

KOBELCO

Hydraulic Excavator

Dynamic Acera

SERVICEMAN HANDBOOK

SK450-VI	LS06 – 01001 ~
SK450LC-VI	YS06 – 00901 ~
SK480-VI	LS06 – 01001 ~
SK480LC-VI	YS06 – 00901 ~

KOBELCO CONSTRUCTION MACHINERY CO., LTD.

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1. GENERAL DIMENSIONS

■ SHIPPING DIMENSIONS

A. SK450-VI & SK450 LC-VI

a. Machine with standard attachments

Refer to Figure 5.12 & 5.13 for reference in regards to the machine basic dimensions, as manufactured by KOBELCO, with standard attachments:

- a.1. Standard boom ... 7.0 m (23'-0")
- a.2. Standard arm 3.45 m (11'-4")
- a.3. Bucket 1.80 m³ (2.35 cu yd)

Unit : mm (ft-in)

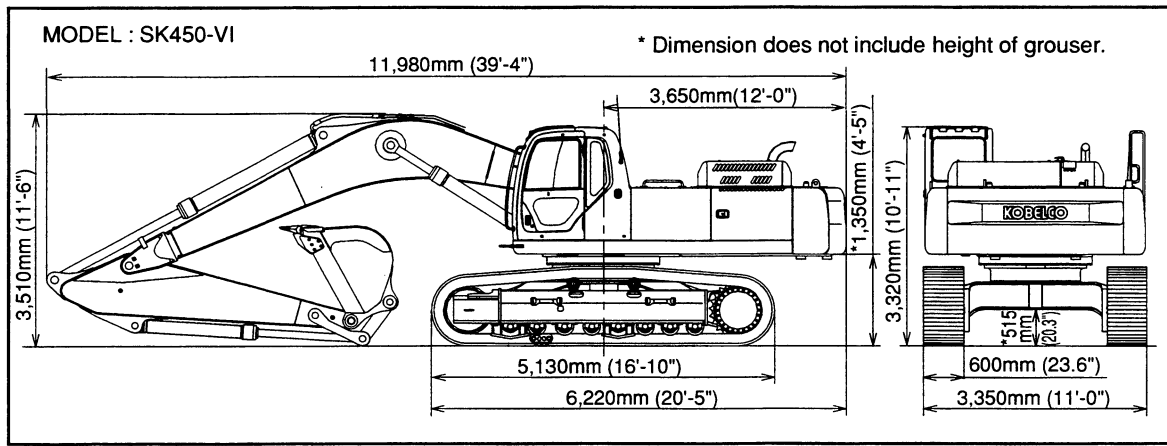


FIGURE 5.12

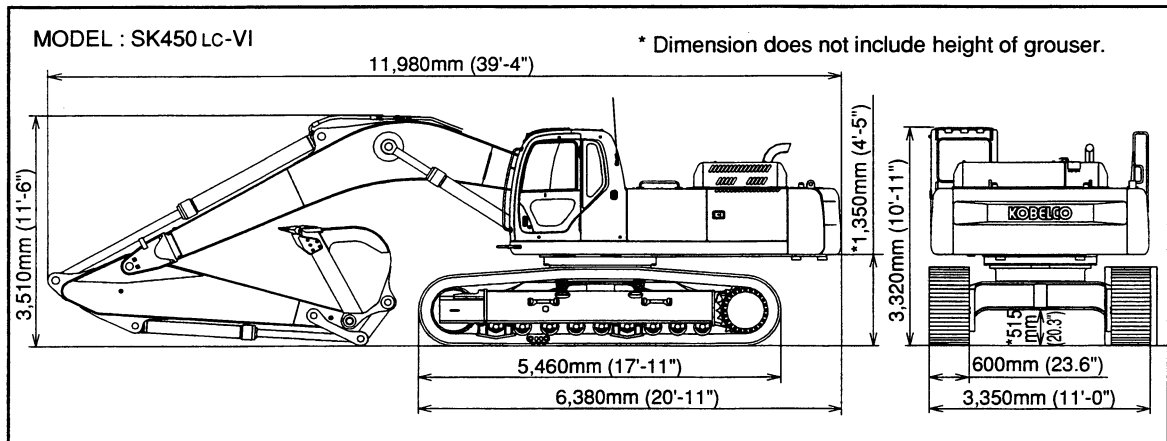
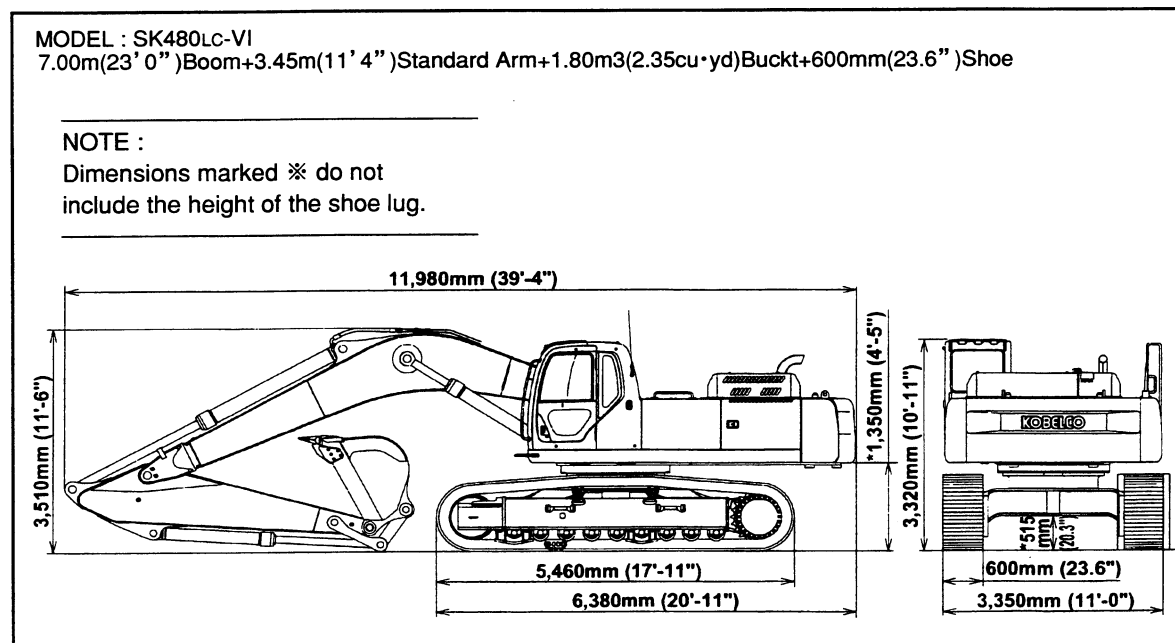
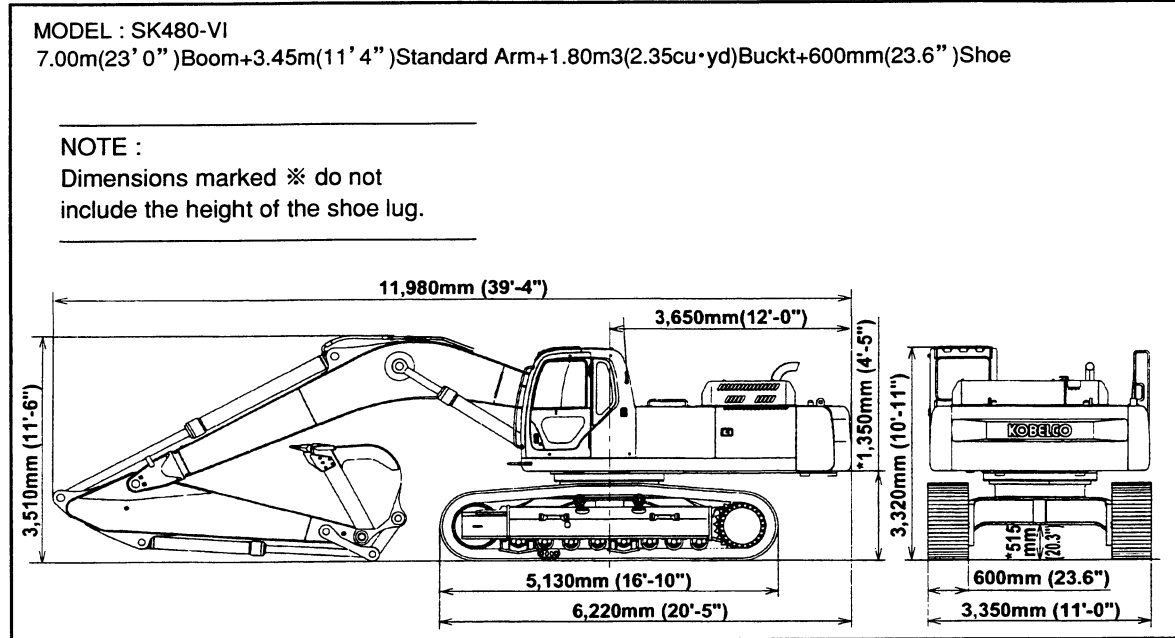


FIGURE 5.13

B. SK480-VI , SK480LC-VI

Unit : mm (ft-in)



2. SPECIFICATIONS AND PERFORMANCE

■ SPEED AND CLIMBING CAPABILITY

Item	Area & Model	EU	ASIA
		SK480LCVI	SK450(LC)VI
Swing speed		9 rpm	←
Travel speed (1-speed/2-speed)	km/h (mile/h)	3.5 / 5.6 (2.2 / 3.5)	←
Gradeability	%(degree)	70 (35)	←

■ ENGINE

Engine model	MMC (Mitsubishi) 6D24-TLU2C	MMC 6D24-TLE2A
Type	Water-cooled, 4-cycle direct injection type engine with turbo charger and inter cooler	←
Number of cylinders—Bore×Stroke	6—130mm×150mm (5.12in×5.91in)	←
Total displacement	11,950cc (729cu·in)	←
Rated output / Rotation speed	235kW (320PS) / 2,000rpm	←
Maximum torque / Rotation speed	127kgf·m (918 lbf·ft) / 1,200rpm	←
Starter	24V / 5.5kW	←
Alternator	24V / 35A	←

■ HYDRAULIC COMPONENTS

Hydraulic pump	Variable displacement axial piston + gear pump	←
Hydraulic motor (swing)	Axial piston motor	←
Hydraulic motor (travel)	2-speed axial piston motor	←
Control valve	6-spool control valve	←
Cylinder (Boom, Arm, Bucket)	Double action cylinder	←
Oil cooler	Air-cooled type	←

■ WEIGHT

Unit : kg (lb)

	SK480LCVI	SK450LCVI	SK450VI
Fully equipped weight	45,900 (101,190)	←	45,200 (99,670)
Upper structure	20,800 (45,860)	←	←
Lower machinery	17,000 (37,490)	←	16,300 (35,930)
Attachment {7.00m (23ft-0in) Boom+3.45m (11ft-4in) Arm +1.80m ³ (2.35cu·yd) Bucket}	8,100 (17,860)	←	←

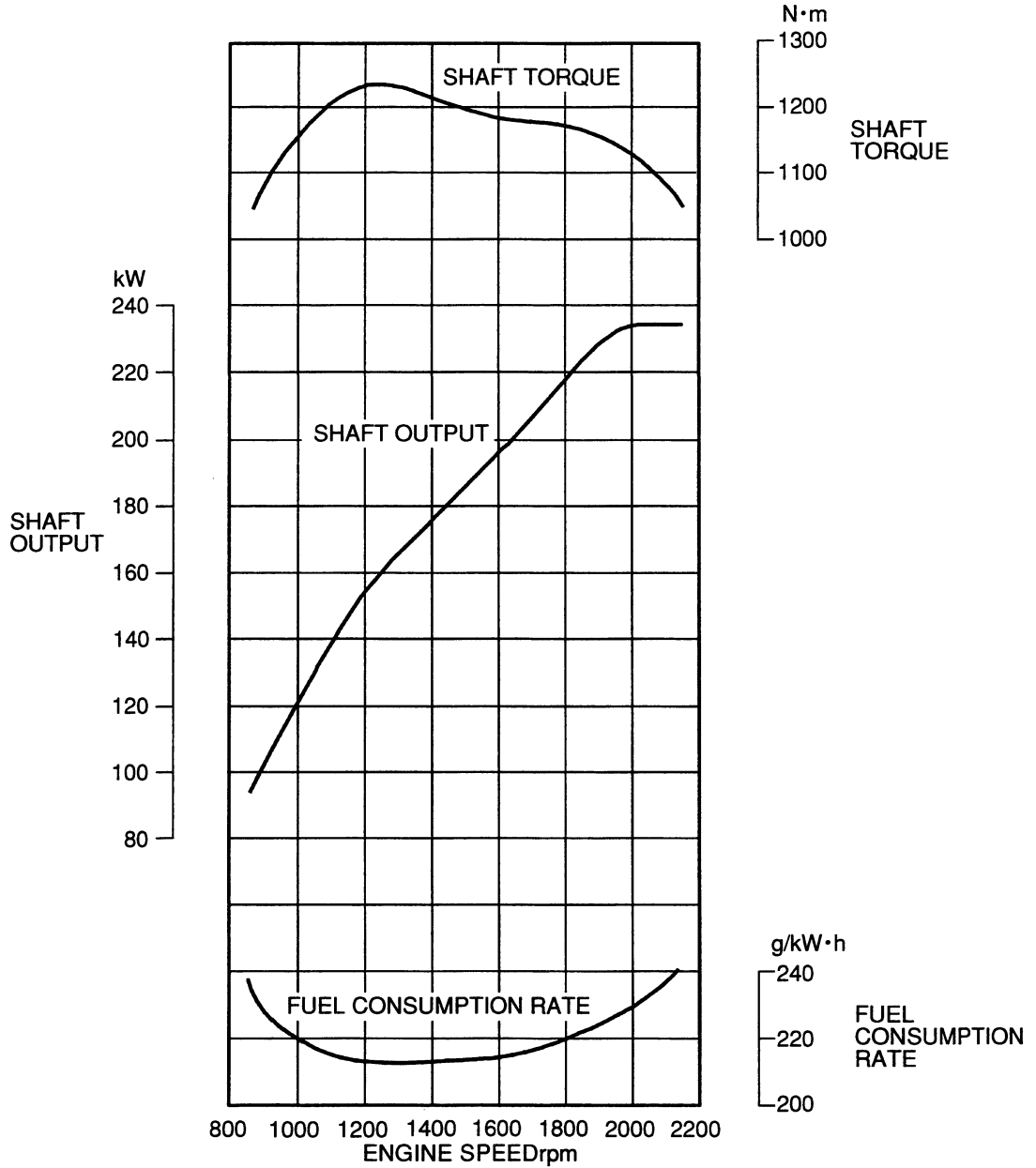
3. ENGINE SPECIFICATIONS

■ SPECIFICATIONS

Applicable machine		SK450(LC)VI, SK480LCVI		
Engine model		MITSUBISHI 6D24-TLE2A, 6D24-TLU2C		
Type		Diesel, 4-cycle water-cooled, in-line, direct injection, turbo charged and with inter cooler		
Number of cylinder× Bore×Stroke		mm (in)	6×130×150 (5.12×5.91)	
Total displacement		cc (cu·in)	11,950 (729)	
Compression ratio			17.5	
Rated output		PS (kW) at rpm	320 (235) at 2,000	
Maximum torque		kgf·m (lbf·ft) at rpm	127 (918) at 1,200	
High idling		rpm	2,200±20	
Low idling		rpm	1,000±30	
Injection valve opening pressure		kgf/cm ² (psi)	181 (2,570)	
Thermostat action Start/Full open		°C(°F)	76.5 / 90 (170 / 194)	
Firing order			1—5—3—6—2—4	
Compression pressure		kgf/cm ² (psi) at min ⁻¹	27.5 (390) at 200	
Lubrication oil pressure		kgf/ cm ² (psi) at rpm	—	
Fuel injection timing			2° before top dead point	
Valve clearance		Valve clearance	Open	Close
		Intake valve	0.4mm (0.016) at cool 18° before top dead point	50° after bottom dead point
		Exhaust valve	0.6mm (0.024) at cool 50° before bottom dead point	18° after top dead point
Starter capacity		V×kW	24×5.5	
Generator capacity (Alternator)		V×A	24×35	
Cooling fan drive method			φ 720 (28.3) suction type 10 fans, V-belt drive, pulley ratio Crank / Fan= 0.9 (EU,ASIA)	
Engine oil quantity		ℓ (gal)	Full level 45 (11.9) Low level sensor actuation 32.5 (8.6) Oil filter, etc. 4 (1.1)	
Dry weight		kg (lb)	1,020 (2,250)	
Fuel consumption ratio		g / PS·h	167	
Allowable inclination (Limited by E/G lubrication)			Front / Rear and Right / Left : 35°	
Dimension (L×W×H)		mm (in)	1,688×900×1,266 (66.5×35.4×49.8)	
Rotating direction			Counterclockwise seeing from flywheel side	

■ ENGINE CHARACTERISTIC CURVE (MITSUBISHI 6D24-TL)

Condition to be measured : With fan, alternator and air cleaner and muffler



$$\begin{aligned} & \text{Fuel consumption volume} \\ &= \frac{\text{Fuel consumption rate}}{0.835 \times 1000} \times \text{kW} \times \text{Load factor } (\alpha) \\ &= \frac{228 \text{ g / kW} \cdot \text{h}}{0.835 \times 1000} \times 235 \text{ kW} \times \alpha \\ &= 64.2\alpha \cdot \text{t} / \text{h} \end{aligned}$$

$$\begin{aligned} & \text{Fuel consumption volume} \\ &= \frac{\text{Fuel consumption rate}}{0.835 \times 1000} \times \text{PS} \times \text{Load factor } (\alpha) \\ &= \frac{167 \text{ g / PS} \cdot \text{h}}{0.835 \times 1000} \times 320 \text{ PS} \times \alpha \\ &= 64.2\alpha \cdot \text{t} / \text{h} \end{aligned}$$

α : Standard load factor (0.70~0.80)

Fuel consumption in regular operation
(load factor: 0.70~0.80)
44.9~51.4 t/h

4. HYDRAULIC COMPONENTS SPECIFICATIONS & PERFORMANCE

Item		Main pump	Gear pump for pilot		
Pump model		K3V180DTH-1M0R-9T0V	ZX15LHRZ2-06G		
Max. displacement capacity		cm ³	185×2		
Speed	Rated	min ⁻¹	2000		
	Hi idle	(Clockwise seeing from shaft end)	2220 or less		
Pressure	Rated	kgf/cm ² (psi)	320(4,550)		
	ATT boost pressure		350(4,980)		
Max. flow		ℓ /min(gal/min)	364(96)×2 at 80 kgf/cm ² (1140psi)		
Max. input horse power		kW{PS}	235.4{320}		
Max. input torque		kgf·m(lbf·ft)	115(830)		
Regulator	Model		KR3H-9T0V		
	Control function		Electric flow control, total power control at back-up, power shift control at back-up and negative flow control		
	Others		With solenoid proportional reducing valve (KDRDE5K-31/30C40-111)		
Weight		kg(lb)	187(412)		
Model		UY36-105			
Rated flow		ℓ /min(gal/min)	370×2(98×2)		
Main relief valve set pressure		kgf/cm ² (psi)	320(4550) at 320 ℓ /min(84gal/min)		
When power boost pressure			350(4980) at 320 ℓ /min(84gal/min)		
Over load relief valve set pressure		kgf/cm ² (psi)	370(5260) at 30 ℓ /min(7.9gal/min)		
Boom H, Bucket H, Arm R			355(5050) at 30 ℓ /min(7.9gal/min)		
Boom R, Bucket R, Arm H			270(3840) at 30 ℓ /min(7.9gal/min)		
Swing					
Foot relief valve set pressure		kgf/cm ² (psi)	32(460) at 50 ℓ /min(13gal/min)		
SWING MOTOR	Hydraulic motor assy	Hydraulic motor	Type	MX500B0-10A-03	
			Displacement	cm ³ (cu·yd)	485(630)
			Working pressure	kgf/cm ² (psi)	320(4550)
			Max. flow	ℓ /min(gal/min)	370(98)
			Braking torque	kgf·m(lbf·ft)	229(1660)
			Release pressure (Stroke end)	kgf/cm ² (psi)	22.4/14.3(320/200)
			Weight	kg(lb)	163(359)
	Relief valve block	Type		VBY-155C	
		Main relief valve set pressure	kgf/cm ² (psi)	260(3700)	
		Weight	kg(lb)	25(55)	
	Hydraulic motor assy weight		kg(lb)	188(414)	
Reduction unit	Speed reduction type		Planetary 2-stage		
	Reduction ratio		13.623		
	Lubricate oil		Gear oil SAE90(API class GL-4 grade)		
	Lubricate oil volume		ℓ (gal)	38.5(10)	
	Grease		Extreme pressur multipurpose grease		
	Grease volume		A small amount		
	Weight		kg(lb)	519(1140)	
Total weight		kg(lb)	683(1510)		

Note: The max. input power and the max. input torque of the main pump include those of the gear pump.