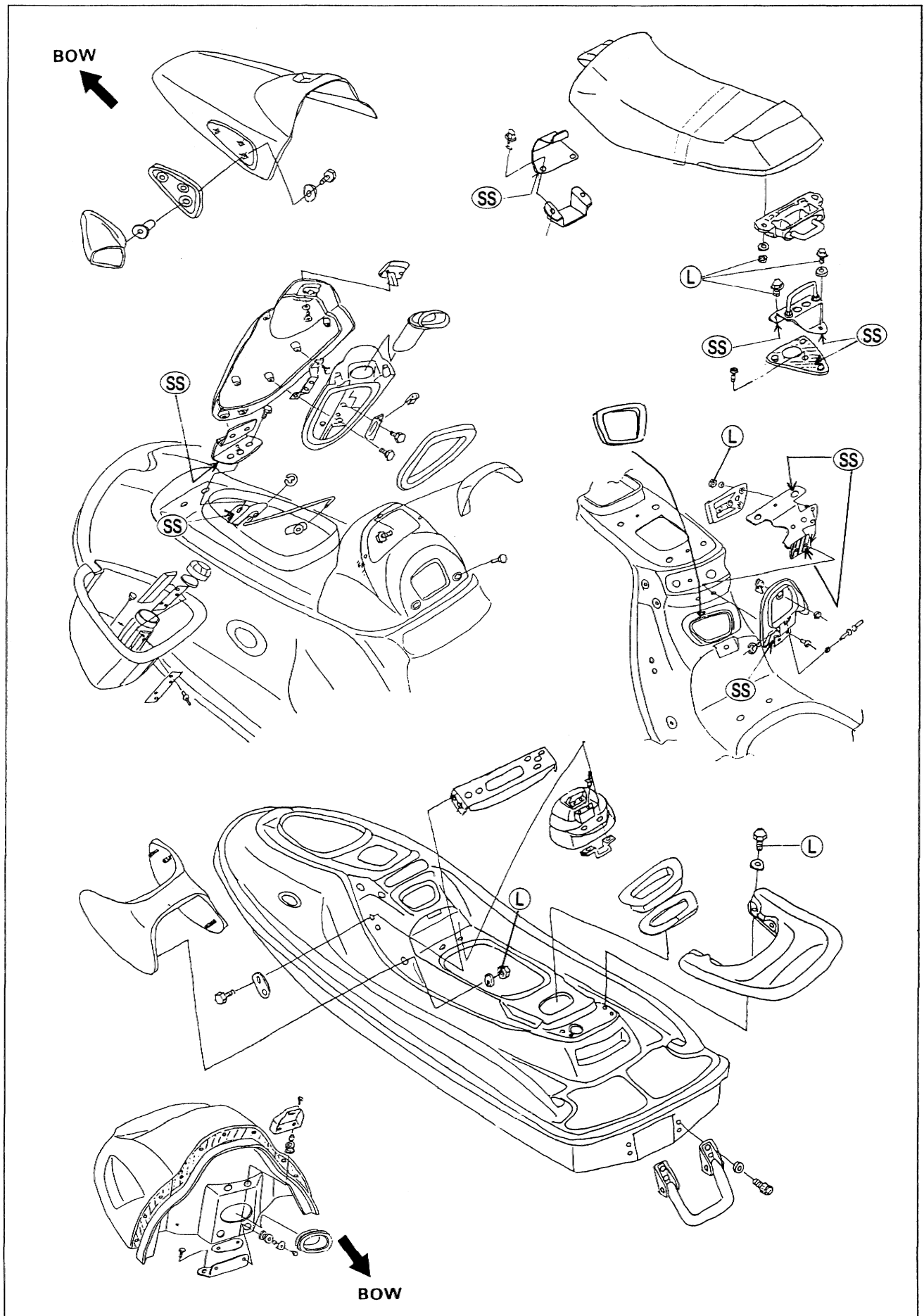
12-2 HULL/ENGINE HOOD

Exploded View

L : Apply a non-permanent locking agent.

SS : Apply silicone sealant.



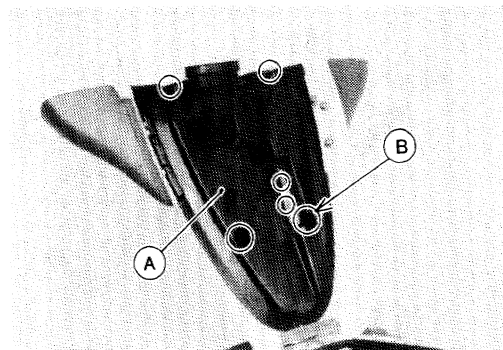


12-4 HULL/ENGINE HOOD

Fittings

Hatch Cover Removal/Installation

- Refer to the base manual, noting the following.
- To remove the air intake duct [A], unscrew the mounting bolts [B].



Electrical System

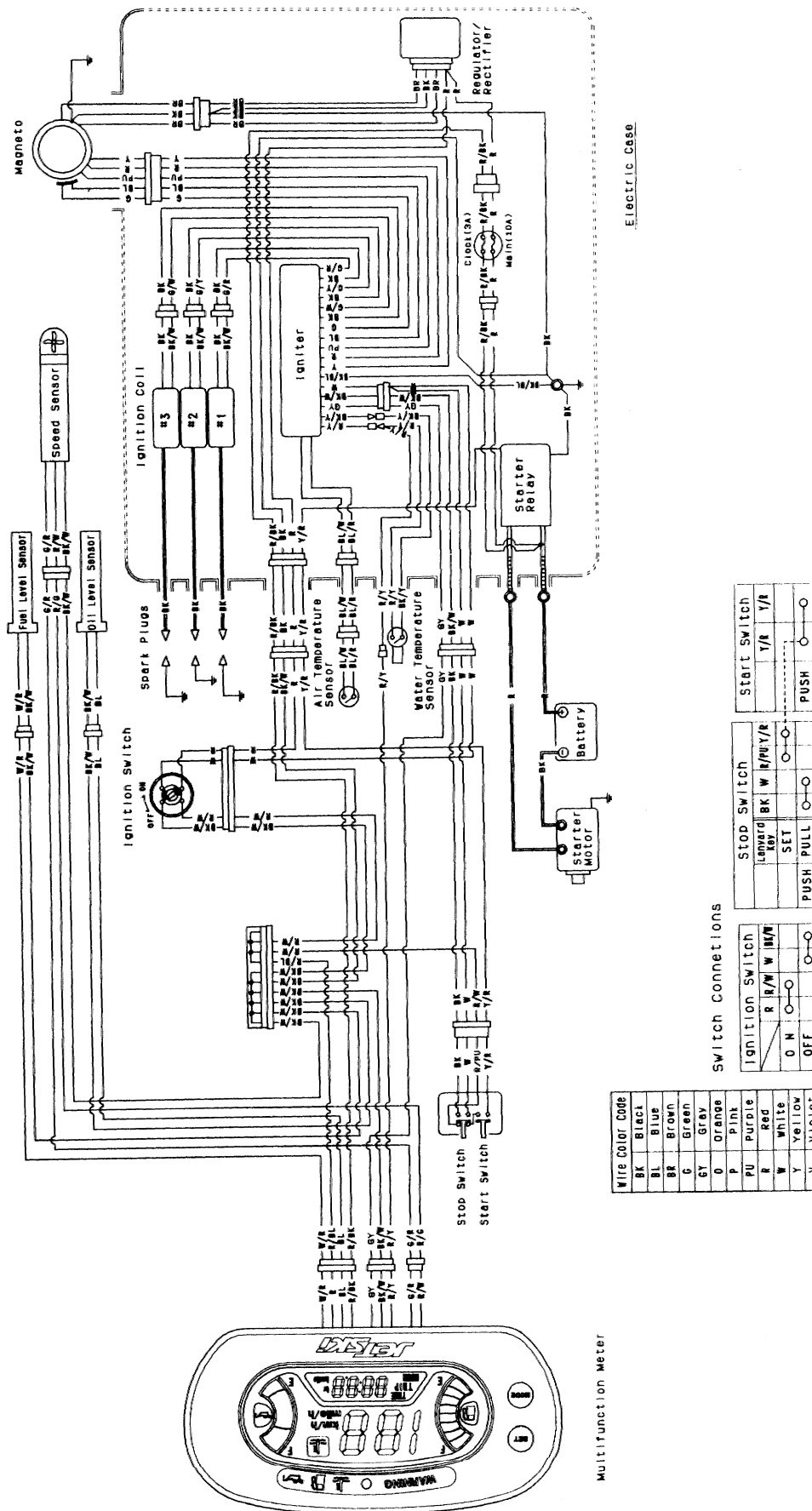
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* = Base Manual

13-2 ELECTRICAL SYSTEM

Wiring Diagram



Exploded View

1. Spark Plug
2. Temperature Sensor
3. Starter Relay
4. Ignition Coil
5. Regulator/Rectifier
6. Igniter
7. Fuse Assy
8. Speed Sensor
9. Fuel Level Sensor
10. Oil Level Sensor
11. Multifunction Meter

T1 : 7.8 N-m (0.8 kg-m, 69 in-lb)

T2 : 27 N-m (2.8 kg-m, 20 ft-lb)

T3 : 2.9 N-m (0.3 kg-m, 26 in-lb)

T4 : 3.9 N-m (0.4 kg-m, 35 in-lb)

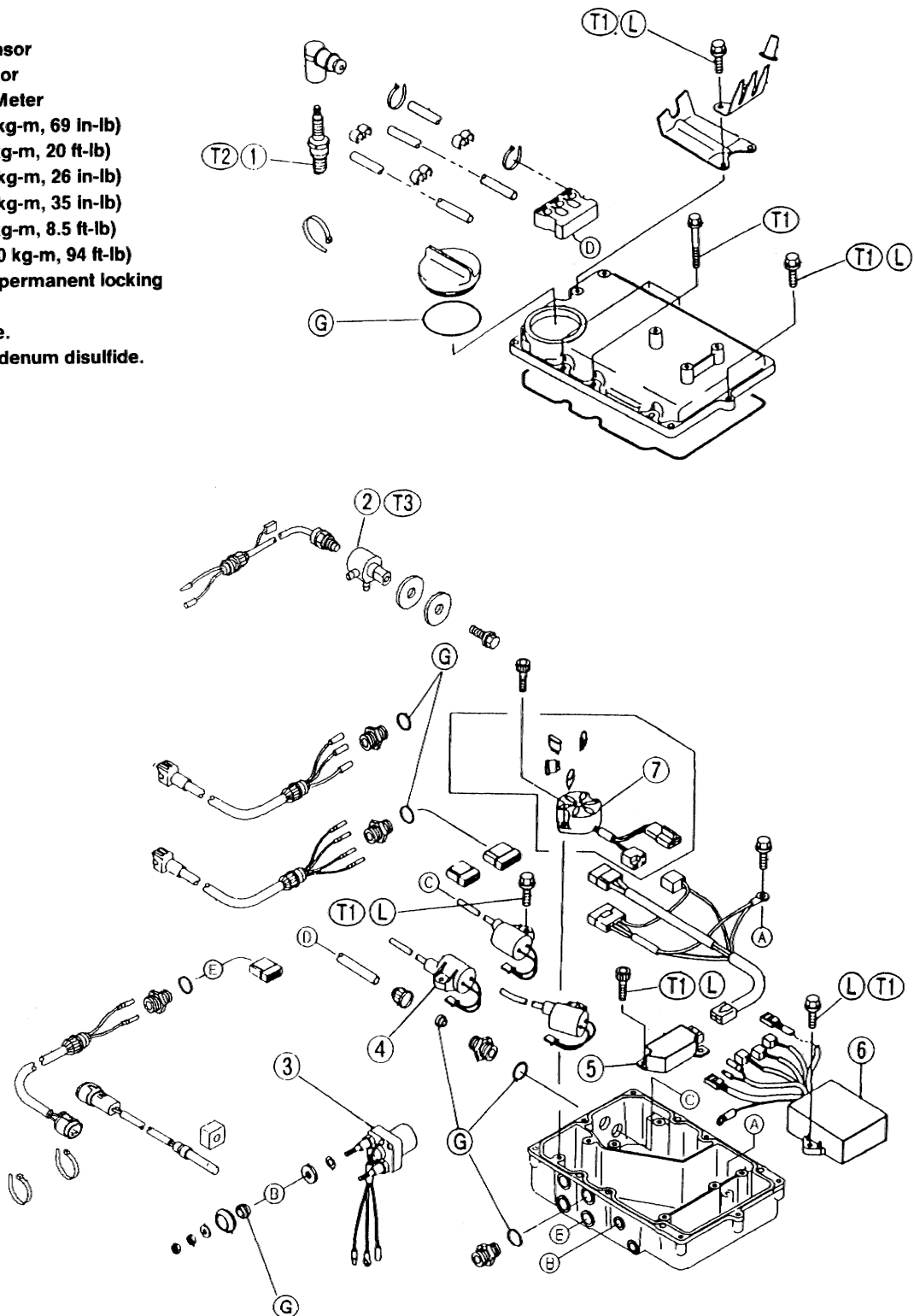
T5 : 12 N-m (1.2 kg-m, 8.5 ft-lb)

T6 : 125 N-m (13.0 kg-m, 94 ft-lb)

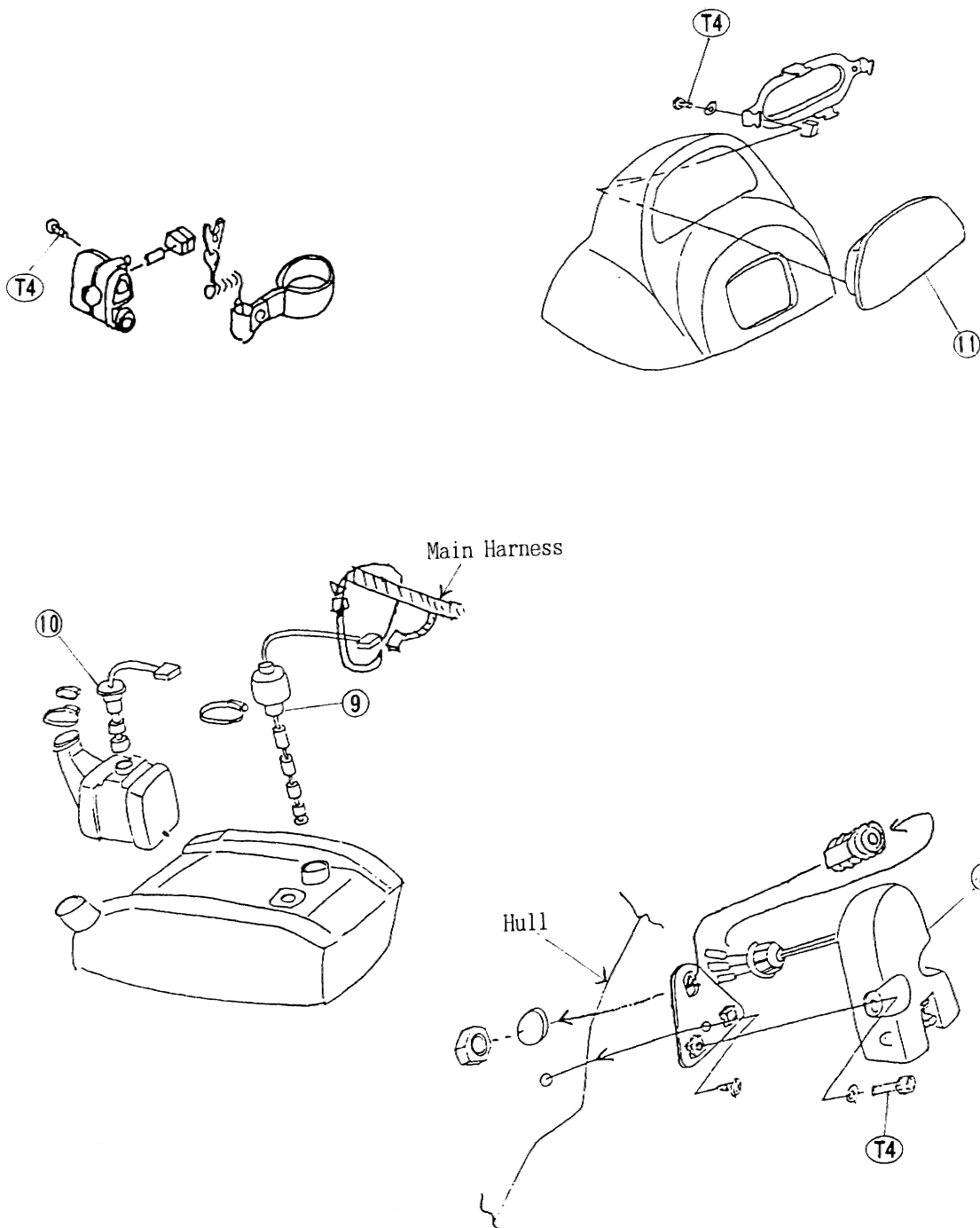
L : Apply a non-permanent locking agent.

G : Apply grease.

M : Apply molybdenum disulfide.



BOW
←



13-6 ELECTRICAL SYSTEM

Specifications

Item	Standard	Service Limit
Battery: Type	12 V 18 Ah	---
Electric Starter System: Starter motor: Brush length Commutator diameter	12.5 mm 28 mm	6.5 mm 27 mm
Charging System: Regulator/rectifier output voltage Charging coil output voltage Charging coil resistance: Brown ← → Brown Exciter Coil resistance: Purple ← → Red Yellow ← → Black	Battery voltage -14.5 ±0.5 V 50 V 0.7 ~ 1.1 Ω 348.8 ~ 523.2 Ω 21.6 ~ 32.4 Ω	--- --- --- --- ---
Ignition System: Ignition timing Ignition coil: Primary winding resistance Secondary winding resistance Spark plug: Type: Gap: Pickup coil resistance Pickup coil air gap (Clearance between the rotor projection and pickup core)	17° BTDC @1 250 r/min (rpm) ~ 27° BTDC @3 000 r/min (rpm) 0.18 ~ 0.24 Ω 2.7 ~ 3.7 Ω NGK BR9ES 0.7 ~ 0.8 mm 396 ~ 594 Ω 0.8 ~ 1.0 mm	--- --- --- --- --- --- ---

Special Tool – Hand Tester: 57001-1394

Ignition System

CDI Igniter Inspection

- Remove the CDI igniter.
- Set the hand tester to the $\times 1 \text{ k}\Omega$ range, zero it, and make the measurements shown in the table.
- ★ If the tester readings are not as specified, replace the CDI igniter.

Special Tool – Hand Tester: 57001-1394

CAUTION

Use only Hand Tester (special tool: 57001-1394) for this test. A multi-meter other than the Kawasaki Hand Tester may show different readings.

If a megger or a meter with a large-capacity battery is used, the CDI igniter will be damaged.

CDI Igniter Internal Resistance

Unit : $\text{k}\Omega$

Tester (+) Lead Connection						
Lead Color	R	PU	Y	BL	G	G/W
R	—	15~500	∞	9.5~100	18~200	30~500
PU	more than 80	—	∞	70~1000	70~1000	more than 80
Y	more than 80	more than 80	—	70~1000	80~1000	more than 80
BL	1.6~20	1.6~20	∞	—	4.4~35	1.6~20
G	9.5~40	9.5~40	∞	3.8~22	—	9.5~40
G/W	∞	∞	∞	∞	∞	—
BK	1.6~20	1.6~20	∞	0	4.4~35	1.6~20
G/Y	∞	∞	∞	∞	∞	∞
(-)* G/R	∞	∞	∞	∞	∞	∞
R/Y	∞	∞	∞	∞	∞	∞
BK/Y	1.6~20	1.6~20	∞	0	4.4~35	1.6~20
W	15~500	15~500	∞	8.5~200	11~200	16~300
BK/W	1.6~20	1.6~20	∞	0	4.4~35	1.6~20
GY	20~300	20~300	∞	10~200	10~200	20~300
BL/W	∞	∞	∞	∞	∞	∞
BL/R	1.6~20	1.6~20	∞	0	4.4~35	1.6~20
BK/BL	1.6~20	1.6~20	∞	0	4.4~35	1.6~20

(-)*: Tester (-) Lead Connection

Some readings indicate deflection of needle and return.

13-8 ELECTRICAL SYSTEM

CDI Igniter Internal Resistance

Unit : kΩ

(-)*

Tester (+) Lead Connection						
Lead Color	BK	G/Y	G/R	R/Y	BK/Y	W
R	9.5~100	30~500	30~500	20~400	9.5~100	7.5~100
PU	70~1000	more than 80	more than 80	more than 80	70~1000	more than 80
Y	70~1000	more than 80	more than 80	more than 80	70~1000	more than 80
BL	0	1.6~20	1.6~20	9~50	0	2.2~18
G	3.8~22	9.5~40	9.5~40	16~70	3.8~22	8~35
G/W	∞	∞	∞	∞	∞	∞
BK	-	1.6~20	1.6~20	9~50	0	2.2~18
G/Y	∞	-	∞	∞	∞	∞
G/R	∞	∞	-	∞	∞	∞
R/Y	∞	∞	∞	-	∞	∞
BK/Y	0	1.6~20	1.6~20	9~50	-	2.2~18
W	8.5~200	16~300	16~300	5.5~30	8~200	-
BK/W	0	1.6~20	1.6~20	9~50	0	2.2~18
GY	10~200	20~300	20~300	9~50	10~200	2.2~22
BL/W	∞	∞	∞	∞	∞	∞
BL/R	0	1.6~20	1.6~20	9~50	0	2.2~18
BK/BL	0	1.6~20	1.6~20	9~50	0	2.2~18

(-)*

Tester (+) Lead Connection					
Lead Color	BK/W	GY	BL/W	BL/R	BK/BL
R	9.5~100	14~60	20~400	9.5~100	9.5~100
PU	70~1000	more than 80	more than 80	70~1000	70~1000
Y	70~1000	more than 80	more than 80	70~1000	70~1000
BL	0	3.8~20	9~50	0	0
G	3.8~22	10~45	16~70	3.8~22	3.8~22
G/W	∞	∞	∞	∞	∞
BK	0	3.8~20	9~50	0	0
G/Y	∞	∞	∞	∞	∞
G/R	∞	∞	∞	∞	∞
R/Y	∞	∞	∞	∞	∞
BK/Y	0	3.8~20	9~50	0	0
W	8~200	3.4~17	5.5~30	8~200	8~200
BK/W	-	3.8~20	9~50	0	0
GY	10~200	-	9~50	10~200	10~200
BL/W	∞	∞	-	∞	∞
BL/R	0	3.8~20	9~50	-	0
BK/BL	0	3.8~20	9~50	0	-

(-)*: Tester (-) Lead Connection

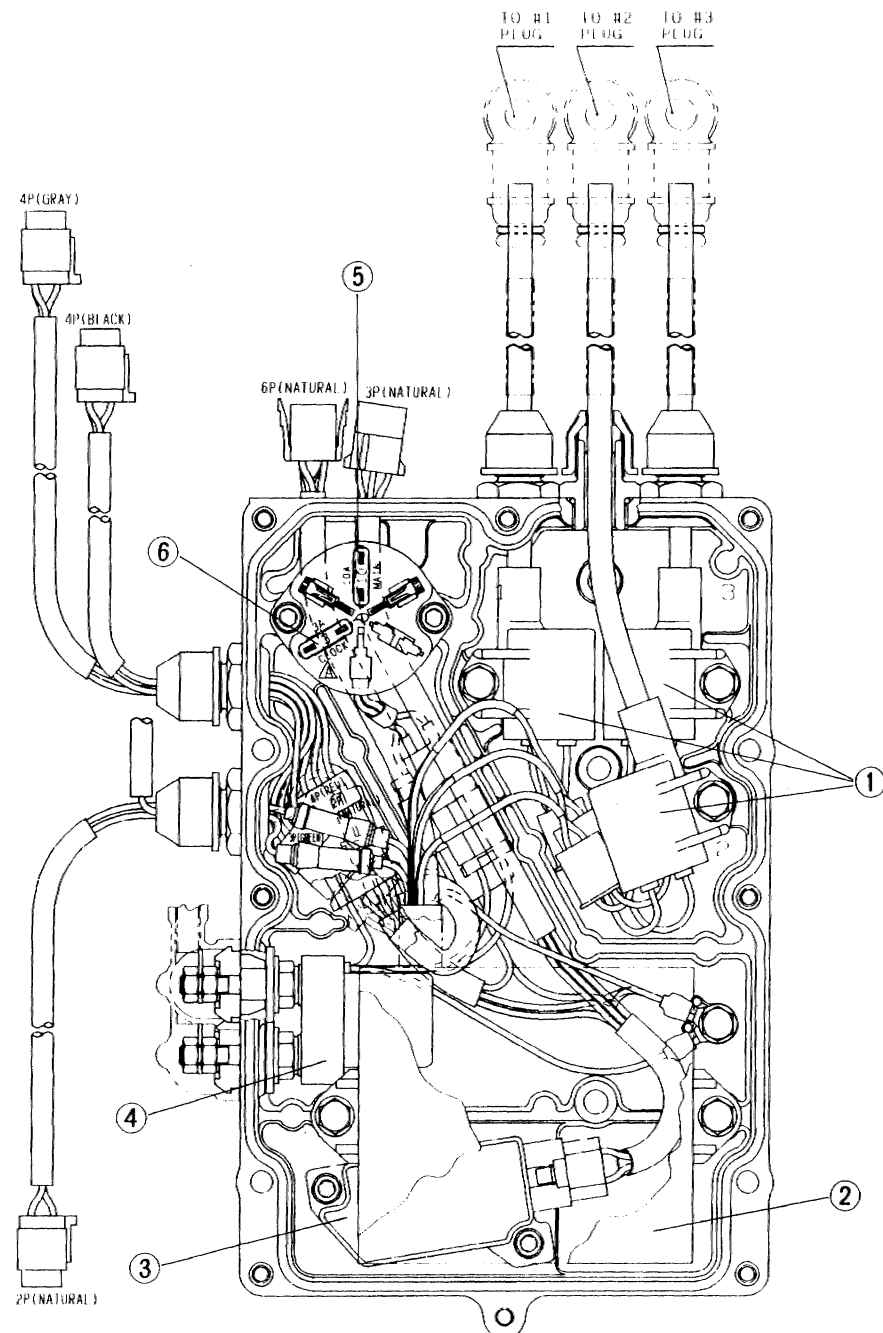
Some readings indicate deflection of needle and return.

Electric Case

Removal

- Refer to the base manual, noting the following.
- To remove the electric case, remove the battery case [A].

1. Ignition Coil
2. CDI Igniter
3. Regulator/Rectifier
4. Starter Relay
5. 10 A Fuse
6. 3 A Fuse



13-10 ELECTRICAL SYSTEM

Multifunction Meter

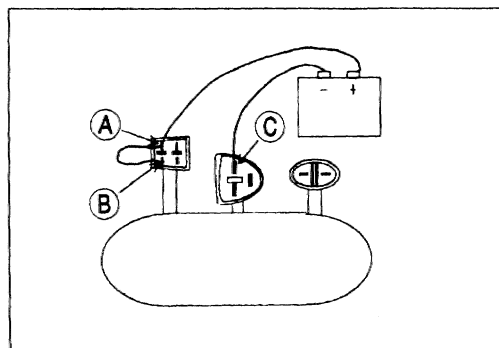
Display Function Inspection

- Connect the battery to the meter, as shown.

- [A] Red/Black Lead → Positive Terminal
- [B] Red Lead
- [C] Black/White Lead → Negative Terminal

Battery Voltage Range: 10 ~ 16 V

- After the battery is connected, all the LCD (Liquid Crystal Display) segments are displayed and the LED (Light Emitting Diode) warning light comes on for two seconds.
- When the battery is disconnected, all the segments go out.
- ★ If any display function does not work, replace the meter assembly.



CAUTION

If the multifunction meter displays incorrectly while the engine is running, first disconnect the (-) battery terminal lead and reconnect it again to recover the meter display.

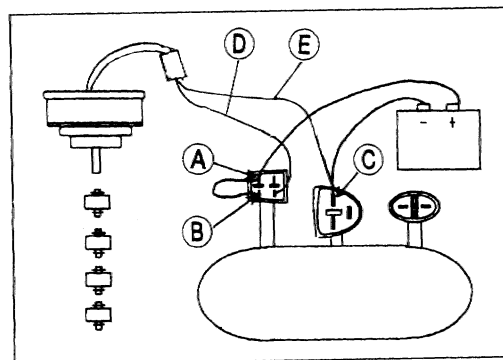
Then, check to see that the standard plugs and/or plug caps are installed. Install only the standard plugs and plug caps. The resistors are embedded in both parts.

Fuel Level Gauge/Symbol/Warning Light Inspection

- Connect the battery to the meter, as shown.

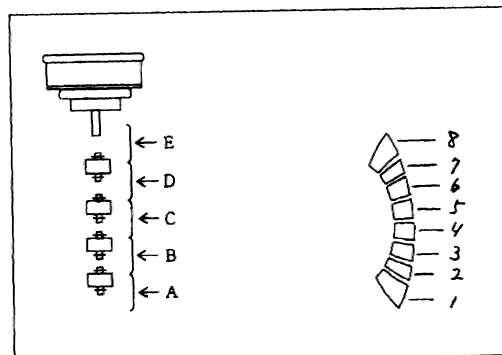
- [A] Red/Black Lead → Positive Terminal
- [B] Red Lead
- [C] Black/White Lead → Negative Terminal

- Connect the White/Red [D] and Black/White [E] terminals of the fuel level sensor, as follows.



- Check that the number of segments displayed matches the float position of the fuel level sensor.

Float Position	Display
[A]	Warning light and symbol flash
[B]	1 and 2 segments are displayed
[C]	1 ~ 4 segments are displayed
[D]	1 ~ 6 segments are displayed
[E]	1 ~ 8 segments are displayed



NOTE

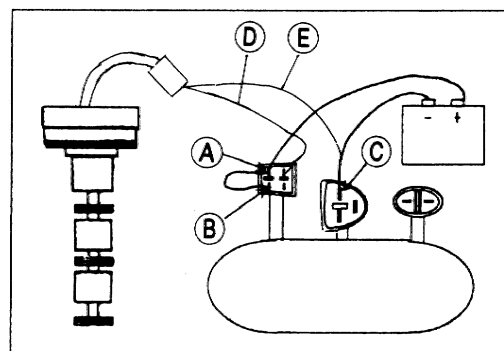
- The fuel level gauge display remains unchanged for 10 seconds after the float is moved.
- Check the above process within three minutes or the meter will switch to the power down mode and all of the display will disappear.
- ★ If any display function does not work, replace the meter assembly.

Oil Level Gauge/Symbol/Warning Light Inspection

- Connect the battery to the meter, as shown.

[A] Red/Black Lead → Positive Terminal
 [B] Red Lead
 [C] Black/White Lead → Negative Terminal

- Connect the Blue [D] and Black/White [E] terminals of the oil level sensor, as shown.

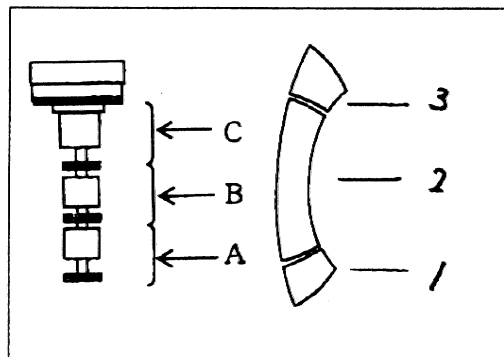


- Check that the number of segments displayed matches the float position of the oil level sensor.

Float Position	Display
[A]	Warning light, symbol and 1 segment flash
[B]	1 and 2 segments are displayed
[C]	1 and 3 segments are displayed

NOTE

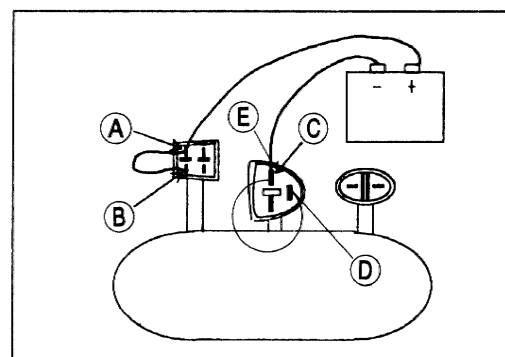
- The oil level gauge display remains unchanged for 10 seconds after the float is moved.
- Check the above process within three minutes or the meter will switch to the power down mode and all of the display will disappear.
- ★ If any display function does not work, replace the meter assembly.

**Cooling Water Temperature Symbol/Warning Light Inspection**

- Connect the battery to the meter, as shown.

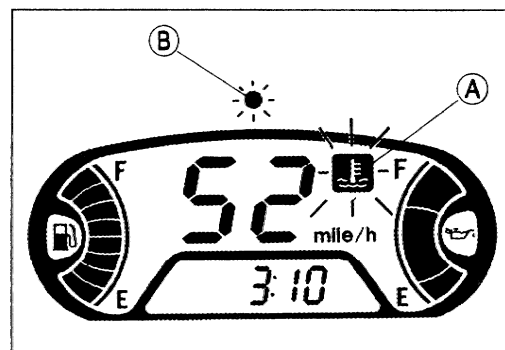
[A] Red/Black Lead → Positive Terminal
 [B] Red Lead
 [C] Black/White Lead → Negative Terminal

- Connect the Red/Yellow [D] and Black/White [E] terminals, as shown.



- Check that the cooling water temperature symbol [A] and warning light [B] flash.

- ★ If any display function does not work, replace the meter assembly.

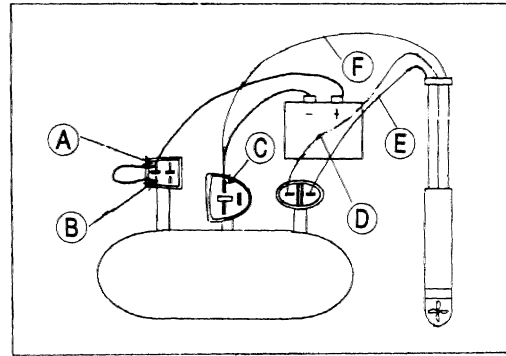


Speedometer Inspection

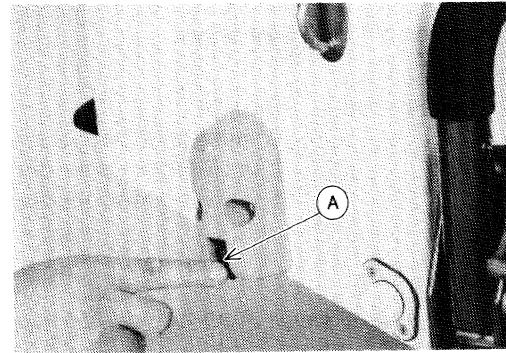
- Connect the battery to the meter, as shown.

[A] Red/Black Lead → Positive Terminal
[B] Red Lead
[C] Black/White Lead → Negative Terminal

- Connect the Green/Red [D], Red/White [E] and Black/White [F] terminals of the speed sensor, as shown.



- Rotate the waterwheel by hand [A].
- Check that the speedometer shows the speed.
- ★ If the speedometer does not work, replace the meter the assembly.



MODE/SET Button Inspection

- Check that when the MODE button is pushed and held continuously, the display rotates through the four modes.

→ Clock → Time → Trip → Hour →

- Check that when the SET button is pushed for more than two seconds, the meter display turns to the clock set mode.
- ★ If any display function does not work, replace the meter assembly.

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* = Base Manual

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* = Base Manual

MODEL APPLICATION

Year	Model	Beginning Hull No.
1997	JT1100-A1	KAW50001□697 or JHT10A-610001

□ : This digit in the hull number changes from one machine to another.