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

   2 - 3
   - 2 : Item number (2. Structure and Function)
   - 3 : 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.

   10 - 4
   10 - 4 - 1 ┐
   10 - 4 - 2 ┘ Added pages
   10 - 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, 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

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
ⓐ 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 = 0.03937 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

Kilogram to Pound

1kg = 2.2046 lb

	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

kg · m to lb · ft

1 kg · m = 7.233 lb · 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

kg / cm^2 to lb / in^2

1kg / cm^2 = 14.2233 lb /in^2

	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

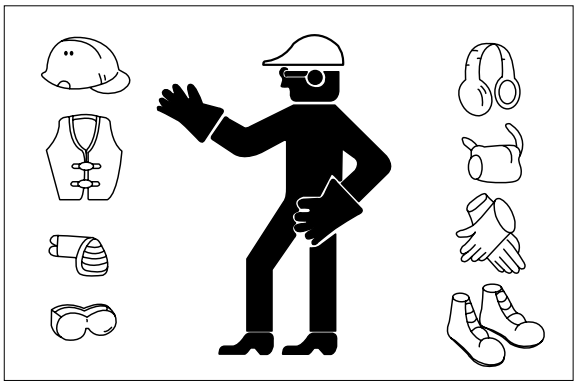
GROUP 1 SAFETY HINTS

FOLLOW SAFE PROCEDURE

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

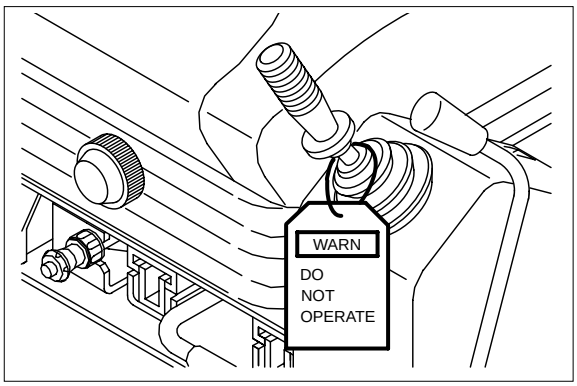
WEAR PROTECTIVE CLOTHING

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



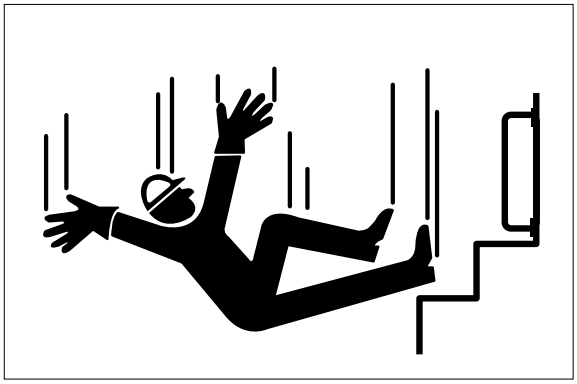
WARN OTHERS OF SERVICE WORK

Unexpected machine movement can cause serious injury.
Before performing any work on the excavator, attach a 「**Do Not Operate**」 tag on the left 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.

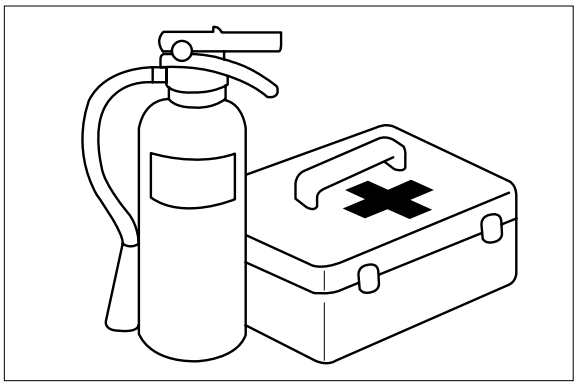


PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

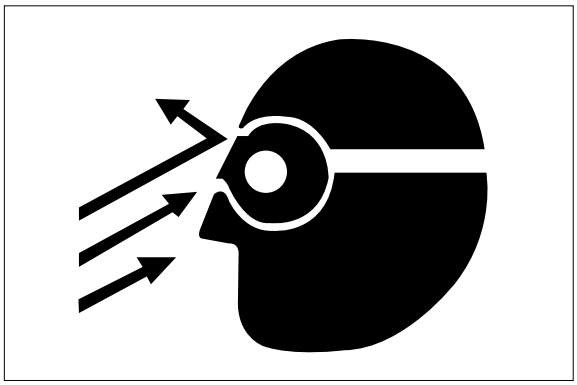
Keep a first aid kit and fire extinguisher handy.

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



PROTECT AGAINST FLYING DEBRIS

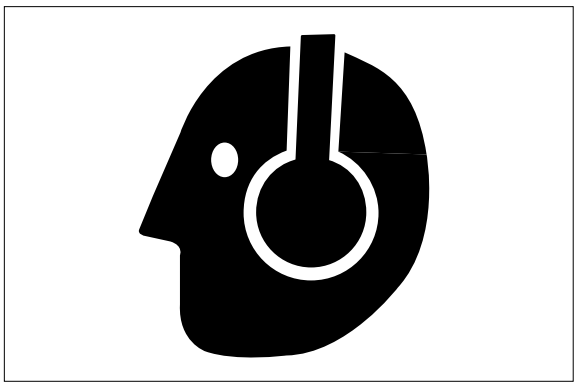
Guard against injury from flying pieces of metal or debris; wear goggles or safety glasses.



PROTECT AGAINST NOISE

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

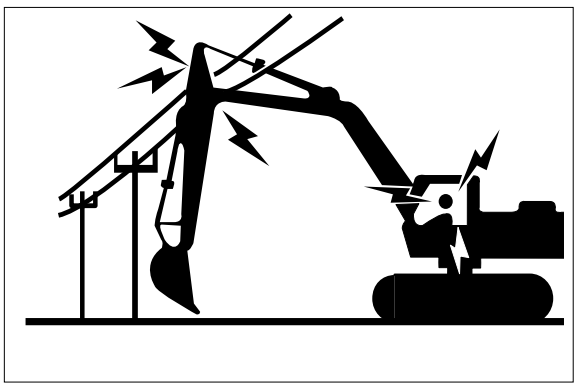
Wear a suitable hearing protective device such as ear-muffs or earplugs to protect against objectionable or uncomfortable loud noises.



AVOID POWER LINES

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

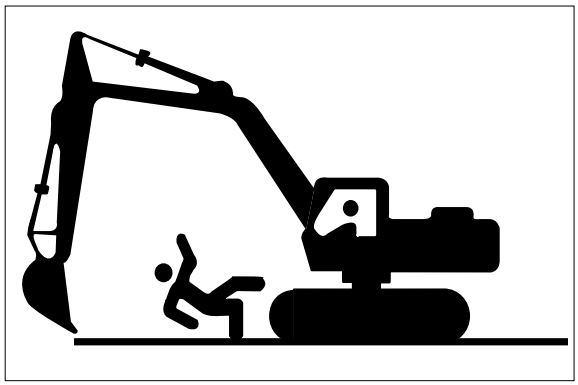
Never move any part of the machine or load closer to electric line than 3m(10ft) plus twice the line insulator length.



KEEP RIDERS OFF EXCAVATOR

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

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

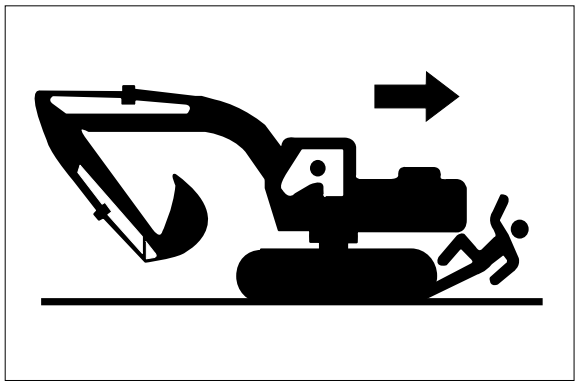


MOVE AND OPERATE MACHINE SAFELY

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

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

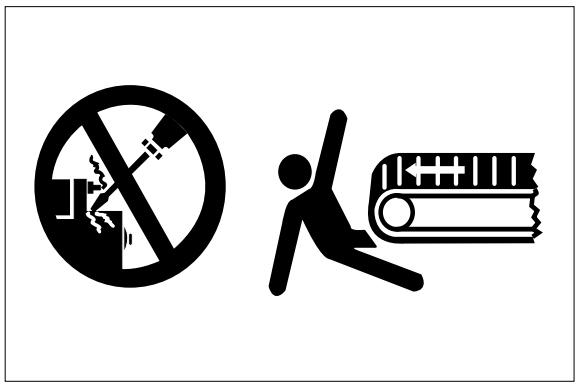
Use a signal person when moving, swinging, or operating the machine in congested areas. Coordinate hand signals before starting the excavator.



OPERATE ONLY FORM OPERATOR'S SEAT

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

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



PARK MACHINE SAFELY

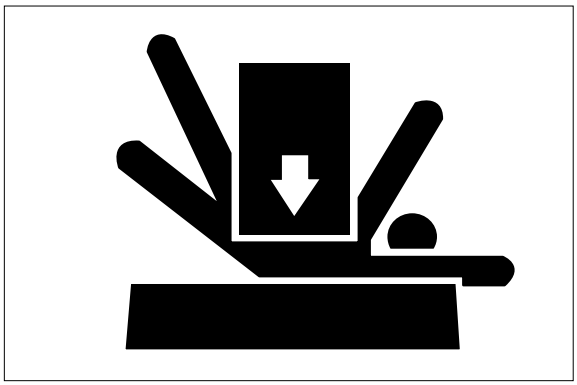
Before working on the machine:

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

SUPPORT MACHINE PROPERLY

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

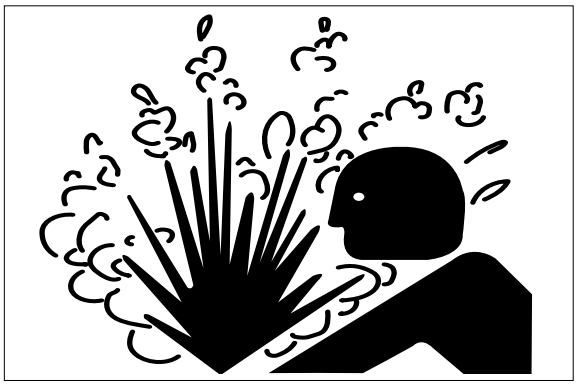
Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load. Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.



SERVICE COOLING SYSTEM SAFELY

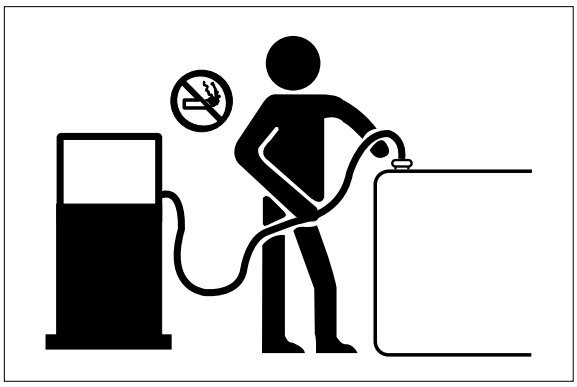
Explosive release of fluids from pressurized cooling system can cause serious burns.

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



HANDLE FLUIDS SAFELY-AVOID FIRES

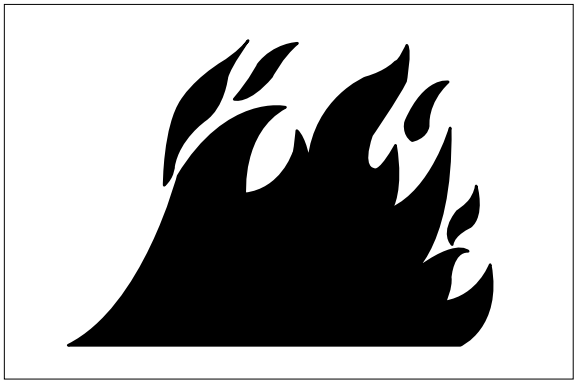
Handle fuel with care; it is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks. Always stop engine before refueling machine.
Fill fuel tank outdoors.



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

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

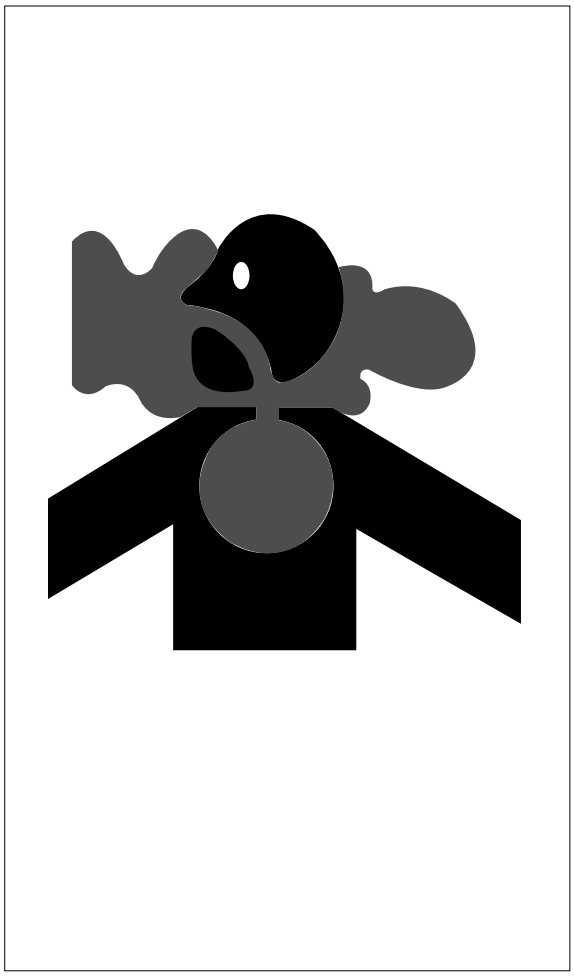
Do not store oily rags ; they can ignite and burn spontaneously.



BEWARE OF EXHAUST FUMES

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

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



REMOVE PAINT BEFORE WELDING OR HEATING

Avoid potentially toxic fumes and dust.

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

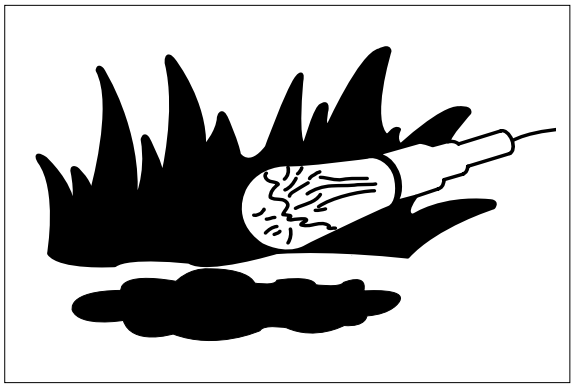
Do all work outside or in a well ventilated area. Dispose of paint and solvent properly.

Remove paint before welding or heating:

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

ILLUMINATE WORK AREA SAFELY

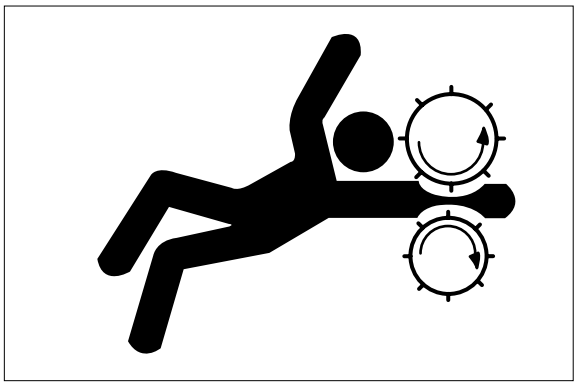
Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.



SERVICE MACHINE SAFELY

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

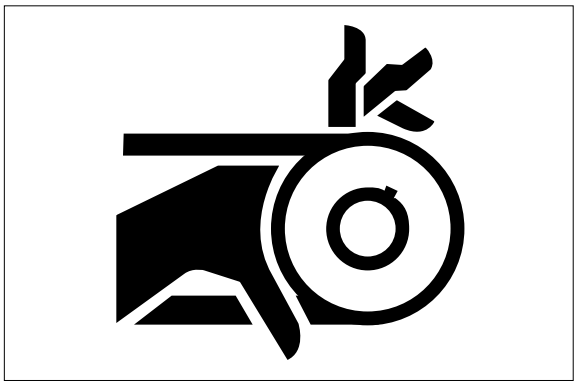
Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.



STAY CLEAR OF MOVING PARTS

Entanglements in moving parts can cause serious injury.

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



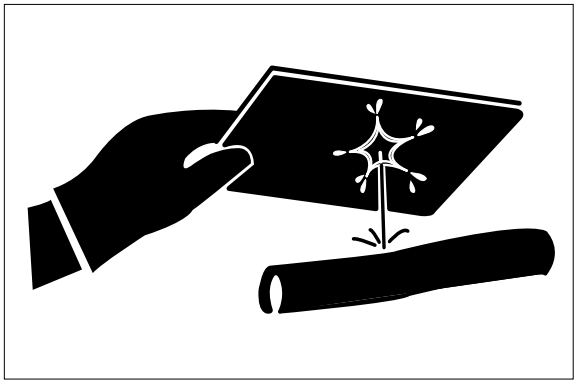
AVOID HIGH PRESSURE FLUIDS

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

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

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

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



AVOID HEATING NEAR PRESSURIZED FLUID LINES

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

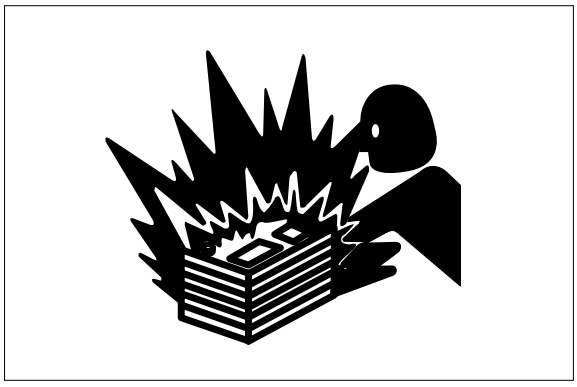
Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area. Install fire resisting guards to protect hoses or other materials.

PREVENT BATTERY EXPLOSIONS

Keep sparks, lighted matches, and flame away from the top of battery. Battery gas can explode.

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

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



PREVENT ACID BURNS

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

Avoid the hazard by:

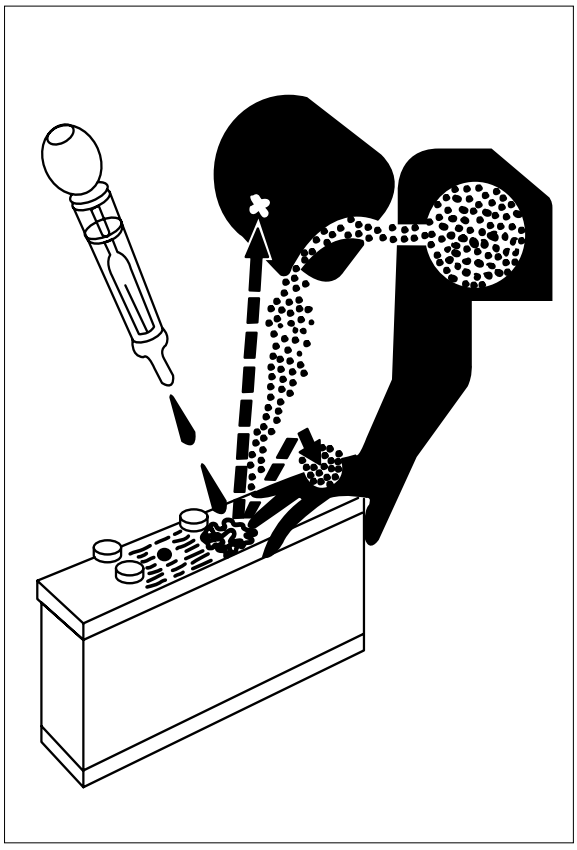
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling of dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

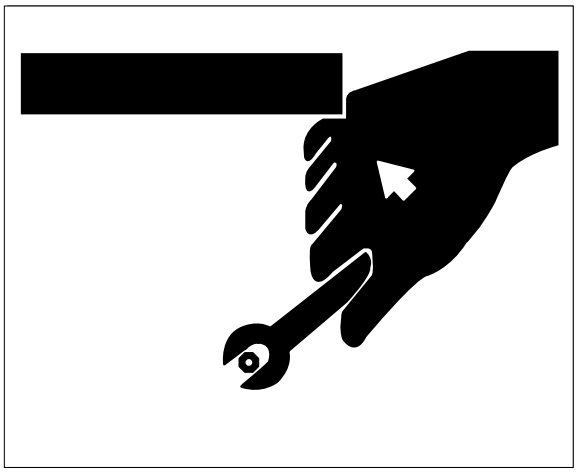
1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 10-15 minutes. Get medical attention immediately.

If acid is swallowed:

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



USE TOOLS PROPERLY



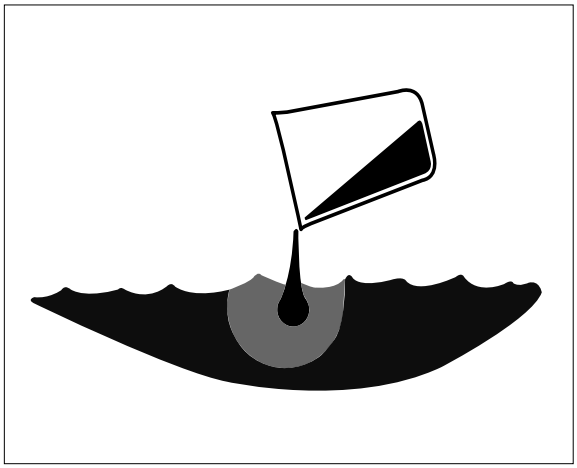
Use tools appropriate to the work. Makeshift tools, parts, and procedures can create safety hazards.

Use power tools only to loosen threaded tools and fasteners.

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

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

DISPOSE OF FLUIDS PROPERLY

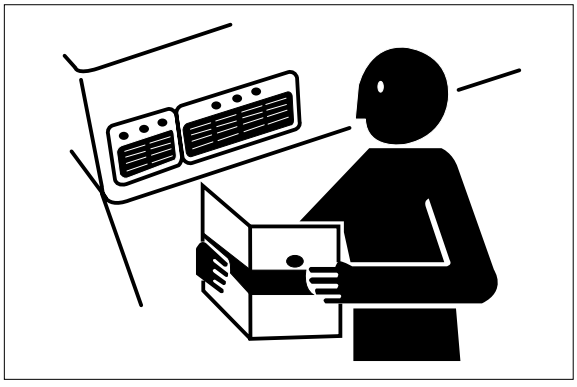


Improperly disposing of fluids can harm the environment and ecology. Before draining any fluids, find out the proper way to dispose of waste from your local environmental agency.

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



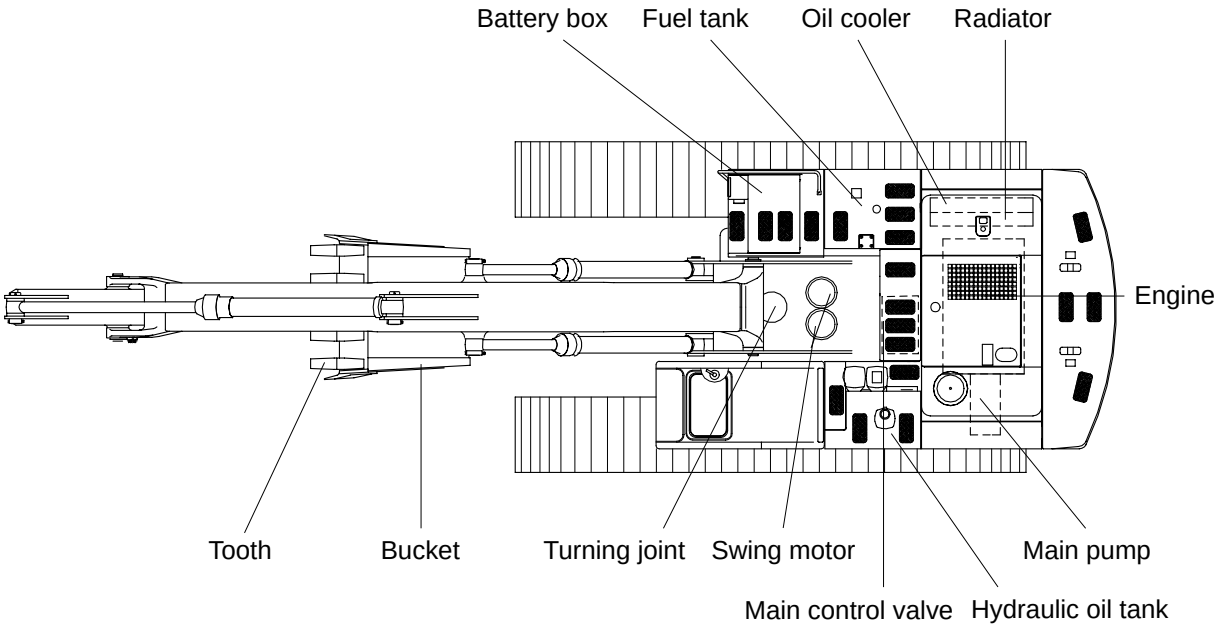
Replace missing or damaged safety signs. See the machine operator's manual for correct safety sign placement.

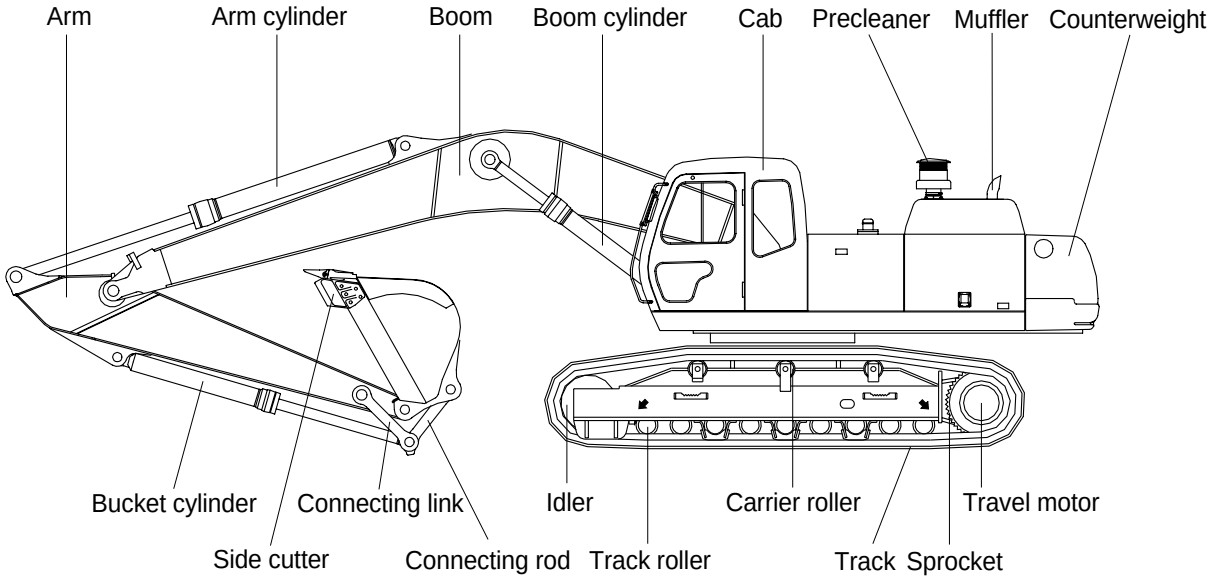
LIVE WITH SAFETY

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

GROUP 2 SPECIFICATION

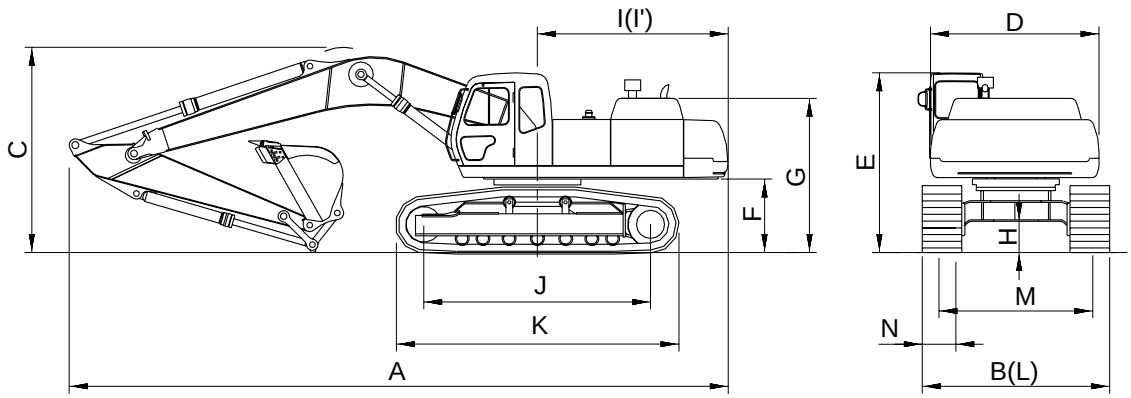
1. MAJOR COMPONENT





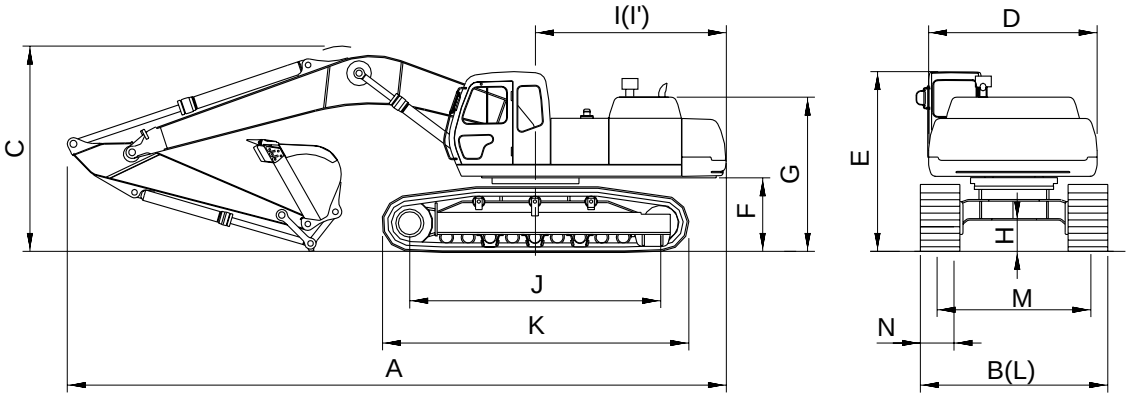
2. SPECIFICATIONS

1) ROBEX450-3 (7.06m(23'2") boom and 3.38m(11'1") arm)



Description		Unit	Specification
Operating weight		kg(lb)	43400(95680)
Bucket capacity(PCSA heaped) ,standard		m^3(yd^3)	1.97(2.58)
Overall length	A	mm(ft-in)	11700(38' 5")
Overall width, with 750㎜ shoe	B		3490(11' 5")
Overall height	C		3540(11' 7")
Superstructure width	D		3000(9' 10")
Cab height	E		3200(10' 6")
Ground clearance of counterweight	F		1335(4' 5")
Engine cover height	G		2745(9' 0")
Minimum ground clearance	H		555(1' 10")
Rear-end distance	I		3400(11' 2")
Rear-end swing radius	I'		3400(11' 2")
Distance between tumblers	J		4038(13' 3")
Undercarriage length	K		5030(16' 6")
Undercarriage width	L		3490(11' 5")
Track gauge	M		2740(9' 0")
Track shoe width, standard	N		750(30")
Travel speed (low/high)		km/hr(mph)	3.2/5.1(2.0/3.2)
Swing speed		rpm	10.0
Gradeability		Degree(%)	40(84)
Ground pressure(750㎜ shoe)		kg/cm^2(psi)	0.66(9.39)

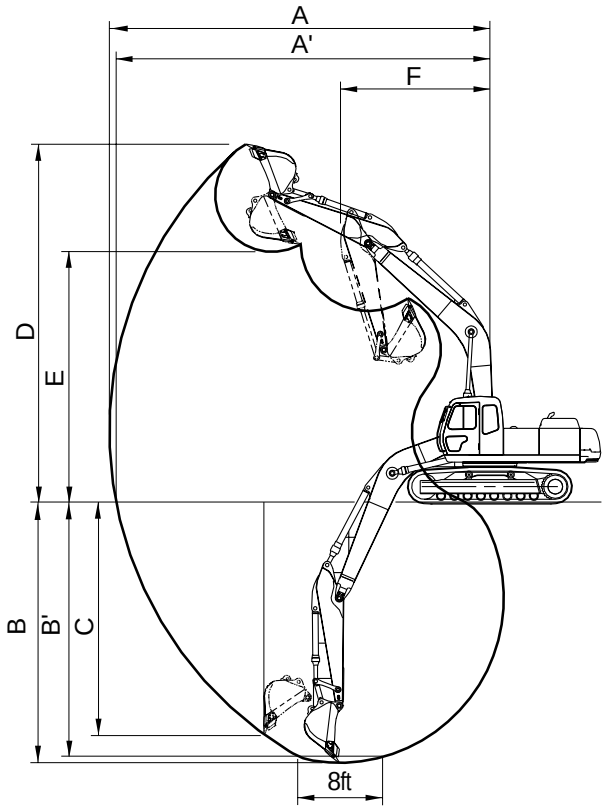
2) ROBEX450LC-3 (7.06m(23'2") boom and 3.38m(11'1") arm)



Description		Unit	Specification
Operating weight		kg (lb)	44300(97660)
Bucket capacity(PCSA heaped) ,standard		m^3 (yd^3)	2.09(2.74)
Overall length	A	mm(ft-in)	11700(38' 5")
Overall width, with 750mm shoe	B		3490(11' 5")
Overall height	C		3540(11' 7")
Superstructure width	D		3000(9' 10")
Cab height	E		3200(10' 6")
Ground clearance of counterweight	F		1335(4' 5")
Engine cover height	G		2745(9' 0")
Minimum ground clearance	H		555(1' 10")
Rear-end distance	I		3400(11' 2")
Rear-end swing radius	I'		3400(11' 2")
Distance between tumblers	J		4470(14' 8")
Undercarriage length	K		5462(17' 11")
Undercarriage width	L		3490(11' 5")
Track gauge	M		2740(9' 0")
Track shoe width, standard	N		750(30")
Travel speed (low/high)		km/hr(mph)	3.2 / 5.1(2.0 / 3.2)
Swing speed		rpm	9.3
Gradeability		Degree(%)	40(84)
Ground pressure(750mm shoe)		kg/cm^2(psi)	0.61(8.68)

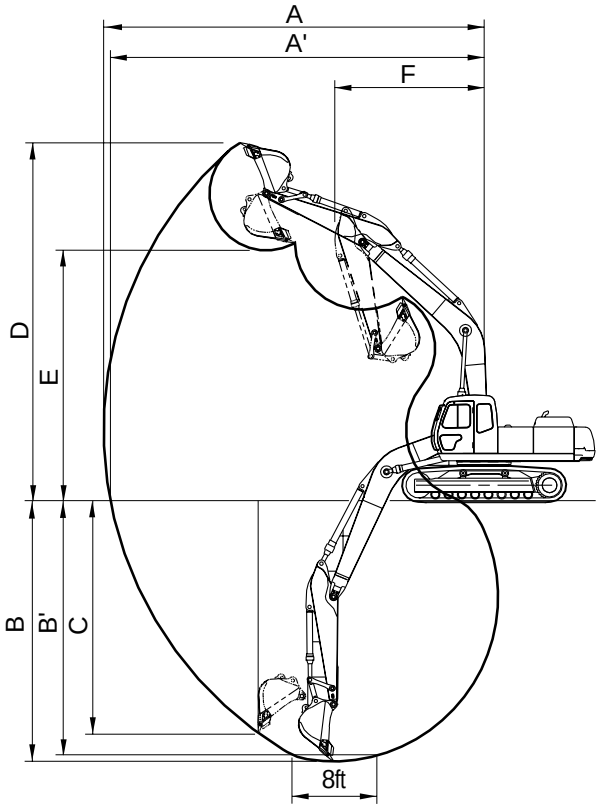
3. WORKING RANGE

1) 7.06m(23'2") Boom and 2.09m³ PCSA Heaped Bucket



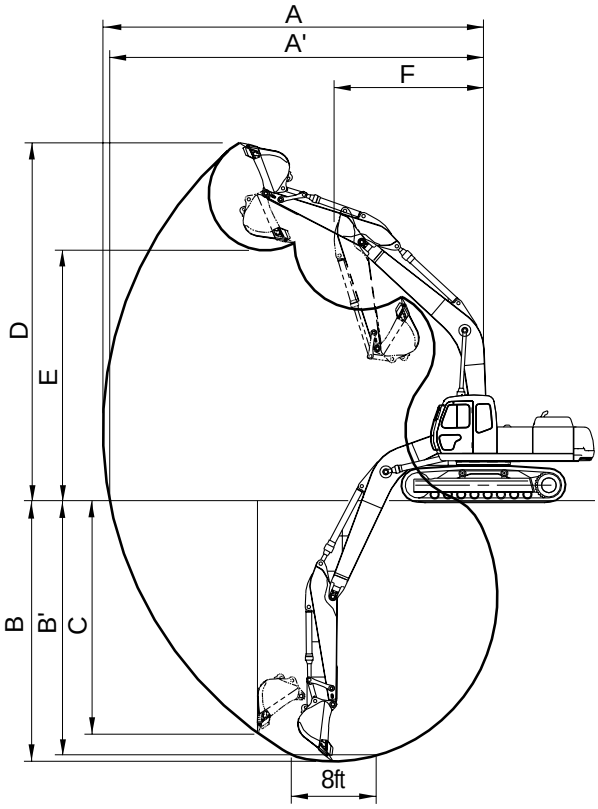
Description		2.4m(7' 10")Arm	2.9m(9' 6")Arm	3.38m(11'1")Arm	4.0m(13' 1")Arm	4.5m(14' 9")Arm
Max. digging reach	A	11010mm (36' 1")	11435mm (37' 6")	12010mm (39' 5")	12575mm (41' 3")	13255mm (43' 6")
Max. digging reach on ground	A'	10790mm (35' 5")	11230mm (36'10")	11800mm (38' 9")	12385mm (40' 8")	13075mm (42'11")
Max. digging depth	B	6810mm (22' 4")	7310mm (24' 0")	7790mm (25' 7")	8410mm (27' 7")	8910mm (29' 3")
Max. digging depth (8ft level)	B'	6600mm (21' 8")	7120mm (23' 4")	7650mm (25' 1")	8280mm (27' 2")	8790mm (28'10")
Max. vertical wall digging depth	C	5210mm (17' 1")	5375mm (17' 8")	6800mm (22' 4")	6860mm (22' 6")	8080mm (26' 6")
Max. digging height	D	10130mm (33' 3")	10270mm (33' 8")	10890mm (35' 9")	11065mm (36' 4")	12005mm (39' 5")
Max. dumping height	E	6950mm (22'10")	7080mm (23' 3")	7550mm (24' 9")	7765mm (25' 6")	8555mm (28' 1")
Max. swing radius	F	5075mm (16' 8")	4750mm (15' 7")	4660mm (15' 3")	4840mm (15'11")	4790mm (15' 9")
Bucket digging force		221kN	221kN	221kN	221kN	221kN
		22600kgf	22600kgf	22600kgf	22600kgf	22600kgf
		49800lbf	49800lbf	49800lbf	49800lbf	49800lbf
Arm digging force		272kN	226kN	190kN	181kN	146kN
		27800kgf	23000kgf	19300kgf	18400kgf	15000kgf
		61300lbf	50700lbf	42550lbf	40560lbf	33000lbf

2) 6.55m(21'6") Mass Boom and 2.2m³ PCSA Heaped Bucket



Description		2.4m(7' 10") Arm
Max. digging reach	A	10470mm (34' 4")
Max. digging reach on ground	A'	10235mm (33' 7")
Max. digging depth	B	6590mm (21' 7")
Max. digging depth (8ft level)	B'	6360mm (20' 10")
Max. vertical wall digging depth	C	4225mm (13' 10")
Max. digging height	D	9490mm (31' 2")
Max. dumping height	E	6370mm (20' 11")
Max. swing radius	F	4780mm (15' 8")
Bucket digging force		221kN
		22600kgf
		49800lbf
Arm digging force		282kN
		28800kgf
		63490lbf

3) 9.0m(29'6") Long Boom and 1.3m³ PCSA Heaped Bucket



Description		2.4m(7' 10") Arm
Max. digging reach	A	10470mm (34' 4")
Max. digging reach on ground	A'	10235mm (33' 7")
Max. digging depth	B	6590mm (21' 7")
Max. digging depth (8ft level)	B'	6360mm (20' 10")
Max. vertical wall digging depth	C	4225mm (13' 10")
Max. digging height	D	9490mm (31' 2")
Max. dumping height	E	6370mm (20' 11")
Max. swing radius	F	4780mm (15' 8")
Bucket digging force		221kN
		22600kgf
		49800lbf
Arm digging force		282kN
		28800kgf
		63490lbf

4. WEIGHT

Item	R450-3		R450LC-3	
	kg	lb	kg	lb
Upperstructure assembly	17790	39220	17790	39220
Main frame weld assembly	3080	6790	←	
Engine assembly	950	2090	←	
Main pump assembly	190	420	←	
Main control valve assembly	420	930	←	
Swing motor assembly	200	440	←	
Hydraulic oil tank assembly	340	1410	←	
Fuel tank assembly	240	520	←	
Counterweight	9000	19840	←	
Cab assembly	275	610	←	
Lower chassis assembly	17250	38030	18150	40010
Track frame weld assembly	7100	15660	7390	16300
Swing bearing	540	1190	←	
Travel motor assembly	423	930	←	
Turning joint	50	110	←	
Track recoil spring and idler	320	710	←	
Idler	210	460	←	
Carrier roller	40	80	←	
Track roller	80	180	←	
Track-chain assembly (standard triple grouser shoe)	5590	12300	6050	13330
Front attachment assembly (7.06m boom, 3.38m arm, 2.09m^3 PCSA heaped bucket)	8360	18430	←	
7.06m boom assembly	3300	7270	←	
3.38m arm assembly	1640	3620	←	
2.09m^3 PCSA heaped bucket	1610	3550	←	
Boom cylinder assembly	400	880	←	
Arm cylinder assembly	540	1190	←	
Bucket cylinder assembly	340	750	←	
Bucket control rod assembly	120	260	←	

5. LIFTING CAPACITIES

1) ROBEX 450-3

(1) 7.06m(23' 2") boom, 2.4m(7' 10") arm equipped with 1.97m³(PCSA heaped) bucket and 750mm (30") triple grouser shoe.

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

Load point height		Load radius										At max. reach		
		3.0m(10ft)		4.5m(15ft)		6.0m(20ft)		7.5m(25ft)		9.0m(30ft)		Capacity		Reach
														m(ft)
6.0m (20ft)	kg lb					*10570 *23300	*10570 *23300	*9160 *20190	8080 17810			7440 16400	4880 10760	10.03 (32.9)
4.5m (15ft)	kg lb			*16460 *36290	*16460 *36290	*12010 *26480	11060 24380	*9840 *21690	7730 17040			6780 14950	4390 9680	10.45 (34.3)
3.0m (10ft)	kg lb					*13480 *29720	10290 22690	*10600 *23370	7340 16180			6490 14310	4150 9150	10.61 (34.8)
1.5m (5ft)	kg lb					*14430 *31810	9730 21450	10950 24140	7010 15450	8220 18120	5260 11600	6490 14310	4130 9110	10.52 (34.5)
Ground line	kg lb			*19300 *42550	14740 32500	*14580 *32140	9450 20830	10710 23610	6790 14970			6800 14990	4330 9550	10.17 (33.4)
-1.5m (-5ft)	kg lb			*17910 *39480	14830 32690	*13960 *30780	9380 20680	10630 23440	6720 14820			*7510 *16560	4850 10690	9.53 (31.3)
-3.0m (-10ft)	kg lb	*18390 *40540	*18390 *40540	*15710 *34630	15060 33200	*12480 *27510	9490 20920							
-4.5m (-15ft)	kg lb			*12210 *26920	*12210 *26920	*9640 *21250	*9640 *21250							

Note 1. Lifting capacity are based on SAE J1097

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.

(2) 7.06m(23' 2") boom, 2.9m(9' 6") arm equipped with 1.97m³(PCSA heaped) bucket and 750mm(30") triple grouser shoe.

Load point height		Load radius										At max. reach		
		3.0m(10ft)		4.5m(15ft)		6.0m(20ft)		7.5m(25ft)		9.0m(30ft)		Capacity		Reach
														m(ft)
6.0m (20ft)	kg							*8580	8160			6890	4490	10.48
	lb							*18920	17990			15190	9900	(34.4)
4.5m (15ft)	kg			*15030	*15030	*11270	11220	*9320	7790	*8170	5650	6310	4040	10.89
	lb			*33140	*33140	*24850	24740	*20550	17170	*18010	12460	13910	8910	(35.7)
3.0m (10ft)	kg			*18320	15930	*12850	10400	*10160	7360	8410	5430	6040	3830	11.04
	lb			*40390	35120	*28330	22930	*22400	16230	18540	11970	13320	8440	(36.2)
1.5m (5ft)	kg			*19920	14880	*14010	9750	*10840	6980	8180	5220	6020	3790	10.95
	lb			*43920	32800	*30890	21500	*23900	15390	18030	11510	13270	8360	(35.9)
Ground line	kg			*19770	14570	*14450	9370	10640	6720	8010	5060	6280	3950	10.62
	lb			*43590	32120	*31860	20660	23460	14820	17660	11160	13850	8710	(34.8)
-1.5m (-5ft)	kg	*19830	*19830	*18670	14570	*14120	9230	10500	6590			6910	4370	10.01
	lb	*43720	*43720	*41160	32120	*31130	20350	23150	14530			15230	9630	(32.8)
-3.0m (-10ft)	kg	*21300	*21300	*16740	14740	*12970	9280	*10070	6620			*6920	5230	9.06
	lb	*46960	*46960	*36910	32500	*28590	20460	*22200	14590			*15260	11530	(29.7)
-4.5m (-15ft)	kg	*16940	*16940	*13670	*13670	*10700	9520							
	lb	*37350	*37350	*30140	*30140	*23590	20990							

(3) 7.06m(23' 2") boom, 3.38m(11' 1") arm equipped with 1.97m³(PCSA heaped) bucket and 750mm (30") triple grouser shoe.

Load point height		Load radius										At max. reach		
		3.0m(10ft)		4.5m(15ft)		6.0m(20ft)		7.5m(25ft)		9.0m(30ft)		Capacity		Reach
														m(ft)
6.0m (20ft)	kg							*8050	*8050	*7420	5880	6210	4000	11.09
	lb							*17750	*17750	*16360	12960	13690	8820	(36.4)
4.5m (15ft)	kg					*10560	*10560	*8830	7840	*7780	5680	5730	3630	11.47
	lb					*23280	*23280	*19470	17280	*17150	12520	12630	8000	(37.6)
3.0m (10ft)	kg			*17210	16340	*12230	10510	*9730	7390	*8250	5430	5500	3440	11.62
	lb			*37940	36020	*26960	23170	*21450	16290	*18190	11970	12130	7580	(38.1)
1.5m (5ft)	kg			*19400	15060	*13580	9800	*10520	6970	8150	5180	5480	3410	11.54
	lb			*42770	33200	*29940	21610	*23190	15370	17970	11420	12080	7520	(37.9)
Ground line	kg	*12200	*12200	*19850	14520	*14260	9340	10590	6660	7950	5000	5690	3530	11.22
	lb	*26900	*26900	*43760	32010	*31440	20590	23350	14680	17530	11020	12540	7780	(36.8)
-1.5m (-5ft)	kg	*17450	*17450	*19140	14400	*14180	9130	10410	6490	7840	4900	6190	3870	10.65
	lb	*38470	*38470	*42200	31750	*31260	20130	22950	14310	17280	10800	13650	8530	(34.9)
-3.0m (-10ft)	kg	*22880	*22880	*17510	14500	*13310	9120	*10330	6470			*6430	4540	9.78
	lb	*50440	*50440	*38600	31970	*29340	20110	*22770	14260			*14180	10010	(32.1)
-4.5m (-15ft)	kg	*19320	*19320	*14820	14810	*11440	9290	*8650	6630					
	lb	*42590	*42590	*32670	32650	*25220	20480	*19070	14620					
-6.0m (-20ft)	kg			*10430	*10430									
	lb			*22990	*22990									

(4) 7.06m(23' 2") boom, 4m(13' 1") arm equipped with 1.97m³(PCSA heaped) bucket and 750mm(30") triple grouser shoe.

Load point height		Load radius												At max. reach		
		3.0m(10ft)		4.5m(15ft)		6.0m(20ft)		7.5m(25ft)		9.0m(30ft)		10.5m(35ft)		Capacity		Reach
																m(ft)
6.0m (20ft)	kg									*6750	5890			5640	3570	11.63
	lb									*14880	12990			12430	7870	(38.2)
4.5m (15ft)	kg							*8080	7870	*7180	5650			5210	3230	11.99
	lb							*17810	17350	*15830	12460			11490	7120	(39.3)
3.0m (10ft)	kg			*15570	*15570	*11270	10610	*9050	7370	*7710	5360	6360	3980	5000	3050	12.13
	lb			*34330	*34330	*24850	23390	*19950	16250	*17000	11820	14020	8770	11020	6720	(39.8)
1.5m (5ft)	kg			*18300	15200	*12810	9790	*9940	6900	8050	5080	6190	3820	4970	3010	12.05
	lb			*40340	33510	*28240	21580	*21910	15210	17750	11200	13650	8420	10960	6640	(39.5)
Ground line	kg	*12860	*12860	*19440	14370	*13760	9220	10460	6530	7800	4850			5130	3100	11.75
	lb	*28350	*28350	*42860	31680	*30340	20330	23060	14400	17200	10690			11310	6830	(38.5)
-1.5m (-5ft)	kg	*16890	*16890	*19270	14070	*13990	8910	10210	6300	7650	4700			5530	3370	11.21
	lb	*37240	*37240	*42480	31020	*30840	19640	22510	13890	16870	10360			12190	7430	(36.8)
-3.0m (-10ft)	kg	*21660	*21660	*18090	14070	*13460	8820	10120	6210	7610	4660			*6160	3900	10.39
	lb	*47750	*47750	*39880	31020	*29670	19440	22310	13690	16780	10270			*13580	8600	(34.1)
-4.5m (-15ft)	kg	*21790	*21790	*15880	14300	*12040	8920	*9230	6290					*5810	4920	9.20
	lb	*48040	*48040	*35010	31530	*26540	19670	*20350	13870					*12810	10850	(30.2)
-6.0m (-20ft)	kg	*16100	*16100	*12250	*12250	*9290	9240									
	lb	*35490	*35490	*27010	*27010	*20480	20370									

(5) 7.06m(23' 2") boom, 4.5m(14' 9") arm equipped with 1.97m³(PCSA heaped) bucket and 750mm (30") triple grouser shoe.

Load point height		Load radius												At max. reach		
		3.0m(10ft)		4.5m(15ft)		6.0m(20ft)		7.5m(25ft)		9.0m(30ft)		10.5m(35ft)		Capacity		Reach
																m(ft)
6.0m (20ft)	kg									*6230	5920	*5110	4240	4910	3010	12.40
	lb									*13730	13050	*11270	9350	10820	6640	(40.7)
4.5m (15ft)	kg							*7480	*7480	*6700	5660	*6180	4120	4570	2750	12.73
	lb							*16490	*16490	*14770	12480	*13620	9080	10080	6060	(41.8)
3.0m (10ft)	kg			*14220	*14220	*10470	*10470	*8490	7410	*7280	5350	6330	3940	4400	2600	12.86
	lb			*31350	*31350	*23080	*23080	*18720	16340	*16050	11790	13960	8690	9700	5730	(42.2)
1.5m (5ft)	kg			*17310	15440	*12150	9860	*9470	6890	*7850	5030	6130	3760	4380	2570	12.79
	lb			*38160	34040	*26790	21740	*20880	15190	*17310	11090	13510	8290	9660	5670	(42.0)
Ground line	kg	*11450	*11450	*18950	14380	*13320	9190	*10210	6470	7730	4770	5960	3600	4520	2650	12.51
	lb	*25240	*25240	*41780	31700	*29370	20260	*22510	14260	17040	10520	13140	7940	9960	5840	(41.0)
-1.5m (-5ft)	kg	*14430	*14430	*19230	13910	*13790	8790	10110	6190	7530	4580	5860	3500	4840	2870	12.01
	lb	*31810	*31810	*42390	30670	*30400	19380	22290	13650	16600	10100	12920	7720	10670	6330	(39.4)
-3.0m (-10ft)	kg	*18270	*18270	*18440	13810	*13530	8640	9960	6060	7450	4510			*5330	3290	11.26
	lb	*40280	*40280	*40650	30450	*29830	19050	21960	13360	16420	9940			*11750	7250	(36.9)
-4.5m (-15ft)	kg	*23130	*23130	*16620	13960	*12430	8680	*9540	6080	*7220	4570			*4980	4040	10.19
	lb	*50990	*50990	*36640	30780	*27400	19140	*21030	13400	*15920	10080			*10980	8910	(33.4)
-6.0m (-20ft)	kg	*18450	*18450	*13520	*13520	*10200	8920	*7500	6300					*4030	*4030	8.64
	lb	*40680	*40680	*29810	*29810	*22490	19670	*16530	13890					*8880	*8880	(28.3)

(6) 6.55m(21' 6") boom, 2.4m(7' 10") arm equipped with 2.57m³(PCSA heaped) bucket and 750mm (30") triple grouser shoe.

Load point height		Load radius								At max. reach		
		3.0m(10ft)		4.5m(15ft)		6.0m(20ft)		7.5m(25ft)		Capacity		Reach
												m(ft)
6.0m (20ft)	kg lb							*9630 *21230	8050 17750	*8050 *17750	5420 11950	9.44 (31.0)
4.5m (15ft)	kg lb			*16110 *35520	*16110 *35520	*12200 *26900	11260 24820	*10180 *22440	7780 17150	7410 16340	4830 10650	9.90 (32.5)
3.0m (10ft)	kg lb			*19190 *42310	16290 35910	*13630 *30050	10560 23280	*10860 *23940	7430 16380	7060 15560	4550 10030	10.07 (33.0)
1.5m (5ft)	kg lb			*20490 *45170	15340 33820	*14610 *32210	9990 22020	11070 24410	7120 15700	7070 15590	4530 9990	9.98 (32.7)
Ground line	kg lb			*19980 *44050	15060 33200	*14790 *32610	9660 21300	10840 23900	6910 15230	7470 16470	4780 10540	9.60 (31.5)
-1.5m (-5ft)	kg lb	*22370 *49320	*22370 *49320	*18380 *40520	15080 33250	*14030 *30930	9570 21100	10760 23720	6840 15080	*7890 *17390	5430 11970	8.91 (29.2)
-3.0m (-10ft)	kg lb	*19140 *42200	*19140 *42200	*15660 *34520	15310 33750	*12140 *26760	9670 21320					
-4.5m (-15ft)	kg lb			*11140 *24560	*11140 *24560							

2) ROBEX 450LC-3

(1) 7.06m(23' 2") boom, 2.4m(7' 10") arm equipped with 2.09m³(PCSA heaped) bucket and 750mm (30") triple grouser shoe.

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

Load point height		Load radius										At max. reach		
		3.0m(10ft)		4.5m(15ft)		6.0m(20ft)		7.5m(25ft)		9.0m(30ft)		Capacity		Reach
														m(ft)
6.0m (20ft)	kg lb					*10540 *23240	*10540 *23240	*9130 *20130	8260 18210			*7420 *16360	5000 11020	10.03 (32.9)
4.5m (15ft	kg lb			*16420 *36200	*16420 *36200	*11980 *26410	11310 24930	*9810 *21630	7910 17440			*7450 *16420	4500 9920	10.45 (34.3)
3.0m (10ft)	kg lb					*13450 *29650	10540 23240	*10560 *23280	7520 16580			*7520 *16580	4260 9390	10.61 (34.8)
1.5m (5ft)	kg lb					*14390 *31720	9980 22000	*11130 *24540	7190 15850	*9110 *20080	5400 11900	*7590 *16730	4240 9350	10.52 (34.5)
Ground line	kg lb			*19260 *42460	15120 33330	*14550 *32080	9690 21360	*11290 *24890	6970 15370			*7610 *16780	4450 9810	10.17 (33.4)
-1.5m (-5ft)	kg lb			*17870 *39400	15210 33530	*13920 *30690	9630 21230	*10880 *23990	6900 15210			*7480 *16490	4970 10960	9.53 (31.3)
-3.0m (-10ft)	kg lb	*18350 *40450	*18350 *40450	*15670 *34550	15440 34040	*12440 *27430	9740 21470							
-4.5m (-15ft)	kg lb			*12170 *26830	*12170 *26830	*9610 *21190	*9610 *21190							

Note 1. Lifting capacity are based on SAE J1097

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.

(2) 7.06m(23' 2") boom, 2.9m(9' 6") arm equipped with 2.09m³(PCSA heaped) bucket and 750mm(30") triple grouser shoe.

Load point height		Load radius										At max. reach		
		3.0m(10ft)		4.5m(15ft)		6.0m(20ft)		7.5m(25ft)		9.0m(30ft)		Capacity		Reach
														m(ft)
6.0m (20ft)	kg							*8550	8350			*6880	4600	10.48
	lb							*18850	18410			*15170	10140	(34.4)
4.5m (15ft)	kg			*15000	*15000	*11240	*11240	*9290	7970	*8140	5790	*6940	4150	10.89
	lb			*33070	*33070	*24780	*24780	*20480	17570	*17950	12760	*15300	9150	(35.7)
3.0m (10ft)	kg			*18280	16310	*12810	10650	*10120	7540	*8540	5570	*7030	3930	11.04
	lb			*40300	35960	*28240	23480	*22310	16620	*18830	12280	*15500	8660	(36.2)
1.5m (5ft)	kg			*19880	15260	*13980	10000	*10810	7160	*8880	5360	*7130	3900	10.95
	lb			*43830	33640	*30820	22050	*23830	15790	*19580	11820	*15720	8600	(35.9)
Ground line	kg			*19730	14950	*14420	9620	*11140	6900	*8980	5200	*7200	4060	10.62
	lb			*43500	32960	*31790	21210	*24560	15210	*19800	11460	*15870	8950	(34.8)
-1.5m (-5ft)	kg	*19850	*19850	*18630	14950	*14080	9480	*10950	6770			*7170	4490	10.01
	lb	*43760	*43760	*41070	32960	*31040	20900	*24140	14930			*15810	9900	(32.8)
-3.0m (-10ft)	kg	*21260	*21260	*16700	15130	*12930	9530	*10040	6800			*6890	5370	9.06
	lb	*46870	*46870	*36820	33360	*28510	21010	*22130	14990			*15190	11840	(29.7)
-4.5m (-15ft)	kg	*16900	*16900	*13640	*13640	*10670	9770							
	lb	*37260	*37260	*30070	*30070	*23520	21540							

(3) 7.06m(23' 2") boom, 3.38m(11' 1") arm equipped with 2.09m³(PCSA heaped) bucket and 750mm (30") triple grouser shoe.

Load point height		Load radius										At max. reach		
		3.0m(10ft)		4.5m(15ft)		6.0m(20ft)		7.5m(25ft)		9.0m(30ft)		Capacity		Reach
														m(ft)
6.0m (20ft)	kg							*8020	*8020	*7390	6020	*6390	4100	11.09
	lb							*17680	*17680	*16290	13270	*14090	9040	(36.4)
4.5m (15ft)	kg					*10530	*10530	*8800	8030	*7750	5820	*6430	3720	11.47
	lb					*23210	*23210	*19400	17700	*17090	12830	*14180	8200	(37.6)
3.0m (10ft)	kg			*17170	16730	*12190	10760	*9700	7570	*8220	5570	*6500	3530	11.62
	lb			*37850	36880	*26870	23720	*21380	16690	*18120	12280	*14330	7780	(38.1)
1.5m (5ft)	kg			*19360	15440	*13540	10050	*10480	7150	*8640	5320	6540	3500	11.54
	lb			*42680	34040	*29850	22160	*23100	15760	*19050	11730	14420	7720	(37.9)
Ground line	kg	*12230	*12230	*19810	14900	*14220	9590	*10950	6840	*8860	5140	*6630	3640	11.22
	lb	*26960	*26960	*43670	32850	*31350	21140	*24140	15080	*19530	11330	*14620	8020	(36.8)
-1.5m (-5ft)	kg	*17470	*17470	*19100	14780	*14150	9380	*10940	6670	*8710	5040	*6610	3980	10.65
	lb	*38510	*38510	*42110	32580	*31200	20680	*24120	14700	*19200	11110	*14570	8770	(34.9)
-3.0m (-10ft)	kg	*22910	*22910	*17470	14890	*13270	9360	*10300	6650			*6400	4660	9.78
	lb	*50510	*50510	*38510	32830	*29260	20640	*22710	14660			*14110	10270	(32.1)
-4.5m (-15ft)	kg	*19280	*19280	*14780	*14780	*11410	9540	*8620	6810					
	lb	*42510	*42510	*32580	*32580	*25150	21030	*19000	15010					
-6.0m (-20ft)	kg			*10390	*10390									
	lb			*22910	*22910									