

KOBELCO

SERVICEMAN S HANDBOOK

HYDRAULIC EXCAVATOR

SK60 V

SK200 V

SK100 V

SK200LC V

SK120 V

SK220 V

SK120LC V

SK220LC V

Applicable: SK60 V LE-17701~
SK100 V YW-06501~
SK120 V YP-11001~
SK120LC V YP-02301~

SK200 V YN-18001~
SK200LC V YQ-02301~
SK220 V LQ-03301~
SK220LC V LL-02301~

Book code NO.

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KOBELCO

Hydraulic Excavator

MARK V

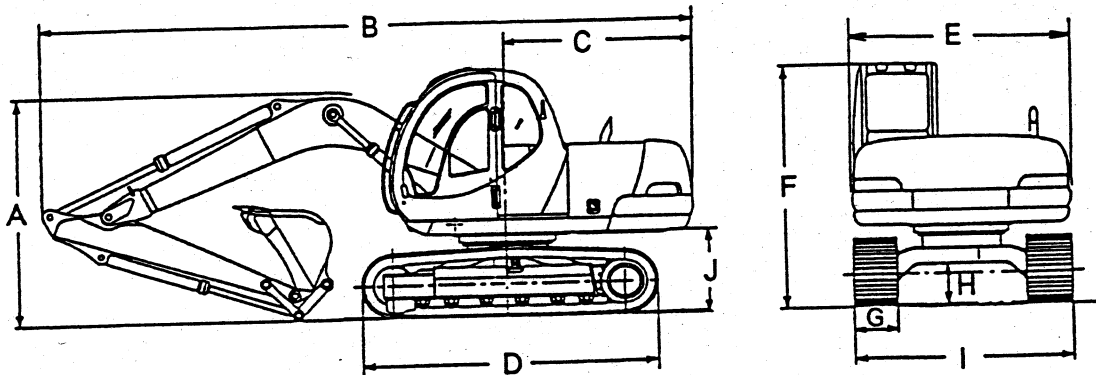
SERVICEMAN HANDBOOK

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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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 (3,740)	2,490	2,725	500	455	2,490	905
	2,100 (SHORT)	2,600	7,550					600		2,590	
								700		2,690	
								(500)		(2,490)	
3,000 (LONG)	3,050	7,520	(600)	(2,590)							
				(700)	(2,690)						
SK200v SK200LcV	2,940 (STD)	2,840	9,380	R2,700	4,170 (4,450)	2,715	2,900	600	465	2,800	1,055
	2,400 (SHORT)	2,995	9,470					700		2,900	
								800		3,000	
								(600)		(2,990)	
3,300 (LONG)	2,835	9,390	(700)	(3,090)							
				(800)	(3,190)						
SK220v SK220LcV	2,980 (STD)	3,080	9,990	R2,850	4,350 (4,650)	2,840	2,930	600	480	2,990	1,080
	2,500 (SHORT)	3,245	10,050					700		3,090	
								800		3,190	
								(600)		(3,190)	
3,660 (LONG)	3,065	9,960	(700)	(465)	(2,290)						
				(800)	(3,390)						

NOTE : The values in () shows LC type.

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)				
Dimensions 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	2,815	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
600/0.23			700/0.20				700/0.29		700/0.27			
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		

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	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		

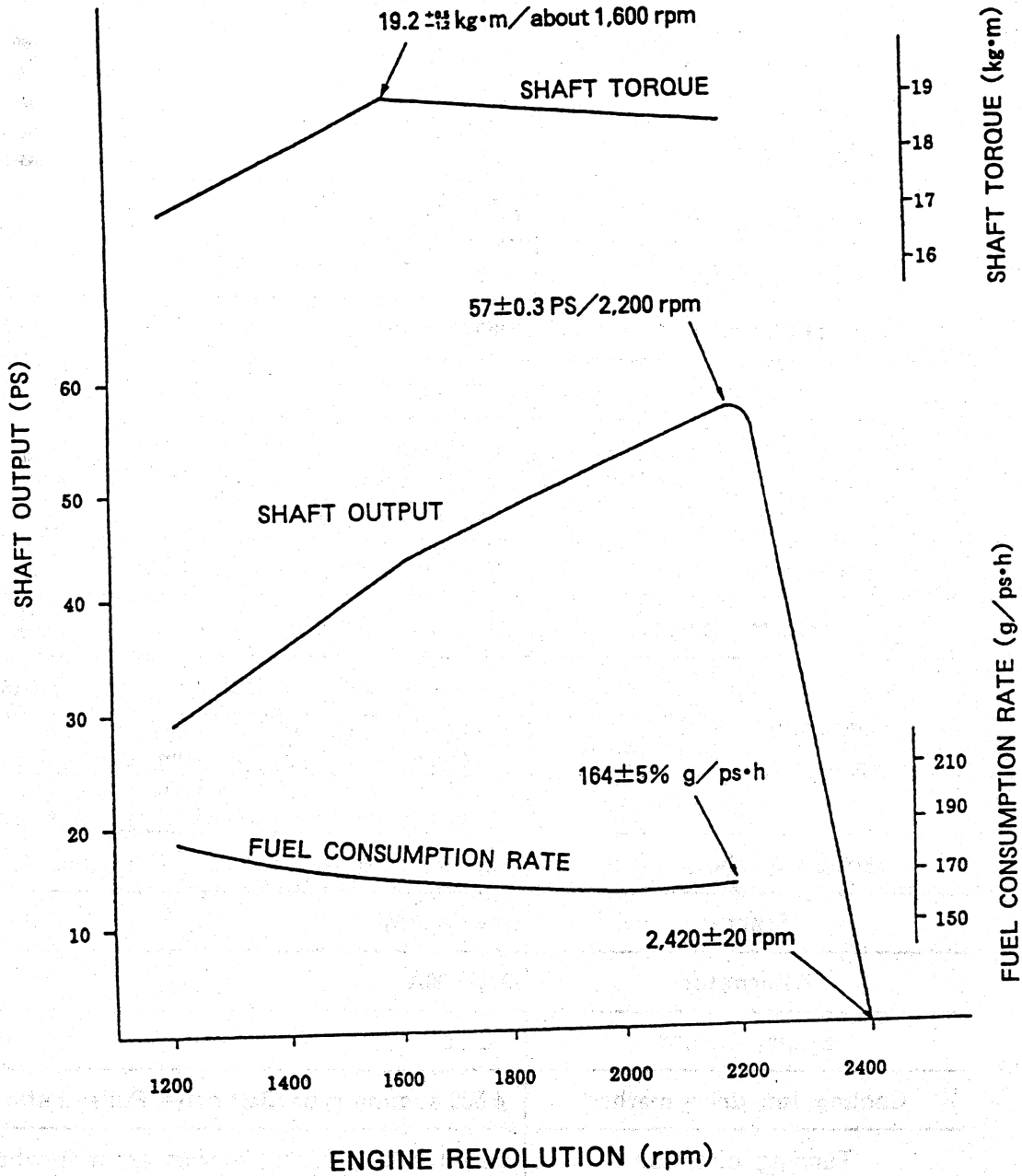
3. MAJOR SPECIFICATIONS

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	Bigining 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)

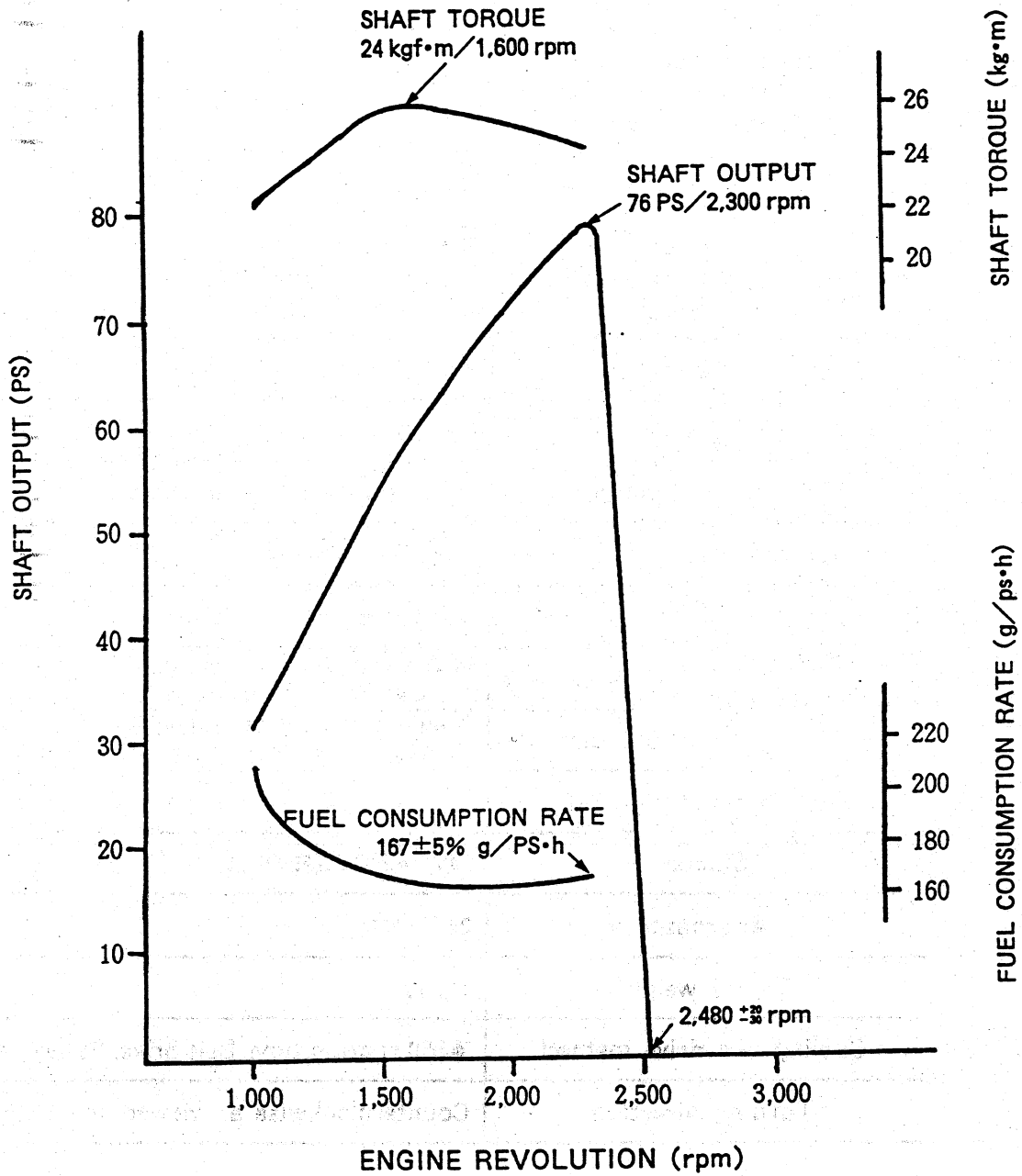


SK100V

Principal items

Model	ISUZU 4BD1 Diesel engine			
Type	4cycle, Water-cooled, Direct injection			
No. of cylinder—Bore×Stroke	4—102mm×118mm			
Total is displacement	3,856cc			
Compression ratio	17.5			
output rating	76PS/2,300 rpm			
Max. torque	24kgf·m/1,600 rpm			
High idling	2480 ±3 rpm			
Low idling	935 ±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)

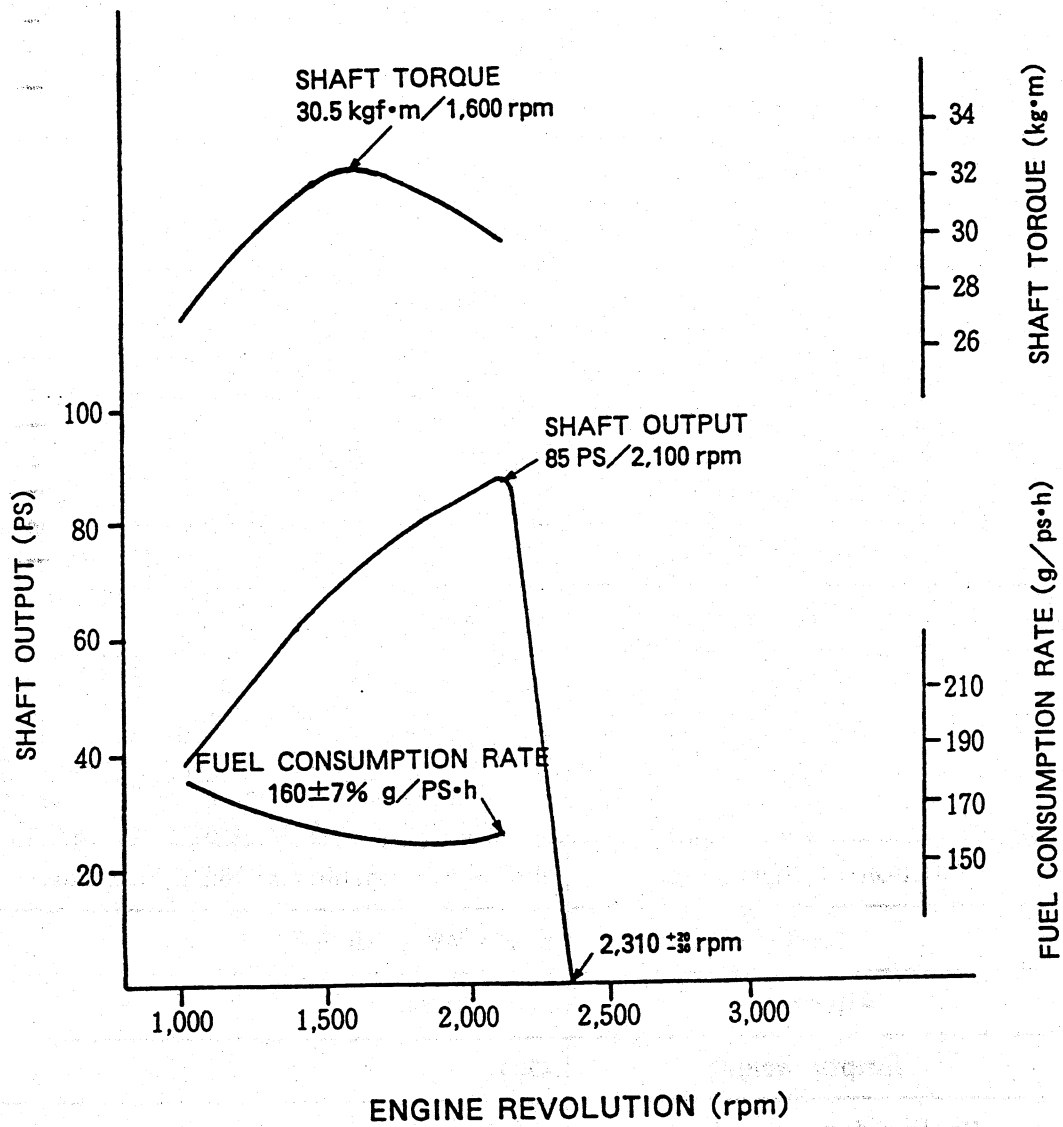


SK120v
SK120LCV

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 ±3 rpm			
Low idling	935±25 rpm			
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 (R/G 付)			
Alternator	24V—30A			
Empty weight	345 kg			
Cooling fan drive method	φ550 suction type, Belt drive, Pulley ratio 1.09			
Turning direction	Counterclockwise as viewed from flywheel			

Engine characteristic curve
(ISUZU 4BDIT)



Principal items

Model	MITSUBISHI 6D31-T Diesel engine			
Type	4cycle, Water-cooled, Direct injection, With turbo charger			
No. of cylinder—Bore×Stroke	6—110mm×105mm			
Total is displacement	4,948 cc			
Compression ratio	16.5			
output rating	140PS/2,200 rpm			
Max. torque	47 kgf·m/1,700 rpm			
High idling	2,350 ± 30 rpm			
Low idling	850 ± 25 rpm			
Injection start pressure	220kgf/cm ²			
Firing order	1-5-3-6-2-4			
Lube oil pressure	1.5~5 kgf/cm ²			
Fuel injection timing	13° before the top dead point			
Compression pressure	26 kgf/cm ² at 200 rpm			
Valve clearance Valve action timing		Valve clearance	Open	Close
	Suction valve	In cold condition 0.4mm	17° before the top dead point	47° after the bottom dead point
	Exhaust valve	In cold condition 0.4mm	53° before the bottom dead point	11° after the top dead point
Motion of thermostat	Bigining of opening at 76.5°C, Full open at 90°C			
Starter	5KW×24V (with R/G)			
Alternator	24V—30A800W			
Empty weight	470 kg			
Cooling fan drive method	φ 600 suction type, Belt drive, Pulley ratio 0.95			
Engine oil volume	Engine body 18 l (Full), 15.5 l (Low)+4 l (Oil filter)			
Turning direction	Counterclockwise as viewed from flywheel			

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