

SECTION 1 GENERAL



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SECTION 1 GENERAL

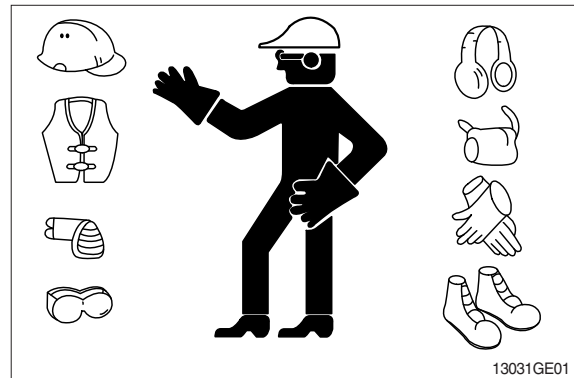
GROUP 1 SAFETY

FOLLOW SAFE PROCEDURE

Unsafe work practices are dangerous. Understand service procedure before doing work; Do not attempt shortcuts.

WEAR PROTECTIVE CLOTHING

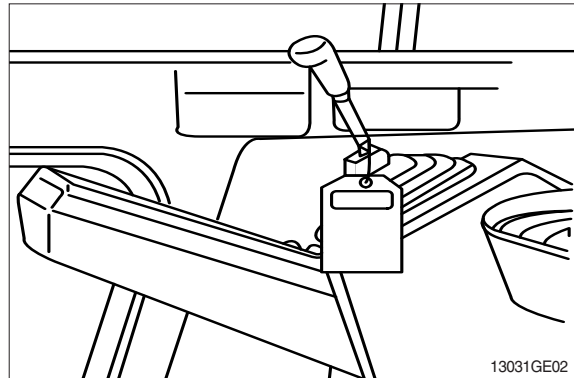
Wear close fitting clothing and safety equipment appropriate to the job.



WARN OTHERS OF SERVICE WORK

Unexpected machine movement can cause serious injury.

Before performing any work on the excavator, attach a 「Do Not Operate」 tag on the right side control lever.



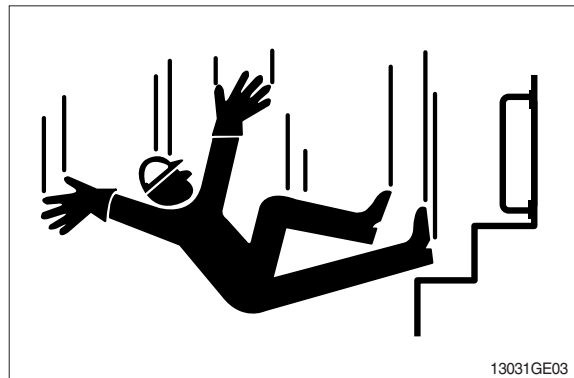
USE HANDHOLDS AND STEPS

Falling is one of the major causes of personal injury.

When you get on and off the machine, always maintain a three point contact with the steps and handrails and face the machine. Do not use any controls as handholds.

Never jump on or off the machine. Never mount or dismount a moving machine.

Be careful of slippery conditions on platforms, steps, and handrails when leaving the machine.

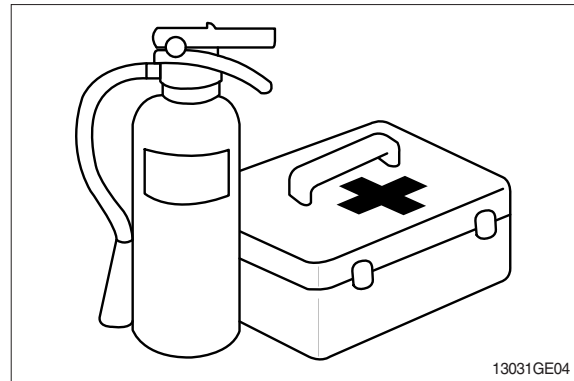


PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

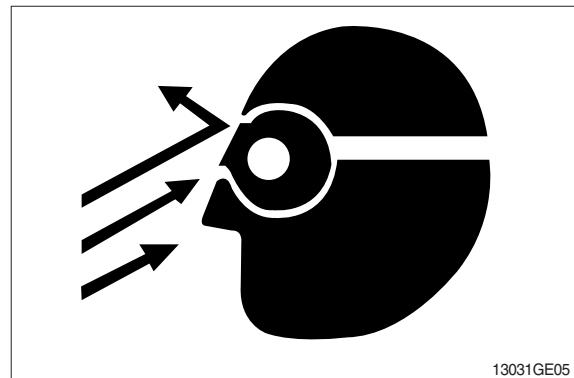
Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



PROTECT AGAINST FLYING DEBRIS

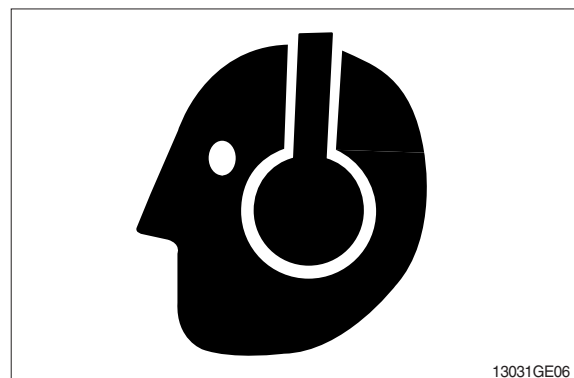
Guard against injury from flying pieces of metal or debris; Wear goggles or safety glasses.



PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing.

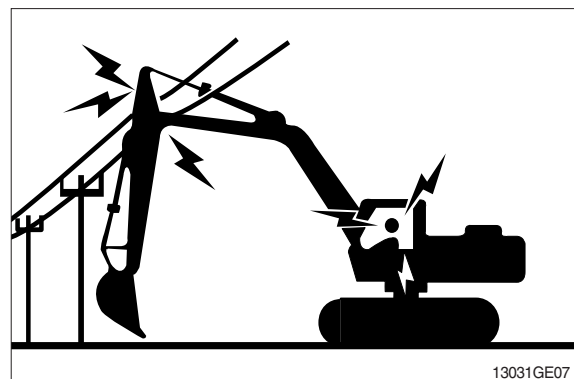
Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



AVOID POWER LINES

Serious injury or death can result from contact with electric lines.

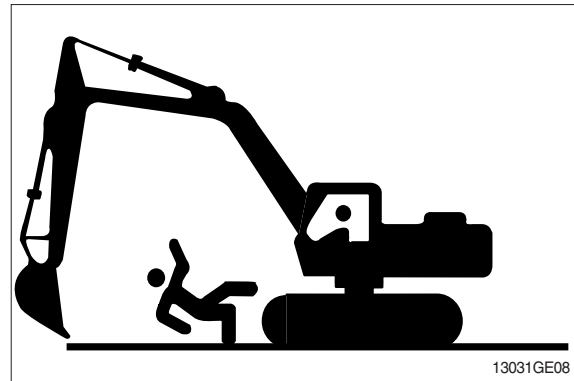
Never move any part of the machine or load closer to electric line than 3m(10ft) plus twice the line insulator length.



KEEP RIDERS OFF EXCAVATOR

Only allow the operator on the excavator. Keep riders off.

Riders on excavator are subject to injury such as being struck by foreign objects and being thrown off the excavator. Riders also obstruct the operator's view resulting in the excavator being operated in an unsafe manner.

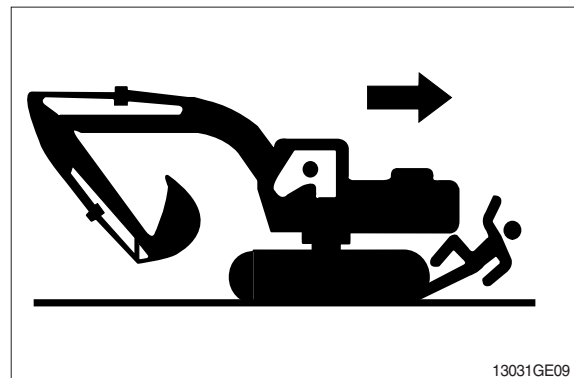


MOVE AND OPERATE MACHINE SAFELY

Bystanders can be run over. Know the location of bystanders before moving, swinging, or operating the machine.

Always keep the travel alarm in working condition. It warns people when the excavator starts to move.

Use a signal person when moving, swinging, or operating the machine in congested areas. Coordinate hand signals before starting the excavator.



OPERATE ONLY FROM OPERATOR'S SEAT

Avoid possible injury machine damage. Do not start engine by shorting across starter terminals.

NEVER start engine while standing on ground. Start engine only from operator's seat.



PARK MACHINE SAFELY

Before working on the machine:

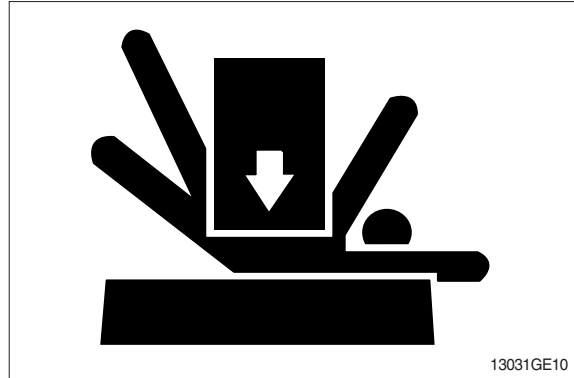
- Park machine on a level surface.
- Lower bucket to the ground.
- Turn auto idle switch off.
- Run engine at low idle speed without load for 5 minutes.
- Turn key switch to OFF to stop engine. Remove key from switch.
- Place safety lever to locked position.
- Allow engine to cool.

SUPPORT MACHINE PROPERLY

Always lower the attachment or implement to the ground before you work on the machine. If you must work on a lifted machine or attachment, securely support the machine or attachment.

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load.

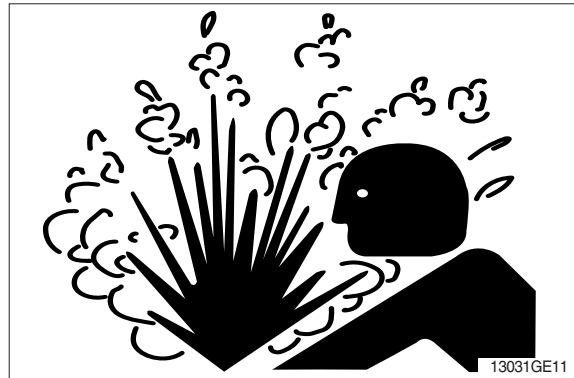
Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.



SERVICE COOLING SYSTEM SAFELY

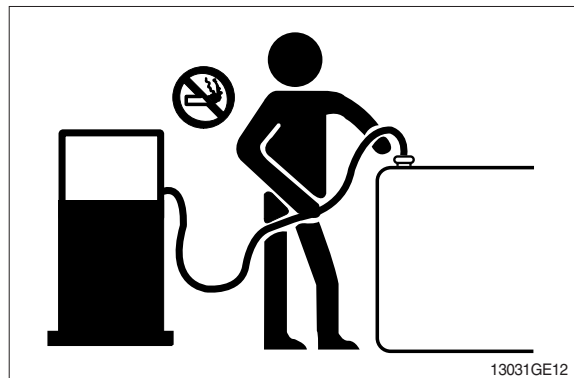
Explosive release of fluids from pressurized cooling system can cause serious burns.

Shut off engine. Only remove filler cap when cool enough to touch with bare hands.



HANDLE FLUIDS SAFELY-AVOID FIRES

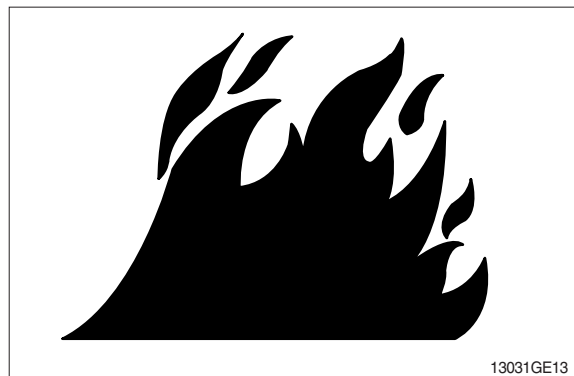
Handle fuel with care; It is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks. Always stop engine before refueling machine. Fill fuel tank outdoors.



Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; They can ignite and burn spontaneously.



BEWARE OF EXHAUST FUMES

Prevent asphyxiation. Engine exhaust fumes can cause sickness or death.

If you must operate in a building, be positive there is adequate ventilation. Either use an exhaust pipe extension to remove the exhaust fumes or open doors and windows to bring enough outside air into the area.

REMOVE PAINT BEFORE WELDING OR HEATING

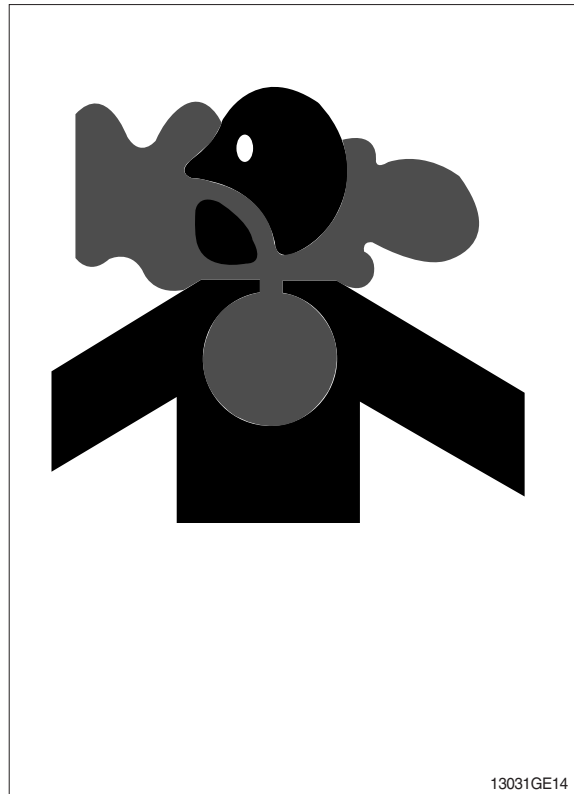
Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Do all work outside or in a well ventilated area. Dispose of paint and solvent properly.

Remove paint before welding or heating:

- If you sand or grind paint, avoid breathing the dust.
Wear an approved respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.



ILLUMINATE WORK AREA SAFELY

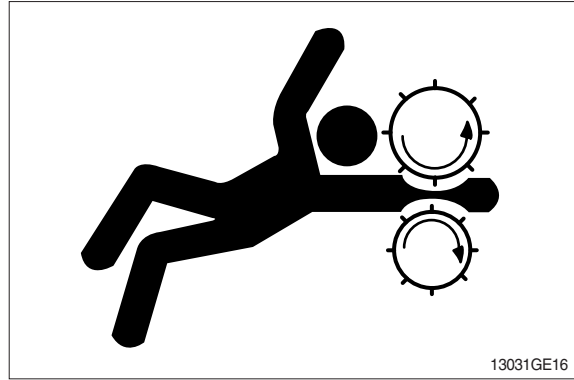
Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.



SERVICE MACHINE SAFELY

Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

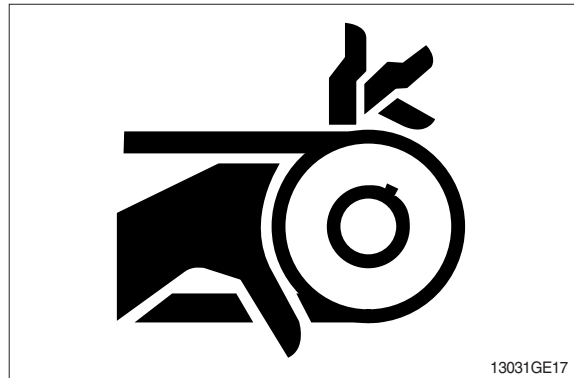
Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.



STAY CLEAR OF MOVING PARTS

Entanglements in moving parts can cause serious injury.

To prevent accidents, use care when working around rotating parts.



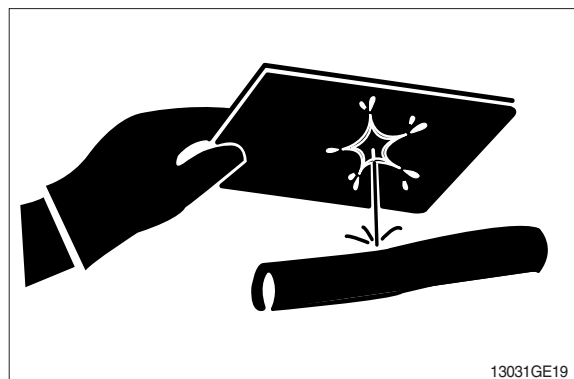
AVOID HIGH PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.



AVOID HEATING NEAR PRESSURIZED FLUID LINES

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials.

Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area. Install fire resisting guards to protect hoses or other materials.



PREVENT BATTERY EXPLOSIONS

Keep sparks, lighted matches, and flame away from the top of battery.

Battery gas can explode.

Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.

Do not charge a frozen battery; It may explode. Warm battery to 16°C (60°F).



PREVENT ACID BURNS

Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:

1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

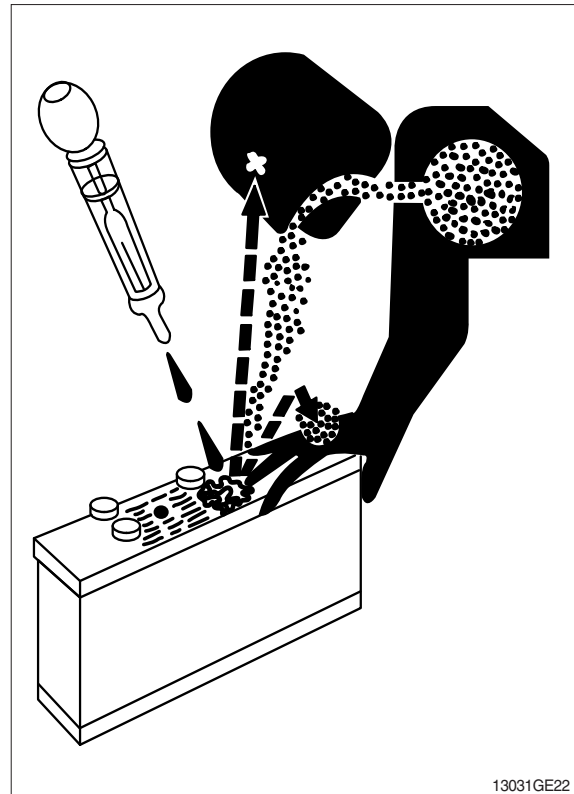
If you spill acid on yourself:

1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 10-15 minutes.

Get medical attention immediately.

If acid is swallowed:

1. Drink large amounts of water or milk.
2. Then drink milk of magnesia, beaten eggs, or vegetable oil.
3. Get medical attention immediately.



USE TOOLS PROPERLY

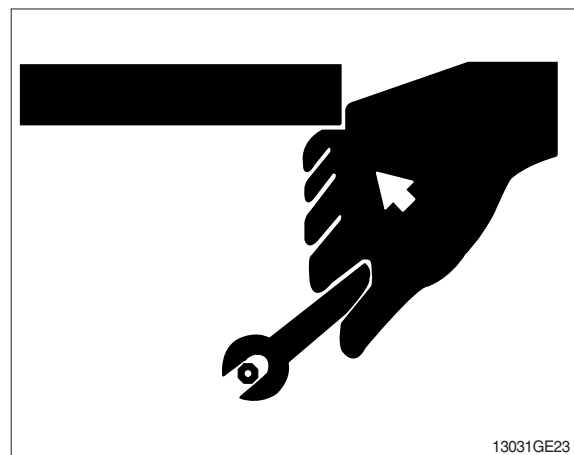
Use tools appropriate to the work. Makeshift tools, parts, and procedures can create safety hazards.

Use power tools only to loosen threaded tools and fasteners.

For loosening and tightening hardware, use the correct size tools.

DO NOT use U.S. measurement tools on metric fasteners. Avoid bodily injury caused by slipping wrenches.

Use only recommended replacement parts.
(See Parts manual.)

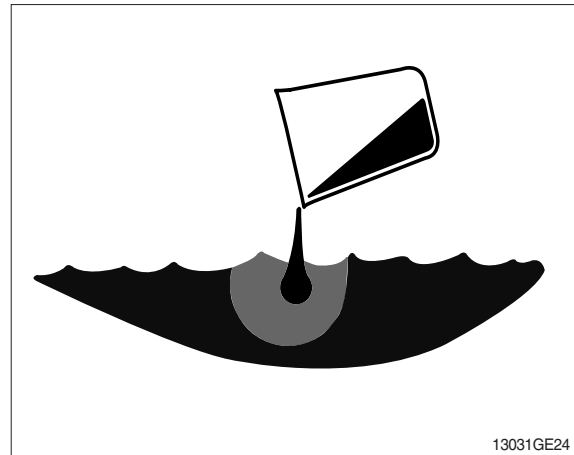


DISPOSE OF FLUIDS PROPERLY

Improperly disposing of fluids can harm the environment and ecology. Before draining any fluids, find out the proper way to dispose of waste from your local environmental agency.

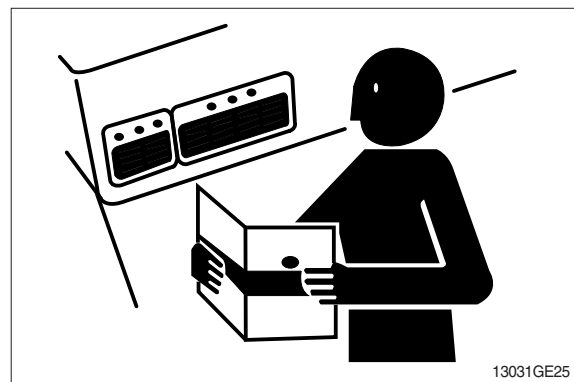
Use proper containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

DO NOT pour oil into the ground, down a drain, or into a stream, pond, or lake. Observe relevant environmental protection regulations when disposing of oil, fuel, coolant, brake fluid, filters, batteries, and other harmful waste.



REPLACE SAFETY LABELS

Replace missing or damaged safety labels. See the machine operator's manual for correct safety label placement.

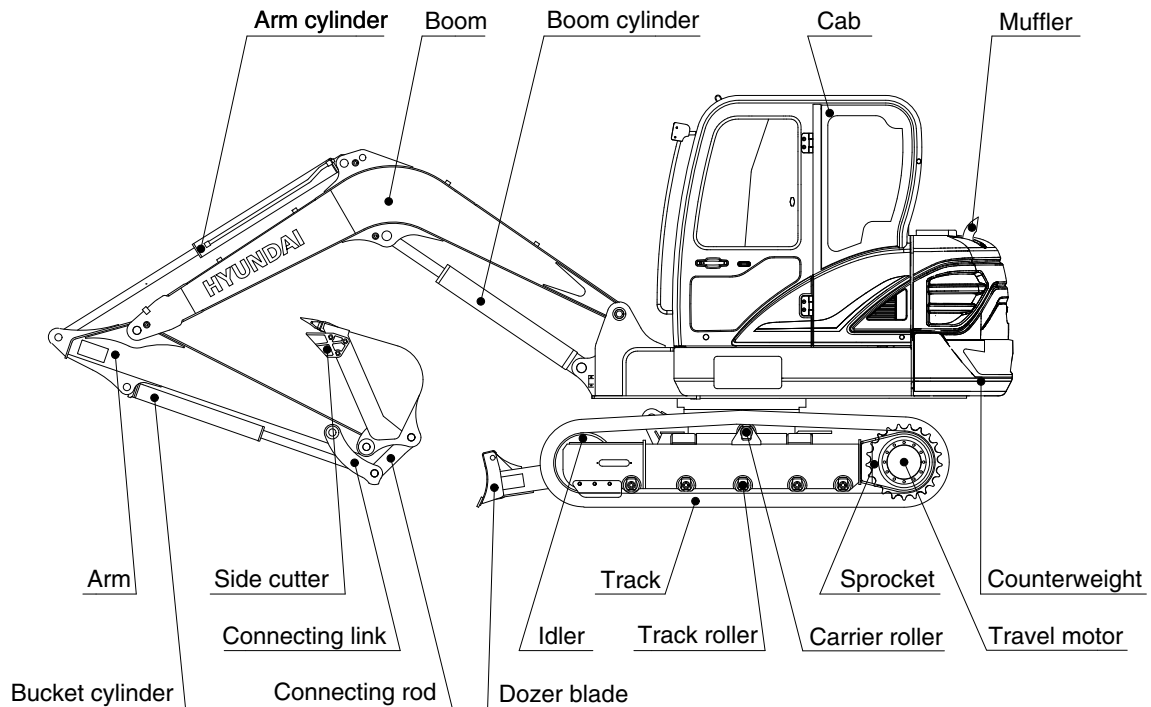
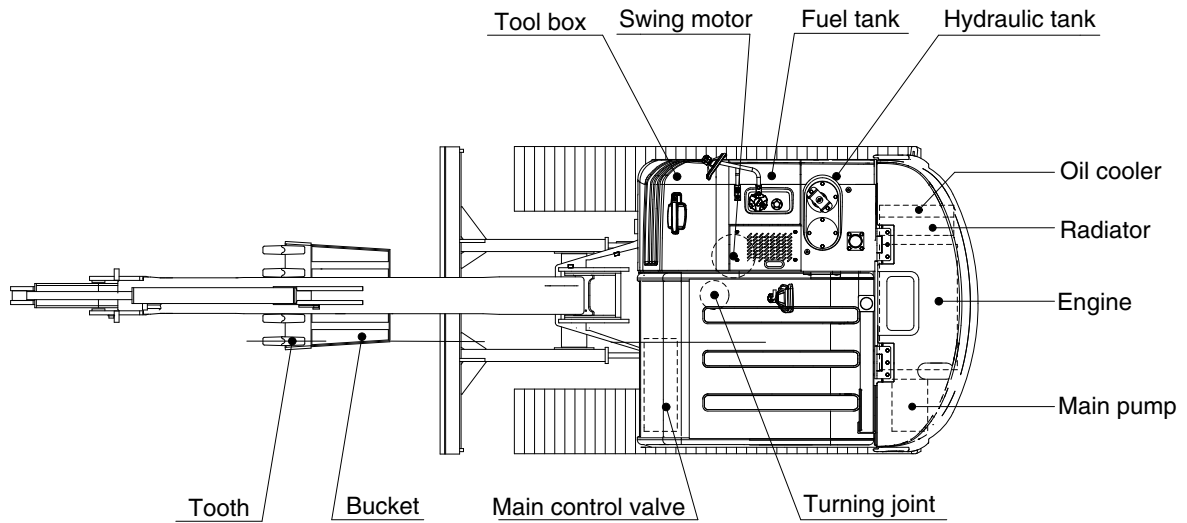


LIVE WITH SAFETY

Before returning machine to customer, make sure machine is functioning properly, especially the safety systems. Install all guards and shields.

GROUP 2 SPECIFICATIONS

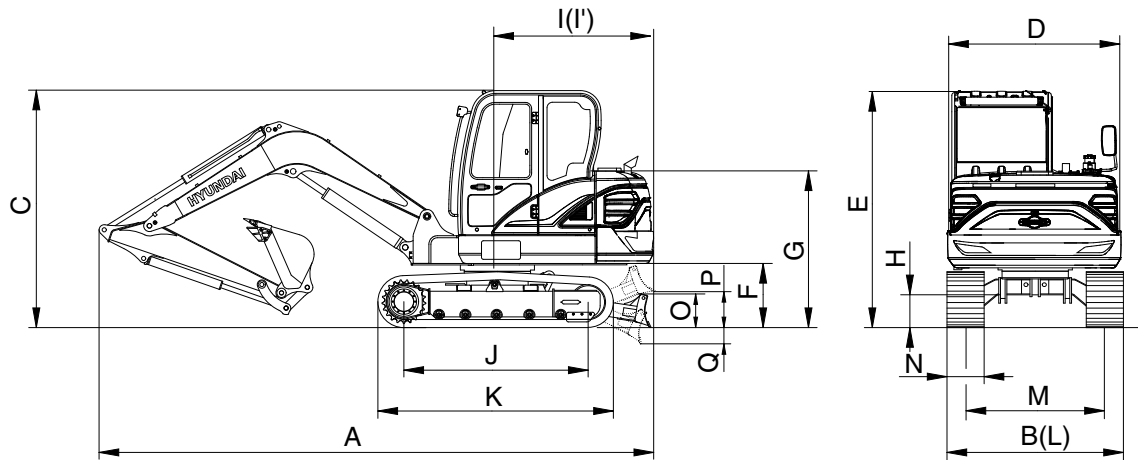
1. MAJOR COMPONENT



65A2SP01

2. SPECIFICATIONS

1) 3.0 m (9' 10") MONO BOOM, 1.6 m (5' 3") ARM

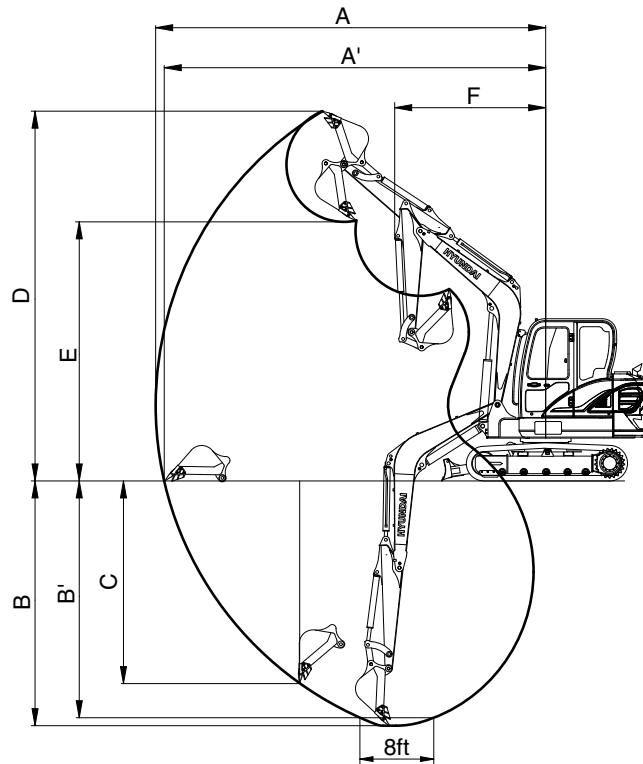


HX60A2SP02

Description		Unit	Specification
Operating weight		kg (lb)	6080 (13430)
Bucket capacity (SAE heaped), standard		m ³ (yd ³)	0.18 (0.24)
Overall length	A	mm (ft-in)	5970 (19' 7")
Overall width, with 400 mm shoe	B		1905 (6' 3")
Overall height	C		2595 (8' 6")
Superstructure width	D		1850 (6' 1")
Overall height of cab	E		2595 (8' 6")
Ground clearance of counterweight	F		687 (2' 3")
Engine cover height	G		1690 (5' 7")
Minimum ground clearance	H		271 (0' 11")
Rear-end distance	I		1650 (5' 5")
Rear-end swing radius	I'		1650 (5' 5")
Distance between tumblers	J		2010 (6' 7")
Undercarriage length (without grouser)	K		2544 (8' 4")
Undercarriage width	L		1900 (6' 3")
Track gauge	M		1500 (4' 11")
Track shoe width, standard	N		400 (1' 4")
Height of blade	O		350 (1' 2")
Ground clearance of blade up	P		400 (1' 4")
Depth of blade down	Q		575 (1' 11")
Travel speed (low/high)		km/hr (mph)	2.2/4.2 (1.4/2.6)
Swing speed		rpm	9.4
Gradeability		Degree (%)	35 (70)
Ground pressure (400 mm shoe)		kgf/cm ² (psi)	0.35 (4.95)
Max traction force		kg (lb)	5221 (11510)

3. WORKING RANGE

1) 3.0 m (9' 10") MONO BOOM



HX60A2SP03

Description		1.6 m (5' 3") Arm
Max digging reach	A	6150 mm (20' 2")
Max digging reach on ground	A'	6020 mm (19' 9")
Max digging depth	B	3770 mm (12' 6")
Max digging depth (8ft level)	B'	3380 mm (11' 1")
Max vertical wall digging depth	C	3230 mm (10' 7")
Max digging height	D	5760 mm (18' 11")
Max dumping height	E	4000 mm (13' 3")
Min swing radius	F	2375 mm (7' 10")
Boom swing radius (left/right)		80°/50°
Bucket digging force	SAE	37 kN
		3763 kgf
		8295 lbf
	ISO	42 kN
		4292 kgf
		9461 lbf
Arm digging force	SAE	27 kN
		2779 kgf
		6126 lbf
	ISO	28 kN
		2886 kgf
		6363 lbf

4. WEIGHT

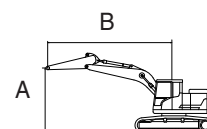
Item	kg	lb
Upperstructure assembly		
· Main frame weld assembly	782	1,724
· Engine assembly (including DFP)	264	582
· Main pump assembly	34	74
· Main control valve assembly	53	118
· Swing motor assembly	76	168
· Hydraulic oil tank WA	95	208
· Fuel tank WA	67	148
· Counterweight (cast type)	285	628
· Counterweight (cast add increased)	435	959
· Cab assembly	350	772
Lower chassis assembly		
· Track frame weld assembly	699	1,541
· Dozer blade assembly	220	485
· Swing bearing	94	207
· Travel motor assembly	152	335
· Turning joint	27	60
· Sprocket	40	88
· Track recoil spring	58	129
· Idler	89	195
· Upper roller	22	49
· Lower roller	112	247
· Track guard	45	99
· Track-chain assembly (380 mm)	648	1,429
· Track-chain assembly (450 mm)	855	1,886
· Track-chain assembly (400 mm, rubber track)	486	1,071
Front attachment assembly		
· Boom assembly (3.0 m)	247	545
· Arm assembly (1.6 m)	130	287
· Arm assembly (1.9 m)	135	298
· Bucket assembly (0.18 m ³)	162	358
· Bucket assembly (0.07 m ³)	110	243
· Boom cylinder assembly	78	172
· Arm cylinder assembly	65	143
· Bucket cylinder assembly	37	82
· Dozer cylinder assembly	41	90
· Bucket control linkage total	47	104











5. LIFTING CAPACITIES

Model	Type	Boom	Arm	Counterweight	Wheel	Dozer		Outrigger	
HX65A	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	Front	Rear	Front	Rear
		3000	1600	285	-	Down	-	-	-

·  : Rating over-front

·  : Rating over-side or 360 degree



Lift-point height (A)		Lift-point radius (B)								At max. reach		
		2.0 m (6.6 ft)		3.0 m (9.8 ft)		4.0 m (13.1 ft)		5.0 m (16.4 ft)		Capacity		Reach
												m (ft)
4.0 m	kg					*1220	*1220			*1280	1130	4.26
(13.1 ft)	lb					*2690	*2690			*2820	2490	(14.0)
3.0 m	kg					*1270	1240			*1240	900	4.87
(9.8 ft)	lb					*2800	2730			*2730	1980	(16.0)
2.0 m	kg			*1960	1840	*1500	1200	*1320	850	*1250	800	5.18
(6.6 ft)	lb			*4320	4060	*3310	2650	*2910	1870	*2760	1760	(17.0)
1.0 m	kg			*2600	1720	*1760	1140	*1410	830	*1330	770	5.24
(3.3 ft)	lb			*5730	3790	*3880	2510	*3110	1830	*2930	1700	(17.2)
0.0 m	kg			*2850	1660	*1920	1110	*1450	810	*1420	800	5.09
(0.0 ft)	lb			*6280	3660	*4230	2450	*3200	1790	*3130	1760	(16.7)
-1.0 m	kg	*3080	*3080	*2750	1650	*1890	1100			*1480	890	4.67
(-3.3 ft)	lb	*6790	*6790	*6060	3640	*4170	2430			*3260	1960	(15.3)
-2.0 m	kg	*3610	3260	*2290	1670					*1530	1160	3.90
(-6.6 ft)	lb	*7960	7190	*5050	3680					*3370	2560	(12.8)
-3.0 m	kg											
(-9.8 ft)	lb											

※ Note

1. Lifting capacity are based on SAE J1097 and ISO 10567.
2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
4. *indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.

The difference between the weight of a work tool attachment must be subtracted.

Consult your HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.

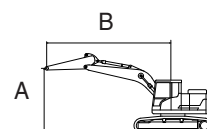
▲ Failure to comply to the rated load can cause possible personal injury or property damage.











Make adjustments to the rated load as necessary for non-standard configurations.

Model	Type	Boom	Arm	Counterweight	Wheel	Dozer		Outrigger	
HX65A	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	Front	Rear	Front	Rear
		3000	1600	285	-	Up	-	-	-

·  : Rating over-front

·  : Rating over-side or 360 degree



Lift-point height (A)		Lift-point radius (B)								At max. reach		
		2.0 m (6.6 ft)		3.0 m (9.8 ft)		4.0 m (13.1 ft)		5.0 m (16.4 ft)		Capacity		Reach
												m (ft)
4.0 m (13.1 ft)	kg lb					*1220 *2690	1150 2540			*1280 *2820	1040 2290	4.26 (14.0)
3.0 m (9.8 ft)	kg lb					*1270 *2800	1140 2510			1020 2250	830 1830	4.87 (16.0)
2.0 m (6.6 ft)	kg lb			*1960 *4320	1680 3700	1360 3000	1100 2430	960 2120	780 1720	910 2010	740 1630	5.18 (17.0)
1.0 m (3.3 ft)	kg lb			2000 4410	1560 3440	1310 2890	1040 2290	940 2070	760 1680	880 1940	710 1570	5.24 (17.2)
0.0 m (0.0 ft)	kg lb			1940 4280	1500 3310	1270 2800	1010 2230	930 2050	740 1630	900 1980	730 1610	5.09 (16.7)
-1.0 m (-3.3 ft)	kg lb	*3080 *6790	2840 6260	1920 4230	1490 3280	1260 2780	1000 2200			1020 2250	810 1790	4.67 (15.3)
-2.0 m (-6.6 ft)	kg lb	*3610 *7960	2900 6390	1950 4300	1520 3350					1330 2930	1060 2340	3.90 (12.8)
-3.0 m (-9.8 ft)	kg lb											

※ Note

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3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
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※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.

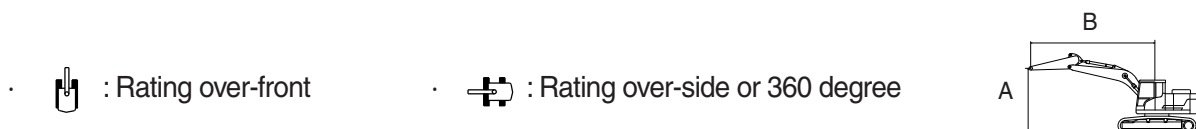
The difference between the weight of a work tool attachment must be subtracted.











Consult your HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.

▲ Failure to comply to the rated load can cause possible personal injury or property damage.

Make adjustments to the rated load as necessary for non-standard configurations.

Model	Type	Boom	Arm	Counterweight	Wheel	Dozer		Outrigger	
HX65A	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	Front	Rear	Front	Rear
		3000	1600	335	-	Down	-	-	-



Lift-point height (A)		Lift-point radius (B)								At max. reach		
		2.0 m (6.6 ft)		3.0 m (9.8 ft)		4.0 m (13.1 ft)		5.0 m (16.4 ft)		Capacity		Reach
												m (ft)
4.0 m	kg					*1220	*1220			*1280	1150	4.26
(13.1 ft)	lb					*2690	*2690			*2820	2540	(14.0)
3.0 m	kg					*1270	1270			*1240	920	4.87
(9.8 ft)	lb					*2800	2800			*2730	2030	(16.0)
2.0 m	kg			*1960	1880	*1500	1220	*1320	870	*1250	820	5.18
(6.6 ft)	lb			*4320	4140	*3310	2690	*2910	1920	*2760	1810	(17.0)
1.0 m	kg			*2600	1760	*1760	1170	*1410	850	*1330	790	5.24
(3.3 ft)	lb			*5730	3880	*3880	2580	*3110	1870	*2930	1740	(17.2)
0.0 m	kg			*2850	1700	*1920	1130	*1450	840	*1420	820	5.09
(0.0 ft)	lb			*6280	3750	*4230	2490	*3200	1850	*3130	1810	(16.7)
-1.0 m	kg	*3080	*3080	*2750	1690	*1890	1120			*1480	910	4.67
(-3.3 ft)	lb	*6790	*6790	*6060	3730	*4170	2470			*3260	2010	(15.3)
-2.0 m	kg	*3610	3340	*2290	1710					*1530	1190	3.90
(-6.6 ft)	lb	*7960	7360	*5050	3770					*3370	2620	(12.8)
-3.0 m	kg											
(-9.8 ft)	lb											

※ Note

1. Lifting capacity are based on SAE J1097 and ISO 10567.
2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
4. *indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.

The difference between the weight of a work tool attachment must be subtracted.











Consult your HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.

▲ Failure to comply to the rated load can cause possible personal injury or property damage.

Make adjustments to the rated load as necessary for non-standard configurations.

Model	Type	Boom	Arm	Counterweight	Wheel	Dozer		Outrigger	
HX65A	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	Front	Rear	Front	Rear
		3000	1600	335	-	Up	-	-	-



Lift-point height (A)		Lift-point radius (B)								At max. reach		
		2.0 m (6.6 ft)		3.0 m (9.8 ft)		4.0 m (13.1 ft)		5.0 m (16.4 ft)		Capacity		Reach
												m (ft)
4.0 m	kg					*1220	1180			*1280	1060	4.26
(13.1 ft)	lb					*2690	2600			*2820	2340	(14.0)
3.0 m	kg					*1270	1170			1040	850	4.87
(9.8 ft)	lb					*2800	2580			2290	1870	(16.0)
2.0 m	kg			*1960	1710	1390	1120	990	800	930	750	5.18
(6.6 ft)	lb			*4320	3770	3060	2470	2180	1760	2050	1650	(17.0)
1.0 m	kg			2040	1600	1340	1070	960	780	900	720	5.24
(3.3 ft)	lb			4500	3530	2950	2360	2120	1720	1980	1590	(17.2)
0.0 m	kg			1980	1540	1300	1030	950	760	930	750	5.09
(0.0 ft)	lb			4370	3400	2870	2270	2090	1680	2050	1650	(16.7)
-1.0 m	kg	*3080	2910	1970	1530	1290	1020			1040	830	4.67
(-3.3 ft)	lb	*6790	6420	4340	3370	2840	2250			2290	1830	(15.3)
-2.0 m	kg	*3610	2970	2000	1550					1360	1080	3.90
(-6.6 ft)	lb	*7960	6550	4410	3420					3000	2380	(12.8)
-3.0 m	kg											
(-9.8 ft)	lb											

※ Note

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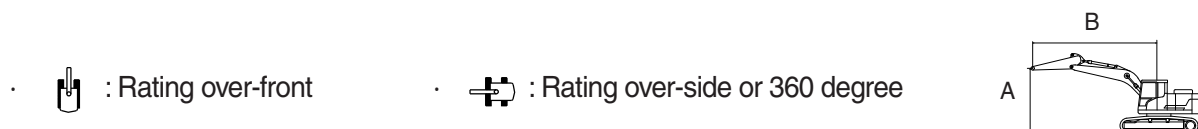
The difference between the weight of a work tool attachment must be subtracted.











Consult your HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.

▲ Failure to comply to the rated load can cause possible personal injury or property damage.

Make adjustments to the rated load as necessary for non-standard configurations.

Model	Type	Boom	Arm	Counterweight	Wheel	Dozer		Outrigger	
HX65A	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	Front	Rear	Front	Rear
		3000	1600	435	-	Down	-	-	-



Lift-point height (A)		Lift-point radius (B)								At max. reach		
		2.0 m (6.6 ft)		3.0 m (9.8 ft)		4.0 m (13.1 ft)		5.0 m (16.4 ft)		Capacity		Reach
												m (ft)
4.0 m (13.1 ft)	kg lb					*1220 *2690	*1220 *2690			*1280 *2820	1210 2670	4.26 (14.0)
3.0 m (9.8 ft)	kg lb					*1270 *2800	*1270 *2800			*1240 *2730	970 2140	4.87 (16.0)
2.0 m (6.6 ft)	kg lb			*1960 *4320	*1960 *4320	*1500 *3310	1280 2820	*1320 *2910	910 2010	*1250 *2760	870 1920	5.18 (17.0)
1.0 m (3.3 ft)	kg lb			*2600 *5730	1840 4060	*1760 *3880	1230 2710	*1410 *3110	890 1960	*1330 *2930	830 1830	5.24 (17.2)
0.0 m (0.0 ft)	kg lb			*2850 *6280	1780 3920	*1920 *4230	1190 2620	*1450 *3200	880 1940	*1420 *3130	860 1900	5.09 (16.7)
-1.0 m (-3.3 ft)	kg lb	*3080 *6790	*3080 *6790	*2750 *6060	1770 3900	*1890 *4170	1180 2600			*1480 *3260	960 2120	4.67 (15.3)
-2.0 m (-6.6 ft)	kg lb	*3610 *7960	3490 7690	*2290 *5050	1800 3970					*1530 *3370	1250 2760	3.90 (12.8)
-3.0 m (-9.8 ft)	kg lb											

※ Note

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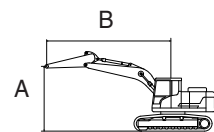
▲ Failure to comply to the rated load can cause possible personal injury or property damage.











Make adjustments to the rated load as necessary for non-standard configurations.

Model	Type	Boom	Arm	Counterweight	Wheel	Dozer		Outrigger	
HX65A	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	Front	Rear	Front	Rear
		3000	1600	435	-	Up	-	-	-

·  : Rating over-front

·  : Rating over-side or 360 degree



Lift-point height (A)		Lift-point radius (B)								At max. reach		
		2.0 m (6.6 ft)		3.0 m (9.8 ft)		4.0 m (13.1 ft)		5.0 m (16.4 ft)		Capacity		Reach
												m (ft)
4.0 m (13.1 ft)	kg lb					*1220 *2690	*1220 *2690			*1280 *2820	1110 2450	4.26 (14.0)
3.0 m (9.8 ft)	kg lb					*1270 *2800	1220 2690			1090 2400	890 1960	4.87 (16.0)
2.0 m (6.6 ft)	kg lb			*1960 *4320	1790 3950	1450 3200	1180 2600	1030 2270	840 1850	980 2160	790 1740	5.18 (17.0)
1.0 m (3.3 ft)	kg lb			2140 4720	1670 3680	1400 3090	1120 2470	1010 2230	820 1810	940 2070	760 1680	5.24 (17.2)
0.0 m (0.0 ft)	kg lb			2070 4560	1620 3570	1360 3000	1090 2400	1000 2200	800 1760	970 2140	790 1740	5.09 (16.7)
-1.0 m (-3.3 ft)	kg lb	*3080 *6790	3060 6750	2060 4540	1610 3550	1350 2980	1080 2380			1090 2400	880 1940	4.67 (15.3)
-2.0 m (-6.6 ft)	kg lb	*3610 *7960	3110 6860	2090 4610	1630 3590					1420 3130	1140 2510	3.90 (12.8)
-3.0 m (-9.8 ft)	kg lb											

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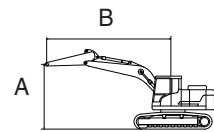
▲ Failure to comply to the rated load can cause possible personal injury or property damage.













Make adjustments to the rated load as necessary for non-standard configurations.

Model	Type	Boom	Arm	Counterweight	Wheel	Dozer		Outrigger	
HX65A	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	Front	Rear	Front	Rear
		3000	1900	285	-	Down	-	-	-

·  : Rating over-front

·  : Rating over-side or 360 degree

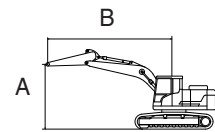














Load point height		Load radius										At max. reach		
		1.0 m (3 ft)		2.0 m (7 ft)		3.0 m (10 ft)		4.0 m (13 ft)		5.0 m (16 ft)		Capacity		Reach
														m (ft)
5.0 m (16.4 ft)	kg lb											*1200 *2650	*1200 *2650	3.64 (11.9)
4.0 m (13.1 ft)	kg lb							*1060 *2340	*1060 *2340			*1080 *2380	1000 2200	4.63 (15.2)
3.0 m (9.8 ft)	kg lb							*1140 *2510	*1140 *2510	*1160 *2560	880 1940	*1020 *2250	820 1810	5.19 (17.0)
2.0 m (6.6 ft)	kg lb					*1730 *3810	*1730 *3810	*1380 *3040	1210 2670	*1240 *2730	860 1900	*1020 *2250	740 1630	5.47 (18.0)
1.0 m (3.3 ft)	kg lb					*2430 *5360	1750 3860	*1680 *3700	1160 2560	*1360 *3000	840 1850	*1080 *2380	720 1590	5.54 (18.2)
0.0 m (0.0 ft)	kg lb			*1480 *3260	*1480 *3260	*2810 *6190	1670 3680	*1880 *4140	1110 2450	*1440 *3170	810 1790	*1210 *2670	730 1610	5.39 (17.7)
-1.0 m (-3.3 ft)	kg lb	*1920 *4230	*1920 *4230	*2710 *5970	*2710 *5970	*2820 *6220	1640 3620	*1920 *4230	1090 2400	*1380 *3040	810 1790	*1380 *3040	810 1790	5.01 (16.4)
-2.0 m (-6.6 ft)	kg lb	*3140 *6920	*3140 *6920	*4070 *8970	3230 7120	*2480 *5470	1660 3660	*1670 *3680	1100 2430			*1440 *3170	1000 2200	4.31 (14.1)
-3.0 m (-9.8 ft)	kg lb			*2450 *5400	*2450 *5400	*1430 *3150	*1430 *3150					*1400 *3090	*1400 *3090	3.02 (9.9)

Model	Type	Boom	Arm	Counterweight	Wheel	Dozer		Outrigger	
HX65A	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	Front	Rear	Front	Rear
		3000	1900	285	-	Up	-	-	-

·  : Rating over-front

·  : Rating over-side or 360 degree

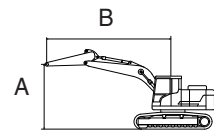














Load point height		Load radius										At max. reach		
		1.0 m (3 ft)		2.0 m (7 ft)		3.0 m (10 ft)		4.0 m (13 ft)		5.0 m (16 ft)		Capacity		Reach
														m (ft)
5.0 m (16.4 ft)	kg lb											*1200 *2650	*1200 *2650	3.64 (11.9)
4.0 m (13.1 ft)	kg lb							*1060 *2340	*1060 *2340			*1080 *2380	920 2030	4.63 (15.2)
3.0 m (9.8 ft)	kg lb							*1140 *2510	*1140 *2510	990 2180	810 1790	930 2050	750 1650	5.19 (17.0)
2.0 m (6.6 ft)	kg lb					*1730 *3810	1710 3770	1380 3040	1110 2450	970 2140	790 1740	840 1850	680 1500	5.47 (18.0)
1.0 m (3.3 ft)	kg lb					2030 4480	1580 3480	1320 2910	1060 2340	950 2090	760 1680	810 1790	650 1430	5.54 (18.2)
0.0 m (0.0 ft)	kg lb			*1480 *3260	*1480 *3260	1950 4300	1510 3330	1270 2800	1010 2230	930 2050	740 1630	830 1830	670 1480	5.39 (17.7)
-1.0 m (-3.3 ft)	kg lb	*1920 *4230	*1920 *4230	*2710 *5970	*2710 *5970	1920 4230	1490 3280	1250 2760	990 2180	920 2030	740 1630	920 2030	740 1630	5.01 (16.4)
-2.0 m (-6.6 ft)	kg lb	*3140 *6920	*3140 *6920	3990 8800	2860 6310	1940 4280	1500 3310	1260 2780	1000 2200			1140 2510	910 2010	4.31 (14.1)
-3.0 m (-9.8 ft)	kg lb			*2450 *5400	*2450 *5400	*1430 *3150	*1430 *3150					*1400 *3090	*1400 *3090	3.02 (9.9)

Model	Type	Boom	Arm	Counterweight	Wheel	Dozer		Outrigger	
HX65A	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	Front	Rear	Front	Rear
		3000	1900	335	-	Down	-	-	-

·  : Rating over-front













·  : Rating over-side or 360 degree



Load point height		Load radius										At max. reach		
		1.0 m (3 ft)		2.0 m (7 ft)		3.0 m (10 ft)		4.0 m (13 ft)		5.0 m (16 ft)		Capacity		Reach
														m (ft)
5.0 m (16.4 ft)	kg lb											*1200 *2650	*1200 *2650	3.64 (11.9)
4.0 m (13.1 ft)	kg lb							*1060 *2340	*1060 *2340			*1080 *2380	1020 2250	4.63 (15.2)
3.0 m (9.8 ft)	kg lb							*1140 *2510	*1140 *2510	*1160 *2560	900 1980	*1020 *2250	840 1850	5.19 (17.0)
2.0 m (6.6 ft)	kg lb					*1730 *3810	*1730 *3810	*1380 *3040	1240 2730	*1240 *2730	880 1940	*1020 *2250	760 1680	5.47 (18.0)
1.0 m (3.3 ft)	kg lb					*2430 *5360	1790 3950	*1680 *3700	1180 2600	*1360 *3000	860 1900	*1080 *2380	730 1610	5.54 (18.2)
0.0 m (0.0 ft)	kg lb			*1480 *3260	*1480 *3260	*2810 *6190	1710 3770	*1880 *4140	1140 2510	*1440 *3170	840 1850	*1210 *2670	750 1650	5.39 (17.7)
-1.0 m (-3.3 ft)	kg lb	*1920 *4230	*1920 *4230	*2710 *5970	*2710 *5970	*2820 *6220	1680 3700	*1920 *4230	1120 2470	*1380 *3040	830 1830	*1380 *3040	830 1830	5.01 (16.4)
-2.0 m (-6.6 ft)	kg lb	*3140 *6920	*3140 *6920	*4070 *8970	3310 7300	*2480 *5470	1700 3750	*1670 *3680	1130 2490			*1440 *3170	1030 2270	4.31 (14.1)
-3.0 m (-9.8 ft)	kg lb			*2450 *5400	*2450 *5400	*1430 *3150	*1430 *3150					*1400 *3090	*1400 *3090	3.02 (9.9)

Model	Type	Boom	Arm	Counterweight	Wheel	Dozer		Outrigger	
HX65A	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	Front	Rear	Front	Rear
		3000	1900	335	-	Up	-	-	-

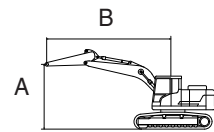














Load point height		Load radius										At max. reach		
		1.0 m (3 ft)		2.0 m (7 ft)		3.0 m (10 ft)		4.0 m (13 ft)		5.0 m (16 ft)		Capacity		Reach
														m (ft)
5.0 m (16.4 ft)	kg lb													
4.0 m (13.1 ft)	kg lb											*820 *1810	820 1810	4.72 (15.5)
3.0 m (9.8 ft)	kg lb							*920 *2030	*920 *2030	920 2030	730 1610	*790 *1740	660 1460	5.27 (17.3)
2.0 m (6.6 ft)	kg lb					*1420 *3130	*1420 *3130	*1160 *2560	1040 2290	900 1980	710 1570	740 1630	580 1280	5.55 (18.2)
1.0 m (3.3 ft)	kg lb					1970 4340	1510 3330	1240 2730	970 2140	860 1900	680 1500	710 1570	550 1210	5.62 (18.4)
0.0 m (0.0 ft)	kg lb			*1830 *4030	*1830 *4030	1860 4100	1420 3130	1180 2600	920 2030	830 1830	650 1430	720 1590	560 1230	5.47 (17.9)
-1.0 m (-3.3 ft)	kg lb	*1930 *4250	*1930 *4250	*2780 *6130	2700 5950	1820 4010	1380 3040	1160 2560	890 1960	820 1810	640 1410	800 1760	620 1370	5.09 (16.7)
-2.0 m (-6.6 ft)	kg lb	*2880 *6350	*2880 *6350	3870 8530	2740 6040	1830 4030	1390 3060	1160 2560	900 1980			1000 2200	780 1720	4.41 (14.5)
-3.0 m (-9.8 ft)	kg lb			*2770 *6110	*2770 *6110	*1640 *3620	1450 3200					*1490 *3280	1330 2930	3.18 (10.4)

Model	Type	Boom	Arm	Counterweight	Wheel	Dozer		Outrigger	
HX65A	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	Front	Rear	Front	Rear
		3000	1900	435	-	Down	-	-	-

·  : Rating over-front

·  : Rating over-side or 360 degree

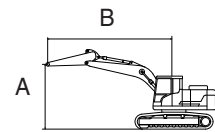














Load point height		Load radius										At max. reach		
		1.0 m (3 ft)		2.0 m (7 ft)		3.0 m (10 ft)		4.0 m (13 ft)		5.0 m (16 ft)		Capacity		Reach
														m (ft)
5.0 m (16.4 ft)	kg lb											*1200 *2650	*1200 *2650	3.64 (11.9)
4.0 m (13.1 ft)	kg lb							*1060 *2340	*1060 *2340			*1080 *2380	1070 2360	4.63 (15.2)
3.0 m (9.8 ft)	kg lb							*1140 *2510	*1140 *2510	*1160 *2560	940 2070	*1020 *2250	880 1940	5.19 (17.0)
2.0 m (6.6 ft)	kg lb					*1730 *3810	*1730 *3810	*1380 *3040	1300 2870	*1240 *2730	920 2030	*1020 *2250	800 1760	5.47 (18.0)
1.0 m (3.3 ft)	kg lb					*2430 *5360	1870 4120	*1680 *3700	1240 2730	*1360 *3000	900 1980	*1080 *2380	770 1700	5.54 (18.2)
0.0 m (0.0 ft)	kg lb			*1480 *3260	*1480 *3260	*2810 *6190	1790 3950	*1880 *4140	1200 2650	*1440 *3170	880 1940	*1210 *2670	790 1740	5.39 (17.7)
-1.0 m (-3.3 ft)	kg lb	*1920 *4230	*1920 *4230	*2710 *5970	*2710 *5970	*2820 *6220	1770 3900	*1920 *4230	1180 2600	*1380 *3040	870 1920	*1380 *3040	870 1920	5.01 (16.4)
-2.0 m (-6.6 ft)	kg lb	*3140 *6920	*3140 *6920	*4070 *8970	3460 7630	*2480 *5470	1780 3920	*1670 *3680	1190 2620			*1440 *3170	1080 2380	4.31 (14.1)
-3.0 m (-9.8 ft)	kg lb			*2450 *5400	*2450 *5400	*1430 *3150	*1430 *3150					*1400 *3090	*1400 *3090	3.02 (9.9)

Model	Type	Boom	Arm	Counterweight	Wheel	Dozer		Outrigger	
HX65A	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	Front	Rear	Front	Rear
		3000	1900	435	-	Up	-	-	-

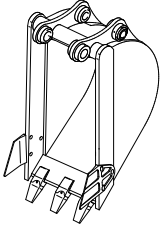
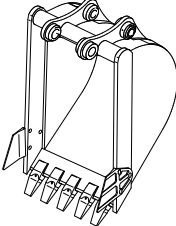
·  : Rating over-front

·  : Rating over-side or 360 degree



Load point height		Load radius										At max. reach		
		1.0 m (3 ft)		2.0 m (7 ft)		3.0 m (10 ft)		4.0 m (13 ft)		5.0 m (16 ft)		Capacity		Reach
														m (ft)
5.0 m (16.4 ft)	kg lb											*1200 *2650	*1200 *2650	3.64 (11.9)
4.0 m (13.1 ft)	kg lb							*1060 *2340	*1060 *2340			*1080 *2380	980 2160	4.63 (15.2)
3.0 m (9.8 ft)	kg lb							*1140 *2510	*1140 *2510	1060 2340	870 1920	1000 2200	810 1790	5.19 (17.0)
2.0 m (6.6 ft)	kg lb					*1730 *3810	*1730 *3810	*1380 *3040	1190 2620	1040 2290	850 1870	900 1980	730 1610	5.47 (18.0)
1.0 m (3.3 ft)	kg lb					2170 4780	1700 3750	1410 3110	1140 2510	1020 2250	820 1810	870 1920	710 1570	5.54 (18.2)
0.0 m (0.0 ft)	kg lb			*1480 *3260	*1480 *3260	2080 4590	1630 3590	1370 3020	1090 2400	1000 2200	800 1760	900 1980	720 1590	5.39 (17.7)
-1.0 m (-3.3 ft)	kg lb	*1920 *4230	*1920 *4230	*2710 *5970	*2710 *5970	2060 4540	1600 3530	1350 2980	1070 2360	990 2180	800 1760	990 2180	800 1760	5.01 (16.4)
-2.0 m (-6.6 ft)	kg lb	*3140 *6920	*3140 *6920	*4070 *8970	3080 6790	2070 4560	1620 3570	1360 3000	1080 2380			1230 2710	990 2180	4.31 (14.1)
-3.0 m (-9.8 ft)	kg lb			*2450 *5400	*2450 *5400	*1430 *3150	*1430 *3150					*1400 *3090	*1400 *3090	3.02 (9.9)

6. BUCKET SELECTION GUIDE

	
0.07m³ SAE heaped bucket	0.18 m³ SAE heaped bucket

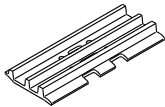
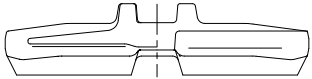
Capacity		Width		Weight	Recommendation
					3.0 m (9' 10") boom
SAE heaped	CECE heaped	Without side cutter	With side cutter		1.6 m (5' 3") arm
0.07 m³ (0.09 yd³)	0.06 m³ (0.08 yd³)	315 mm (12.4")	360 mm (14.2")	115 kg (255 lb)	Applicable for materials with density of 1600 kgf/m³ (2700 lb/yd³) or less
0.18 m³ (0.24 yd³)	0.15 m³ (0.20 yd³)	670 mm (26.4")	740 mm (29.1")	170 kg (375 lb)	

7. UNDERCARRIAGE

1) TRACKS

X-leg type center frame is integrally welded with reinforced box-section track frames. The design includes dry tracks, lubricated rollers, idlers, sprockets, hydraulic track adjusters with shock absorbing springs and assembled track-type tractor shoes with triple grousers.

2) TYPES OF SHOES

Model	Shapes		Triple grouser	Rubber shoe
				
HX65A	Shoe width	mm (in)	380 (15)	400 (16)
	Operating weight	kg (lb)	6250 (13780)	6080 (13400)
	Ground pressure	kgf/cm ² (psi)	0.38 (5.38)	0.35 (4.95)
	Overall width	mm (ft-in)	1880 (6' 2")	1900 (6' 3")

3) NUMBER OF ROLLERS AND SHOES ON EACH SIDE

Item	Quantity
Carrier rollers	1 EA
Track rollers	5 EA
Track shoes (steel)	40 EA

8. SPECIFICATIONS FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	Hyundai DM02VB
Type	4-cycle, turbocharged, intercooled, electronic controlled diesel engine
Cooling method	Water cooling
Number of cylinders and arrangement	4 cylinders, in-line
Firing order	1-3-4-2
Combustion chamber type	Direct injection type
Cylinder borexstroke	90×94 mm (3.5"×3.7")
Piston displacement	2392 cc (146 cu in)
Compression ratio	16.9 : 1
Gross power	65.9 Hp (48.5 kW)
Net power	63.9 Hp (47 kW)
Maximum power	65.9 Hp (48.5 kW)
Pick torque	25 kgf · m (183 lbf · ft)
Engine oil quantity	8.6 L (2.3 U.S. gal)
Dry weight	253 kg (558 lb)
Starting motor	12 V-2.5 kW
Alternator	12 V-90 A

2) MAIN PUMP

Item	Specification
Type	Variable displacement tandem axis piston pumps
Capacity	2×27.5 cc/rev
Maximum pressure	220 kgf/cm ² (3130 psi)
Rated oil flow	2×55 l/min (14.5 U.S. gpm / 12.1 U.K. gpm)
Rated speed	2000 rpm

3) GEAR PUMP

Item	Specification
Type	Fixed displacement gear pump single stage
Capacity	18.3 cc/rev
Maximum pressure	220 kgf/cm ² (3130 psi)
Rated oil flow	33.6 l/min (8.9 U.S. gpm / 7.4 U.K. gpm)

4) MAIN CONTROL VALVE

Item	Specification
Type	Sectional, 10 spools
Operating method	Hydraulic pilot system
Main relief valve pressure	220 kgf/cm ² (3130 psi)
Overload relief valve pressure	240 kgf/cm ² (3410 psi)

5) SWING MOTOR

Item	Specification
Type	Fixed displacement axial piston motor
Capacity	628.7 cc/rev
Relief pressure	230 kgf/cm ² (3280 psi)
Braking system	Automatic, spring applied hydraulic released
Braking torque	272.5 kgf · m (1970 lbf · ft)
Brake release pressure	20~40 kgf/cm ² (284~570 psi)
Reduction gear type	2 - stage planetary

6) TRAVEL MOTOR

Item	Specification
Type	Variable displacement axial piston motor
Relief pressure	350 kgf/cm ² (4980 psi)
Reduction gear type	2-stage planetary
Braking system	Automatic, spring applied hydraulic released
Brake release pressure	9.6 kgf/cm ² (137 psi)
Braking torque	17.2 kgf · m (69.4 lbf · ft)

7) CYLINDER

Item		Specification
Boom cylinder	Bore dia×Rod dia×Stroke	Ø110×Ø60×715 mm
	Cushion	Extend only
Arm cylinder	Bore dia×Rod dia×Stroke	Ø90×Ø55×850 mm
	Cushion	Extend and retract
Bucket cylinder	Bore dia×Rod dia×Stroke	Ø80×Ø50×660 mm
	Cushion	Extend only
Dozer blade	Bore dia×Rod dia×Stroke	Ø110×Ø60×224 mm
	Cushion	Extend only

※ Discoloration of cylinder rod can occur when the friction reduction additive of lubrication oil spreads on the rod surface.

※ Discoloration does not cause any harmful effect on the cylinder performance.

8) SHOE

Item		Width	Ground pressure	Link quantity	Overall width
HX65A	Steel	380 mm (15")	0.38 kgf/cm ² (5.38 psi)	40	1880 mm (6' 2")
	Rubber	400 mm (16")	0.35 kgf/cm ² (4.95 psi)	-	1900 mm (6' 3")

9) BUCKET

Item		Capacity		Tooth quantity	Width	
		SAE heaped	CECE heaped		Without side cutter	With side cutter
HX65A	STD	0.18 m ³ (0.24 yd ³)	0.15 m ³ (0.20 yd ³)	5	670 mm (26.4")	740 mm (29.1")
	OPT	0.07 m ³ (0.09 yd ³)	0.06 m ³ (0.08 yd ³)	3	315 mm (12.4")	360 mm (14.2")

9. RECOMMENDED OILS

HD Hyundai Construction Equipment genuine lubricating oils have been developed to offer the best performance and service life for your equipment. These oils have been tested according to the specifications of HD Hyundai Construction Equipment and, therefore, will meet the highest safety and quality requirements. We recommend that you use only HD Hyundai Construction Equipment genuine lubricating oils and grease officially approved by HD Hyundai Construction Equipment.

Service point	Kind of fluid	Capacity ℓ (U.S. gal)	Ambient temperature °C(°F)								
			-50 (-58)	-30 (-22)	-20 (-4)	-10 (14)	0 (32)	10 (50)	20 (68)	30 (86)	40 (104)
Engine oil pan	Engine oil	8.6 (2.3)	★SAE 5W-40								
							SAE 30				
			SAE 10W								
			SAE 10W-30								
			SAE 15W-40								
Swing drive	Grease	0.2 (0.1)	★NLGI NO.1								
			NLGI NO.2								
Final drive	Gear oil	1.5 (0.4)	★SAE 75W-90								
		1.0×2 (0.3×2)	SAE 80W-90								
Hydraulic tank	Hydraulic oil	Tank; 70 (18.5)	★ISO VG 15								
			ISO VG 32								
		System; 120 (31.7)	ISO VG 46, HBHO VG 46★ ³								
			ISO VG 68								
Fuel tank	Diesel fuel★ ¹	125 (33)	★ASTM D975 NO.1								
			ASTM D975 NO.2								
Fitting (grease nip- ple)	Grease	As required	★NLGI NO.1								
			NLGI NO.2								
Radiator (reservoir tank)	Mixture of antifreeze and water★ ²	11 (2.9)	Ethylene glycol base permanent type (50 : 50)								
			★Ethylene glycol base permanent type (60 : 40)								

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

★ : Cold region (Russia, CIS, Mongolia)

★¹ : Ultra low sulfur diesel

- sulfur content ≤ 15 ppm

★² : Soft water : City water or distilled water

★³ : HD Hyundai Construction Equipment Bio Hydraulic Oil

※ Using any lubricating oils other than HD Hyundai Construction Equipment genuine products may lead to a deterioration of performance and cause damage to major components.

※ Do not mix HD Hyundai Construction Equipment genuine oil with any other lubricating oil as it may result in damage to the systems of major components.

※ Do not use any engine oil other than that specified above, as it may clog the diesel particulate filter(DPF).

※ For HD Hyundai Construction Equipment genuine lubricating oils and grease for use in regions with extremely low temperatures, please contact HD Hyundai Construction Equipment dealers.