Section 0

General Information

CONTENTS

NOTE

For the items with asterisk (*) in the "CONTENTS" below, refer to the same section of the service manual mentioned in the "FOREWORD" of this manual.

General Information

Specifications

Specifications (DF40A/50A 2014/07)

CENFJ6110107015

Applicable Model and Effective Serial Number:
04003F-510001 and later, 05003F-510001 and later.

NOTE

These specifications are subject to change without notice.

Model Pre-Fix

Item	Unit	Data				
		DF40AT	DF40ATH	DF40AQH	DF50AT	DF50ATH
PRE-FIX		04003F			05003F	

Dimensions and Weight

Item		Unit	Data				
			DF40AT	DF40ATH	DF40AQH	DF50AT	DF50ATH
Overall length (front to back)		mm (in.)	699 (27.5)	814 (32.0)		699 (27.5)	814 (32.0)
Overall width (side to side)		mm (in.)	377 (14.8)				
Overall height	S	mm (in.)	1 266 (49.8)	—		1 266 (49.8)	—
	L	mm (in.)	1 387 (54.6)				
	X	mm (in.)	—				
Weight (without engine oil)	S	kg (lbs)	102 (225)	—		102 (225)	—
	L	kg (lbs)	104 (229)	108 (238)	106 (234)	104 (229)	108 (238)
	X	kg (lbs)	—				
Transom height	S	mm (in. type)	401 (15)	—		401 (15)	—
	L	mm (in. type)	522 (20)				
	X	mm (in. type)	—				

Performance

Item	Unit	Data				
		DF40AT	DF40ATH	DF40AQH	DF50AT	DF50ATH
Maximum output	kW (PS)	29.4 (40)			36.8 (50)	
Recommended operating range	r/min	5 000 – 6 000			5 300 – 6 300	
Idle speed	r/min	800 ± 50 (in-gear: Approx. 800)				

Powerhead

Item	Unit	Data				
		DF40AT	DF40ATH	DF40AQH	DF50AT	DF50ATH
Engine type		4-stroke DOHC				
Number of cylinders		3				
Bore	mm (in.)	72.5 (2.85)				
Stroke	mm (in.)	76.0 (2.99)				
Total displacement	cm^3 (cu. in)	941 (57.4)				
Compression ratio	: 1	9.7				
Spark plug	NGK	DCPR6E				
Ignition system		Full-transistorized ignition				
Fuel supply system		Multi-point sequential electronic fuel injection				
Exhaust system		Through prop exhaust				
Cooling system		Water cooled				
Lubrication system		Wet sump by trochoid pump				
Starting system		Electric				
Throttle control		Remote control	Twist grip		Remote control	Twist grip

Fuel and Oil

Item	Unit	Data				
		DF40AT	DF40ATH	DF40AQH	DF50AT	DF50ATH
Fuel		Suzuki highly recommends the use of 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.				
Engine oil		• API classification: SG, SH, SJ, SL, SM or NMMA certified FC-W oil • Viscosity rating: SAE 10W-40 or 10W-30, NMMA FC-W 10W-40 or 10W-30				
Engine oil amounts	L (US/Imp. qt)	2.7 (2.9/2.4): Oil change only 2.9 (3.0/2.6): Oil filter change				
Gear oil		SUZUKI Outboard Motor Gear Oil or SAE 90 hypoid gear oil, API classification GL-5.				
Gearcase oil capacity	ml (US/Imp. oz)	610 (20.6/21.5)				

Bracket

Item	Unit	Data				
		DF40AT	DF40ATH	DF40AQH	DF50AT	DF50ATH
Trim and tilt system		DF40AT/TH/50AT/TH: PTT system DF40AQH: Manual trim and gas assisted tilt system				
Trim angle	degree	0 – 19 (–6 to 13)	0 – 20 (–6 to 14)		0 – 19 (–6 to 13)	0 – 20 (–6 to 14)
Number of trim position		PTT system		6	PTT system	
Maximum tilt angle	degree	73 (–6 to 67)	72 (–6 to 66)		73 (–6 to 67)	72 (–6 to 66)

Lower Unit

Item	Unit	Data				
		DF40AT	DF40ATH	DF40AQH	DF50AT	DF50ATH
Reversing system		Gear				
Transmission		Forward-Neutral-Reverse				
Reduction system		Bevel gear				
Gear ratio		11 : 25 (2.28)				
Drive line impact protection		Spline drive rubber hub				
Propeller shaft rotation (When shift into forward)		Clockwise				
Propeller		Blade x Dia. (in.) x Pitch (in.)				
		3 x 11 and 1/2 x 9 3 x 11 and 1/2 x 10 3 x 11 and 1/2 x 11 3 x 11 and 5/8 x 12 3 x 11 and 1/2 x 13 3 x 11 and 3/8 x 14 3 x 11 and 1/4 x 15 3 x 11 and 1/8 x 16 3 x 11 x 17				

Specifications (DF40AS/DF60A 2014/07)

CENFJ6110107016

Applicable Model and Effective Serial Number:
04004F-510001 and later, 06002F-510001 and later.

NOTE

These specifications are subject to change without notice.

Model Pre-Fix

Item	Unit	Data			
		DF40AST	DF60AT	DF60ATH	DF60AQH
PRE-FIX		04004F	06002F		

Dimensions and Weight

Item		Unit	Data			
			DF40AST	DF60AT	DF60ATH	DF60AQH
Overall length (front to back)		mm (in.)	699 (27.5)		814 (32.0)	
Overall width (side to side)		mm (in.)	377 (14.8)			
Overall height	S	mm (in.)	1 266 (49.8)		—	
	L	mm (in.)	1 387 (54.6)			
	X	mm (in.)	—	1 514 (59.6)		
Weight (without engine oil)	S	kg (lbs)	102 (225)		—	
	L	kg (lbs)	104 (229)		108 (238)	106 (234)
	X	kg (lbs)	—	107 (236)	111 (243)	109 (240)
Transom height	S	mm (in. type)	403 (15)		—	
	L	mm (in. type)	524 (20)			
	X	mm (in. type)	—	651 (25)		

Performance

Item	Unit	Data			
		DF40AST	DF60AT	DF60ATH	DF60AQH
Maximum output	kW (PS)	29.4 (40)	44.1 (60)		
Recommended operating range	r/min	5 300 – 6 300			
Idle speed	r/min	800 ± 50 (in-gear: Approx. 800)			

Powerhead

Item	Unit	Data			
		DF40AST	DF60AT	DF60ATH	DF60AQH
Engine type		4-stroke DOHC			
Number of cylinders		3			
Bore	mm (in.)	72.5 (2.85)			
Stroke	mm (in.)	76.0 (2.99)			
Total displacement	cm^3 (cu. in)	941 (57.4)			
Compression ratio	: 1	9.7			
Spark plug	NGK	DCPR6E			
Ignition system		Full-transistorized ignition			
Fuel supply system		Multi-point sequential electronic fuel injection			
Exhaust system		Through prop exhaust			
Cooling system		Water cooled			
Lubrication system		Wet sump by trochoid pump			
Starting system		Electric			
Throttle control		Remote control		Twist grip	

Fuel and Oil

Item	Unit	Data			
		DF40AST	DF60AT	DF60ATH	DF60AQH
Fuel		Suzuki highly recommends the use of 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.			
Engine oil		• API classification: SG, SH, SJ, SL, SM or NMMA certified FC-W oil • Viscosity rating: SAE 10W-40 or 10W-30, NMMA FC-W 10W-40 or 10W-30			
Engine oil amounts	L (US/Imp. qt)	2.7 (2.9/2.4): Oil change only 2.9 (3.0/2.6): Oil filter change			
Gear oil		SUZUKI Outboard Motor Gear Oil or SAE 90 hypoid gear oil, API classification GL-5.			
Gearcase oil capacity	ml (US/Imp. oz)	610 (20.6/21.5)			

Bracket

Item	Unit	Data			
		DF40AST	DF60AT	DF60ATH	DF60AQH
Trim and tilt system		PTT system			Manual trim and gas assisted tilt system
Trim angle	degree	0 – 22 (–6 to 16)			0 – 20 (–6 to 14)
Number of trim position		PTT system			6
Maximum tilt angle	degree	75 (–6 to 69)			72 (–6 to 66)

Lower Unit

Item	Unit	Data			
		DF40AST	DF60AT	DF60ATH	DF60AQH
Reversing system		Gear			
Transmission		Forward-Neutral-Reverse			
Reduction system		Bevel gear			
Gear ratio		11 : 25 (2.28)			
Drive line impact protection		Spline drive rubber hub			
Propeller shaft rotation (When shift into forward)		Clockwise			
Propeller		Blade x Dia. (in.) x Pitch (in.)			
		3 x 11 and 1/2 x 9 3 x 11 and 1/2 x 10 3 x 11 and 1/2 x 11 3 x 11 and 5/8 x 12 3 x 11 and 1/2 x 13 3 x 11 and 3/8 x 14 3 x 11 and 1/4 x 15 3 x 11 and 1/8 x 16 3 x 11 x 16			

Specifications (DF50AV/60AV 2014/07)

CENFJ6110107017

Applicable Model and Effective Serial Number:
05004F-510001 and later, 06003F-510001 and later.

NOTE

These specifications are subject to change without notice.

Model Pre-Fix

Item	Unit	Data			
		DF50AVT	DF50AVTH	DF60AVT	DF60AVTH
PRE-FIX		05004F		06003F	

Dimensions and Weight

Item		Unit	Data			
			DF50AVT	DF50AVTH	DF60AVT	DF60AVTH
Overall length (front to back)		mm (in.)	722 (28.4)	837 (33.0)	722 (28.4)	837 (33.0)
Overall width (side to side)		mm (in.)	377 (14.8)			
Overall height	S	mm (in.)	—	—	—	—
	L	mm (in.)	1 436 (56.5)			
	X	mm (in.)	—		1 557 (61.3)	
Weight (without engine oil)	S	kg (lbs)	—	—	—	—
	L	kg (lbs)	114 (251)	120 (265)	114 (251)	120 (265)
	X	kg (lbs)	—		117 (258)	123 (271)
Transom height	S	mm (in. type)	—	—	—	—
	L	mm (in. type)	525 (20)			
	X	mm (in. type)	—		636 (25)	

Performance

Item	Unit	Data			
		DF50AVT	DF50AVTH	DF60AVT	DF60AVTH
Maximum output	kW (PS)	36.8 (50)		44.1 (60)	
Recommended operating range	r/min	5 300 – 6 300			
Idle speed	r/min	800 ± 50 (in-gear: Approx. 800)			

Powerhead

Item	Unit	Data			
		DF50AVT	DF50AVTH	DF60AVT	DF60AVTH
Engine type		4-stroke DOHC			
Number of cylinders		3			
Bore	mm (in.)	72.5 (2.85)			
Stroke	mm (in.)	76.0 (2.99)			
Total displacement	cm^3 (cu. in)	941 (57.4)			
Compression ratio	: 1	9.7			
Spark plug	NGK	DCPR6E			
Ignition system		Full-transistorized ignition			
Fuel supply system		Multi-point sequential electronic fuel injection			
Exhaust system		Through prop exhaust			
Cooling system		Water cooled			
Lubrication system		Wet sump by trochoid pump			
Starting system		Electric			
Throttle control		Remote control	Twist grip	Remote control	Twist grip

Fuel and Oil

Item	Unit	Data			
		DF50AVT	DF50AVTH	DF60AVT	DF60AVTH
Fuel		Suzuki highly recommends the use of 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.			
Engine oil		• API classification: SG, SH, SJ, SL, SM or NMMA certified FC-W oil • Viscosity rating: SAE 10W-40 or 10W-30, NMMA FC-W 10W-40 or 10W-30			
Engine oil amounts	L (US/Imp. qt)	2.7 (2.9/2.4): Oil change only 2.9 (3.0/2.6): Oil filter change			
Gear oil		SUZUKI Outboard Motor Gear Oil or SAE 90 hypoid gear oil, API classification GL-5.			
Gearcase oil capacity	ml (US/Imp. oz)	1 050 (35.5/37.0)			

Bracket

Item	Unit	Data			
		DF50AVT	DF50AVTH	DF60AVT	DF60AVTH
Trim and tilt system		PTT system			
Trim angle	degree	0 – 22 (–6 to 16)			
Number of trim position		PTT system			
Maximum tilt angle	degree	75 (–6 to 69)			

Lower Unit

Item	Unit	Data			
		DF50AVT	DF50AVTH	DF60AVT	DF60AVTH
Reversing system		Gear			
Transmission		Forward-Neutral-Reverse			
Reduction system		Bevel gear			
Gear ratio		12 : 29 (2.417)			
Drive line impact protection		Spline drive rubber hub			
Propeller shaft rotation (When shift into forward)		Clockwise			
Propeller		Blade x Dia. (in.) x Pitch (in.)			
		3 x 14 x 9 3 x 14 x 11 3 x 13 and 3/4 x 12 3 x 14 x 13 3 x 13 and 7/8 x 15 3 x 13 and 3/4 x 17			

Service Data (2014/07)

CENFJ6110107018

Applicable Model and Effective Serial Number:
04003F-510001 and later, 04004F-510001 and later, 05003F-510001 and later,
05004F-510001 and later, 06002F-510001 and later, 06003F-510001 and later.

NOTE

- **These service data are subject to change without notice.**
- **The following data is applied to all version of each model of DF40A/50A/60A/50AV/60AV.**

Powerhead

Item	Unit	Data		
		DF40A	DF50A/50AV	DF60A/60AV
Recommended operating range	r/min	DF40A: 5 000 – 6 000 DF40AS/50A/60A/50AV/60AV: 5 300 – 6 300		
Idle speed	r/min	800 ± 50 (in-gear: Approx. 800)		
**Cylinder compression pressure	kPa (kgf/cm^2, psi.)	1 200 – 1 800 (12 – 18, 171 – 256)		
**Cylinder compression pressure max. difference between cylinders	kPa (kgf/cm^2, psi.)	100 (1.0, 14)		
**Engine oil pressure	kPa (kgf/cm^2, psi.)	200 – 400 (2.0 – 4.0, 28 – 57) at 3 000 r/min (at normal operating temp.)		
Engine oil		• API classification: SG, SH, SJ, SL, SM or NMMA certified FC-W oil • Viscosity rating: SAE 10W-40 or 10W-30, NMMA FC-W 10W-40 or 10W-30		
Engine oil amounts	L (US/lpm. qt)	2.7 (2.9/2.4): Oil change only 2.9 (3.0/2.6): Oil filter change		
Thermostat operating temperature	°C (°F)	58 – 62 (136 – 144)		

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

Cylinder Head / Camshaft

Item			Unit	Data		
				DF40A	DF50A/50AV	DF60A/60AV
Cylinder head distortion		Limit	mm (in.)	0.06 (0.002)		
Manifold seating faces distortion		Limit	mm (in.)	0.10 (0.004)		
Cam height	IN	std.	mm (in.)	38.200 – 38.360 (1.5039 – 1.5102)		
		Limit	mm (in.)	38.100 (1.5000)		
	EX	std.	mm (in.)	37.740 – 37.900 (1.4858 – 1.4921)		
		Limit	mm (in.)	37.640 (1.4819)		
Camshaft journal oil clearance	Top, 2nd, 3rd, 4th	std.	mm (in.)	0.045 – 0.087 (0.0018 – 0.0034)		
		Limit	mm (in.)	0.120 (0.0047)		
Camshaft journal (housing) inside diameter	Top, 2nd, 3rd, 4th	std.	mm (in.)	23.000 – 23.021 (0.9055 – 0.9063)		
		Limit	mm (in.)	—		
Camshaft journal outside diameter	Top, 2nd, 3rd, 4th	std.	mm (in.)	22.934 – 22.955 (0.9029 – 0.9037)		
		Limit	mm (in.)	—		
Camshaft runout		Limit	mm (in.)	0.10 (0.004)		
Cylinder head bore to tappet clearance		std.	mm (in.)	0.025 – 0.062 (0.0010 – 0.0024)		
		Limit	mm (in.)	0.150 (0.0059)		
Tappet outer diameter		std.	mm (in.)	26.959 – 26.975 (1.0614 – 1.0620)		
Cylinder head tappet bore		std.	mm (in.)	27.000 – 27.021 (1.0630 – 1.0638)		

Valve / Valve Guide

Item			Unit	Data		
				DF40A	DF50A/50AV	DF60A/60AV
Valve diameter		IN	mm (in.)	26.6 (1.05)		
		EX	mm (in.)	21.5 (0.85)		
Tappet clearance (Cold engine condition)	IN	std.	mm (in.)	0.18 – 0.22 (0.007 – 0.009)		
	EX	std.	mm (in.)	0.28 – 0.32 (0.011 – 0.013)		
Valve seat angle	IN		—	30°, 45°		
	EX		—	15°, 45°		
Valve guide to valve stem clearance	IN	std.	mm (in.)	0.020 – 0.047 (0.0008 – 0.0019)		
		Limit	mm (in.)	0.070 (0.0028)		
	EX	std.	mm (in.)	0.045 – 0.072 (0.0018 – 0.0028)		
		Limit	mm (in.)	0.090 (0.0035)		
Valve guide inside diameter	IN, EX	std.	mm (in.)	5.500 – 5.512 (0.2165 – 0.2170)		
Valve guide protrusion	IN, EX	std.	mm (in.)	10.8 – 11.2 (0.43 – 0.44)		
Valve stem outside diameter	IN	std.	mm (in.)	5.465 – 5.480 (0.2152 – 0.2157)		
	EX	std.	mm (in.)	5.440 – 5.455 (0.2142 – 0.2148)		
Valve stem deflection	IN	Limit	mm (in.)	0.14 (0.006)		
	EX	Limit	mm (in.)	0.18 (0.007)		
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	std.	mm (in.)	1.0 (0.04)		
		Limit	mm (in.)	0.7 (0.03)		
	EX	std.	mm (in.)	1.15 (0.045)		
		Limit	mm (in.)	0.5 (0.02)		
Valve seat contact width	IN	std.	mm (in.)	1.1 – 1.3 (0.04 – 0.05)		
	EX	std.	mm (in.)	1.1 – 1.3 (0.04 – 0.05)		
Valve spring free length		std.	mm (in.)	33.1 (1.30)		
		Limit	mm (in.)	31.8 (1.25)		
Valve spring preload		std.	N (kg, lbs)	97 – 113 (9.7 – 11.3, 21.4 – 24.9) at 28.5 mm (1.12 in)		
		Limit	N (kg, lbs)	89 (8.9, 19.6) at 28.5 mm (1.12 in)		
Valve spring squareness		Limit	mm (in.)	2.0 (0.08)		

Cylinder / Piston / Piston Ring

Item			Unit	Data		
				DF40A	DF50A/50AV	DF60A/60AV
Cylinder distortion		Limit	mm (in.)	0.06 (0.002)		
Piston to cylinder clearance		std.	mm (in.)	0.020 – 0.040 (0.0008 – 0.0016)		
		Limit	mm (in.)	0.100 (0.0039)		
Cylinder bore		std.	mm (in.)	72.500 – 72.520 (2.8543 – 2.8551)		
Cylinder measuring position			mm (in.)	50 (1.969) from cylinder top surface		
Piston skirt diameter		std.	mm (in.)	72.470 – 72.490 (2.8531 – 2.8539)		
Piston measuring position			mm (in.)	8 (0.315) from piston skirt end		
Cylinder bore wear		Limit	mm (in.)	0.10 (0.0039)		
Piston ring end gap	1st	std.	mm (in.)	0.15 – 0.30 (0.0059 – 0.0118)		
		Limit	mm (in.)	0.70 (0.028)		
	2nd	std.	mm (in.)	0.30 – 0.45 (0.0118 – 0.0177)		
		Limit	mm (in.)	1.00 (0.039)		
Piston ring free end gap	1st	std.	mm (in.)	Approx 8.8 (0.3465)		
		Limit	mm (in.)	7.0 (0.2756)		
	2nd	std.	mm (in.)	Approx 10.0 (0.3937)		
		Limit	mm (in.)	8.0 (0.3150)		
Piston ring to groove clearance	1st	std.	mm (in.)	0.030 – 0.070 (0.0012 – 0.0028)		
		Limit	mm (in.)	0.12 (0.005)		
	2nd	std.	mm (in.)	0.020 – 0.060 (0.0008 – 0.0024)		
		Limit	mm (in.)	0.10 (0.004)		
Piston ring groove width	1st	std.	mm (in.)	1.02 – 1.04 (0.040 – 0.041)		
	2nd	std.	mm (in.)	1.21 – 1.23 (0.048 – 0.048)		
	Oil	std.	mm (in.)	2.01 – 2.03 (0.079 – 0.080)		
Piston ring thickness	1st	std.	mm (in.)	0.97 – 0.99 (0.038 – 0.039)		
	2nd	std.	mm (in.)	1.17 – 1.19 (0.046 – 0.047)		
Pin clearance in piston pin hole		std.	mm (in.)	0.006 – 0.019 (0.0002 – 0.0007)		
		Limit	mm (in.)	0.05 (0.0019)		
Piston pin outside diameter		std.	mm (in.)	17.995 – 18.000 (0.7085 – 0.7087)		
		Limit	mm (in.)	17.980 (0.7079)		
Piston pin hole diameter		std.	mm (in.)	18.006 – 18.014 (0.7089 – 0.7092)		
		Limit	mm (in.)	18.030 (0.7098)		
Pin clearance in conrod small end		std.	mm (in.)	0.003 – 0.018 (0.0001 – 0.0007)		
		Limit	mm (in.)	0.050 (0.0020)		
Conrod small end bore		std.	mm (in.)	18.003 – 18.013 (0.7088 – 0.7092)		

Crankshaft / Conrod

Item		Unit	Data		
			DF40A	DF50A/50AV	DF60A/60AV
Conrod small end inside diameter	std.	mm (in.)	18.003 – 18.013 (0.7088 – 0.7092)		
Conrod big end oil clearance	std.	mm (in.)	0.031 – 0.049 (0.0012 – 0.0019)		
	Limit	mm (in.)	0.080 (0.0031)		
Conrod big end inside diameter	std.	mm (in.)	41.000 – 41.018 (1.6142 – 1.6149)		
Crank pin outside diameter	std.	mm (in.)	37.982 – 38.000 (1.4954 – 1.4961)		
Crank pin outside diameter difference (Out-of-round and taper)	Limit	mm (in.)	0.010 (0.0004)		
Conrod bearing thickness	std.	mm (in.)	1.486 – 1.501 (0.0585 – 0.0591)		
Conrod big end side clearance	std.	mm (in.)	0.100 – 0.250 (0.0039 – 0.0098)		
	Limit	mm (in.)	0.350 (0.0138)		
Conrod big end width	std.	mm (in.)	19.950 – 20.000 (0.7854 – 0.7874)		
Crank pin width	std.	mm (in.)	20.100 – 20.200 (0.7913 – 0.7953)		
Crankshaft center journal runout	Limit	mm (in.)	0.04 (0.002)		
Crankshaft journal oil clearance	std.	mm (in.)	0.014 – 0.034 (0.0006 – 0.0013)		
	Limit	mm (in.)	0.056 (0.0022)		
Crankcase bearing holder inside diameter	std.	mm (in.)	49.000 – 49.018 (1.9291 – 1.9298)		
Crankshaft journal outside diameter	std.	mm (in.)	44.982 – 45.000 (1.7709 – 1.7717)		

Item		Unit	Data		
			DF40A	DF50A/50AV	DF60A/60AV
Crankshaft journal outside diameter difference (Out-of-round and taper)	Limit	mm (in.)	0.010 (0.0004)		
Crankshaft bearing thickness	std.	mm (in.)	1.999 – 2.015 (0.0787 – 0.0793)		
Crankshaft thrust play	std.	mm (in.)	0.11 – 0.31 (0.004 – 0.012)		
	Limit	mm (in.)	0.35 (0.014)		
Crankshaft thrust bearing thickness	std.	mm (in.)	—		

Electrical

Item		Unit	Data		
			DF40A	DF50A/50AV	DF60A/60AV
Ignition timing		Degrees at r/min	BTDC 2 – 22		BTDC 2 – 25
Over revolution limiter		r/min	DF40A: 6 200 DF40AS/DF50A/50AV/DF60A/60AV: 6 400		
CKP sensor resistance		Ω at 20 °C	168 – 252		
CMP sensor resistance		Ω at 20 °C	—		
Ignition coil resistance	Primary	Ω at 20 °C	—		
	Secondary	kΩ at 20 °C	—		
Battery charge coil resistance		Ω at 20 °C	0.48 – 0.72		
Battery charge coil output (12 V)		Watt	228		
Standard spark plug	Type	NGK	DCPR6E		
	Gap	mm (in.)	0.8 – 0.9 (0.031 – 0.035)		
Fuse amp. rating		A	Main: 30 Starter motor: 30 Ignition coil, Injector, ECM, IAC: 30 PTT switch: 15 Fuel pump: 15		
Recommended battery capacity (12 V)		Ah (kC)	80 (290) or larger		
Fuel injector resistance		Ω at 20 °C	10 – 14		
IAC valve resistance		Ω at 20 °C	25 – 34		
IAT sensor/Cylinder temp. sensor (Thermistor characteristic)		kΩ at 25 °C	1.8 – 2.3		
ECM main relay coil resistance		Ω at 20 °C	145 – 190		
Starter motor relay coil resistance		Ω at 20 °C	145 – 190		
PTT motor relay coil resistance		Ω at 20 °C	25 – 37		

Starter Motor

Item		Unit	Data		
			DF40A	DF50A/50AV	DF60A/60AV
Max. continuous time of use		Sec.	30		
Motor output		kW	1.4		
Brush length	std.	mm (in.)	16.0 (0.63)		
	Limit	mm (in.)	12.0 (0.47)		
Commutator undercut	std.	mm (in.)	0.5 – 0.8 (0.02 – 0.03)		
	Limit	mm (in.)	0.2 (0.01)		
Commutator outside diameter	std.	mm (in.)	29.0 (1.14)		
	Limit	mm (in.)	28.0 (1.10)		

PTT Motor

Item		Unit	Data		
			DF40A	DF50A/50AV	DF60A/60AV
Brush length	std.	mm (in.)	9.8 (0.39)		
	Limit	mm (in.)	4.8 (0.19)		
Commutator outside diameter	std.	mm (in.)	22.0 (0.87)		
	Limit	mm (in.)	21.0 (0.83)		

Self-Diagnostic Code
0: OFF, 1: ON

Failed item	Code	Lamp flashing pattern	Fail-safe system activating
MAP sensor 1	3 – 4	 MCODE00D34-0-01	YES
Cylinder temp. sensor	1 – 4	 MCODE00D14-0-01	YES
IAT sensor	2 – 3	 MCODE00D23-0-01	YES
CKP sensor	4 – 2	 MCODE00D42-0-01	NO
CMP sensor	2 – 4	 MCODE00D24-0-01	NO
Air intake system	2 – 2	 MCODE00D22-0-01	YES
MAP sensor 2	3 – 2	 MCODE00D32-0-01	NO
Fuel injector	4 – 3	 MCODE00D43-0-01	NO
Throttle position sensor	2 – 1	 MCODE00D21-0-01	YES
Trim sensor	3 – 7	 MCODE00D37-0-01	NO
Oil pressure switch	5 – 3	 MCODE00D53-0-01	NO
Rectifier/Regulator (Over-charging)	1 – 1	 MCODE00D11-0-01	NO

Tightening Torque Specifications (2014/07)

CENFJ6110107019

Applicable Model and Effective Serial Number:
04003F-510001 and later, 04004F-510001 and later, 05003F-510001 and later, 05004F-510001 and later, 06002F-510001 and later. 06003F-510001 and later.

Important Fasteners

Item		Thread diameter	Tightening torque		
			N·m	kgf-m	lbf-ft
Cylinder head cover bolt		6 mm	11	1.1	8.0
Cylinder head bolt		8 mm	23	2.3	16.5
		10 mm	59	5.9	42.7
Crankcase bolt	Outside	8 mm	25	2.5	18.0
	Inside	10 mm	46	4.6	33.3
Conrod cap bolt		7 mm	15 N·m (1.5 kgf-m, 10.8 lbf-ft), then plus turn in 65 degrees.		
Camshaft housing bolt		6 mm	11	1.1	8.0
Oil pump bolt		6 mm	11	1.1	8.0
IN. camshaft timing sprocket		10 mm	65	6.5	47.0
Chain tensioner adjuster bolt		6 mm	11	1.1	8.0
Timing chain guide bolt		6 mm	11	1.1	8.0
Intake manifold bolt/nut		8 mm	23	2.3	16.5
Oil pressure switch		—	13	1.3	9.5
Fuel delivery pipe bolt		6 mm	11	1.1	8.0
Low pressure fuel pump bolt		6 mm	10	1.0	7.2
Thermostat cover bolt		6 mm	10	1.0	7.2
Flywheel bolt		14 mm	166	16.6	120.0
Starter motor mounting bolt		8 mm	23	2.3	16.5
Engine oil filter		—	14	1.4	10.0
Engine oil drain plug		12 mm	13	1.3	9.5
Power unit mounting bolt		8 mm	23	2.3	16.5
		10 mm	50	5.0	36.0
Driveshaft housing bolt		10 mm	50	5.0	36.0
Extension case bolt (DF50AV/60AV)		8 mm	23	2.3	16.5
		10 mm	50	5.0	36.0
Upper mount nut		12 mm	60	6.0	43.4
Upper mount cover bolt		10 mm	50	5.0	36.0
Lower mount nut		12 mm	60	6.0	43.4
Clamp bracket shaft nut		7/8-14 UNF	43	4.3	31.0
Water pump case nut		6 mm	8	0.8	5.8
Gearcase bolt (DF40A/50A/60A)		8 mm	23	2.3	16.6
Gearcase bolt (DF50AV/60AV)		10 mm	55	5.5	40.0
Propeller shaft bearing housing bolt		8 mm	23	2.3	16.6
Pinion gear nut (DF40A/50A/60A)		12 mm	45	4.5	32.5
Pinion gear nut (DF50AV/60AV)		14 mm	120	12.0	87.0
Propeller nut		18 mm	55	5.5	40.0
Tiller handle pivot bolt		12 mm	37	3.7	27.0
Tiller handle pivot nut		12 mm	37	3.7	27.0
Tiller handle bracket bolt		10 mm	50	5.0	36.0

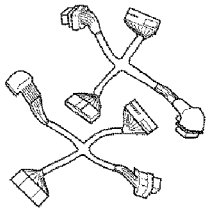
Special Tools and Equipment

Special Tool (2014/07)

CENFJ6110108001

Applicable Model and Effective Serial Number:
04003F-510001 and later, 04004F-510001 and later, 05003F-510001 and later,
05004F-510001 and later, 06002F-510001 and later, 06003F-510001 and later.

The 18 pin & 34 pin test cord set is necessary for checking to the engine control circuit, due to change of the harness connector / terminal layout on the ECM.



09930–89290
18 pin & 34 pin test cord

Maintenance and Tune-Up

Service Instructions

Idle Speed and Idle Air Control (IAC) Duty Inspection (2014/07)

CENFJ6110206020

Applicable Model and Effective Serial Number:
04003F-510001 and later, 04004F-510001 and later, 05003F-510001 and later, 05004F-510001 and later, 06002F-510001 and later, 06003F-510001 and later.

Inspect idle speed and IAC duty
Initially after 20 hours (1 month) and every 200 hours (12 months)

NOTE

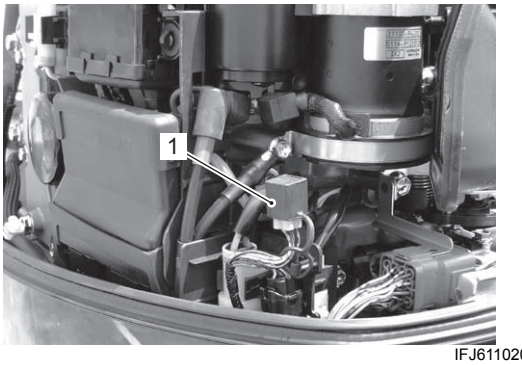
Before checking idle speed / IAC duty, make sure of the following.

- **Engine must be warmed up.**
- **Check idle speed after engine speed has stabilized.**
- **Check throttle link mechanism and throttle valve for smooth operation.**
- **Lead wire and hoses of electronic fuel injection and engine control systems are connected securely.**
- **Ignition timing is within specification.**
- **Tappet clearance is checked according to maintenance schedule.**
- **No abnormal air drawn in from air intake system.**

After all items are confirmed, check idle speed and IAC duty.

There are two methods available for performing the idle speed / IAC duty inspection and adjustment;

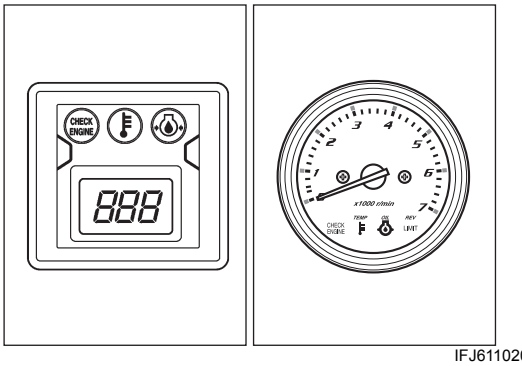
1) Using a personal computer and the SDS (Suzuki Diagnostic System) software.
   Suzuki recommends using this method as it is possible to monitor the inspection data.



IFJ611020004-01

1. SDS service connector

2) Adjust engine speed by the IAC duty fixed mode.
   In IAC duty fixed mode, engine speed can be adjusted while monitoring engine speed by tachometer.



IFJ611020002-01

SDS tool is used
To perform the idle speed and IAC duty inspection, use personal computer and the SDS tool.

1) Connect the SDS tool to engine.
   Refer to the step 1 on the SDS operation manual.
2) Start the engine and allow to warm up.
3) Check the engine speed and IAC duty by using “Service data / Engine data” mode in the SDS.

   Idle speed in neutral gear (IAC duty)
   Standard: 750 – 850 r/min (Duty: Approx. 8.8%)

   NOTE

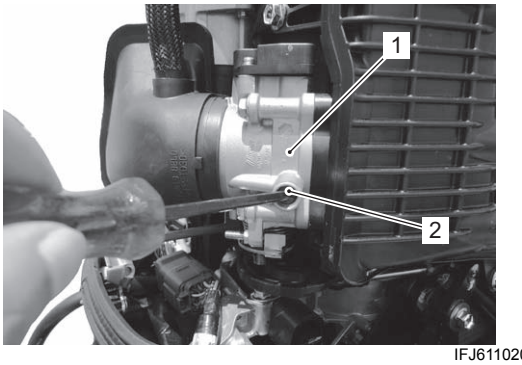
   During the period of idling or trolling the IAC valve duty is approx. 8.8%, however it varies by the load, climate, water condition, etc. to keep the engine speed at preset value.

4) If engine idle speed / IAC duty is out of the specification, the following adjustment must be performed.

a) Turn the by-pass air screw in an appropriate direction to bring it to the standard specification.

NOTE

Idling / trolling speed is controlled by the IAC system.
Do not attempt to adjust the throttle valve opening by turning the throttle stop screw.



IFJ611020005-01

1. Throttle body	2. By-pass air screw

b) Shift into forward, check in-gear idle speed.

NOTE

- **The IAC duty at the trolling speed will be increased more than that at idle speed due to the load.**
- **Trolling speed (in-gear idle speed) is same as idle speed.**
- **Idling / trolling speed of 750 – 850 r/min. is controlled by IAC system.**
  If engine speed can not be controlled to the specification, IAC passage may be clogged or IAC system may not operate correctly.
  See "Idle Air Control System Description" in Section 1G in related manual.

Idle speed in gear (IAC duty)
750 – 850 r/min (Duty: Approx. 9 – 15%)

Adjust engine speed by IAC duty fixed mode
Checking and adjustment of idle speed / IAC duty by IAC duty fixed mode are as follows;

1) Start the engine and allow to warm up.
2) Shift into Neutral and close the throttle fully (this will cause a fully close throttle signal to be input to the ECM).
3) To set the IAC duty to constant 8.8%, turn the ignition key from "ON" to "START" five times within ten seconds.
   At this time, caution buzzer will sound to notify that IAC duty is in fixed mode.

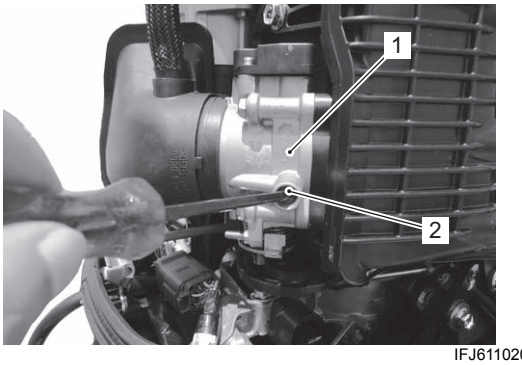
NOTE

While IAC duty is at a fixed 8.8% duty, the "Check Engine" lamp will flash.
This function is added to "caution buzzer sound".

NOTE

- **The ignition key operation to set the IAC valve into the fixed mode should be performed with the engine running at idle.**
- **While IAC valve duty is at a fixed 8.8% duty, the caution buzzer will sound in a repeating pattern of 0.5 second on with an interval of 3 seconds off.**
- **The 8.8% fixed mode of IAC valve duty will continue for 5 minutes after which it will automatically cancel.**

4) During this fixed mode of IAC duty, adjust engine speed to 800 ± 50 r/min. by turning by-pass air screw.
   Turning air screw counterclockwise:
   Engine speed will increase.
   Turning air screw clockwise:
   Engine speed will decrease.



IFJ611020005-01

1. Throttle body	2. By-pass air screw

5) When finished adjusting the idle speed, opening the throttle will automatically cancel the IAC fixed mode.

NOTE

The fixed mode of IAC can also be canceled manually by shifting to Forward or Reverse or raising the engine speed (changes the TPS full close throttle signal to OFF).

6) Return the throttle to full close and check engine speed. It should now be stable at 750 – 850 r/min.

NOTE

Idling / trolling speed of 750 – 850 r/min. is controlled by IAC (idle air control) system. If engine speed does not return to specification, IAC passage may be clogged or IAC system may not be operating correctly.
See "Idle Air Control System Description" in Section 1G in related manual".

NOTE

Trolling speed (in-gear idle speed) is same as idle speed.