HYUNDAI
CONSTRUCTION EQUIPMENT

HX220AL

CRAWLER EXCAVATOR

SERVICE MANUAL

Table of Content

1. STRUCTURE

This service manual has been prepared as an aid to improve the quality of repairs by giving the serviceman an accurate understanding of the product and by showing him the correct way to perform repairs and make judgements. Make sure you understand the contents of this manual and use it to full effect at every opportunity.
This service manual mainly contains the necessary technical information for operations performed in a service workshop.
For ease of understanding, the manual is divided into the following sections.

SECTION 1 GENERAL
This section explains the safety hints and gives the specification of the machine and major components.

SECTION 2 STRUCTURE AND FUNCTION
This section explains the structure and function of each component. It serves not only to give an understanding of the structure, but also serves as reference material for troubleshooting.

SECTION 3 HYDRAULIC SYSTEM
This section explains the hydraulic circuit, single and combined operation.

SECTION 4 ELECTRICAL SYSTEM
This section explains the electrical circuit, monitoring system and each component. It serves not only to give an understanding electrical system, but also serves as reference material for trouble shooting.

SECTION 5 MECHATRONICS SYSTEM
This section explains the computer aided power optimization system and each component.

SECTION 6 TROUBLESHOOTING
This section explains the troubleshooting charts correlating **problems** to **causes**.

SECTION 7 MAINTENANCE STANDARD
This section gives the judgement standards when inspecting disassembled parts.

SECTION 8 DISASSEMBLY AND ASSEMBLY
This section explains the order to be followed when removing, installing, disassembling or assembling each component, as well as precautions to be taken for these operations.

The specifications contained in this shop manual are subject to change at any time and without any advance notice. Contact your HYUNDAI distributor for the latest information.

2. HOW TO READ THE SERVICE MANUAL

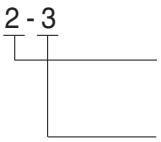
Distribution and updating

Any additions, amendments or other changes will be sent to HYUNDAI distributors.

Get the most up-to-date information before you start any work.

Filing method

1. See the page number on the bottom of the page.
   File the pages in correct order.
2. Following examples shows how to read the page number.
   Example 1



Item number (2. Structure and Function)

Consecutive page number for each item.

3. Additional pages : Additional pages are indicated by a hyphen (-) and number after the page number. File as in the example.

8 - 4
8 - 4 - 1
8 - 4 - 2] Added pages
8 - 5

Revised edition mark (①②③…)

When a manual is revised, an edition mark is recorded on the bottom outside corner of the pages.

Revisions

Revised pages are shown at the list of revised pages on the between the contents page and section 1 page.

Symbols

So that the shop manual can be of ample practical use, important places for safety and quality are marked with the following symbols.

Symbol	Item	Remarks
	Safety	Special safety precautions are necessary when performing the work.
		Extra special safety precautions are necessary when performing the work because it is under internal pressure.
	Caution	Special technical precautions or other precautions for preserving standards are necessary when performing the work.

3. CONVERSION TABLE

Method of using the Conversion Table

The Conversion Table in this section is provided to enable simple conversion of figures. For details of the method of using the Conversion Table, see the example given below.

Example

1. Method of using the Conversion Table to convert from millimeters to inches

Convert 55mm into inches.

(1) Locate the number 50 in the vertical column at the left side, take this as ⓐ, then draw a horizontal line from ⓐ.

(2) Locate the number 5 in the row across the top, take this as ⓑ, then draw a perpendicular line down from ⓑ.

(3) Take the point where the two lines cross as ⓒ. This point ⓒ gives the value when converting from millimeters to inches. Therefore, 55 mm = 2.165 inches.

2. Convert 550 mm into inches.

(1) The number 550 does not appear in the table, so divide by 10 (Move the decimal point one place to the left) to convert it to 55 mm.

(2) Carry out the same procedure as above to convert 55 mm to 2.165 inches.

(3) The original value (550 mm) was divided by 10, so multiply 2.165 inches by 10 (Move the decimal point one place to the right) to return to the original value.
This gives 550 mm = 21.65 inches.

Millimeters to inches

1 mm = 0.03937 in

	0	1	2	3	4	5 (ⓑ)	6	7	8	9
0		0.039	0.079	0.118	0.157	0.197	0.236	0.276	0.315	0.354
10	0.394	0.433	0.472	0.512	0.551	0.591	0.630	0.669	0.709	0.748
20	0.787	0.827	0.866	0.906	0.945	0.984	1.024	1.063	1.102	1.142
30	1.181	1.220	1.260	1.299	1.339	1.378	1.417	1.457	1.496	1.536
40	1.575	1.614	1.654	1.693	1.732	1.772	1.811	1.850	1.890	1.929
ⓐ 50	1.969	2.008	2.047	2.087	2.126	ⓒ 2.165	2.205	2.244	2.283	2.323
60	2.362	2.402	2.441	2.480	2.520	2.559	2.598	2.638	2.677	2.717
70	2.756	2.795	2.835	2.874	2.913	2.953	2.992	3.032	3.071	3.110
80	3.150	3.189	3.228	3.268	3.307	3.346	3.386	3.425	3.465	3.504
90	3.543	3.583	3.622	3.661	3.701	3.740	3.780	3.819	3.858	3.898

Millimeters to inches

1mm = 0.03937in

	0	1	2	3	4	5	6	7	8	9
0		0.039	0.079	0.118	0.157	0.197	0.236	0.276	0.315	0.354
10	0.394	0.433	0.472	0.512	0.551	0.591	0.630	0.669	0.709	0.748
20	0.787	0.827	0.866	0.906	0.945	0.984	1.024	1.063	1.102	1.142
30	1.181	1.220	1.260	1.299	1.339	1.378	1.417	1.457	1.496	1.536
40	1.575	1.614	1.654	1.693	1.732	1.772	1.811	1.850	1.890	1.929
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80	3.150	3.189	3.228	3.268	3.307	3.346	3.386	3.425	3.465	3.504
90	3.543	3.583	3.622	3.661	3.701	3.740	3.780	3.819	3.858	3.898

Kilogram to Pound

1kg = 2.2046lb

	0	1	2	3	4	5	6	7	8	9
0		2.20	4.41	6.61	8.82	11.02	13.23	15.43	17.64	19.84
10	22.05	24.25	26.46	28.66	30.86	33.07	35.27	37.48	39.68	41.89
20	44.09	46.30	48.50	50.71	51.91	55.12	57.32	59.5.	61.73	63.93
30	66.14	68.34	70.55	72.75	74.96	77.16	79.37	81.57	83.78	85.98
40	88.18	90.39	92.59	94.80	97.00	99.21	101.41	103.62	105.82	108.03
50	110.23	112.44	114.64	116.85	119.05	121.25	123.46	125.66	127.87	130.07
60	132.28	134.48	136.69	138.89	141.10	143.30	145.51	147.71	149.91	152.12
70	154.32	156.53	158.73	160.94	163.14	165.35	167.55	169.76	171.96	174.17
80	176.37	178.57	180.78	182.98	185.19	187.39	189.60	191.80	194.01	196.21
90	198.42	200.62	202.83	205.03	207.24	209.44	211.64	213.85	216.05	218.26

Liter to U.S. Gallon

1 ℓ = 0.2642 U.S.Gal

	0	1	2	3	4	5	6	7	8	9
0		0.264	0.528	0.793	1.057	1.321	1.585	1.849	2.113	2.378
10	2.642	2.906	3.170	3.434	3.698	3.963	4.227	4.491	4.755	5.019
20	5.283	5.548	5.812	6.6076	6.340	6.604	6.869	7.133	7.397	7.661
30	7.925	8.189	8.454	8.718	8.982	9.246	9.510	9.774	10.039	10.303
40	10.567	10.831	11.095	11.359	11.624	11.888	12.152	12.416	12.680	12.944
50	13.209	13.473	13.737	14.001	14.265	14.529	14.795	15.058	15.322	15.586
60	15.850	16.115	16.379	16.643	16.907	17.171	17.435	17.700	17.964	18.228
70	18.492	18.756	19.020	19.285	19.549	19.813	20.077	20.341	20.605	20.870
80	21.134	21.398	21.662	21.926	22.190	22.455	22.719	22.983	23.247	23.511
90	23.775	24.040	24.304	24.568	24.832	25.096	25.631	25.625	25.889	26.153

Liter to U.K. Gallon

1 ℓ = 0.21997 U.K.Gal

	0	1	2	3	4	5	6	7	8	9
0		0.220	0.440	0.660	0.880	1.100	1.320	1.540	1.760	1.980
10	2.200	2.420	2.640	2.860	3.080	3.300	3.520	3.740	3.950	4.179
20	4.399	4.619	4.839	5.059	5.279	5.499	5.719	5.939	6.159	6.379
30	6.599	6.819	7.039	7.259	7.479	7.969	7.919	8.139	8.359	8.579
40	8.799	9.019	9.239	9.459	9.679	9.899	10.119	10.339	10.559	10.778
50	10.998	11.281	11.438	11.658	11.878	12.098	12.318	12.528	12.758	12.978
60	13.198	13.418	13.638	13.858	14.078	14.298	14.518	14.738	14.958	15.178
70	15.398	15.618	15.838	16.058	16.278	16.498	16.718	16.938	17.158	17.378
80	17.598	17.818	18.037	18.257	18.477	18.697	18.917	19.137	19.357	19.577
90	19.797	20.017	20.237	20.457	20.677	20.897	21.117	21.337	21.557	21.777

kgf · m to lbf · ft

1kgf · m = 7.233lbf · ft

	0	1	2	3	4	5	6	7	8	9
		7.2	14.5	21.7	28.9	36.2	43.4	50.6	57.9	65.1
10	72.3	79.6	86.8	94.0	101.3	108.5	115.7	123.0	130.2	137.4
20	144.7	151.9	159.1	166.4	173.6	180.8	188.1	195.3	202.5	209.8
30	217.0	224.2	231.5	238.7	245.9	253.2	260.4	267.6	274.9	282.1
40	289.3	396.6	303.8	311.0	318.3	325.5	332.7	340.0	347.2	354.4
50	361.7	368.9	376.1	383.4	390.6	397.8	405.1	412.3	419.5	426.8
60	434.0	441.2	448.5	455.7	462.9	470.2	477.4	484.6	491.8	499.1
70	506.3	513.5	520.8	528.0	535.2	542.5	549.7	556.9	564.2	571.4
80	578.6	585.9	593.1	600.3	607.6	614.8	622.0	629.3	636.5	643.7
90	651.0	658.2	665.4	672.7	679.9	687.1	694.4	701.6	708.8	716.1
100	723.3	730.5	737.8	745.0	752.2	759.5	766.7	773.9	781.2	788.4
110	795.6	802.9	810.1	817.3	824.6	831.8	839.0	846.3	853.5	860.7
120	868.0	875.2	882.4	889.7	896.9	904.1	911.4	918.6	925.8	933.1
130	940.3	947.5	954.8	962.0	969.2	976.5	983.7	990.9	998.2	10005.4
140	1012.6	1019.9	1027.1	1034.3	1041.5	1048.8	1056.0	1063.2	1070.5	1077.7
150	1084.9	1092.2	1099.4	1106.6	1113.9	1121.1	1128.3	1135.6	1142.8	1150.0
160	1157.3	1164.5	1171.7	1179.0	1186.2	1193.4	1200.7	1207.9	1215.1	1222.4
170	1129.6	1236.8	1244.1	1251.3	1258.5	1265.8	1273.0	1280.1	1287.5	1294.7
180	1301.9	1309.2	1316.4	1323.6	1330.9	1338.1	1345.3	1352.6	1359.8	1367.0
190	1374.3	1381.5	1388.7	1396.0	1403.2	1410.4	1417.7	1424.9	1432.1	1439.4

kgf/cm² to lbf/in²

1kgf / cm² = 14.2233lbf / in²

	0	1	2	3	4	5	6	7	8	9
		14.2	28.4	42.7	56.9	71.1	85.3	99.6	113.8	128.0
10	142.2	156.5	170.7	184.9	199.1	213.4	227.6	241.8	256.0	270.2
20	284.5	298.7	312.9	327.1	341.4	355.6	369.8	384.0	398.3	412.5
30	426.7	440.9	455.1	469.4	483.6	497.8	512.0	526.3	540.5	554.7
40	568.9	583.2	597.4	611.6	625.8	640.1	654.3	668.5	682.7	696.9
50	711.2	725.4	739.6	753.8	768.1	782.3	796.5	810.7	825.0	839.2
60	853.4	867.6	881.8	896.1	910.3	924.5	938.7	953.0	967.2	981.4
70	995.6	1010	1024	1038	1053	1067	1081	1095	1109	1124
80	1138	1152	1166	1181	1195	1209	1223	1237	1252	1266
90	1280	1294	1309	1323	1337	1351	1365	1380	1394	1408
100	1422	1437	1451	1465	1479	1493	1508	1522	1536	1550
110	1565	1579	1593	1607	1621	1636	1650	1664	1678	1693
120	1707	1721	1735	1749	1764	1778	1792	1806	1821	1835
130	1849	2863	1877	1892	1906	1920	1934	1949	1963	1977
140	1991	2005	2020	2034	2048	2062	2077	2091	2105	2119
150	2134	2148	2162	2176	2190	2205	2219	2233	2247	2262
160	2276	2290	2304	2318	2333	2347	2361	2375	2389	2404
170	2418	2432	2446	2460	2475	2489	2503	2518	2532	2546
180	2560	2574	2589	5603	2617	2631	2646	2660	2674	2688
200	2845	2859	2873	2887	2901	2916	2930	2944	2958	2973
210	2987	3001	3015	3030	3044	3058	3072	3086	3101	3115
220	3129	3143	3158	3172	3186	3200	3214	3229	3243	3257
230	3271	3286	3300	3314	3328	3343	3357	3371	3385	3399
240	3414	3428	3442	3456	3470	3485	3499	3513	3527	3542

TEMPERATURE

Fahrenheit-Centigrade Conversion.

A simple way to convert a fahrenheit temperature reading into a centigrade temperature reading or vice verse is to enter the accompanying table in the center or boldface column of figures.

These figures refer to the temperature in either Fahrenheit or Centigrade degrees.

If it is desired to convert from Fahrenheit to Centigrade degrees, consider the center column as a table of Fahrenheit temperatures and read the corresponding Centigrade temperature in the column at the left.

If it is desired to convert from Centigrade to Fahrenheit degrees, consider the center column as a table of Centigrade values, and read the corresponding Fahrenheit temperature on the right.

˚C		˚F	˚C		˚F	˚C		˚F	˚C		˚F
-40.4	-40	-40.0	-11.7	11	51.8	7.8	46	114.8	27.2	81	117.8
-37.2	-35	-31.0	-11.1	12	53.6	8.3	47	116.6	27.8	82	179.6
-34.4	-30	-22.0	-10.6	13	55.4	8.9	48	118.4	28.3	83	181.4
-31.7	-25	-13.0	-10.0	14	57.2	9.4	49	120.2	28.9	84	183.2
-28.9	-20	-4.0	-9.4	15	59.0	10.0	50	122.0	29.4	85	185.0
-28.3	-19	-2.2	-8.9	16	60.8	10.6	51	123.8	30.0	86	186.8
-27.8	-18	-0.4	-8.3	17	62.6	11.1	52	125.6	30.6	87	188.6
-27.2	-17	1.4	-7.8	18	64.4	11.7	53	127.4	31.1	88	190.4
-26.7	-16	3.2	-6.7	20	68.0	12.8	55	131.0	32.2	90	194.0
-26.1	-15	5.0	-6.7	20	68.0	12.8	55	131.0	32.2	90	194.0
-25.6	-14	6.8	-6.1	21	69.8	13.3	56	132.8	32.8	91	195.8
-25.0	-13	8.6	-5.6	22	71.6	13.9	57	134.6	33.3	92	197.6
-24.4	-12	10.4	-5.0	23	73.4	14.4	58	136.4	33.9	93	199.4
-23.9	-11	12.2	-4.4	24	75.2	15.0	59	138.2	34.4	94	201.2
-23.3	-10	14.0	-3.9	25	77.0	15.6	60	140.0	35.0	95	203.0
-22.8	-9	15.8	-3.3	26	78.8	16.1	61	141.8	35.6	96	204.8
-22.2	-8	17.6	-2.8	27	80.6	16.7	62	143.6	36.1	97	206.6
-21.7	-7	19.4	-2.2	28	82.4	17.2	63	145.4	36.7	98	208.4
-21.1	-6	21.2	-1.7	29	84.2	17.8	64	147.2	37.2	99	210.2
-20.6	-5	23.0	-1.1	35	95.0	21.1	70	158.0	51.7	125	257.0
-20.0	-4	24.8	-0.6	31	87.8	18.9	66	150.8	40.6	105	221.0
-19.4	-3	26.6	0	32	89.6	19.4	67	152.6	43.3	110	230.0
-18.9	-2	28.4	0.6	33	91.4	20.0	68	154.4	46.1	115	239.0
-18.3	-1	30.2	1.1	34	93.2	20.6	69	156.2	48.9	120	248.0
-17.8	0	32.0	1.7	35	95.0	21.1	70	158.0	51.7	125	257.0
-17.2	1	33.8	2.2	36	96.8	21.7	71	159.8	54.4	130	266.0
-16.7	2	35.6	2.8	37	98.6	22.2	72	161.6	57.2	135	275.0
-16.1	3	37.4	3.3	38	100.4	22.8	73	163.4	60.0	140	284.0
-15.6	4	39.2	3.9	39	102.2	23.3	74	165.2	62.7	145	293.0
-15.0	5	41.0	4.4	40	104.0	23.9	75	167.0	65.6	150	302.0
-14.4	6	42.8	5.0	41	105.8	24.4	76	168.8	68.3	155	311.0
-13.9	7	44.6	5.6	42	107.6	25.0	77	170.6	71.1	160	320.0
-13.3	8	46.4	6.1	43	109.4	25.6	78	172.4	73.9	165	329.0
-12.8	9	48.2	6.7	44	111.2	26.1	79	174.2	76.7	170	338.0
-12.2	10	50.0	7.2	45	113.0	26.7	80	176.0	79.4	172	347.0

SECTION 1 GENERAL

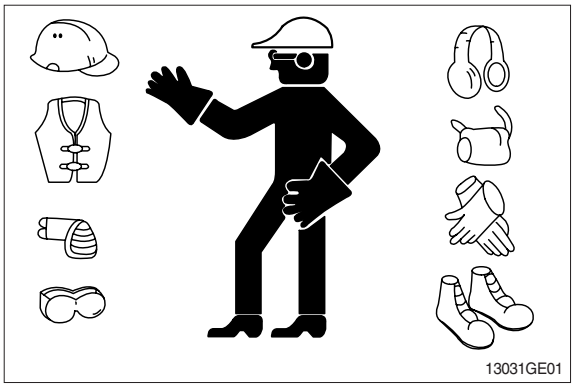
GROUP 1 SAFETY

FOLLOW SAFE PROCEDURE

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

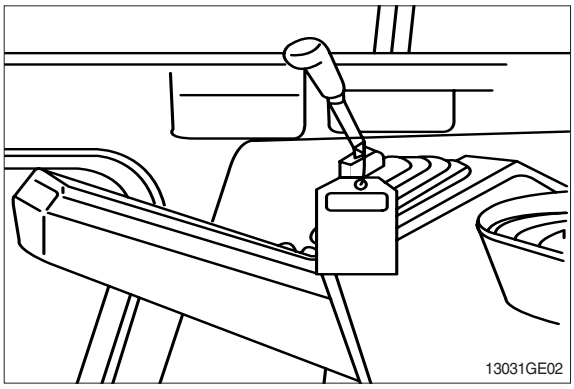
WEAR PROTECTIVE CLOTHING

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



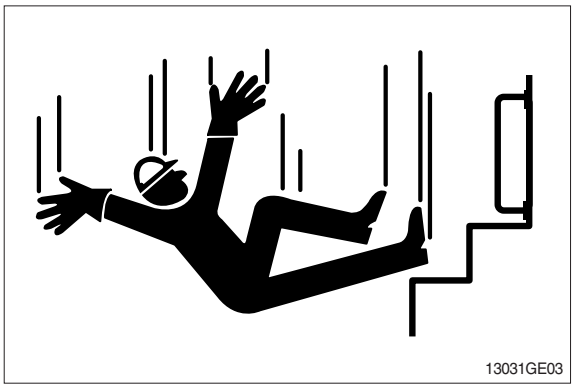
WARN OTHERS OF SERVICE WORK

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.

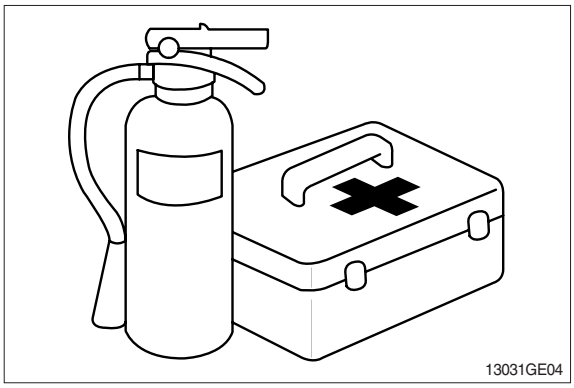


PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

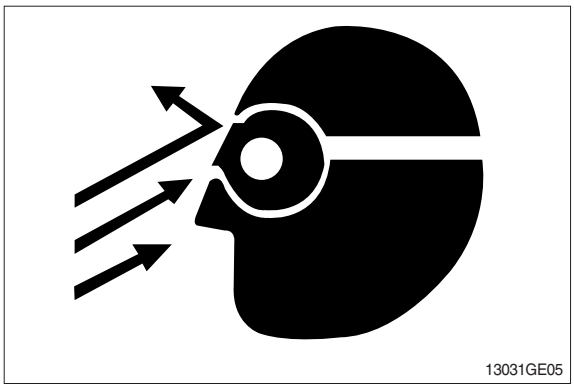
Keep a first aid kit and fire extinguisher handy.

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



PROTECT AGAINST FLYING DEBRIS

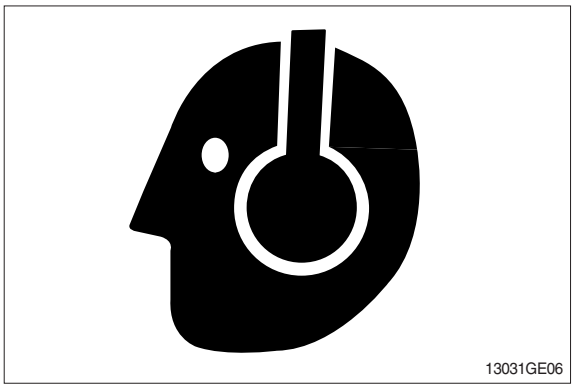
Guard against injury from flying pieces of metal or debris; Wear goggles or safety glasses.



PROTECT AGAINST NOISE

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

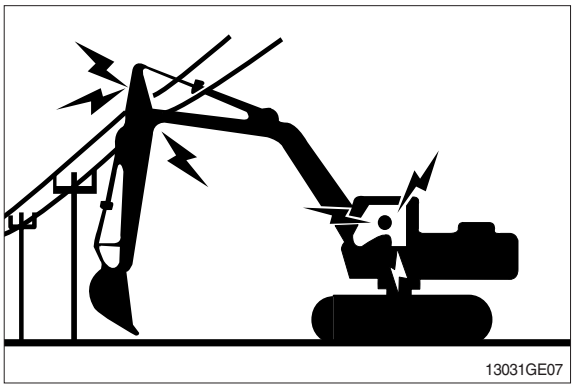
Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



AVOID POWER LINES

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

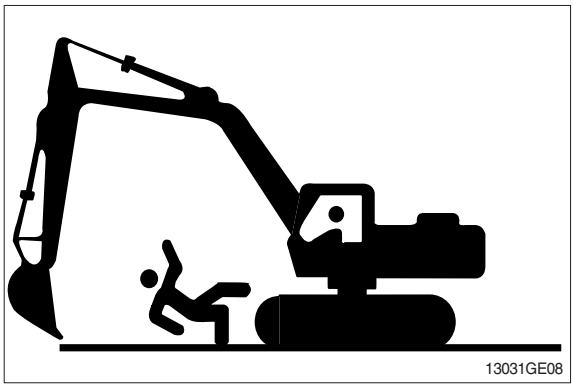
Never move any part of the machine or load closer to electric line than 3m(10ft) plus twice the line insulator length.



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.

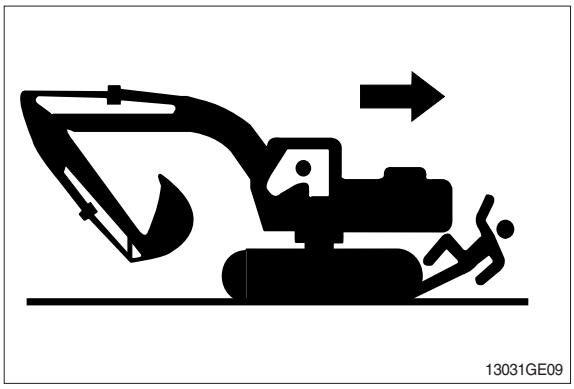

13031GE08

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.

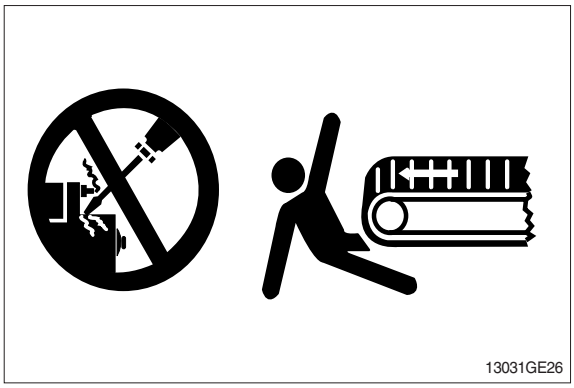
Use a signal person when moving, swinging, or operating the machine in congested areas. Coordinate hand signals before starting the excavator.


13031GE09

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.


13031GE26

PARK MACHINE SAFELY

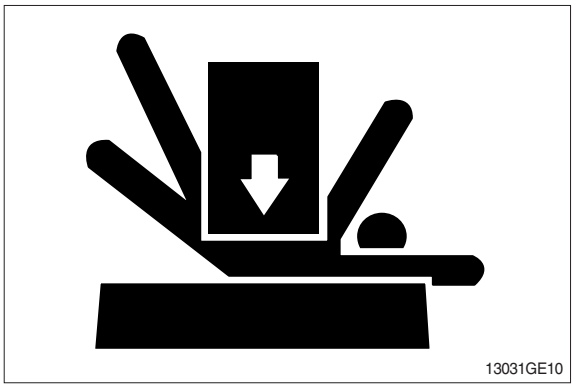
Before working on the machine:

- 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.

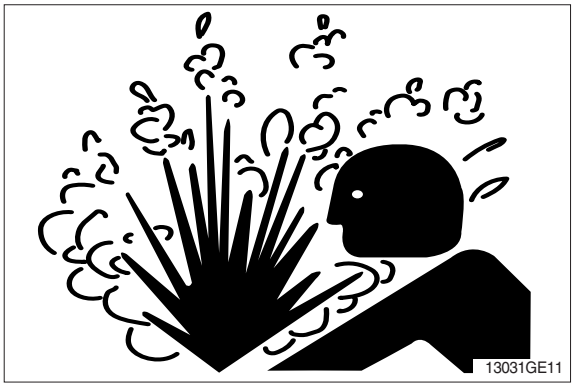
Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load.
Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.


13031GE10

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.


13031GE11

HANDLE FLUIDS SAFELY-AVOID FIRES

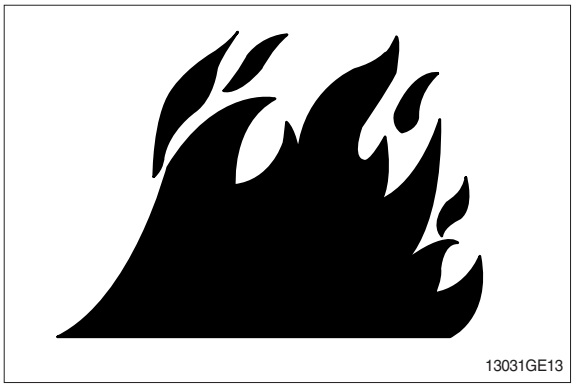
Handle fuel with care; It is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks. Always stop engine before refueling machine.
Fill fuel tank outdoors.


13031GE12

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

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

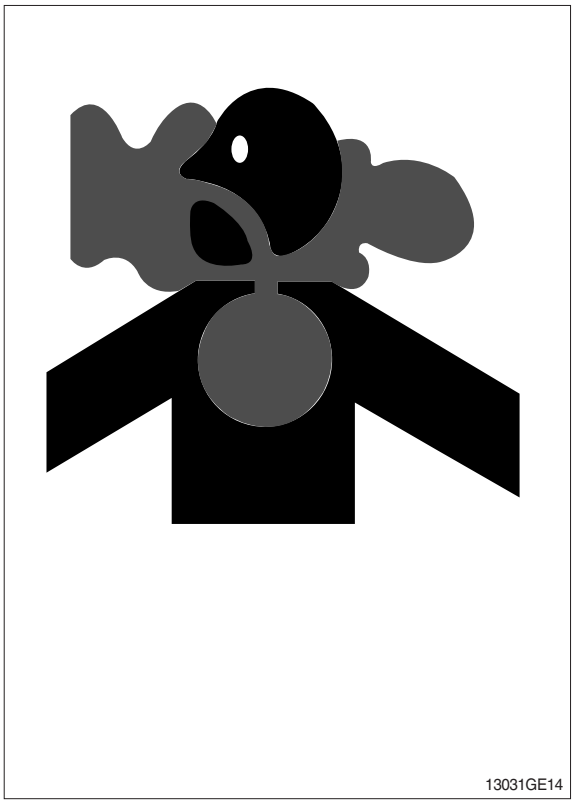
Do not store oily rags; They can ignite and burn spontaneously.


13031GE13

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.


13031GE14

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.

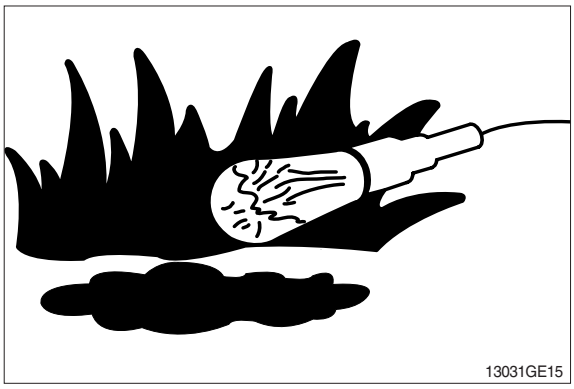
Do all work outside or in a well ventilated area. Dispose of paint and solvent properly.

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

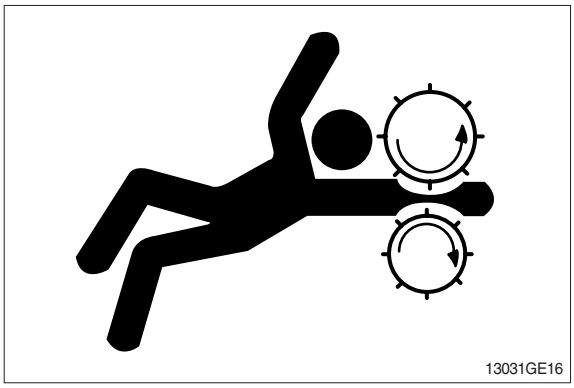
Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.


13031GE15

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.

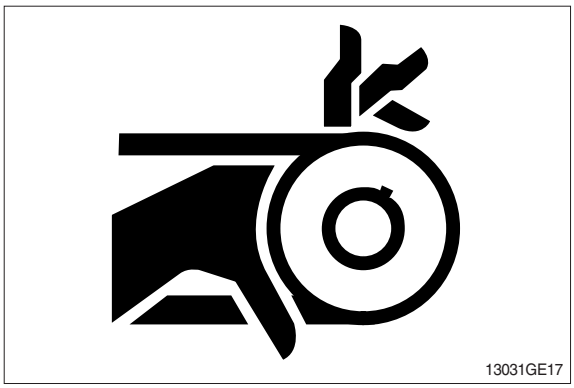
Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.



STAY CLEAR OF MOVING PARTS

Entanglements in moving parts can cause serious injury.

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



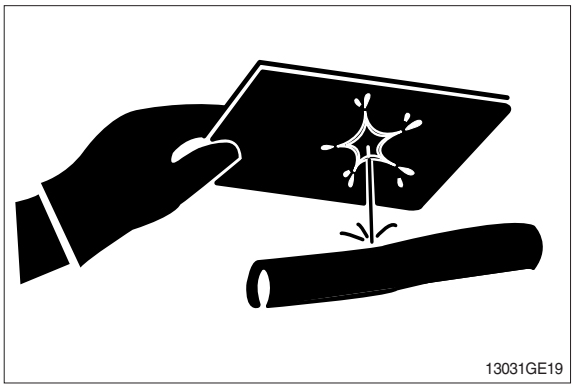
AVOID HIGH PRESSURE FLUIDS

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.


13031GE20

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 do not charge a frozen battery; It may explode. Warm battery to 16 ℃ (60 ℉).


13031GE21

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:

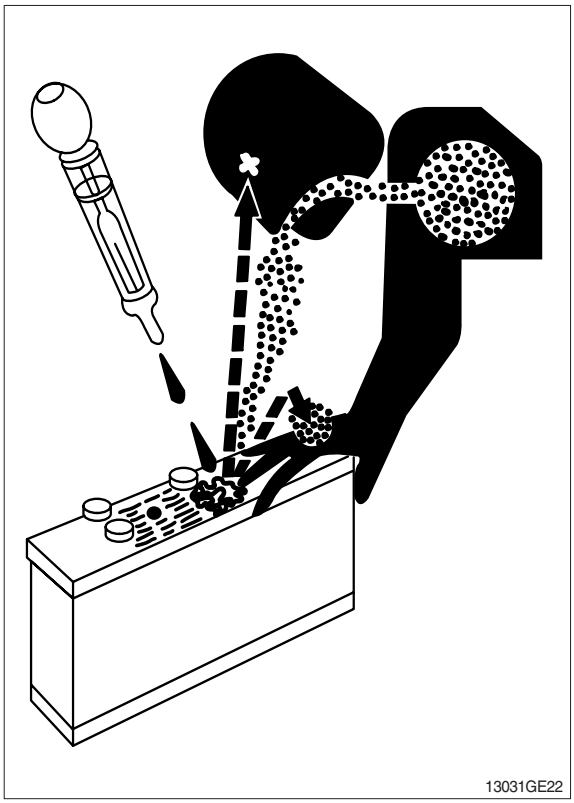
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling of dripping electrolyte.
5. Use proper jump start procedure.

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.



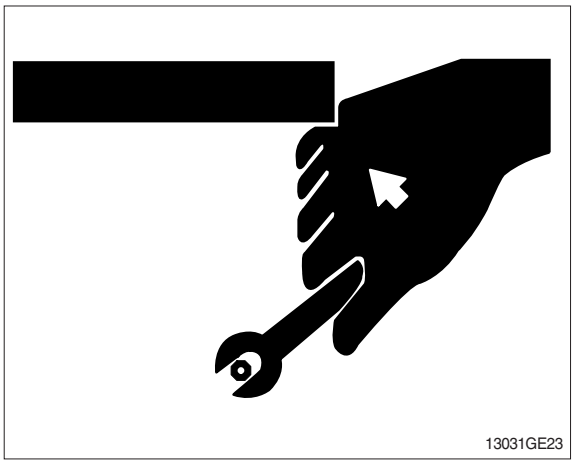
USE TOOLS PROPERLY

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.)

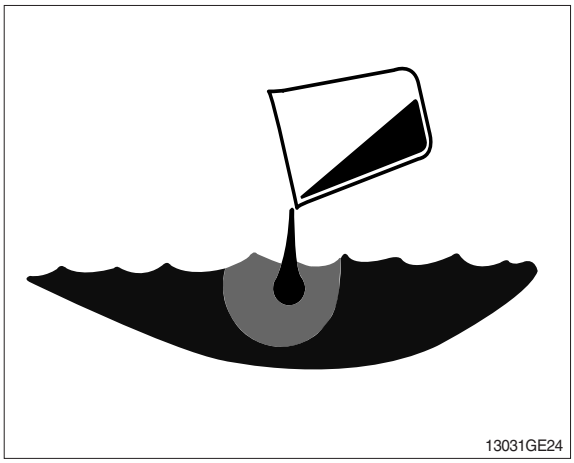


DISPOSE OF FLUIDS PROPERLY

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.

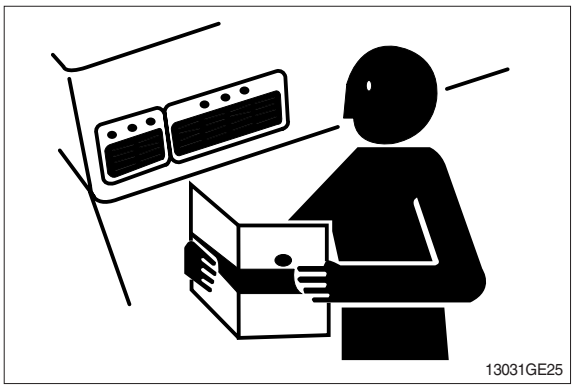
Use proper containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

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.


13031GE24

REPLACE SAFETY SIGNS

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

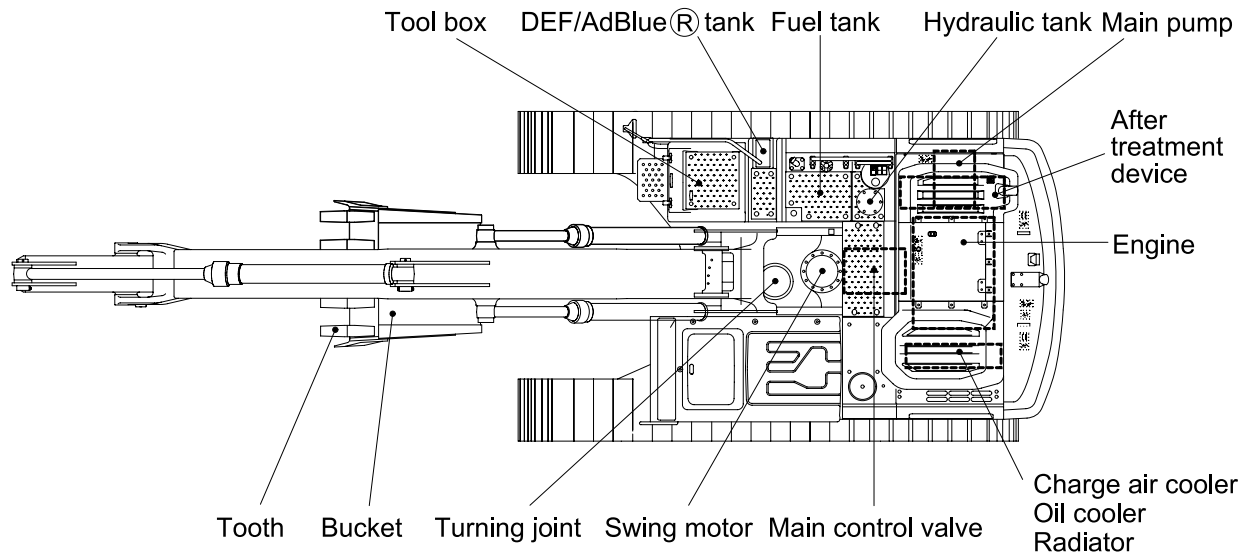

13031GE25

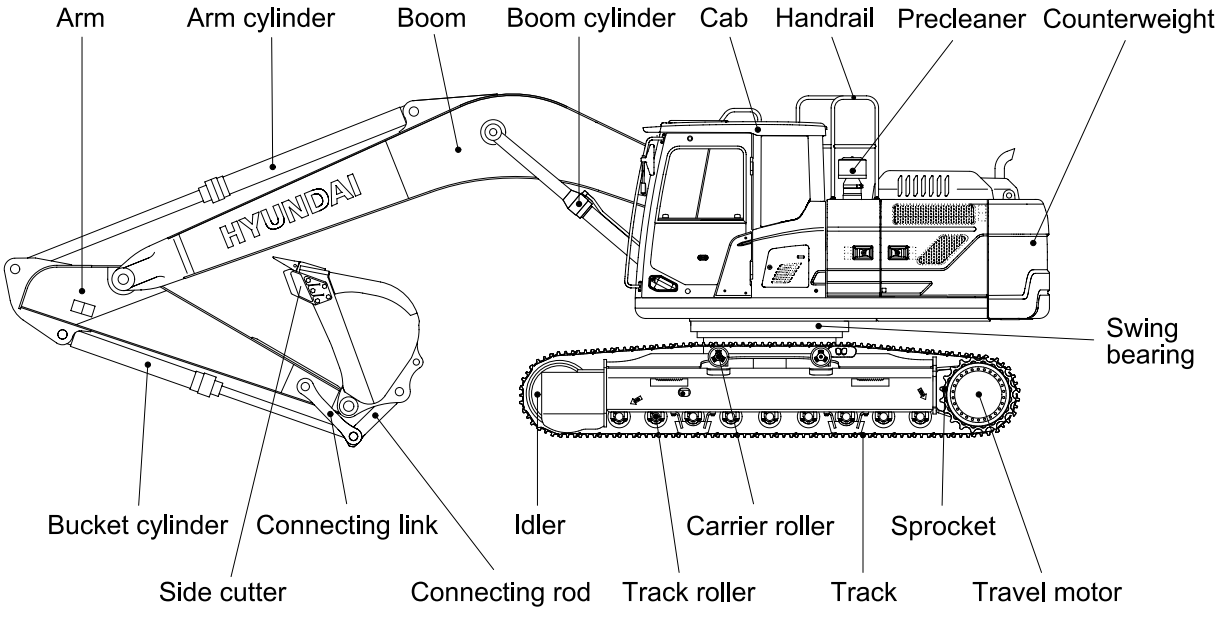
LIVE WITH SAFETY

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

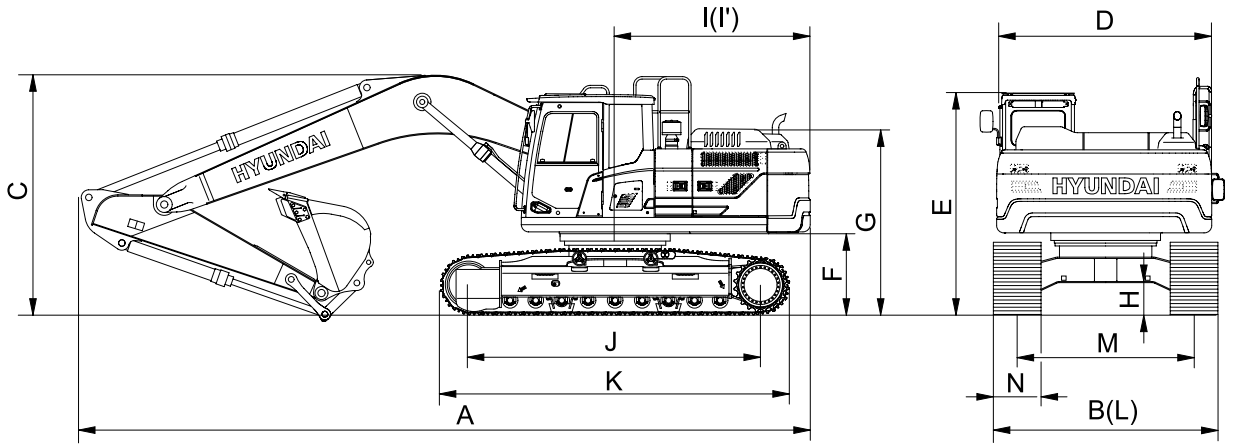




220A2SP01

2. SPECIFICATIONS

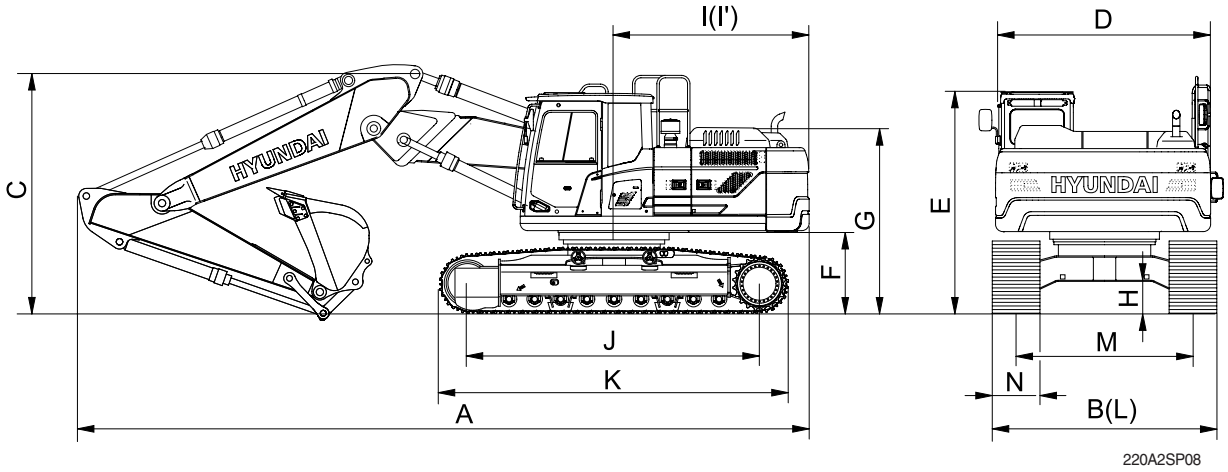
1) HX220A L, MONO BOOM



220A2SP02

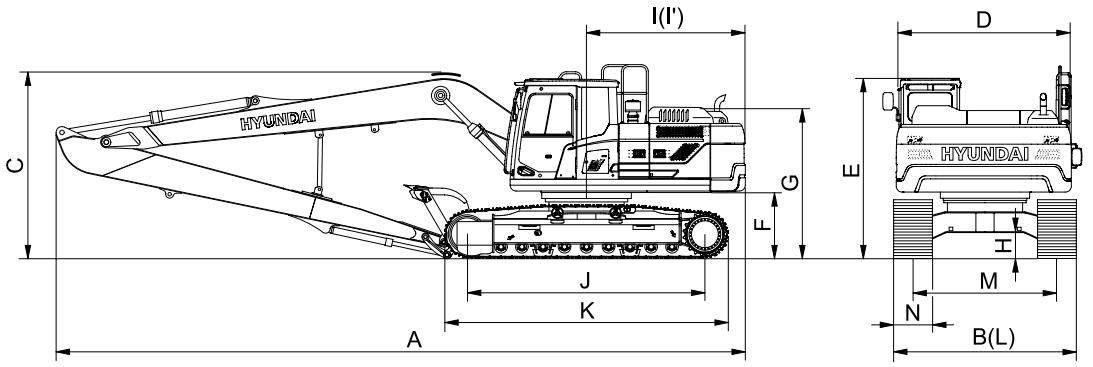
Description		Unit		Specification			
		m (ft-in)	Boom	5.68 (18' 8")			
			Arm	2.92 (9' 7")	2.00 (6' 7")	2.40 (7' 10")	3.90 (12' 10")
		mm (in)	Shoe	600 (24)			
Operating weight		kg (lb)		22280 (49120)	22130 (48790)	22190 (48920)	22510 (49630)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)		0.92 (1.2)	0.92 (1.2)	0.92 (1.2)	0.92 (1.2)
Overall length	A	mm (ft-in)		9530 (31' 3")	9650 (31' 8")	9570 (31' 5")	9520 (31' 3")
Overall width	B			2990 (9' 10")	2990 (9' 10")	2990 (9' 10")	2990 (9' 10")
Overall height of boom	C			3030 (9' 11")	3200 (10' 6")	3110 (10' 2")	3480 (11' 5")
Superstructure width	D			2740 (9' 0")	2740 (9' 0")	2740 (9' 0")	2740 (9' 0")
Overall height of cab	E			3000 (9' 10")	3000 (9' 10")	3000 (9' 10")	3000 (9' 10")
Ground clearance of counterweight	F			1060 (3' 6")	1060 (3' 6")	1060 (3' 6")	1060 (3' 6")
Overall height of engine hood	G			2520 (8' 3")	2520 (8' 3")	2520 (8' 3")	2520 (8' 3")
Overall height of handrail	G'			3210 (10' 6")	3210 (10' 6")	3210 (10' 6")	3210 (10' 6")
Minimum ground clearance	H			470 (1' 7")	470 (1' 7")	470 (1' 7")	470 (1' 7")
Rear-end distance	I			2770 (9' 1")	2770 (9' 1")	2770 (9' 1")	2770 (9' 1")
Rear-end swing radius	I'			2890 (9' 6")	2890 (9' 6")	2890 (9' 6")	2890 (9' 6")
Distance between tumblers	J			3650 (12' 0")	3650 (12' 0")	3650 (12' 0")	3650 (12' 0")
Undercarriage length	K			4404 (14' 5")	4404 (14' 5")	4404 (14' 5")	4404 (14' 5")
Undercarriage width	L			2990 (9' 10")	2990 (9' 10")	2990 (9' 10")	2990 (9' 10")
Track gauge	M			2390 (7' 10")	2390 (7' 10")	2390 (7' 10")	2390 (7' 10")
Track shoe width, standard	N			600 (24")	600 (24")	600 (24")	600 (24")
Travel speed (low/high)		km/hr (mph)		3.5/5.4 (2.2/3.4)	3.5/5.4 (2.2/3.4)	3.5/5.4 (2.2/3.4)	3.5/5.4 (2.2/3.4)
Swing speed		rpm		11.4	11.4	11.4	11.4
Gradeability		Degree (%)		35 (70)	35 (70)	35 (70)	35 (70)
Ground pressure		kgf/cm^2 (psi)		0.48 (6.76)	0.47 (6.72)	0.47 (6.74)	0.48 (6.83)
Max traction force		kg (lb)		20830 (45922)	20830 (45922)	20830 (45922)	20830 (45922)

2) HX220A L, 2-PIECE BOOM



Description		Unit		Specification
		m (ft-in)	Boom	5.65 (18' 7")
			Arm	2.92 (9' 7")
		mm (in)	Shoe	600 (24)
Operating weight		kg (lb)		22990 (50680)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)		0.92 (1.2)
Overall length	A	mm (ft-in)		9530 (31' 3")
Overall width	B			2990 (9' 10")
Overall height of boom	C			3030 (9' 11")
Superstructure width	D			2740 (9' 0")
Overall height of cab	E			3000 (9' 10")
Ground clearance of counterweight	F			1060 (3' 6")
Overall height of engine hood	G			2520 (8' 3")
Overall height of handrail	G'			3210 (10' 6")
Minimum ground clearance	H			470 (1' 7")
Rear-end distance	I			2770 (9' 1")
Rear-end swing radius	I'			2890 (9' 6")
Distance between tumblers	J			3650 (12' 0")
Undercarriage length	K			4404 (14' 5")
Undercarriage width	L			2990 (9' 10")
Track gauge	M			2390 (7' 10")
Track shoe width, standard	N			600 (24")
Travel speed (low/high)		km/hr (mph)		3.5/5.4 (2.2/3.4)
Swing speed		rpm		11.2
Gradeability		Degree (%)		35 (70)
Ground pressure		kgf/cm^2 (psi)		0.49 (6.98)
Max traction force		kg (lb)		20830 (45922)

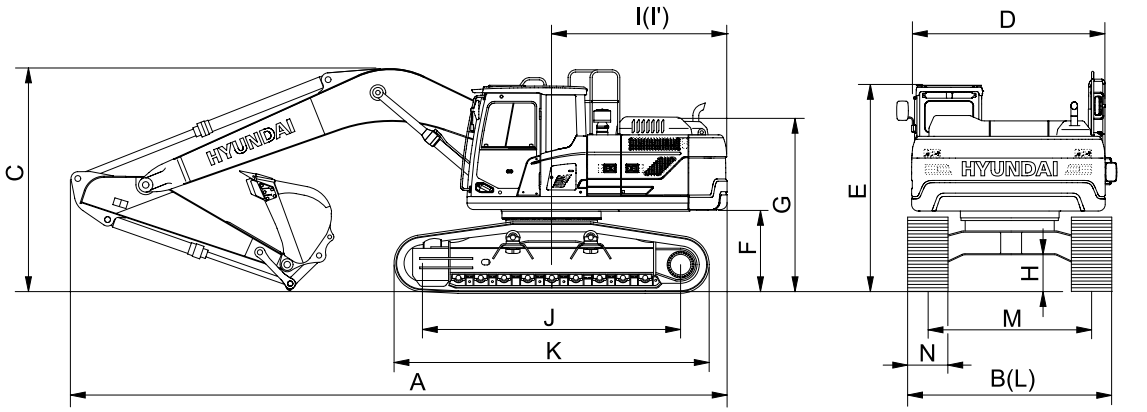
3) HX220A LR



220A2SP03

Description		Unit		Specification
		m (ft-in)	Boom	8.2 (26' 11")
			Arm	6.30 (20' 8")
		mm (in)	Shoe	800 (32)
Operating weight		kg (lb)		25420 (56040)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)		0.92 (1.2)
Overall length	A	mm (ft-in)		12030 (39' 6")
Overall width	B			3190 (10' 6")
Overall height of boom	C			3280 (10' 9")
Superstructure width	D			2740 (9' 0")
Overall height of cab	E			3000 (9' 10")
Ground clearance of counterweight	F			1060 (3' 6")
Overall height of engine hood	G			2520 (8' 3")
Overall height of handrail	G'			3210 (10' 6")
Minimum ground clearance	H			470 (1' 7")
Rear-end distance	I			2770 (9' 1")
Rear-end swing radius	I'			2890 (9' 6")
Distance between tumblers	J			3650 (12' 0")
Undercarriage length	K			4404 (14' 5")
Undercarriage width	L			3190 (10' 6")
Track gauge	M			2390 (7' 10")
Track shoe width, standard	N			800 (32")
Travel speed (low/high)		km/hr (mph)		3.5/5.4 (2.2/3.4)
Swing speed		rpm		11.4
Gradeability		Degree (%)		35 (70)
Ground pressure		kgf/cm^2 (psi)		0.41 (5.79)
Max traction force		kg (lb)		20830 (45922)

4) HX220A HW, MONO BOOM

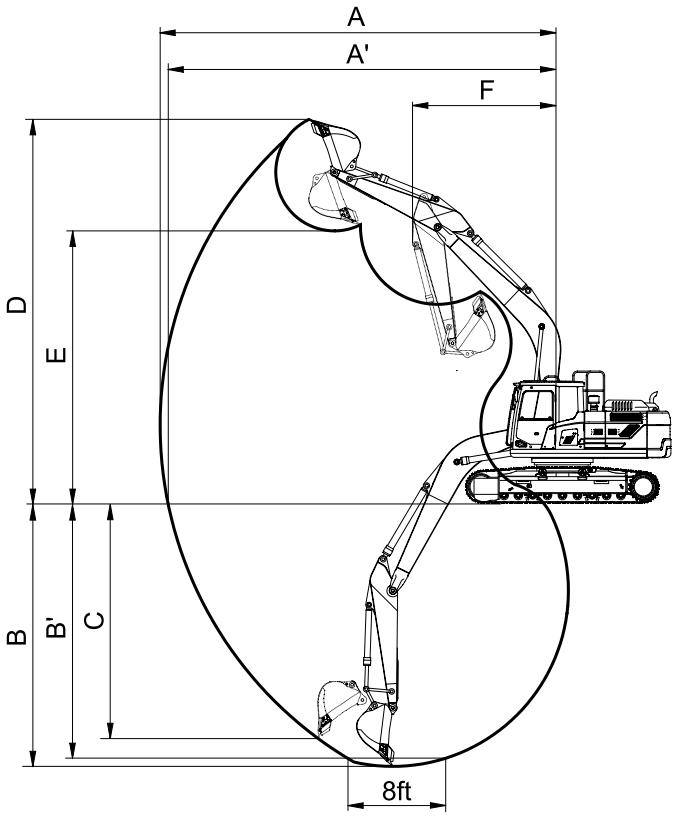


220A2SP04

Description		Unit		Specification			
		m (ft-in)	Boom	5.68 (20' 6")			
			Arm	2.92 (9' 7")	2.00 (6' 7")	2.40 (7' 10")	3.90 (12' 10")
		mm (in)	Shoe	600 (24)			
Operating weight		kg (lb)		23570 (51960)	23410 (51610)	23480 (51760)	23800 (52470)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)		0.92 (1.2)	0.92 (1.2)	0.92 (1.2)	0.92 (1.2)
Overall length	A	mm (ft-in)		9470 (31' 1")	9650 (31' 8")	9550 (31' 4")	9560 (31' 4")
Overall width	B			3395 (11' 2")	3395 (11' 2")	3395 (11' 2")	3395 (11' 2")
Overall height of boom	C			3060 (10' 0")	3290 (10' 10")	3170 (10' 5")	3450 (11' 4")
Superstructure width	D			2740 (9' 0")	2740 (9' 0")	2740 (9' 0")	2740 (9' 0")
Overall height of cab	E			3200 (10' 6")	3200 (10' 6")	3200 (10' 6")	3200 (10' 6")
Ground clearance of counterweight	F			1260 (4' 2")	1260 (4' 2")	1260 (4' 2")	1260 (4' 2")
Overall height of engine hood	G			2720 (8' 11")	2720 (8' 11")	2720 (8' 11")	2720 (8' 11")
Overall height of handrail	G'			3410 (11' 2")	3410 (11' 2")	3410 (11' 2")	3410 (11' 2")
Minimum ground clearance	H			660 (2' 2")	660 (2' 2")	660 (2' 2")	660 (2' 2")
Rear-end distance	I			2770 (9' 1")	2770 (9' 1")	2770 (9' 1")	2770 (9' 1")
Rear-end swing radius	I'			2890 (9' 6")	2890 (9' 6")	2890 (9' 6")	2890 (9' 6")
Distance between tumblers	J			3650 (12' 0")	3650 (12' 0")	3650 (12' 0")	3650 (12' 0")
Undercarriage length	K			4404 (14' 5")	4404 (14' 5")	4404 (14' 5")	4404 (14' 5")
Undercarriage width	L			3395 (11' 2")	3395 (11' 2")	3395 (11' 2")	3395 (11' 2")
Track gauge	M			2795 (9' 2")	2795 (9' 2")	2795 (9' 2")	2795 (9' 2")
Track shoe width, standard	N			600 (24")	600 (24")	600 (24")	600 (24")
Travel speed (low/high)		km/hr (mph)		2.9 (5.1)	2.9 (5.1)	2.9 (5.1)	2.9 (5.1)
Swing speed		rpm		11.4	11.4	11.4	11.4
Gradeability		Degree (%)		35 (70)	35 (70)	35 (70)	35 (70)
Ground pressure		kgf/cm^2 (psi)		0.50 (7.15)	0.50 (7.11)	0.50 (7.13)	0.51 (7.22)
Max traction force		kg (lb)		22190 (48921)	22190 (48921)	22190 (48921)	22190 (48921)

3. WORKING RANGE

1) HX220A L, MONO BOOM

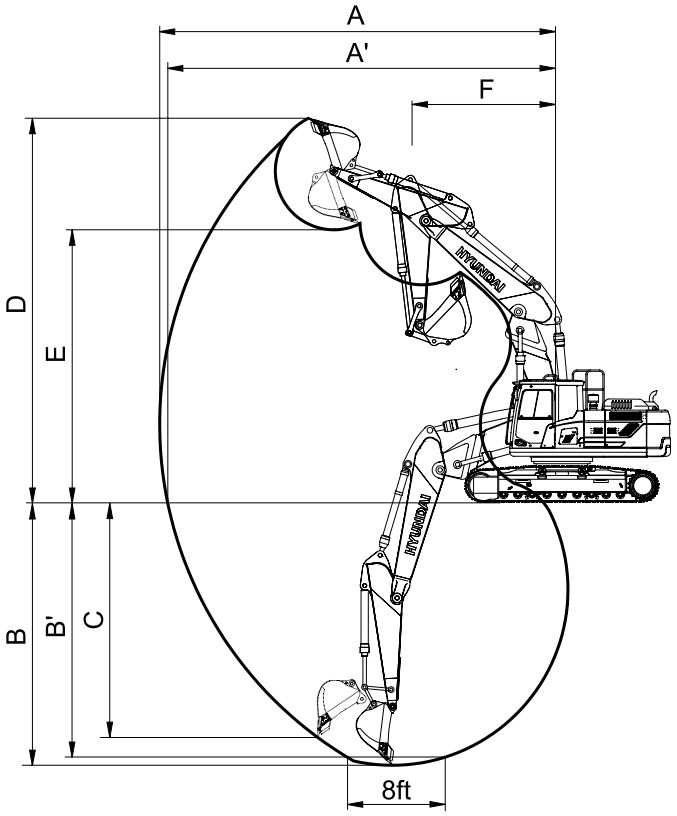


220A2SP05

Description	m (ft-in)	Boom	5.68 (18' 8")			
		Arm	2.92 (9' 7")	2.00 (6' 7")	2.40 (7' 10")	3.90 (12' 10")
Max digging reach	mm (ft-in)	A	9980 (32' 9")	9140 (30' 0")	9500 (31' 2")	10910 (35' 10")
Max digging reach on ground		A'	9820 (32' 3")	8960 (29' 5")	9330 (30' 7")	10770 (35' 4")
Max digging depth		B	6730 (22' 1")	5820 (19' 1")	6220 (20' 5")	7720 (25' 4")
Max digging depth (8 ft level)		B'	6560 (21' 6")	5580 (18' 4")	6010 (19' 9")	7580 (24' 10")
Max vertical wall digging depth		C	6280 (20' 7")	5280 (17' 4")	5720 (18' 9")	7240 (23' 9")
Max digging height		D	9600 (31' 6")	9140 (30' 0")	9340 (30' 8")	10110 (33' 2")
Max dumping height		E	6780 (22' 3")	6330 (20' 9")	6520 (21' 5")	7290 (23' 11")
Min swing radius		F	3670 (12' 0")	3750 (12' 4")	3740 (12' 3")	3700 (12' 2")
Bucket digging force	kN	SAE	133.4 [144.8]	133.4 [144.8]	133.4 [144.8]	133.4 [144.8]
	kgf		13600 [14770]	13600 [14770]	13600 [14770]	13600 [14770]
	lbf		29980 [32560]	29980 [32560]	29980 [32560]	29980 [32560]
	kN	ISO	152.0 [165.0]	152.0 [165.0]	152.0 [165.0]	152.0 [165.0]
	kgf		15500 [16830]	15500 [16830]	15500 [16830]	15500 [16830]
	lbf		34170 [37100]	34170 [37100]	34170 [37100]	34170 [37100]
Arm digging force	kN	SAE	102.0 [110.7]	144.2 [156.5]	119.6 [129.9]	84.3 [91.6]
	kgf		10400 [11290]	14700 [15960]	12200 [13250]	8600 [9340]
	lbf		22930 [24890]	32410 [35190]	26900 [29210]	18960 [20590]
	kN	ISO	106.9 [116.0]	151.0 [164.0]	106.9 [116.0]	87.3 [94.7]
	kgf		10900 [11830]	15400 [16720]	10900 [11830]	8900 [9660]
	lbf		24030 [26080]	33950 [36860]	24030 [26080]	19620 [21300]

[ ] : Power boost

2) HX220A L, 2-PIECE BOOM

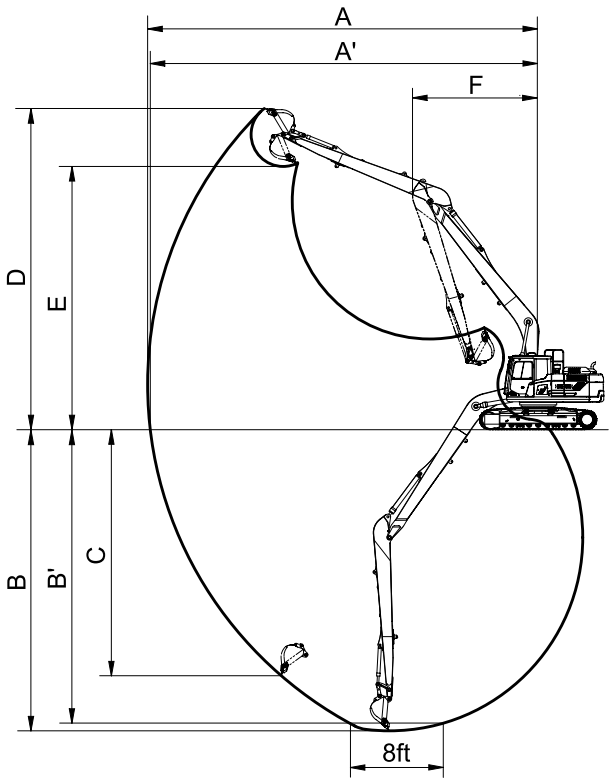


220A2SP10

Description	m (ft-in)	Boom	5.65 (18' 7")
		Arm	2.92 (9' 7")
Max digging reach	mm (ft-in)	A	10020 (32' 10")
Max digging reach on ground		A'	9860 (32' 4")
Max digging depth		B	6400 (21' 0")
Max digging depth (8 ft level)		B'	6290 (20' 8")
Max vertical wall digging depth		C	5560 (18' 3")
Max digging height		D	11090 (36' 5")
Max dumping height		E	8160 (26' 9")
Min swing radius		F	2530 (8' 4")
Bucket digging force	kN	SAE	133.4 [144.8]
	kgf		13600 [14770]
	lbf		29980 [32560]
	kN	ISO	152.0 [165.0]
	kgf		15500 [16830]
	lbf		34170 [37100]
Arm digging force	kN	SAE	102.0 [110.7]
	kgf		10400 [11290]
	lbf		22930 [24890]
	kN	ISO	106.9 [116.0]
	kgf		10900 [11830]
	lbf		24030 [26080]

[ ] : Power boost

3) HX220A LR

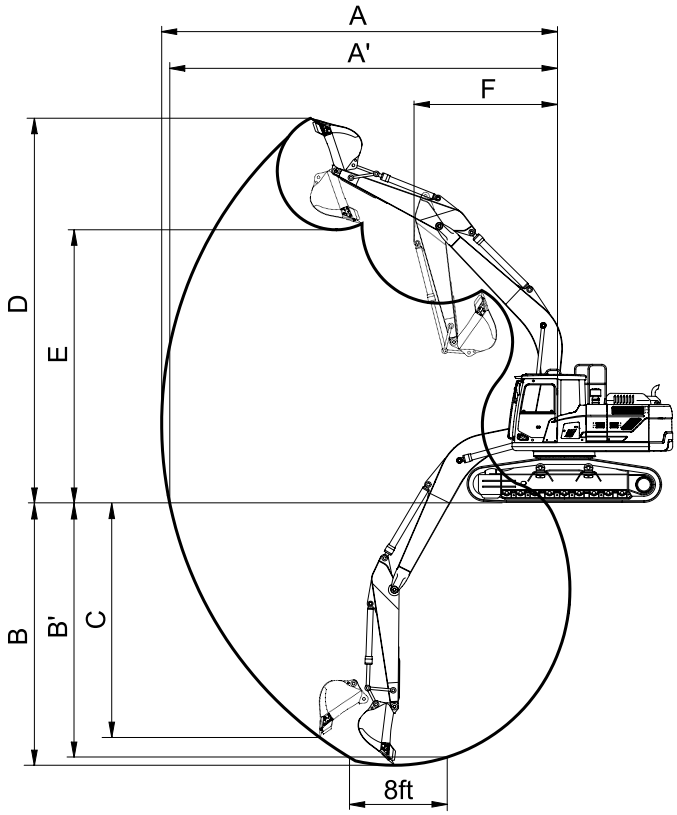


220A2SP06

Description	m (ft-in)	Boom	8.2 (26' 11")
		Arm	6.30 (20' 8")
Max digging reach	mm (ft-in)	A	15220 (49' 11")
Max digging reach on ground		A'	15120 (49' 7")
Max digging depth		B	11760 (38' 7")
Max digging depth (8 ft level)		B'	11650 (38' 3")
Max vertical wall digging depth		C	9610 (31' 6")
Max digging height		D	12550 (41' 2")
Max dumping height		E	10280 (33' 9")
Min swing radius		F	4870 (16' 0")
Bucket digging force	kN	SAE	72.7 [72.7]
	kgf		7410 [7410]
	lbf		16340 [16340]
	kN	ISO	85.0 [85.0]
	kgf		8670 [8670]
	lbf		19110 [19110]
Arm digging force	kN	SAE	48.9 [48.9]
	kgf		4990 [4990]
	lbf		11000 [11000]
	kN	ISO	49.9 [49.9]
	kgf		5090 [5090]
	lbf		11220 [11220]

[ ] : Power boost

4) HX220A HW



220A2SP07

Description	m (ft-in)	Boom	5.68 (20' 6")			
		Arm	2.92 (9' 7")	2.00 (6' 7")	2.40 (7' 10")	3.90 (12' 10")
Max digging reach	mm (ft-in)	A	9980 (32' 9")	9140 (30' 0")	9500 (31' 2")	10910 (35' 10")
Max digging reach on ground		A'	9820 (32' 3")	8920 (29' 3")	9290 (30' 6")	10730 (35' 2")
Max digging depth		B	6550 (21' 6")	5630 (18' 6")	6010 (19' 9")	7530 (24' 8")
Max digging depth (8 ft level)		B'	6380 (20' 11")	5390 (17' 8")	5820 (19' 1")	7390 (24' 3")
Max vertical wall digging depth		C	6100 (20' 0")	5090 (16' 8")	5630 (18' 6")	7050 (23' 2")
Max digging height		D	9780 (32' 1")	9330 (30' 7")	9530 (31' 3")	10300 (33' 10")
Max dumping height		E	6960 (22' 10")	6520 (21' 5")	6710 (22' 0")	7480 (24' 6")
Min swing radius		F	3670 (12' 0")	3750 (12' 4")	3740 (12' 3")	3700 (12' 2")
Bucket digging force	kN	SAE	133.4 [144.8]	133.4 [144.8]	133.4 [144.8]	133.4 [144.8]
	kgf		13600 [14770]	13600 [14770]	13600 [14770]	13600 [14770]
	lbf		29980 [32560]	29980 [32560]	29980 [32560]	29980 [32560]
	kN	ISO	152.0 [165.0]	152.0 [165.0]	152.0 [165.0]	152.0 [165.0]
	kgf		15500 [16830]	15500 [16830]	15500 [16830]	15500 [16830]
	lbf		34170 [37100]	34170 [37100]	34170 [37100]	34170 [37100]
Arm digging force	kN	SAE	102.0 [110.7]	144.2 [156.5]	119.6 [129.9]	84.3 [91.6]
	kgf		10400 [11290]	14700 [15960]	12200 [13250]	8600 [9340]
	lbf		22930 [24890]	32410 [35190]	26900 [29210]	18960 [20590]
	kN	ISO	106.9 [116.0]	151.0 [164.0]	106.9 [116.0]	87.3 [94.7]
	kgf		10900 [11830]	15400 [16720]	10900 [11830]	8900 [9660]
	lbf		24030 [26080]	33950 [36860]	24030 [26080]	19620 [21300]

[ ] : Power boost

4. WEIGHT

Item	HX220A L		HX220A LR		HX220A HW	
	kg	lb	kg	lb	kg	lb
Upperstructure assembly						
· Main frame weld assembly	1,890	4,170	1,890	4,170	1,930	4,260
· Engine assembly	583	1,285	583	1,285	583	1,285
· Aftertreatment assembly	74	162	74	162	74	162
· Main pump assembly	140	309	140	309	140	309
· Main control valve assembly	220	485	220	485	220	485
· Swing motor assembly	240	529	240	529	240	529
· Hydraulic oil tank WA	220	485	220	485	220	485
· Fuel tank WA	210	463	210	463	210	463
· Counterweight	3,800	8,380	5,300	11,680	3,800	8,380
· Cab assembly	490	1,080	490	1,080	490	1,080
Lower chassis assembly						
· Track frame weld assembly	2,530	5,580	2,530	5,580	3,605	7,950
· Swing bearing	280	620	280	620	299	660
· Travel motor assembly (2EA)	609	1,340	609	1,340	609	1,340
· Turning joint	57	130	57	130	57	130
· Sprocket (2EA)	112	247	112	247	103	227
· Track recoil spring (2EA)	279	615	279	615	326	719
· Idler (2EA)	301	664	301	664	301	664
· Carrier roller (2EA)	93	205	93	205	177	390
· Track roller (18EA)	797	1,757	797	1,757	797	1,757
· Track-chain assembly (600 mm triple grouser shoe) (2EA)	2,712	5,979	-	-	-	-
· Track-chain assembly (600 mm triple grouser shoe) (2EA)	-	-	-	-	2,902	6,398
· Track-chain assembly (700 mm triple grouser shoe) (2EA)	3,184	7,020	-	-	3,184	7,020
· Track-chain assembly (800 mm triple grouser shoe) (2EA)	3,468	7,646	3,468	7,646	3,468	7,646
· Track-chain assembly (900 mm triple grouser shoe) (2EA)	3,750	8,267	-	-	3,750	8,267
· Track-chain assembly (700 mm double grouser shoe) (2EA)	3,458	7,624	-	-	3,458	7,624
Front attachment assembly						
· 5.68 m boom assembly	1,520	3,351	-	-	1,520	3,351
· 2.92 m arm assembly	760	1,676	-	-	760	1,676
· 0.92 m^3 SAE heaped bucket	820	1,808	-	-	820	1,808
· 8.2 m boom assembly	-	-	2,110	4,652	-	-
· 6.3 m arm assembly	-	-	1,100	2,425	-	-
· 0.52 m^3 SAE heaped bucket	-	-	470	1,036	-	-
· Boom cylinder assembly (2EA)	180	397	180	397	180	397
· Arm cylinder assembly	280	617	270	595	280	617
· Bucket cylinder assembly	170	375	100	220	170	375
· Bucket control linkage total	200	441	170	375	200	441

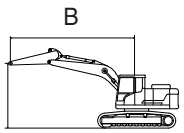
※ This information is different with operating and transportation weight because it is not including harness, pipe, oil, fuel so on.

※ Refer to Transportation for actual weight information and Specifications for operating weight.

5. LIFTING CAPACITIES

Model	Type	Boom	Arm	Counterweight	Shoe	Wheel	Dozer		Outrigger	
HX220A L	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	width [mm]	Front	Rear	Front	Rear
		5680	2000	3800	600	-	-	-	-	-

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



Lift-point height (A)		Lift-point radius (B)								At max. reach		
		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		Capacity		Reach
												m (ft)
7.5 m (24.6 ft)	kg									*5720	*5720	5.00
	lb									*12610	*12610	(16.4)
6.0 m (19.7 ft)	kg					*5460	5440			*5530	4940	6.35
	lb					*12040	11990			*12190	10890	(20.8)
4.5 m (14.8 ft)	kg			*6900	*6900	*5810	5310			*5570	4040	7.14
	lb			*15210	*15210	*12810	11710			*12280	8910	(23.4)
3.0 m (9.8 ft)	kg			*8690	7640	*6540	5090	5640	3670	5580	3630	7.55
	lb			*19160	16840	*14420	11220	12430	8090	12300	8000	(24.8)
1.5 m (4.9 ft)	kg					*7270	4880	5550	3590	5400	3500	7.64
	lb					*16030	10760	12240	7910	11900	7720	(25.1)
0.0 m (0.0 ft)	kg			*10520	7090	7580	4760			5580	3590	7.43
	lb			*23190	15630	16710	10490			12300	7910	(24.4)
-1.5 m (-4.9 ft)	kg			*10220	7100	7560	4750			6230	3980	6.88
	lb			*22530	15650	16670	10470			13730	8770	(22.6)
-3.0 m (-9.8 ft)	kg	*12370	*12370	*9130	7240					*6670	4980	5.90
	lb	*27270	*27270	*20130	15960					*14700	10980	(19.4)
-4.5 m (-14.8 ft)	kg											
	lb											

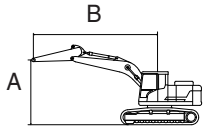
Note 1. Lifting capacity are based on ISO 10567.
2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
3. The Lift-point is bucket pivot mounting pin on the arm (without bucket mass).
4. *Indicates load limited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

Model	Type	Boom	Arm	Counterweight	Shoe	Wheel	Dozer		Outrigger	
HX220A L	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	width [mm]	Front	Rear	Front	Rear
		5680	2400	3800	600	-	-	-	-	-

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



Lift-point height (A)		Lift-point radius (B)								At max. reach		
		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		Capacity		Reach
												m (ft)
7.5 m (24.6 ft)	kg lb									*5080 *11200	*5080 *11200	5.58 (18.3)
6.0 m (19.7 ft)	kg lb					*5010 *11050	*5010 *11050			*4610 *10160	4430 9770	6.82 (22.4)
4.5 m (14.8 ft)	kg lb			*6350 *14000	*6350 *14000	*5450 *12020	5340 11770	*5000 *11020	3750 8270	*4490 *9900	3700 8160	7.55 (24.8)
3.0 m (9.8 ft)	kg lb			*8150 *17970	7740 17060	*6230 *13730	5110 11270	*5420 *11950	3670 8090	*4580 *10100	3360 7410	7.94 (26.1)
1.5 m (4.9 ft)	kg lb			*9710 *21410	7270 16030	*7030 *15500	4880 10760	5530 12190	3570 7870	*4860 *10710	3230 7120	8.03 (26.3)
0.0 m (0.0 ft)	kg lb			*10410 *22950	7060 15560	7550 16640	4730 10430	5460 12040	3500 7720	5140 11330	3310 7300	7.83 (25.7)
-1.5 m (-4.9 ft)	kg lb	*10830 *23880	*10830 *23880	*10330 *22770	7040 15520	7500 16530	4690 10340			5660 12480	3620 7980	7.31 (24.0)
-3.0 m (-9.8 ft)	kg lb	*13260 *29230	*13260 *29230	*9490 *20920	7140 15740	*6960 *15340	4770 10520			*6300 *13890	4390 9680	6.40 (21.0)
-4.5 m (-14.8 ft)	kg lb			*7150 *15760	*7150 *15760					*6320 *13930	*6320 *13930	4.89 (16.0)

Note 1. Lifting capacity are based on 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.

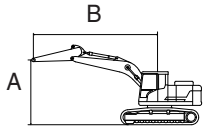
3. The Lift-point is bucket pivot mounting pin on the arm (without bucket mass).

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 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.

Model	Type	Boom	Arm	Counterweight	Shoe	Wheel	Dozer		Outrigger	
HX220A L	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	width [mm]	Front	Rear	Front	Rear
		5680	2920	3800	600	-	-	-	-	-

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



Lift-point height (A)		Lift-point radius (B)										At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		Capacity		Reach
														m (ft)
7.5 m (24.6 ft)	kg							*4460	*4460			*3370	*3370	6.26
	lb							*9830	*9830			*7430	*7430	(20.5)
6.0 m (19.7 ft)	kg							*4460	*4460			*3100	*3100	7.38
	lb							*9830	*9830			*6830	*6830	(24.2)
4.5 m (14.8 ft)	kg							*4970	*4970	*4710	3780	*3020	*3020	8.07
	lb							*10960	*10960	*10380	8330	*6660	*6660	(26.5)
3.0 m (9.8 ft)	kg					*7410	*7410	*5800	5140	*5070	3670	*3070	3050	8.43
	lb					*16340	*16340	*12790	11330	*11180	8090	*6770	6720	(27.7)
1.5 m (4.9 ft)	kg					*9140	7340	*6680	4890	*5520	3550	*3250	2940	8.51
	lb					*20150	16180	*14730	10780	*12170	7830	*7170	6480	(27.9)
0.0 m (0.0 ft)	kg			*5930	*5930	*10140	7040	*7330	4700	5410	3450	*3590	2990	8.32
	lb			*13070	*13070	*22350	15520	*16160	10360	11930	7610	*7910	6590	(27.3)
-1.5 m (-4.9 ft)	kg	*6500	*6500	*10400	*10400	*10350	6950	7440	4620	5380	3420	*4200	3230	7.84
	lb	*14330	*14330	*22930	*22930	*22820	15320	16400	10190	11860	7540	*9260	7120	(25.7)
-3.0 m (-9.8 ft)	kg	*11120	*11120	*14180	13660	*9820	7010	*7250	4650			*5420	3800	7.00
	lb	*24520	*24520	*31260	30120	*21650	15450	*15980	10250			*11950	8380	(23.0)
-4.5 m (-14.8 ft)	kg			*11610	*11610	*8190	7220					*6080	5250	5.65
	lb			*25600	*25600	*18060	15920					*13400	11570	(18.5)

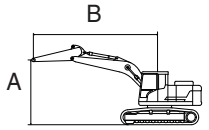
Note 1. Lifting capacity are based on ISO 10567.

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 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.

Model	Type	Boom	Arm	Counterweight	Shoe	Wheel	Dozer		Outrigger	
HX220A L	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	width [mm]	Front	Rear	Front	Rear
		5680	2920	3800	800	-	-	-	-	-

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



Lift-point height (A)		Lift-point radius (B)										At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		Capacity		Reach
														m (ft)
7.5 m (24.6 ft)	kg							*4460	*4460			*3370	*3370	6.26
	lb							*9830	*9830			*7430	*7430	(20.5)
6.0 m (19.7 ft)	kg							*4460	*4460			*3100	*3100	7.38
	lb							*9830	*9830			*6830	*6830	(24.2)
4.5 m (14.8 ft)	kg							*4970	*4970	*4710	3900	*3020	*3020	8.07
	lb							*10960	*10960	*10380	8600	*6660	*6660	(26.5)
3.0 m (9.8 ft)	kg					*7410	*7410	*5800	5300	*5070	3790	*3070	*3070	8.43
	lb					*16340	*16340	*12790	11680	*11180	8360	*6770	*6770	(27.7)
1.5 m (4.9 ft)	kg					*9140	7570	*6680	5040	*5520	3670	*3250	3040	8.51
	lb					*20150	16690	*14730	11110	*12170	8090	*7170	6700	(27.9)
0.0 m (0.0 ft)	kg			*5930	*5930	*10140	7270	*7330	4860	5600	3570	*3590	3090	8.32
	lb			*13070	*13070	*22350	16030	*16160	10710	12350	7870	*7910	6810	(27.3)
-1.5 m (-4.9 ft)	kg	*6500	*6500	*10400	*10400	*10350	7180	*7590	4780	5560	3540	*4200	3350	7.84
	lb	*14330	*14330	*22930	*22930	*22820	15830	*16730	10540	12260	7800	*9260	7390	(25.7)
-3.0 m (-9.8 ft)	kg	*11120	*11120	*14180	14090	*9820	7240	*7250	4810			*5420	3940	7.00
	lb	*24520	*24520	*31260	31060	*21650	15960	*15980	10600			*11950	8690	(23.0)
-4.5 m (-14.8 ft)	kg			*11610	*11610	*8190	7450					*6080	5420	5.65
	lb			*25600	*25600	*18060	16420					*13400	11950	(18.5)

Note 1. Lifting capacity are based on 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.

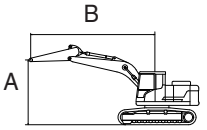
3. The Lift-point is bucket pivot mounting pin on the arm (without bucket mass).

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 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.

Model	Type	Boom	Arm	Counterweight	Shoe	Wheel	Dozer		Outrigger	
HX220A L	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	width [mm]	Front	Rear	Front	Rear
		5680	2920	4500	700	-	-	-	-	-

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



Lift-point height (A)		Lift-point radius (B)										At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		Capacity		Reach
														m (ft)
7.5 m	kg							*4460	*4460			*3370	*3370	6.26
(24.6 ft)	lb							*9830	*9830			*7430	*7430	(20.5)
6.0 m	kg							*4460	*4460			*3100	*3100	7.38
(19.7 ft)	lb							*9830	*9830			*6830	*6830	(24.2)
4.5 m	kg							*4970	*4970	*4710	4190	*3020	*3020	8.07
(14.8 ft)	lb							*10960	*10960	*10380	9240	*6660	*6660	(26.5)
3.0 m	kg					*7410	*7410	*5800	5670	*5070	4080	*3070	*3070	8.43
(9.8 ft)	lb					*16340	*16340	*12790	12500	*11180	8990	*6770	*6770	(27.7)
1.5 m	kg					*9140	8120	*6680	5420	*5520	3950	*3250	*3250	8.51
(4.9 ft)	lb					*20150	17900	*14730	11950	*12170	8710	*7170	*7170	(27.9)
0.0 m	kg			*5930	*5930	*10140	7820	*7330	5240	*5860	3860	*3590	3350	8.32
(0.0 ft)	lb			*13070	*13070	*22350	17240	*16160	11550	*12920	8510	*7910	7390	(27.3)
-1.5 m	kg	*6500	*6500	*10400	*10400	*10350	7730	*7590	5160	5910	3830	*4200	3620	7.84
(-4.9 ft)	lb	*14330	*14330	*22930	*22930	*22820	17040	*16730	11380	13030	8440	*9260	7980	(25.7)
-3.0 m	kg	*11120	*11120	*14180	*14180	*9820	7790	*7250	5180			*5420	4250	7.00
(-9.8 ft)	lb	*24520	*24520	*31260	*31260	*21650	17170	*15980	11420			*11950	9370	(23.0)
-4.5 m	kg			*11610	*11610	*8190	8000					*6080	5830	5.65
(-14.8 ft)	lb			*25600	*25600	*18060	17640					*13400	12850	(18.5)

Note 1. Lifting capacity are based on ISO 10567.

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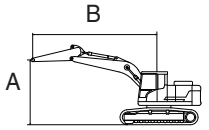
Model	Type	Boom	Arm	Counterweight	Shoe	Wheel	Dozer		Outrigger	
HX220A L	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	width [mm]	Front	Rear	Front	Rear
		5680	2920	5300	700	-	-	-	-	-

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



Lift-point height (A)		Lift-point radius (B)										At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		Capacity		Reach
														m (ft)
7.5 m	kg							*4460	*4460			*3370	*3370	6.26
(24.6 ft)	lb							*9830	*9830			*7430	*7430	(20.5)
6.0 m	kg							*4460	*4460			*3100	*3100	7.38
(19.7 ft)	lb							*9830	*9830			*6830	*6830	(24.2)
4.5 m	kg							*4970	*4970	*4710	4550	*3020	*3020	8.07
(14.8 ft)	lb							*10960	*10960	*10380	10030	*6660	*6660	(26.5)
3.0 m	kg					*7410	*7410	*5800	*5800	*5070	4440	*3070	*3070	8.43
(9.8 ft)	lb					*16340	*16340	*12790	*12790	*11180	9790	*6770	*6770	(27.7)
1.5 m	kg					*9140	8820	*6680	5900	*5520	4320	*3250	*3250	8.51
(4.9 ft)	lb					*20150	19440	*14730	13010	*12170	9520	*7170	*7170	(27.9)
0.0 m	kg			*5930	*5930	*10140	8520	*7330	5710	*5860	4220	*3590	*3590	8.32
(0.0 ft)	lb			*13070	*13070	*22350	18780	*16160	12590	*12920	9300	*7910	*7910	(27.3)
-1.5 m	kg	*6500	*6500	*10400	*10400	*10350	8430	*7590	5630	*5920	4190	*4200	3960	7.84
(-4.9 ft)	lb	*14330	*14330	*22930	*22930	*22820	18580	*16730	12410	*13050	9240	*9260	8730	(25.7)
-3.0 m	kg	*11120	*11120	*14180	*14180	*9820	8490	*7250	5660			*5420	4640	7.00
(-9.8 ft)	lb	*24520	*24520	*31260	*31260	*21650	18720	*15980	12480			*11950	10230	(23.0)
-4.5 m	kg			*11610	*11610	*8190	*8190					*6080	*6080	5.65
(-14.8 ft)	lb			*25600	*25600	*18060	*18060					*13400	*13400	(18.5)

Note 1. Lifting capacity are based on ISO 10567.

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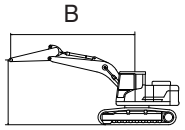
Model	Type	Boom	Arm	Counterweight	Shoe	Wheel	Dozer		Outrigger	
HX220A L	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	width [mm]	Front	Rear	Front	Rear
		5680	3900	3800	600	-	-	-	-	-

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



Lift-point height (A)		Lift-point radius (B)												At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		9.0 m (29.5 ft)		Capacity		Reach
																m (ft)
7.5 m (24.6 ft)	kg													*2330	*2330	7.49
	lb													*5140	*5140	(24.6)
6.0 m (19.7 ft)	kg									*3680	*3680			*2170	*2170	8.44
	lb									*8110	*8110			*4780	*4780	(27.7)
4.5 m (14.8 ft)	kg									*3920	3820	*2330	*2330	*2120	*2120	9.05
	lb									*8640	8420	*5140	*5140	*4670	*4670	(29.7)
3.0 m (9.8 ft)	kg					*5890	*5890	*4880	*4880	*4370	3680	*3530	2710	*2150	*2150	9.37
	lb					*12990	*12990	*10760	*10760	*9630	8110	*7780	5970	*4740	*4740	(30.7)
1.5 m (4.9 ft)	kg			*8630	*8630	*7850	7470	*5870	4900	*4920	3510	*4080	2630	*2250	*2250	9.45
	lb			*19030	*19030	*17310	16470	*12940	10800	*10850	7740	*8990	5800	*4960	*4960	(31.0)
0.0 m (0.0 ft)	kg			*7210	*7210	*9310	7000	*6730	4640	5330	3370	*3890	2570	*2440	*2440	9.28
	lb			*15900	*15900	*20530	15430	*14840	10230	11750	7430	*8580	5670	*5380	*5380	(30.4)
-1.5 m (-4.9 ft)	kg	*5430	*5430	*9370	*9370	*10030	6770	*7260	4480	5240	3280			*2780	2610	8.85
	lb	*11970	*11970	*20660	*20660	*22110	14930	*16010	9880	11550	7230			*6130	5750	(29.0)
-3.0 m (-9.8 ft)	kg	*8510	*8510	*13040	*13040	*10030	6730	7250	4440	5220	3270			*3380	2950	8.12
	lb	*18760	*18760	*28750	*28750	*22110	14840	15980	9790	11510	7210			*7450	6500	(26.6)
-4.5 m (-14.8 ft)	kg	*12380	*12380	*13530	13400	*9220	6840	*6720	4520					*4660	3700	6.99
	lb	*27290	*27290	*29830	29540	*20330	15080	*14820	9960					*10270	8160	(22.9)
-6.0 m (-19.7 ft)	kg			*10120	*10120	*6860	*6860							*5510	*5510	5.21
	lb			*22310	*22310	*15120	*15120							*12150	*12150	(17.1)

Note 1. Lifting capacity are based on ISO 10567.

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3. The Lift-point is bucket pivot mounting pin on the arm (without bucket mass).
4. *Indicates load limited by hydraulic capacity.

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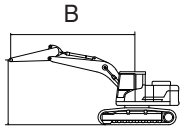
Make adjustments to the rated load as necessory for non-standard configurations.

Model	Type	Boom	Arm	Counterweight	Shoe	Wheel	Dozer		Outrigger	
HX220A L	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	width [mm]	Front	Rear	Front	Rear
		5680	3900	5300	700	-	-	-	-	-

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



Lift-point height (A)		Lift-point radius (B)												At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		9.0 m (29.5 ft)		Capacity		Reach
																m (ft)
7.5 m (24.6 ft)	kg													*2330	*2330	7.49
	lb													*5140	*5140	(24.6)
6.0 m (19.7 ft)	kg									*3680	*3680			*2170	*2170	8.44
	lb									*8110	*8110			*4780	*4780	(27.7)
4.5 m (14.8 ft)	kg									*3920	*3920	*2330	*2330	*2120	*2120	9.05
	lb									*8640	*8640	*5140	*5140	*4670	*4670	(29.7)
3.0 m (9.8 ft)	kg					*5890	*5890	*4880	*4880	*4370	*4370	*3530	3330	*2150	*2150	9.37
	lb					*12990	*12990	*10760	*10760	*9630	*9630	*7780	7340	*4740	*4740	(30.7)
1.5 m (4.9 ft)	kg			*8630	*8630	*7850	*7850	*5870	*5870	*4920	4280	*4080	3250	*2250	*2250	9.45
	lb			*19030	*19030	*17310	*17310	*12940	*12940	*10850	9440	*8990	7170	*4960	*4960	(31.0)
0.0 m (0.0 ft)	kg			*7210	*7210	*9310	8480	*6730	5650	*5410	4130	*3890	3190	*2440	*2440	9.28
	lb			*15900	*15900	*20530	18700	*14840	12460	*11930	9110	*8580	7030	*5380	*5380	(30.4)
-1.5 m (-4.9 ft)	kg	*5430	*5430	*9370	*9370	*10030	8250	*7260	5490	*5720	4040			*2780	*2780	8.85
	lb	*11970	*11970	*20660	*20660	*22110	18190	*16010	12100	*12610	8910			*6130	*6130	(29.0)
-3.0 m (-9.8 ft)	kg	*8510	*8510	*13040	*13040	*10030	8210	*7340	5450	*5660	4030			*3380	*3380	8.12
	lb	*18760	*18760	*28750	*28750	*22110	18100	*16180	12020	*12480	8880			*7450	*7450	(26.6)
-4.5 m (-14.8 ft)	kg	*12380	*12380	*13530	*13530	*9220	8320	*6720	5530					*4660	4540	6.99
	lb	*27290	*27290	*29830	*29830	*20330	18340	*14820	12190					*10270	10010	(22.9)
-6.0 m (-19.7 ft)	kg			*10120	*10120	*6860	*6860							*5510	*5510	5.21
	lb			*22310	*22310	*15120	*15120							*12150	*12150	(17.1)

Note 1. Lifting capacity are based on ISO 10567.

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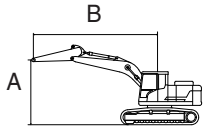
Model	Type	Boom	Arm	Counterweight	Shoe	Wheel	Dozer		Outrigger	
HX220A L	2-PIECE BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	width [mm]	Front	Rear	Front	Rear
		5650	2920	3800	600	-	-	-	-	-

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



Lift-point height (A)		Lift-point radius (B)								At max. reach		
		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		Capacity		Reach
												m (ft)
9.0 m (29.5 ft)	kg									*4550	*4550	4.46
	lb									*10030	*10030	(14.6)
7.5 m (24.6 ft)	kg			*6200	*6200	*5300	*5300			*3630	*3630	6.32
	lb			*13670	*13670	*11680	*11680			*8000	*8000	(20.7)
6.0 m (19.7 ft)	kg			*6430	*6430	*5760	5560			*3300	*3300	7.43
	lb			*14180	*14180	*12700	12260			*7280	*7280	(24.4)
4.5 m (14.8 ft)	kg	*10530	*10530	*8050	*8050	*6090	5370	*4920	3730	*3180	*3180	8.11
	lb	*23210	*23210	*17750	*17750	*13430	11840	*10850	8220	*7010	*7010	(26.6)
3.0 m (9.8 ft)	kg			*10100	7820	*6730	5080	*5130	3610	*3200	2950	8.47
	lb			*22270	17240	*14840	11200	*11310	7960	*7050	6500	(27.8)
1.5 m (4.9 ft)	kg			*11830	7210	*7620	4800	*5440	3470	*3350	2840	8.55
	lb			*26080	15900	*16800	10580	*11990	7650	*7390	6260	(28.1)
0.0 m (0.0 ft)	kg			11830	6880	7480	4590	5370	3370	*3640	2890	8.36
	lb			26080	15170	16490	10120	11840	7430	*8020	6370	(27.4)
-1.5 m (-4.9 ft)	kg	*11710	*11710	*10960	6790	7380	4510	5340	3340	*4180	3140	7.88
	lb	*25820	*25820	*24160	14970	16270	9940	11770	7360	*9220	6920	(25.9)
-3.0 m (-9.8 ft)	kg	*11250	*11250	*8920	6870	*6680	4560			*4770	3710	7.05
	lb	*24800	*24800	*19670	15150	*14730	10050			*10520	8180	(23.1)

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