

### 3. FUEL, COOLANT AND LUBRICANTS

#### 1) NEW MACHINE

New machine used and filled with following lubricants.

Description	Specification
Engine oil	SAE 15W-40(API CH-4)
Hydraulic oil	ISO VG 46(SAE 10W)
Swing and travel reduction gear	SAE 85W-140(API GL-5)
Grease	Lithium base grease NLGI No. 2
Fuel	ASTM D975-No. 2
Coolant	Mixture of 50% ethylene glycol base antifreeze and 50% water.

**SAE** : Society of Automotive Engineers

**API** : American Petroleum Institute

**ISO** : International Organization for Standardization

**NLGI** : National Lubricating Grease Institute

**ASTM** : American Society of Testing and Material

## 2) RECOMMENDED OILS

Use only oils listed below or equivalent.

Do not mix different brand oil.

Service point	Kind of fluid	Capacity ℓ (U.S. gal)	Ambient temperature °C (°F)						
			-20 (-4)	-10 (14)	0 (32)	10 (50)	20 (68)	30 (86)	40 (104)
Engine oil pan	Engine oil	38(10)				SAE 30			
			SAE 10W						
			SAE 10W-30						
				SAE 15W-40					
Swing drive	Gear oil	5.0×2(1.3×2)							
Final drive		5.0×2 (1.3×2)	SAE 85W-140						
Hydraulic tank	Hydraulic oil	Tank; 250(66)	ISO VG 32						
		System; 380(100)		ISO VG 46					
				ISO VG 68					
Fuel tank	Diesel fuel	610(161)	ASTM D975 NO.1						
				ASTM D975 NO.2					
Fitting (Grease nipple)	Grease	As required	NLGI NO.1						
				NLGI NO.2					
Radiator (Reservoir tank)	Mixture of antifreeze and water 50 : 50	50(13.2)		Ethylene glycol base permanent type					