SECTION 1 GENERAL

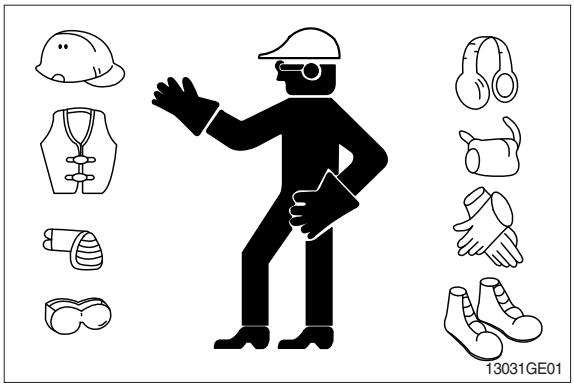
GROUP 1 SAFETY

FOLLOW SAFE PROCEDURE

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

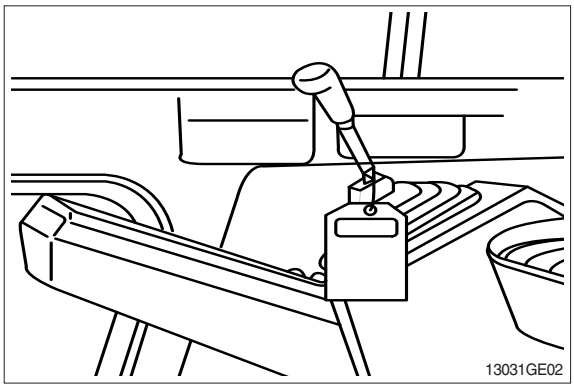
WEAR PROTECTIVE CLOTHING

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



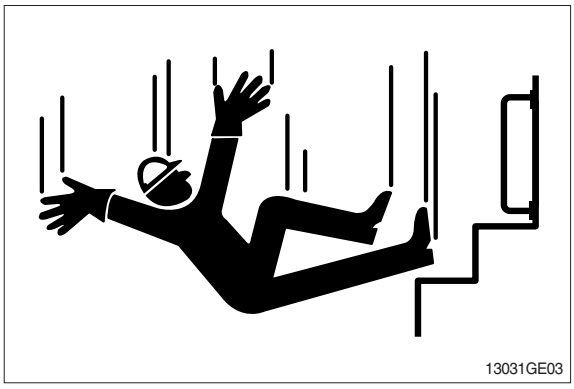
WARN OTHERS OF SERVICE WORK

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.

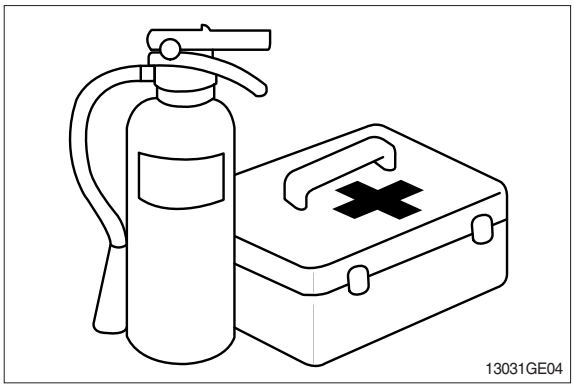


PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

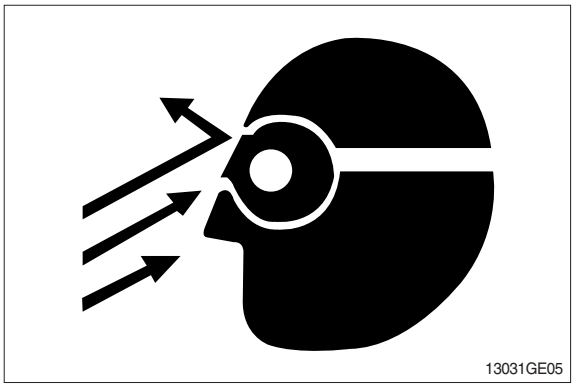
Keep a first aid kit and fire extinguisher handy.

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



PROTECT AGAINST FLYING DEBRIS

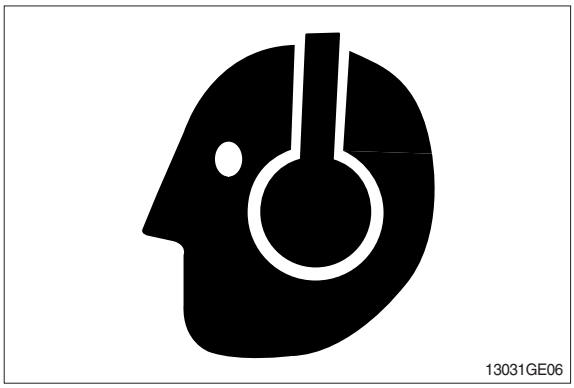
Guard against injury from flying pieces of metal or debris; Wear goggles or safety glasses.



PROTECT AGAINST NOISE

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

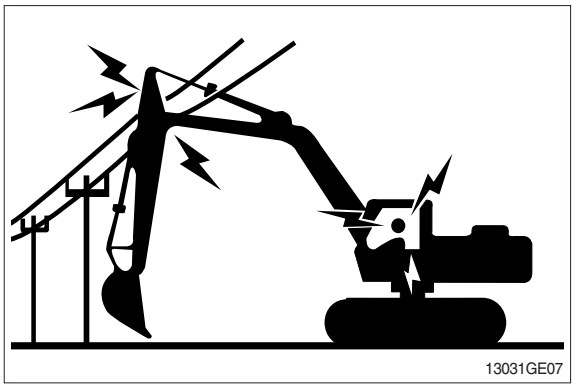
Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



AVOID POWER LINES

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

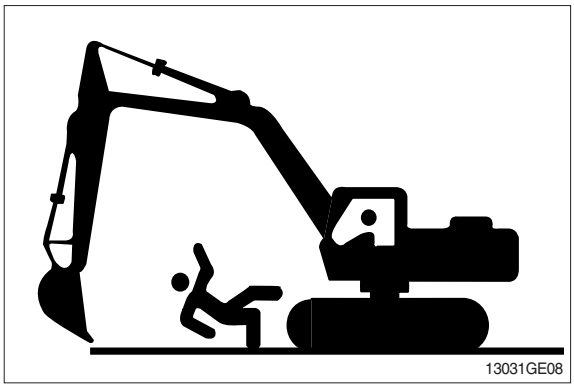
Never move any part of the machine or load closer to electric line than 3m(10ft) plus twice the line insulator length.



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.

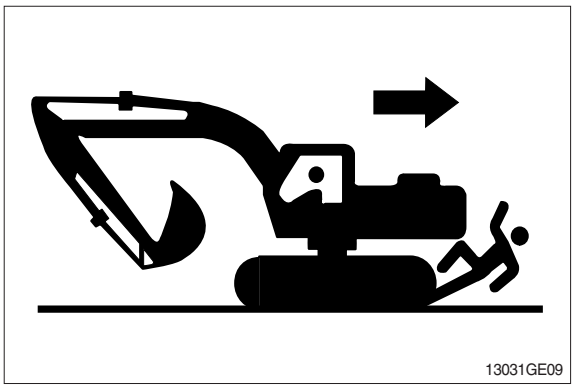


MOVE AND OPERATE MACHINE SAFELY

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 FORM 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

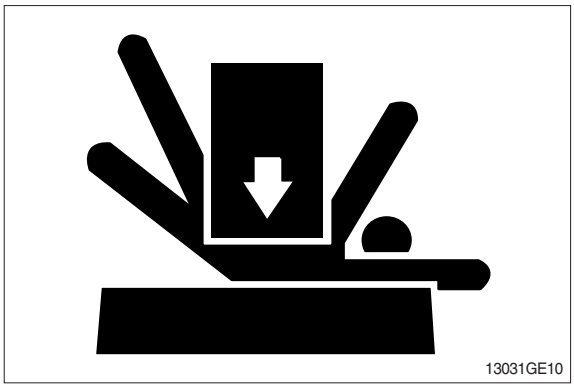
Before working on the machine:

- Park machine on a level surface.
- Lower bucket to the ground.
- Turn auto idle switch off.
- Run engine at 1/2 speed without load for 2 minutes.
- Turn key switch to OFF to stop engine. Remove key from switch.
- Move pilot control shutoff 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.

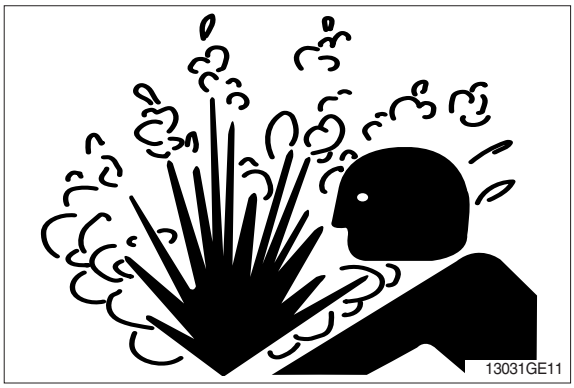
Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load.
Do not work under a machine that is supported solely by a jack.Follow recommended procedures in this manual.



SERVICE COOLING SYSTEM SAFELY

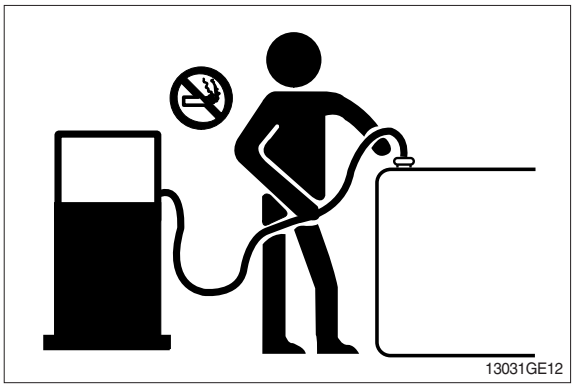
Explosive release of fluids from pressurized cooling system can cause serious burns.

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



HANDLE FLUIDS SAFELY-AVOID FIRES

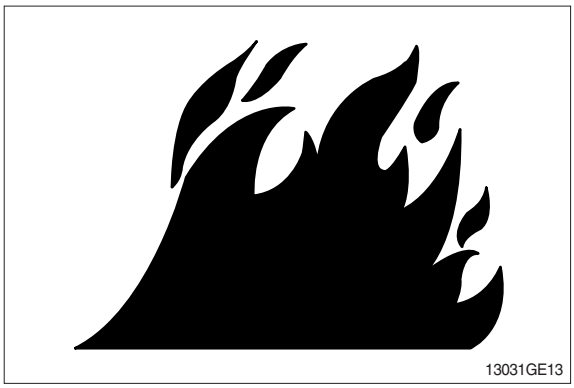
Handle fuel with care; It is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks.
Always stop engine before refueling machine.
Fill fuel tank outdoors.



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

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

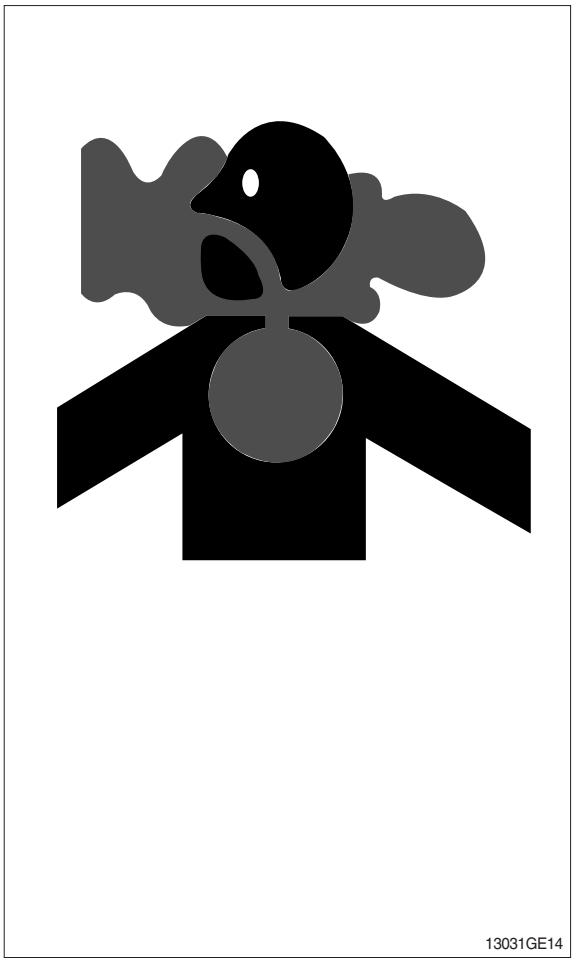
Do not store oily rags; They can ignite and burn spontaneously.



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.

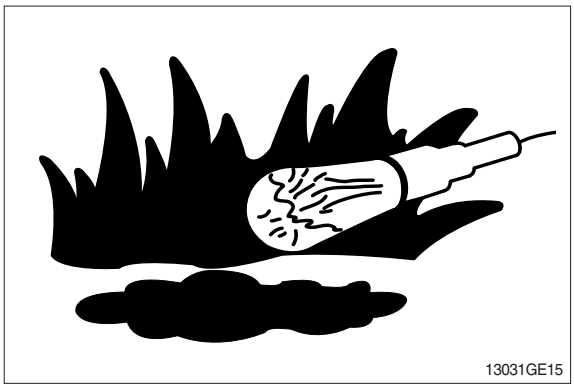
Do all work outside or in a well ventilated area. Dispose of paint and solvent properly.

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

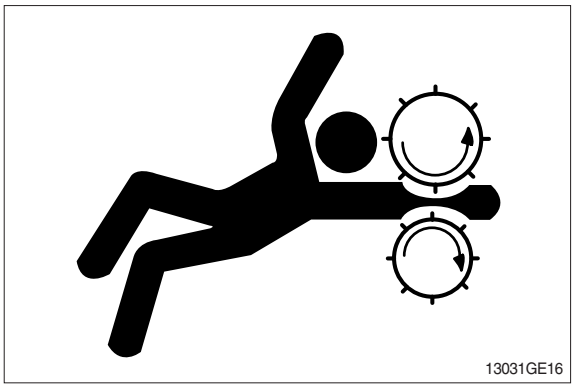
Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.



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.

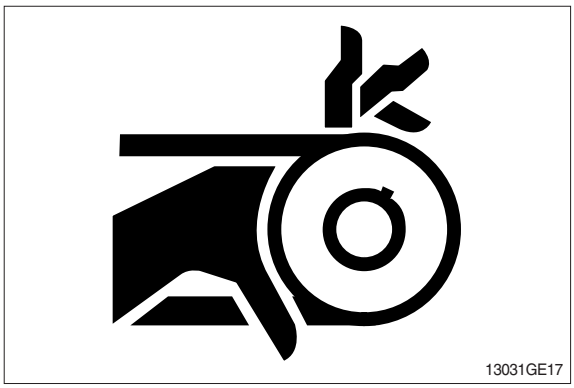
Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.



STAY CLEAR OF MOVING PARTS

Entanglements in moving parts can cause serious injury.

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



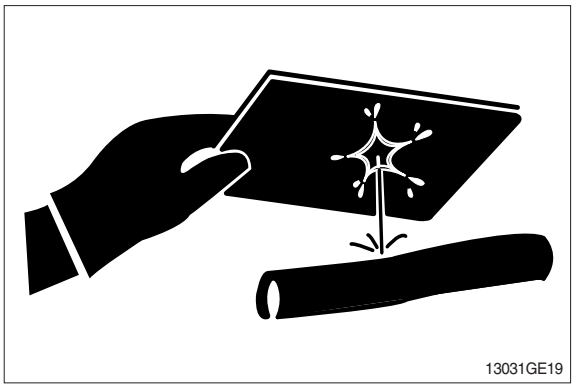
AVOID HIGH PRESSURE FLUIDS

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.

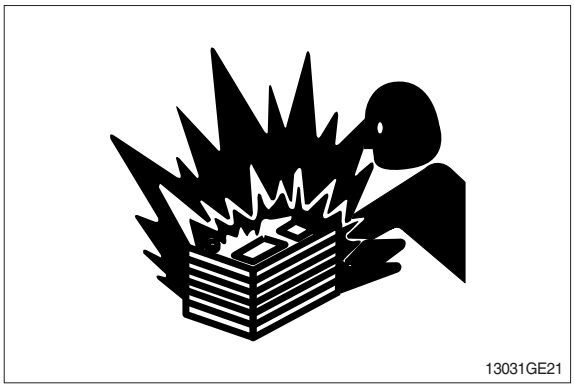
Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area. Install fire resisting guards to protect hoses or other materials.

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:

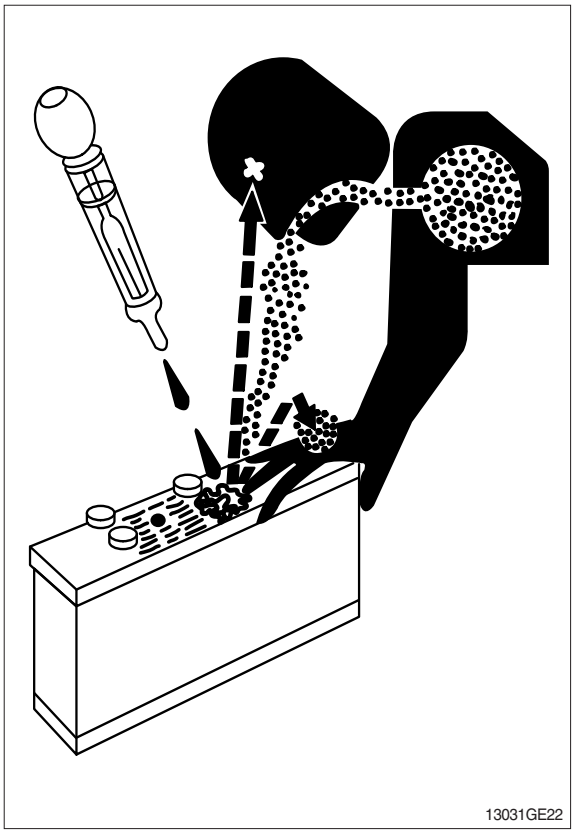
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling of dripping electrolyte.
5. Use proper jump start procedure.

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.



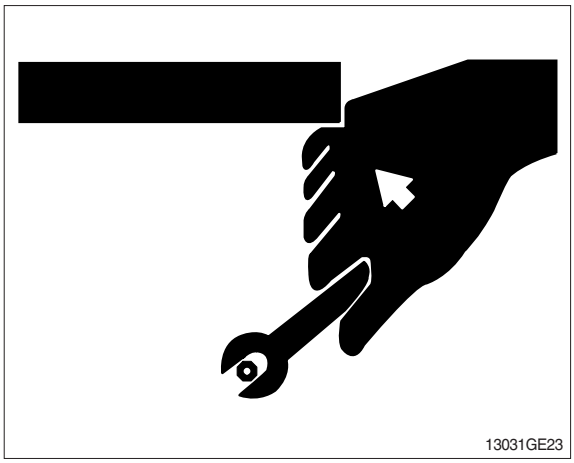
USE TOOLS PROPERLY

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)

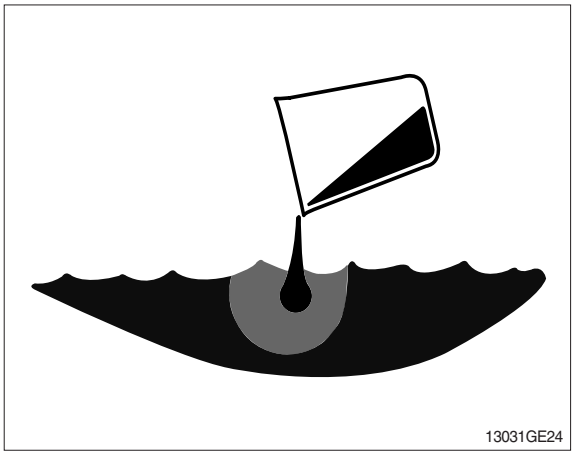


DISPOSE OF FLUIDS PROPERLY

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.

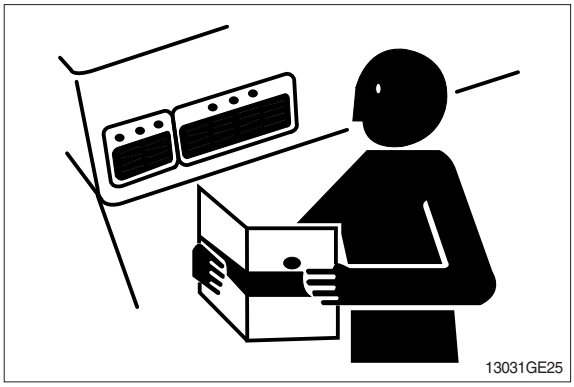
Use proper containers when draining fluids.
Do not use food or beverage containers that may mislead someone into drinking from them.

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 SIGNS

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

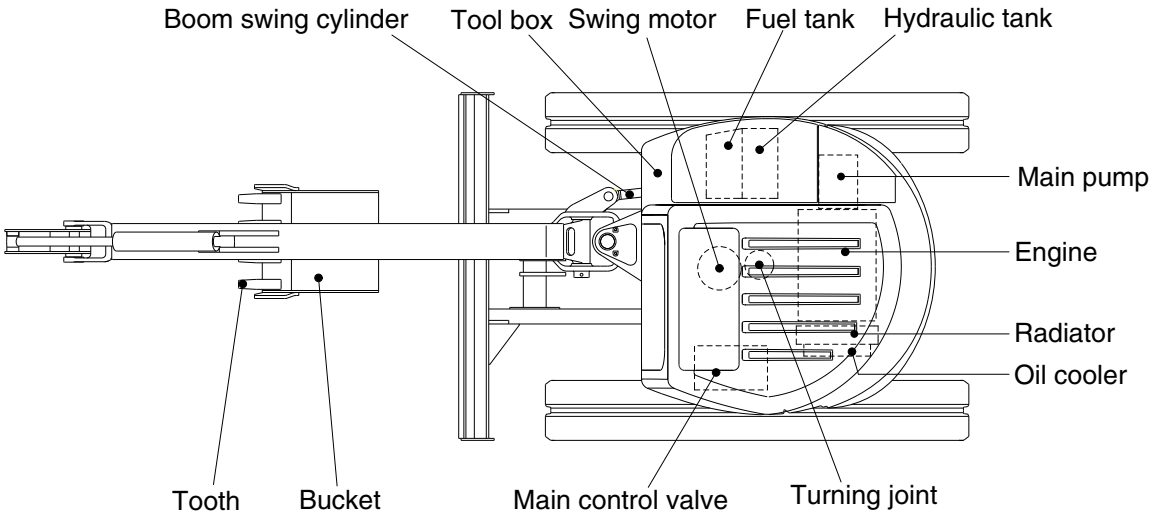


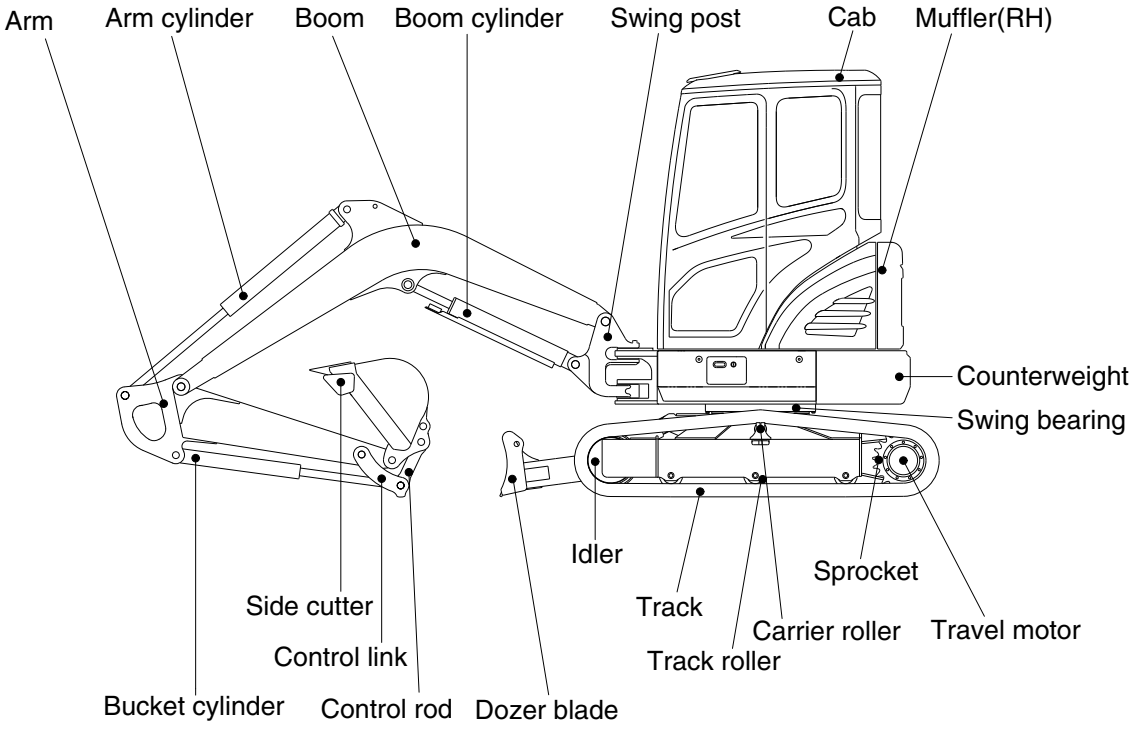
LIVE WITH SAFETY

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

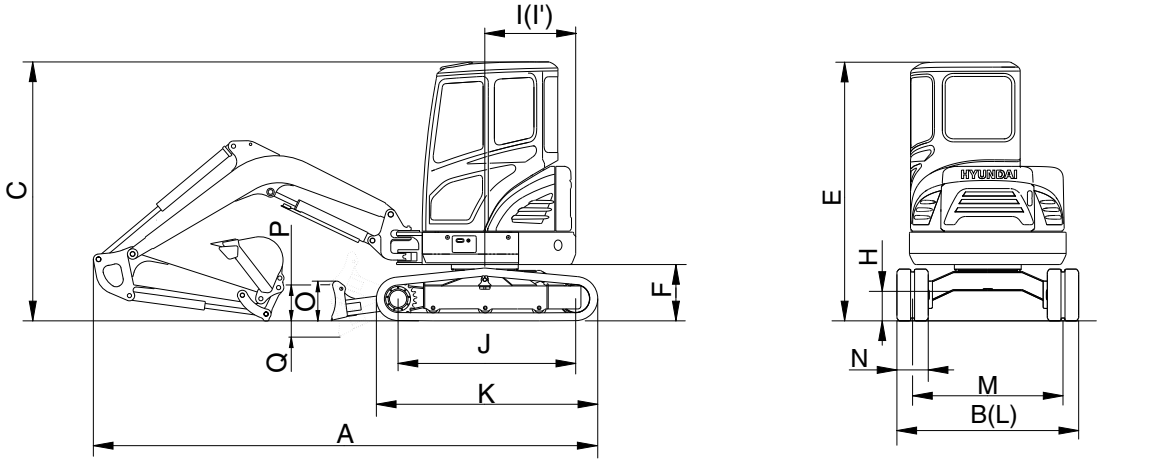




30Z9AK2SP01

2. SPECIFICATIONS

1) 2.03 m (6' 8") MONO BOOM, 1.12 m (3' 8") ARM, WITH BOOM SWING POST

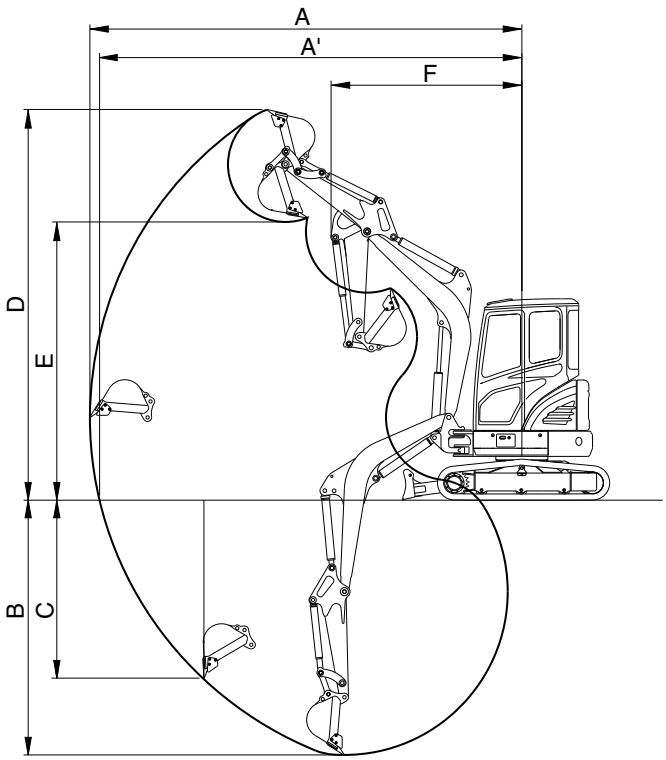


30Z9AK2SP02

Description		Unit	Specification
Operating weight (cabin / canopy)		kg (lb)	3005 (6620) / 2895 (6380)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)	0.08 (0.10)
Overall length	A	mm (ft-in)	4180 (13' 3")
Overall width, with 300 mm shoe	B		1550 (5' 1")
Overall height	C		2500 (8' 2")
Overall height of cab	E		2500 (8' 2")
Ground clearance of counterweight	F		540 (1' 9")
Minimum ground clearance	H		290 (0' 11")
Rear-end distance	I		775 (2' 7")
Rear-end swing radius	I'		775 (2' 7")
Distance between tumblers	J		1550 (4' 11")
Undercarriage length	K		1970 (6' 6")
Undercarriage width	L		1500 (4' 11")
Track gauge	M		1250 (4' 1")
Track shoe width, standard	N		300 (9.8")
Height of blade	O		300 (1' 0")
Ground clearance of blade up	P		350 (1' 2")
Depth of blade down	Q		370 (1' 3")
Travel speed (low/high)		km/hr (mph)	2.4/4.3 (1.5/2.7)
Swing speed		rpm	9.1
Gradeability		Degree (%)	30 (58)
Ground pressure 300 mm rubber shoe (cab / canopy)		kgf/cm^2 (psi)	0.27 (3.84) / 0.26 (3.70)

3. WORKING RANGE

1) 2.03 m (6' 8") MONO BOOM WITH BOOM SWING POST



30Z9AK2SP03

Description		1.12 m (3' 8") Arm
Max digging reach	A	4650 mm (15' 3")
Max digging reach on ground	A'	4515 mm (14' 10")
Max digging depth	B	2500 mm (8' 2")
Max vertical wall digging depth	C	2085 mm (6' 10")
Max digging height	D	4270 mm (14' 10")
Max dumping height	E	2890 mm (9' 6")
Min swing radius	F	2055 mm (6' 9")
Boom swing radius (left/right)		75°/50°
Bucket digging force	SAE	17.9 kN
		1830 kgf
		4030 lbf
	ISO	20.1 kN
		2050 kgf
		4520 lbf
Arm crowd force	SAE	13.1 kN
		1340 kgf
		2950 lbf
	ISO	13.7 kN
		1400 kgf
		3090 lbf

4. WEIGHT

Item	kg	lb
Upperstructure assembly	1640	3620
Main frame weld assembly	310	684
Engine assembly	136	300
Main pump assembly	19	42
Main control valve assembly	25	55
Swing motor assembly	34	75
Hydraulic oil tank assembly	35	77
Fuel tank assembly	15	33
Boom swing post	80	180
Counterweight	230	507
Cab assembly	210	460
Lower chassis assembly	910	2010
Track frame weld assembly	400	880
Swing bearing	50	110
Travel motor assembly	36	80
Turning joint	11	24
Track recoil spring	14	31
Idler	21	45
Carrier roller	3	7
Track roller	10	22
Sprocket	7	15
Rubber track (300 ㎜)	149	328
Dozer blade assembly	125	275
Front attachment assembly (2.03 ㎡ boom, 1.12 ㎡ arm, 0.08 ㎥ SAE heaped bucket)	330	730
2.03 ㎡ boom assembly	94	207
1.12 ㎡ arm assembly	54	119
0.08 ㎥ SAE heaped bucket	62	137
Boom cylinder assembly	26	57
Arm cylinder assembly	26	57
Bucket cylinder assembly	20	44
Bucket control link assembly	20	45
Dozer cylinder assembly	24	53
Boom swing cylinder assembly	23	51

5. LIFTING CAPACITIES

1) CANOPY TYPE

(1) 2.03 m (6' 8") boom, 1.12 m (3' 8") arm equipped with 0.08 m³ (SAE heaped) bucket and 300 mm (12") rubber track, the dozer blade up with 230 kg (507 lb) counterweight.

· : Rating over-front · : Rating over-side or 360 degree

Load point height		Load radius								At max. reach		
		2.0 m (7.0 ft)		2.5 m (8.0 ft)		3.0 m (10.0 ft)		3.5 m (11.0 ft)		Capacity		Reach
												m (ft)
3.5 m (11.0 ft)	kg									460	440	3.23
	lb									1010	970	(10.6)
3.0 m (10.0 ft)	kg					520	490			350	340	3.73
	lb					1150	1080			770	750	(12.2)
2.5 m (8.0 ft)	kg					510	480	390	370	300	290	4.06
	lb					1120	1060	860	820	660	640	(13.3)
2.0 m (7.0 ft)	kg					500	470	380	360	270	260	4.26
	lb					1100	1040	840	790	600	570	(14.0)
1.5 m (5.0 ft)	kg	980	890	670	620	490	460	370	360	260	240	4.36
	lb	2160	1960	1480	1370	1080	1010	820	790	570	530	(14.3)
1.0 m (3.0 ft)	kg	920	830	630	590	470	440	370	350	250	240	4.39
	lb	2030	1830	1390	1300	1040	970	820	770	550	530	(14.4)
0.5 m (2.0 ft)	kg	880	800	610	570	460	430	360	340	250	240	4.33
	lb	1940	1760	1340	1260	1010	950	790	750	550	530	(14.2)
Ground Line	kg	870	790	600	550	450	420	350	330	270	250	4.18
	lb	1920	1740	1320	1210	990	930	770	730	600	550	(13.7)
-0.5 m (-2.0 ft)	kg	870	790	590	550	440	420	350	330	300	280	3.93
	lb	1920	1740	1300	1210	970	930	770	730	660	620	(12.9)
-1.0 m (-3.0 ft)	kg	880	800	600	550	440	420			350	330	3.53
	lb	1940	1760	1320	1210	970	930			770	730	(11.6)
-1.5 m (-5.0 ft)	kg	890	810	610	560					500	460	2.90
	lb	1960	1790	1340	1230					1100	1010	(9.5)
-2.5 m (-8.0 ft)	kg									420	400	3.30
	lb									930	880	(10.8)

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 load point is a hook located on the back of the bucket.

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 Hyundai dealer regarding the lifting capacities for specific work tools and attachments.

※ Please be aware of the local regulations and instructions for lifting operations.

⚠ Failure to comply to the rated load can cause possible personal injury or property damage.
Make adjustments to the rated load as necessory for non-standard configurations.

(2) 2.03 m (6' 8") boom, 1.12 m (3' 8") arm equipped with 0.08 m³ (SAE heaped) bucket and 300 mm (12") rubber track, the dozer blade down with 230 kg (507 lb) counterweight.

·  : Rating over-front ·  : Rating over-side or 360 degree

Load point height		Load radius								At max. reach		
		2.0 m (7.0 ft)		2.5 m (8.0 ft)		3.0 m (10.0 ft)		3.5 m (11.0 ft)		Capacity		Reach
												m (ft)
3.5 m (11.0 ft)	kg									*550	450	3.23
	lb									*1210	990	(10.6)
3.0 m (10.0 ft)	kg					*580	510			*560	350	3.73
	lb					*1280	1120			*1230	770	(12.2)
2.5 m (8.0 ft)	kg					*590	500	*600	380	*570	300	4.06
	lb					*1300	1100	*1320	840	*1260	660	(13.3)
2.0 m (7.0 ft)	kg					*670	490	*650	380	*590	270	4.62
	lb					*1480	1080	*1430	840	*1300	600	(14.0)
1.5 m (5.0 ft)	kg	*1300	930	*940	640	*790	480	*700	370	*600	260	4.36
	lb	*2870	2050	*2070	1410	*1740	1060	*1540	820	*1320	570	(14.3)
1.0 m (3.0 ft)	kg	*1860	870	*1190	610	*920	460	*770	360	*620	250	4.39
	lb	*4100	1920	*2620	1340	*2030	1010	*1700	790	*1370	550	(14.4)
0.5 m (2.0 ft)	kg	*1660	840	*1370	590	*1020	450	*830	350	*640	250	4.33
	lb	*3660	1850	*3020	1300	*2250	990	*1830	770	*1410	550	(14.2)
Ground Line	kg	*1910	830	*1450	580	*1080	440	*860	350	*650	270	4.18
	lb	*4210	1830	*3200	1280	*2380	970	*1900	770	*1430	600	(13.7)
-0.5 m (-2.0 ft)	kg	*2030	830	*1430	580	*1070	430	*840	340	*660	290	3.93
	lb	*4480	1830	*3150	1280	*2360	950	*1850	750	*1460	640	(12.9)
-1.0 m (-3.0 ft)	kg	*1820	830	*1300	580	*980	440			*660	350	3.53
	lb	*4010	1830	*2870	1280	*2160	970			*1460	770	(11.6)
-1.5 m (-5.0 ft)	kg	*1430	850	*1030	590					*590	480	2.90
	lb	*3150	1870	*2270	1300					*1300	1060	(9.5)
-2.5 m (-8.0 ft)	kg									*450	420	3.30
	lb									*990	930	(10.8)

2) CAB TYPE

(1) 2.03 m (6' 8") boom, 1.12 m (3' 8") arm equipped with 0.08 m³ (SAE heaped) bucket and 300 mm (12") rubber track, the dozer blade up with 230 kg (507 lb) counterweight.

· : Rating over-front · : Rating over-side or 360 degree

Load point height		Load radius								At max. reach		
		2.0 m (7.0 ft)		2.5 m (8.0 ft)		3.0 m (10.0 ft)		3.5 m (11.0 ft)		Capacity		Reach
												m (ft)
3.5 m (11.0 ft)	kg									500	470	3.23
	lb									1100	1040	(10.6)
3.0 m (10.0 ft)	kg					560	520			390	360	3.73
	lb					1230	1150			860	790	(12.2)
2.5 m (8.0 ft)	kg					560	520	420	400	330	310	4.06
	lb					1230	1150	930	880	730	680	(13.3)
2.0 m (7.0 ft)	kg					550	510	420	390	300	280	4.26
	lb					1210	1120	930	860	660	620	(14.0)
1.5 m (5.0 ft)	kg	1060	950	720	660	530	490	410	380	280	270	4.36
	lb	2340	2090	1590	1460	1170	1080	900	840	620	600	(14.3)
1.0 m (3.0 ft)	kg	990	890	690	630	510	480	400	370	280	260	4.39
	lb	2180	1960	1520	1390	1120	1060	880	820	620	570	(14.4)
0.5 m (2.0 ft)	kg	960	860	660	610	500	460	390	370	280	260	4.33
	lb	2120	1900	1460	1340	1100	1010	860	820	620	570	(14.2)
Ground Line	kg	950	850	650	600	490	450	380	360	290	280	4.18
	lb	2090	1870	1430	1320	1080	990	840	790	640	620	(13.7)
-0.5 m (-2.0 ft)	kg	950	850	650	590	480	450	380	360	320	310	3.93
	lb	2090	1870	1430	1300	1060	990	840	790	710	680	(12.9)
-1.0 m (-3.0 ft)	kg	950	860	650	600	490	450			390	360	3.53
	lb	2090	1900	1430	1320	1080	990			860	790	(11.6)
-1.5 m (-5.0 ft)	kg	970	870	660	610					540	500	2.90
	lb	2140	1920	1460	1340					1190	1100	(9.5)
-2.5 m (-8.0 ft)	kg									*450	430	3.30
	lb									*990	950	(10.8)

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 load point is a hook located on the back of the bucket.

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 Hyundai dealer regarding the lifting capacities for specific work tools and attachments.

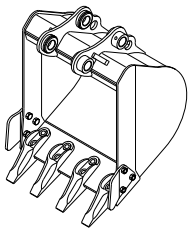
⚠ Failure to comply to the rated load can cause possible personal injury or property damage.
Make adjustments to the rated load as necessory for non-standard configurations.

(2) 2.03 m (6' 8") boom, 1.12 m (3' 8") arm equipped with 0.08 m³ (SAE heaped) bucket and 300 mm (12") rubber track, the dozer blade down with 230 kg (507 lb) counterweight.

· : Rating over-front · : Rating over-side or 360 degree

Load point height		Load radius								At max. reach		
		2.0 m (7.0 ft)		2.5 m (8.0 ft)		3.0 m (10.0 ft)		3.5 m (11.0 ft)		Capacity		Reach
												m (ft)
3.5 m (11.0 ft)	kg									*550	480	3.23
	lb									*1210	1060	(10.6)
3.0 m (10.0 ft)	kg					*580	540			*560	380	3.73
	lb					*1280	1190			*1230	840	(12.2)
2.5 m (8.0 ft)	kg					*590	540	*600	410	*570	320	4.06
	lb					*1300	1190	*1320	900	*1260	710	(13.3)
2.0 m (7.0 ft)	kg					*670	530	*650	410	*590	290	4.62
	lb					*1480	1170	*1430	900	*1300	640	(14.0)
1.5 m (5.0 ft)	kg	*1300	1000	*940	690	*790	510	*700	400	*600	280	4.36
	lb	*2870	2200	*2070	1520	*1740	1120	*1540	880	*1320	620	(14.3)
1.0 m (3.0 ft)	kg	*1860	930	*1190	660	*920	500	*770	390	*620	270	4.39
	lb	*4100	2050	*2620	1460	*2030	1100	*1700	860	*1370	600	(14.4)
0.5 m (2.0 ft)	kg	*1660	900	*1370	640	*1020	480	*830	380	*640	270	4.33
	lb	*3660	1980	*3020	1410	*2250	1060	*1830	840	*1410	600	(14.2)
Ground Line	kg	*1910	890	*1450	620	*1080	470	*860	370	*650	290	4.18
	lb	*4210	1960	*3200	1370	*2380	1040	*1900	820	*1430	640	(13.7)
-0.5 m (-2.0 ft)	kg	*2030	890	*1430	620	*1070	470	*840	370	*660	320	3.93
	lb	*4480	1960	*3150	1370	*2360	1040	*1850	820	*1460	710	(12.9)
-1.0 m (-3.0 ft)	kg	*1820	900	*1300	620	*980	470			*660	380	3.53
	lb	*4010	1980	*2870	1370	*2160	1040			*1460	840	(11.6)
-1.5 m (-5.0 ft)	kg	*1430	910	*1030	630					*590	520	2.90
	lb	*3150	2010	*2270	1390					*1300	1150	(9.5)
-2.5 m (-8.0 ft)	kg									*450	450	3.30
	lb									*990	990	(10.8)

6. BUCKET SELECTION GUIDE



0.08 m^3 SAE
heaped bucket

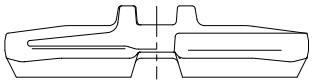
Capacity		Width		Weight	Recommendation
					2.03 m (6' 8") boom
SAE heaped	CECE heaped	Without side cutter	With side cutter		1.12 m (3' 8") arm
0.08m^3 (0.10 yd^3)	0.06 m^3 (0.08 yd^3)	450 mm (17.7")	510 mm (20")	60 kg (132 lb)	Applicable for materials with density of 1600 kgf/m^3 (2700 lb /yd^3) or less

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		Rubber track	
				
			Cab	Canopy
R30Z-9AK	Shoe width	mm (in)	300 (12")	300 (12")
	Operating weight	kg (lb)	3005 (6620)	2895 (6380)
	Ground pressure	kgf/cm^2 (psi)	0.29 (4.12)	0.27 (3.84)
	Overall width	mm (ft-in)	1550 (5' 1")	1550 (5' 1")

(3) NUMBER OF ROLLERS AND SHOES ON EACH SIDE

Item	Quantity
Carrier rollers	1 EA
Track rollers	3 EA

8. SPECIFICATIONS FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	Kubota D1305
Type	4-cycle vertical overhead valve, diesel fuel
Cooling method	Water cooling
Number of cylinders and arrangement	3 cylinders, in-line
Firing order	1-2-3
Combustion chamber type	Swirl chamber type
Cylinder bore × stroke	78 × 88 mm (3.07" × 3.46")
Piston displacement	1261 cc (77.0 cu in)
Compression ratio	24 : 1
Rated gross horse power (SAE J1995)	24.9 Hp at 2400 rpm (18.5 kW at 2400 rpm)
Maximum torque at 1600 rpm	8.3 kgf · m (60.0 lbf · ft)
Engine oil quantity	5.7 ℓ (1.5 U.S. gal)
Dry weight	102 kg (225 lb)
High idling speed	2350 ± 50 rpm
Low idling speed	1400 ± 50 rpm
Rated fuel consumption	192 g/Hp · hr at 2400 rpm (257 g/kW · hr at 2400 rpm)
Starting motor	12V-1.4 kW
Alternator	12V-40 A
Battery	1 × 12 V × 58 Ah (5h rating)

2) MAIN PUMP

Item	Specification
Type	Variable displacement tandem axis piston pumps
Capacity	2 × 12 cc/rev
Rated oil flow	2 × 27.6 ℓ /min (7.3 U.S. gpm / 6.1 U.K. gpm)
Rated speed	2300 rpm

3) GEAR PUMP

Item	Specification
Type	Fixed displacement gear pump single stage
Capacity	8.5/4.5 cc/rev
Rated oil flow	19.6/10.4 ℓ /min (5.2/2.7 U.S. gpm / 4.3/2.3 U.K. gpm)

4) MAIN CONTROL VALVE

Item	Specification
Type	Sectional, 9 spools (12 blocks)
Operating method	Hydraulic pilot system
Main relief valve pressure : P1, P2 / P3	220 kgf/cm^2 (3130 psi) / 175 kgf/cm^2 (2490 psi)
Overload relief valve pressure	240 kgf/cm^2 (3410 psi)

5) SWING MOTOR

Item	Specification
Type	Fixed displacement axial piston motor
Capacity	12.5 cc/rev
Relief pressure	170 kgf/cm^2 (2420 psi)
Braking system	Automatic, spring applied hydraulic released
Braking torque	7.0 kgf · m (50.6 lbf · ft)
Brake release pressure	25~50 kgf/cm^2 (356~710 psi)
Reduction gear type	2 - stage planetary

6) TRAVEL MOTOR

Item	Specification
Type	Variable displacement axial piston motor
Relief pressure	220 kgf/cm^2 (3130 psi)
Reduction gear type	2-stage planetary
Braking system	Automatic, spring applied hydraulic released
Brake release pressure	19 kgf/cm^2 (270 psi)
Braking torque	5.7 kgf · m (41 lbf · ft)

7) CYLINDER

Item		Specification
Boom cylinder	Bore dia × Rod dia × Stroke	ø 75 × ø 45 × 565 mm
	Cushion	Extend only
Arm cylinder	Bore dia × Rod dia × Stroke	ø 70 × ø 45 × 500 mm
	Cushion	Extend and retract
Bucket cylinder	Bore dia × Rod dia × Stroke	ø 55 × ø 35 × 420 mm
	Cushion	-
Boom swing cylinder	Bore dia × Rod dia × Stroke	ø 75 × ø 40 × 400 mm
	Cushion	-
Dozer cylinder	Bore dia × Rod dia × Stroke	ø 95 × ø 50 × 140 mm
	Cushion	-

※ **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) BUCKET

Item	Capacity		Tooth quantity	Width	
	SAE heaped	CECE heaped		Without side cutter	With side cutter
Standard	0.08 m^3 (0.10 yd^3)	0.06 m^3 (0.08 yd^3)	4	450 mm (17.7")	510 mm (20")

9. RECOMMENDED OILS

HYUNDAI 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 HYUNDAI and, therefore, will meet the highest safety and quality requirements.

We recommend that you use only HYUNDAI genuine lubricating oils and grease officially approved by HYUNDAI.

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	5.7 (1.5)	★SAE 5W-40 SAE 30 SAE 10W SAE 10W-30 SAE 15W-40
Final drive	Gear oil	0.6×2 (0.16×2)	★SAE 75W-90 SAE 85W-140
Hydraulic tank	Hydraulic oil	Tank; 27 (7.1) System; 55 (14.5)	★ISO VG 15 ISO VG 46, HBHO VG 46★3 ISO VG 68
Fuel tank	Diesel fuel★1	30 (7.9)	★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 soft water★2	5.0 (1.3)	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
UTTO : Universal Tractor Transmission Oil

★ : Cold region
Russia, CIS, Mongolia

★1 : Ultra low sulfur diesel
- sulfur content ≤ 15 ppm

★2 : Soft water
City water or distilled water

★3 : Hyundai Bio Hydraulic Oil
- For more information, contact HYUNDAI dealers.

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

※ Do not mix HYUNDAI 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 HYUNDAI genuine lubricating oils and grease for use in regions with extremely low temperatures, please contact HYUNDAI dealers.