



HX330 L

CRAWLER EXCAVATOR

HX330L



SERVICE MANUAL

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FOREWORD

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.

SECTION 9 COMPONENT MOUNTING TORQUE

This section shows bolt specifications and standard torque values needed when mounting components to the machine.

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

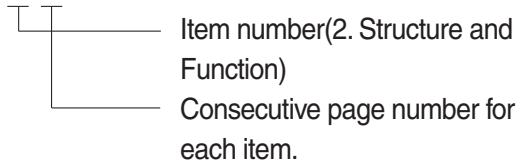
1. See the page number on the bottom of the page.

File the pages in correct order.

2. Following examples shows how to read the page number.

Example 1

2 - 3



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

10 - 4

10 - 4 - 1

10 - 4 - 2

10 - 5

Added pages

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 ①, then draw a horizontal line from ①.
- (2) Locate the number 5 in the row across the top, take this as ②, then draw a perpendicular line down from ②.
- (3) Take the point where the two lines cross as ③. This point ③ gives the value when converting from millimeters to inches. Therefore, 55mm = 2.165 inches.

2. Convert 550mm 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 55mm.
- (2) Carry out the same procedure as above to convert 55mm to 2.165 inches.
- (3) The original value (550mm) 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 550mm = 21.65 inches.

Millimeters to inches

②

1mm = 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
① 50	1.969	2.008	2.047	2.087	2.126	③ 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
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

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	6.076	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	7.699	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

1 kgf · m = 7.233 lbf · 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	296.6	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

1 kgf / cm² = 14.2233 lbf / 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 Hints	1-1
Group 2 Specifications	1-10

SECTION 1 GENERAL

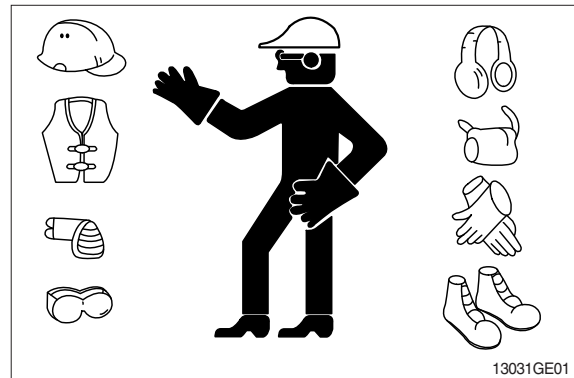
GROUP 1 SAFETY

FOLLOW SAFE PROCEDURE

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

WEAR PROTECTIVE CLOTHING

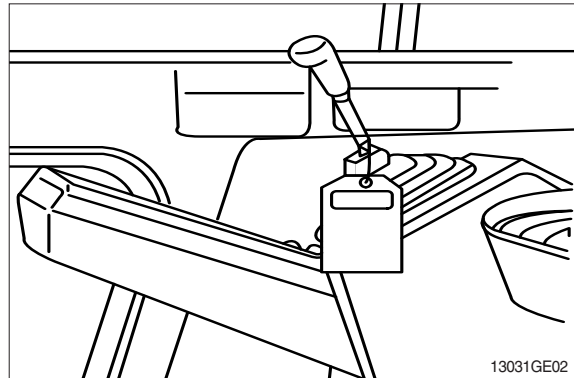
Wear close fitting clothing and safety equipment appropriate to the job.



WARN OTHERS OF SERVICE WORK

Unexpected machine movement can cause serious injury.

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



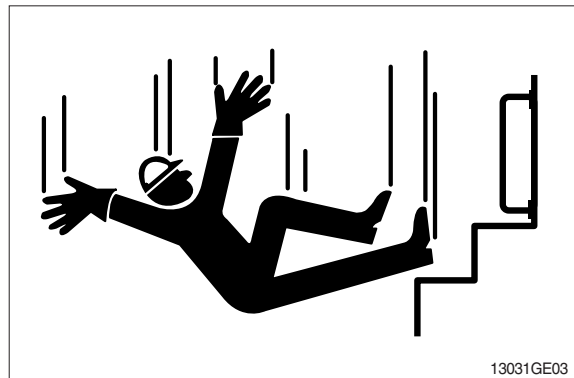
USE HANDHOLDS AND STEPS

Falling is one of the major causes of personal injury.

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

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

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

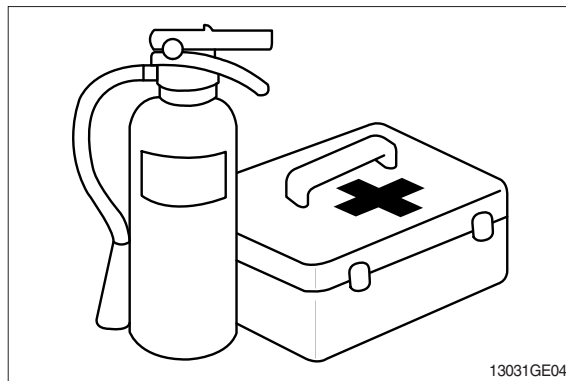


PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

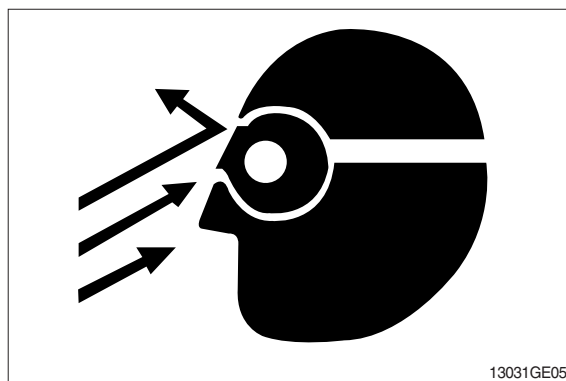
Keep a first aid kit and fire extinguisher handy.

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



PROTECT AGAINST FLYING DEBRIS

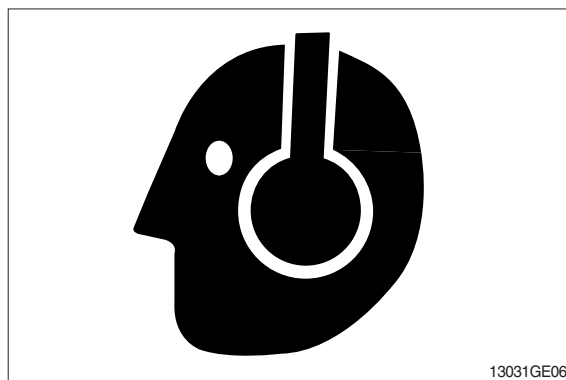
Guard against injury from flying pieces of metal or debris; Wear goggles or safety glasses.



PROTECT AGAINST NOISE

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

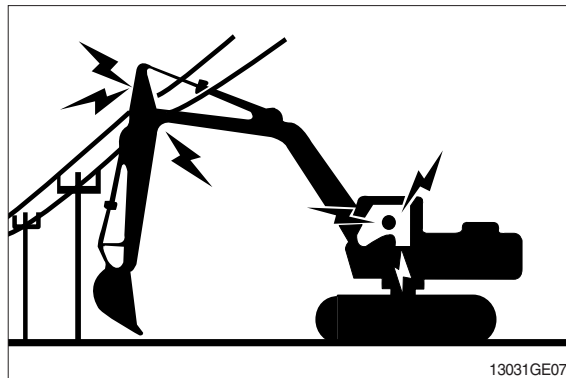
Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



AVOID POWER LINES

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

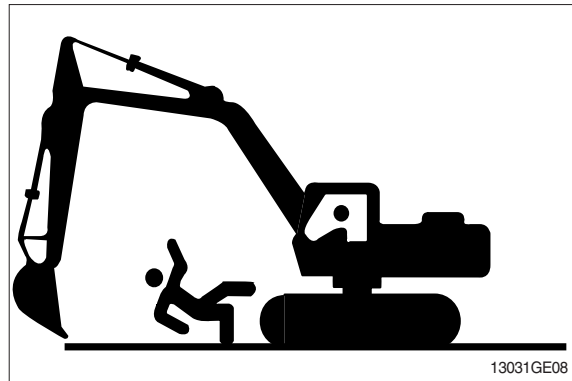
Never move any part of the machine or load closer to electric line than 3m(10ft) plus twice the line insulator length.



KEEP RIDERS OFF EXCAVATOR

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

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

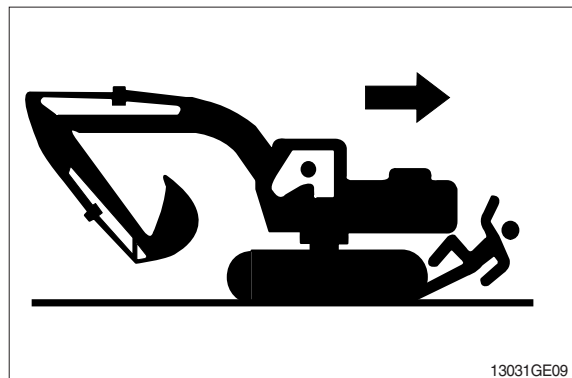


MOVE AND OPERATE MACHINE SAFELY

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

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

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



OPERATE ONLY FROM OPERATOR'S SEAT

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

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



PARK MACHINE SAFELY

Before working on the machine:

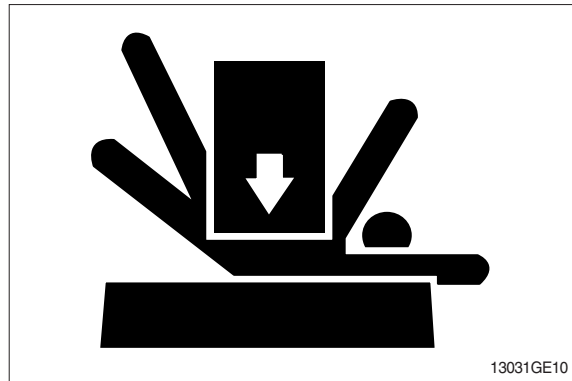
- Park machine on a level surface.
- Lower bucket to the ground.
- Turn auto idle switch off.
- Run engine at 1/2 speed without load for 2 minutes.
- Turn key switch to OFF to stop engine. Remove key from switch.
- Move pilot control shutoff lever to locked position.
- Allow engine to cool.

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.

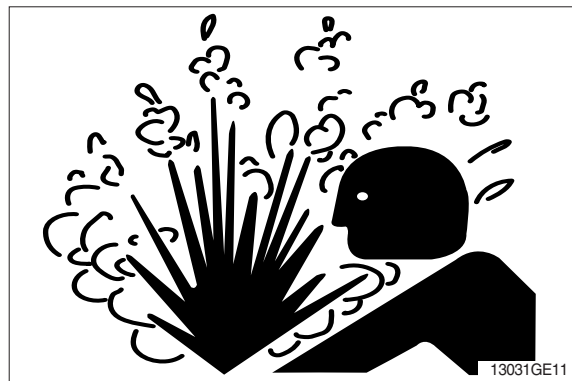
Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.



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

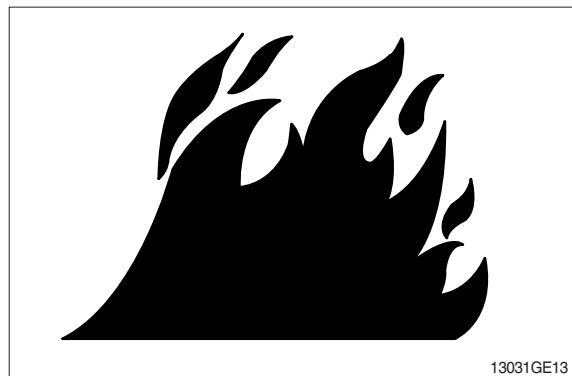
Handle fuel with care; It is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks. Always stop engine before refueling machine. Fill fuel tank outdoors.



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

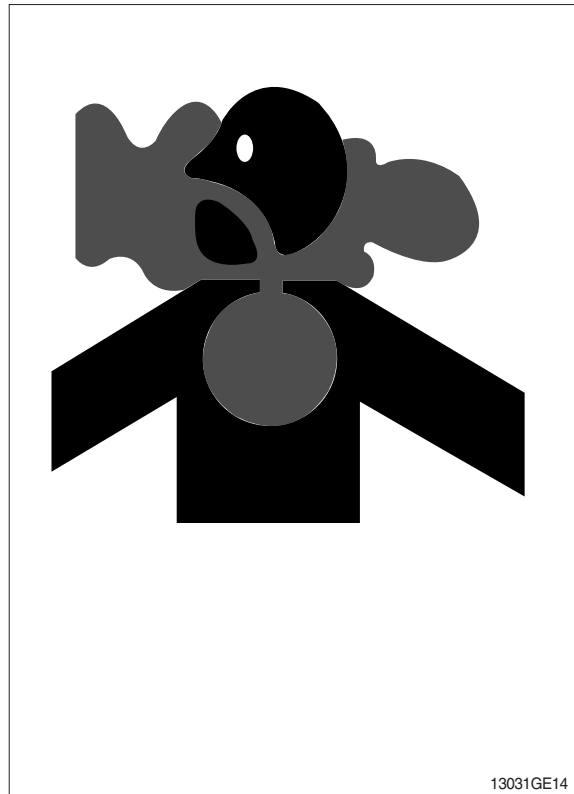
Avoid potentially toxic fumes and dust.

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

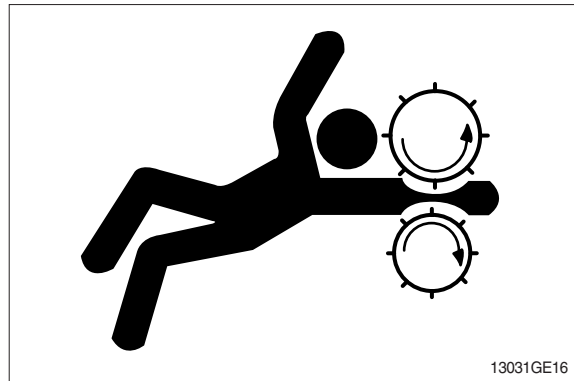
Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.



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.

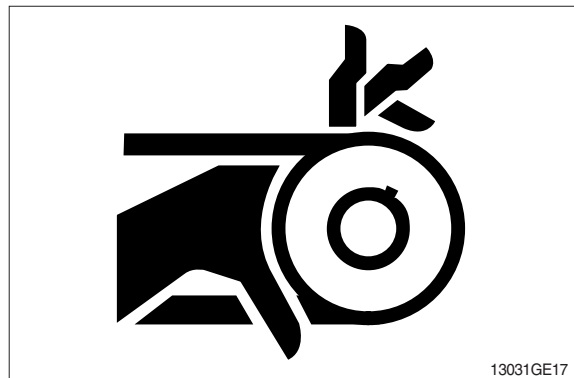
Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.



STAY CLEAR OF MOVING PARTS

Entanglements in moving parts can cause serious injury.

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



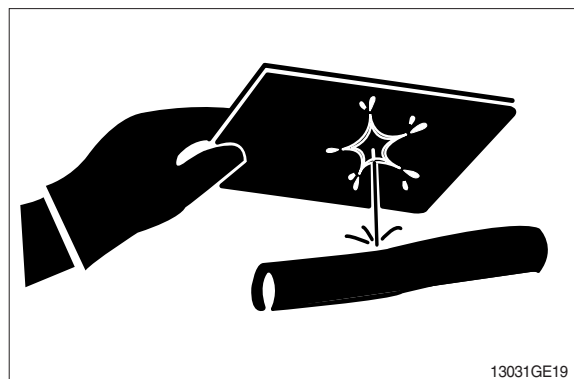
AVOID HIGH PRESSURE FLUIDS

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:

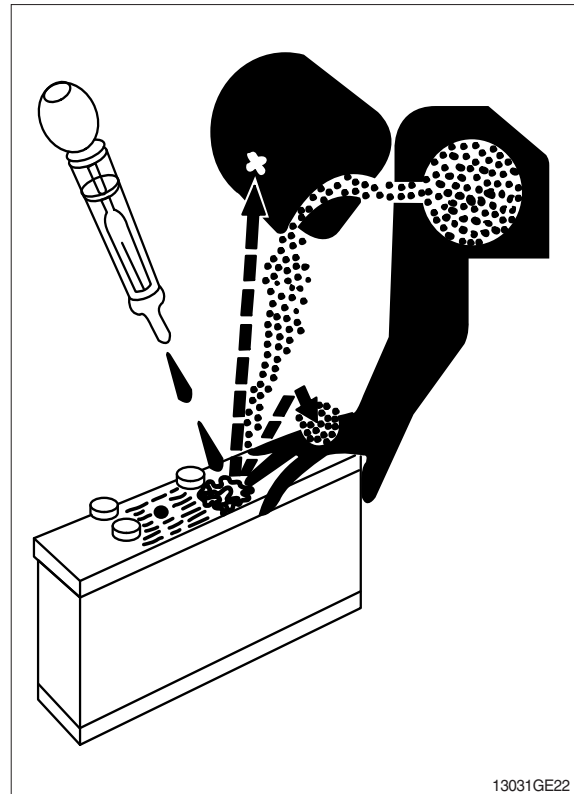
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

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

If acid is swallowed:

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



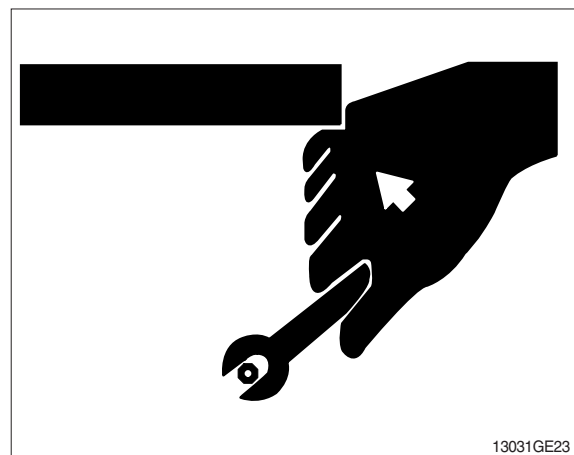
USE TOOLS PROPERLY

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

Use power tools only to loosen threaded tools and fasteners.

For loosening and tightening hardware, use the correct size tools. DO NOT use U.S. measurement tools on metric fasteners. Avoid bodily injury caused by slipping wrenches.

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

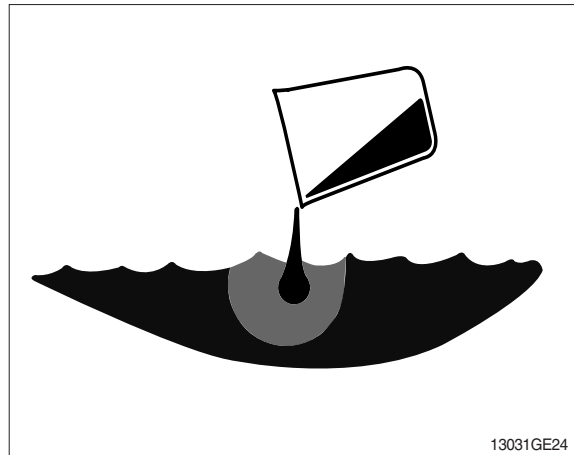


DISPOSE OF FLUIDS PROPERLY

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.

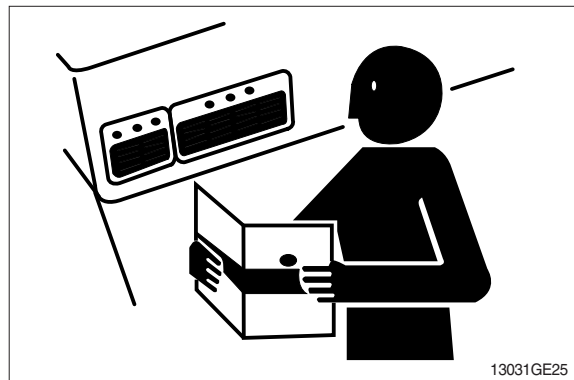
Use proper containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

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.

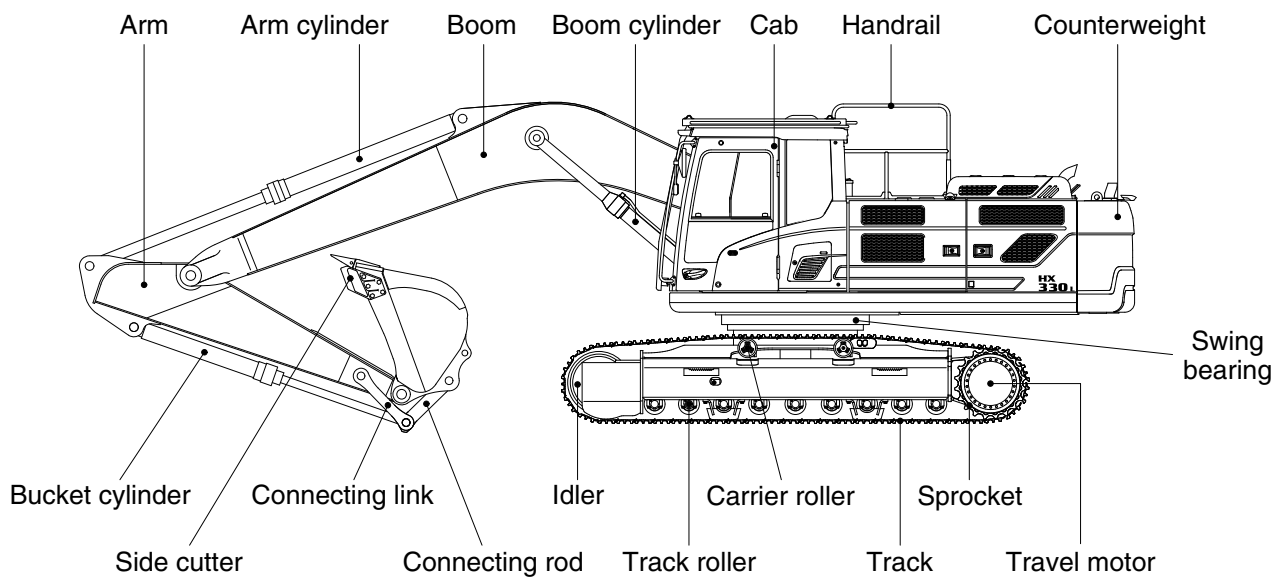
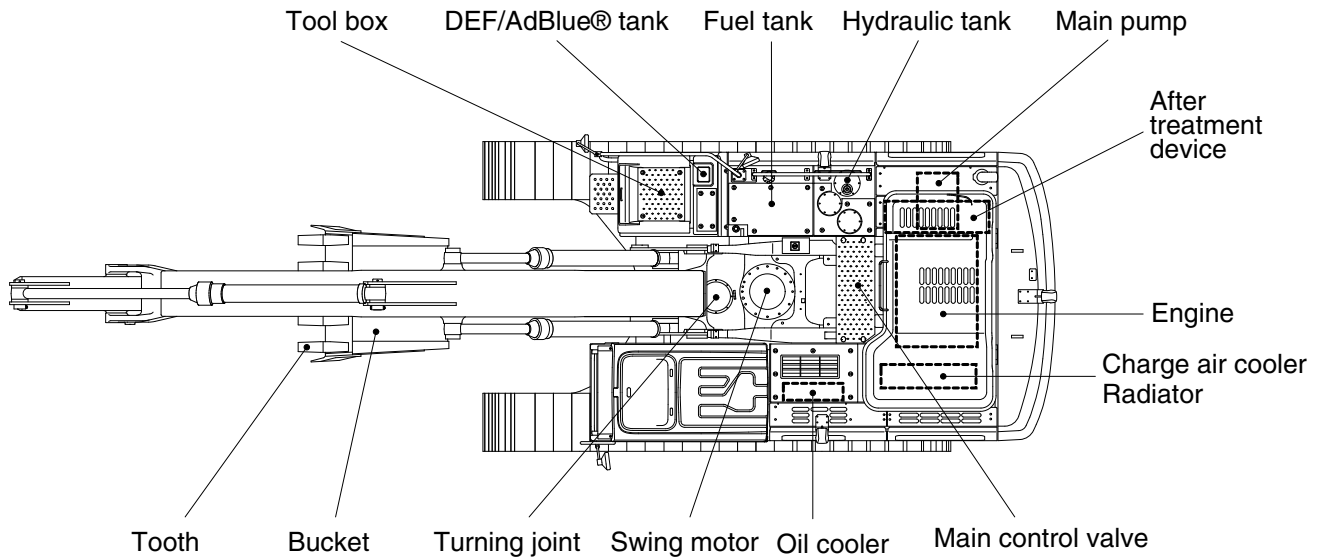


LIVE WITH SAFETY

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

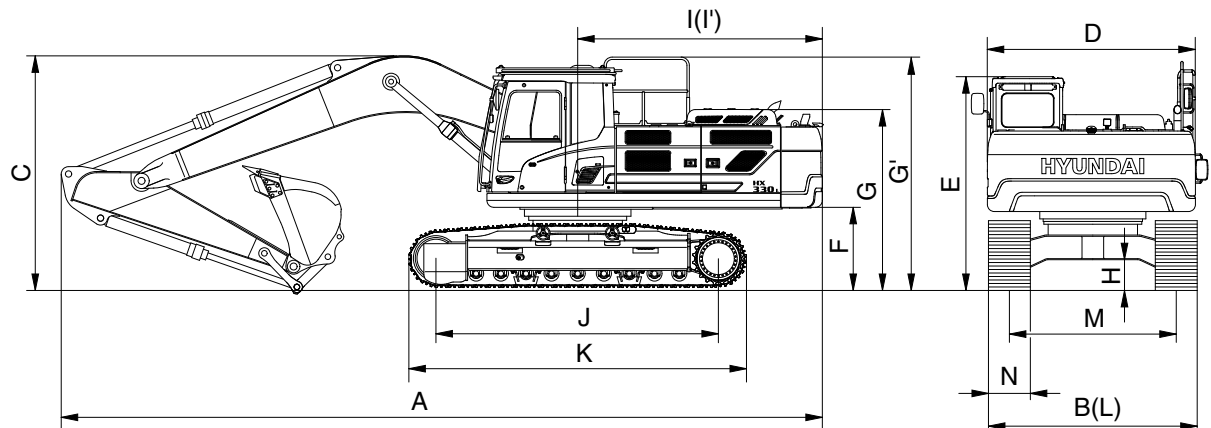


330F2SP01

2. SPECIFICATIONS

1) HX330 L

· 6.45 m (21' 2") BOOM and 3.20 m (10' 6") ARM

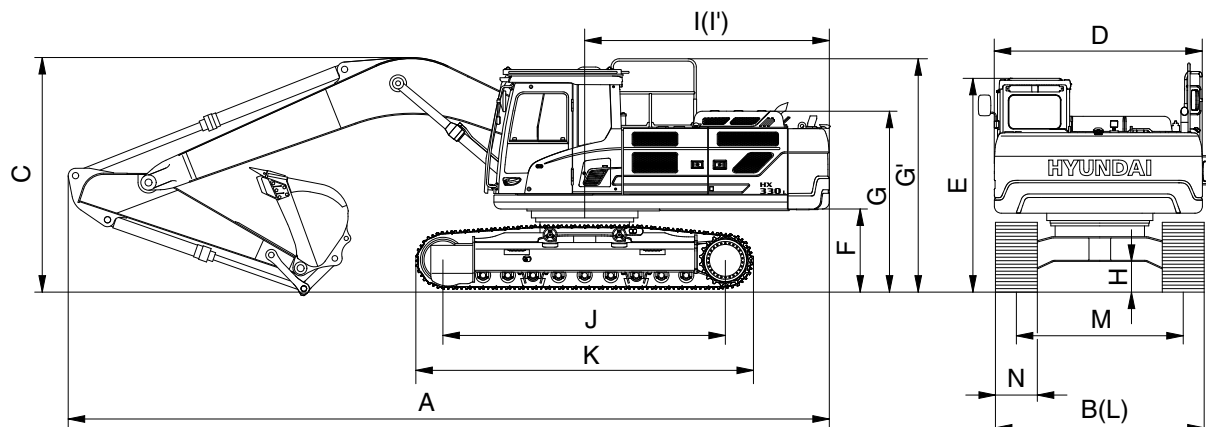


330F2SP02

Description		Unit	Specification
Operating weight		kg (lb)	33500 (73850)
Bucket capacity (SAE heaped), standard		m ³ (yd ³)	1.44 (1.88)
Overall length	A	mm (ft-in)	11220 (36' 10")
Overall width, with 600 mm shoe	B		3280 (10' 9")
Overall height of boom	C		3380 (11' 1")
Superstructure width	D		2980 (9' 9")
Overall height of cab	E		3160 (10' 4")
Ground clearance of counterweight	F		1200 (3' 11")
Overall height of engine hood	G		2610 (8' 7")
Overall height of handrail	G'		3350 (11' 0")
Minimum ground clearance	H		500 (1' 8")
Rear-end distance	I		3505 (11' 6")
Rear-end swing radius	I'		3570 (11' 9")
Distance between tumblers	J		4030 (13' 3")
Undercarriage length	K		4940 (16' 2")
Undercarriage width	L		3280 (10' 9")
Track gauge	M		2680 (8' 10")
Track shoe width, standard	N		600 (24")
Travel speed (low/high)		km/hr (mph)	3.4/5.9 (2.1/3.7)
Swing speed		rpm	9.1
Gradeability		Degree (%)	35 (70)
Ground pressure (600 mm shoe)		kgf/cm ² (psi)	0.65 (9.24)
Max traction force		kg (lb)	27000 (59520)

2) HX330 NL

· 6.45 m (21' 2") BOOM and 3.20 m (10' 6") ARM

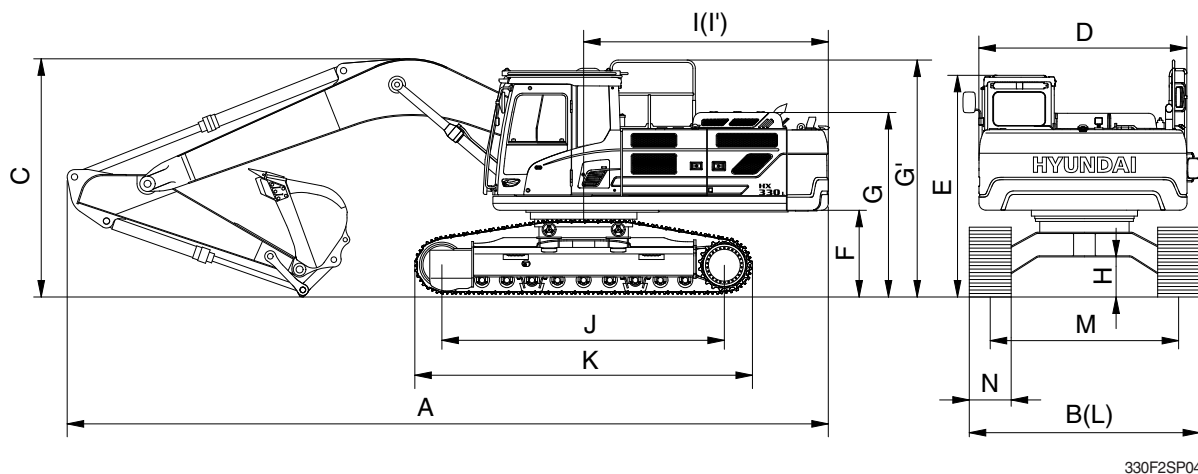


330F2SP03

Description		Unit	Specification
Operating weight		kg (lb)	33300 (73410)
Bucket capacity (SAE heaped), standard		m ³ (yd ³)	1.44 (1.88)
Overall length	A	mm (ft-in)	11220 (36' 10")
Overall width, with 600 mm shoe	B		2990 (9' 10")
Overall height of boom	C		3380 (11' 1")
Superstructure width	D		2980 (9' 9")
Overall height of cab	E		3160 (10' 4")
Ground clearance of counterweight	F		1200 (3' 11")
Overall height of engine hood	G		2610 (8' 7")
Overall height of handrail	G'		3350 (11' 0")
Minimum ground clearance	H		500 (1' 8")
Rear-end distance	I		3505 (11' 6")
Rear-end swing radius	I'		3570 (11' 9")
Distance between tumblers	J		4030 (13' 3")
Undercarriage length	K		4940 (16' 2")
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)	3.4/5.9 (2.1/3.7)
Swing speed		rpm	9.1
Gradeability		Degree (%)	35 (70)
Ground pressure (600 mm shoe)		kgf/cm ² (psi)	0.64 (9.10)
Max traction force		kg (lb)	27000 (59520)

3) HX330 L HIGH WALKER

· 6.45 m (21' 2") BOOM and 3.20 m (10' 6") ARM

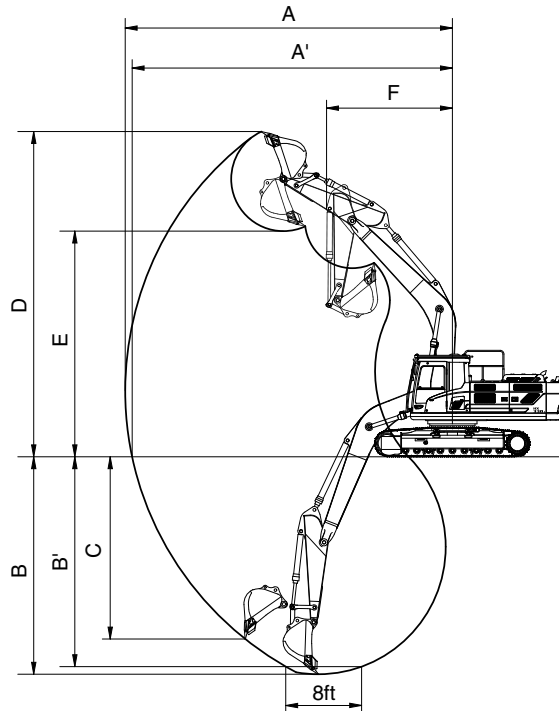


330F2SP04

Description		Unit	Specification
Operating weight		kg (lb)	36000 (79370)
Bucket capacity (SAE heaped), standard		m ³ (yd ³)	1.44 (1.88)
Overall length	A	mm (ft-in)	11150 (36' 7")
Overall width, with 600 mm shoe	B		3470 (11' 5")
Overall height of boom	C		3360 (11' 0")
Superstructure width	D		2980 (9' 9")
Overall height of cab	E		3460 (11' 4")
Ground clearance of counterweight	F		1500 (4' 11")
Overall height of engine hood	G		2910 (9' 7")
Overall height of handrail	G'		3650 (12' 0")
Minimum ground clearance	H		765 (2' 6")
Rear-end distance	I		3505 (11' 6")
Rear-end swing radius	I'		3570 (11' 9")
Distance between tumblers	J		4030 (13' 3")
Undercarriage length	K		4940 (16' 2")
Undercarriage width	L		3470 (11' 5")
Track gauge	M		2870 (9' 5")
Track shoe width, standard	N		600 (24")
Travel speed (low/high)		km/hr (mph)	3.4/5.9 (2.1/3.7)
Swing speed		rpm	9.1
Gradeability		Degree (%)	35 (70)
Ground pressure (600 mm shoe)		kgf/cm ² (psi)	0.69 (9.81)
Max traction force		kg (lb)	27000 (59520)

3. WORKING RANGE

1) HX330 L/NL

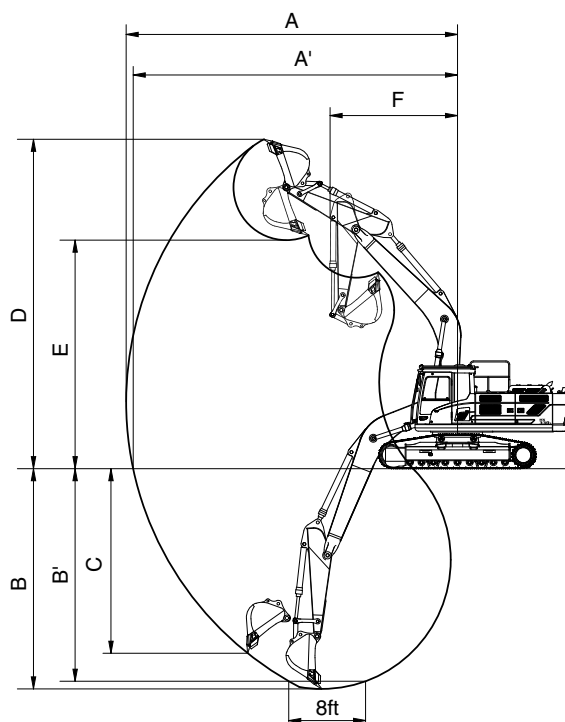


330F2SP05

Description		6.45 m (21' 2") Boom				6.15 m (20' 2") Boom
		2.2 m (7' 3") Arm	2.5 m (8' 2") Arm	3.2 m (10' 6") Arm	4.05 m (13' 3") Arm	2.2 m (7' 3") Arm
Max digging reach	A	10330 mm (33'11")	10550 mm (34' 7")	11140 mm (36' 7")	11950 mm (39' 2")	10020 mm (32'10")
Max digging reach on ground	A'	10110 mm (33' 2")	10330 mm (33'11")	10940 mm (35'11")	11760 mm (38' 7")	9800 mm (32' 2")
Max digging depth	B	6370 mm (20'11")	6670 mm (21'11")	7370 mm (24' 2")	8220 mm (26'12")	6160 mm (20' 3")
Max digging depth (8ft level)	B'	6160 mm (20' 3")	6470 mm (21' 3")	7210 mm (23' 8")	8080 mm (26' 6")	5950 mm (19' 6")
Max vertical wall digging depth	C	5980 mm (19' 7")	5920 mm (19' 5")	6360 mm (20'10")	7260 mm (23'10")	5710 mm (18' 9")
Max digging height	D	10220 mm (33' 6")	10170 mm (33' 4")	10310 mm (33'10")	10710 mm (35' 2")	9940 mm (32' 7")
Max dumping height	E	7050 mm (23' 2")	7050 mm (23' 2")	7240 mm (23' 9")	7630 mm (25' 0")	6780 mm (22' 3")
Min swing radius	F	4700 mm (15' 5")	4550 mm (14'11")	4460 mm (14' 8")	4470 mm (14' 8")	4520 mm (14'10")
Bucket digging force	SAE	189.3 [205.5] kN	189.3 [205.5] kN	189.3 [205.5] kN	189.3 [205.5] kN	189.3 [205.5] kN
		19300 [20950] kgf	19300 [20950] kgf	19300 [20950] kgf	19300 [20950] kgf	19300 [20950] kgf
		42550 [46200] lbf	42550 [46200] lbf	42550 [46200] lbf	42550 [46200] lbf	42550 [46200] lbf
	ISO	211.8 [230.0] kN	211.8 [230.0] kN	211.8 [230.0] kN	211.8 [230.0] kN	211.8 [230.0] kN
		21600 [23450] kgf	21600 [23450] kgf	21600 [23450] kgf	21600 [23450] kgf	21600 [23450] kgf
		47620 [51700] lbf	47620 [51700] lbf	47620 [51700] lbf	47620 [51700] lbf	47620 [51700] lbf
Arm crowd force	SAE	196.6 [213.4] kN	178.9 [194.2] kN	143.2 [155.5] kN	119.6 [129.9] kN	196.6 [213.4] kN
		20000 [21760] kgf	18200 [19810] kgf	14600 [15850] kgf	12200 [13240] kgf	20000 [21760] kgf
		44190 [47980] lbf	40220 [43670] lbf	32190 [34950] lbf	26890 [29190] lbf	44190 [47980] lbf
	ISO	202.8 [220.2] kN	185.1 [201.0] kN	147.1 [159.7] kN	122.7 [133.3] kN	202.8 [220.2] kN
		20700 [22450] kgf	18900 [20500] kgf	15000 [16290] kgf	12515 [13590] kgf	20700 [22450] kgf
		45600 [49510] lbf	41620 [45190] lbf	33070 [35900] lbf	27590 [29950] lbf	45600 [49510] lbf

[] : Power boost

2) HX330 L HIGH WALKER



330F2SP06

Description		6.45 m (21' 2") Boom				6.15 m (20' 2") Boom
		2.2 m (7' 3") Arm	2.5 m (8' 2") Arm	3.2 m (10' 6") Arm	4.05 m (13' 3") Arm	2.2 m (7' 3") Arm
Max digging reach	A	10330 mm (33'11")	10550 mm (34' 7")	11140 mm (36' 7")	11950 mm (39' 2")	10020 mm (32'10")
Max digging reach on ground	A'	10040 mm (32'11")	10270 mm (33' 8")	10880 mm (35' 8")	11710 mm (38' 5")	9730 mm (31'11")
Max digging depth	B	6100 mm (20' 0")	6400 mm (20'12")	7100 mm (23' 4")	7950 mm (26' 1")	5880 mm (19' 3")
Max digging depth (8ft level)	B'	5890 mm (19' 4")	6200 mm (20' 4")	6940 mm (22' 9")	7800 mm (25' 7")	5680 mm (18' 8")
Max vertical wall digging depth	C	5700 mm (18' 8")	5650 mm (18' 6")	6080 mm (19'11")	6980 mm (22'11")	5440 mm (17'10")
Max digging height	D	10500 mm (34' 5")	10450 mm (34' 3")	10590 mm (34' 9")	10990 mm (36' 1")	10220 mm (33' 6")
Max dumping height	E	7330 mm (24' 1")	7330 mm (24' 1")	7520 mm (24' 8")	7910 mm (25'11")	7060 mm (23' 2")
Min swing radius	F	4700 mm (15' 5")	4550 mm (14'11")	4460 mm (14' 8")	4470 mm (14' 8")	4520 mm (14'10")
Bucket digging force	SAE	189.3 [205.5] kN	189.3 [205.5] kN	189.3 [205.5] kN	189.3 [205.5] kN	189.3 [205.5] kN
		19300 [20950] kgf	19300 [20950] kgf	19300 [20950] kgf	19300 [20950] kgf	19300 [20950] kgf
		42550 [46200] lbf	42550 [46200] lbf	42550 [46200] lbf	42550 [46200] lbf	42550 [46200] lbf
	ISO	211.8 [230.0] kN	211.8 [230.0] kN	211.8 [230.0] kN	211.8 [230.0] kN	211.8 [230.0] kN
		21600 [23450] kgf	21600 [23450] kgf	21600 [23450] kgf	21600 [23450] kgf	21600 [23450] kgf
		47620 [51700] lbf	47620 [51700] lbf	47620 [51700] lbf	47620 [51700] lbf	47620 [51700] lbf
Arm crowd force	SAE	196.6 [213.4] kN	178.9 [194.2] kN	143.2 [155.5] kN	119.6 [129.9] kN	196.6 [213.4] kN
		20000 [21760] kgf	18200 [19810] kgf	14600 [15850] kgf	12200 [13240] kgf	20000 [21760] kgf
		44190 [47980] lbf	40220 [43670] lbf	32190 [34950] lbf	26890 [29190] lbf	44190 [47980] lbf
	ISO	202.8 [220.2] kN	185.1 [201.0] kN	147.1 [159.7] kN	122.7 [133.3] kN	202.8 [220.2] kN
		20700 [22450] kgf	18900 [20500] kgf	15000 [16290] kgf	12515 [13590] kgf	20700 [22450] kgf
		45600 [49510] lbf	41620 [45190] lbf	33070 [35900] lbf	27590 [29950] lbf	45600 [49510] lbf

[] : Power boost

4. WEIGHT

1) HX330 L, HX330 NL

Item	HX330 L		HX330 NL	
	kg	lb	kg	lb
Upperstructure assembly				
· Main frame weld assembly	3910	8620	←	←
· Engine assembly	710	1560	←	←
· Main pump assembly	200	440	←	←
· Main control valve assembly	220	490	←	←
· Swing motor assembly	370	820	←	←
· Hydraulic oil tank assembly	250	550	←	←
· Fuel tank assembly	260	570	←	←
· Counterweight	6000	13230	←	←
· Cab assembly	500	1102	←	←
· Radiator assy	230	510	←	←
· Oil cooler assy	80	180	←	←
Lower chassis assembly				
· Track frame weld assembly	3970	8750	3835	8450
· Swing bearing	470	1040	←	←
· Travel motor assembly	440	970	←	←
· Turning joint	50	110	←	←
· Tension cylinder	225	470	←	←
· Idler	250	550	←	←
· Sprocket	80	180	←	←
· Carrier roller	40	90	←	←
· Track roller	60	130	←	←
· Track-chain assembly (600 mm standard triple grouser shoe)	1880	4145	←	←
Front attachment assembly				
· 6.45 m boom assembly	2560	5640	←	←
· 3.2 m arm assembly	1170	2580	←	←
· 1.44 m³ SAE heaped bucket	1230	2710	←	←
· Boom cylinder assembly	305	670	←	←
· Arm cylinder assembly	380	840	←	←
· Bucket cylinder assembly	265	580	←	←
· Bucket control linkage assembly	370	820	←	←

※ 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.

2) HX330 L HIGH WALKER

Item	kg	lb
Upperstructure assembly		
· Main frame weld assembly	3910	8620
· Engine assembly	710	1560
· Main pump assembly	200	440
· Main control valve assembly	220	490
· Swing motor assembly	370	820
· Hydraulic oil tank assembly	250	550
· Fuel tank assembly	260	570
· Counterweight	6000	13230
· Cab assembly	500	1100
· Radiator assy	230	510
· Oil cooler assy	80	180
Lower chassis assembly		
· Track frame weld assembly	6180	13620
· Swing bearing	470	1040
· Travel motor assembly	440	970
· Turning joint	50	110
· Tension cylinder	225	470
· Idler	250	550
· Sprocket	80	180
· Carrier roller	60	130
· Track roller	60	130
· Track-chain assembly (600 mm standard triple grouser shoe)	1880	4145
Front attachment assembly		
· 6.45 m boom assembly	2560	5640
· 3.2 m arm assembly	1170	2580
· 1.44 m³ SAE heaped bucket	1230	2710
· Boom cylinder assembly	305	670
· Arm cylinder assembly	380	840
· Bucket cylinder assembly	265	580
· Bucket control linkage assembly	370	820

※ 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

1) HX330 L

(1) 6.15 m (20' 2") boom, 2.2 m (7' 3") arm equipped with 1.44 m³ (SAE heaped) bucket and 600 mm (24") triple grouser shoe.

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

Load point height		Load radius								At max. reach		
		3.0 m (9.8 ft)		4.5 m (14.7 ft)		6.0 m (19.6 ft)		7.5 m (24.5 ft)		Capacity		Reach
												m (ft)
7.5 m (25.0 ft)	kg lb									*7380 *16270	6080 13400	7.69 (25.2)
6.0 m (20.0 ft)	kg lb					*8280 *18250	*8280 *18250	*7970 *17570	6200 13670	*7440 *16400	4850 10690	8.61 (28.2)
4.5 m (15.0 ft)	kg lb			*11980 *26410	*11980 *26410	*9530 *21010	8850 19510	*8390 *18500	6060 13360	6600 14550	4230 9330	9.16 (30.1)
3.0 m (10.0 ft)	kg lb			*15470 *34110	13010 28680	*11120 *24520	8350 18410	9080 20020	5830 12850	6220 13710	3950 8710	9.39 (30.8)
1.5 m (5.0 ft)	kg lb			*17910 *39480	12210 26920	*12530 *27620	7920 17460	8840 19490	5600 12350	6190 13650	3910 8620	9.35 (30.7)
Ground Line	kg lb			*18640 *41090	11930 26300	12410 27360	7660 16890	8670 19110	5450 12020	6530 14400	4120 9080	9.02 (29.6)
-1.5 m (-5.0 ft)	kg lb	*16990 *37460	*16990 *37460	*18160 *40040	11930 26300	12320 27160	7580 16710	8630 19030	5420 11950	7400 16310	4690 10340	8.37 (27.5)
-3.0 m (-10.0 ft)	kg lb	*22830 *50330	*22830 *50330	*16550 *36490	12120 26720	*12300 *27120	7690 16950			*8260 *18210	5970 13160	7.29 (23.9)
-4.5 m (-15.0 ft)	kg lb	*17800 *39240	*17800 *39240	*13080 *28840	12560 27690							

- Note
1. Lifting capacity are based on SAE J1097 and ISO 10567.
 2. Lifting capacity of the ROBEX 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 necessary for non-standard configurations.

(2) 6.45 m (21' 2") boom, 2.2 m (7' 3") arm equipped with 1.44 m³ (SAE heaped) bucket and 600 mm (24") triple grouser shoe.

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

Load point height		Load radius								At max. reach		
		3.0 m (9.8 ft)		4.5 m (14.7 ft)		6.0 m (19.6 ft)		7.5 m (24.5 ft)		Capacity		Reach
												m (ft)
7.5 m (25.0 ft)	kg lb									*7020 *15480	5490 12100	8.07 (26.5)
6.0 m (20.0 ft)	kg lb					*8120 *17900	*8120 *17900	*7600 *16760	6140 13540	6900 15210	4430 9770	8.95 (29.4)
4.5 m (15.0 ft)	kg lb			*12260 *27030	*12260 *27030	*9450 *20830	8660 19090	*8150 *17970	5950 13120	6140 13540	3890 8580	9.47 (31.1)
3.0 m (10.0 ft)	kg lb					*11050 *24360	8120 17900	8930 19690	5690 12540	5790 12760	3630 8000	9.70 (31.8)
1.5 m (5.0 ft)	kg lb					*12410 *27360	7680 16930	8670 19110	5450 12020	5770 12720	3600 7940	9.66 (31.7)
Ground Line	kg lb			*18350 *40450	11600 25570	12150 26790	7430 16380	8500 18740	5290 11660	6060 13360	3780 8330	9.34 (30.6)
-1.5 m (-5.0 ft)	kg lb	*14500 *31970	*14500 *31970	*17770 *39180	11640 25660	12080 26630	7370 16250	8460 18650	5250 11570	6810 15010	4280 9440	8.72 (28.6)
-3.0 m (-10.0 ft)	kg lb	*22000 *48500	*22000 *48500	*16270 *35870	11850 26120	12210 26920	7480 16490			*7830 *17260	5360 11820	7.70 (25.3)
-4.5 m (-15.0 ft)	kg lb	*17710 *39040	*17710 *39040	*13290 *29300	12270 27050							

(3) 6.45 m (21' 2") boom, 2.5 m (8' 2") arm equipped with 1.44 m³ (SAE heaped) bucket and 600 mm (24") triple grouser shoe.

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

Load point height		Load radius										At max. reach		
		3.0 m (9.8 ft)		4.5 m (14.7 ft)		6.0 m (19.6 ft)		7.5 m (24.5 ft)		9.0 m (29.4 ft)		Capacity		Reach
														m (ft)
7.5 m (24.5 ft)	kg lb											*6610 *14570	5190 11440	8.34 (27.4)
6.0 m (19.6 ft)	kg lb							*7220 *15920	6170 13600			6590 14530	4220 9300	9.19 (30.2)
4.5 m (14.7 ft)	kg lb			*11490 *25330	*11490 *25330	*9010 *19860	8710 19200	*7820 *17240	5960 13140			5880 12960	3710 8180	9.70 (31.8)
3.0 m (9.8 ft)	kg lb			*15000 *33070	12650 27890	*10650 *23480	8130 17920	*8660 *19090	5670 12500			5560 12260	3460 7630	9.92 (32.5)
1.5 m (4.9 ft)	kg lb			*17450 *38470	11780 25970	*12090 *26650	7650 16870	8640 19050	5410 11930	6410 14130	3990 8800	5520 12170	3420 7540	9.88 (32.4)
Ground Line	kg lb			*18220 *40170	11490 25330	12090 26650	7360 16230	8440 18610	5230 11530			5780 12740	3580 7890	9.57 (31.4)
-1.5 m (-4.9 ft)	kg lb	*15100 *33290	*15100 *33290	*17870 *39400	11480 25310	11980 26410	7270 16030	8370 18450	5170 11400			6450 14220	4020 8860	8.97 (29.4)
-3.0 m (-9.8 ft)	kg lb	*22890 *50460	*22890 *50460	*16580 *36550	11660 25710	12070 26610	7350 16200					*7820 *17240	4960 10930	7.98 (26.2)
-4.5 m (-14.7 ft)	kg lb	*18960 *41800	*18960 *41800	*13950 *30750	12050 26570	*10230 *22550	7640 16840					*7180 *15830	*7180 *15830	6.42 (21.1)

(4) 6.45 m (21' 2") boom, 3.2 m (10' 6") arm equipped with 1.44 m³ (SAE heaped) bucket and 600 mm (24") triple grouser shoe.

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

Load point height		Load radius												At max. reach		
		1.5 m (5.0 ft)		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.5 m (25.0 ft)		9.0 m (30.0 ft)		Capacity		Reach
																m (ft)
7.5 m (25.0 ft)	kg									*5160	*5160			*5870	4510	9.06
	lb									*11380	*11380			*12940	9940	(29.7)
6.0 m (20.0 ft)	kg									*6410	6300			5880	3740	9.84
	lb									*14130	13890			12960	8250	(32.3)
4.5 m (15.0 ft)	kg							*8000	*8000	*7090	6040	*5360	4290	5300	3310	10.31
	lb							*17640	*17640	*15630	13320	*11820	9460	11680	7300	(33.8)
3.0 m (10.0 ft)	kg					*13300	13080	*9720	8270	*8020	5730	6570	4140	5020	3090	10.52
	lb					*29320	28840	*21430	18230	*17680	12630	14480	9130	11070	6810	(34.5)
1.5 m (5.0 ft)	kg					*16290	11990	*11360	7720	8650	5420	6390	3970	4970	3040	10.48
	lb					*35910	26430	*25040	17020	19070	11950	14090	8750	10960	6700	(34.4)
Ground Line	kg			*10320	*10320	*17800	11460	12070	7340	8400	5190	6260	3850	5160	3150	10.19
	lb			*22750	*22750	*39240	25260	26610	16180	18520	11440	13800	8490	11380	6940	(33.4)
-1.5 m (-5.0 ft)	kg	*11460	*11460	*14560	*14560	*18040	11320	11870	7160	8260	5060			5660	3470	9.63
	lb	*25260	*25260	*32100	*32100	*39770	24960	26170	15790	18210	11160			12480	7650	(31.6)
-3.0 m (-10.0 ft)	kg	*15430	*15430	*19550	*19550	*17260	11400	11870	7160	8270	5070			6690	4160	8.74
	lb	*34020	*34020	*43100	*43100	*38050	25130	26170	15790	18230	11180			14750	9170	(28.7)
-4.5 m (-15.0 ft)	kg			*21700	*21700	*15310	11680	*11330	7350					*7380	5670	7.37
	lb			*47840	*47840	*33750	25750	*24980	16200					*16270	12500	(24.2)
-6.0 m (-20.0 ft)	kg					*11240	*11240									
	lb					*24780	*24780									

(5) 6.45 m (21' 2") boom, 4.05 m (13' 3") arm equipped with 1.44 m³ (SAE heaped) bucket and 600 mm (24") triple grouser shoe.

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

Load point height		Load radius												At max. reach		
		1.5 m (5.0 ft)		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.5 m (25.0 ft)		9.0 m (30.0 ft)		Capacity		Reach
																m (ft)
7.5 m (25.0 ft)	kg													*5090	3700	10.00
	lb													*11220	8160	(32.8)
6.0 m (20.0 ft)	kg											*4410	*4410	5020	3120	10.71
	lb											*9720	*9720	11070	6880	(35.1)
4.5 m (15.0 ft)	kg									*6100	*6100	*5630	4330	4570	2780	11.13
	lb									*13450	*13450	*12410	9550	10080	6130	(36.5)
3.0 m (10.0 ft)	kg			*17980	*17980	*11050	*11050	*8430	*8430	*7110	5780	*6360	4130	4340	2600	11.32
	lb			*39640	*39640	*24360	*24360	*18580	*18580	*15670	12740	*14020	9110	9570	5730	(37.1)
1.5 m (5.0 ft)	kg			*10550	*10550	*14520	12330	*10270	7820	*8170	5420	6360	3930	4290	2540	11.29
	lb			*23260	*23260	*32010	27180	*22640	17240	*18010	11950	14020	8660	9460	5600	(37.0)
Ground Line	kg			*10920	*10920	*16810	11520	*11740	7330	8350	5130	6170	3750	4420	2620	11.03
	lb			*24070	*24070	*37060	25400	*25880	16160	18410	11310	13600	8270	9740	5780	(36.2)
-1.5 m (-5.0 ft)	kg	*9970	*9970	*13500	*13500	*17770	11160	11760	7050	8140	4940	6050	3650	4780	2850	10.52
	lb	*21980	*21980	*29760	*29760	*39180	24600	25930	15540	17950	10890	13340	8050	10540	6280	(34.5)
-3.0 m (-10.0 ft)	kg	*13140	*13140	*17090	*17090	*17640	11100	11650	6950	8060	4870	6040	3640	5480	3320	9.72
	lb	*28970	*28970	*37680	*37680	*38890	24470	25680	15320	17770	10740	13320	8020	12080	7320	(31.9)
-4.5 m (-15.0 ft)	kg	*16780	*16780	*21910	*21910	*16430	11260	11730	7030	8150	4950			*6870	4260	8.53
	lb	*36990	*36990	*48300	*48300	*36220	24820	25860	15500	17970	10910			*15150	9390	(28.0)
-6.0 m (-20.0 ft)	kg			*19740	*19740	*13170	11670	*9910	7320					*6610	6600	6.71
	lb			*43520	*43520	*30230	25730	*21850	16140					*14570	14550	(22.0)

2) HX330 NL

(1) 6.45 m (21' 2") boom, 2.2 m (7' 3") arm equipped with 1.44 m³ (SAE heaped) bucket and 600 mm (24") triple grouser shoe.

•  : Rating over-front

•  : Rating over-side or 360 degree

Load point height		Load radius								At max. reach		
		3.0 m (9.8 ft)		4.5 m (14.7 ft)		6.0 m (19.6 ft)		7.5 m (24.5 ft)		Capacity		Reach
												m (ft)
7.5 m (25.0 ft)	kg lb									*7020 *15480	4640 10230	8.07 (26.5)
6.0 m (20.0 ft)	kg lb					*8120 *17900	7760 17110	*7600 *16760	5180 11420	6850 15100	3700 8160	8.95 (29.4)
4.5 m (15.0 ft)	kg lb			*12260 *27030	11550 25460	*9450 *20830	7310 16120	*8150 *17970	5000 11020	6090 13430	3210 7080	9.47 (31.1)
3.0 m (10.0 ft)	kg lb					*11050 *24360	6790 14970	8880 19580	4750 10470	5750 12680	2980 6570	9.70 (31.8)
1.5 m (5.0 ft)	kg lb					12360 27250	6360 14020	8620 19000	4520 9960	5730 12630	2940 6480	9.66 (31.7)
Ground Line	kg lb			*18350 *40450	9450 20830	12070 26610	6130 13510	8440 18610	4370 9630	6020 13270	3100 6830	9.34 (30.6)
-1.5 m (-5.0 ft)	kg lb	*14500 *31970	*14500 *31970	*17770 *39180	9500 20940	12010 26480	6070 13380	8400 18520	4330 9550	6770 14930	3530 7780	8.72 (28.6)
-3.0 m (-10.0 ft)	kg lb	*22000 *48500	19730 43500	*16270 *35870	9690 21360	12130 26740	6170 13600			*7830 *17260	4460 9830	7.70 (25.3)
-4.5 m (-15.0 ft)	kg lb	*17710 *39040	*17710 *39040	*13290 *29300	10090 22240							

- Note
1. Lifting capacity are based on SAE J1097 and ISO 10567.
 2. Lifting capacity of the ROBEX 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 necessary for non-standard configurations.

(2) 6.45 m (21' 2") boom, 2.5 m (8' 2") arm equipped with 1.44 m³ (SAE heaped) bucket and 600 mm (24") triple grouser shoe.

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

Load point height		Load radius										At max. reach		
		3.0 m (9.8 ft)		4.5 m (14.7 ft)		6.0 m (19.6 ft)		7.5 m (24.5 ft)		9.0 m (29.4 ft)		Capacity		Reach
														m (ft)
7.5 m (24.5 ft)	kg											*6610	4380	8.34
	lb											*14570	9660	(27.4)
6.0 m (19.6 ft)	kg							*7220	5210			6550	3510	9.19
	lb							*15920	11490			14440	7740	(30.2)
4.5 m (14.7 ft)	kg			*11490	*11490	*9010	7350	*7820	5010			5840	3050	9.70
	lb			*25330	*25330	*19860	16200	*17240	11050			12870	6720	(31.8)
3.0 m (9.8 ft)	kg			*15000	10440	*10650	6800	*8660	4730			5520	2830	9.92
	lb			*33070	23020	*23480	14990	*19090	10430			12170	6240	(32.5)
1.5 m (4.9 ft)	kg			*17450	9620	*12090	6340	8580	4480	6360	3270	5480	2780	9.88
	lb			*38470	21210	*26650	13980	18920	9880	14020	7210	12080	6130	(32.4)
Ground Line	kg			*18220	9340	12010	6060	8380	4300			5740	2920	9.57
	lb			*40170	20590	26480	13360	18470	9480			12650	6440	(31.4)
-1.5 m (-4.9 ft)	kg	*15100	*15100	*17870	9340	11900	5970	8310	4240			6400	3290	8.97
	lb	*33290	*33290	*39400	20590	26230	13160	18320	9350			14110	7250	(29.4)
-3.0 m (-9.8 ft)	kg	*22890	19360	*16580	9510	11990	6040					*7820	4110	7.98
	lb	*50460	42680	*36550	20970	26430	13320					*17240	9060	(26.2)
-4.5 m (-14.7 ft)	kg	*18960	*18960	*13950	9870	*10230	6330					*7180	6120	6.42
	lb	*41800	*41800	*30750	21760	*22550	13960					*15830	13490	(21.1)

(3) 6.45 m (21' 2") boom, 3.2 m (10' 6") arm equipped with 1.44 m³ (SAE heaped) bucket and 600 mm (24") triple grouser shoe.

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

Load point height		Load radius										At max. reach		
		1.5 m (5.0 ft)		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.5 m (25.0 ft)		9.0 m (30.0 ft)		Reach
														m (ft)
7.5 m (25.0 ft)	kg									*5160	*5160			9.06
	lb									*11380	*11380			(29.7)
6.0 m (20.0 ft)	kg									*6410	5340			9.84
	lb									*14130	11770			(32.3)
4.5 m (15.0 ft)	kg							*8000	7520	*7090	5090	*5360	3570	10.31
	lb							*17640	16580	*15630	11220	*11820	7870	(33.8)
3.0 m (10.0 ft)	kg					*13300	10840	*9720	6930	*8020	4780	6530	3410	10.52
	lb					*29320	23900	*21430	15280	*17680	10540	14400	7520	(34.5)
1.5 m (5.0 ft)	kg					*16290	9820	*11360	6400	8600	4480	6350	3250	10.48
	lb					*35910	21650	*25040	14110	18960	9880	14000	7170	(34.4)
Ground Line	kg			*10320	*10320	*17800	9320	11990	6030	8340	4260	6220	3130	10.19
	lb			*22750	*22750	*39240	20550	26430	13290	18390	9390	13710	6900	(33.4)
-1.5 m (-5.0 ft)	kg	*11460	*11460	*14560	*14560	*18040	9180	11790	5860	8210	4140			9.63
	lb	*25260	*25260	*32100	*32100	*39770	20240	25990	12920	18100	9130			(31.6)
-3.0 m (-10.0 ft)	kg	*15430	*15430	*19550	18810	*17260	9260	11790	5860	8220	4150			8.74
	lb	*34020	*34020	*43100	41470	*38050	20410	25990	12920	18120	9150			(28.7)
-4.5 m (-15.0 ft)	kg			*21700	19340	*15310	9520	*11330	6040					7.37
	lb			*47840	42640	*33750	20990	*24980	13320					(24.2)
-6.0 m (-20.0 ft)	kg					*11240	10070							
	lb					*24780	22200							

3) HX330 L HIGH WALKER

(1) 6.45 m (21' 2") boom, 2.5 m (8' 2") arm equipped with 1.44 m³ (SAE heaped) bucket and 600 mm (24") triple grouser shoe.

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

Load point height		Load radius										At max. reach		
		3.0 m (9.8 ft)		4.5 m (14.7 ft)		6.0 m (19.6 ft)		7.5 m (24.5 ft)		9.0 m (29.4 ft)		Capacity		Reach
														m (ft)
7.5 m (24.5 ft)	kg											*6620	5780	8.53
	lb											*14590	12740	(28.0)
6.0 m (19.6 ft)	kg							*7300	7120			*6720	4830	9.31
	lb							*16090	15700			*14820	10650	(30.5)
4.5 m (14.7 ft)	kg			*12140	*12140	*9300	*9300	*7960	6880			6410	4330	9.76
	lb			*26760	*26760	*20500	*20500	*17550	15170			14130	9550	(32.0)
3.0 m (9.8 ft)	kg			*15590	14610	*10950	9380	*8820	6590			6130	4100	9.93
	lb			*34370	32210	*24140	20680	*19440	14530			13510	9040	(32.6)
1.5 m (4.9 ft)	kg			*17710	13840	*12300	8920	9460	6340	7200	4840	6150	4100	9.84
	lb			*39040	30510	*27120	19670	20860	13980	15870	10670	13560	9040	(32.3)
Ground Line	kg			*18220	13610	*13030	8670	9290	6180			6510	4340	9.48
	lb			*40170	30000	*28730	19110	20480	13620			14350	9570	(31.1)
-1.5 m (-4.9 ft)	kg	*16440	*16440	*17710	13640	*13030	8600	9240	6130			7340	4920	8.82
	lb	*36240	*36240	*39040	30070	*28730	18960	20370	13510			16180	10850	(28.9)
-3.0 m (-9.8 ft)	kg	*22420	*22420	*16220	13860	*12130	8720					*7780	6170	7.75
	lb	*49430	*49430	*35760	30560	*26740	19220					*17150	13600	(25.4)
-4.5 m (-14.7 ft)	kg	*17900	*17900	*13210	*13210									
	lb	*39460	*39460	*29120	*29120									

- Note
1. Lifting capacity are based on SAE J1097 and ISO 10567.
 2. Lifting capacity of the ROBEX 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.

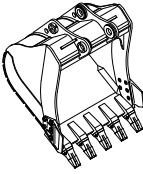
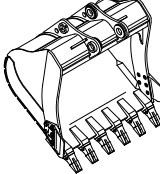
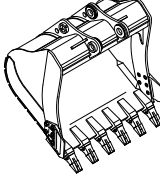
The difference between the weight of a work tool attachment must be subtracted.

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 necessary for non-standard configurations.

6. BUCKET SELECTION GUIDE

1) GENERAL BUCKET

		
1.44 m³ SAE heaped bucket	1.74 m³ SAE heaped bucket	2.10 m³ SAE heaped bucket

Capacity		Width		Weight	Recommendation				
					6.45 m (21' 2") boom				6.15 m (20' 2") boom
SAE heaped	CECE heaped	Without side cutter	With side cutter		2.2 m arm (7' 3")	2.5 m arm (8' 2")	3.2 m arm (10' 6")	4.05 m arm (13' 3")	2.2 m arm (7' 3")
1.44 m³ (1.88 yd³)	1.25 m³ (1.63 yd³)	1410 mm (55.5")	1505 mm (59.3")	1230 kg (2710 lb)	○	○	○	⊙	○
1.74 m³ (2.28 yd³)	1.50 m³ (1.96 yd³)	1640 mm (64.6")	1735 mm (68.3")	1370 kg (3020 lb)	○	○	⊙	●	○
2.10 m³ (2.75 yd³)	1.83 m³ (2.39 yd³)	1780 mm (70.1")	1875 mm (73.8")	1500 kg (3310 lb)	⊙	⊙	●		⊙

- Applicable for materials with density of 2000 kgf/m³ (3370 lbf/yd³) or less
- ⊙ Applicable for materials with density of 1600 kgf/m³ (2700 lbf/yd³) or less
- Applicable for materials with density of 1100 kgf/m³ (1850 lbf/yd³) or less

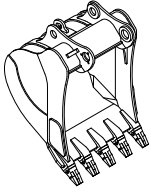
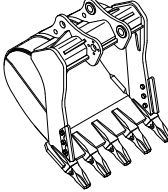
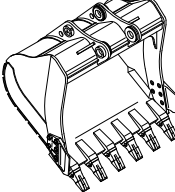
※ These recommendations are for general conditions and average use.

Work tools and ground conditions have effects on machine performance.

Select an optimum combination according to the working conditions and the type of work that is being done.

Consult your Hyundai dealer for information on selecting the correct boom-arm-bucket combination.

2) HEAVY DUTY AND ROCK-HEAVY DUTY BUCKET

		
◆ 1.44 m ³ SAE heaped bucket	◆ 1.44 m ³ SAE ◆ 1.63 m ³ SAE ◆ 1.73 m ³ SAE heaped bucket	◆ 1.83 m ³ SAE heaped bucket

Capacity		Width		Weight	Recommendation				
					6.45 m (21' 2") boom				6.15 m (20' 2") boom
					2.2 m arm (7' 3")	2.5 m arm (8' 2")	3.2 m arm (10' 6")	4.05 m arm (13' 3")	2.2 m arm (7' 3")
◆ 1.44 m ³ (1.88 yd ³)	1.25 m ³ (1.63 yd ³)	1480 mm (58.3")	-	1520 kg (3350 lb)	○	○	⊙	●	○
◆ 1.44 m ³ (1.88 yd ³)	1.25 m ³ (1.63 yd ³)	1470 mm (57.9")	-	1610 kg (3550 lb)	○	○	⊙	●	○
◆ 1.63 m ³ (2.09 yd ³)	1.39 m ³ (1.82 yd ³)	1590 mm (62.6")	-	1690 kg (3730 lb)	⊙	⊙	⊙	●	○
◆ 1.73 m ³ (2.26 yd ³)	1.5 m ³ (1.96 yd ³)	1700 mm (66.9")	-	1760 kg (3880 lb)	⊙	⊙	●		○
◆ 1.83 m ³ (2.39 yd ³)	1.59 m ³ (2.08 yd ³)	1770 mm (69.7")	-	1860 kg (4100 lb)	⊙	●	●		⊙

◆ : Heavy duty bucket

◆ : Rock-Heavy duty bucket

○ Applicable for materials with density of 2000 kg/m³ (3370 lb/yd³) or less

⊙ Applicable for materials with density of 1600 kg/m³ (2700 lb/yd³) or less

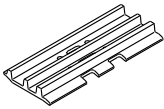
● Applicable for materials with density of 1100 kg/m³ (1850 lb/yd³) or less

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		Triple grouser			
						
HX330 L	Shoe width	mm (in)	600 (24)	700 (28)	800 (32)	900 (36)
	Operating weight	kg (lb)	33500 (73850)	34070 (75110)	34450 (75950)	34830 (76790)
	Ground pressure	kgf/cm ² (psi)	0.65 (9.24)	0.56 (7.96)	0.50 (7.11)	0.45 (6' 40")
	Overall width	mm (ft-in)	3280 (10' 9")	3380 (11' 1")	3480 (11' 5")	3580 (11' 9")
HX330 NL	Shoe width	mm (in)	600 (24)	-	-	-
	Operating weight	kg (lb)	33300 (73410)	-	-	-
	Ground pressure	kgf/cm ² (psi)	0.64 (9.10)	-	-	-
	Overall width	mm (ft-in)	2990 (9' 10")	-	-	-
HX330 L HIGH WALKER	Shoe width	mm (in)	600 (24)	700 (28)	800 (32)	Double Grouser 710 (28)
	Operating weight	kg (lb)	36000 (79370)	36570 (80620)	36950 (81460)	37480 (82630)
	Ground pressure	kgf/cm ² (psi)	0.69 (9.81)	0.60 (8.53)	0.53 (7.54)	0.61 (8.67)
	Overall width	mm (ft-in)	3470 (11' 5")	3570 (11' 9")	3670 (12' 0")	3580 (11' 9")

3) NUMBER OF ROLLERS AND SHOES ON EACH SIDE

Item	Quantity
Carrier rollers	2EA
Track rollers	9EA
Track shoes	48EA

4) SELECTION OF TRACK SHOE

Suitable track shoes should be selected according to operating conditions.

Method of selecting shoes

Confirm the category from the list of applications in **table 2**, then use **table 1** to select the shoe. Wide shoes (categories B and C) have limitations on applications. Before using wide shoes, check the precautions, then investigate and study the operating conditions to confirm if these shoes are suitable.

Select the narrowest shoe possible to meet the required flotation and ground pressure. Application of wider shoes than recommendations will cause unexpected problem such as bending of shoes, crack of link, breakage of pin, loosening of shoe bolts and the other various problems.

※ **Table 1**

Track shoe	Specification	Category
600 mm triple grouser	Standard	A
700 mm triple grouser	Option	B
710 mm double grouser	Option	B
800 mm triple grouser	Option	C
900 mm triple grouser	Option	C

※ **Table 2**

Category	Applications	Applications
A	Rocky ground, river beds, normal soil	Travel at low speed on rough ground with large obstacles such as boulders or fallen trees
B	Normal soil, soft ground	- These shoes cannot be used on rough ground with large obstacles such as boulders or fallen trees - Travel at high speed only on flat ground - Travel slowly at low speed if it is impossible to avoid going over obstacles
C	Extremely soft ground (swampy ground)	- Use the shoes only in the conditions that the machine sinks and it is impossible to use the shoes of category A or B - These shoes cannot be used on rough ground with large obstacles such as boulders or fallen trees - Travel at high speed only on flat ground - Travel slowly at low speed if it is impossible to avoid going over obstacles

8. SPECIFICATIONS FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	Cummins QSL9
Type	4-cycle turbocharged charger air cooled diesel engine
Cooling method	Water cooling
Number of cylinders and arrangement	6 cylinders, in-line
Firing order	1-5-3-6-2-4
Combustion chamber type	Direct injection type
Cylinder bore × stroke	114 × 145 mm (4.49" × 5.69")
Piston displacement	8900 cc (543 cu in)
Compression ratio	17.8 : 1
Rated net horse power (SAE J1349)	270 Hp at 1800 rpm (202 kW at 1800 rpm)
Rated gross horse power (SAE J1995)	284 Hp at 1800 rpm (212 kW at 1800 rpm)
Maximum torque	123.7 kgf · m (895 lbf · ft) at 1500 rpm
Engine oil quantity	30 ℓ (7.9 U.S. gal)
Wet weight	708 kg (1560 lb)
High idling speed	1800+ 50 rpm
Low idling speed	800 ± 50 rpm
Rated fuel consumption	164.8 g/Hp · hr at 1800 rpm
Starting motor	Denso 24V-7.8 kW
Alternator	Denso 24V-95A
Battery	2 × 12V × 160Ah

2) MAIN PUMP

Item	Specification
Type	Variable displacement tandem axis piston pumps
Capacity	2 × 154 cc/rev
Rated oil flow	2 × 277 ℓ /min (73.2 U.S. gpm / 61.0 U.K. gpm)
Rated speed	1800 rpm

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