

**NCK-RAPIER**

**1405c**

**CRAWLER MOUNTED  
CRANES &  
EXCAVATORS**



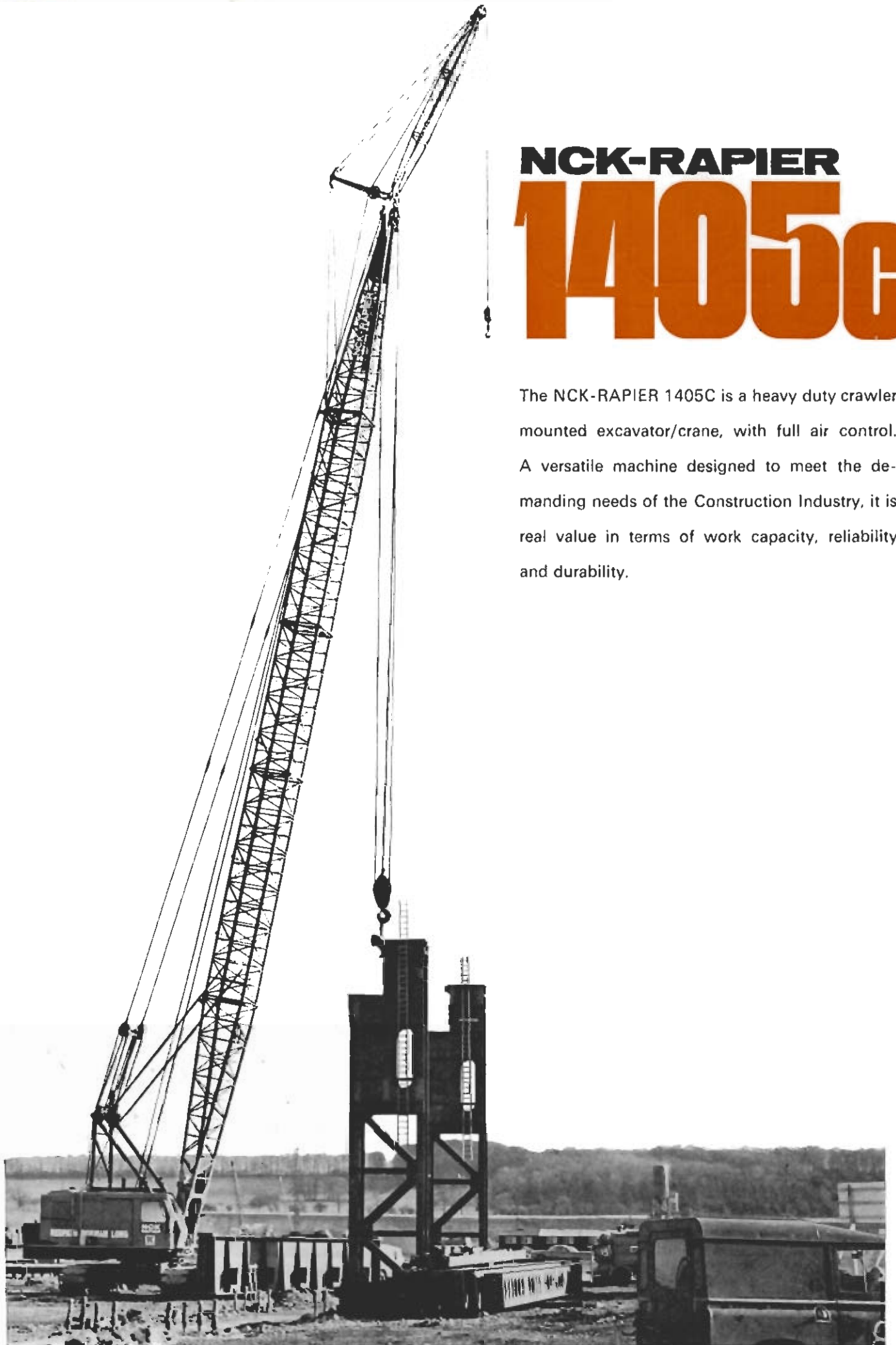
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# NCK-RAPIER 1405c

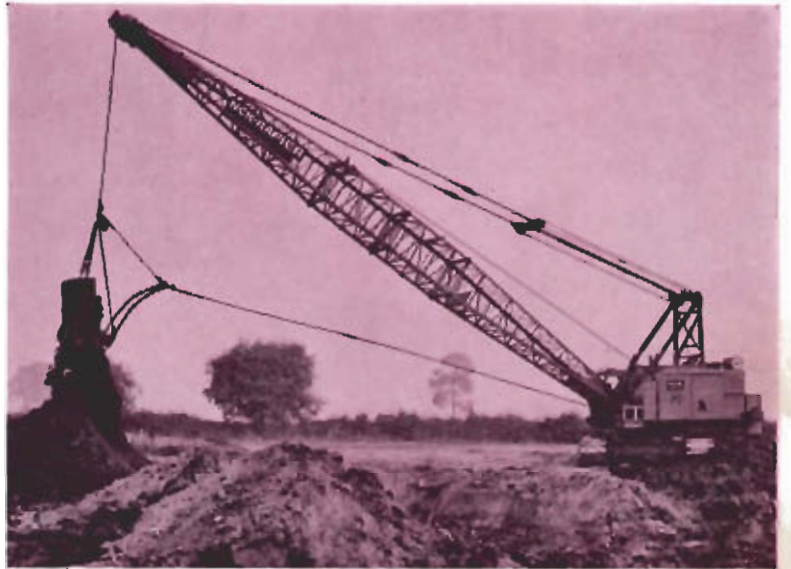
The NCK-RAPIER 1405C is a heavy duty crawler mounted excavator/crane, with full air control. A versatile machine designed to meet the demanding needs of the Construction Industry, it is real value in terms of work capacity, reliability and durability.



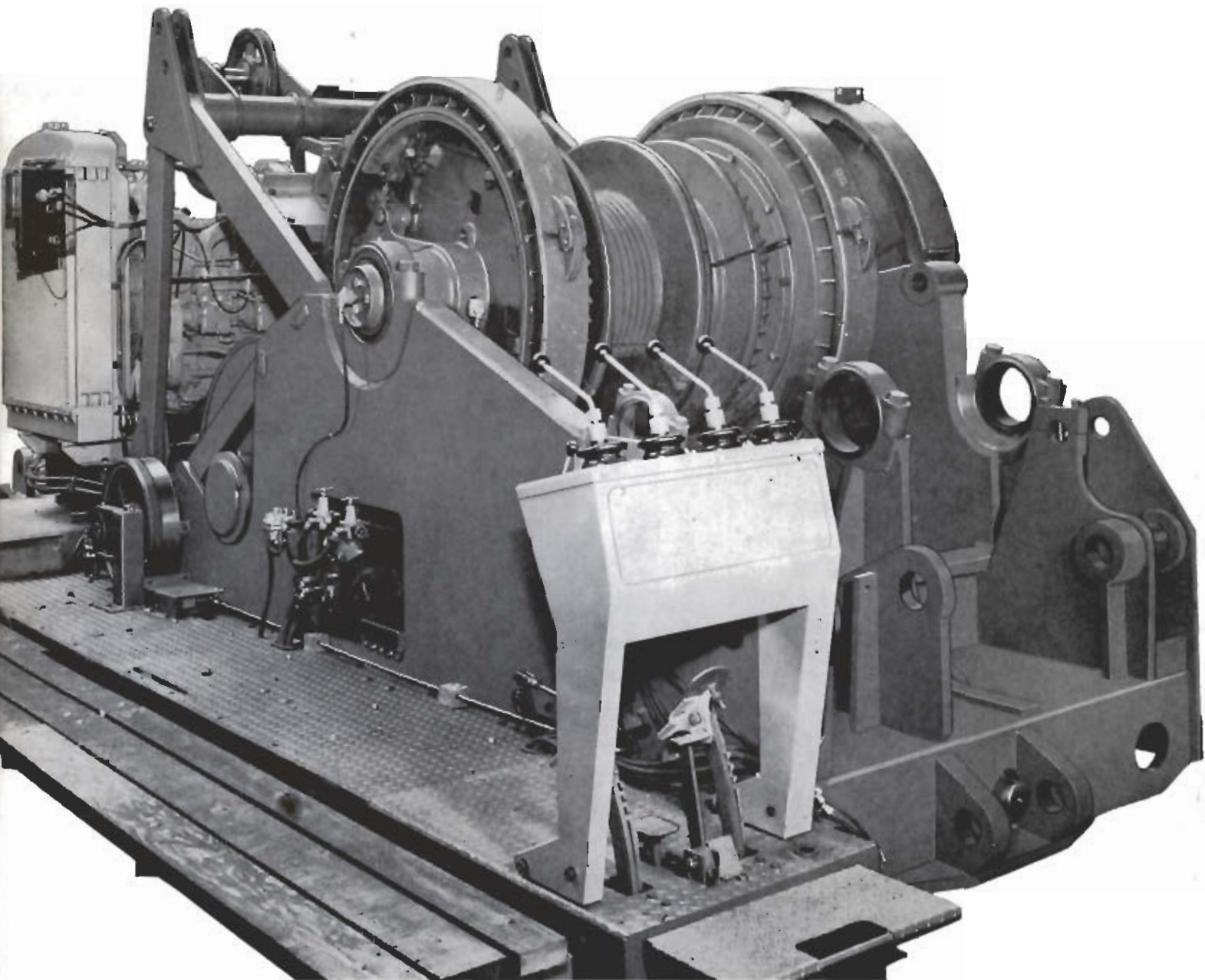
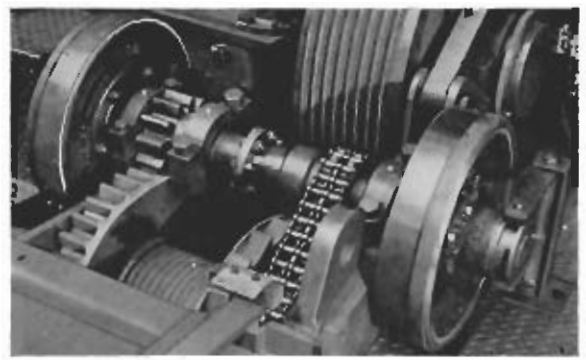


The NCK-RAPIER 1405C offers the following interchangeable front end equipments with full air control.

- Faceshovel** – bucket capacities up to 3,25 metres<sup>3</sup> (*4½ cu.yd.*).
- Grabcrane** – booms up to 36,6 metres (*120 ft.*). Total load bucket and contents up to 12 240 kg. (*27,000 lb.*).
- Dragline** – bucket capacities up to 3,0 metres<sup>3</sup> (*4 cu.yds.*) booms up to 36,6 metres (*120 ft.*).
- Liftcrane** – loads up to 81,300 kgs (*80 tons*) main booms up to 48,8 metres (*160 ft.*). fly jibs up to 18,3 metres (*60 ft.*) on main booms up to 39,6 metres (*130 ft.*).



# NCK-RAPIER 1405c





## base machine

This machine is a heavy duty unit giving strength and rigidity with long life.

## upper machinery detail

The NCK-RAPIER 1405C Upper machinery deck is a one piece steel fabrication with integral side stands incorporating the horizontal and vertical shaft bearings to ensure permanent and accurate alignment of all operational shafts for long trouble-free life. All high speed shafts are large diameter running on anti-friction bearings. Involute splines are used to retain maximum strength and simplify replacement of clutch spiders, housings and gears.

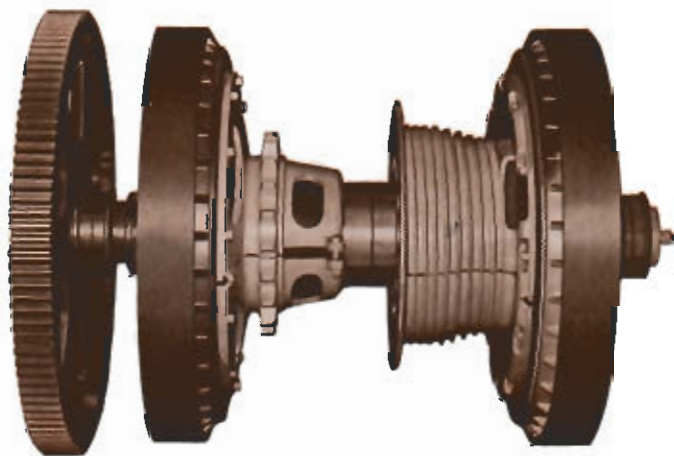
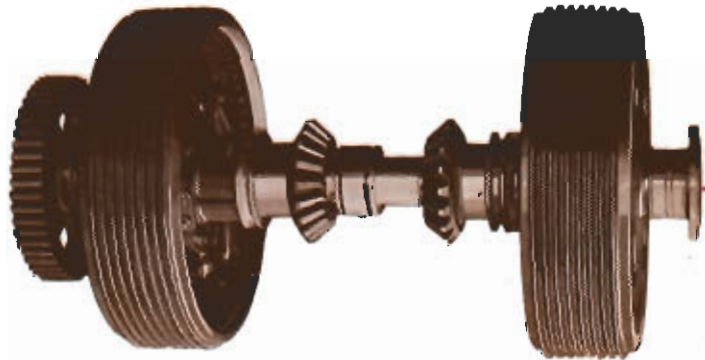
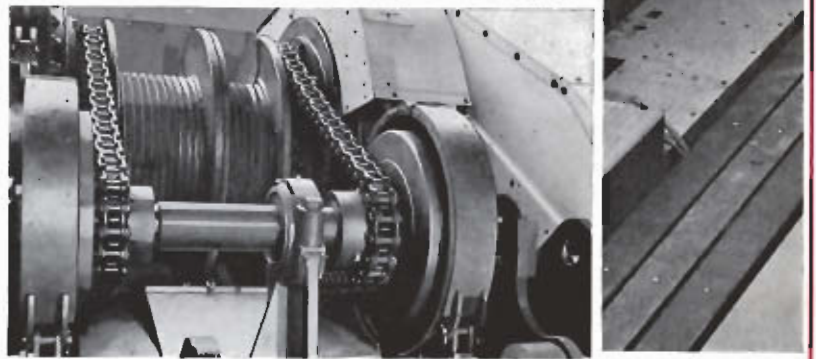
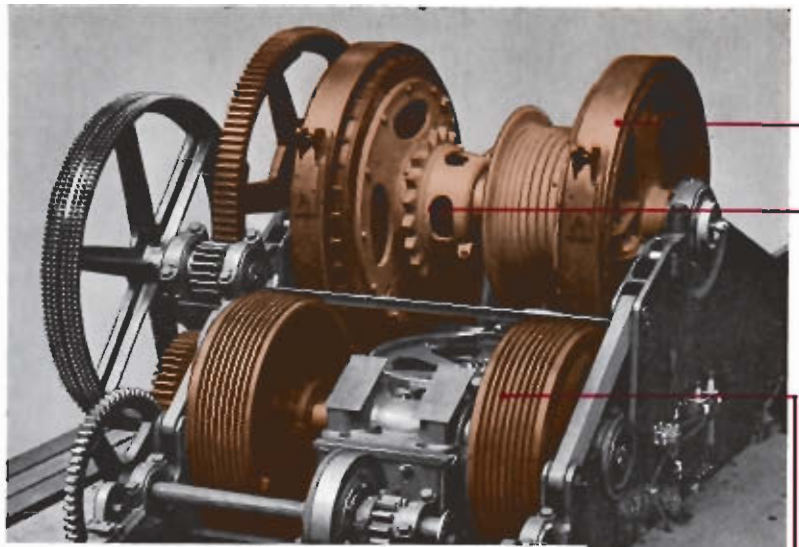
The drum shaft is of the double drum type with easily removed grooved drum laggings to suit power and speed requirements. Drum clutches and brakes are of large diameter and width for maximum lining life. Air pockets between clutch and brake paths provide effective heat dissipation. Drum clutches are air operated of the internal expanding type, and drum brakes are mechanical with air assistance of the external contracting type.

The swing and traction shaft is fitted with constant revolving clutch housing to dissipate the heat generated when the machine is performing fast operating cycles for maximum outputs.

An independent boom hoist clutch is standard equipment. The boom hoist drum is grooved to prolong rope life, and incorporates a brake path and safety pull as standard. For Liftcrane, Grabcrane, Dragline duty a power boom lowering clutch is fitted as standard to control the lowering of the boom under engine power.

For precision crane duty a separate power load lowering shaft is mounted forward of the main drum shaft. It is available with two separate planetary gear assemblies to give independent power load lowering on both main and fly jib hooks. When a third drum is fitted for piling work, power load lowering is available on only the right hand drum.

Faceshovel Retract is achieved by mounting an independent retract shaft forward of the main drum shaft to give high speed retract through a separate clutch.



# NCK-RAPIER 1405c

## lower machinery features and self cleaning crawlers

Lower Machinery consists of the crawlers, crawler frames, drive and carbody. The crawler shoes are of heat treated cast steel with smooth surfaces top and bottom to shed dirt, leaving no holes to trap dirt or stones, together with full length connecting pins for long life and great strength.

The crawler frames are inverted 'U' section designed to shed dirt quickly, with double rollers to straddle the shoe driving lugs preventing the tracks 'walking out', and also spread the load over a greater area, and their close spacing prevents buckling when traversing rough ground.

The axles are heavy duty heat treated cast steel, with turned ends fitting into bored housings in the crawler frames. The tumblers have wide alternate openings to avoid trapping stones and dirt, the driving sprockets are extra large and chamfered to reduce chain wear, and easily replaceable being mounted on involute splines.

The crawler belt and drive chains adjustment bolts are cadmium plated to resist corrosion and provision is made for greasing the nuts, which are completely protected. Special sprocket on lower traction shaft enables crawler frame to be removed without disconnecting drive chains.

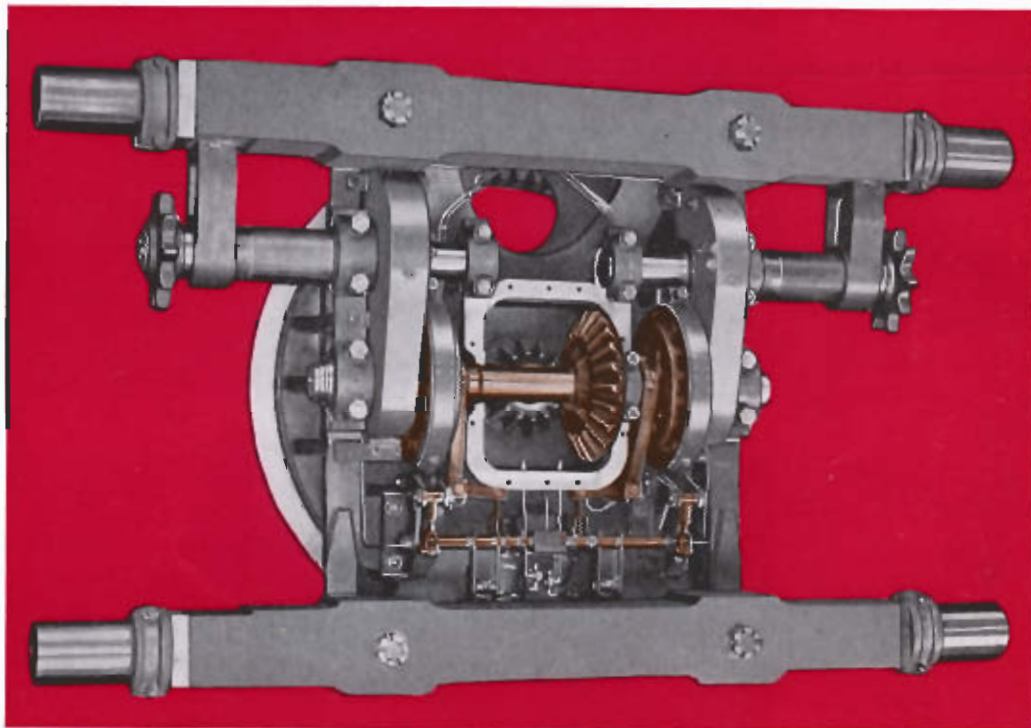
The carbody is of a welded construction comprised of steel castings and rolled sections giving excellent rigidity and great margin of strength. The alloy steel gearing and roller path can be replaced.





## positive air control for traction brakes

The application of air pressure releases the traction brakes and automatically engages the traction jaw clutches. Whenever it is released, powerful pre-loaded springs engage the friction brakes. These are more than sufficient to hold the machine against the digging 'Pushes' and dragline 'pulls'. Each crawler is controlled separately for steering and manoeuvring. Brakes can be applied even with the clutches engaged.



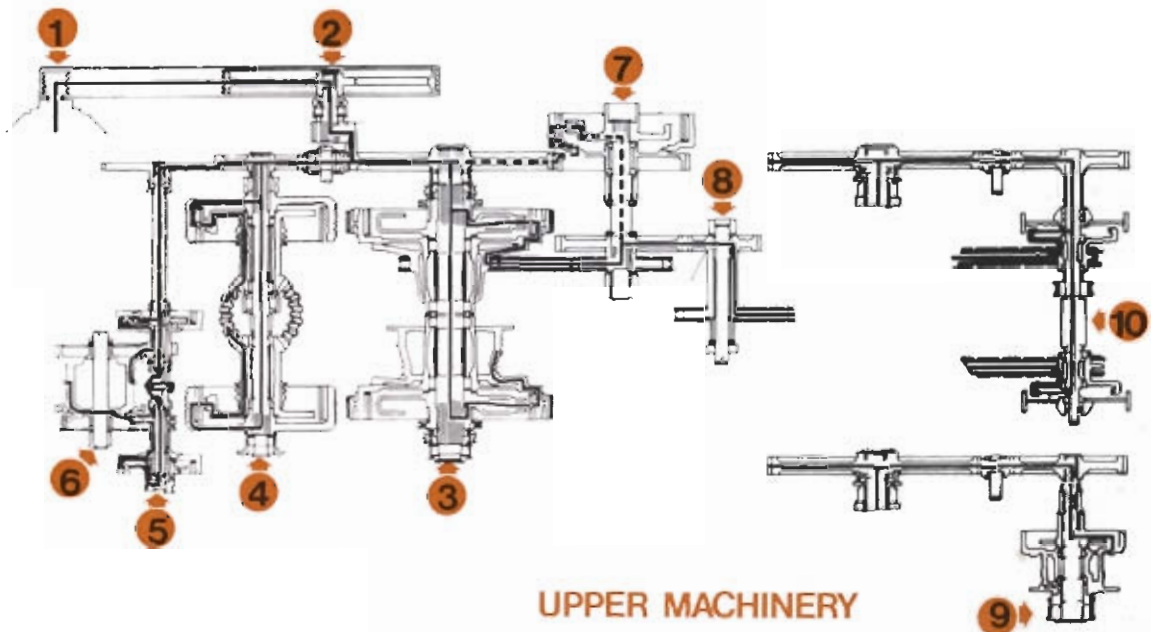
## adjustable hook rollers

The turntable swings on 6 conical alloy steel rollers easily adjustable to compensate for wear by an eccentric adjuster. The 6 hook rollers resist tipping loads and relieve the centre post of vertical loads.

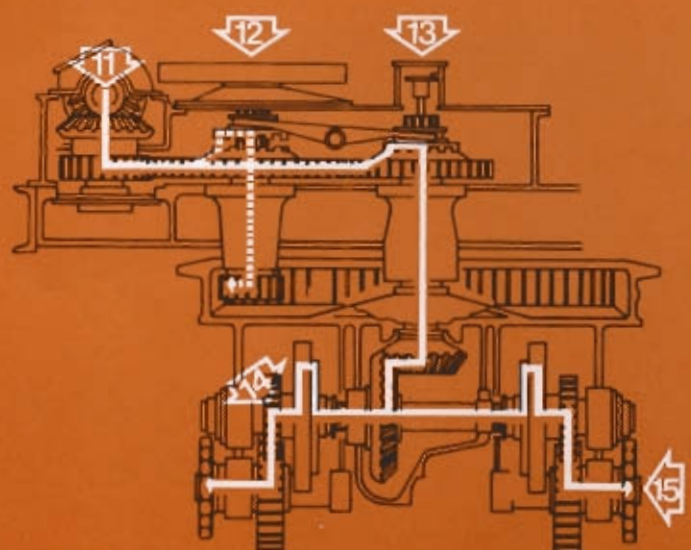
# NCK-RAPIER

# 1405c

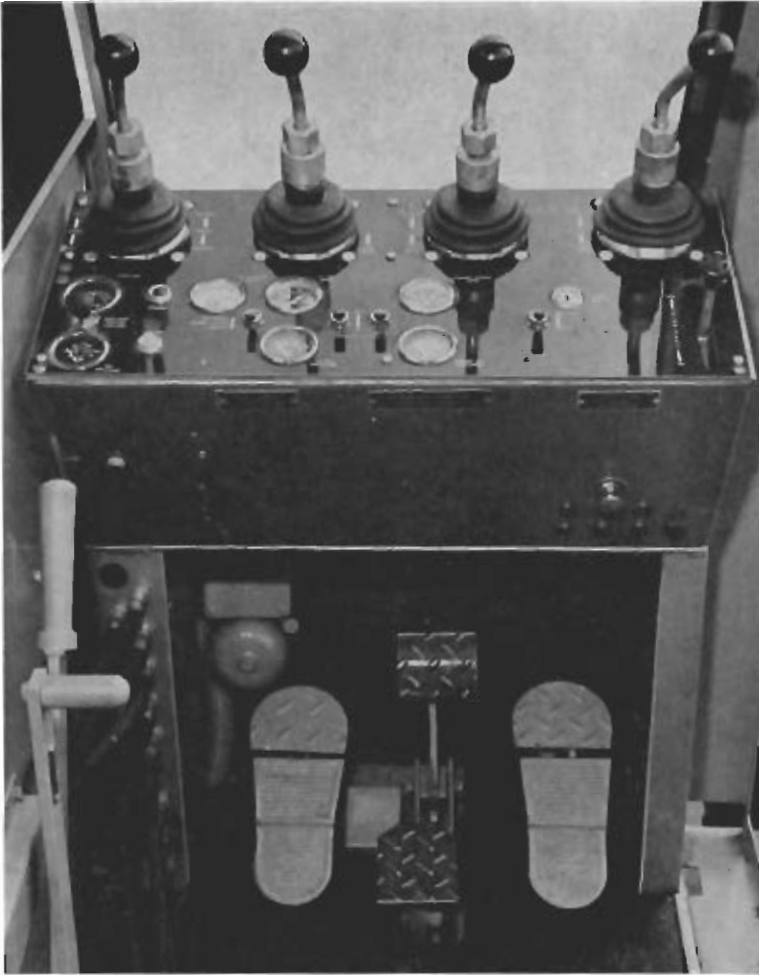
power flow



- 1 Power take-off
- 2 Countershaft
- 3 Main drum shaft
- 4 Swing and traction shaft
- 5 Boom hoist drive shaft
- 6 Boom hoist drum shaft
- 7 Crowd & retract shaft (Faceshovel)
- 8 Boom Foot shaft (Faceshovel)
- 9 Third drum shaft (optional)
- 10 Power load lowering shaft  
both drums (optional)
- 11 Vertical swing and traction shaft
- 12 Vertical swing shaft
- 13 Vertical traction shaft
- 14 Horizontal traction shaft
- 15 Traction counter shaft







## air controls

The metered, self-centering, air control valves on the centralised console are designed for maximum operator efficiency, giving improved visibility and so arranged for minimal hand movement. Controls include swing, hoist and forward/reverse clutches. All engine and torque converter instruments are mounted on the console.



## dividing door

The driver's compartment is isolated from machinery space by a sound-insulating door, and insulated throughout to reduce the noise to a **low** level and increase driver comfort.

# NCK-RAPIER

# 1405c

## specification

### FACESHOVEL · DRAGLINE · LIFTCRANE · GRABCRANE

**POWER:** DIESEL: Engine developing 288 B.H.P. nett at 2,000 r.p.m. full load speed, fully equipped including single stage torque convertor.

24 volt electric starting is furnished as standard, also Tropical Radiator, Cooling Fan, Air Cleaner, Lubricating Oil Filter, Fuel Pump, Fuel Filter, Fuel Tank and Air Compressor.

**ELECTRIC:** AC squirrel cage induction motor can be furnished, 200 H.P. at 1475 r.p.m.

Power Units can be readily adjusted to maintain correct drive chain tension.

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

**TURNTABLE:** A welded structure built up from steel castings and structural steel. The sidestands and bearings which support the horizontal shafts are integral parts of the turntable fabrication. Revolving on six turntable rollers with six adjustable hook rollers.

**CRAWLER: SHOES:** Cast steel heat treated. 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, and removable in one piece without breaking the drive chains.

**BOOMS: FACESHOVEL:** Rolled steel electrically welded boom can be raised and lowered at will without affecting crowding mechanism. Double box section all steel dipper sticks of heavy structural steel electrically welded. Instantaneous air dipper trip. Positive independent chain crowd. Shipper shaft sprocket at centre drives two pinions to racks on sticks through involute splines. 3,25 m<sup>3</sup> (4½ cubic yard) bucket.

**DRAGLINE, LIFTCRANE AND GRABCRANE:** Constructed of four rectangular hollow section high tensile steel chord-angles braced by electrically welded diagonal lacings: 18,3 m (60 ft) or longer booms can be furnished as required. The basic two piece pin jointed boom is extended by 3,05 m (10 ft), 6,1 m (20 ft) and 9,1 m (30 ft) inserts to a maximum length of 48,8 m (160 ft). Fly Jib 18,3 m (60 ft) is available for use on main booms up to 39,6 m (130 ft). Fly Jibs 6,1 m, 9,1 m and 12,2 m (20 ft, 30 ft and 40 ft) long are available for use on main booms up to 42,7 m (140 ft) long. Boom point head sheaves are mounted on anti-friction bearings.

**STEERING:** Air controlled by means of two levers with finger tip control. 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 centralized 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, crowd, dipper trip, forward/reverse/travel clutches. All instruments are also mounted on console. Boom hoist brake and boom

hoist pawl are mechanically operated. Main drum brakes are mechanically operated with air assistance.

**CLUTCHES:** Main drum, boom hoist, and retract clutches are inside band type. Swing and traction clutches are 2-shoe, internal-expanding type. All clutches are air operated equipped with air chambers and quick release valve to ensure positive engagement and release of clutch.

**DRUMS AND DRUM LAGGING:** Suitable sizes of easily removable grooved metal drum lagging provide optimum speeds for faceshovel, dragline and crane work.

**AUTOMATIC POWER BOOM LOWERING:** A special automatic power boom lowering device, still retaining the selection of live boom operation, if required, is standard on liftcrane, grabcrane and dragline.

**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 external contracting friction brakes are provided, 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. This enables the machine to work safely on gradients and prevent movement of machine toward drag bucket or away from faceshovel bucket. 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 liftcrane.

**'A' FRAME:** A self lowering high 'A' Frame is standard equipment.

**LATTICE BOOM SUSPENSION:** Pendant type boom suspension is standard equipment for Liftcrane, Grabcrane and Dragline attachments.

**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.

### NCK-RAPIER 1405C CRAWLER DATA

	Distance C to C Tumblers	Width Frame C to C Girders	Length over Crawlers	Width over Crawlers	Width of Shoe	Pitch	Number of Shoes	Flat Bearing Surface	Average Bearing Pressure
Short Crawlers (Faceshovel only)	m.	m.	m.	m.	m.	m.	72	sq.m.	kg./sq.cm.
	3,92	3,25	5,03	4 17	0,91	0,3	72	7,85	1,13
Long Crawlers	3,92	3,25	5,03	4,32	1,07	0,3	72	9,16	0,975
	4,72	4,06	5,87	5,13	1,07	0,3	82	10,9	0,843
	5,56	4,06	6,86	5,13	1,07	0,3	96	12,55	0,763
	5,56	4,06	6,86	5,28	1,22	0,3	96	14,3	0,674
Short Crawlers (Faceshovel only)	ft. in.	ft. in.	ft. in.	ft. in.	in.	in.	72	sq.in.	lb./sq.in.
	12 10	10 8	16 6	13 8	36	12	72	12,168	16,05
Long Crawlers	12 10	10 8	16 6	14 2	42	12	72	14,196	13,85
	15 6	13 4	19 3	16 10	42	12	82	16,885	11,95
	18 3	13 4	22 6	16 10	42	12	96	19,404	10,85
	18 3	13 4	22 6	17 4	48	12	96	22,176	9,55



# technical data

## GENERAL DATA

Tailradius (No outside C'wt)	4,46 m	14' 8"
Tailradius 'A' Counterweight	4,66 m	15' 3 $\frac{1}{4}$ "
Tailradius 'C' Counterweight	4,95 m	16' 3"
Height of High 'A' Frame raised	6,98 m	22' 10 $\frac{1}{4}$ "
Height over 'A' Frame lower'd	5,11 m	16' 9"
Ground clearance	0,41 m	1' 4"
Centre of Rotation to Centre of Boom Foot	1,30 m	4' 3"
Height of Boom Foot from Ground	2,26 m	7' 5"
Width of Cab (Maximum)	3,33 m	10' 11"
Length of Cab (Maximum)	5,87 m	19' 3"
Height of Cab inside (Max.)	2,31 m	7' 7"
Travel Speed	0,98 km/hr.	0,61 m.p.h.
Rotating Speed	2,44 r.p.m.	2,44 r.p.m.
Type 'A' Counterweight	11 050 kg.	24,350 lb.
Type 'C' Counterweight	20 130 kg.	44,370 lb.
Fuel Tank Capacity	815 litres.	180 galls.
Radiator Capacity	73 litres.	16 galls.

## CLUTCHES

Main Drum	1219 x 178 mm.	48" x 7"
Swing and Traction	965 x 203 mm.	38" x 8"
Boom Hoist	508 x 76 mm.	20" x 3"
Power Boom Lowering	508 x 76 mm.	20" x 3"
Retract	965 x 152 mm.	38" x 6"
Third Drum	660 x 102 mm.	26" x 4"

All Internal Expanding Type.

## BRAKES

Main Drum	1422 x 152 mm.	56" x 6"
Boom Hoist	543 x 76 mm.	21 $\frac{3}{8}$ " x 3"
Swing	914 x 102 mm.	36" x 4"
Traction	711 x 89 mm.	28" x 3 $\frac{1}{4}$ "
Power Load Lowering	762 x 127 mm.	30" x 5"
Third Drum	711 x 102 mm.	28" x 4"

All External Contracting Type.

## WORKING WEIGHTS (approx.)

Faceshovel (SL Crawlers 36"		
Shoes 'A' Counterweight.	86 330 kg.	190,320 lb.
Dragline (XL Crawlers, 42"		
Shoes, 'C' Counterweight		
60 ft. Boom, No Bucket)	93 750 kg.	206,670 lb.
Liftcrane (XL Crawlers, 42"		
Shoes, 'C' Counterweight,		
60 ft. Boom, No Hook)	93 460 kg.	206,040 lb.
Grabcrane (XL Crawlers, 42"		
Shoes, 'C' Counterweight,		
60 ft. Boom No Bucket)	93 760 kg.	206,700 lb.

## FACESHOVEL

Bucket Capacity	3,25 m <sup>3</sup>	4 $\frac{1}{4}$ cu. yd.
Boom Length	9,14 m.	30' 0"
Dipper Stick Length	6,71 m.	22' 0"
Crowd Action	Chain.	
Crowd Speed	28,2 m./min.	92,7 ft./min.
Retract Speed	45,1 m./min.	148 ft./min.
Bucket Hoist Speed (2 part rope)	24,0 to 26,7 m/min.	78,8 to 87,6 ft./min.

Bucket Hoist Pull (2 part rope)	42 100 to 37 900 kg.	92,600 to 83,500 lb.
	85 800 to 77 200 kg. at stall.	189,000 to 170,000 lb. at stall.
Bucket Hoist Drum, tapered	686 to 762 mm. P.C.D.	27" to 30" P.C.D.
Padlock Sheave	692 mm. P.C.D.	27 $\frac{1}{2}$ " P.C.D.
Boom Point Sheaves	1143 mm. P.C.D.	45" P.C.D.

## DRAGLINE

For capacities and boom lengths, refer chart.		
Drag Rope Speed	48,8 m./min.	160,8 ft./min.
Drag Rope Pull	20 650 kg.	45,500 lb.
	42 200 kg. at stall.	92,800 lb. at stall.
Bucket Hoist Rope Speed	53,4 m./min.	175 ft./min.
Bucket Hoist Rope Pull	19 000 kg.	41,700 lb.
	38 600 kg. at stall.	85,000 lb. at stall.
Drag Drum	698 mm. P.C.D.	27 $\frac{1}{2}$ " P.C.D.
Hoist Drum	762 mm. P.C.D.	30" P.C.D.
Dragline Fairlead		
2 Sheaves	483 mm. P.C.D.	19" P.C.D.
2 Rollers	102 mm. dia.	4" dia.
Boom Point Sheave	762 mm. P.C.D.	30" P.C.D.

## LIFTCRANE

For capacities and boom lengths, refer chart.

### Main Hoist and Fly Jib Hoist with Gravity Load Lowering :

Hoist Rope Speed (single part rope)	53,4 m./min.	175 ft./min.
Hoist Rope Pull (single part rope)	19 000 kg.	41,700 lb.
	38 600 kg. at stall.	85,000 lb. at stall.
Hoist Drum	762 mm. P.C.D.	30" P.C.D.

### Main Hoist and Fly Jib Hoist with Planetary Power Load Lowering :

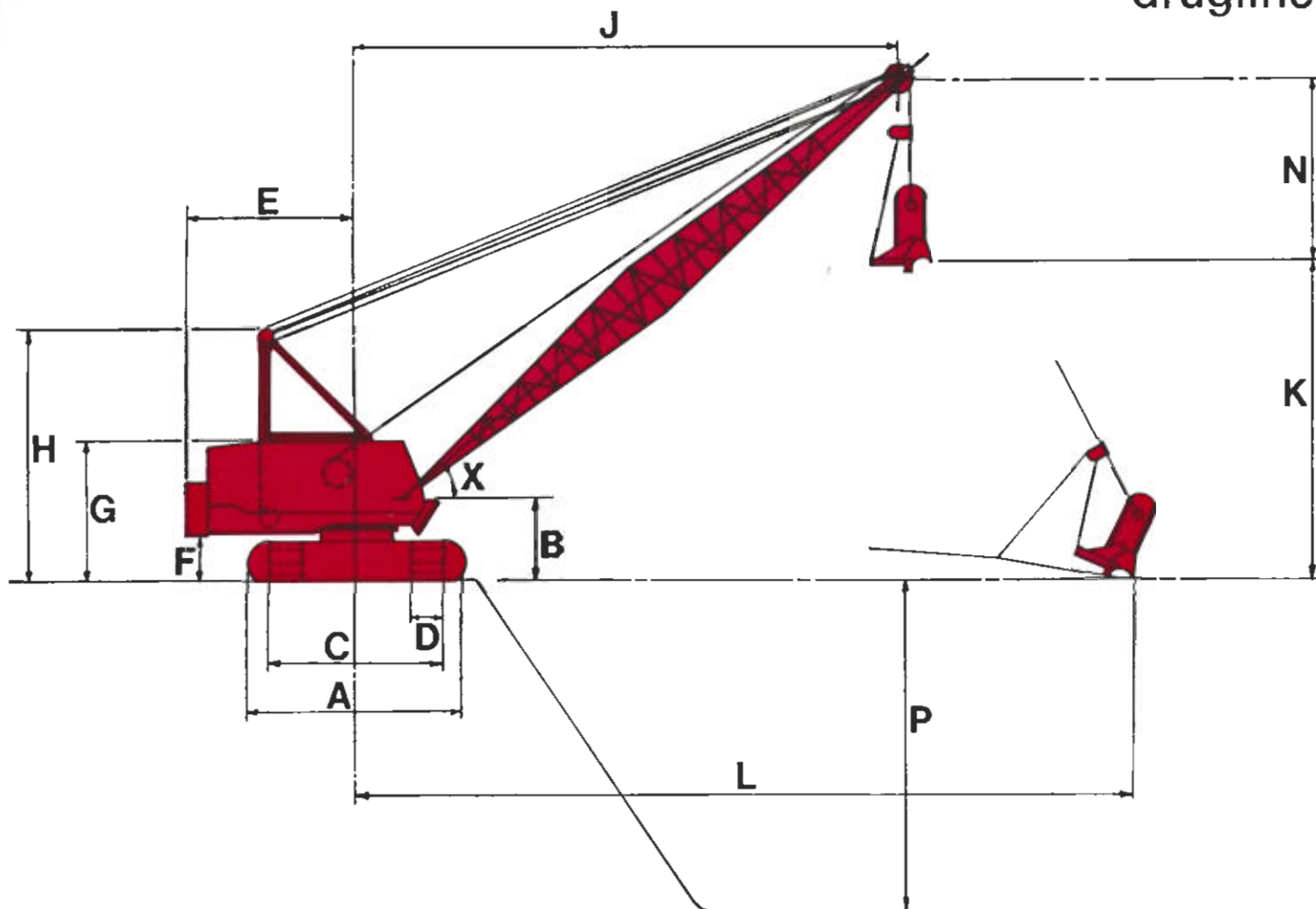
Hoist Rope Speed (single part rope)	48,8 m./min.	160,8 ft./min.
Hoist Rope Pull (single part rope)	20 650 kg.	45,500 lb.
	42 200 kg. at stall.	92,800 lb. at stall.
Lowering Speed (single part rope)	9,7 m./min.	31,7 ft./min.
Hoist Drum	698 mm. P.C.D.	27 $\frac{1}{2}$ " P.C.D.
Boom Point Sheaves	762 mm. P.C.D.	30" P.C.D.
Third Drum Rope Speed (single part rope)	56,6 m./min.	186 ft./min.
*Third Drum Rope Pull (single part rope)	4 535 kg.	10,000 lb.
Third Drum	419 mm. P.C.D.	16 $\frac{1}{2}$ " P.C.D.

## GRABCRANE

For capacities and boom lengths, refer chart.

Holding and Closing Rope Speed (single part ropes)	53,4 m./min.	175 ft./min.
Holding and Closing Rope Pull (single part ropes)	19 000 kg.	41,700 lb.
	38 600 kg. at stall.	85,000 lb. at stall.
Holding and Closing Rope Drums	762 mm. P.C.D.	30" P.C.D.

\*The maximum permissible line pull when used for other than lifting purposes should not exceed 9 071 kg. (20,000 lb.).



		m.	ft. in.			m.	ft. in.
A	Overall Length *Long Crawlers . . . . .	5,87	19 3	F	Clearance under Counterweight . . . . .	1,27	4 2
C	Overall Width of Crawlers with 42" Shoes . . . . .	5,13	16 10	G	Height with Boom and 'A' Frame lowered . . . . .	5,11	16 9
	Overall Width of Cab (Catwalk each side) . . . . .	4,23	14 1	H	Height of 'A' Frame, Working Position . . . . .	6,98	22 10½
D	Width of Shoes . . . . .	1,07	3 6	N	Distance from Boom Point Pin . . . . .	2,27	7 5¼
		1,22	4 0		Overall Width of Cab (No Catwalks) . . . . .	3,27	10 11
E	Tailradius 'C' Counterweight . . . . .	4,95	16 3				

\*6,86 m. (22' 6") overall length crawlers do not increase lifting capacities but give increased operating stability.

### WORKING RANGES

	Boom Length	18,3 m.	60 ft.	21,3 m.	70 ft.	24,4 m.	80 ft.	27,4 m.	90 ft.
X	Angle of Boom	25°	45°	25°	45°	25°	45°	25°	45°
J	Dumping Radius . . . . .	m. ft. in.	m. ft. in.	m. ft. in.	m. ft. in.	m. ft. in.	m. ft. in.	m. ft. in.	m. ft. in.
K	Max. Dumping Height . . . . .	18,30 60 0	14,65 48 0	21,40 69 3	16,25 55 3	23,80 78 0	19,00 62 3	26,60 87 3	21,20 69 6
P	Depth End Cut . . . . .	6,55 21 6	11,75 38 6	7,85 25 9	13,95 45 9	9,14 30 0	16,02 52 6	10,48 34 3	18,22 59 9
		9,15 30 0	7,32 24 0	10,52 34 6	8,38 27 6	11,90 39 0	9,45 31 0	13,28 43 6	10,60 34 9

	Boom Length	30,5 m.	100 ft.	33,5 m.	110 ft.	36,6 m.	120 ft.
X	Angle of Boom	25°	45°	25°	45°	25°	45°
J	Dumping Radius . . . . .	m. ft. in.	m. ft. in.	m. ft. in.	m. ft. in.	m. ft. in.	m. ft. in.
K	Max. Dumping Height . . . . .	29,40 96 3	23,40 76 9	32,20 105 6	25,45 83 6	34,80 114 3	27,70 90 9
P	Depth End Cut . . . . .	11,78 38 6	20,40 66 9	13,04 42 9	22,50 73 9	14,35 47 0	24,60 80 9
		14,65 48 0	11,70 38 3	16,10 52 9	12,72 41 9	17,40 57 0	13,84 45 3

Size of Bucket (Struck Capacity) . . . . .	1,2 m <sup>3</sup> 1½ cu.yd.	1,3 m <sup>3</sup> 1½ cu.yd.	1,5 m <sup>3</sup> 2 cu.yd.	1,9 m <sup>3</sup> 2½ cu.yd.	2,3 m <sup>3</sup> 3 cu.yd.	2,7 m <sup>3</sup> 3½ cu.yd.	3,0 m <sup>3</sup> 4 cu.yd.
Weight of Bucket and Spoil (at 3,000 lb./cu.yd.) . . . . .	3 390 kg. 7,470 lb.	3 780 kg. 8,330 lb.	4 490 kg. 9,900 lb.	5 330 kg. 11,760 lb.	6 110 kg. 13,480 lb.	7 570 kg. 16,700 lb.	8 530 kg. 18,800 lb.

Dimensions K L M and P vary considerably depending on operating skill and material. Bucket selection will be influenced by operating Radii, Boom Length and Digging Conditions. Total weight of loaded bucket should not exceed 9 520 kg (21,000 lb.).

**Long Crawlers are recommended for dragline duty.**



# NCK-RAPIER

# 1405c

dragline capacities

## Metric and Imperial

Loads in kg., tons and lb.

Length of Boom m. ft.	Load Radius		Angle of Boom degrees	66 $\frac{2}{3}$ % rating of tipping load			75% rating of tipping load		
	m.	ft.		kg.	Tons	lb.	kg.	Tons	lb.
18,3 60	15,2	50	42	9 520	9.4	21,000	9 520	9.4	21,000
	16,8	55	34	9 520	9.4	21,000	9 520	9.4	21,000
	18,3	60	25	9 520	9.4	21,000	9 520	9.4	21,000
21,3 70	16,8	55	45	9 520	9.4	21,000	9 520	9.4	21,000
	18,3	60	39	9 520	9.4	21,000	9 520	9.4	21,000
	19,8	65	32	9 070	8.9	20,080	9 520	9.4	21,000
24,4 80	19,8	65	42	8 790	8.6	19,460	9 520	9.4	21,000
	21,3	70	36	7 770	7.6	17,200	8 780	8.6	19,360
	22,9	75	30	7 040	6.9	15,600	7 960	7.8	17,550
27,4 90	21,3	70	44	7 540	7.4	16,700	8 520	8.4	18,790
	22,9	75	39	6 780	6.6	15,020	7 660	7.5	16,900
	24,4	80	34	6 210	6.1	13,700	7 050	6.9	15,540
	25,9	85	28	5 640	5.5	12,440	6 350	6.2	14,000
30,5 100	22,9	75	46	6 610	6.5	14,570	7 440	7.3	16,400
	24,4	80	42	5 960	5.8	13,150	6 710	6.6	14,800
	25,9	85	37	5 380	5.3	11,820	6 030	5.9	13,300
	27,4	90	32	4 770	4.7	10,520	5 370	5.2	11,840
	29,0	95	27	4 290	4.2	9,460	4 820	4.7	10,640
33,5 110	25,9	85	44	5 110	5.0	11,280	5 760	5.6	12,700
	27,4	90	40	4 530	4.4	10,000	5 100	5.0	11,250
	29,0	95	36	4 130	4.0	9,110	4 650	4.5	10,250
	30,5	100	31	3 700	3.6	8,150	4 160	4.1	9,170
	32,0	105	25	3 310	3.2	7,300	3 720	3.6	8,200
36,6 120	27,4	90	45	4 250	4.2	9,380	4 790	4.7	10,560
	29,0	95	42	3 830	3.7	8,440	4 310	4.2	9,500
	30,5	100	38	3 400	3.3	7,500	3 830	3.7	8,440
	32,0	105	34	3 020	2.9	6,660	3 400	3.3	7,500
	33,5	110	29	2 680	2.6	5,910	3 010	2.9	6,650

Working loads indicated at 66 $\frac{2}{3}$ % of the tipping load are based on B.S.S. recommendations, and should be used in the U.K. and certain other territories.

Working loads indicated at 75% of the tipping load are permitted, but may be subject to local regulations.

Listed working loads represent the total loaded weight of bucket and contents, which must not exceed 9 529 kg. (21,000 lb.).

## ROPE SIZES

### Faceshovel:

Bucket Hoist	32 mm	2 part
Boom Hoist	20 mm	8 part
Dipper Trip	9 mm	1 part

### Dragline:

Bucket Drag	32 mm	1 part
Bucket Hoist	30 mm	1 part

### Liftcrane:

Load Hoist	30 mm	2-6 part
Fly Jib Load Hoist	30 mm	1 part

Fly Jib and Strut Susp. 28 mm . . . 2 part

### Grabcrane:

Bucket Hold	30 mm	1 part
Bucket Closing	30 mm	1 part
Grabline	9 mm	1 part

### Lattice Boom Attachments:

Boom Hoist (Pendant)	20 mm	12 part
Pendant Cables	44 mm	2 part

## DRUM LAGGING CAPACITIES

Locat'n	Application	Pitch Circle Diameter		Width		Type	Effective Capacity 1st Layer		Maximum Effective Capacity To BS 1757		Number of Layers	Grooved for Rope Size Dia.
		mm.	in.	mm.	in.		m.	ft.	m.	ft.		
R.H.	Crane-Hoist											
	Grab Closing	762	30	495	19 $\frac{1}{2}$	Grooved	30,5	100	157,9	518	4	30
	Fly Jib-Hoist											
L.H.	Dragline-Bucket Hoist	762	30	343	13 $\frac{1}{2}$	Grooved	19,8	65	107,9	354	4	30
	Grab-Holding											
R.H.	Dragline-Grab	698	27 $\frac{1}{2}$	489	19 $\frac{1}{2}$	Grooved	25,0	82	139,0	456	4	32
R.H.	Faceshovel-Bucket Hoist	686-762	27-30	343	13 $\frac{1}{2}$	Grooved	17,7	58	17,7	58	1	32
R.H.	Crane P.L.L. Hoist Main	698	27 $\frac{1}{2}$	362	14 $\frac{1}{4}$	Grooved	20,7	68	134,1	440	5	30
L.H.	Crane P.L.L. Hoist Fly Jib	698	27 $\frac{1}{2}$	203	8	Grooved	7,9	26	74,7	245	5	30
—	Boom-Hoist Standard	395	15 $\frac{3}{8}$	305	12	Grooved	14,3	47	81,7	268	4	20
—	Third Drum	419	16 $\frac{1}{2}$	232	9 $\frac{1}{2}$	Grooved	12,8	42	47,5	156	3	19

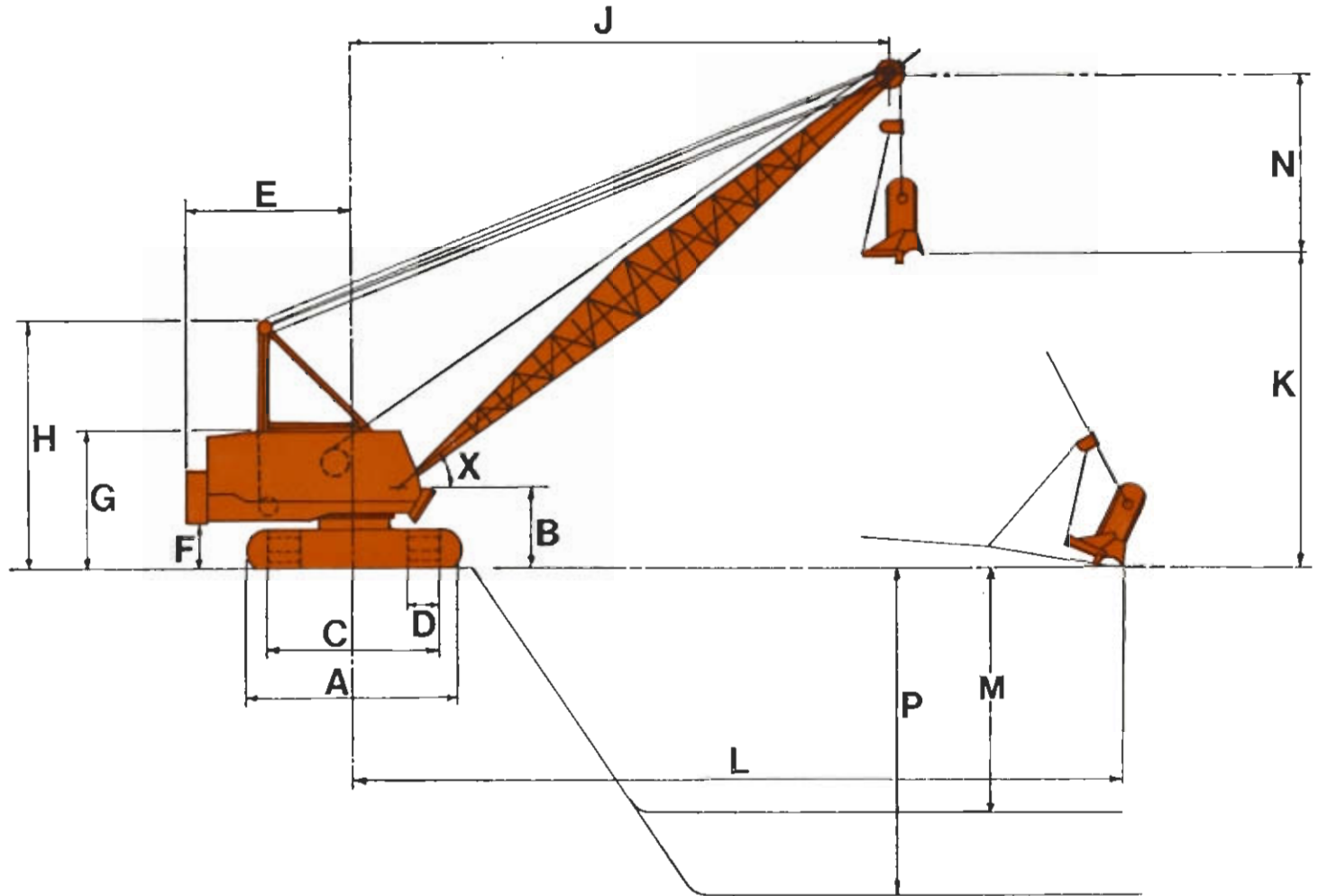
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# NCK-RAPIER

## 1405C

### IMPROVED DRAGLINE DUTIES



		m.	ft. in.			m.	ft. in.
A	Overall Length *Long Crawlers	5,87	19 3	F	Clearance under Counterweight	1,27	4 2
C	Overall Width of Crawlers with 42" Shoes	5,13	16 10	G	Height with Boom and 'A' Frame Lowered	5,11	16 9
	Overall Width of Cab (Catwalk each side)	4,23	14 1	H	Height of 'A' Frame Working Position	6,98	22 10 1/2
D	Width of Shoes	1,07	3 6	N	Distance from Boom Point Pin	6,1	20 0
					Overall Width of Cab (No Catwalks)	3,27	10 11
E	Tailradius 'C' Counterweight	4,95	16 3				

\* 6,86 m. (22' 6") Overall Length Crawlers do not increase Lifting Capacities but give increase operating stability.

#### WORKING RANGES

Boom Length		18,3 m. 60 ft.		21,3 m. 70 ft.		24,4 m. 80 ft.		27,4 m. 90 ft.	
X	Angle of Boom	25° 66°		32° 65°		30° 64°		28° 64°	
J	Dumping Radius	m. ft.in.	m. ft.in.	m. ft.in.	m. ft.in.	m. ft.in.	m. ft.in.	m. ft.in.	m. ft.in.
K	Maximum Dumping Height	3,96 13 0	12,80 42 0	7,51 24 0	15,54 51 0	8,23 27 0	17,98 59 0	9,45 31 0	20,73 68 0
M	Depth of Side Cut	7,31 24 0	3,66 12 0	7,9 26 0	4,27 14 0	9,14 30 0	4,87 16 0	10,36 34 0	5,49 18 0
P	Depth of Cut	9,15 30 0	4,6 15 0	9,91 32 5	5,33 17 5	11,43 37 5	6,1 20 0	12,95 42 5	6,86 22 5
L	Digging Reach (approx.)	24,38 80 0	15,24 50 0	26,82 88 0	17,67 58 0	31,08 102 0	20,42 67 0	35,05 115 0	22,86 75 0

Boom Length		30,48 m. 100 ft.		33,53 m. 110 ft.		36,58 m. 120 ft.	
X	Angle of Boom	27° 64°		25° 63°		29° 63°	
J	Dumping Radius	m. ft.in.	m. ft.in.	m. ft.in.	m. ft.in.	m. ft.in.	m. ft.in.
K	Maximum Dumping Height	28,96 95 0	15,24 50 0	32,0 105 0	16,77 55 0	33,53 110 0	18,29 60 0
M	Depth of Side Cut	10,36 34 0	23,47 77 0	10,36 34 0	25,91 85 0	13,72 45 0	28,65 94 0
P	Depth of Cut	11,58 38 0	6,10 20 0	12,80 42 0	6,70 22 0	13,41 44 0	7,31 24 0
L	Digging Reach (approx.)	14,44 47 5	7,62 25 0	16,0 52 5	8,38 27 5	16,76 55 0	9,14 30 0
		39,01 128 0	25,30 83 0	43,28 142 0	28,04 92 0	45,72 150 0	30,48 100 0

Dimensions K L M and P vary considerably on operating skill and material. Bucket selection will be influenced by operating radii, Boom Length and Digging conditions. Total weight of loaded Bucket should not exceed 11 290 kg. (24,900 lb.).

**LONG CRAWLERS ARE RECOMMENDED FOR DRAGLINE DUTY.**



# NCK-RAPIER 1405C IMPROVED DRAGLINE DUTIES

## BUCKETS

Size of Bucket (Struck Capacity)	1,5 m <sup>3</sup> 2 cu.yd.	1,9 m <sup>3</sup> 2½ cu.yd.	2,3 m <sup>3</sup> 3 cu.yd.	2,7 m <sup>3</sup> 3½ cu.yd.	3,0 m <sup>3</sup> 4 cu.yd.	3,4 m <sup>3</sup> 4½ cu.yd.	3,8 m <sup>3</sup> 5 cu.yd.
Weight of Bucket and Spoil ( at 1 780 kg/m <sup>3</sup> ) (at 3.000 lb./cu.yd.)	4 810 kg. 10.600 lb.	5 640 kg. 12.440 lb.	6 960 kg. 15.350 lb.	7 770 kg. 17.130 lb.	8 570 kg. 18.900 lb.	9 552 kg. 21.060 lb.	10 893 kg. 24.017 lb.

Length of Boom		Load Radius		Approx. Angle of Boom	RATINGS 66⅔% of Tipping Load		RATINGS 75% of Tipping Load	
m.	ft.	m.	ft.	Degrees	kg.	lbs.	kg.	lbs.
18,29	60	9,15	30	66	11 290	24,900	11 290	24,900
		10,67	35	61	11 040	24,350	11 040	24,350
		12,20	40	55	10 800	23,800	10 800	23,800
		13,72	45	49	10 520	23,200	10 520	23,200
		15,24	50	42	10 210	22,500	10 210	22,500
		16,77	55	34	9 910	21,850	9 910	21,850
		18,29	60	25	9 570	21,100	9 570	21,100
21,34	70	10,67	35	65	11 000	24,250	11 000	24,250
		12,20	40	60	10 750	23,700	10 750	23,700
		13,72	45	56	10 460	23,050	10 460	23,050
		15,24	50	51	10 160	22,400	10 160	22,400
		16,77	55	45	9 800	21,600	9 800	21,600
		18,29	60	39	9 460	20,850	9 460	20,850
		19,82	65	32	8 980	19,800	9 070	20,000
24,38	80	12,20	40	64	10 730	23,650	10 730	23,650
		13,72	45	60	10 430	23,000	10 430	23,000
		15,24	50	56	10 090	22,250	10 090	22,250
		16,77	55	52	9 750	21,500	9 750	21,500
		18,29	60	47	9 410	20,750	9 410	20,750
		19,82	65	42	8 750	19,300	9 030	19,900
		21,34	70	36	7 800	17,200	8 660	19,100
22,86	75	30	6 990	15,400	7 850	17,300		
27,43	90	13,72	45	64	10 390	22,900	10 390	22,900
		15,24	50	60	10 070	22,200	10 070	22,200
		16,77	55	57	9 710	21,400	9 710	21,400
		18,29	60	53	9 340	20,600	9 340	20,600
		19,81	65	49	8 480	18,700	8 980	19,800
		21,34	70	44	7 570	16,700	8 520	18,790
		22,86	75	39	6 800	15,000	7 670	16,900
		24,38	80	34	6 210	13,700	7 050	15,540
		25,91	85	28	5 670	12,500	6 440	14,200
30,48	100	15,24	50	64	9 980	22,000	9 980	22,000
		16,77	55	60	9 620	21,200	9 620	21,200
		18,29	60	57	9 230	20,350	9 230	20,350
		19,81	65	53	8 390	18,500	8 850	19,500
		21,34	70	50	7 350	16,200	8 270	18,230
		22,86	75	46	6 580	14,500	7 390	16,300
		24,38	80	42	6 050	13,330	6 800	15,000
		25,91	85	37	5 530	12,200	6 210	13,700
		27,43	90	32	5 150	11,350	5 790	12,770
		28,96	95	27	4 760	10,500	5 350	11,800
33,53	110	16,77	55	63	9 570	21,100	9 570	21,100
		18,29	60	60	9 190	20,250	9 190	20,250
		19,82	65	57	8 070	17,800	8 780	19,350
		21,34	70	54	7 160	15,780	8 060	17,760
		22,86	75	51	6 490	14,300	7 260	16,000
		24,38	80	47	5 920	13,050	6 660	14,680
		25,91	85	44	5 350	11,800	6 030	13,300
		27,43	90	40	4 850	10,700	5 450	12,010
		28,96	95	36	4 310	9,500	4 850	10,700
		30,48	100	31	3 830	8,440	4 310	9,500
		32,00	105	25	3 520	7,750	3 950	8,700
36,58	120	18,29	60	63	9 000	19,850	9 140	20,150
		19,82	65	60	7 940	17,500	8 710	19,200
		21,34	70	57	7 010	15,460	7 890	17,390
		22,86	75	55	6 260	13,800	7 030	15,500
		24,38	80	52	5 660	12,480	6 370	14,040
		25,91	85	49	5 030	11,100	5 670	12,500
		27,43	90	45	4 560	10,050	5 130	11,310
		28,96	95	42	4 130	9,100	4 630	10,200
		30,48	100	38	3 730	8,230	4 200	9,260
		32,00	105	34	3 420	7,550	3 860	8,500
		33,53	110	29	3 150	6,950	3 550	7,820

Dragline ratings are based on a machine fitted with crawlers 5,87 m. (19' 3") long x 5,13 m. (16' 10") wide with 1,07 m. (42") shoes or alternatively 6,86 m. (22' 6") long x 5,13 m. (16' 10") wide with 1,22 m. (48") shoes. Type 'C' counterweight must be fitted.

U.K. ratings do not exceed 66⅔% of the Tipping Load with a minimum of 5:1 Safety Factor in the Hoist Rope.

Export ratings do not exceed 75% of the Tipping Load with a minimum of 5:1 Safety Factor in the Hoist Rope.

Listed working loads represent the total loaded weight of Bucket and Contents, which must not exceed 11 290 kg. (24,900 lb.).

**Rope Sizes:** Bucket drag rope 32 mm. dia. single part. Bucket Hoist rope 30 mm. dia. single part.

## Ransomes & Rapier Limited

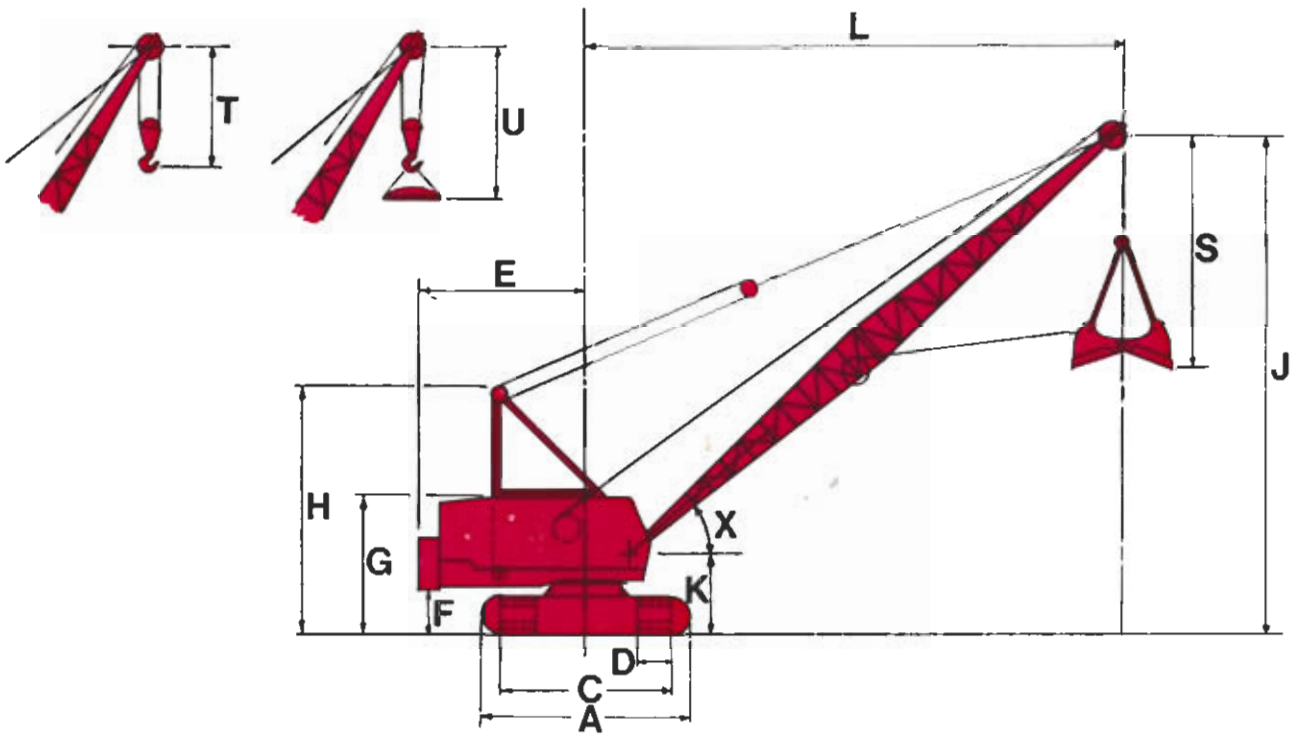
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Insert to Publication No. 1405/8A

# magnet and grabcranes



		m.	ft. in.			m.	ft. in.
A	*Overall length-Long Crawler	5,87	19 3	G	Height with Boom and 'A' Frame Lowered	5,11	16 9
C	Overall Width of Crawlers with 42" Shoes	5,13	16 10	H	Height of 'A' Frame, working position	6,98	22 10 1/2
	Overall Width of Cab	3,19	10 6	K	Height of Boom Foot Pin	2,27	7 5
	Overall Width of Cab with R.H. Catwalk	3,72	12 3	S	Distance from Boom Point Pin (Grab)	5,33	17 6
	Overall Width of Cab with R.H. and L.H. Catwalks	4,23	14 1	T	Distance from Boom Point Pin (Crane)	2,88	9 6
D	Width of Shoes	1,07	3 6	U	Distance from Boom Point Pin (Magnet)	4,00	13 0
E	Tailradius 'C' Counterweight	4,95	16 3				
F	Clearance under C'weight	1,27	4 2				

\*6,86m (22' 6") overall length crawlers do not increase lifting capacities but give increased operating stability.

## WORKING RANGES

	Boom Length	18,3 m. 60 ft.		21,3 m. 70 ft.		24,4 m. 80 ft.	
		40°	60°	35°	60°	35°	60°
X	Pitch or Angle of Boom	m. ft.in.	m. ft.in.	m. ft.in.	m. ft.in.	m. ft.in.	m. ft.in.
J	Height of Boom Point Pin	14,45 45 9	16,52 54 3	14,50 47 6	20,75 68 0	16,15 53 0	21,80 71 6
L	Radius-Loading	15,70 51 6	10,37 34 0	19,20 63 0	12,35 40 6	21,61 71 0	13,88 45 6

	Boom Length	27,4 m. 90 ft.		30,5 m. 100 ft.		33,5 m. 110 ft.		36,6 m. 120 ft.	
		35°	60°	40°	60°	40°	60°	40°	60°
J	Height of Boom Point Pin	17,90 58 9	26,00 85 3	21,80 71 6	28,65 94 0	23,65 77 9	31,21 102 6	25,60 84 0	33,98 111 6
L	Radius-Loading	24,2 79 6	15,40 50 6	25,15 82 6	16,90 55 6	27,42 90 0	18,40 60 3	29,70 97 6	20,00 65 6

## GRAB BUCKET SELECTION CHART

CAPACITY				APPROXIMATE LOADED WEIGHT					
Heaped		Flush		Sand		Coal		Excavating	
m <sup>3</sup>	cu.ft.	m <sup>3</sup>	cu.ft.	kg.	lb.	kg.	lb.	kg.	lb.
6,50	225	5,00	180	—	—	9 650	21,250	—	—
5,50	200	4,50	160	—	—	8 050	17,750	—	—
5,00	180	4,00	145	—	—	7 500	16,500	—	—
4,60	165	3,70	130	—	—	6 600	14,550	—	—
4,00	140	3,00	110	11 025	24,300	5 950	13,050	—	—
3,75	130	2,90	104	9 825	21,650	—	—	—	—
3,50	125	2,75	100	—	—	5 100	11,200	—	—
3,25	112	2,50	90	8 125	17,900	—	—	—	—
2,75	100	2,25	80	7 500	16,550	—	—	—	—
2,75	97	2,20	78	—	—	—	—	9 800	21,600
2,50	90	2,00	72	6 450	14,200	—	—	—	—
2,30	81	1,80	65	5 950	13,100	—	—	8 150	17,950
2,10	75	1,70	60	—	—	—	—	7 700	17,000
1,75	63	1,50	51	—	—	—	—	6 475	14,150
1,60	56	1,25	45	—	—	—	—	5 900	13,000

This table is based on Sand and Earth weighing 1 600 kg/m<sup>3</sup> (100 lb/cu.ft.) and Coal weighing 0,800 kg/m<sup>3</sup> (50 lb/cu.ft.).

# NCK-RAPIER 1405c

## magnet crane capacities

**DUTIES BASED ON 80% OF B.S.S. 1757:1964 CRANE RATINGS & 67½% TIPPING LOAD**

**Metric and Imperial**

**Loads in kg, long tons and lb.**

Length of Boom m. ft.	Operating Radius m. ft.	Angle of Boom degrees	Not exceeding 80% of B.S.S. 1757:1964 crane rating			Not exceeding 67½% of tipping load			
			kg.	Tons	lb.	kg.	Tons	lb.	
18,3	60	6,1 20	75	30 750	30.2	67,800	33 200	32.6	73,200
		7,6 25	70	30 750	30.2	67,800	33 200	32.6	73,200
		9,1 30	65	24 240	23.8	53,440	27 270	26.8	60,120
		10,7 35	60	19 480	19.1	42,960	21 920	21.5	48,330
		12,2 40	54	16 330	16.0	36,000	18 370	18.0	40,500
		13,7 45	47	13 860	13.6	30,560	15 590	15.3	34,380
		15,2 50	41	11 970	11.7	26,400	13 470	13.2	29,700
21,3	70	7,6 25	73	30 750	30.2	67,800	33 200	32.6	73,200
		9,1 30	67	24 000	23.6	52,910	27 000	26.5	59,520
		10,7 35	64	19 270	19.0	42,480	21 670	21.3	47,790
		12,2 40	59	16 150	15.9	35,600	18 140	17.8	40,000
		13,7 45	54	13 570	13.4	29,920	15 270	15.0	33,660
		15,2 50	50	11 650	11.5	25,700	13 120	12.9	28,930
		16,8 55	44	10 270	10.1	22,640	11 550	11.3	25,470
24,4	80	7,6 25	75	30 750	30.2	67,800	33 200	32.6	73,200
		9,1 30	71	23 840	23.5	52,560	26 820	26.4	59,130
		10,7 35	67	19 010	18.7	41,920	21 390	21.0	47,160
		12,2 40	63	15 870	15.6	35,000	17 840	17.5	39,340
		13,7 45	59	13 390	13.2	29,520	15 060	14.8	33,210
		15,2 50	55	11 560	11.4	25,500	12 990	12.8	28,650
		16,8 55	51	10 050	9.9	22,160	11 310	11.1	24,930
		18,3 60	46	8 620	8.5	19,000	10 010	9.8	22,070
		19,8 65	41	7 340	7.2	16,190	8 940	8.9	19,710
27,4	90	9,1 30	73	23 670	23.1	52,200	26 630	26.2	58,720
		10,7 35	70	18 870	18.6	41,600	21 250	20.9	46,800
		12,2 40	67	15 710	15.5	34,650	17 690	17.4	39,000
		13,7 45	63	13 240	13.0	29,200	14 900	14.6	32,850
		15,2 50	60	11 380	11.2	25,100	12 790	12.6	28,200
		16,8 55	56	9 870	9.7	21,760	11 100	10.9	24,480
		18,3 60	52	8 390	8.2	18,500	9 810	9.6	21,640
		19,8 65	48	6 950	6.8	15,330	8 610	8.5	18,990
		21,3 70	43	6 060	5.9	13,360	7 670	7.5	16,910
30,5	100	10,7 35	72	18 650	18.4	41,120	20 980	20.6	46,260
		12,2 40	69	15 580	15.3	34,350	17 530	17.2	38,610
		13,7 45	66	13 130	12.9	28,960	14 780	14.5	32,580
		15,2 50	63	11 180	11.0	24,650	12 570	12.4	27,720
		16,8 55	60	9 610	9.5	21,200	10 860	10.7	23,940
		18,3 60	56	8 030	7.9	17,700	9 550	9.4	21,050
		19,8 65	53	6 710	6.6	14,800	8 410	8.3	18,540
		21,3 70	49	5 880	5.8	12,960	7 440	7.3	16,400
		22,9 75	45	5 280	5.2	11,650	6 690	6.6	14,760
24,4 80	41	4 770	4.7	10,530	6 040	5.9	13,320		
33,5	110	10,7 35	74	18 430	18.1	40,640	20 740	20.4	45,720
		12,2 40	71	15 310	15.0	33,750	17 210	16.9	37,950
		13,7 45	68	12 730	12.5	28,080	14 330	14.1	31,590
		15,2 50	65	10 950	10.7	24,150	12 310	12.1	27,140
		16,8 55	63	9 400	9.2	20,720	10 670	10.5	23,530
		18,3 60	60	7 820	7.7	17,250	9 330	9.2	20,570
		19,8 65	56	6 370	6.2	14,050	8 120	8.0	17,910
		21,3 70	53	5 700	5.6	12,570	7 210	7.1	15,900
		22,9 75	50	5 040	4.9	11,120	6 380	6.3	14,080
		24,4 80	47	4 560	4.5	10,060	5 760	5.6	12,710
25,9 85	43	4 090	4.0	9,020	5 090	5.0	11,230		
36,6	120	12,2 40	72	14 990	14.7	33,050	16 870	16.6	37,200
		13,7 45	70	12 640	12.4	27,880	14 220	14.0	31,360
		15,2 50	68	10 700	10.5	23,600	12 030	11.8	26,531
		16,8 55	65	9 010	8.8	19,870	10 340	10.2	22,810
		18,3 60	63	7 460	7.3	16,450	9 020	8.8	19,890
		19,8 65	60	6 080	5.9	13,410	7 880	7.7	17,370
		21,3 70	57	5 490	5.4	12,120	6 960	6.8	15,340
		22,9 75	54	4 860	4.8	10,730	6 160	6.0	13,590
		24,4 80	51	4 350	4.3	9,600	5 510	5.4	12,150
		25,9 85	48	3 860	3.8	8,520	4 890	4.8	10,780
27,4 90	44	3 400	3.3	7,510	4 010	3.9	8,850		
29,0 95	41	3 060	3.0	6,750	3 270	3.2	7,210		

Working loads listed as not exceeding 80% of BSS 1757:1964 should be used in U.K. and certain other territories.

Working loads not exceeding 67½% of tipping load (P.C.S.A. Rating) may be permitted in certain territories.

**Maximum Lift—Recommended Rope Reeving**

5.5:1 Factor of Safety Including BSS 1757:1964 Friction Factors		
1 part	2 part	3 part
10 654 kg. 23,490 lb.	20 900 kg 46,080 lb.	30 750 kg 67,800 lb.
5.5:1 Factor of Safety Excluding Friction		
1 part	2 part	3 part
11 081 kg 24,430 lb.	22 162 kg 48,860 lb.	33 200 kg 73,200 lb.
5.0:1 Factor of Safety Excluding Friction		
1 part	2 part	3 part
10 160 kg 22,430 lb.	20 320 kg 44,800 lb.	30 480 kg 67,200 lb.



# NCK-RAPIER

# 1405c

## grabcrane capacities

BASED ON 80% OF B.S.S. 1757:1964 CRANE RATINGS

Metric and Imperial

Loads in kg., long tons and lb.

Length of Boom		Operating Radius		Angle of Boom	Long Crawlers		
					'C' Counterweight		
					kg.	tons	lb.
m.	ft.	m.	ft.	degrees			
18,3	60	9,1	30	66	12 240	12.1	27,000
		10,7	35	61	12 240	12.1	27,000
		12,2	40	55	12 240	12.1	27,000
		13,7	45	49	12 240	12.1	27,000
		15,2	50	42	11 970	11.7	26,400
21,3	70	10,7	35	65	12 240	12.1	27,000
		12,2	40	60	12 240	12.1	27,000
		13,7	45	56	12 240	12.1	27,000
		15,2	50	51	11 660	11.4	25,720
		16,8	55	45	10 270	10.1	22,640
24,4	80	12,2	40	64	12 240	12.1	27,000
		13,7	45	60	12 240	12.1	27,000
		15,2	50	56	11 550	11.3	25,470
		16,8	55	52	10 050	9.8	22,160
		18,3	60	47	8 620	8.4	19,000
		19,8	65	42	7 340	7.2	16,190
27,4	90	13,7	45	64	12 240	12.1	27,000
		15,2	50	60	11 370	11.1	25,070
		16,8	55	57	9 870	9.7	21,760
		18,3	60	53	8 390	8.2	18,500
		19,8	65	49	6 950	6.8	15,330
		21,3	70	44	6 060	5.9	13,360
30,5	100	15,2	50	64	11 170	11.0	24,640
		16,8	55	60	9 610	9.4	21,200
		18,3	60	57	8 030	7.9	17,720
		19,8	65	53	6 010	5.9	14,800
		21,3	70	50	5 880	5.8	12,960
		22,9	75	46	5 280	5.2	11,650
		24,4	80	42	4 770	4.7	10,530
33,5	110	15,2	50	66	10 940	10.7	24,120
		16,8	55	63	9 400	9.2	20,720
		18,3	60	60	7 820	7.7	17,250
		19,8	65	57	6 370	6.2	14,050
		21,3	70	54	5 700	5.6	12,570
		22,9	75	51	5 040	4.9	11,120
		24,4	80	47	4 560	4.4	10,060
		25,9	85	44	4 090	4.0	9,020
36,6	120	16,8	55	66	9 010	8.9	19,870
		18,3	60	63	7 460	7.3	16,450
		19,8	65	60	6 080	6.0	13,410
		21,3	70	57	5 490	5.4	12,120
		22,9	75	55	4 867	4.8	10,730
		24,4	80	52	4 350	4.2	9,600
		25,9	85	49	3 860	3.8	8,520
		27,4	90	45	3 400	3.3	7,510
		29,0	95	42	3 060	3.0	6,750

Total weight of Grab must not exceed 12 240 kg. 27,000 lb. which gives a Factor of Safety of 4.7 to 1 in the holding rope.

Where a Factor of Safety of 5.0 to 1 is required the total weight must not exceed 12 150 kg. 26,800 lb.

Where a Factor of Safety of 5.5 to 1 is required the total weight must not exceed 11 020 kg. 24,300 lb.

Where BSS 1757:1964 Class 3 Factor of Safety is specified, total weight must not exceed 10 650 kg 2,390 lb.

# grabcrane capacities

## DUTIES NOT EXCEEDING 67½% OF TIPPING LOAD

Metric and Imperial

Loads in kg., long tons and lb.

Length of Boom		Operating Radius		Angle of Boom	Long Crawlers		
					'C' Counterweight		
					kg.	tons	lb.
m.	ft.	m.	ft.	degrees			
18,3	60	9,1	30	66	12 240	12.1	27,000
		10,7	35	61	12 240	12.1	27,000
		12,2	40	55	12 240	12.1	27,000
		13,7	45	49	12 240	12.1	27,000
		15,2	50	42	12 240	12.1	27,000
21,3	70	10,7	35	65	12 240	12.1	27,000
		12,2	40	60	12 240	12.1	27,000
		13,7	45	56	12 240	12.1	27,000
		15,2	50	51	12 240	12.1	27,000
		16,8	55	45	11 550	11.3	25,470
24,4	80	12,2	40	64	12 240	12.1	27,000
		13,7	45	60	12 240	12.1	27,000
		15,2	50	56	12 240	12.1	27,000
		16,8	55	52	11 300	11.1	24,930
		18,3	60	47	10 010	9.8	22,070
		19,8	65	42	8 940	8.8	19,710
27,4	90	13,7	45	64	12 240	12.1	27,000
		15,2	50	60	12 240	12.1	27,000
		16,8	55	57	11 100	10.9	24,480
		18,3	60	53	9 810	9.6	21,640
		19,8	65	49	8 610	8.4	18,990
		21,3	70	44	7 670	7.5	16,910
30,5	100	15,2	50	64	12 240	12.1	27,000
		16,8	55	60	10 860	10.7	23,940
		18,3	60	57	9 550	9.4	21,050
		19,8	65	53	8 410	8.2	18,540
		21,3	70	50	7 440	7.3	16,400
		22,8	75	46	6 690	6.5	14,760
		24,4	80	42	6 040	5.9	13,320
33,5	110	15,2	50	66	12 240	12.1	27,000
		16,8	55	63	10 670	10.5	23,530
		18,3	60	60	9 330	9.2	20,570
		19,8	65	57	8 120	8.0	17,910
		21,3	70	54	7 210	7.1	15,900
		22,9	75	51	6 380	6.2	14,080
		24,4	80	47	5 760	5.6	12,710
		25,9	85	44	5 090	5.0	11,230
36,6	120	16,8	55	66	10 340	10.1	22,810
		18,3	60	63	9 020	8.9	19,890
		19,8	65	60	7 880	7.7	17,370
		21,3	70	57	6 960	6.8	15,340
		22,9	75	55	6 160	6.0	13,590
		24,4	80	52	5 510	5.4	12,150
		25,9	85	49	4 890	4.8	10,780
		27,4	90	45	4 010	3.9	8,850
		29,0	95	42	3 270	3.2	7,210

Loads listed are based on the stability recommendations of the P.C.S.A.

Total weight of Grab must not exceed 12 240 kg. 27,000 lb. which gives a Factor of Safety of 4.98 to 1 in the holding rope.

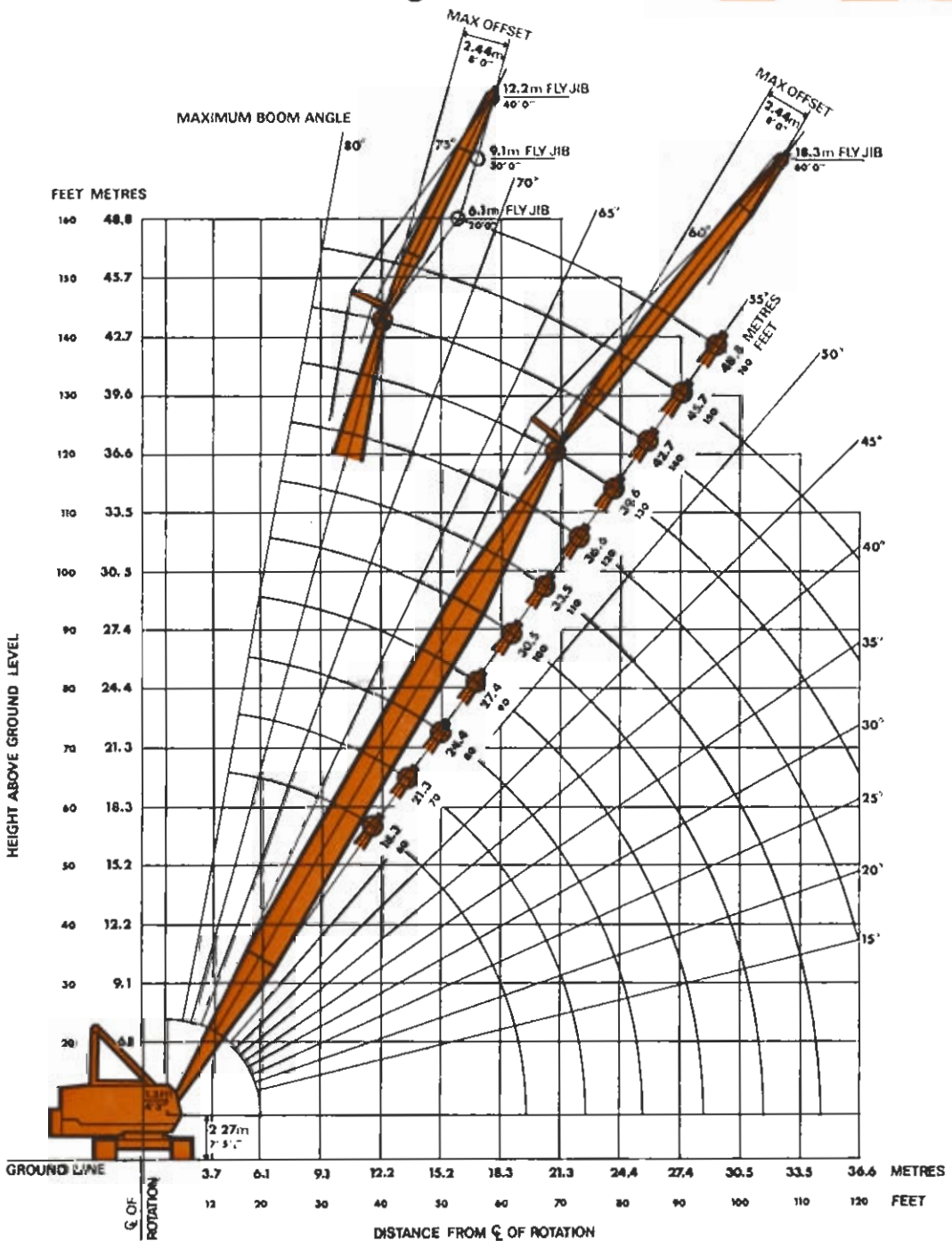
Where a Factor of Safety of 5.0 to 1 is required the total weight must not exceed 12 150 kg. 26,800 lb.

Where a Factor of Safety of 5.5 to 1 is required the total weight must not exceed 11 020 kg. 24,300 lb.

Where a Factor of Safety of 6.0 to 1 is required the total weight must not exceed 10 110 kg. 22,300 lb.

# NCK-RAPIER 1405c

## liftcrane radius diagram



Maximum length of Main Boom on 5.87 m or 6.86 m (19 ft 3 in. or 22 ft 6 in) Long Crawlers is 48,8 m (160 ft).  
 Maximum length of Main Boom with Fly Jib fitted on Long Crawlers is 42.7 m (140 ft) with 6.09 m, 9.14 m and 12.19 m (20 ft, 30 ft and 40 ft) Fly Jib and 39.6 m (130 ft) with 18,3 m (60 ft) Fly Jib.

**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—reduce by 840 kg (1,850 lb), 9,1 m (30 ft) Fly Jib—reduce by 1 010 kg (2,230 lb), 12,2 m (40 ft) Fly Jib—reduce by 1 180 kg (2,610 lb) and 18,3 m (60 ft) Fly Jib—reduce by 1 528 kg (3,370 lb).

**Fly Jib Loads:** See separate tables for Fly Jib gross loads. Maximum Fly Jib loads:  
 6,1 m (20 ft)—13 210 kg (13 tons)    9,1 m (30 ft)—11 176 kg (11 tons)    12,2 m (40 ft)—9 144 kg (9 tons).    18,3 m (60 ft)—6 096 kg (6 tons).

The weight of all suspended Hook Blocks, Slings, etc., must be deducted when calculating nett working loads. Fly Jibs 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 2,44 m (8 ft).

**Weight of Hook Blocks:** 81 300 kg (80 ton)—2 005 kg (4,420 lb).    55 883 kg (55 ton)—880 kg (1,950 lb).    20 322 kg (20 ton)—540 kg (1,200 lb).  
 13 208 kg (13 ton)—223 kg (470 lb).

Users are referred to British Standard Code of Practice (CP.3010:1972) "Safe Use of Cranes" which gives guidance for the safe application and operation of mobile cranes. BSS.1757:1964 Ratings are based on Clause 11—Stability.

**Long Crawlers are recommended for dragline and all crane duties.**



# liftcrane capacities

## Main Boom

## Metric

Length of Boom m.	Load Radius m.	Angle of Boom degrees	GROSS WORKING LOAD	
			Crawler 5,87 m or 6,88 m long x 4,06 m Centres	
			BSS 1757:1964 rating	75% rating
			kg.	kg.
18,3	4,6	80	81 300	81 300
	6,0	75	55 330	55 330
	7,5	70	40 470	40 470
	9,0	65	30 310	30 310
	10,0	62	27 700	27 700
	12,0	54	20 936	20 936
	14,0	46	17 074	17 074
	16,0	37	14 228	14 228
	18,0	24	12 112	12 133
21,3	4,9	80	73 170	73 170
	6,0	77	55 080	55 080
	7,5	73	40 260	40 260
	9,0	67	30 010	30 010
	10,0	66	27 100	27 100
	12,0	60	20 530	20 530
	14,0	54	16 892	16 892
	16,0	46	13 720	13 720
	18,0	38	11 508	11 680
	20,0	29	9 478	10 157
24,4	5,5	80	62 314	62 314
	6,0	79	54 110	54 110
	7,5	75	40 045	40 045
	9,0	71	29 809	29 809
	10,0	69	26 000	26 000
	12,0	64	20 428	20 428
	14,0	59	16 660	16 660
	16,0	51	13 212	13 212
	18,0	47	10 915	11 235
	20,0	40	9 400	10 097
	22,0	32	7 365	8 573
	24,0	22	6 550	7 376
27,4	6,0	80	52 813	52 813
	7,5	77	39 837	39 837
	9,0	73	29 605	29 605
	10,0	72	25 900	25 900
	12,0	67	19 730	19 730
	14,0	62	16 456	16 456
	16,0	58	13 009	13 009
	18,0	52	10 529	10 946
	20,0	47	8 846	9 684
	22,0	41	7 156	8 051
	24,0	34	6 325	7 116
	26,0	26	6 040	6 796
30,5	6,7	80	49 319	49 319
	7,5	78	39 474	39 474
	9,0	75	29 381	29 387
	10,0	73	25 300	25 300
	12,0	69	19 350	19 350
	14,0	65	16 160	16 160
	16,0	61	12 520	12 520
	18,0	57	10 254	10 740
	20,0	52	8 545	9 458
	22,0	47	7 070	7 954
	24,0	42	6 180	6 965
	26,0	36	5 183	5 833
	28,0	29	4 960	5 580
33,5	7,0	80	43 693	43 693
	7,5	79	39 020	39 020
	9,0	76	28 970	28 970
	10,0	75	24 720	24 720
	12,0	71	18 950	18 950
	14,0	68	15 753	15 753
	16,0	64	12 174	12 180
	18,0	60	9 988	10 540
	20,0	56	8 260	9 244
	22,0	52	6 767	7 613
	24,0	48	6 078	6 838
	26,0	43	5 095	5 732
	28,0	37	4 221	4 749
	30,0	31	3 924	4 414

# liftcrane capacities

## Main Boom

## Metric

Length of Boom m.	Load Radius m.	Angle of Boom degrees	GROSS WORKING LOAD	
			Crawler 5,87 m or 6,86 m long x 4,06 m Centres	
			BSS 1757:1964 rating	75% rating
			kg.	kg.
36,6	7,5	80	38 566	38 566
	9,0	77	28 589	28 589
	10,0	76	24 210	24 210
	12,0	73	18 580	18 580
	14,0	70	15 347	15 347
	16,0	66	11 695	11 820
	18,0	63	9 510	10 182
	20,0	60	7 974	9 030
	22,0	56	6 632	7 461
	24,0	53	5 828	6 556
	26,0	48	5 007	5 633
	28,0	43	4 102	4 615
	30,0	38	3 815	4 292
32,0	33	3 144	3 537	
39,6	8,2	80	34 483	34 483
	9,0	78	27 926	27 926
	10,0	77	23 510	23 510
	12,0	74	18 207	18 207
	14,0	71	15 143	15 143
	16,0	68	11 241	11 480
	18,0	65	9 038	9 824
	20,0	62	7 432	8 623
	22,0	59	6 537	7 354
	24,0	55	5 577	6 274
	26,0	51	4 916	5 530
	28,0	48	3 992	4 491
	30,0	43	3 635	4 089
32,0	39	3 007	3 384	
34,0	34	2 615	2 942	
36,0	29	2 240	2 521	
42,17	8,8	80	28 130	28 130
	9,0	79	27 432	27 432
	10,0	78	22 910	22 910
	12,0	76	17 820	17 820
	14,0	73	14 432	14 432
	16,0	70	10 705	11 078
	18,0	67	8 796	9 646
	20,0	64	6 890	8 217
	22,0	61	6 324	7 115
	24,0	58	5 377	6 020
	26,0	55	4 689	5 275
	28,0	51	3 883	4 368
	30,0	48	3 523	3 964
32,0	44	2 740	3 079	
34,0	40	2 434	2 739	
36,0	36	2 123	2 388	
45,8	9,0	80	27 200	27 200
	10,0	79	22 350	22 350
	12,0	77	17 421	17 421
	14,0	74	14 065	14 065
	16,0	71	10 277	10 757
	18,0	69	8 558	9 468
	20,0	66	6 796	8 146
	22,0	63	6 112	6 876
	24,0	60	5 211	5 863
	26,0	57	4 430	4 984
	28,0	54	3 762	4 233
	30,0	51	3 165	3 561
	32,0	48	2 551	2 870
34,0	45	2 064	2 323	
36,0	41	1 613	1 815	
48,8	10,0	80	21 700	21 700
	12,0	77	17 015	17 015
	14,0	74	13 158	13 158
	16,0	72	9 849	10 436
	18,0	70	8 308	9 280
	20,0	68	7 051	7 933
	22,0	65	5 938	6 681
	24,0	62	5 024	5 635
	26,0	60	4 110	4 624
	28,0	57	3 626	4 080
	30,0	54	2 992	3 367
	32,0	51	2 383	2 682
	34,0	48	1 725	1 941
36,0	45	1 212	1 363	

# fly jib loads

**Main Boom – 6.1 m, 9.1 m or 12.2 m Fly Jib**

**Metric**

Boom Length Metres	Load Radius Metres	GROSS WORKING LOADS	
		BS 1757:1964 ratings	75% ratings
		kg.	kg.
27,4 + Fly Jib	10	13 210	13 210
	12	13 210	13 210
	14	13 210	13 210
	16	12 530	12 760
	18	10 700	11 160
	20	8 750	9 410
	22	7 310	8 140
	24	6 400	7 200
	26	5 670	6 430
	28	5 100	5 730
30,5 + Fly Jib	11	13 210	13 210
	12	13 210	13 210
	14	13 210	13 210
	16	12 590	12 700
	18	10 660	11 080
	20	8 450	9 270
	22	7 030	7 880
	24	6 170	6 890
	26	5 500	6 190
	28	5 040	5 700
33,5 + Fly Jib	12	13 210	13 210
	14	13 210	13 210
	16	12 380	12 530
	18	10 090	10 630
	20	8 160	8 960
	22	6 800	7 710
	24	6 010	6 800
	26	5 440	6 090
	28	4 790	5 440
	30	3 990	4 540
36,6 + Fly Jib	12	13 210	13 210
	14	13 210	13 210
	16	12 190	12 420
	18	9 750	10 370
	20	7 930	8 730
	22	6 630	7 510
	24	5 700	6 520
	26	5 020	5 670
	28	4 360	4 930
	30	3 850	4 340
	32	3 370	3 800
	34	3 120	3 520
39,6 + Fly Jib	13	13 210	13 210
	14	13 210	13 210
	16	11 910	12 240
	18	9 270	10 010
	20	7 600	8 420
	22	6 460	7 280
	24	5 610	6 290
	26	4 880	5 500
	28	4 250	4 820
	30	3 630	4 080
	32	3 060	3 460
	34	2 610	2 950
		36	2 310
42,7 + Fly Jib	14	13 110	13 110
	16	11 530	11 910
	18	8 810	9 720
	20	7 280	8 050
	22	6 180	6 940
	24	5 330	6 030
	26	4 540	5 160
	28	3 850	4 380
	30	3 380	3 800
	32	3 000	3 290
	34	2 550	2 780
	36	2 100	2 380

## Maximum Fly Jib Loads

**6.1 m – 13 210 kg., 9.1 m – 11 176 kg., 12.2 m – 9 144 kg.**

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## fly jib loads

## Main Boom : 18.3 m Fly Jib

Metric

Boom Length Metres	Load Radius Metres	GROSS WORKING LOADS	
		BS 1757 :1964 rating	75% rating
		kg.	kg.
27,4 + 18,3 Fly Jib	12	6 096	6 096
	14	6 096	6 096
	16	6 096	6 096
	18	6 096	6 096
	20	6 040	6 040
	22	5 860	5 860
	24	5 520	5 520
	26	5 180	5 180
	28	4 930	4 930
30,5 + 18,3 Fly Jib	13	6 096	6 096
	14	6 096	6 096
	16	6 096	6 096
	18	6 096	6 096
	20	6 040	6 040
	22	5 920	5 920
	24	5 700	5 700
	26	5 380	5 380
28	5 060	5 060	
33,5 + 18,3 Fly Jib	13	6 096	6 096
	14	6 096	6 096
	16	6 096	6 096
	18	6 096	6 096
	20	6 040	6 040
	22	5 980	5 980
	24	5 920	5 920
	26	5 560	5 780
	28	4 730	5 240
30	3 990	4 480	
36,6 + 18,3 Fly Jib	14	6 096	6 096
	16	6 096	6 096
	18	6 096	6 096
	20	6 096	6 096
	22	6 060	6 060
	24	5 720	5 720
	26	5 130	5 420
	28	4 360	4 930
	30	3 830	4 340
	32	3 450	3 860
34	3 090	3 520	
39,6 + 18,3 Fly Jib	14	6 096	6 096
	16	6 096	6 096
	18	6 096	6 096
	20	6 096	6 096
	22	6 010	6 010
	24	5 580	5 580
	26	4 930	5 240
	28	4 250	4 820
	30	3 630	4 140
	32	3 060	3 430
	34	2 600	2 920
36	2 300	2 580	

# liftcrane capacities

## Main Boom

## Imperial

Length of Boom ft.	Load Radius ft.	Angle of Boom degrees	GROSS WORKING LOAD			
			Crawler 19' 3" or 22' 6" long x 13' 4" centres			
			BSS 1757 :1964 rating		75% rating	
			tons	lb.	kg.	lb.
60	15	80	80.0	179,200	81 283	179,200
	20	75	54.5	121,950	55 315	121,950
	25	70	39.8	89,200	40 460	89,200
	30	65	29.8	66,800	30 299	66,800
	35	60	23.9	53,700	24 357	53,700
	40	54	20.1	45,000	20 411	45,000
	50	41	14.7	33,000	14 968	33,000
	60	22	11.4	25,550	11 729	25,860
70	16	80	72.0	161,190	73 114	161,190
	20	77	54.2	121,400	55 066	121,400
	25	73	39.6	88,730	40 247	88,730
	30	67	29.5	66,140	30 000	66,140
	35	64	23.7	53,100	24 086	53,100
	40	59	19.8	44,450	20 162	44,450
	50	50	14.4	32,150	14 582	32,150
	60	38	11.0	24,650	11 430	25,200
	70	21	8.0	17,930	9 144	20,160
80	18	80	61.3	137,340	62 296	137,340
	20	79	53.2	119,260	54 095	119,260
	25	75	39.4	88,260	40 034	88,260
	30	71	29.3	65,700	29 801	65,700
	35	67	23.4	52,400	23 768	52,400
	40	63	19.5	43,720	19 831	43,720
	50	55	14.2	31,840	14 442	31,840
	60	46	10.7	24,030	11 221	24,740
	70	35	7.7	17,200	8 781	19,360
	80	20	6.3	14,100	7 198	15,870
90	20	80	52.0	116,400	52 798	116,400
	25	77	39.2	87,800	39 825	87,800
	30	73	29.1	65,250	29 596	65,250
	35	70	23.2	52,000	23 586	52,000
	40	67	19.3	43,340	19 586	43,340
	50	60	14.0	31,340	14 215	31,340
	60	52	10.3	23,170	10 931	24,100
	70	43	7.5	16,700	8 523	18,790
	80	34	6.1	13,700	7 048	15,540
	90	18	5.2	11,560	5 896	13,000
100	22	80	48.5	108,700	49 305	108,700
	25	78	38.8	87,000	39 462	87,000
	30	75	28.9	64,770	29 379	64,770
	35	72	22.9	51,400	23 314	51,400
	40	69	19.2	42,900	19 459	42,900
	50	63	13.8	30,800	13 970	30,800
	60	56	10.3	22,960	10 859	23,940
	70	49	7.2	16,200	8 268	18,230
	80	41	6.0	13,330	6 803	15,000
	90	31	5.0	11,350	5 792	12,770
110	23	80	43.0	96,300	43 680	96,300
	25	79	38.4	86,000	39 008	86,000
	30	76	28.5	63,850	28 961	63,850
	35	74	22.7	50,800	23 042	50,800
	40	71	18.8	42,170	19 127	42,170
	50	65	13.5	30,160	13 680	30,160
	60	60	9.7	21,680	10 423	22,980
	70	53	7.0	15,780	8 055	17,760
	80	47	5.8	13,050	6 658	14,680
	90	40	4.9	11,010	5 647	12,450
	100	30	3.8	8,440	4 309	9,500
120	25	80	37.9	85,000	38 555	85,000
	30	77	28.1	63,010	28 580	63,010
	35	75	22.4	50,200	22 770	50,200
	40	72	18.5	41,340	18 751	41,340
	50	68	13.2	29,480	13 371	29,480
	60	63	9.3	20,830	10 133	22,340
	70	57	6.9	15,460	7 887	17,390
	80	51	5.6	12,480	6 368	14,040
	90	44	4.5	10,050	5 130	11,310
	100	37	3.7	8,230	4 200	9,260
	110	29	3.1	6,950	3 547	7,820

# liftcrane capacities

## Main Boom

**Imperial**

Length of Boom ft.	Load Radius ft.	Angle of Boom degrees	GROSS WORKING LOAD			
			Crawler 19' 3" or 22' 6" long x 13' 4" centres			
			BSS 1757:1964 rating		75% rating	
			tons	lb.	kg.	lb.
130	27	80	33.9	76,000	34 473	76,000
	30	78	27.5	61,550	27 918	61,550
	35	76	22.1	49,600	22 498	49,600
	40	74	18.2	40,790	18 502	40,790
	50	69	13.0	29,030	13 167	29,030
	60	65	8.8	19,800	9 793	21,590
	70	60	6.7	14,900	7 602	16,760
	80	55	5.4	12,060	6 155	13,570
	90	49	4.4	9,790	4 994	11,010
	100	43	3.4	7,700	3 923	8,650
	110	36	2.7	5,960	3 039	6,700
120	28	2.2	4,970	2 535	5,590	
140	29	80	27.7	62,000	28 122	62,000
	30	78	27.0	60,460	27 424	60,460
	35	76	21.8	48,900	22 180	48,900
	40	74	17.9	40,180	18 225	40,180
	50	69	12.7	28,460	12 909	28,460
	60	65	8.4	18,880	9 471	20,890
	70	60	6.4	14,330	7 352	16,120
	80	55	5.2	11,560	5 896	13,000
	90	49	4.0	8,940	4 563	10,060
	100	43	3.2	7,240	3 692	8,140
	110	36	2.5	5,690	2 902	6,400
120	28	2.0	4,470	2 281	5,030	
150	30	80	26.8	60,000	27 215	60,000
	35	78	21.5	48,200	21 863	48,200
	40	76	17.7	39,700	18 007	39,700
	50	72	12.4	27,840	12 628	27,840
	60	68	8.3	18,490	9 339	20,590
	70	64	6.3	14,190	7 239	15,960
	80	60	5.0	11,350	5 792	12,770
	90	55	3.9	8,660	4 417	9,740
	100	50	3.0	6,810	3 474	7,660
	110	45	2.2	4,980	2 540	5,600
	120	42	1.8	3,970	2 027	4,470
160	32	80	22.1	49,480	22 443	49,480
	35	79	20.1	45,010	20 416	45,010
	40	77	16.3	36,550	16 578	36,550
	50	73	12.1	27,130	12 306	27,130
	60	69	7.9	17,760	9 012	19,870
	70	65	6.3	14,040	7 166	15,800
	80	62	5.0	11,200	5 715	12,600
	90	58	3.8	8,440	4 309	9,500
	100	53	2.8	6,380	3 256	7,180
	110	49	1.9	4,270	2 177	4,800
	120	44	1.4	3,050	1 555	3,430

## ROPE SAFETY FACTORS

Factors of Safety	B.S.S. 1757	75% rating			
		4.5:1	5.0:1	5.5:1	6.0:1
Boom Length		Number of falls of Hoist Rope			
18,3 m.	60 ft.	7	6	7	—
21,3 m.	70 ft.	6	6	6	7
24,4 m.	80 ft.	5	5	6	7
27,4 m.	90 ft.	5	4	5	6
30,5 m.	100 ft.	4	4	5	5
33,5 m.	110 ft.	4	4	4	5
36,6 m.	120 ft.	3	3	4	4
39,6 m.	130 ft.	3	3	3	4
42,17 m	140 ft.	3	3	3	3
45,8 m.	150 ft.	3	3	3	3
48,8 m.	160 ft.	2	2	3	3

Falls of Hoist Rope and Factors of Safety are based on Maximum Working loads at Minimum Radii.

At greater Radii Factors of Safety increase.

7 falls of Hoist Rope is the maximum available.

Based on 30 mm dia. hoist rope breaking load 60.0 tons 60 960 kg 134,400 lb.



# NCK-RAPIER

# 1405c

fly jib loads

Main Boom + 20 ft, 30 ft, or 40 ft Fly Jib

Imperial

Boom Length <i>ft.</i>	Load Radius <i>ft.</i>	GROSS WORKING LOAD			
		BS 1757 :1964 rating		75% rating	
		<i>tons</i>	<i>lbs.</i>	<i>kg.</i>	<i>lbs.</i>
90 ft. Fly Jib	35	13.0	29,120	13 210	29,120
	40	13.0	29,120	13 210	29,120
	50	13.0	29,120	13 210	29,120
	60	8.9	23,170	10 931	24,100
	70	7.5	16,700	8 523	18,790
	80	6.1	13,700	7 048	15,540
	90	5.2	11,560	5 896	13,000
100 ft. Fly Jib	37	13.0	29,120	13 208	29,120
	40	13.0	29,120	13 208	29,120
	50	13.0	29,120	13 208	29,120
	60	10.3	22,960	10 859	23,940
	70	7.2	16,200	8 268	18,230
	80	6.0	13,330	6 803	15,000
	90	5.0	11,350	5 792	12,770
110 ft. Fly Jib	39	13.0	29,120	13 208	29,120
	40	13.0	29,120	13 208	29,120
	50	13.0	29,120	13 208	29,120
	60	9.7	21,680	10 423	22,980
	70	7.0	15,780	8 055	17,760
	80	5.8	13,050	6 658	14,680
	90	4.9	11,010	5 647	12,450
100	3.8	8,440	4 309	9,500	
120 ft. Fly Jib	41	13.0	29,120	13 208	29,120
	50	13.0	29,120	13 208	29,120
	60	9.3	20,830	10 133	22,340
	70	6.9	15,460	7 887	17,390
	80	5.6	12,480	6 368	14,040
	90	4.5	10,050	5 130	11,310
	100	3.7	8,230	4 200	9,260
110	3.1	6,950	3 547	7,820	
130 ft. Fly Jib	43	13.0	29,120	13 208	29,120
	50	13.0	29,030	13 167	29,030
	60	8.8	19,800	9 793	21,590
	70	6.7	14,900	7 602	16,760
	80	5.4	12,060	6 155	13,570
	90	4.4	9,790	4 994	11,010
	100	3.4	7,700	3 923	8,650
110	2.7	5,960	3 039	6,700	
120	2.2	4,970	2 535	5,590	
140 ft. Fly Jib	45	13.0	29,120	13 208	29,120
	50	12.7	28,460	12 909	28,460
	60	8.4	18,800	9 471	20,880
	70	6.4	14,330	7 311	16,120
	80	5.2	11,560	5 896	13,000
	90	4.0	8,940	4 563	10,060
	100	3.2	7,240	3 692	8,140
110	2.5	5,600	2 902	6,400	
120	2.0	4,470	2 281	5,030	

### Maximum Fly Jib Loads

20 ft. – 13 tons, 30 ft. – 11 tons, 40 ft. – 9 tons.

## fly jib loads

## Main Boom + 60 ft Fly Jib

Imperial

Boom Length ft.	Load Radius ft.	GROSS WORKING LOADS			
		BS 1757:1964 rating		75% rating	
		tons	lbs.	kgs.	lbs.
90ft. + 60ft. Fly Jib	40	6.0	13,440	6 096	13,440
	50	6.0	13,440	6 096	13,440
	60	6.0	13,440	6 096	13,440
	70	5.85	13,100	5 942	13,100
	80	5.4	12,060	5 470	12,060
	90	4.9	11,010	4 994	11,010
100ft. + 60ft. Fly Jib	42	6.0	13,440	6 096	13,440
	50	6.0	13,440	6 096	13,440
	60	6.0	13,440	6 096	13,440
	70	5.9	13,210	5 991	13,210
	80	5.6	12,480	5 660	12,480
	90	5.0	11,350	5 148	11,350
110ft. + 60ft. Fly Jib	43	6.0	13,440	6 096	13,440
	50	6.0	13,440	6 096	13,440
	60	6.0	13,440	6 096	13,440
	70	5.9	13,210	5 991	13,210
	80	5.8	13,050	5 919	13,050
	90	4.9	11,010	5 488	12,100
120ft. + 60ft. Fly Jib	100	3.8	8,440	4 309	9,500
	45	6.0	13,440	6 096	13,440
	50	6.0	13,440	6 096	13,440
	60	6.0	13,440	6 096	13,440
	70	6.0	13,440	6 096	13,440
	80	5.6	12,480	5 660	12,480
130ft. + 60ft. Fly Jib	90	4.5	10,050	5 130	11,310
	100	3.7	8,230	4 200	9,260
	110	3.1	6,950	3 547	7,820
	47	6.0	13,440	6 096	13,440
	50	6.0	13,440	6 096	13,440
	60	6.0	13,440	6 096	13,440
130ft. + 60ft. Fly Jib	70	6.0	13,440	6 096	13,440
	80	5.4	12,060	5 470	12,060
	90	4.4	9,790	4 994	11,010
	100	3.4	7,700	3 923	8,650
	110	2.7	5,960	3 039	6,700
	120	2.2	4,970	2 535	5,590

# NCK-RAPIER

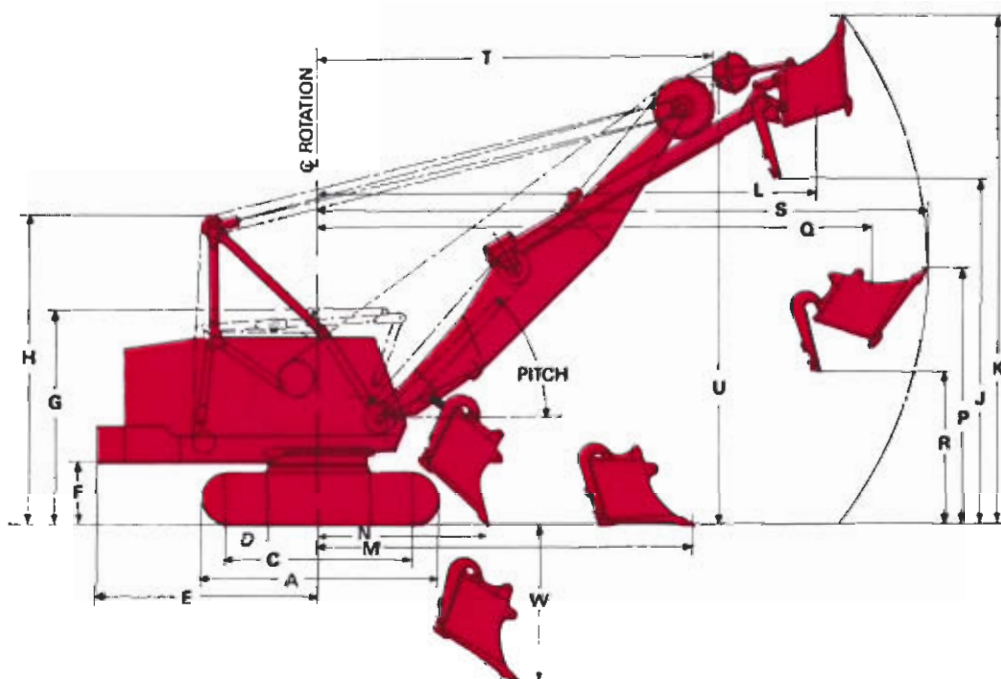
# 1405c

faceshovel

**9,14 m. BOOM**  
30' 0"

**6,70 m. STICKS**  
22' 0"

**3,25 m<sup>3</sup>. BUCKET**  
4¼ cu. yd. C.E.C.E. Rating



## WORKING RANGES

		m.	ft.	in.
A	Overall length of Short Crawler	5,03	16	6
C	Overall Width of Crawlers			
	36" Shoes	4,17	13	8
	42" Shoes	4,32	14	2
D	Width of Shoes	0,91	3	0
		1,07	3	6
E	Tailradius with 'A' Counterweight	4,66	15	3½

		m.	ft.	in.
F	Clearance under Counterweight	1,34	4	4
G	Height with Boom Lowered	5,11	16	9
	Overall Width of Cab	3,33	10	11
	Overall Width with R.H. Catwalk	3,72	12	3
	Overall Width with R.H. & L.H. Catwalk	4,23	14	1
H	Height over raised 'A' Frame	6,98	22	10½
	Overall Width of Bucket	1,83	6	0

Pitch or Angle of Boom		45°			50°			55°			60°			65°		
		m.	ft.	in.	m.	ft.	in.	m.	ft.	in.	m.	ft.	in.	m.	ft.	in.
J	Dumping Height, Maximum	7,37	24	2	8,15	26	9	8,74	28	8	9,35	30	8	9,88	32	5
K	Cutting Height, Maximum	10,77	35	4	11,58	38	0	12,34	40	6	12,95	42	6	13,59	44	7
L	Dumping Radius, Maximum Height	10,49	34	5	9,88	32	5	9,22	30	3	8,56	28	1	7,75	25	5
M	Level Floor, Maximum Radius	7,90	25	11	7,77	25	6	7,54	24	9	7,26	23	10	7,01	23	0
N	Level Floor, Minimum Radius	3,45	11	4	3,76	12	4	4,11	13	6	4,34	14	3	4,50	14	9
P	Digging Height at Maximum Reach (S)	5,46	17	11	5,71	18	9	5,92	19	5	6,07	19	11	6,25	20	6
Q	Dumping Radius at Maximum Reach	11,68	38	4	11,40	37	5	11,10	36	5	10,77	35	4	10,44	34	3
R	Dumping Height at Maximum Reach	3,28	10	9	3,53	11	7	3,73	12	3	3,91	12	10	4,09	13	5
S	Digging Radius at Maximum Reach	12,83	42	1	12,55	41	2	12,22	40	1	11,91	39	1	11,58	38	0
T	Boom Clearance Radius	8,31	27	3	7,70	25	3	7,06	23	2	6,40	21	0	5,69	18	8
U	Boom Clearance Height	9,45	31	0	9,98	32	9	10,46	34	4	10,90	35	9	11,25	36	11
W	Cut Below Floor Level	3,28	10	9	3,05	10	0	2,79	9	2	2,62	8	7	2,39	7	10

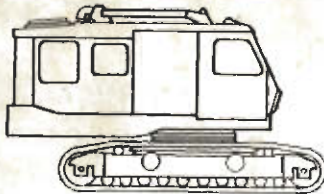
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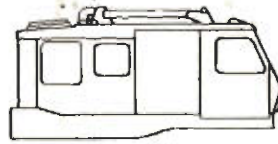
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## weights of major components



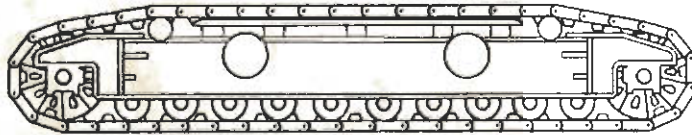
### BASE MACHINE no external counterweight

SL	36" Shoes	58 780 kg.	129,600 lb.
SL	42" Shoes	59 460 kg.	131,100 lb.
XL	36" Shoes	65 450 kg.	144,300 lb.
XL	42" Shoes	66 220 kg.	146,000 lb.
XXL	36" Shoes	68 900 kg.	151,900 lb.
XXL	42" Shoes	69 800 kg.	153,900 lb.
XXL	48" Shoes	70 710 kg.	155,900 lb.



### UPPER UNIT no external counterweight

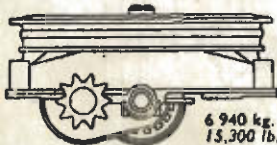
31 025 kg. 68,400 lb.



### CRAWLER ASSEMBLIES

	EACH	PAIR
SL 36" Shoes	9 050 kg. 19,950 lb.	18 100 kg. 39,900 lb.
SL 42" Shoes	9 390 kg. 20,700 lb.	18 780 kg. 41,400 lb.
XL 42" Shoes	10 910 kg. 24,050 lb.	21 820 kg. 48,100 lb.
XXL 42" Shoes	12 700 kg. 28,000 lb.	25 400 kg. 56,000 lb.
XXL 48" Shoes	13 150 kg. 29,000 lb.	26 300 kg. 58,000 lb.

### CARBODY COMPLETE with lower traction shaft and countershaft



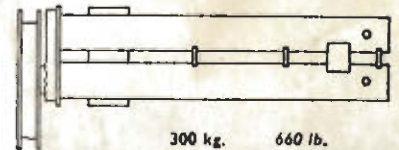
6 940 kg.  
15,300 lb.

### CRAWLER AXLES

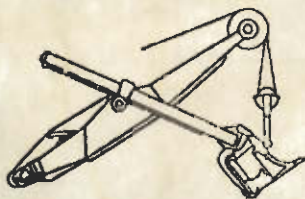


	EACH	PAIR
10' 8" Frame c'tres	1 360 kg. 3,000 lb.	2 720 kg. 6,000 lb.
13' 4" Frame c'tres	3 220 kg. 7,100 lb.	6 440 kg. 14,200 lb.

### AUTOMATIC GRABLINE

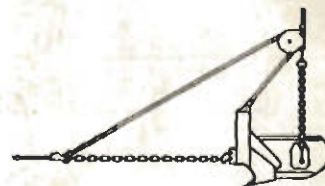


300 kg. 660 lb.



### FACESHOVEL

Complete Boom	15 380 kg. 33,900 lb.
Dipper Sticks	6 710 kg. 14,800 lb.
3,25 m <sup>3</sup> (4½ cu.yd.) bucket	3 660 kg. 8,060 lb.
	5 010 kg. 11,040 lb.



### DRAGLINE BUCKETS

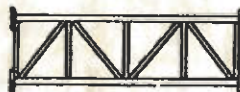
1,2 m <sup>3</sup> (1½ cu.yd.)	1 350 kg. 2,970 lb.
1,3 m <sup>3</sup> (1½ cu.yd.)	1 400 kg. 3,080 lb.
1,5 m <sup>3</sup> (2 cu.yd.)	1 770 kg. 3,900 lb.
1,9 m <sup>3</sup> (2½ cu.yd.)	1 930 kg. 4,260 lb.
2,3 m <sup>3</sup> (3 cu.yd.)	2 030 kg. 4,480 lb.
2,7 m <sup>3</sup> (3½ cu.yd.)	2 810 kg. 6,200 lb.
3,0 m <sup>3</sup> (4 cu.yd.)	3 080 kg. 6,800 lb.

### BASIC BOOM 18,3 m. (60 ft.)



With Dragline Boom Point— 4 760 kg. 10,500 lb.  
With Crane Boom Point— 4 926 kg. 10,880 lb.

### INSERTS



3,05 m. (10 ft.)	612 kg. 1,350 lb.
6,1 m. (20 ft.)	975 kg. 2,150 lb.
9,1 m. (30 ft.)	1 338 kg. 2,950 lb.

### FLY JIBS



6,1 m. (20 ft.)	610 kg. 1,350 lb.
9,1 m. (30 ft.)	710 kg. 1,700 lb.
12,2 m. (40 ft.)	930 kg. 2,050 lb.
18,3 m. (60 ft.)	1 250 kg. 2,750 lb.

### 'A' COUNTERWEIGHT



External Weight 11 176 kg. 24,640 lb.

### 'C' COUNTERWEIGHT



External Weight	11 176 kg. 24,640 lb.
External Weight	9 449 kg. 20,830 lb.
Total	20 625 kg. 45,470 lb.

### OTHER EQUIPMENT

Telescopic Boom Backstops	395 kg. 870 lb.
Fairlead	850 kg. 1,880 lb.
High 'A' Frame	1 120 kg. 2,470 lb.
Rear 'A' Frame	1 225 kg. 2,700 lb.
Pendant Suspension Equalizer	300 kg. 670 lb.
2 x 10 ft. pendants	180 kg. 400 lb.
2 x 20 ft. pendants	240 kg. 530 lb.
2 x 30 ft. pendants	260 kg. 580 lb.
2 x basic pendants	300 kg. 660 lb.

Designs and Specifications subject to change without notice. Illustrations not binding in detail.

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