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KOBELCO

Hydraulic Excavator

MARK V

SERVICEMAN HANDBOOK

SK60V LE-17701 ~

SK100V YW-06501 ~

SK120V LP-11001 ~

SK120LCV YP-02301 ~

SK200V YN-18001 ~

SK200LCV YQ-02301 ~

SK220V LQ-03301 ~

SK220LCV LL-02301 ~

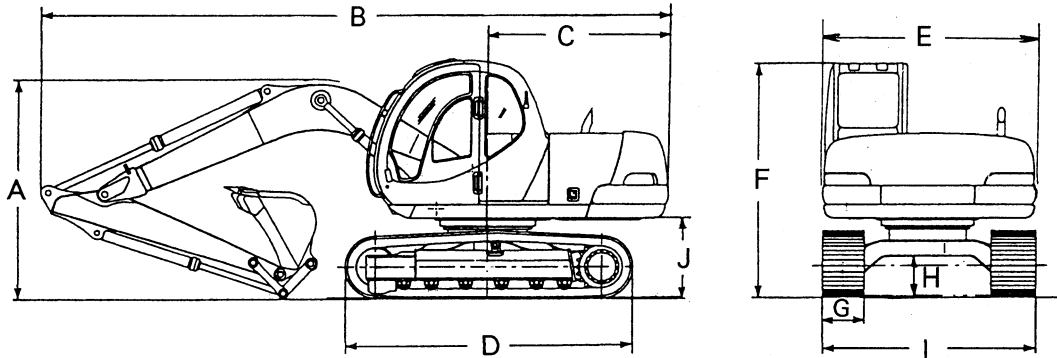
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SK60v SK120v SK200v SK220v
SK100v SK120LCV SK200LCV SK220LCV

1. GENERAL DIMENSIONS



Unit : mm

MODEL	GENERAL DIMENSIONS										
	ARM	A	B	C	D	E	F	G	H	I	J
SK60v	1,730 (STD)	2,680	6,060	R1,700	2,785	2,170	2,590	450	380	2,150	770
	2,150 (LONG)	3,040	6,045					600		2,450	
	1,730+500 (EXTENTION)	2,890	6,055								
SK100v	2,220 (STD)	2,510	7,200	R2,050	3,320	2,490	2,725	500	455	2,490	905
	1,900 (SHORT)	2,515	7,215					600		2,590	
	2,700 (LONG)	2,915	7,155					700		2,690	
SK120v SK120LCV	2,500 (STD)	2,670	7,560	R2,100	3,570	2,490	2,725	500	455	2,490	905
	2,100 (SHORT)	2,600	7,550		(3,740)			600		2,590	
	3,000 (LONG)	3,050	7,520		(700)			700		(2,490)	
								(600)		(2,590)	
SK200v SK200LCV	2,940 (STD)	2,840	9,380	R2,700	4,170	2,715	2,900	600	465	2,800	1,055
	2,400 (SHORT)	2,995	9,470		(4,450)			700		2,900	
	3,300 (LONG)	2,835	9,390		(800)			800		3,000	
								(600)		(2,990)	
SK220v SK220LCV	2,980 (STD)	3,080	9,990	R2,850	4,350	2,840	2,930	600	480	2,990	1,080
	2,500 (SHORT)	3,245	10,050		(4,650)			700		3,090	
	3,660 (LONG)	3,065	9,960		(800)			800		3,190	
								(600)		(3,190)	
								(700)	(465)	(2,290)	
								(800)		(3,390)	

NOTE : The values in () shows LC type.

SK60v SK120v
SK100v SK120Lcv

2. MACHINE SPECIFICATION TABLE

ITEM	MODEL	SK60v			SK100v			SK120v / SK120Lcv		
PERFORMANCE										
STD bucket capacity	m ³	0.25			0.4			0.45		
Bucket capacity range	m ³	0.1~0.3			0.15~0.45			0.22~0.6		
Travel speed	km/h	5.5/3.5/2.5 (Low speed, FC mode)			7.0~1.0			7.0~1.0		
Swing speed	rpm	13/6.5			12/4.0			12/4.0		
Gradeability	° (%)	35 (70%)			35 (70%)			35 (70%)		
Travelling	ton	5.2			8.5			9.0		
Digging force	Bucket	4.8			7.7			8.0		
	Arm	3.7	3.4	3.2	6.5	5.8	5.2	7.0	6.3	5.7
	Arm length	1,730	2,150	1,730+500	1,900	2,220	2,700	2,100	2,500	3,000
DIMENSIONS AND WEIGHT										
Operating weight	ton	6.5 (450mm Shoes)			10.6 (500mm Shoes)			11.8 (500mm)		12.0 (500mm)
Dimensional for Transportation	Arm length	1,730	2,150	1,730+500	1,900	2,220	2,700	2,100	2,500	3,000
	Full length	6,060	6,045	6,055	7,215	7,200	7,155	7,550	7,560	7,520
	Full width	2,170	2,170	2,170	2,490	2,490	2,490	2,490	2,490	2,490
	Full height	2,680	3,040	2,890	2,725	2,725	2,915	2,725	2,725	3,050
Upper	Cab height from G.L.	2,590			2,725			2,725		
	Tail height from G.L.	770			905			905		
	Tail swing radius	1,700			2,050			2,100		
	Min. front swing radius	1,625			2,340			2,390		
Lower	Overall length of crawlers	2,785			3,320			3,570		3,740
	Crawler wheel centers	2,160			2,610			2,865		3,035
	Track gauge	1,700			1,990			1,990		1,990
	Overall width of crawlers	2,150			2,490			2,490		2,490
	Width of shoes ground pressure mm/kgf/cm ²	Grouser	450/0.30		Grouser	500/0.37		Grouser	500/0.39 : 500/0.37	
			600/0.23			600/0.32			600/0.33 : 600/0.31	
Flat		450/0.31		Flat	500/0.38		Flat	500/0.39 : 500/0.37		
		Triangle 600/0.23 : 700/0.20			Triangle 800/0.24			Triangle 800/0.25 : 800/0.24		
Ground clearance	mm	380			455			455		
ENGINE										
Model		ISUZU 4JB1			ISUZU 4BD1			ISUZU 4BDIT		
Rated power output	PS/rpm	57/2,200			76/2,300			85/2,100		
Max. torque	kgf·m/rpm	19.2/1,600			24/1,600			30.5/1,600		
Displacement	cc	2,771			3,856			3,856		
Capacity of fuel tank	ℓ	130			250			250		
HYDRAULIC SYSTEM										
Type of pumps		Two axial-piston, variable displacement pumps+gear pump			Two axial-piston, variable displacement pumps+gear pump			Two axial-piston, variable displacement pumps+gear pump		
Set pressure of system	kgf/cm ²	260/320 (Travel)			330			350		
Swing motor		Axial piston			Axial piston			Axial piston		
Travel motor		Axial piston			Axial piston			Axial piston		
Control valves		6-spool			6-spool			6-spool		
Capacity of HYD. oil tank	ℓ	50			100			100		
WORKING RANGES										
Length of Arm	mm	STD	LONG	EXT.	SHORT	STD	LONG	SHORT	STD	LONG
		1,730	2,150	1,730+500	1,900	2,220	2,700	2,100	2,500	3,000
Bucket capacity	m ³	0.25	0.2	0.2	0.45	0.4	0.32	0.5	0.45	0.33
Max. digging reach	mm	6,390	6,780	6,840	7,400	7,700	8,160	7,920	8,270	8,730
Max. digging depth	mm	4,200	4,610	4,690	4,780	5,100	5,580	5,200	5,600	6,100
Max. vertical wall digging depth	mm	3,600	3,960	4,090	4,230	4,560	5,020	4,600	4,980	5,400
Max. digging height	mm	7,400	7,720	7,760	7,820	8,040	8,350	8,350	8,520	8,800
Max. dumping clearance	mm	5,340	5,650	5,690	5,440	5,650	5,960	5,900	6,090	6,370

SK 200v SK 220v
SK 200Lcv SK 220Lcv

ITEM		MODEL			SK200v / SK200Lcv			SK220v / SK220Lcv			
PERFORMANCE											
STD bucket capacity		m ³			0.7			0.9			
Bucket capacity range		m ³			0.45~1.1			0.7~1.2			
Travel speed		km/h			7.0~1.0			7.0~1.0			
Swing speed		rpm			11/4.0			11/4.0			
Gradeability		° (%)			35 (70%)			35 (70%)			
Travelling		ton			16.3			18.4			
Digging force	Bucket	ton			11.8 (Power boost 12.8)			14.2 (Power boost 15.0)			
	Arm	ton			11.3 (12.3)	9.6 (10.4)	8.8	13.0 (13.7)	11.2 (11.9)	9.5	
	Arm length	mm			2,400	2,940	3,300	2,500	2,980	3,660	
DIMENSIONS AND WEIGHT											
Operating weight		ton			19.0 (600mm)		19.5 (600mm)		23.0 (600mm) 23.6 (600mm)		
Dimensions for Transportation	Arm length	mm			2,400	2,940	3,300	2,500	2,980	3,660	
	Full length	mm			9,470	9,380	9,390	10,050	9,990	9,960	
	Full width	mm			2,800		2,990	2,990		3,190	
	Full height	mm			2,995	2,900	2,900	3,245	3,080	3,065	
Upper	Cab height from G.L.	mm			2,900			2,930			
	Tail height from G.L.	mm			1,055			1,080			
	Tail swing radius	mm			2,700			2,850			
	Min. front swing radius	mm			3,460			3,900			
Lower	Overall length of crawlers	mm			4,170		4,450	4,350		4,650	
	Crawler wheel centers	mm			3,370		3,650	3,500		3,800	
	Track gauge	mm			2,200		2,390	2,390		2,590	
	Overall width of crawlers	mm			2,800		2,990	2,990		3,190	
	Width of shoes ground pressure mm/kgf/cm ²	Grouser	600/0.43		600/0.41		Grouser	600/0.50		600/0.48	
			700/0.38		700/0.36			700/0.44		700/0.42	
			800/0.33		800/0.32			800/0.39		800/0.37	
Flat		600/0.44		600/0.42		Flat	600/0.51		600/0.48		
Triangle	900/0.30		900/0.29		Triangle						
Ground clearance	mm			465			480		465		
ENGINE											
Model		MITSUBISHI 6D31-T			MITSUBISHI 6D15-T						
Rated power output		PS/rpm			140/2,200			165/2,100			
Max. torque		kgf·m/rpm			47/1,700			60/1,600			
Displacement		cc			4,948			6,919			
Capacity of fuel tank		ℓ			315			315			
HYDRAULIC SYSTEM											
Type of pumps		Two axial-piston, variable displacement pumps+ gear pump					Two axial-piston, variable displacement pumps+ gear pump				
Set pressure of system		kgf/cm ²			350 (Power boost 380)			350 (Power boost 370)			
Swing motor		Axial piston			Axial piston						
Travel motor		Axial piston			Axial piston						
Control valves		6-spool			6-spool						
Capacity of HYD. oil tank		ℓ			142			160			
WORKING RANGES											
Length of Arm	mm	SHORT	STD	LONG	SHORT	STD	LONG				
		2,400	2,940	3,300	2,500	2,980	3,660				
Bucket capacity	m ³	0.8	0.7	0.6	1.0	0.9	0.7				
Max. digging reach	mm	9,420	9,900	10,220	9,890	10,310	10,970				
Max. digging depth	mm	6,190	6,700	7,090	6,530	7,010	7,690				
Max. vertical wall digging depth	mm	5,550	6,080	6,460	5,830	6,180	6,790				
Max. digging height	mm	9,400	9,660	9,770	9,630	9,770	10,170				
Max. dumping clearance	mm	6,560	6,830	6,970	6,710	6,870	7,250				

SK60V

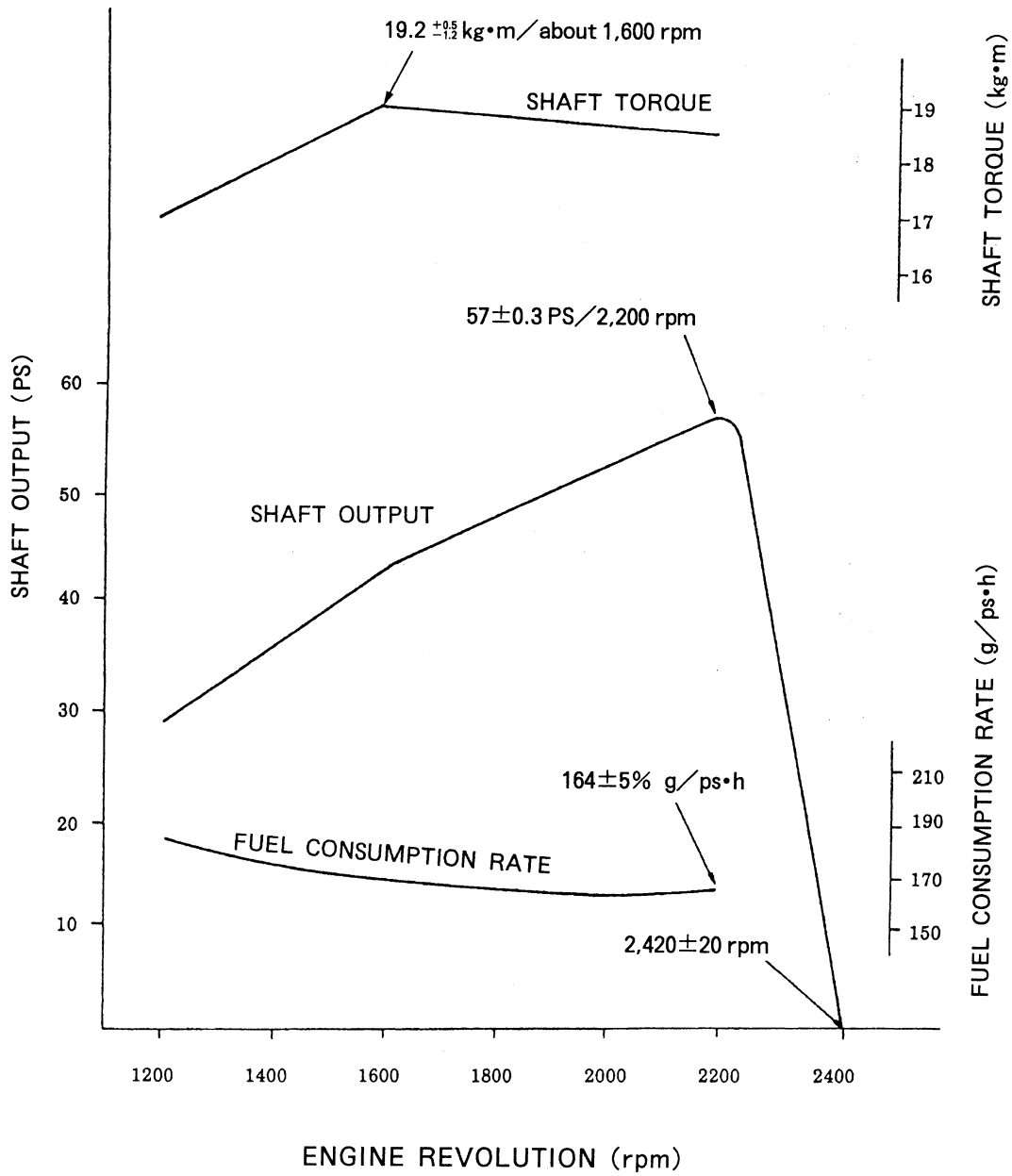
3. MAJOR SPECIFICATIONS

3-1 ENGINE SPECIFICATIONS, CHARACTERISTIC CURVE

Principal items

Model	ISUZU 4JB1 Diesel engine			
Type	4cycle, Water-cooled, Direct injection			
No. of cylinder—Bore×Stroke	4—93mm×102mm			
Total displacement	2,771cc			
Compression ratio	18.2			
output rating	57PS/2,200 rpm			
Max. torque	19.2kgf·m/1,600 rpm			
High idling	2,420±20 rpm			
Low idling	925±20 rpm			
Injection start pressure	185kgf/cm ²			
Firing order	1—3—4—2			
Fuel injection timing	17° before the top dead point			
Compression pressure	30kgf/cm ² at 200 rpm			
Valve clearance Valve action timing		Valve clearance	Open	Close
	Suction valve	In cold condition 0.4mm	24.5° before the top dead point	55.5° after the bottom dead point
	Exhaust valve	In cold condition 0.4mm	54° before the bottom dead point	26° after the top dead point
Motion of thermostat	Beginning of opening at 82°C, Full open at 95°C			
Starter	3.5KW			
Alternator	24V—20A			
Empty weight	240 kg			
Cooling fan drive method	φ 450 suction type, Belt drive, Pulley ratio1.117			
Turning direction	Counterclockwise as viewed from flywheel			

Engine characteristic curve
(ISUZU4JB1)

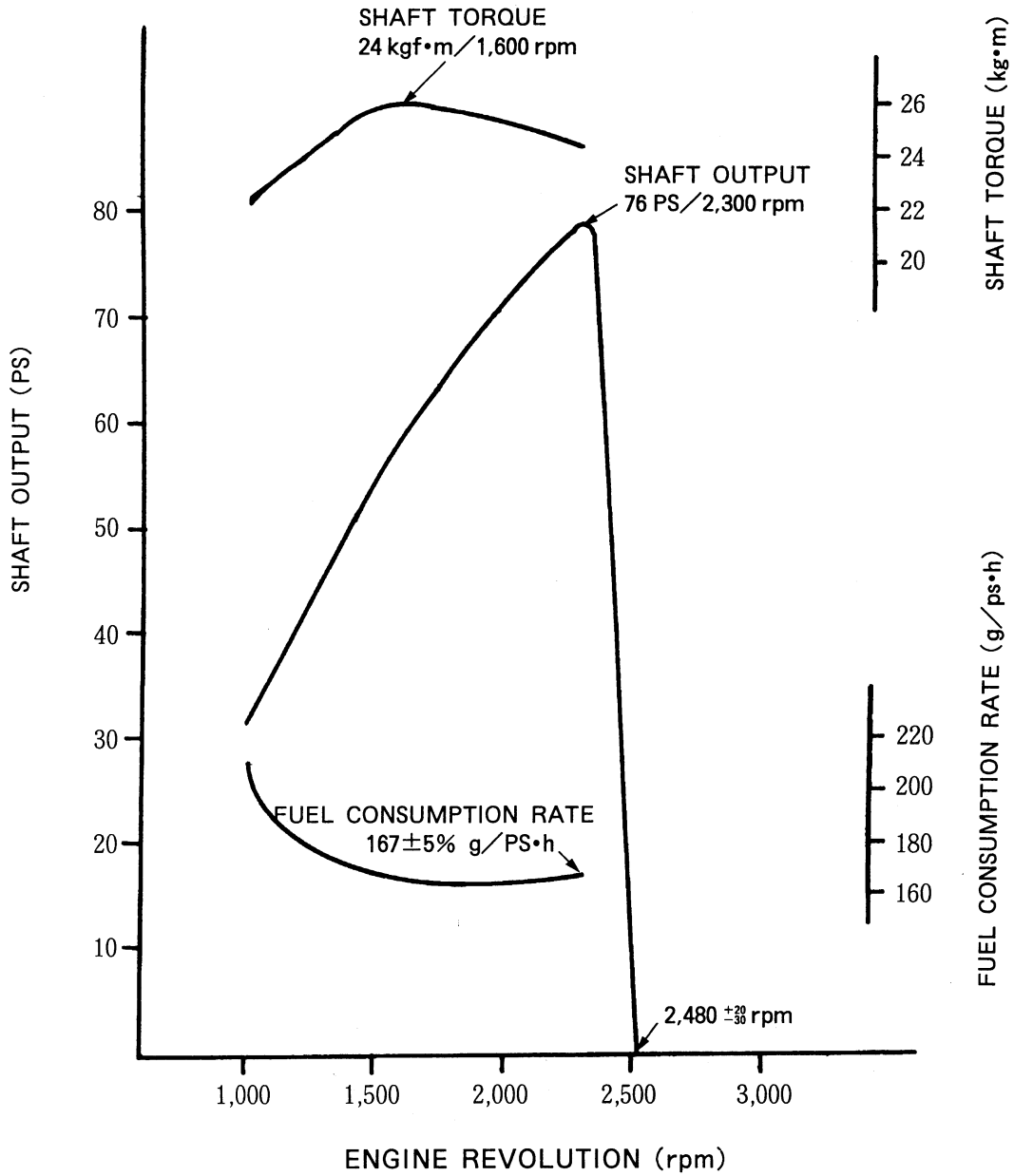


SK100v

Principal items

Model	ISUZU 4BD1 Diesel engine			
Type	4cycle, Water-cooled, Direct injection			
No. of cylinder – Bore×Stroke	4 – 102mm×118mm			
Total is dis placement	3,856cc			
Compression ratio	17.5			
output rating	76PS/2,300 rpm			
Max. torque	24kgf•m/1,600 rpm			
High idling	2480 \pm 30 rpm			
Low idling	935 \pm 25 rpm			
Injection start pressure	150kgf/cm ²			
Firing order	1 – 3 – 4 – 2			
Fuel injection timing	18° before the top dead point			
Compression pressure	31kgf/cm ² at 200 rpm			
Valve clearance Valve action timing		Valve clearance	Open	Close
	Suction valve	In cold condition 0.4mm	19° before the top dead point	47° after the bottom dead point
	Exhaust valve	In cold condition 0.4mm	57° before the bottom dead point	15° after the top dead point
Motion of thermostat	Bigining of opening at 82°C, Full open at 95°C			
Starter	24V – 4.5KW			
Alternator	24V – 30A			
Empty weight	325 kg			
Cooling fan drive method	φ 550 suction type, Belt drive, Pulley ratio 0.92			
Turning direction	Counterclockwise as viewed from flywheel			

Engine characteristic curve
(ISUZU4BD1)



SK120V
SK120LCV

Principal items

Model	ISUZU 4BD1T Diesel engine			
Type	4cycle, Water-cooled, Direct injection, With turbo charger			
No. of cylinder – Bore×Stroke	4 – 102mm×118mm			
Total is displacement	3,856cc			
Compression ratio	17.5			
output rating	85PS/2,100 rpm			
Max. torque	30.5kgf•m/1,600 rpm			
High idling	2,310 \pm ₃₀ rpm			
Low idling	935 \pm 25 rpm			
Firing order	1–3–4–2			
Fuel injection timing	18° before the top dead point			
Compression pressure	31kgf/cm ² at200 rpm			
Valve clearance Valve action timing		Valve clearance	Open	Close
	Suction valve	In cold condition 0.4mm	19° before the top dead point	47° after the bottom dead point
	Exhaust valve	In cold condition 0.4mm	57° before the bottom dead point	15° after the top dead point
Motion of thermostat	Bigining of opening at 82°C, Full open at 95°C			
Starter	24V–4.5KW (R/G 付)			
Alternator	24V–30A			
Empty weight	345 kg			
Cooling fan drive method	φ 550 suction type, Belt drive, Pulley ratio 1.09			
Turning direction	Counterclockwise as viewed from flywheel			