

Dimensions:

Overall Length	85.6 in. (2175 mm)
Overall Width	35.6 in. (905 mm)
Overall Height	45.9 in. (1165 mm)
Wheelbase	55.5 in. (1410 mm)
Min. Ground Clearance	5.9 in. (150 mm)
Weight (net)	427 lbs. (194 Kg)

Performance:

Max. Speed	115 + mph
Fuel Consumption (on paved level road)	82.5 mpg at 37 mph (35 km/l at 60 km/h)
Climbing Ability	26 degrees
Minimum Turning Radius	98.4 in (2500 mm)
Braking Distance	46 ft. at 31 mph (14 m at 50 km/h)

Engine:

Type	Twin cylinder Air-cooled 4 stroke W/S.O.H.C.	
Lubrication System	Pressure lubricated, wet sump.	
Bore and Stroke	2.953x2.913 in. (75x74 mm)	
Displacement	39.85 cu. in. (653 cc)	
Compression Ratio	8.7 : 1	
Maximum Power	53 BHP/7000 rpm	
Maximum Torque	40.1 ft.-lbs/6000 rpm (5.5 kg-m/6000 rpm)	
Oil Sump Capacity	2.6 qts. (2.5 l)	
Valve Clearance	Cold	IN: 0.15 mm (0.006 in.) EX: 0.30 mm (0.012 in.)
Idle Speed	1000 ~ 1200 rpm	

Carburetor:

Type	BS38x2
Needle Jet	4JN19-4th Stage
Pilot Fuel Jet	42.5

Air Filter

Dry paper filter

Clutch:

Type	Wet, multi-disc. (6 friction + 5 metal plates.)
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Primary Drive: Type:

Spur gear (straight cut)

Reduction Ratio (gear and total)

72/27 (2.667)

Transmission: Type:

Constant mesh, five speed, wide-ratio

Oil SAE 20W/40

1st 32/13 = 2.461 (5.904)

2nd 27/17 = 1.588 (4.235)

3rd 26/20 = 1.300 (3.466)

4th 23/21 = 1.095 (2.920)

5th 22/23 = 0.956 (2.550)

Internal engine ration
(Pri. x Trans.)Multiply by drive chain ration for
overall gearing

Secondary Reduction System:

Type	Single Row chain
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Secondary Reduction Ratio:

34/17 = 2.0

Specifications, DISC BRAKE

1. Brake lever ratio	3.77
2. Caliper area ratio of master cylinder	9.15
3. Total lever ratio	34.5
4. Braking torque (F denotes gripping force)	3.45 F
5. At a reduced speed of 0.8 G	
a. Required braking torque	54.0 kg-m
b. Required gripping force	15.7 kg
c. Generated oil pressure	30.8 kg/cm ²
d. Pressure on lining surface	32.0 kg/cm ²
6. Dragging resistance of pad	13.5 kg/cm
7. Lining	
Material	Resin mold
Dimension	47.0 ϕ x 5.3 ^t
Effective thickness	4.3 ^t
Wear coefficient	0.40
8. Brake hose	
Dimension	10.5 ϕ x 3.1 ϕ
Allowable compression	350 kg/cm ² or more
9. Brake pipe	
Dimension	4.70 ϕ x 0.7 ^t
Allowable compression	350 kg/cm ²
10. Disc	
Outside diameter	298 ϕ
Effective friction radius	124.7
Thickness	7
Material	13-14 Cr stainless
Heat treatment	High frequency hardening
Master cylinder	
Inner diameter (bore)	15.875 ϕ
Stroke	16 mm
Reservoir capacity	31.5 cc
Material	LP cast AC2B
Type	Rockied type tightly sealed reservoir
Caliper	
Inner diameter	48.1
Material	FCD40
Type	Two opposing piston type
Others	Automatic clearance adjusting device for wear

Specifications

NOTE: The following specifications should be referred to while disassembly and troubleshooting (explained in following chapters) is taking place.

COMPONENT	ITEM	MAINTENANCE STANDARDS	REMARKS
Motor			
FIELDS	Resistance	0.05 ohms (20°C)	No Grounded core
BRUSH	W x T x L	16 x 7 x 11 mm	
	Limit length	4.5 mm	
ARMATURE	Resistance	0.055 ohms (20°C)	
COMMUTATOR	Diameter	33 # std	Out of roundness
	Wear limit	32 #	
	Mica undercut	0.5~0.8 mm	
	Undercut limit	0.2 mm	
BRUSH SPRING	Max, allow runout	± 0.15 mm	(+10%, -25%)
		800 gr pressure std.	
STARTER SWITCH	Yoke gap core gap point gap magnet windings Cut in Voltage Cut out Voltage Coil circuit	————— 1.5~1.88 mm 0.88~1.11 mm 3.5 ohms (20°C) 6.5V 4.0V 4A Draw. (20°C)	(solenoid)
SAFETY SWITCH	Yoke gap Core gap Point gap Cut Out Voltage	0.2 mm 0.5~0.6 mm 0 mm 2.5 V or less	
MISCELLANEOUS ELECTRICAL			No load
STARTER MOTOR DRAW:		35 A 12 V (20°C)	
FEATURE STANDARDS:			
LOAD:		8.3V 100A 3800 r.p.m	
CONSTRAINT:		4V 300A or less	
NOMINAL ENGINE R.P.M :		2000 r.p.m at 7.5A or less	
		(When the decompression lever is squeezed, at 20°C)	

Chassis:		
Fuel Tank Capacity	3.7 U.S. gals. (14.0 ℓ) (3.7 gals. — TX650)	
Caster	63°	
Trail	3.9 in (101 mm)	
Front Tire		
Size	3.50 - 19 - 4PR	
Fork Oil Quantity (each)	135cc(4.6 oz.)	
Rear Tire		
Size	4.00 - 18 - 4PR	
Front Brake Type	Hydraulic Disc Brake	
Rear Brake Type	Internal expansion, single leading shoe	

Generator		
Type	Alternator	
Model	LD115	
Manufacturer	HITACHI	

Ignition System		
Spark Plug	Manufacturer	N.G.K.
	Heat Range	B-8ES

Battery		
Model	(12N12-4A-1) x 1	
Manufacturer	G. S.	
Capacity	12V. 12 AH.	
Dimension	5.36 x 2.36 x 5.16 ins.	
	(134 mm. x 59 mm. x 129 mm.)	

Lighting System		
Headlight	12V, 50W/40W	
Tailight	12V/8W	
Stoplight	12V/23W	
Neutral Light	12V/3W	
Flasher Indicator Light	12V/3W	
Flasher Light	12V/27W	
High Beam Indicator	12V/2W	
Speedometer Light	12V/3W	
Tachometer Light	12V/3W	

NOTE: TX650 SPECIFICATIONS IDENTICAL TO XS2 UNLESS OTHERWISE NOTED.

SEE ALSO XS1/XS1B SPECIFICATIONS.

1. MODEL	IBM I.D. NUMBER	XS2	306
2. HORSEPOWER @ RPM		53 @ 7000	
3. TORQUE @ RPM		40.1 @ 6000	
4. BORE & STROKE (MM) (NO. OF CYLINDERS)		75x74x2	
5. ENGINE DISPLACEMENT - INDUCTION SYSTEM		653cc 39.85CID OHC	
6. NET WEIGHT (APPROX.)		427 Lbs.	
7. COMPRESSION RATIO		8.1:1	
8. IGNITION TIMING B.T.D.C. (MM) RETARDED		13°-17°	
	ADVANCED	38°-42°	
9. CONTACT BREAKER POINT GAP SETTING (MM) (INCH)		.3-.4 .012-.015	
10. SPARK PLUG AND GAP (MM) (INCH)		NGK B-8ES .5-.6 .020-.023	
11. STARTING ENGINE NUMBER		XS650-100101	
12. GASOLINE TANK COLOR		Brilliant Red/White	
13. PISTON SKIRT CLEARANCE (MM) (INCH)		.050-.055 .0020-.0022	
14. RING GROOVE SIDE GAP (MIN) (MAX)		Top .04-.08/2nd .03-.07	
15. RING END GAP (MIN) (MAX)		.2-.4mm	
16. CARBURETOR TYPE & MANUFACTURER		BS38 Mikuni	
MAIN JET (M.J.)		#130	
AIR JET (A.J.)		1.0	
NEEDLE JET (N.J.)		Z-6	
JET NEEDLE-CLIP POSITION (J.N.)		4JN19-4	
CUTAWAY (C.A.)		TH. V. #125	
PILOT JET (P.J.)		42.5	
AIR SCREW (TURNS OUT) (A.S.)		1/4	
STARTER JET (S.J.)		0.7	
FLOAT LEVEL (MM) (F.L.)		25mm	
17. AIR FILTER TYPE		Dry Paper	
18. PRIMARY REDUCTION RATIO & METHOD		72/27 2.666 Spur Gear	
19. SECONDARY REDUCTION RATIO & METHOD ⁽⁵⁾		34/17 2.000 Chain	
20. TRANS. GEAR RATIOS 1ST (INTERNAL X NO. TEETH) OVERALL ⁽⁵⁾		2.461 32/13 13.122	
	2ND	1.588 27/17 8.470	
	3RD	1.300 26/20 6.933	
	4TH	1.095 23/21 5.841	
	5TH	0.956 22/23 5.101	
21. TRANS. OIL CAPACITY (CC) (TYPE)		(Wet Sump - See Below)	
22. OIL TANK OR ENGINE SUMP CAPACITY (QT.) (TYPE) (8)		2500cc SAE 20W-40 (SD)	
23. FUEL TANK CAPACITY (U.S. GAL.) (OCTANE RATING)		3.3 94(+)	
24. FRONT FORK OIL CAPACITY		135cc SAE 10W-30	
25. TIRE SIZE (FRONT) (TYPE TREAD)		3.50-19 4PR	
	(REAR) (TYPE TREAD)	4.00-18 4PR	
26. TIRE PRESSURE (LBS.) (FRONT) ⁽³⁾		23	
	(REAR) ⁽³⁾	28	
27. DRIVE CHAIN TENSION (UP & DOWN FREEPLAY)		20mm 1/4"	
28. OIL PUMP STROKE ADJUSTMENT MIN. (MM)		0	
	MAX. (MM)	0	
29. AUTOLUBE CABLE ADJUSTMENT (THROTTLE POSITION)		0	
30. VALVE CLEARANCE INTAKE		.003" (Cold)	
	EXHAUST	.006" (Cold) ⁽⁶⁾	

MODEL - IBM I.D. NUMBER	TX650	366
STARTING ENGINE/FRAME NUMBER	S650-200101	
BASIC COLOR (FUEL TANK)	Metalflake Blue	
NET WEIGHT	439 lbs.	
ENGINE (TYPE) (INDUCTION SYSTEM)	4-stroke, SOHC, vertical twin	
BORE/STROKE/CYLINDERS/DISPLACEMENT	75 x 74 x 2	653cc 39.85 CID
HORSEPOWER/TORQUE - FT. LBS.	53 @ 7000	40.1 @ 6000
COMPRESSION RATIO/NOMINAL PRESSURE	8.4:1	145 PSI
PISTON SKIRT CLEARANCE (NOMINAL) (MAX. ALLOWABLE)	.050-.055mm .0020-.0022"/.102mm .004"	
RING END GAP (TOP) (2ND) (3RD)	2.4mm 2.4mm 3.6mm	
RING GROOVE CLEARANCE (TOP) (2ND) (3RD)	.04-.08mm ϕ ϕ	
VALVE CLEARANCE (ENG. COLD) INTAKE/EXHAUST	0.075mm/.003" 0.15mm/.006"	
CARBURETOR (MFR) (TYPE) (I.D. NUMBER)	Mikuni BS36	306E5
MAIN JET	$\#130$	
NEEDLE JET	Z-6	
JET NEEDLE/CLIP POSITION	4JN19-4	
CUT AWAY	Th. V $\#125$	
PILOT JET	$\#42.5$	
AIR JET	1.0	
STARTER JET	0.7	
AIR SCREW (TURNS OUT)	$\frac{1}{2}$	
FLOAT LEVEL	25mm	
AIR FILTER (TYPE) (QUANTITY)	Dry paper X2	
DRIVE - PRIMARY (TYPE) (TEETH) (RATIO)	Gear	72/27 2.666
SECONDARY (TYPE) (TEETH) (RATIO)	Chain	34/17 2.000
TRANSMISSION RATIOS 1ST (TEETH) (RATIO) (O.A.)	32/13	2.461 13.122
2ND (See PNB No. 371)	27/17	1.588 8.470
3RD	26/20	1.300 6.933
4TH	23/21	1.095 5.841
5TH	22/23	0.956 5.101
6TH	ϕ	
CAPACITIES - TRANSMISSION (QUANTITY) (TYPE)	See below	
OIL TANK OR ENGINE SUMP (QUANTITY) (TYPE)	2500cc	SAE 20W40 "SE" motor oil
FUEL TANK (QUANTITY) (MINIMUM OCTANE)	3.3 gals.	86 + Octane Low Lead
FRONT FORKS (QUANTITY) (TYPE)	135cc	SAE 10W30 or Spec. type
TIRES FRONT/REAR (SIZE) (NOMINAL PRESSURE)	3.50-19 4PR/23PSI	4.00-18 4PR/28PSI
ELECTRICAL - CHARGING SYSTEM (MFR) (TYPE)	Hitachi	AC Generator LD-115
NO LOAD VOLTAGE ADJUSTMENT	14.5 $\pm$ 0.5V @ 1500 RPM	
MAXIMUM OUTPUT (")	ϕ	
FIELD COIL (and/or) CHARGING COIL RESISTANCE	5.15 $\pm$ 10%	
BATTERY (MFR) (MODEL) (RATING)	G.S.	12N12-4A-1 12V 12AH
HEADLIGHT/TAILLIGHT RATINGS	12V 50/40W	12V 8/23W
IGNITION COIL SPARK GAP (MIN)/PRI. RES./SEC. RES.	7mm 4.0K Ω	11K Ω
CONDENSER CAPACITY	0.22uf	
POINT GAP (NOMINAL)/SPARK PLUG (TYPE) (GAP)	3.4mm/NGK B-8ES	5.6mm/.020"-.023"
TIMING	23°-17° BTDC retard/40° $\pm$ 2° BTDC advance	