GENERAL INFORMATION

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WARNING / CAUTION / NOTE

Please read this manual and follow its instructions carefully. To emphasize special information, the symbol and the words WARNING, CAUTION and NOTE have special meanings. Pay special attention to the messages highlighted by these signal words.

A WARNING

Indicates a potential hazard that could result in death or injury.

CAUTION

Indicates a potential hazard that could result in motor damage.

NOTE:

Indicates special information to make maintenance easier or instructions clearer.

Please note, however, that the warnings and cautions contained in this manual cannot possibly cover all potential hazards relating to the servicing, or lack of servicing, of the outboard motor. In addition to the WARNING and CAUTION stated, you must also use good judgement and observe basic mechanical safety principles.

GENERAL PRECAUTIONS

- Proper service and repair procedures are important for the safety of the service mechanic and the safety and reliability of the outboard motor.
- To avoid eye injury, always wear protective goggles when filing metals, working on a grinder, or doing other work, which could cause flying material particles.
- When 2 or more persons work together, pay attention to the safety of each other.
- When it is necessary to run the outboard motor indoors, make sure that exhaust gas is vented outdoors.
- When testing an outboard motor in the water and on a boat, ensure that the necessary safety equipment is on board. Such equipment includes: flotation aids for each person, fire extinguisher, distress signals, anchor, paddles, bilge pump, first-aid kit, emergency starter rope, etc.
- When working with toxic or flammable materials, make sure that the area you work in is wellventilated and that you follow all of the material manufacturer's instructions.
- Never use gasoline as a cleaning solvent.
- To avoid getting burned, do not touch the engine, engine oil or exhaust system during or shortly after engine operation.
- Oil can be hazardous. Children and pets may be harmed from contact with oil. Keep new and used oil away from children and pets. To minimize your exposure to oil, wear a long sleeve shirt and moisture-proof gloves (such as dishwashing gloves) when changing oil. If oil contacts your skin, wash thoroughly with soap and water. Launder any clothing or rags if wet with oil. Recycle or properly dispose of used oil.
- After servicing fuel, oil/engine cooling system and exhaust system, check all lines and fittings related to the system for leaks.
- Carefully adhere to the battery handling instructions laid out by the battery supplier.

CAUTION

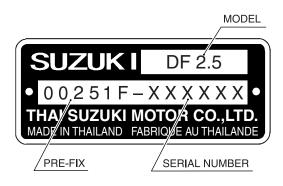
- If parts replacement is necessary, replace the parts with Suzuki Genuine Parts or their equivalent.
- When removing parts that are to be reused, keep them arranged in an orderly manner so that they may be reinstalled in the proper order and orientation.
- Be sure to use special tools when instructed.
- Make sure that all parts used in assembly are clean and also lubricated when specified.
- When use of a certain type of lubricant, bond, or sealant is specified, be sure to use the specified type.
- When removing the battery, disconnect the negative cable first and then the positive cable. When reconnecting the battery, connect the positive cable first and then the negative cable.
- When performing service to electrical parts, if the service procedures do not require using battery power, disconnect the negative cable from the battery.
- Tighten cylinder head and case bolts and nuts, beginning with larger diameter and ending with smaller diameter. Always tighten from inside to outside diagonally to the specified tight-ening torque.
- Whenever you remove oil seals, gaskets, packing, O-rings, locking washers, locking nuts, cotter pins, circlips, and certain other parts as specified, always replace them with new. Also, before installing these new parts, be sure to remove any left over material from the mating surfaces.
- Never reuse a circlip. When installing a new circlip, take care not to expand the end gap larger than required to slip the circlip over the shaft. After installing a circlip, always ensure that it is completely seated in its groove and securely fitted.
- Use a torque wrench to tighten fasteners to the specified torque. Wipe off grease and oil it a threads is smeared with them.
- After reassembly, check parts for tightness and proper operation.
- To protect the environment, do not unlawfully dispose of used motor oil, other fluids, and batteries.
- To protect the Earth's natural resources, properly dispose of used motor and parts.

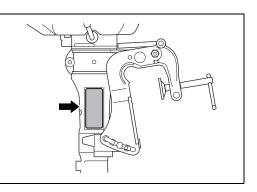
IDENTIFICATION NUMBER LOCATION

MODEL, PRE-FIX, SERIAL NUMBER

The MODEL, PRE-FIX and SERIAL NUMBER of the motor are stamped on a plate attached to the driveshaft housing.

Example





ENGINE SERIAL NUMBER

A second engine serial number plate is pressed into a boss on the cylinder block.



FUEL AND OIL GASOLINE RECOMMENDATION

Suzuki highly recommends that you use alcohol-free unleaded gasoline with a minimum pump octane rating of 87 (R/2 + M/2 method) or 91 (Research method). However, blends of unleaded gasoline and alcohol with equivalent octane content may be used.

Allowable maximum blend of a single additive (not combination):

5% Methanol, 10% Ethanol, 15% MTBE

CAUTION

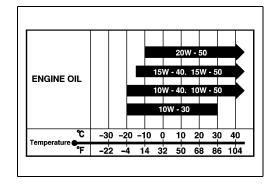
If leaded gasoline is used, engine damage may result. Use only unleaded gasoline.

ENGINE OIL

Use only oils that are rated SE, SF, SG, SH or SJ under the API (American Petroleum Institute) classification system.

The viscosity rating should be SAE 10W-40.

If an SAE 10W-40 motor oil is not available, select an alternative according to the chart at right.



ENGINE BREAK-IN

The first 10 hours are critically important to ensure correct running of either a brand new motor or a motor that has been reconditioned or rebuilt. How the motor is operated during this time will have direct bearing on its life span and long-term durability.

Break-in period: 10 hours

WARM-UP RECOMMENDATION

Allow sufficient idling time (more than 5 minutes) for the engine to warm up after cold engine starting.

THROTTLE RECOMMENDATION

NOTE:

Avoid maintaining a constant engine speed for an extended period at any time during the engine break-in by varying the throttle position occasionally.

1. FIRST 2 HOURS

For first 15 minutes, operate the engine in-gear at idling speed.

During the remaining 1 hour and 45 minutes, operate the engine in-gear at less than 1/2 (half) throttle (3 000 r/min).

NOTE:

The throttle may be briefly opened beyond the recommended setting to plane the boat, but must be reduced to the recommended setting immediately after planing.

2. NEXT 1 HOUR

Operate the engine in-gear at less than 3/4 (three-quarter) throttle (4 000 r/min).

3. LAST 7 HOURS

Operate the engine in-gear at desired engine speed. However, do not operate continuously at full throttle for more than 5 minutes.

PROPELLERS

An outboard motor is designed to develop its rated power within a specified engine speed range. The maximum rated power delivered by the DF2.5 models are shown below.

Recommended operating	5 250 – 5 750 r/min
range	5 250 - 5 750 1/1111

If the standard propeller fails to meet the above requirement, use another pitch propeller to hold the engine speed within the range specified above.

Propeller selection chart

Code Number	Blade	×	Diameter	×	Pitch
A400	3	×	188 mm (7-3/8 in)	×	115 mm (4-1/2 in)
A510	3	×	188 mm (7-3/8 in)	×	135 mm (5-3/8 in)

CAUTION

Installing a propeller with pitch either too high or too low will cause incorrect maximum engine speed, which may result in severe damage to the motor.

* SPECIFICATIONS

* These specifications are subject to change without notice.

Item	Unit	Data
nem	Unit	DF2.5
PRE-FIX		00251F

DIMENSIONS & WEIGHT

Overall length		mm (in)	437 (17.2): with tiller handle raised			
(front to back)						
Overall width		mm (in)	262 (10.2)			
(side to side)		mm (in)	262 (10.3)			
Overall height	S	mm (in)	963 (37.9)			
Weight	S	ka (lba)	13.0 (28.7)			
(without engine oil)	3	kg (lbs)	13.0 (28.7)			
Transom height	S	mm	425 (15)			
	3	(inch type)	435 (15)			

PERFORMANCE

Maximum output	kW (PS)	1.8 (2.5)
Recommended operating range	r/min	5 250 – 5 750
Idle speed	r/min	1 900 ± 100 (in-gear: approx. 1 500)

POWER HEAD

Engine type		4-stroke OHV
Number of cylinders		1
Bore	mm (in)	48.0 (1.89)
Stroke	mm (in)	38.0 (1.50)
Total displacement	cm ³ (cu. in)	68 (4.1)
Compression ratio	:1	9.0
Spark plug	NGK	CR6HSA
Ignition system		Transistorized ignition
Fuel supply system		Carburetor
Exhaust system		Above prop exhaust
Cooling system		Water cooled
Lubrication system		Wet sump by trochoid pump
Starting system		Manual
Choke system		Manual
Throttle control		Twist grip

Itom	Unit –	Data
Item	Onit	DF2.5

FUEL & OIL

Fuel		Suzuki highly recommends that you use alcohol-free unleaded gasoline with a minimum pump octane rating of 87 ($R/2 + M/2$ method) or 91 (Research method). However, blends of unleaded gasoline and alcohol with equivalent octane content may be used.
Fuel tank capacity	L	1.0.(0.26/0.22)
(Built-in tank)	(US/Imp. gal)	1.0 (0.26/0.22)
Engine oil		API classification SE, SF, SG, SH, SJ
		Viscosity rating SAE 10W-40
Engine oil amounts	L	0.28 (0.40/0.22)
	(US/Imp. qt)	0.38 (0.40/0.33)
Gear oil		SUZUKI Outboard Motor Gear Oil (SAE #90 hypoid gear oil)
Gearcase oil amounts	ml	
	(US/Imp. oz)	60 (2.0/2.1)

BRACKET

Trim angle	Degrees	6 – 20
Number of tilt pin position		4
Maximum tilt angle	Degrees	74 (from lowest tilt pin position)

LOWER UNIT

Reversing system		G	iear	
Transmission		Forwar	d-Ne	eutral
Reduction system		Bevel gear		
Gear ratio		13 : 28 (2.15)		
Drive line impact protection		Shear pin		
Propeller	Blade >	c Diam.	×	Pitch
	3 >	< 188 mm (7-3/8 in)	×	115 mm (4-1/2 in) (A400)
	3 >	< 188 mm (7-3/8 in)	x	135 mm (5-3/8 in) (A510)

* SERVICE DATA

* These service data are subject to change without notice.

Item	Unit	Data
nem	Onit	DF2.5

POWER HEAD

Recommended operating range	r/min	5 250 – 5 750		
Idle speed	r/min	1 900 ± 100 (in-gear: approx. 1 500)		
* Cylinder compression	kPa (kg/cm², psi)	960 – 1 400 (9.6 – 14.0, 137 – 199)		
Engine oil		API classification SE, SF, SG, SH, SJ Viscosity rating SAE 10W-40		
Engine oil amounts	L (US/Imp. qt)	0.38 (0.40/0.33)		
Thermostat operating temperature	°C (°F)	48 – 52 (118 – 126)		

* Figures shown are guidelines only, not absolute service limit.

CARBURETOR

Туре	Walbro	LMJ-26
I.D mark		97J10
Main jet	#	70
Pilot jet	#	32
Pilot screw	Turns open	Pre-set
Float height	mm	10 ± 2

CYLINDER HEAD/CAMSHAFT

Cylinder he distortion	ylinder head stortion Limit r		mm (in)	0.05 (0.002)	
Cam	IN,	STD	mm (in)	28.480 – 28.680 (1.1213 – 1.1291)	
height	EX	Limit	mm (in)	28.180 (1.1094)	
Rocker arm shaft	IN	- STD	mm (in)	4.015 – 4.027 (0.1581 – 0.1585)	
hole diameter EX	EX			4.013 - 4.027 (0.1381 - 0.1383)	
Rocker arm shaft	IN	STD	mm (in)	3.990 – 4.005 (0.1571 – 0.1577)	
outside diameter	EX	STD		3.330 - 4.003 (0.1371 - 0.1377)	

ltem	Unit	Data
nem	Onic	DF2.5

VALVE/VALVE GUIDE

Valve diameter		IN	mm (in)	20.0 (0.79)	
		EX	mm (in)	18.0 (0.71)	
Valve clearance	e IN S		mm (in)	0.13 – 0.17 (0.005 – 0.007)	
(Cold engine condition)	EX	STD	mm (in)	0.13 – 0.17 (0.005 – 0.007)	
Valve seat ang	le	IN		— 45°	
		EX	— 45°		
Valve guide	IN	STD	mm (in)	0.010 - 0.037 (0.0004 - 0.0015)	
to valve stem	IIN	Limit	mm (in)	0.075 (0.0030)	
clearance	ΓV	STD	mm (in)	0.025 - 0.052 (0.0010 - 0.0020)	
	EX	Limit	mm (in)	0.090 (0.0035)	
Valve guide inside diameter	IN, EX	STD	mm (in)	4.000 – 4.012 (0.1575 – 0.1580)	
Valve stem outside	IN	STD	mm (in)	3.975 – 3.990 (0.1565 – 0.1571)	
diameter	EX	STD	mm (in)	3.960 – 3.975 (0.1559 – 0.1565)	
Valve stem deflection	IN, EX	Limit	mm (in)	0.35 (0.014)	
Valve stem runout	IN, EX	Limit	mm (in)	0.05 (0.002)	
Valve head radial runout	IN, EX	Limit	mm (in)	0.08 (0.003)	
Valve head thickness	IN, EX	Limit	mm (in)	0.5 (0.02)	
Valve seat contact width	IN, EX	STD	mm (in)	0.8 - 1.0 (0.03 - 0.04)	
Valve spring fr	ee	STD	mm (in)	22.42 (0.883)	
length		Limit	mm (in)	21.52 (0.847)	
Valve spring te	nsion	STD	N (kg, lbs)	36.5 – 41.9 (3.65 – 4.19, 8.05 – 9.24) for 15 mm (0.6 in)	
		Limit	N (kg, lbs)	33.3 (3.33, 7.34) for 15 mm (0.6 in)	

Item	Unit	Data
	Onit	DF2.5

CYLINDER/PISTON/PISTON RING

		ii			
-	Cylinder distortion Limit		mm (in)	0.05 (0.002)	
Piston to cyline	-		mm (in)	0.018 – 0.033 (0.0007 – 0.0013)	
clearance	earance Limit		mm (in)	0.100 (0.0039)	
Cylinder bore		STD	mm (in)	48.000 – 48.015 (1.8898 – 1.8904)	
Cylinder meas position	uring		mm (in)	20 (0.8) from cylinder top surface	
Piston skirt diameter		STD	mm (in)	47.975 – 47.990 (1.8888 – 1.8894)	
Piston measur	ing po	sition	mm (in)	5 (0.2) from piston skirt end	
Cylinder bore	wear	Limit	mm (in)	0.100 (0.0039)	
Piston ring	1st,	STD	mm (in)	0.15 - 0.35 (0.006 - 0.014)	
end gap	2nd	Limit	mm (in)	0.50 (0.020)	
Piston ring	1st	STD	mm (in)	Approx. 6.1 (0.24)	
free end gap	ISL	Limit	mm (in)	4.9 (0.19)	
	Ond	STD	mm (in)	Approx. 5.7 (0.22)	
	2nd	Limit	mm (in)	4.6 (0.18)	
Piston ring to	1.01	STD	mm (in)	0.020 - 0.060 (0.0008 - 0.0024)	
groove clearance	1st, 2nd	Limit	mm (in)	0.120 (0.0047)	
Piston ring groove width	1st, 2nd	STD	mm (in)	1.21 – 1.23 (0.048 – 0.049)	
	Oil	STD	mm (in)	1.51 – 1.53 (0.059 – 0.060)	
Piston ring thickness	1st, 2nd	STD	mm (in)	1.17 – 1.19 (0.046 – 0.047)	
Pin clearance	in	STD	mm (in)	0.002 - 0.013 (0.0001 - 0.0005)	
piston pin hole	•	Limit	mm (in)	0.040 (0.0016)	
Piston pin outside		STD	mm (in)	11.995 – 12.000 (0.4722 – 0.4724)	
diameter			mm (in)	11.980 (0.4717)	
Piston pin hole	9	STD	mm (in)	12.002 - 12.008 (0.4725 - 0.4728)	
diameter		Limit	mm (in)	12.030 (0.4736)	
Pin clearance	in	STD	mm (in)	0.006 - 0.019 (0.0002 - 0.0007)	
conrod small e	end	Limit	mm (in)	0.050 (0.0020)	

Item	Unit	Data
	onic	DF2.5

CRANKSHAFT/CONROD

i			
Conrod small end	STD	mm (in)	12.006 – 12.014 (0.4727 – 0.4730)
inside diameter	Limit	mm (in)	12.040 (0.4740)
Conrod big end	STD	mm (in)	0.015 - 0.035 (0.0006 - 0.0014)
oil clearance	Limit	mm (in)	0.080 (0.0031)
Conrod big end inside diameter	STD	mm (in)	19.015 – 19.025 (0.7486 – 0.7490)
Crank pin out- side diameter	STD	mm (in)	18.990 – 19.000 (0.7476 – 0.7480)
Crank pin out- side diameter difference (out-of-round and taper)	Limit	mm (in)	0.010 (0.0004)
Conrod big end	STD	mm (in)	0.20 - 0.70 (0.008 - 0.028)
side clearance	Limit	mm (in)	1.00 (0.039)
Conrod big end width	STD	mm (in)	17.50 – 17.80 (0.689 – 0.701)
Crank pin width	STD	mm (in)	18.00 - 18.20 (0.709 - 0.717)
Crankshaft runout	Limit	mm (in)	0.05 (0.002)

ELECTRICAL

Ignition timing		Degrees	BTDC 30	
Ignition coil Primary		Ω at 20 °C	0.5 – 0.9	
resistance	Sec-	kΩ at 20 °C	10 – 16	
	ondary	KS2 at 20 C	10 - 18	
Spark plug cap re	Spark plug cap resistance		4 - 6	
Standard spark	Туре	NGK	CR6HSA	
plug	Gap	mm (in)	0.6 – 0.7 (0.024 – 0.028)	

LOWER UNIT

Preliminary gear shim & thrust washer

Pinion gear backup shim	mm (in)	2.0 (0.08)
Forward gear backup shim	mm (in)	0.5 (0.02)
Propeller shaft reverse thrust washer	mm (in)	1.8 (0.07)

Initial selection-shim adjustment may be required.

TIGHTENING TORQUE

Tightening torque – Important fasteners

ITEM	THREAD	TIGHTENING TORQUE		
ITEM	DIAMETER	N∙m	kg-m	lb-ft
Cylinder head cover bolt	5 mm	7	0.7	5.0
Cylinder head bolt	6 mm	13	1.3	9.5
Crankcase bolt	6 mm	11	1.1	8.0
Conrod cap bolt	5 mm	7	0.7	5.0
Valve adjusting lock nut	5 mm	7	0.7	5.0
Intake pipe bolt	6 mm	11	1.1	8.0
Carburetor mounting bolt	6 mm	10	1.0	7.0
Flywheel nut	10 mm	45	4.5	32.5
Igniter unit bolt	6 mm	10	1.0	7.0
Engine oil drain plug	10 mm	10	1.0	7.0
Power unit mounting bolt	6 mm	10	1.0	7.0
Tiller handle pivot bolt	8 mm	17	1.7	12.5
Lower cover bolt	6 mm	8	0.8	6.0
Swivel shaft nut	8 mm	10	1.0	7.0
Gearcase bolt	6 mm	8	0.8	6.0
Water pump case bolt	6 mm	5	0.5	3.5
Propeller shaft bearing housing bolt	6 mm	8	0.8	6.0

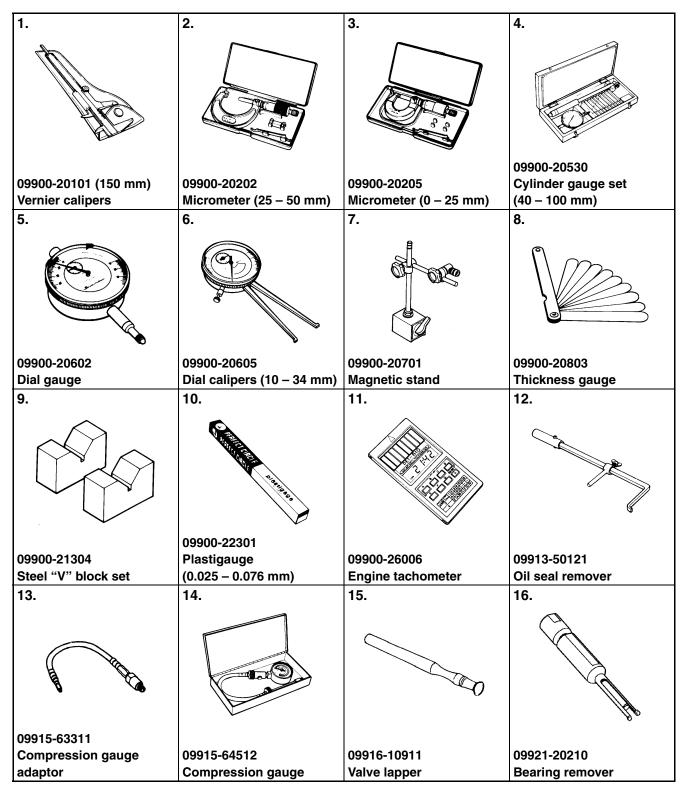
Tightening torque – General bolt

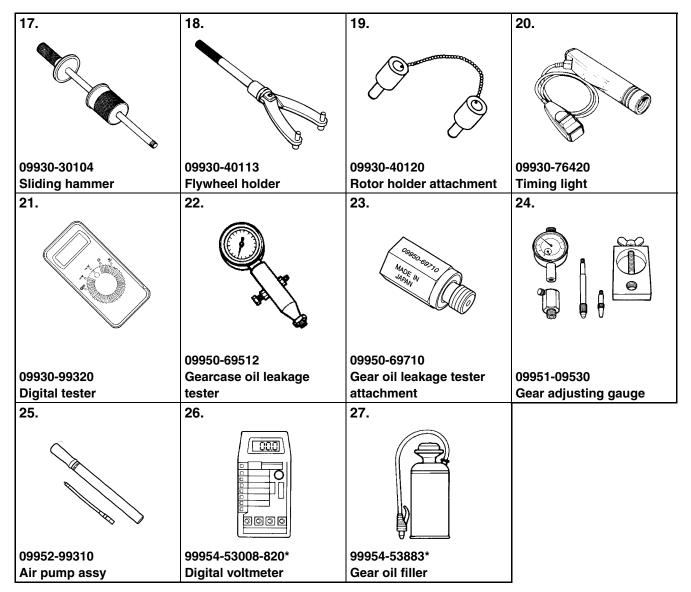
NOTE:

These value are only applicable when torque for a general bolt is not listed in the "Important fasteners" table.

TYPE OF BOLT	THREAD	TIGHTENING TORQUE		
	DIAMETER	N∙m	kg-m	lb-ft
	5 mm	2 – 4	0.2 - 0.4	1.5 – 3.0
	6 mm	4 – 7	0.4 – 0.7	3.0 - 5.0
	8 mm	10 – 16	1.0 – 1.6	7.0 – 11.5
(Conventional or "4" marked bolt)	10 mm	22 – 35	2.2 – 3.5	16.0 – 25.5
	5 mm	2-4	0.2 - 0.4	1.5 – 3.0
	6 mm	6 – 10	0.6 – 1.0	4.5 – 7.0
	8 mm	15 – 20	1.5 – 2.0	11.0 – 14.5
(Stainless steel bolt)	10 mm	34 – 41	3.4 – 4.1	24.5 – 29.5
	5 mm	3 – 6	0.3 – 0.6	2.0 - 4.5
	6 mm	8 – 12	0.8 – 1.2	6.0 - 8.5
	8 mm	18 – 28	1.8 – 2.8	13.0 – 20.0
(7 marked or 🙏 marked bolt)	10 mm	40 – 60	4.0 - 6.0	29.0 - 43.5

SPECIAL TOOLS





NOTE:

* Marked part No. is in U.S. market only.

SUZUKI OUTBOARD SUZUKI WATER RESIS-SUZUKI SILICONE SEAL SUZUKI BOND "1207B" MOTOR GEAR OIL TANT GREASE WATER GREASE GEAR OIL SILICONE SEAL *99104-33140 99000-25161 99000-31120 99000-31140 99000-22540 (400 ml × 24 pcs.) (250 g) (50 g) (100 g) THREAD LOCK "1342" **4-STROKE MOTOR OIL** 99000-32050 API: SE, SF, SG, SH, SJ (50 <u>g</u>) SAE: 10W-40

MATERIALS REQUIRED

NOTE:

* Marked part No. is in U.S. market only.