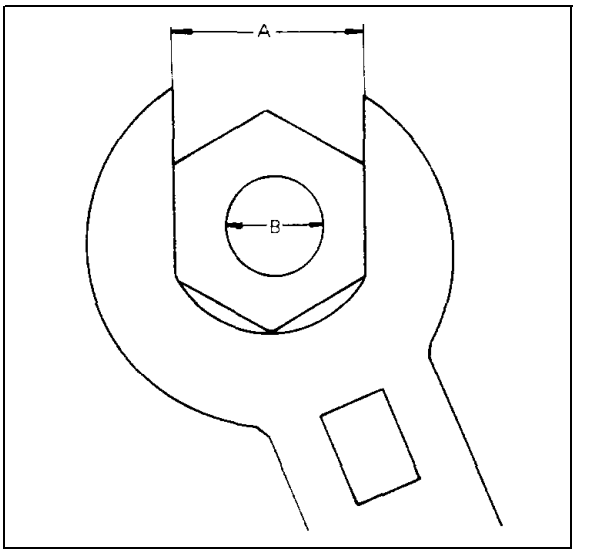
CHAPTER 7. APPENDICES

7-1. TORQUE SPECIFICATION

The following torque specifications must be adhered to on every machine. When applying torque to multi-secured fastener components, the several studs should be tightened in gradual stages and in a pattern that will avoid warpage to the item being secured. Torque settings are for dry, clean threads. Torquing should always be done to the nut, never the bolt head.

NOTE:
Certain items with other than standard thread pitches may require differing torque.



Torque **Specifications**

A (Nut)	B (Bolt)	Standard tightening torque		
		m-kg	ft-lb	in-lb
10mm	6 mm (M6)	1.0	7	85
12mm	8mm (M8)	2.0	14	175
14 mm	10 mm (M10)	3.5 ~ 4.0	25 ~ 29	300 ~ 350
17 mm	12 mm (M12)	4.0 ~ 4.5	29 ~ 33	350 ~ 400
19mm	14 mm (M14)	4.5 ~ 5.0	33 ~ 36	400 ~ 440
22 mm	16 mm (M16)	5.6 ~ 6.5	41 ~ 49	480 ~ 570
24 mm	18 mm (M18)	5.8 ~ 7.0	42 ~ 50	504 ~ 600
27 mm	20 mm (M20)	7.0 ~ 8.3	50 ~ 60	600 ~ 700

Part to be tightened	Thread dia. and part name	Tightening torque
Engine:		
Cylinder head and cylinder head cover	10mm nut 8 mm bolt	3.8 m-kg (27 ft-lb) 2.2 m-kg (16 ft-lb)
Cylinder head	6 mm bolt	1.0 m-kg (7 ft-lb)
Cylinder head cover side	6 mm crown nut 8 mm crown nut	1.0 m-kg (7 ft-lb) 1.5 m-kg (10 ft-lb)
Spark plug	I 14 mm	2.0 m-kg (14 ft-lb)
Generator	12 mm nut	4.0 m-kg (29 ft-lb)
Stator coil	6 mm pan headscrew	1.0 m-kg (7 ft-lb)
Governer	6 mm bolt	0.8 m-kg (6 ft-lb)
Valve clearance adjustment nut	8 mm nut	2.7 m-kg (20 ft-lb)
Cam chain tensioner cover	18 mm cap	2.2 m-kg (16 ft-lb)
Pump cover	6 mm pan head screw	1.O m-kg (7 ft-lb)
Strainer cover	6 mm bolt	1.0 m-kg (7 ft-lb)
Drain plug	30 mm bolt	4.4 m-kg (32 ft-lb)
Filter cover	6 mm bolt	1.0 m-kg (7 ft-lb)
Oil filter	16 mm bolt	1.0 m-kg (7 ft-lb)

Part to be tightened	Thread dia. and part name	Tightening torque
Delivery pipe	10 mm union bolt	2.2 m-kg (16 ft-lb)
Exhaust pipe	8mm nut	1.5 m-kg (11 ft-lb)
Crankcase 1 and 2	8 mm bolt/nut	2.2 m-kg (16 ft-lb)
Crankcase cover	6 mm bolt	1 .O m-kg (7 ft-lb)
Kick crank boss	8 mm bolt	2.0 m-kg (14 ft-lb)
Clutch spring	6 mm screw	1 .O m-kg (7 ft-lb)
Primary drive gear	14 mm nut	9.0 m-kg (65 ft-lb)
Clutch boss	18 mm nut	6.5 m-kg (47 ft-lb)
Drive sprocket	22 mm nut	5.0 m-kg (36 ft-lb)
Change pedal	6 mm bolt	1 .O m-kg (7 ft-lb)
Chassis: Front wheel shaft	14 mm nut	8.5 m-kg (61 ft-lb)
Outer tube and axle holder	8mm nut	1.5 m-kg (11 ft-lb)
Handle crown and inner tube	8mm nut	1.0 m-kg (7 ft-lb)
Handle crown and steering shaft	8 m m nut	1.0 m-kg (7 ft-lb)
Handle crown and steering shaft	14 mm bolt	5.5 m-kg (40 ft-lb)
Handle crown and handle holder	8 mm bolt	2.5 m-kg (18 ft-lb)
Under bracket and inner tube	8 mm nut	1.5 m-kg (11 ft-lb)
Engine mounting bolts		Refer to 33
Front flasher and head lamp	8 mm nut	1.0 m-kg (7 ft-lb)
Master cylinder and brake hose	10 mm union bolt	2.5 m-kg (18 ft-lb)
Brake disc and hub	8 mm bolt	2.0 m-kg (14 ft-lb)
Caliper and support bracket	8 mm bolt	2.0 m-kg (14 ft-lb)
Caliper and pad	5 mm bolt	0.3 m-kg (2 ft-lb)
Caliper and bleed screw	8 mm bolt	0.6 m-kg (4 ft-lb)
Support bracket and front fork	10 mm bolt	3.5 m-kg (25 ft-lb)
Master cylinder and cylinder bracket	6 mm bolt	0.6 m-kg (4 ft-lb)
Pivot shaft	14 mm nut	6.5 m-kg (47 ft-lb)
Rear wheel shaft	16 mm nut	15 m-kg (108 ft-lb)
Tension bar and brake plate	8 mm nut	2.0 m-kg (14 ft-lb)
Tension bar and rear arm	8 mm nut	2.0 m-kg (14 ft-lb)
Rear shock absorber	10 mm bolt	3.0 m-kg (22 ft-lb)
Rear arm and rear arm end	8 mm bolt	1.0 m-kg (7 ft-lb)
Sprocket wheel	10 mm nut	3.0 m-kg (22 ft-lb)
Handle crown and meter bracket	8 mm	2.5 m-kg (18 ft-lb)
Front fender	8 mm bolt	1.0 m-kg (7 ft-lb)
Neutral switch and engine	12 mm	1.5 m-kg (11 ft-lb)

7-2. CONVERSION TABLE

Metric to Inch System		
Known	Multiplier (Rounded off)	Result
Torque		
m-kg	7.233	ft-lbs
m-kg	86.80	in-lbs
cm-kg	0.0723	ft-lbs
cm-kg	0.8680	in-lbs
Wt.		
kg	2.205	lb
g	0.03527	oz
Flow/Distance		
km/l	2.352	mpg
km/hr	0.6214	mph
km	0.6214	mi
m	3.281	ft
m	1.094	yd
cm	0.3937	in
mm	0.03937	in
Vol./Capacity		
cc (cm^3)	0.03382	oz(US liq)
cc (cm^3)	0.06102	cu. in
l (liter)	2.1134	pt (US lia)
l (liter)	1.057	qt (US liq)
l (liter)	0.2642	gal (US liq)
Misc.		
kg/mm	56.007	lb/in
kg/cm^2	14.2234	psi (lb/in^2)
Centigrade (°C)	9/5 (°C) + 32	Fahrenheit (°F)

Inch Metric System		
Known	Multiplier (Rounded off)	Result
Torque		
ft-lbs	0.13826	m-kg
in-lbs	0.01152	m-kg
ft.lbr	13.831	cm-kg
in-lbs	1.1521	cm-kg
Wt.		
lb	0.4535	kg
oz	28.352	g
Flow/Distance		
mpg	0.4252	km/l
mph	1.609	km/hr
mi	1.609	km
ft	0.3048	m
yd	0.9141	m
in	25.4	cm
in	25.4	mm
Vol./Capacity		
oz (US liq)	29.57	cc (cm^3)
cu. in	16.387	cc (cm^3)
pt (US liq)	0.4732	l (liter)
qt (US liq)	0.9461	l (liter)
gal (US liq)	3.765	l (liter)
Misc.		
lb/in	0.017855	kg/mm
psi (lb/in^2)	0.07031	kg/cm^2
Fahrenheit (°F)	5/9 (°F) − 32	Centigrade (°C)

Definition of Terms:

m-kg = Meter-kilograms: Usually torque.
g = Gram(s).
kg = Kilogram(s): 1,000 grams.
km = Kilometer(s).
l = Liter(s).
km/l = Kilometer(s) per liter: Mileage.
cc = Cubic centimer(s) (cm^3): Volume or capacity.
kg/mm = Kilogram(s) per millimeter: Usually spring compression rate,
kg/cm^2 = Kilogram(s) per square centimeter: Pressure.

7.3. SPECIFICATION

A. General

1. MODEL	
1) Model (I.B.M. No.)	XS650E (2F0)
2) Frame I.D. and starting number	2F0-000101
3) Engine I.D. and starting number	2F0-000101
2. DIMENSION	
1) Overall length	2,180 mm (85.8 in)
21 Overall width	835 mm (32.9 in)
3) Overall height	1,160 mm (45.7 in)
4) Seat height	815 mm (32.1 in)
5) Wheelbase	1,435 mm (56.5 in)
6) Minimum ground clearance	150 mm (5.9 in)
3. WEIGHT	
1) Net weight (Dry)	212 kg (467 lb)
4. PERFORMANCE	
1) Climbing ability	26°
2) Minimum turning radius	2,500 mm (98.4 in)
3) Braking distance	14 m @ 50 km/h (45.9 ft @ 31 mi/h)

B. Engine

1. DESCRIPTION		
1) Engine type		Air cooled, 4-stroke. SOHC twin. parallel forward incline
2) Engine model		2F0
3) Displacement		653 cc (39.85 cu.in)
4) Bore x stroke		75 x 74 mm (2.953 x 2.913 in)
5) Compression ratio		8.5 : 1
6) Starting system		Kick and electric starter
7) Ignition system		Battery ignition
8) Lubrication system		Wet sump
2. CYLINDER HEAD		
1) Combustion chamber volume (with N-7Y)		44.18 cc (2.696 cu.in)
2) Combustion chamber type		Dome + Squish
3) Head gasket thickness		1.2 mm (0.047 in)
3. CYLINDER		
1) Material		Aluminum alloy with cast iron sleeve
2) Bore size		$75.00^{+0.02}_{0}$ mm ($2.9528^{+0.0008}_{0}$ in)
3) Taper limit		0.05 mm (0.002 in)
4) Out of round limit		0.01 mm (0.0004 in)
4. PISTON		
1) Piston skirt clearance		0.050 — 0.055 mm (0.0020 — 0.0022 in)
21 Piston oversize		75.25 mm (12.963 in) / 75.50 mm (12.972 in,) / 75.75 mm (12.982 in) / 76.00 mm (2.992 in)
3) Piston pin outside diameter x length		$20.0^{0}_{-0.005}$ mm x $61.0^{0}_{-0.3}$ mm ($0.79^{0}_{-0.0002}$ in x $2.40^{0}_{-0.0116}$ in)
5. PISTON RING		
1) Piston ring design	(Top)	Barrel ring 1.2 mm (0.047 in)
	(2nd)	Taper ring 1.5 mm (0.059 in)
	(Oil ring)	With expander 2.8 mm (0.110 in)
2) Ring end gap	(Installed. top)	0.2 ~ 0.4 mm 10.008 ~ 0.016 in)
	(Installed. 2ndl)	0.2 ~ 0.4 mm (0.008 ~ 0.016 in)
	(Installed, oil)	0.3 ~ 0.9 mm (0.012 ~ 0.036 in)
3) Ring groove side clearance	(Top)	0.04 ~ 0.08 mm (0.0016 ~ 0.0031 in)
	(2nd)	0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)

6. BIG END BEARING

1) Type	Needle bearing
2) Bearing size I.D. x O.D. x Width	26 x 34 x 19.8 mm (1.024 x 1.339 x 0.780 in)
3) Needle size O.D. x Length x Number	4 x 15.8 mm x 13 (0.157 x 0.662 in x 13)

7. CAMSHAFT

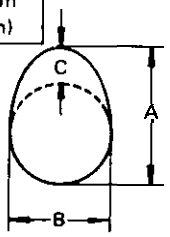
1) Cam drive type	Chain (Center side)
2) Number and type of bearing	4 bearings, Ball bearings
3) Bearing dimensions I.D. x O.D. x Width	25 x 47 x8 mm IO.984 x 1.850 x 0.315 in)

4) Cam dimensions

	Cam height "A"	Limit	BiWidth "B"3"	Limit	Lift "C"
IN	39.99 ± 0.05 mm (1.574 ± 0.002 in)	39.84 mm (1.569 in)	32.24 ± 0.05 mm (1.269 ± 0.002 in)	32.09 mm (1.263 in)	7.991 mm (0.315 in)
EX	40.03 ± 0.05 mm (1.576 ± 0.002 in)	39.88 mm (1.570 in)	32.30 ± 0.05 mm (1.272 ± 0.002 in)	32.15 mm (1.266 in)	8.030 mm (3.161 in)

5) Valve timing

	OPEN	CLOSE	DURATION	OVERLAP
IN	BTDC36°	ABDC68°	284°	72°
EX	BBDC68°	ATDC36°	284°	



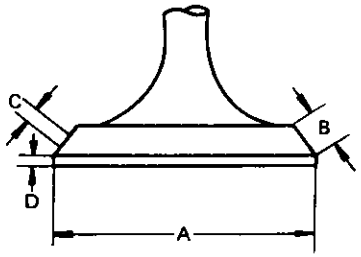
6) Camshaft deflection limit	0.03 mm (0.0012 in)
7) Cam chain	
Type	TSUBAKIMOTO BF05M
Pitch/Number of links	7.774 mm IO.3060 in)/106
Sprocket ratio (Teeth)	36/18 (2.000)

8. ROCKER ARM AND ROCKER SHAFT

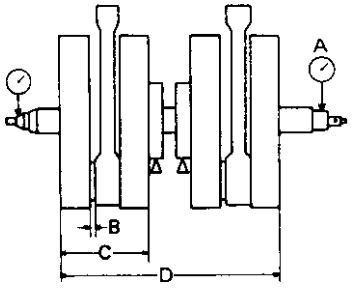
1) Rocker arm inner diameter	$15.0^{+0.018}_{0}$ mm ($0.591^{+0.0007}_{0}$ in)
2) Rocker arm shaft diameter	$15.0^{-0.009}_{-0.015}$ mm ($0.591^{-0.00035}_{-0.00059}$ in)
3) Clearance	0.009 ~ 0.033 mm (0.00035 ~ 0.00130 in)
4) Lift ratio	X : Y = 40 mm : 48.41 mm (1.575 in : 1.906 in)

9. VALVE, VALVE SEAT AND VALVE GUIDE

1) Valve per cy inder	2 pcs.
2) Valve clearance (In cold engine)	IN: 0.10 mm 10.0039 in)
	EX: 0.15 mm (0.0059 in)
3) Dimensions	
Valve head diameter "A"	IN: 41 mm II.614 in)
	EX: 35 mm (1.378 in)
Valve face width "B"	IN: 2.1 mm 10.083 in)
	EX: 2.1 mm (0.083 in)
Valve seat width "C"	IN: 1.3 mm (0.051 in)
	EX: 1.3 mm (0.051 in)
Valve margin thickness "D"	IN: 1.3 mm (0.051 in)
	EX: 1.3 mm (0.051 in)

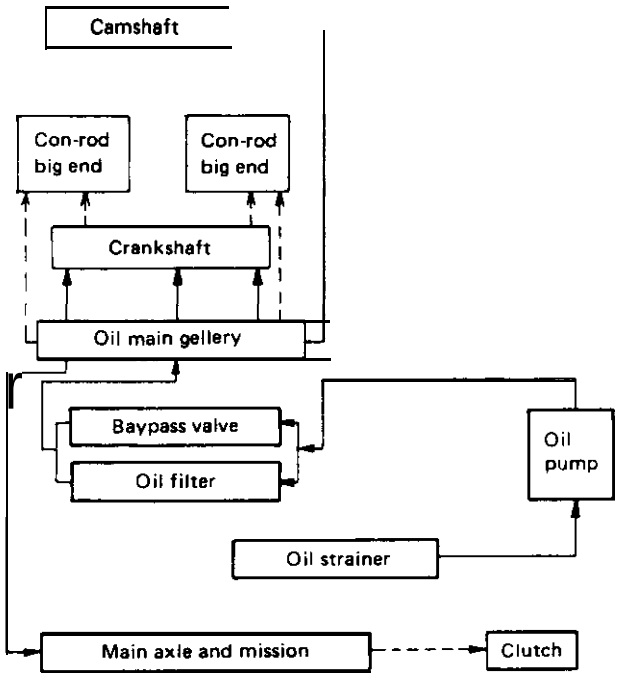


Valve stem diameter	IN: $8.0^{-0.010}_{-0.025}$ mm ($0.315^{-0.0004}_{-0.0009}$ in)
	EX: $8.0^{-0.025}_{-0.040}$ mm ($0.315^{-0.0010}_{-0.0016}$ in)
Valve guide diameter	IN: $8.0^{+0.019}_{+0.010}$ mm $10.315^{+0.0007}_{+0.0004}$ in)
	EX: $8.0^{+0.019}_{+0.010}$ mm ($0.315^{+0.0007}_{+0.0004}$ in)
Valve stem to guide clearance	IN: 0.020 ~ 0.044 mm 10.00079 ~ 0.00173 in)
	EX: 0.035 ~ 0.059 mm (0.00138 ~ 0.00232 in)
4) Valve face runout limit	IN & EX: 0.03 mm (0.0012 in) or less

10. VALVE SPRING	
1) Free length	INNER (IN/EX): 42 mm (1.654 in) OUTER (IN/EX): 42.55 mm (1.675 in)
2) Spring rate (kg/mm)	INNER (IN/EX): k_1 = 1.43 k_2 = 1.81 OUTER (IN/EX): k_1 = 3.2 k_2 = 4.18
3) Installed length (Valve closed)	INNER (IN/EX): 35 mm (1.378 in) OUTER (IN/EX): 37 mm (1.457 in)
4) Installed pressure (Valve closed)	INNER (IN/EX): 10 ± 0.7 kg (22.0 ± 1.5 lb) OUTER (IN/EX): 17.7 ± 1.25 kg (39.0 ± 2.6 lb)
5) Compressed length (Valve open)	INNER (IN/EX): 25.5 mm (1.004 in) OUTER (IN/EX): 27.5 mm (1.083 in)
6) Compressed pressure (Valve open)	INNER (IN/EX): 27.2 ± 1.9 kg (60.0 ± 4.2 lb) OUTER (IN/EX): 57.4 ± 4.0 kg (126.5 ± 8.8 lb)
7) Wire diameter	INNER (IN/EX): 2.9 mm (0.114 in) OUTER (IN/EX): 4.2 mm 10.165 in)
8) Winding O.D.	INNER (IN/EX): 19.4 mm (0.764 in) OUTER (IN/EX): 32.6 mm (1.283 in)
9) Number of windings	INNER (IN/EX): 6.0 turns OUTER (IN/EX): 4.25 turns
11. CRANKSHAFT	
	
1) Crankshaft deflection limit (A)	0.05 mm (0.002 in)
2) Con-rod large end clearance (B)	0.15 ~ 0.4 mm 10.0059 ~ 0.0157 in)
3) Width of crankshaft (C)	$66^{-0.05}_{-0.10}$ mm ($2.598^{-0.002}_{-0.004}$ in)
(D)	$186^{0}_{-0.3}$ mm ($7.323^{0}_{-0.012}$ in)
4) Crank pin I.D.	$26^{-0.077}_{-0.095}$ mm ($1.024^{-0.003}_{-0.004}$ in)
5) Crank pin O.D. x length	$26^{0}_{-0.006} \times 65^{+0.1}_{-0.2}$ mm ($1.024^{0}_{-0.0002} \times 2.559^{+0.004}_{-0.008}$ in)
12. CONNECTING ROD	
1) Big end I.D.	$34^{+0.016}_{0}$ mm ($1.339^{+0.0006}_{0}$ in)
2) Small end I.D.	$20^{+0.028}_{+0.015}$ mm ($0.787^{+0.0011}_{+0.0006}$ in)
13. CRANK BEARING	
1) Size Right end I.D. x O.D. x Width	30 x 70 x 19 mm (1.16 x 3.07 x 0.75 in)
Others I.D. x O.D. x Width	32 x 68 x 17 mm (1.26 x 2.69 x 0.67 in)
2) Oil seal type/size (I.D. x O.D. x Width)	SD25 x 40 x 9.0 mm (0.984 x 1.575 x 0.354 in)
14. CLUTCH	
1) Clutch type	Wet, multiple type
2) Clutch operating mechanism	Inner push type, screw push system
3) Primary reduction ratio and method	72/27 (2.666). spar gear
4) Primary reduction gear back lash	
Tolerance	0.05 ~ 0.08 mm (0.0020 ~ 0.0031 in)
5) Friction plate	
Thickness/Quantity	3 mm (0.118 in)/7 pcs.
Wear limit	2.7 mm (0.106 in)
6) Clutch plate	
Thickness/Quantity	1.4 mm 10.055 in)/6 pcs.
Warp limit	0.05 mm (0.002 in)

71 Clutch spring Free length/Quantity	 34.6 mm 11.362 in)/6 pcs.
8) Clutch housing radial play	0.027 ~ 0.081 mm (0.0011~ 0.0032 in)
9) Push rod bending limit	0.2 mm (0.008 in)
5. TRANSMISSION	
1) Type	Constant mesh, 5-speed forward
21 Gear ratio: 1st	32/13 (2.461)
2nd	27/17 (1.588)
3rd	26/20 (1.300)
4th	23/21 (1.095)
5th	22/23 (0.956)
3) Bearing type: Main axle (Left)(I.D.xO.D.xWidth)	Needle bearing (20x30x20 mm)(0.787x1.181x0.787 in)
Main axle (Right)(")	Ball bearing (25x52x20.6 mm)(0.984x2.047x0.811 in)
Drive axle (Left)(")	Ball bearing (30x62x23.8 mm)(1.181x2.441x0.937 in)
Drive axle (Right)(")	Needle bearing (20x30x16mm)(0.787x1.181x0.630 in)
4) Oil seal type Drive axle (Left)(")	SDD (40x62x9 mm)(1.575x2.441x0.354 in)
5) Secondary reduction ratio and method	34/17(2.0), chain
6. SHIFTING MECHANISM	
1) Type	Cam drum, return type
2) Oil seal type (Change lever) I.D.xO.D.x Width	SDO-14x24x6 mm 10.551x0.945x0.236 in)
7. KICK STARTER	
1)Type	Bendix type
2) Oil seal type (Kick axle) I.D.xO.D.x Width	SD-25x35x7 mm (0.984x1.378x0.276 in)
3) Kick clip friction tension	1.2 ~ 1.7 kg (2.6 ~ 3.7 lb)
8. INTAKE	
1) Air cleaner: Type/Quantity	Dry, foam rubber/2 pcs.
2) Cleaner cleaning interval	Every 1,600 km II.000 mile)
9. CARBURETOR	
1) Type and manufacturer/Quantity	BS38 MIKUNI/2 pcs.
2) I.D. mark	2F000
3) Main jet (MJ)	#135
4) Air jet (AJ)	#140
5) Jet needle (JN)	502.3
6) Needle jet (NJ)	z-2
7) Throttle valve (Th.V)	#120
8) Pilot jet (PJ)	#27.5
9) Pilot screw (Turns out)(PS)	2¼
10) starter jet (GS)	GS_1 : #80, GS_2 : 0.5
11) Fuel level (FL)	24 ± 1 mm (0.94 ± 0.04 in)
121 Vacuum synchronization	Same readings
13) Idling engine speed	1,200 rpm
0. LUBRICATION	
1) Engine sump oil Quantity	Oil exchange: 2.0 lit (2.1 qt) Overhaul : 2.5 lit (2.6 qt)
2) Oil type and grade	Yamalube 4-cycle oil or SAE 20W/40 "SE" motor oil

3) Oil pump type	Trochoid pump
4) Trochoid pump specifications	
Top clearance	0.10 ~ 0.18 mm IO.0039 ~ 0.0071 in)
Tip clearance	0.03 ~ 0.09 mm 10.0012 ~ 0.0035 in)
Side clearance	0.03 ~ 0.08 mm (0.0012 ~ 0.0031 in)
Oil pump volume	1.3 lit/min at 1,000 rpm/lEngine
5) Bypass valve setting pressure	1.0 kg/cm^2 (14 psi)
6) Lubrication chart	



C. Chassis

1. FRAME	
1) Frame design	Double cradle, high tensile frame
2. STEERING SYSTEM	
1) caster	27"
2) Trail	115 mm (4.53 in)
3) Number and size of balls in steering head	
upper race	19 pcs. 1/4 in
Lower race	19 pcs. 114 in
4) Steering lock to lock	42° each (L and RI
3. FRONT SUSPENSION	
1) Type	Telescopic fork
2) Damper type	Oil damper, coil spring
3) Front fork spring	
Free length	482 ± 6 mm 118.98 ± 0.24 in)
Wire diameter x winding diameter	4 mm x 24.5 mm 10.157 x 0.965 in)
Spring constant	
4) Front fork travel	150 mm (5.906 in)
5) Inner tube O.D.	35 mm (1.378 in)
6) Front fork oil quantity and type	169 cc 15.71 oz)
	Yamaha fork oil 10wt or equivalent

7) Distance from the top of inner tubeti oil level. without spring	Approx. 454 mm (17.9 in)
4. REAR SUSPENSION	
1) Type	Swing arm
2) Damper type	Oil damper, coil spring
3) Shock absorber travel	80 mm (3.15 in)
4) Shock absorber spring	
Set length	201 mm (7.91 in)
Free length	226 mm (8.90 in)
Wire diameter x winding diameter	7.5 mm x 60.5 mm 10.295 x 2.382 in)
5) Swing arm free play (Limit)	1 mm (0.04 in)
6) Pivot shaft -Outside diameter	16 mm (0.63 in)
5. FUEL TANK	
1) Capacity	15 lit (4.0 US.gal)
2) Fuel grade	Regular gasoline (90 octane)
6. WHEEL	
1) Type (Front and rear)	Aluminum run
2) Tire size (Front)	3.50H19-4PR
(Rear)	4.00H18-4PR
3) Tire pressure:	
Normal riding (Front)	1.6 kg/cm^2(22 psi)
(Rear)	2.0 kg/cm^2(28 psi) Refer to PAGE 10
4) Rim run out limit (Front and rear)	
Vertical	2 mm (0.08 in)
Lateral	2 mm (0.08 in)
5) Rim size (Front)	1.85-19 in
(Rear)	2.15-18 in
6) Bearing type	
Front wheel (Left)	6303RS
Front wheel (Right)	6303RS
Rear wheel (Left)	63052
Rear wheel (Right)	63042
7) Oil seal type	
Front wheel (Left) I.D.xO.D.x Width	SDO 45x56x6 mm (1.771x2.205x0.236 in)
Front wheel (Right) "	SD 28x47x7 mm (1.102x1.850x0.276 in)
Rear wheel (Left) "	SD 35x62x9 mm (1.378x2.441x0.354 in)
Rear wheel (Right) "	SO 27x52x5 mm (1.063x2.047x0.197 in)
8) Secondary drive chain type	
Type	50HDS
Number of links	103L + Joint
Chain pitch	15.875 mm (5/8 in)
Chain free play	20 mm (3/4 in)

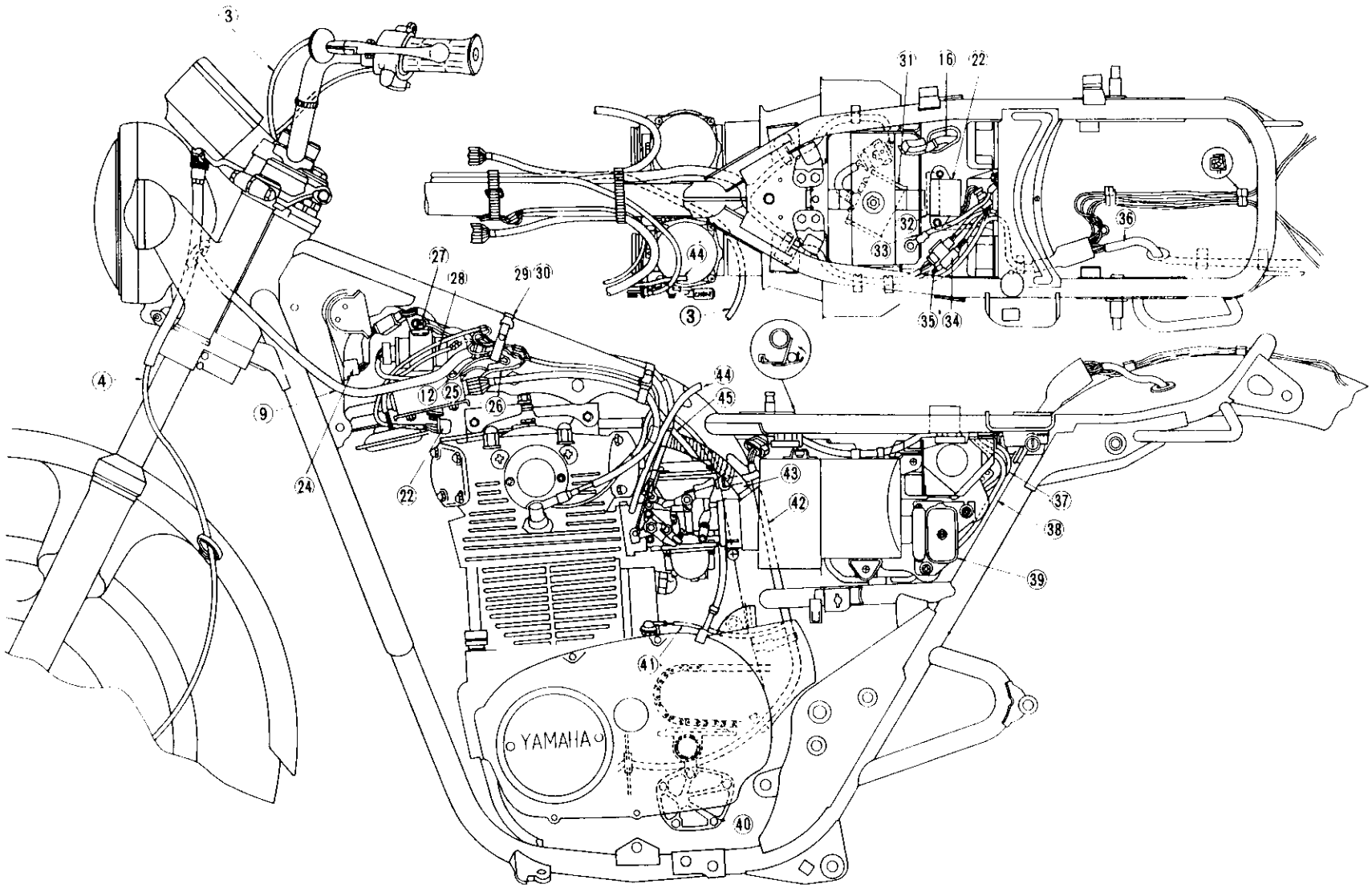
7. BRAKE	
1) Front brake	
Type	Hydraulic disc type
Disc size (Outside dia. x thickness)	298 mm x 7.0 mm (11.73x0.28 in)
Disc wear limit	6.5 mm (0.26 in)
Disc pad thickness	6.5 mm (0.26 in)
Pad wear limit (Minimum thickness)	1.5 mm 10.06 in)
Master cylinder inside dia.	14.0 mm 10.55 in)
Caliper cylinder inside dia.	38.18 mm 11.5 in)
Brake fluid type	DOT #3 Brake fluid
2) Rear brake	
Type	Drum brake
Actuating method	Leading trailing
Brake drum I.D.	180 mm (7.09 in)
Brake shoe dia. x width	180 x 30 mm (7.09 x 1.18 in)
Lining thickness/wear limit	4/2 mm (0.16/0.08 in)
Shoe spring free length	68 mm (2.68 in)

D. Electrical

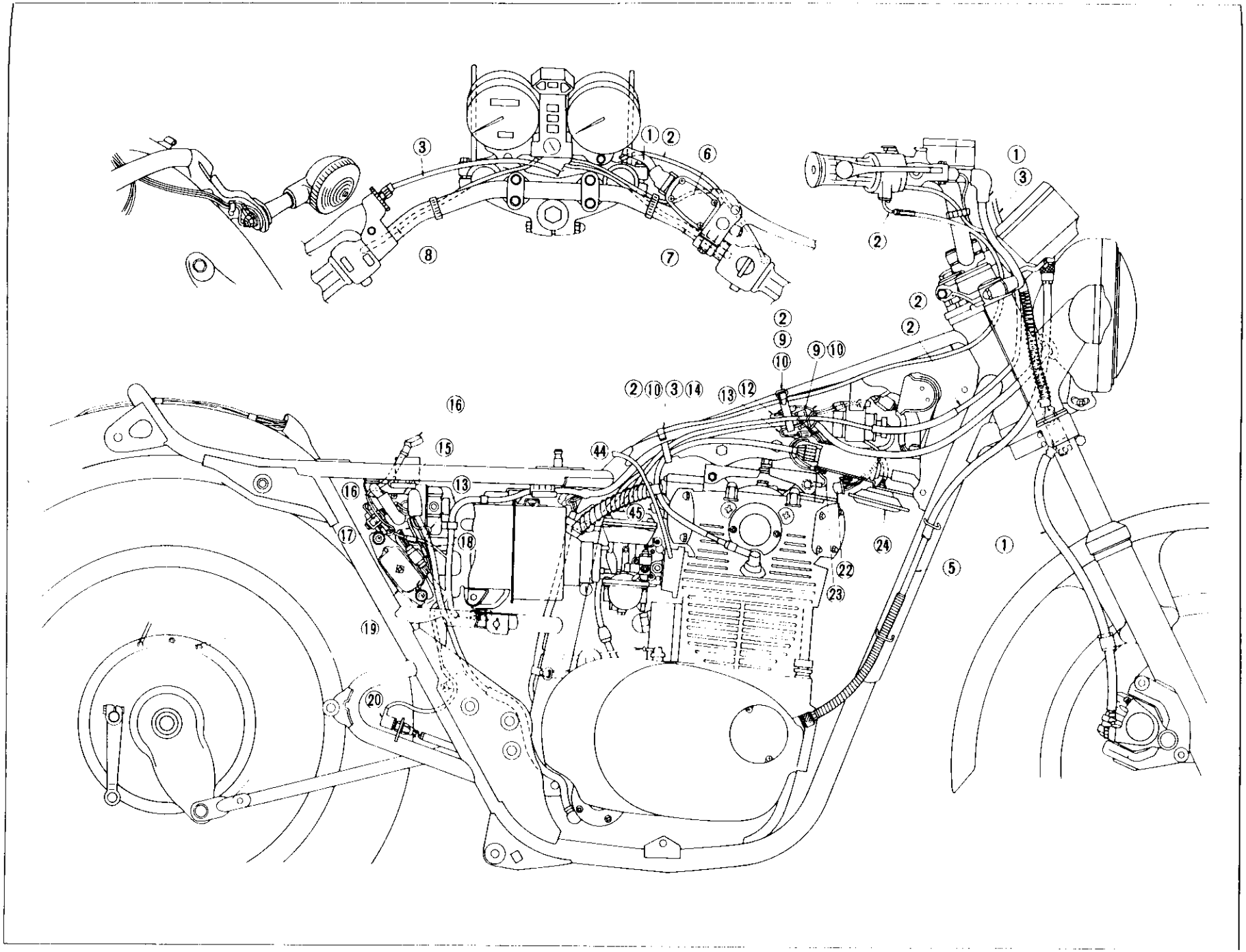
1. IGNITION SYSTEM	
1) Ignition timing (B.T.D.C.)	15°/1,200 rpm
2) Ignition coil	
Model/Manufacturer	CM1 1-50B/HITACHI
Spark gap	6 mm (0.24 in) or more1500 rpm
Primary winding resistance	3.9.Q ± 10% at 20°C (68°F)
Secondary winding resistance	8.0kΩ ± 20% at 20°C (68°F)
3) Spark plug	
Type	NGK BP 7ES, CHAMPION N-7Y
Spark plug gap	0.7 ~ 0.8 mm 10.027 ~ 0.031 in)
4) Contact breaker	
Manufacturer/Quantity	HITACHI/2 PCS.
Point gap	0.30 ~ 0.40 mm 10.012 ~ 0.016 in)
Point spring pressure	750 ± 100 g
Cam closing angle	93° ± 5°
5) Condenser	
Capacity	0.22 μF
Insulation resistance	10 MΩ or more
Quantity	2 pcs.
2. CHARGING SYSTEM	
1) AC generator	
Charging output	14 V 11A/2,000 rpm
Rotor coil resistance (Field coil)	5.2522 ± 10% at 20°C (68°F)
Stator coil resistance	0.4622 ± 10% at 20°C (68°F)
Brush length	14.5 mm IO.571 in)
Brush wear limit	7.0 mm 10.276 in)
2) Rectifier	
Type	B-Element type (Full wave)
Model/Manufacturer	SB6B-17/HITACHI
Capacity	12A
Withstand voltage	400v
3) Regulator	
Type	Tillil type
Model/Manufacturer	TL1Z-80/HITACHI
Regulating voltage	14.5 ± 0.5 v

4) Voltage regulator	
core gap	0.6 ~ 1 .O mm (0.024 ~ 0.039 in)
Point gap	0.3 ~ 0.4 mm (0.012 ~ 0.016 in)
Voltage coil	10Ω at 20°C (68°F)
Resistor	10/25Ω at 20°C (68°F)
5) Battery	
Model/Manufacturer/Quantity	YB14L-A2/YUASA/1
Capacitv	12V, 14AH
Charging rate	1.4A 10 hours
Specific gravity	1.28 at 20°C (68°F)
3. STARTER	
1) starter motor	
Type	Bendix type
Manufacturer	HITACHI
Model	S108-35
output	0.5 kw
Armature coil resistance	0.0067Ω ± 10% at 20°C (68°F)
Field coil resistance	0.004Ω ± 10% at 20°C (68°F)
Brush size/Quantity	16 mm (0.63 in)/2 pcs.
Wear limit	4 mm (0.16 in)
Spring pressure	800 g (28.2 oz)
Commutator O.D./Wear limit	33 mm (1.30 in)/31 mm 11.22 in)
Mica undercut	0.7 mm (0.028 in)
Reduction/Ratio	19.654 (36/7 x 24/26 x 23/14 x 63/25)
2) Starter switch	
Manufacturer	HITACHI
Model	A 104.70
Amparage rating	100A
Cut-in voltage	6.5V
Winding resistance	3.523
3) Starter clip friction tension	2.2 ~ 2.5 kg (4.9 ~ 5.5 lb)
4. LIGHTING SYSTEM	
1) Head light type	Sealed beam
2) Bulb brightness and wattage/Quantity	
Head light wattage	12V, 50/40W x 1 pc.
Tail/Stoplight wattage ss and wattage	3/32 cp, (12V, 8/27W) 1 pcs.
Flasher light wattage ss and wattage	32 cp. (12V, 27W) x 4 pcs.
Meter light wattage	12V, 3.4W x 4 pcs.
Neutral light wattage	12v. 3.4W x 1 pcs.
Flasher pilot light wattage	12V, 3.4W x 2 pcs.
	12v. 3.4W x 1 pc.
High beam indicator light wattage	12v. 3.4W x 1 pc.
3) Reserve lighting unit Model/Manufacturer	337-11720/KOITO
4) Horn	
Model/Manufacturer	CF-12/NIKKO
Maximum amparage	2.5A
5) Flasher relay	
Type	Condenser type
Model/Manufacturer	1AO-70/ND
Flasher frequency	85±10 cycle/min.
Capacitv	32 cp, (27W) x 2 + 3.4 W
6) Flasher cancelling Unit	
Model	EVH-AC518
Voltage	DC9V ~ 16V
7) Fuse	
Rating/Quantity	Main (Red): 20A

7-4. CABLE ROUTING DIAGRAM



1. Brake hose
2. Throttle wire
3. Clutch wire
4. Speedometer cable
5. Tachometer cable
6. Front stop switch wire
7. Switch handle (R) lead wire
8. Switch handle (L) lead wire
9. Wire harness (L)
10. Wire harness (R)
11. Gray
12. Orange
13. Red/White
14. High tension cord
15. Starter switch
16. Cord (+)
17. Blue/White
18. Red
19. Relay assembly
20. Rear stop light switch
21. Horn
22. Reserve lighting resistor
23. Black
24. Flasher cancelling unit
25. Brown
26. Condenser
27. Diode
28. Flasher relay
29. Breaker lead wire
30. Horn lead wire
31. Rectifier
32. Light checker
33. Cord (−)
34. Light checker coupler
35. Regulator coupler
36. Tail light lead wire
37. Light checker wire
38. Regulator wire
39. Regulator
40. Starter motor cover
41. Neutral switch lead wire
42. ACG Cord
43. Breather pipe
44. Vacuum pipe
45. Fuel hose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7-5. CIRCUIT DIAGRAM

1. Main switch
2. Handle switch right
3. Handle switch left
4. Starter switch
5. Kill switch
6. Headlight switch
7. Dimmer switch
8. Horn switch
9. Flasher switch
10. Key removal
11. Key removal
12. Tachometer
13. High beam
14. Meter light
15. Meter light
16. Pilot box
17. Headlight outage indicator
18. Turn right
19. Turn left
20. Stop light indicator
21. Neutral
22. Speedometer
23. Meter light
24. Meter light
25. Lead switch
26. Front stop switch
27. Rear stop switch
28. Safety relay
29. Light checker
30. Reserve lighting unit
31. Rear flasher light
32. Fuse
33. Battery
34. Starter switch
35. Starting motor
36. Ignition coil
37. Headlight
38. Front flasher light
39. A.C. Generator
40. Neutral switch
41. Rectifier
42. Regulator
43. Body earth
44. Cancelling unit
45. Horn
46. Flasher realy
47. Breaker
48. Condensor
49. Tail lihgt
50. Spark plug

COLOR CODE

R	Red	L/W	Blue/White
Br	Brown	R/W	Red/White
L	Blue	L/B	Blue/Yellow
Y	Yellow	L/Y	Blue/Yellow
G	Green	L/G	Blue/Green
P	Pink	Y/B	Yellow/Black
B	Black	Br/W	Brown/White
Dg	Dark green	Y/R	Yellow/Red
Ch	Chocolate	L/R	Blue/Red
Sb	Sky blue	W/B	White/Balck
W	White	G/W	Green/White
Gr	Gray	W/G	White/Green
O	Orange	G/Y	Green/Wellow
R/Y	Red/Yellow	Y/G	Yellow/Green
Lg	Light green