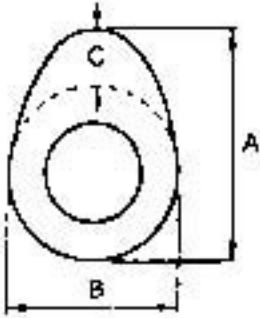


General Specifications

Model:	1978	1979
I.B.M. No.	2J2	
Frame I.D. and starting number	2J2-000101	2J2-020101
Engine I.D. and starting number	2J2-000101	2J2-020101
Dimensions:		
Overall length	2,105 mm (82.9 in)	
Overall width (standard)	835 mm (32.9 in)	
Overall height (standard)	1,150 mm (45.3 in)	
Wheel base	1,410 mm (55.5 in)	
Minimum ground clearance	165 mm (6.5 in)	
Weight:		
Net weight	163 kg (359 lbs)	
Performance:		
Climbing ability	30 deg	
Minimum turning radius	2,400 mm (94.5 in)	
Braking distance	14 m (45.9 ft) at 50km/h (31 mph)	

Engine Specifications

Description:	
Engine type	Air cooled 4-stroke, foward incline, single, S.O.H.C.
Engine model	2J2
Displacement	499 cc (30.45 cu. in.)
Bore x Stroke	87 x 84 mm (3.425 x 3.307 in)
Compression Ratio	9.0 : 1
Starting system	Primary kick starter
Ignition system	C.D.I.
Lubrication system	Dry Sump system
Cylinder Head:	
Combustion chamber type	Dome
Combustion chamber volume (with BP7ES or N-7Y)	62.4 cc (3.81 cu. in.)
Head gasket thickness	1.0 mm (.039 in)
Camshaft:	
Cam drive type	Drive chain (right side drive)
Camshaft bearing type (left)	6005C3
Camshaft bearing type (right)	6005C3 (with groove)
Cam chain type and No. of links	BF05M, 106L



Cam dimensions:

A (Cam Height) IN.

A (Cam Height) EX.

B (Base circle) IN.

B (Base circle) EX.

C (Cam lift) IN.

C (Cam lift) EX.

Camshaft run out limit

Valve timing:

Intake open

Intake close

Duration

Exhaust open

Exhaust close

Exhaust duration

Valve overlap

required <allowable>

39.23 +or- .05 mm <39.08 mm>
 (1.5445 +or- .0020 in <1.5386 in>
 39.25 +or- .05 mm <39.10 mm>
 (1.5453 +or- .0020 in <1.5394 in>
 32.23 +or- .05 mm <32.08 mm>
 (1.2689 +or- .0020 in <1.2630 in>
 32.28 +or- .05 mm <32.08 mm>
 (1.2709 +or- .0020 in <1.2630 in>
 7.225 mm (.2844 in)
 7.253 mm (.2856 in)
 <0.1 mm (.0039 in)>

BTDC 44 deg
 ABDC 68 deg
 292 deg
 BBDC 76 deg
 ATDC 36 deg
 292 deg
 80 deg

Rocker arm and rocker shaft:

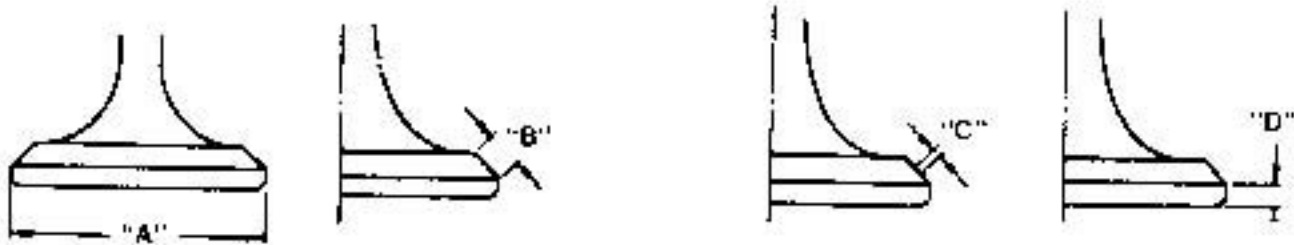
Rocker arm bearing dia. (I.D.)

Rocker arm shaft dia. (O.D.)

Clearance

required <allowable>

12.00~12.02 mm <12.05 mm>
 (.4724~.4732 in <.4744 in>
 11.98~11.99 mm <11.96 mm>
 (.4714~.4720 in <.4709 in>
 .01~.04 mm <.11 mm>
 (.0004~.0016 in <.0043 in>



Valve, valve seat and valve guide:

Valve clearance (cold): IN.
 Valve clearance (cold): EX.
 No. of valves per cylinder:
 Valve head dia. (A): IN.
 Valve head dia. (A): EX.
 Valve face width (B): IN.
 Valve face width (B): EX.
 Valve seat width (C): IN.
 Valve seat width (C): EX.
 Valve margin thickness (D): IN.
 Valve margin thickness (D): EX.
 Valve stem outside dia.: IN.
 Valve stem outside dia.: EX.
 Valve guide inside dia.: IN.
 Valve guide inside dia.: EX.
 Valve stem to guide clearance: IN.
 Valve stem to guide clearance: EX.

required <allowable>

.10 mm (.0039 in)
 .15 mm (.0059 in)
 2 pcs
 47 mm (1.85 in)
 39 mm (1.54 in)
 2.12 mm (.0835 in)
 2.12 mm (.0835 in)
 1.3 mm (.051 in)
 1.3 mm (.051 in)
 1.3 mm (.051 in)
 1.3 mm (.051 in)
 7.97~7.99 mm (.3138~0.3146 in)
 7.96~7.97 mm (.3134~0.3138 in)
 8.01~8.02 mm (.3154~0.3157 in)
 8.01~8.02 mm (.3154~0.3157 in)
 .02~.04 mm <.08 mm>
 (.0008~.0016 in <.0031 in>)
 .04~.06 mm <.1 mm>
 (.0016~.0024 in <.0039 in>)

Valve springs:

Free length: Inner
 Free length: Outer
 Spring rate: Inner

Spring rate: Outer

Installed length (valve closed): Inner
 Installed length (valve closed): Outer
 Installed pressure (valve closed): Inner
 Installed pressure (valve closed): Outer
 Compressed length (valve open): Inner
 Compressed length (valve open): Outer
 Compressed pressure (valve open): Inner
 Compressed pressure (valve open): Outer
 Wire diameter: Inner
 Wire diameter: Outer
 Winding outside diameter: Inner
 Winding outside diameter: Outer
 Tilt limit from vertical: Inner
 Tilt limit from vertical: Outer

required <allowable>

45.3 mm <43.9 mm> (1.783 in <1.728 in>)
 44.6 mm <43.3 mm> (1.756 in <1.703 in>)
 K1= 1.67, K2 = 2.12 [kg/mm]
 (K1 = 93.5, K2 = 119 [lb/in])
 K1 = 3.60, K2 = 4.63 [kg/mm]
 (K1 = 202, K2 = 259 [lb/in])
 38.0 mm (1.496 in)
 40.0 mm (1.575 in)
 12.2 kg (26.9 lb)
 16.4 kg (36.2 lb)
 28.0 mm (1.102 in)
 30.0 mm (1.181 in)
 33.4 kg (73.6 lb)
 62.7 kg (138.2 lb)
 3.1 mm (.122 in)
 4.4 mm (0.173 in)
 23.4 mm (.921 in)
 32.9 mm (1.295 in)
 1.97 mm (.0776 in)
 1.97 mm (.0776 in)

Cylinder:

Material

Bore size

Taper limit

Out Of round limit

required <allowable>

Aluminum alloy with special cast iron sleeve

87.00 ~87.02 mm <87.1 mm>

(3.4252 ~3.4260 in <3.429 in>)

<.05 mm> (<.0020 in>)

<.01 mm> (<.0004 in>)

Piston:

Piston clearance

Piston clearance measuring position
(from piston skirt bottom)

Piston pin bore size

Piston pin outside diameter

Piston pin length

Over size piston diameter: 1 st

Over size piston diameter: 2nd

Over size piston diameter: 3rd

Over size piston diameter: 4th

required <allowable>

.050 ~ .055 mm (.0020 ~ .0022 in)

7.2 mm (.283 in)

20.00 ~ 20.02 mm <20.08 mm>

(.7874 ~ .7882 in <.7905 in>)

19.99 ~ 20.00 <19.96 mm>

(.7870 ~ .7874 in <.7858 in>)

75 mm (2.95 in)

87.25 mm (3.4350 in)

87.50 mm (3.4449 in)

87.75 mm (3.4547 in)

88.00 mm (3.4646 in)

Piston ring:

Piston ring design: Top ring

Piston ring design: 2nd ring

Piston ring design: Oil ring

Ring end gap (installed): Top ring

Ring end gap (installed): 2nd ring

Ring end gap (installed): Oil ring

Ring groove side clearance: Top ring

Ring groove side clearance: 2nd ring

Ring groove side clearance: Oil ring

Over size piston ring: 1st

Over size piston ring: 2nd

Over size piston ring: 3rd

Over size piston ring: 4th

required <allowable>

Plain ring

Plain ring

Oil ring with expander

.3 ~ .5 mm <0.8 mm>

(.012 ~ .020 in <.030 in>)

.3 ~ .5 mm <.8 mm>

(.012 ~ .020 in <.031 in>)

.2 ~ .9 mm <1.0 mm>

.04 ~ .08 mm <.15 mm>

(.0016 ~ .0031 in <.0059 in>)

.03 ~ .07 mm <.15 mm>

(.0012 ~ .0028 in <.0059 in>)

N.A.

87.25 mm (3.4350 in)

87.50 mm (3.4449 in)

87.75 mm (3.4547 in)

88.00 mm (3.4646 in)

Big end bearing:

Type

Inside dia. x outside dia. x width

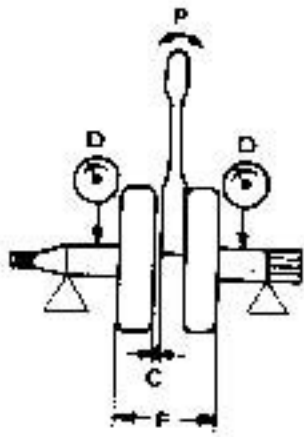
Needle dia. x quality

Needle bearing

34 x 42 x 24 mm (1.34 x 1.65 x .94 in)

IKO 4 mm (.16 in) x 18 pcs

KOYO 4 mm (.16 in) x 17 pcs.



Crankshaft:

Crankshaft assembly width (F)
 Crankshaft deflection (D)
 Connecting rod large end side clearance (C)
 Connecting rod small end deflection (P)

Crank pin outside dia. x length
 Crank bearing type; Left
 Crank bearing type; Right
 Crank oil seal type: Left
 Crank oil seal type: Right

required <allowable>

74.95 ~ 75.00 mm (2.9508 ~ 2.9528 in)
 <.03 mm (.0012 in) or less>
 .35 ~ .65 mm (.0138 ~ .0256 in)
 .8 ~ 1.0 mm <2.0 mm>
 (.0315 ~ .0394 in <0.079 in>)
 34 x 74 mm (1.34 x 2.91 in)
 6306 SH2-9-C4
 6307 SH2-9-C4 with special heat treatment
 SD-30-60-6
 S-14-25-5.5 special

Clutch:

Clutch type
 Clutch push mechanism
 Primary reduction ratio and method
 Primary reduction gear back lash number
 Primary drive gear back lash number
 Primary driven gear back lash number
 Friction plate: Thickness/quantity

Clutch plate: Thickness/quantity
 Clutch plate: Warp limit
 Clutch spring: Free length/quantity

Clutch spring: Spring set weight
 Clutch spring: Spring constant
 Clutch housing thrust clearance
 Push rod bending limit
 Push lever axle: Bearing type and size
 Push lever axle: Oil seal type and size

required <allowable>

Wet, multiple disc type
 Inner push, cam axle type
 77/30 (2.566), spur gear
 148 ~ 150
 21.79 +0 -.04 mm (4 Teeth)
 52.71 +0 -.04 mm (9 Teeth)
 2.8 mm <2.5 mm> /8 pcs.
 (.110 in <.098 in> /8 pcs.)
 1.2 mm /7 pcs. (.047 in /7 pcs.)
 <.05 mm (.0020 in)>
 41.2 mm <40.0 mm> /6 pcs.
 (1.622 in <1.575 in> /6 pcs.)
 19.8 x 6 kg/25 mm (43.7 6 lb/.984 in)
 1.22 kg/mm (68.3 lb/in)
 .10 ~ .21 mm (.004 ~ .008 in)
 <.2 mm (.0079 in) or less>
 Needle bearing (17-21.5-15) x 2 pcs.
 SD-17-28-6

Transmission:

Type	Constant mesh. 5 speed
Gear ratio: 1st	33/14 (2.357)
Gear ratio: 2nd	28/18 (1.555)
Gear ratio: 3rd	25/21(1.190)
Gear ratio: 4th	22/24 (0.916)
Gear ratio: 5th	21/27 (0.777)
Bearing type: Main axle (Left)	Needle bearing (20-32-12)
Bearing type: Main axle (Right)	4205
Drive axle (Left)	6305 special
Drive axle (Right)	Needle bearing (20-36-12)
Drive axle (Left)	SD-35-62-10
Secondary reduction ratio and method	44/16 (2.750), chain

Shifting mechanism:

Operation system	Return type, left foot operation
Shifting type	Guide bar type, cam drum system
Oil seal type: Change lever	SDO-14-24-6

Kick starter:

Type	Ratchet type
Oil seal type Kick axle	SD-25-35-7

Compression releaser:

Type	Manual, wire linked cam axle type
Lever free play	2 mm (.079 in)
Oil seal type	SD-12-17-2.5-2NR

Carburetor:

Type and manufacture/quantity I	VM34SS MIKUNI / I pc.
I.D. mark	2J200
Main jet (M.J.)	#300
Airjet (A.J.)	#80
Jet needle: Clip position (J.N.)	6FL25-2
Needle jet (N.J.)	P-8
Cutaway (C.A.)	3.5
Pilot jet (P.J.)	#25
Mixture screw turns out	Preset
Starter jet(G.S.)	#50
Float height	23.5 +or- 1 mm (.925 +or- .039
Idling engine speed	1100 r/min

Lubrication:

Transmission gear and engine sump oil
Quantity

Type engine oil

Oil pump: Type

Oil pump: Housing inside diameter

Oil pump: Housing depth (delivery)

Oil pump: Housing depth (scavenger)

Oil pump: Rotor diameter

Oil pump: Rotor thickness (delivery)

Rotor thickness (scavenger)

Outer rotor and housing clearance

Side clearance

Tip clearance

Check valve opening pressure

By-pass valve opening pressure

Oil cleaner type

required <allowable>

Total amount: 2.4 lit (2.5 US.qt)(2.11 IMP.qt)

Periodic oil charge: 2.0 lit (2.1 US.qt)(1.76 IMP.qt)

Exchange with oil filter: 2.1 lit (2.2 US.qt)(1.85 IMP)

Yamalube 20W / 40 motor oil or equivalent

Trochoid pump

40.65 ~ 40.68 mm <40.85>

(1.6004 ~ 1.6016 <1.6083 in>)

4.03 ~ 4.06 mm <4.09 mm>

(.1587 ~ .1598 in <.1610 in>)

18.03 ~ 18.06 mm <18.09 mm>

(.7098 ~ .7118 in <.7122 in>)

40.53 ~ 40.56 mm <40.50 mm>

(1.5957 ~ 1.5968 in <1.5945 in>)

3.98 ~ 4.00 mm <3.95 mm>

(.1567 ~ .1575 in <.1555 in>)

17.98 ~ 18.00 mm <17.95 mm>

.09 ~ .15 mm <.35 mm>

(.0035 ~ .0059 in <.0138 in>)

.03 ~ .08 mm <.14 mm>

(.0012 ~ .0031 in <.0055 in>)

.07 ~ .12 mm <.35 mm>

(.0028 ~ .0047 in <.00138 in>)

.18 kg/cm² (2.56 lb/in²)

1.0 kg/cm² (14.2 lb/in²)

Paper type

Chassis specification

Frame:

Frame design

Tubular steel semi double cradle

Steering system:

Caster

27.5 deg (62.5 deg)

Trail

117 mm (4.6 in)

Number and size of balls in steering head:

Upper race

22 pcs. 3/16 in

Lower race

19 pcs. 1/4 in

Lock to lock angle

L.R. 41.5 deg

Front suspension:

Type	Telescopic forks
Front fork cushion travel	150 mm (5.9 in)
Front fork spring:	445 mm (17.52 in)
Free length	417 mm (16.42 in)
Set length	3.6 x 24.3 mm (.14 x 0.96 in)
Wire dia. x winding dia.	K1 = .4 kg/mm (0 ~ 100 mm) (22.4 lb/in (0 ~ 3.94 in))
Spring constant	K2 = .504 kg/mm (100 ~ 150 mm) (28.2 lb/in (3.94 ~ 5.91 in))
Inner tube outside diameter	35 mm (1.38 in)
Oil seal type	SD-35-48-10.5
Front fork oil: Quantity	182 cc (6.15 oz)(6.41 IMP.oz)
Front fork oil: Type	Yamaha fork oil 10 Wt. or equivalent

Rear suspension:

Type	required <allowable> Swing arm
Damper type	Coil spring, oil damper
Rear shock absorber travel	80 mm (3.15 in)
Rear wheel travel	110 mm (4.33 in)
Rear shock absorber spring:	216.5 mm (8.52 in)
Free length	198 mm (7.80 in)
Set length (soft position)	7.5 x 61 mm (.30 x 2.40 in)
Wire dia. x winding dia.	K1 = 1.8 kg/mm (0 ~ 50 mm) (100.8 lb/in (0 ~ 1.97 in))
Spring constant	K2 = 2.1 kg/mm (50 ~ 80 mm) (117.6 lb/in (1.97 ~ 3.15 in))
Swing arm free play (limit)	<1 mm (0.039 in)>
Pivotshaft:	16 mm (0.63 in)
Outside dia.	L.R. Needle bearing (22-29-20)
Bearing type and size	L.R. Thrust needle bearing (22-40.15-6)
Dust seal type	L.R. OSO-35-41.5-8

Fuel tank:

Capacity	12 lit (3.2 US.Gal)(2.6 IMP.gal)
Fuel grade	Regular gasoline

Wheel:

Type

Tire size and pattern: Front

Tire size and pattern: Rear

Rim type: Front

Rim type: Rear

Rim runout (limit): Front/Rear

Rim hopping (limit): Front/Rear

Bearing type:

Front wheel (Left)

Front wheel (Right)

Rear wheel (Left)

Rear wheel (Right)

Oil seal type:

Front wheel (Left)

Front wheel (Right)

Rear wheel (Left)

Rear wheel (Right)

Secondary drive chain:

Type

Number of links

Chain pitch

Chain free play

required <allowable>

Casting wheel

3.50-S19-4PR. lug type

4.00-S18-4PR. lug type

1.85-19 / Aluminum

2.15-18 / Aluminum

<2 mm> (<.08 in>)

<2 mm> (<.08 in>)

6303ZZ

6303Z

6203RS

6303ZZ

SD-28-47-7-1

SDD-45-56-6

SD-25-40-8

SD-28-47-7-1

DID 50 HDSS

103L +Joint

15.875 rnm (.6250 in)

20 mm (0.79 in)

Brake (Front and rear):

Type

Disc size (Outside dia. thickness)

Front

Rear

Disc wear/limit

Disc pad thickness

Pad wear limit (Minimum thickness)

Master cylinder inside dia.

Caliper cylinder inside dia.

Brake fluid type

required <allowable>

Hydraulic disc type

298 x 5 mm (11.73 x .02 in)

267 x 5 mm (10.51 x .02 in)

<4.5 mm> (<.18 in>)

11 mm (.43 in)

<6 mm> (<.24 in>)

14.0 mm (.55 in)

38.18 mm (1.50 in)

DOT #3 brake fluid

Electrical Specifications

Voltage

12V

C.D.I. Ignition system:

required <allowable>

Model/Manufacturer

032000-045 / NIPPON DENSO

Pulser coil resistance

16 ohm +or- 30% at 20 deg C(68 deg F)

High speed (White/Red-Black)

87 ohm +or-30% at 20 degC (68 deg F)

Low speed (White/Green-Black)

Charge coil resistance

334 ohm +or- 30% at 20degC(68 deg F)

High speed (Red-Brown)

329 ohm +or- 30% at 20 deg C (68 deg F)

Low speed (Brown-Black)

Ignition timing:

BTDC 7 deg / 1100 r/min

Ignition advancer:

Electrical

Advance type

26.5 deg

Advance angle

Advance starting engine speed

1,950 r/min

Full advance engine speed

6,000 r/min

Ignition coil:

Model/manufacturer

029700-468 / NIPPON DENSO

Spark gap

<6 mm (.24 in) / 500 r/min>

Primary winding resistance

.98 ohm +or- 20% at 20 deg C (68 deg F)

Secondary winding resistance

12k ohm +or- 20% at 20 deg C (68 deg F)

Spark plug:

Type

BP-7ES (N.G.K.) or N- 7Y (CHAMPION)

Spark plug gap

.7 ~ .8 mm (.028 ~ .031 in)

C. D.I. unit:

070000-035/NIPPON DENSO

Model/Manufacturer

Charging system:

AC. magneto:

032000-045 / NIPPON DENSO

Model/Manufacturer

Rotor puller thread size

M27 x P 1.0

Output

14.5V-11A / 5000 r/min

Stator coil resistance:

White-Yellow

.73 ohm +or- 30% at 20 deg C (68 deg F)

White-White

.80 ohm +or- 30% at 20deg C (68 deg F)

Rectifier with regulator:

Model/Manufacturer(Rectifier)

SH235 / SHINDENGEN

Type

I.C. type. three phase full wave

Capacity

15A

Withstand voltage(Regulator)

200V

Type

I.C. type

Regulating voltage

14.5 +or- .5V

Allowable amperage

15A

Battery:

Model/Manufacturer

12N7-3B / G.S.

Capacity

12V, 7AH

Charging rate

.7A x 10 hours

Specific gravity

1.280

Lighting system:

Headlight type:

Sealed beam

Bulb wattage/Quantity:

12V, 50W/40W x 1

Headlight

12V 8W (3CP) x 1

Taillight

12V 27W (32CP) x 1

Brake light

12V 27W (32CP) x 4

Flasher light

12V 3.4W x 1

Turn indicator light

12V 3.4W x 4

Meter light

12V 3.4W x 1

High beam indicator light

12V 3.4W x 1

Neutral indicator light

Horn:

CF-12 / NIKKO HORN

Model/Manufacturer

1.24 ohm +or- 10% at 20 deg C (68 deg F)

Winding resistance

2.5A

Amperage

Flasher relay:

Condenser type

Type

FN257C / NIPPON DENSO

Model/Manufacturer

85 +or- 10 cycle/min.

Flasher frequency

12V 27W x 2 + 3W

Capacity

Fuse:

20A

Rating