

Item	Unit	Data		
		DF4	DF5	DF6

POWERHEAD

Recommended operating range	r/min	4000 – 5000	4500 – 5500	4750 – 5750
Idle speed	r/min	1300 ± 50 (in-gear: approx. 1150)		1300 ± 50 (in-gear: approx. 1200)
* Cylinder compression (with decompression system)	kPa (kg/cm ² , psi)	550 – 650 (5.5 – 6.5, 78 – 92)		
Engine oil		API classification SE, SF, SG, SH, SJ Viscosity rating SAE 10W-40		
Engine oil amounts	L (US/Imp. qt)	0.7 (0.74/0.62)		
Thermostat operating temperature	°C (°F)	48 – 52 (118 – 126)		

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

CARBURETOR

Type		KEIHIN BC19- 13.5	KEIHIN BC19- 13.5	KEIHIN BC21-15
I.D. mark		91J80	91J90	91JB0
Main jet	#	70		78
Pilot jet	#	35		38
Pilot screw	Turns open	PRE-SET		
Float height	mm	10 ± 1		

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CYLINDER HEAD/CAMSHAFT

Cylinder head distortion	limit	mm (in)	0.05 (0.002)	
Cam height	IN	STD	mm (in)	32.401 – 32.461 (1.2756 – 1.2780)
		Limit	mm (in)	32.101 (1.2638)
	EX	STD	mm (in)	32.538 – 32.598 (1.2810 – 1.2834)
		Limit	mm (in)	32.238 (1.2692)
Camshaft journal oil clearance	Upper	STD	mm (in)	0.016 – 0.062 (0.0006 – 0.0024)
		Limit	mm (in)	0.150 (0.0059)
	Lower	STD	mm (in)	0.016 – 0.052 (0.0006 – 0.0020)
		Limit	mm (in)	0.150 (0.0059)
Camshaft holder inside diameter	Upper	STD	mm (in)	15.000 – 15.028 (0.5906 – 0.5917)
	Lower	STD	mm (in)	16.000 – 16.018 (0.6299 – 0.6306)
Camshaft journal outside diameter	Upper	STD	mm (in)	14.966 – 14.984 (0.5892 – 0.5899)
	Lower	STD	mm (in)	15.966 – 15.984 (0.6286 – 0.6293)

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VALVE/VALVE GUIDE

Valve diameter		IN	mm (in)	24.0 (0.94)	
		EX	mm (in)	22.0 (0.87)	
Valve clearance (Cold engine condition)	IN	STD	mm (in)	0.03 – 0.07 (0.001 – 0.003)	
	EX	STD	mm (in)	0.03 – 0.07 (0.001 – 0.003)	
Valve seat angle		IN	—	15°, 45°	
		EX	—	15°, 45°	
Valve guide to valve stem clear- ance		IN	STD	mm (in)	0.025 – 0.052 (0.0010 – 0.0020)
			Limit	mm (in)	0.075 (0.0030)
		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 pro- trusion	IN, EX	STD	mm (in)	11.0 (0.43)	
Valve stem out- side diameter		IN	STD	mm (in)	5.460 – 5.475 (0.2150 – 0.2156)
		EX	STD	mm (in)	5.440 – 5.455 (0.2142 – 0.2148)
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	STD	mm (in)	1.0 (0.04)
		IN, EX	Limit	mm (in)	0.5 (0.02)
Valve seat con- tact width		IN	STD	mm (in)	0.8 – 1.0 (0.03 – 0.04)
		EX	STD	mm (in)	1.0 – 1.2 (0.04 – 0.05)
Valve spring free length		STD	mm (in)	29.5 (1.16)	
		Limit	mm (in)	28.3 (1.11)	
Valve spring tension		STD	N (kg, lbs)	139 – 159 (13.9 – 15.9, 30.6 – 35.1) for 19.3 mm (0.76 in)	
		Limit	N (kg, lbs)	127 (12.7, 28.0) for 19.3 mm (0.76 in)	

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CYLINDER/PISTON/PISTON RING

Cylinder distortion	Limit	mm (in)	0.05 (0.002)
Piston to cylinder clearance	STD	mm (in)	0.010 – 0.040 (0.0004 – 0.0016)
	Limit	mm (in)	0.100 (0.0039)
Cylinder bore	STD	mm (in)	62.000 – 62.015 (2.4409 – 2.4415)
Cylinder measuring position		mm (in)	35 (1.4) from cylinder top surface
Piston skirt diameter	STD	mm (in)	61.975 – 61.990 (2.4400 – 2.4406)
Piston measuring position		mm (in)	14 (0.6) from piston skirt end
Cylinder bore wear	Limit	mm (in)	0.100 (0.0039)
Piston ring end gap	1st	STD	0.20 – 0.35 (0.008 – 0.014)
		Limit	0.70 (0.028)
	2nd	STD	0.35 – 0.50 (0.014 – 0.020)
		Limit	1.00 (0.039)
Piston ring free end gap	1st,	STD	Approx. 8.5 (0.33)
	2nd	Limit	6.8 (0.27)
Piston ring to groove clearance	1st,	STD	0.03 – 0.07 (0.001 – 0.003)
		2nd	Limit
Piston ring groove width	1st,	STD	1.22 – 1.24 (0.048 – 0.049)
		2nd	Oil
Piston ring thickness	1st,	STD	1.17 – 1.19 (0.046 – 0.047)
Pin clearance in piston pin hole	2nd	STD	0.006 – 0.019 (0.0002 – 0.0007)
		Limit	0.040 (0.0016)
Piston pin outside diameter	STD	mm (in)	17.995 – 18.000 (0.7085 – 0.7087)
		mm (in)	17.980 (0.7079)
Piston pin hole diameter	STD	mm (in)	18.006 – 18.014 (0.7089 – 0.7092)
		mm (in)	18.030 (0.7098)
Pin clearance in conrod small end	STD	mm (in)	0.006 – 0.019 (0.0002 – 0.0007)
		mm (in)	0.050 (0.0020)

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CRANKSHAFT/CONROD

Conrod small end inside diameter	STD	mm (in)	18.006 – 18.014 (0.7089 – 0.7092)
	Limit	mm (in)	18.040 (0.7102)
Conrod big end oil clearance	STD	mm (in)	0.015 – 0.035 (0.0006 – 0.0014)
	Limit	mm (in)	0.080 (0.0031)
Conrod big end inside diameter	STD	mm (in)	28.015 – 28.025 (1.1030 – 1.1033)
Crank pin outside diameter	STD	mm (in)	27.990 – 28.000 (1.1020 – 1.1024)
Crank pin outside diameter difference (out-of-round and taper)	Limit	mm (in)	0.010 (0.0004)
Conrod big end side clearance	STD	mm (in)	0.20 – 0.90 (0.008 – 0.035)
	Limit	mm (in)	1.20 (0.047)
Conrod big end width	STD	mm (in)	23.30 – 23.80 (0.917 – 0.937)
Crank pin width	STD	mm (in)	24.00 – 24.20 (0.945 – 0.953)
Crankshaft runout	Limit	mm (in)	0.05 (0.002)
Crankshaft lower journal oil clearance	STD	mm (in)	0.020 – 0.062 (0.0008 – 0.0024)
	Limit	mm (in)	0.100 (0.0039)
Crankcase lower holder inside diameter	STD	mm (in)	25.000 – 25.021 (0.9843 – 0.9851)
Crankshaft lower journal outside diameter	STD	mm (in)	24.959 – 24.980 (0.9826 – 0.9835)

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ELECTRICAL

Ignition timing	Degrees	BTDC 3 – BTDC 28		
Over revolution limiter	r/min	6000		
Ignition coil resistance	Secondary kΩ at 20 °C	8.4 – 12.4 [H.T.cord – pulser core]		
Spark plug cap resistance	kΩ at 20 °C	7.5 – 12.5		
Battery charge coil resistance (Optional part)	Ω at 20 °C	0.6 – 1.0 [R–Y]		
Battery charge coil output (12 V) (Optional part)	Watt	80		
Standard spark plug	Type	NGK BPR6ES		
	Gap	mm (in) 0.7 – 0.8 (0.028 – 0.031)		

LOWER UNIT

Design specification thickness for shim & washer

Pinion gear backup shim	mm (in)	2.0 (0.08)
Forward gear backup shim	mm (in)	1.2 (0.05)
Forward gear thrust washer	mm (in)	1.0 (0.04)
Reverse gear thrust washer	mm (in)	1.0 (0.04)
Reverse gear backup shim	mm (in)	0.8 (0.03)

Initial selection-shim adjustment may be required.