

NCK-RAPIER

AJAX C60

Crawler mounted
Liftcrane
Dragline
Grabcrane

specification
and
technical
data

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NCK-RAPIER AJAX C60

SPECIFICATION

LIFTCRANE · DRAGLINE · GRABCRANE

Manufactured under licence from Koehring Company

POWER: Diesel engine developing 155 b.h.p. nett at 2,050 r.p.m. full load speed fully equipped driving through a twin disc single stage torque converter with overspeed device and output shaft governor.

Electric starting is standard, also Tropical type radiator, cooling fan, air cleaner, lubricating oil filter, fuel pump, fuel filter, fuel tank and air compressor.

GRADIENTS: Machine will climb a gradient of 1 in 4 (25%).

TURNTABLE: A welded structure built up from steel castings and structural steel. The side stands and bearings which support the horizontal shafts are integral parts of the turntable fabrication.

The superstructure revolves on a totally enclosed single row ball slewing ring.

CRAWLERS: Cast steel heat treated crawler shoes. NCK-RAPIER design for self-cleaning providing great tractive power and large bearing surface on the ground. Crawler frames are separate units to receive axles on carbody. Crawler assemblies can be removed as a unit without disturbing drive chains or belt adjustments by merely removing 4 split collars.

BOOMS: The standard boom is pin jointed high tensile steel boom. Basic boom length 15.24 m (50 ft.) extended by 3.04 m (10 ft.) and 6.09 m (20 ft.) inserts to a maximum length of 45.7 m (150 ft.). Fly Jibs from 6.09 m (20 ft.) to 12.19 m (40 ft.) long are available for use on main booms up to 42.7 m (140 ft.) long.

STEERING: Air controlled by means of two levers with fingertip controls. Can turn right or left while travelling forward or backward. Wear on parts and losses of power due to friction are at a minimum. Can readily steer on a slope as well as on level.

OPERATION: Air control valves for main and auxiliary operations mounted on a centralised console. The console itself is designed for maximum operator efficiency giving improved visibility and with valves arranged to minimise the amount of hand movement. Controls include swing, hoist, forward/reverse clutches. All engine instruments are also mounted on the console. Boom hoist brake and boom hoist pawl are mechanically operated, main drum brakes are mechanically operated with air assistance.

CLUTCHES: Main drum and boom hoist clutches are inside band type. Swing and traction are 2-shoe, internal-expanding type. All clutches are air operated equipped

with air chambers and quick release valves to ensure positive engagement and release of clutch.

DRUMS AND DRUM LAGGINGS: Suitable sizes of easily removable grooved metal drum laggings provide proper speeds for each type of front end equipment. For lifter crane duty LeBus boom hoist drum and LeBus power load lowering drums are fitted.

AUTOMATIC POWER BOOM LOWERING: A special automatic power boom lowering device to control the lowering of the boom by engine power is furnished as standard.

POWER LOAD LOWERING: Two independent planetary type clutch units to give power controlled lowering of the main load hook and fly jib hook are available as optional extras.

TRACTION BRAKES: Two powerful traction brakes one for each crawler are spring loaded in the 'on' position. This enables the machine to work safely on gradient and prevent movement of machine towards drag bucket. There are two external contracting friction brakes, one for each crawler. These traction brakes are provided with a safety feature which permits the brake to be applied without dis-engaging the steering jaw clutch. Brakes are spring set with air power release. Traction brakes are released by air and steering is air controlled.

SHAFTS: All shafts are of large diameter and made from high carbon or alloy steels, heat treated for maximum strength. Power is transmitted through accurately machined involute splines, which combine highly efficient operation with quick replacement of worn parts, with a consequent saving in fitting time. All high speed shafts run on ball or roller bearings.

SAFE LOAD INDICATOR: An audible and visible safe load indicator is available for use with liftcranes.

BOOM SUSPENSION: Rear gantry with suspension mast and pendant type boom suspension to be used for all boom lengths. Boom point sheave and boom suspension pulleys mounted on Antifriction Bearings.

COUNTERWEIGHT: One piece externally mounted cast iron counterweight is furnished complete with lifting bolt and sling for removal and replacement with the aid of the rear gantry. Counterweight is ledge mounted for ease of assembly or removal.

THIRD DRUM: An independent auxiliary third drum is available and is mounted forward of the main drum shaft. This unit cannot be fitted on a machine required with Power Load Lowering on the L.H. Hoist Drum.

DRUM LAGGING CAPACITIES

Location	Application	Pitch Circle Diameter		Width		Type	Effective Capacity 1st Layer		No. of Layers	Max. Effective Capacity to B.S.S. 1757		Rope Size
		mm.	in.	mm.	in.		m.	ft.		m.	ft.	
L.H.	Crane-Hoist (Fly Jib) ..	584	23	272	10 $\frac{3}{4}$	Grooved	12,8	42	4	83,5	274	mm.
L.H.	Grab-Closing	660	26	272	10 $\frac{3}{4}$	Grooved	16,4	54	3	76,2	250	22
R.H.	Crane-Hoist											
R.H.	Crane-Hoist											
R.H.	Crane-Hoist (No P.L.L.)	635	25	424	16 $\frac{1}{2}$	Grooved	25,9	85	3	101,8	334	26
R.H.	Grab-Holding											
R.H.	Dragline-Grab	533	21	424	16 $\frac{1}{2}$	Grooved	21,6	71	5	156,1	512	26
R.H.	Crane-Hoist (P.L.L.) ..	584	23	377	14,86	LeBus Sleeved	21,0	69	4	112,8	370	26
L.H.	Crane-Fly Jib Hoist (P.L.L.)	584	23	205	8,07	LeBus Sleeved	11,9	39	5	94,2	309	22
—	Boom Hoist	298	11 $\frac{1}{2}$	277	10,915	LeBus Sleeved	10,4	34	6	96,9	318	19
—	Third Drum	356	14	197	7 $\frac{3}{4}$	Grooved	10,7	35	3	41,0	135	16

NCK-RAPIER AJAX G60

TECHNICAL DATA

CRAWLER DATA

Distance C. to C. Tumblers		Width Frame C. to C. Girders		Length over Crawlers		Width over Crawlers		Width of Shoe		Pitch		No. of Shoes		Flat Bearing Surface		Average Bearing Pressure	
m.	ft. in.	m.	ft. in.	m.	ft. in.	m.	ft. in.	m.	in.	m.	in.	86	sq.m.	sq.ft.	kg/sq.cm.	lb./sq.in.	
4,57	15 0	3,25	10 8	5,59	18 4	4,17	13 8	0,91	36	0,28	11	86	8,88	95.5	0,67	9.5	

GENERAL DATA

Tailradius (less c'weight)	3.71 m	12' 2"
Height over rear 'A' frame	4.44 m	14' 5 1/2"
Ground clearance under lower Traction Case	0.26 m	10 1/4"
Centre of Rotation to Centre of Boom Foot	0.99 m	3' 3"
Height of Boom Foot from Ground	2.07 m	6' 9 1/2"
Width of Cab (Max.)	3.29 m	10' 9 1/2"
Length of Cab (Max.)	5.07 m	16' 7 1/2"
Height of Cab inside (Max.)	2.02 m	6' 7 1/2"
Travel Speed	1.3 km/hr	0.818 m.p.h.
Rotating Speed	3 r.p.m.	3 r.p.m.
Fuel Tank Capacity	454 litres	100 Imp. Gals.
Counterweight	15 650 kg	34,500 lb.

CLUTCHES

Boom Hoist	508 x 76 mm	20" x 3"
Main Drum	940 x 127 mm	37" x 5"
Swing and Traction	660 x 127 mm	26" x 5"
Automatic Power Boom Lowering	457 x 76 mm	18" x 3"
Third Drum	533 x 102 mm	21" x 4"

All Internal Expanding Type.

BRAKES

Boom Hoist	543 x 76 mm	21 3/8" x 3"
Main Drum	1 143 x 102 mm	45" x 4"
Swing	711 x 76 mm	28" x 3"
Traction	711 x 89 mm	28" x 3 1/2"
Power Load Lowering	635 x 102 mm	25" x 4"
Third Drum	572 x 89 mm	22 1/2" x 3 1/2"

All External Contracting Type.

WORKING WEIGHTS (approx.)

Liftcrane, 50 ft. boom, standard crawlers, 36" shoes, standard counterweight, less hook block	66 970 kg	147,640 lb.
Dragline, 50 ft. boom, standard crawlers, 36" shoes, standard counterweight, less bucket	67 300 kg	148,380 lb.
Grabcrane, 50 ft. boom, standard crawlers, 36" shoes, standard counterweight, less bucket	66 890 kg	147,470 lb.

LIFTCRANE

Capacities and Boom Lengths, refer chart.		
Main Hoist (Power Load Lowering Not Fitted).		
Hoist Speed (single part line)	46.5 m/min	152.69 ft./min.

Hoist Rope Pull (single part line)	12 270 kg	27,045 lb.
Hoist Drum	635 mm p.c. dia.	25" p.c. dia.
Fly Jib Hoist (Power Load Lowering Not Fitted).		
Hoist Speed (single part line)	42.8 m/min.	140.5 ft./min.
Hoist Rope Pull (single part line)	13 330 kg.	29,400 lb.
Hoist Drum	584 mm p.c. dia.	23" p.c. dia.
Main Hoist (Power Load Lowering Fitted)		
Hoist Speed (single part line)	42.8 m/min.	140.5 ft./min.
Hoist Rope Pull (single part line)	13 330 kg.	29,400 lb.
Lowering Speed (single part line)	9.22 m/min.	30.28 ft./min.
Hoist Drum	584 mm p.c. dia.	23" p.c. dia.
Fly Jib Hoist (Power Load Lowering Fitted)		
Hoist Speed (single part line)	42.8 m/min.	140.5 ft./min.
Hoist Rope Pull (single part line)	13 330 kg.	29,400 lb.
Lowering Speed (single part line)	10.99 m/min.	36.05 ft./min.
Hoist Drum	584 mm p.c. dia.	23" p.c. dia.
Third Drum Rope Speed	48.5 m/min.	159 ft./min.
*Third Drum Rope Pull	4 080 kg.	9,000 lb.

DRAGLINE

Capacities and Boom Lengths, refer chart.		
Drag Rope Speed	39.1 m/min.	128 ft./min.
Drag Rope Pull	14 600 kg.	32,200 lb.
Bucket Hoist Rope Speed	48.5 m/min.	159 ft./min.
Bucket Hoist Rope Pull	11 700 kg.	26,000 lb.
Drag Drum	533 mm p.c. dia.	21" p.c. dia.
Hoist Drum	660 mm p.c. dia.	26" p.c. dia.
Dragline Fairlead:		
2 Sheaves	352 mm p.c. dia.	13 7/8" p.c. dia.
2 Rollers	102 mm dia.	4" dia.
Boom Point Sheave	632 mm p.c. dia.	24 7/8" p.c. dia.

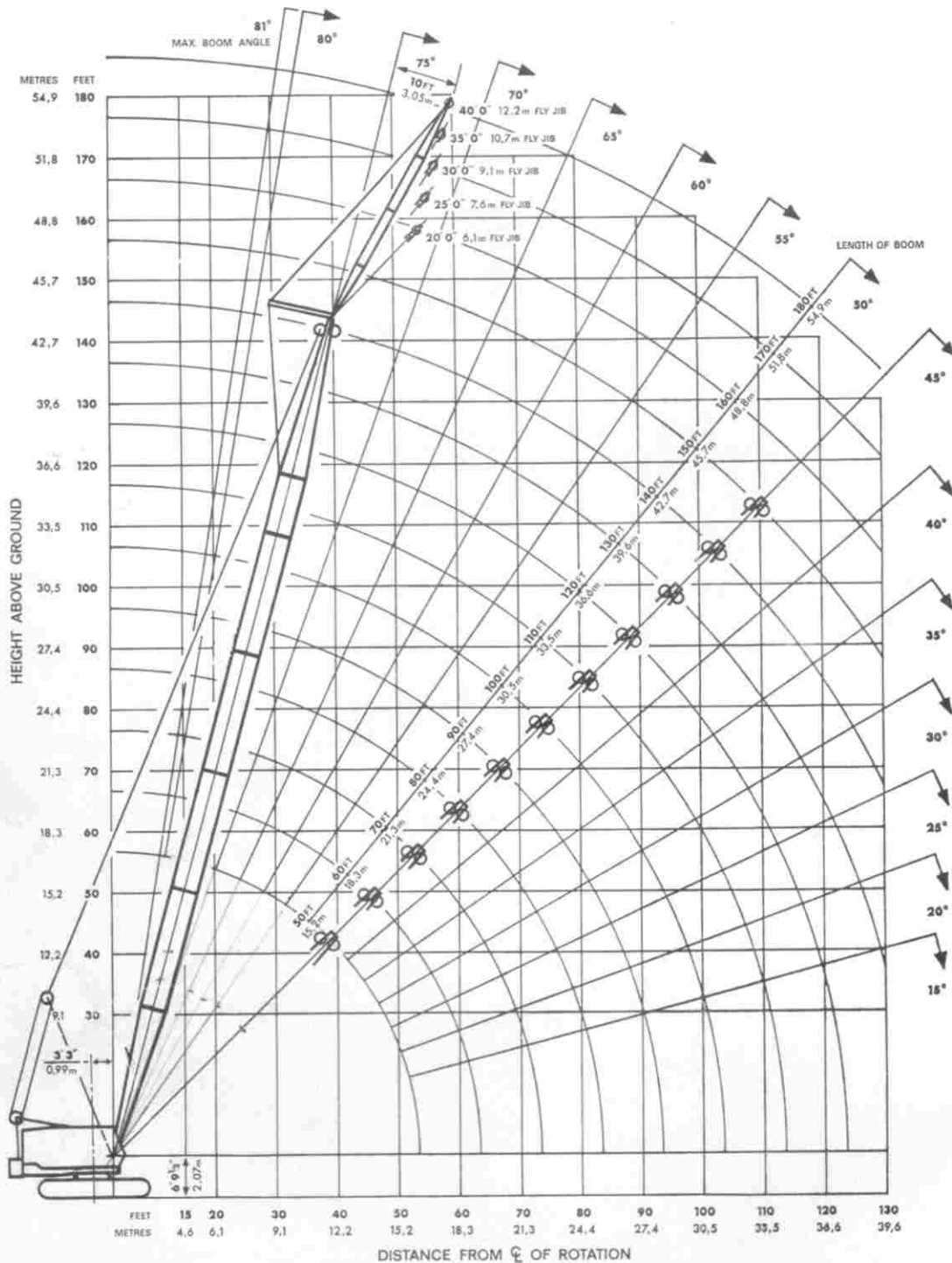
GRABCRANE

Capacities and Boom Lengths, refer chart.		
Holding Rope Speed (single rope)	46.5 m/min.	153 ft./min.
Holding Rope Pull (single rope)	12 270 kg.	27,045 lb.
Holding Drum	635 mm p.c. dia.	25" p.c. dia.
Closing Rope Speed (single rope)	48.5 m/min.	159 ft./min.
Closing Rope Pull (single rope)	11 790 kg.	26,000 lb.
Closing Drum	660 mm p.c. dia.	26" p.c. dia.

*The maximum permissible line pull when used for other than lifting purposes should not exceed 6 800 kg. (15,000 lb.).

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RADIUS DIAGRAM



Maximum Allowable Boom and Fly Jib Lengths.

- Maximum length of Main Boom 45.7 m. (150 ft.).
- Maximum length of Fly Jib 12.2 m. (40 ft.).
- Maximum length of Main Boom with Fly Jib fitted 42.7 m. (140 ft.).

Main Boom Loads: Chart Loads are gross loads. Allowances must be made for the weight of suspended Hook Blocks, Slings, Bucket, etc., when calculating nett working loads. When a Fly Jib is fitted the weight of all suspended Hook Blocks, Slings, etc., must be deducted when calculating nett working loads.

The Main Boom loads must be further reduced by the following loads when a Fly Jib is fitted:-

- 6.1 m. (20 ft.) Fly Jib— 650 kg. (1,440 lb.).
- 7.6 m. (25 ft.) Fly Jib— 760 kg. (1,680 lb.).
- 9.1 m. (30 ft.) Fly Jib— 860 kg. (1,900 lb.).
- 10.7 m. (35 ft.) Fly Jib— 970 kg. (2,140 lb.).
- 12.2 m. (40 ft.) Fly Jib— 1 070 kg. (2,360 lb.).

Fly Jib Loads. Fly Jib gross loads are the same as Main Boom gross loads for any given radius, but must not exceed rated capacity of Fly Jib.

Maximum Fly Jib Capacity 5 080 kg. (11,200 lb.) Weight of all Suspended Hook Blocks must be deducted when calculating nett working loads.

Fly Jib must not be used for Dragline or Grabcrane duties.

Fly Jib Offset. Regardless of Jib length, the Offset must not exceed or be less than 3.05 m. (10 ft.).

Weight of Hook Blocks

- 60 966 kg. (60 ton)— 1 030 kg. (2,300 lb.).
- 45 720 kg. (45 ton)— 700 kg. (1,550 lb.).
- 30 483 kg. (30 ton)— 360 kg. (800 lb.).
- 25 402 kg. (25 ton)— 280 kg. (620 lb.).
- 15 241 kg. (15 ton)— 190 kg. (420 lb.).
- 5 080 kg. (5 ton)— 160 kg. (360 lb.).

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LIFTING CAPACITIES

Metric

Loads in kg.

Boom Length m	Load Radius m	Boom Angle degrees	GROSS WORKING LOADS	
			BSS 1757 Ratings	75% Ratings
			kg.	kg.
30,5	6,7	80	24 380	24 380
	7,0	79	22 860	22 860
	8,0	77	19 050	19 050
	9,0	75	16 000	16 000
	10,0	73	13 715	13 715
	12,0	69	10 410	10 855
	14,0	65	7 670	8 640
	16,0	61	6 225	7 010
	18,0	57	4 970	5 595
	20,0	52	4 145	4 665
	22,0	47	3 655	4 110
24,0	42	3 210	3 615	
33,5	7,0	80	22 285	22 285
	8,0	78	18 475	18 475
	9,0	77	15 720	15 720
	10,0	75	13 525	13 525
	12,0	71	10 320	10 795
	14,0	68	7 620	8 570
	16,0	64	6 010	6 765
	18,0	60	4 905	5 520
	20,0	56	4 060	4 570
	22,0	52	3 465	3 900
	24,0	47	3 045	3 425
26,0	42	2 700	3 045	
28,0	37	2 445	2 755	
30,0	31	2 190	2 475	
36,6	7,6	80	19 545	19 545
	8,0	79	18 095	18 095
	9,0	78	15 625	15 625
	10,0	76	13 455	13 455
	12,0	73	10 240	10 735
	14,0	70	7 525	8 475
	16,0	66	5 910	6 665
	18,0	63	4 875	5 485
	20,0	59	3 980	4 480
	22,0	55	3 450	3 890
	24,0	51	2 945	3 330
	26,0	47	2 620	2 955
	28,0	43	2 275	2 570
30,0	38	1 960	2 210	
32,0	32	1 755	1 980	
34,0	26	1 685	1 910	
39,6	8,2	80	16 710	16 710
	9,0	79	15 145	15 145
	10,0	77	13 335	13 335
	12,0	74	10 160	10 665
	14,0	71	7 445	8 380
	16,0	68	5 835	6 565
	18,0	65	4 605	5 180
	20,0	62	3 810	4 290
	22,0	58	3 305	3 715
	24,0	55	2 875	3 235
	26,0	51	2 450	2 755
	28,0	47	2 110	2 375
	30,0	43	1 770	1 995
32,0	39	1 485	1 675	
34,0	34	1 180	1 330	
36,0	28	1 016	1 140	

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LIFTING CAPACITIES

Metric

Loads in kg.

Boom Length m	Load Radius m	Boom Angle degrees	GROSS WORKING LOADS	
			BSS 1757 Ratings	75% Ratings
			kg.	kg.
42,7	8,8	80	14 220	14 220
	9,0	79	13 905	13 905
	10,0	78	12 950	12 950
	12,0	75	9 905	10 475
	14,0	73	7 280	8 190
	16,0	70	5 755	6 475
	18,0	67	4 570	5 140
	20,0	64	3 790	4 265
	22,0	61	3 215	3 620
	24,0	58	2 840	3 200
	26,0	55	2 435	2 740
	28,0	51	2 032	2 285
	30,0	48	1 690	1 905
	32,0	44	1 350	1 520
	34,0	40	1 095	1 230
36,0	35	845	950	
45,7	9,1	80	12 190	12 190
	10,0	79	11 430	11 620
	12,0	76	9 780	10 385
	14,0	74	7 100	8 000
	16,0	71	5 620	6 320
	18,0	69	4 490	5 050
	20,0	66	3 655	4 110
	22,0	63	3 180	3 580
	24,0	60	2 705	3 045
	26,0	57	2 280	2 565
	28,0	54	1 860	2 095
	30,0	51	1 520	1 715
	32,0	48	1 215	1 370
	34,0	44	1 016	1 140
	36,0	40	810	910