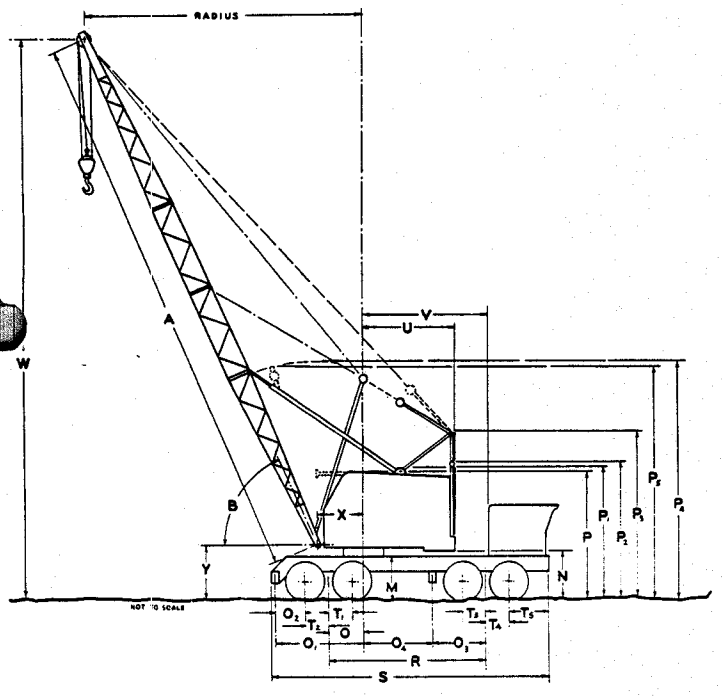
GENERAL INFORMATION ONLY

FLYSHEET HC-98A CARRIER MOUNTED CRANE

Dimensions
Working ranges
Lifting capacities
Specifications



DIMENSIONS AND WORKING RANGES

CARRIER — 8 x 4 10′ 6″ WIDE

Basic angle or tubular boom length	A	40′ 0″
Boom angle	B	
Overall height top of ring gear plate	M	4′ 4″
Ground clearance under counterweight	N	4′11″
Centerline rotation to rear axle bogie	O	3′ 0″
Centerline rotation to rear outrigger center	O^1	8′ 6″
Center rear axle to rear outrigger center	O^2	3′ 3″
Centerline rotation to front outrigger center	O^4	8′ 2″
Overall height, low gantry	P^1	12′ 4″
Overall height, retractable gantry lowered	P^2	13′ 2″
Overall height, retractable gantry raised	P^3	16′ 2″
Overall height, tubular boom mast vertical	P^4	27′ 3″
Overall height, tubular boom mast with boom horizontal	P^5	18′ 4″
Wheelbase	R	17′11″
Overall length over rear outrigger box	S	29′ 9¾″
Center rear axle to pivot of bogie	T^1 & T^2	2′ 3″
Center front axle to pivot of bogie	T^3 & T^4	2′ 3″
Center front axle to front bumper	T^5	3′ 6½″
Tailswing of counterweight	U	11′ 5″
Radius of boom hinge pin; angle boom	X	3′ 3″
Radius of boom hinge pin; tubular boom	X	4′ 1″
Height of boom hinge pin; angle boom	Y	6′ 8″
Height of boom hinge pin; tubular boom	Y	5′ 3″
Overall height boompeak, boom in travel position (over front) —		
Angle boom		10′11″
Tubular boom		16′ 1″
Minimum ground clearance		0′11″
Outriggers retracted		10′ 6″
Outriggers extended (C/L of jacks)		17′ 0″

DRUM ROPE CAPACITIES LINE SPEEDS AND LINE PULL

		FRONT DRUM						REAR DRUM						BOOMHOIST DRUM						
		Lagging		Line Pull and Speed		Drum Capacities		Lagging		Line Pull and Speed		Drum Capacities		Lagging		Line Pull and Speed		Drum Capacities		
Attachment	Wire Rope Dia.	Root Dia.	Groove	F.P.M. 1st Layer	Pull, lbs. 1st Layer	1st Layer Cap.	Total Cap.	Root Dia.	Groove	F.P.M. 1st Layer	Pull, lbs. 1st Layer	1st Layer Cap.	Total Cap.	Root Dia.	Groove	F.P.M. 1st Layer	Pull, lbs. 1st Layer	1st Layer Cap.	Total Cap.	Wire Rope Dia.
Crane	⅝″	13¼″	Smooth	145		66′	769′	13¼″	Smooth	145	22,500	66′	769′	9″	⅝″ dia.	120	27,100	22′	342′	⅝″
	¾″	13¼″	Smooth	146	23,100	54′	481′	13¼″	Smooth	146	22,400	54′	481′	9″	⅝″ dia.	121	26,800	18′	183′	¾″
Clamshell	⅝″	15¼″	¾″ dia.	166	20,300	57′	495′	15¼″	¾″ dia.	166	19,700	57′	495′							
	¾″	15¼″	¾″ dia.	167	20,200	58′	451′	15¼″	¾″ dia.	167	19,600	58′	451′							
	⅞″	15¼″	¾″ dia.	169	19,800	50′	304′													
Dragline	¾″	13¼″	⅞″ dia.	146	23,100	43′	439′	15¼″	¾″ dia.	167	19,600	58′	451′	9″	⅝″ dia.	120	10,000	35.2′	297.1′	⅝″
	⅞″	13¼″	⅞″ dia.	148	22,800	44′	343′							(std.)						
														11″	⅝″ dia.	145	8,200	42.5′	208.5′	⅝″

Front drum is under-winding; rear drum is over-winding; third drum is under-winding. Line pull and speed are based on engine full load speed. For combination crane-clamshell or crane-dragline, the rear drum is furnished with 15¼″ diameter lagging. Only smooth laggings are interchangeable. On dragline operation, you must remove all cable from the third drum to prevent interference of inhaul rope with third drum brake. On lifting crane (front drum), to prevent interference of hoist line with third drum brake enclosure, quantity of line on front drum must be limited in certain cases.

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HC-98A CAPACITIES WITH ANGLE BOOM

PCSA Class 12-207
Refer to ALL notes on page 3.

Capacities are based on machine equipped with retractable high gantry (fully raised), 8 x 4 drive carrier, 10'-6" wide, 12:00 x 20 14-ply rating tires, front and rear power hydraulic outriggers, 14,800# ctwt.

BOOM				ON OUTRIGGERS	ON TIRES	
Length	Radius	Angle	Point Height W	Side and Rear	Rear	Side
40'	10'	80°	46' 1"	70,000	68,360	47,790
	12'	77°	45' 8"	70,000	52,770	40,770
	15'	73°	44' 11"	57,000	39,130	33,290
	20'	65°	43' 0"	43,400	27,090	24,300
	25'	57°	40' 2"	33,500	20,530	18,120
	30'	48°	36' 5"	27,200	16,400	14,310
	35'	37°	31' 0"	22,700	18,550	11,730
	40'	23°	22' 4"	20,940	11,480	9,860
50'	12'	80°	55' 11"	68,700	52,470	40,290
	15'	76°	55' 4"	56,530	38,830	32,840
	20'	70°	53' 10"	43,020	26,790	24,010
	25'	64°	51' 8"	33,130	20,230	17,840
	30'	58°	48' 11"	26,830	16,100	14,020
	35'	51°	45' 4"	22,350	13,260	11,440
	40'	43°	40' 6"	20,690	11,180	9,560
	50'	21°	24' 2"	15,200	8,360	7,040
60'	15'	79°	65' 6"	56,060	38,530	32,380
	20'	74°	64' 4"	42,460	26,490	23,730
	25'	69°	62' 7"	32,760	19,930	17,550
	30'	64°	60' 5"	26,460	15,800	13,730
	35'	58°	57' 7"	22,000	12,960	11,140
	40'	52°	54' 1"	20,440	10,880	9,270
	50'	39°	44' 2"	14,940	8,060	6,750
	60'	19°	25' 11"	11,580	6,230	5,120
70'	15'	80°	75' 8"	55,590	38,220	31,920
	20'	76°	74' 7"	42,260	26,190	23,440
	25'	72°	73' 2"	32,390	19,630	17,260
	30'	68°	71' 4"	26,090	15,500	13,440
	35'	63°	69' 0"	21,650	12,660	10,850
	40'	58°	66' 2"	20,200	10,580	8,980
	50'	48°	58' 8"	14,680	7,760	6,450
	60'	36°	47' 7"	11,310	5,930	4,830
	70'	17°	27' 6"	9,040	4,640	3,690

BOOM				ON OUTRIGGERS	ON TIRES	
Length	Radius	Angle	Point Height W	Side and Rear	Rear	Side
80'	20'	78°	84' 11"	41,880	25,890	23,160
	25'	74°	83' 8"	32,020	19,330	16,970
	30'	70°	82' 1"	25,720	15,200	13,150
	35'	67°	80' 1"	21,300	12,360	10,560
	40'	63°	77' 8"	19,950	10,290	8,690
	50'	54°	71' 7"	14,420	7,460	6,160
	60'	45°	63' 0"	11,040	5,630	4,530
	70'	33°	50' 8"	8,760	4,350	3,400
	80'	16°	29' 0"	7,120	3,390	2,500
90'	20'	79°	95' 1"	41,500	25,590	22,870
	25'	76°	94' 0"	31,650	19,030	16,690
	30'	73°	92' 7"	25,350	14,900	12,870
	35'	69°	90' 11"	20,950	12,060	10,270
	40'	66°	88' 10"	19,700	9,990	8,400
	50'	59°	83' 7"	14,160	7,170	5,870
	60'	51°	76' 6"	10,780	5,330	4,240
	70'	42°	67' 0"	8,490	4,050	3,100
	80'	31°	53' 7"	6,850	3,100	2,260
	90'	15°	30' 4"	5,600	2,360	1,620
100'	20'	80°	105' 3"	41,120	25,290	22,590
	25'	77°	104' 4"	31,280	18,730	16,400
	30'	74°	103' 0"	24,980	14,600	12,580
	35'	71°	101' 6"	20,600	11,760	9,980
	40'	68°	99' 8"	19,450	9,690	8,110
	50'	62°	95' 1"	13,910	6,870	5,570
	60'	55°	89' 0"	10,510	5,040	3,940
	70'	48°	81' 1"	8,220	3,750	2,810
	80'	40°	70' 8"	6,570	2,800	1,970
	90'	30°	56' 4"	5,330	2,070	1,320
	100'	15°	31' 7"	4,350	1,480	820

HC-98A CAPACITIES WITH TUBULAR BOOM

PCSA Class 12-200
Refer to ALL notes on page 3.

Capacities are based on machine equipped with retractable high gantry (fully raised), 8 x 4 drive carrier, 10'-6" wide, 12:00 x 20, 14-ply rating tires, front and rear power hydraulic outriggers, 14,800# ctwt.

BOOM				ON OUTRIGGERS	ON TIRES	
Length	Radius	Angle	Point Height W	Side and Rear	Rear	Side
40'	12'	79°	44' 6"	70,000	51,770	39,400
	15'	74°	43' 9"	57,000	38,200	32,020
	20'	67°	42' 0"	43,400	26,230	23,460
	25'	59°	39' 5"	33,500	19,690	17,310
	30'	50°	35' 8"	27,200	15,580	13,520
	35'	39°	30' 8"	22,700	12,750	10,940
	40'	26°	22' 11"	20,260	10,690	9,080
50'	12'	81°	54' 7"	68,700	51,530	39,040
	15'	77°	54' 1"	56,530	37,970	31,680
	20'	71°	52' 8"	43,020	26,000	23,240
	25'	65°	50' 8"	33,130	19,470	17,100
	30'	59°	48' 0"	26,830	15,360	13,300
	35'	52°	44' 7"	22,350	12,540	10,730
	40'	44°	40' 1"	20,080	10,470	8,870
	50'	23°	25' 0"	14,580	7,670	6,360
60'	15'	80°	64' 3"	56,060	37,740	31,340
	20'	75°	63' 1"	42,460	25,770	23,030
	25'	70°	61' 6"	32,760	19,250	16,880
	30'	64°	59' 5"	26,460	15,140	13,090
	35'	59°	56' 8"	22,000	12,320	10,520
	40'	53°	53' 3"	19,900	10,250	8,650
	50'	40°	43' 11"	14,390	7,450	6,140
	60'	21°	27' 0"	11,030	5,630	4,520
70'	15'	81°	74' 5"	55,590	37,500	30,990
	20'	77°	73' 5"	42,260	25,550	22,810
	25'	73°	72' 1"	32,390	19,030	16,670
	30'	68°	70' 3"	26,090	14,920	12,880
	35'	64°	68' 1"	21,650	12,100	10,300
	40'	59°	65' 5"	19,710	10,040	8,440
	50'	49°	58' 1"	14,200	7,230	5,930
	60'	37°	47' 5"	10,830	5,410	4,310
	70'	20°	28' 9"	8,560	4,130	3,180

BOOM				ON OUTRIGGERS	ON TIRES	
Length	Radius	Angle	Point Height W	Side and Rear	Rear	Side
80'	20'	79°	83' 8"	41,880	25,320	22,600
	25'	75°	82' 6"	32,020	18,800	16,450
	30'	71°	81' 0"	25,720	14,700	12,660
	35'	67°	79' 1"	21,300	11,880	10,090
	40'	63°	76' 9"	19,530	9,820	8,230
	50'	55°	70' 9"	14,010	7,010	5,710
	60'	46°	62' 6"	10,640	5,190	4,100
	70'	35°	50' 7"	8,360	3,920	2,970
	80'	18°	30' 6"	6,720	2,970	2,140
100'	25'	78°	103' 1"	31,280	18,360	16,020
	30'	75°	101' 11"	24,980	14,260	12,230
	35'	72°	100' 5"	20,600	11,440	9,660
	40'	69°	98' 7"	19,170	9,380	7,800
	50'	63°	94' 1"	13,630	6,580	5,290
	60'	56°	88' 1"	10,250	4,760	3,670
	70'	49°	80' 6"	7,970	3,480	2,540
	80'	41°	70' 6"	6,320	2,540	1,710
	90'	31°	56' 5"	5,080	1,810	1,070
	100'	16°	33' 7"	4,110	1,230	570
110'	25'	79°	113' 3"	30,910	18,130	15,810
	30'	76°	112' 1"	24,610	14,030	12,020
	35'	74°	110' 11"	20,360	11,220	9,450
	40'	71°	109' 3"	18,980	9,160	7,590
	50'	65°	105' 2"	13,440	6,360	5,070
	60'	59°	100' 0"	10,060	4,540	3,460
	70'	53°	93' 3"	7,770	3,270	2,330
	80'	46°	84' 11"	6,130	2,320	1,500
	90'	39°	74' 0"	4,880	1,600	860
	100'	29°	59' 1"	3,910	1,020	350
	110'	16°	35' 0"	3,130	550	—

(Continued next page)

HC-98A CAPACITIES TUBULAR BOOM (Continued)

BOOM				ON OUTRIGGERS	ON TIRES	
Length	Radius	Angle	Point Height W	Side and Rear	Rear	Side
120′	30′	78°	122′ 6″	24,240	13,810	11,800
	35′	75°	121′ 1″	20,040	11,000	9,230
	40′	73°	119′ 9″	18,800	8,940	7,370
	50′	68°	116′ 1″	13,250	6,140	4,860
	60′	62°	111′ 6″	9,860	4,330	3,240
	70′	57°	105′ 7″	7,570	3,050	2,120
	80′	51°	98′ 2″	5,930	2,110	1,280
	90′	44°	89′ 1″	4,680	1,380	650
	100′	37°	77 5″	3,710	810	140
	110′	28°	61′ 9″	2,930	340	—
	120	15°	36′ 3″	2,290	—	—
130′	30′	79°	132′ 8″	23,870	13,590	11,590
	35′	76°	131′ 7″	19,720	10,780	9,020
	40′	74°	130′ 1″	18,620	8,720	7,160
	50′	69°	126′ 11″	13,060	5,930	4,650
	60′	65°	122 7″	9,670	4,110	3,030
	70′	60°	117′ 3″	7,380	2,840	1,900
	80′	54°	110′ 9″	5,730	1,890	1,070
	90	49°	102′ 9″	4,480	1,170	430
	100′	43°	93′ 0″	3,510	590	—
	110′	35°	80′ 8″	2,730	120	—
	120′	27°	64′ 1″	2,080	—	—
	130′	14°	37′ 7″	1,550	—	—

BOOM				ON OUTRIGGERS	ON TIRES	
Length	Radius	Angle	Point Height W	Side and Rear	Rear	Side
140′	30′	79°	142′ 11″	23,500	13,370	11,380
	35′	77°	141′ 9″	19,400	10,560	8,800
	40′	75°	140′ 7″	18,430	8,500	6,940
	50′	71°	137′ 6″	12,870	5,710	4,430
	60′	67°	133′ 7″	9,470	3,890	2,820
	70′	62°	128′ 9″	7,180	2,620	1,690
	80′	57°	122′ 11″	5,530	1,680	860
	90′	52°	115′ 9″	4,280	950	220
	100′	47°	107′ 3″	3,310	380	—
	110′	41°	96′ 9″	2,520	—	—
	120′	34°	83′ 9″	1,880	—	—
	130′	26°	66′ 6″	1,340	—	—
	140′	14°	38′ 9″	890	—	—
150′	35′	78°	152′ 1″	19,080	10,340	8,590
	40′	76°	150′ 11″	18,250	8,280	6,730
	50′	72°	148′ 1″	12,680	5,490	4,220
	60′	68°	144′ 6″	9,280	3,680	2,600
	70′	64°	140′ 0″	6,980	2,400	1,480
	80′	60°	134′ 8″	5,330	1,460	650
	90′	55°	128′ 2″	4,080	740	—
	100′	50°	120′ 7″	3,100	160	—
	110′	45°	111′ 6″	2,320	—	—
	120′	39°	100′ 6″	1,680	—	—
	130′	33°	86′ 9″	1,140	—	—
	140′	25°	68′ 8″	680	—	—
	150′	13°	40′ 0″	290	—	—

NOTES

Carrier—Capacities

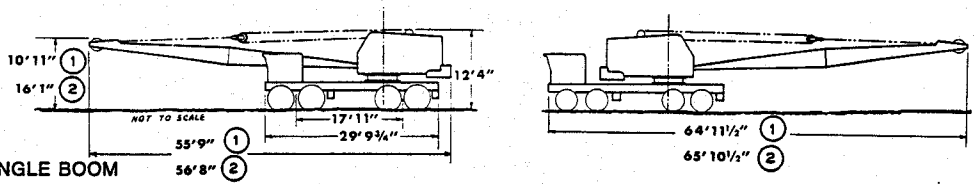
1. The carrier manufacturer certifies that this carrier has strength and stability equal to or greater than that required for the above lifting capacities and **must not** be exceeded.

Lifting Crane

1. For lifting 70,000 lbs., six parts of 3/4″ hoist rope is required.
2. All capacities are limited by strength and based on machine standing on firm, level ground. A deduction must be made from the capacities for weight of hook block, hook, sling, grapple, etc.
3. For **tubular** boom lengths exceeding 130′, the boom mast with midpoint suspension pendants is required. When boom mast is used as a short boom, maximum lifting capacity is 26,000 lbs. from 9′-5″ minimum to 20′ maximum radius.

Dragline, clamshell and magnet

1. Dragline capacities are equal to 90% of the "On Tires — Over Side" lifting crane capacities **except** limited to a maximum of 11,800 pounds.
2. Clamshell and magnet capacities are equal to 80% of the "On Tires — Over Side" lifting crane capacities **except** limited to a maximum of 13,600 pounds.
3. All dragline, clamshell and magnet capacities are for ideal job conditions. The user must make allowances for rapid cycle operation, soft, or uneven supporting surfaces, etc.
4. Dragline, clamshell, and magnet capacities include weight of bucket or magnet plus load.
5. Boom length should not exceed 60 feet.



AXLE LOADINGS

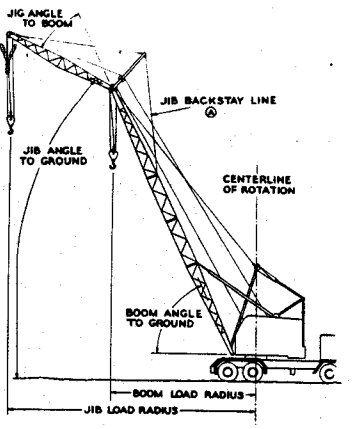
① - ANGLE BOOM
② - TUBULAR BOOM

DESCRIPTION	Component Weight	Total Weight	Upper Facing Front		Upper Facing Rear	
			Front	Rear	Front	Rear
Carrier crane complete with counterweight, hydraulic outriggers, main hoist line;						
with 40′ angle boom		81,000	17,200	63,800	29,920	51,080
with 40′ tubular boom		84,990	21,670	63,320	26,760	58,230
Removable Components						
40′ angle boom, pendants	— 4,200	76,800	11,100	65,700	34,620	42,180
Angle boom upper section only	— 1,820	79,180	13,070	66,110	33,390	45,790
40′ tubular boom, mast, pendants, boomfoot adapter	— 8,190	76,800	11,100	65,700	34,620	42,180
Tubular boom upper section only	— 1,920	83,070	16,960	66,110	30,780	52,290
Counterweight	—14,800		+ 5,500	— 20,300	— 10,500	— 4,300
Front outrigger complete	— 4,480		— 2,790	— 1,690	— 2,790	— 1,690
Front outrigger beams only	— 2,780		— 1,730	— 1,050	— 1,730	— 1,050
Rear outrigger complete	— 4,480		+ 1,370	— 5,850	+ 1,370	— 5,850
Rear outrigger beams only	— 2,780		+ 850	— 3,630	+ 850	— 3,630
Added Components						
Third drum	+ 850		+ 190	+ 660	+ 100	+ 750
Front drum lowering clutch	+ 400		+ 40	+ 360	+ 90	+ 310
Rear drum lowering clutch	+ 500		—	+ 500	+ 170	+ 330

HC-98A JIB CAPACITIES

Jib Angle To Ground	JIB LENGTH 20′ Angle	20′ Tube	30′ Angle	30′ Tube	40′* Angle	40′* Tube	50′** Angle	50′** Tube
80°	12,000	12,000	10,000	10,000	8,000	8,000	—	6,000
65°	10,000	10,000	8,000	8,000	6,000	6,000	—	4,000
50°	8,000	8,000	6,000	6,000	4,000	4,000	—	3,000
35°	7,500	7,500	5,500	5,500	3,500	3,500	—	2,000
20°	7,500	7,500	5,500	5,500	3,500	3,500	—	2,000

*40′ jib at 30° off centerline of boom not recommended for booms over 130′
**50′ jib at 30° off centerline of boom not recommended
**50′ jib at 15° off centerline of boom not recommended for booms over 130′



1. Capacities shown are in pounds and are based on Link-Belt Speeder jibs. Jib cross-section: Angle, 23″ wide by 18″ deep (bolted). Tube, 24″ wide by 24″ deep (bolted) or 24″ wide by 18″ deep (pin connected). Use jibs with a 10′ 0″ high jib strut in the proper working position.
2. To determine jib angle to ground, deduct jib angle to boom from the boom angle to ground.
3. The jib backstay line (A) is anchored to the boom upper section.
4. The jib angle to boom must not exceed 30°.
5. Determining machine jib capacities:
   a. Add the length of boom plus length of jib used.
   b. Determine the jib load radius.
   c. Refer to the lifting crane capacity chart and select the boom length that corresponds to the total length of boom and jib in (A) and the radius in (B).
      (1) The jib capacity is equal to the lifting crane capacity unless restricted by the maximum jib capacities shown above.
   d. If the total length of boom and jib exceeds the longest boom length listed in the lifting chart, deduct 300 lbs. from the angle and 200 lbs. from the tube capacity shown for the longest boom length for the radius required in (B).
      (1) The jib capacity is the resulting figure unless restricted by the maximum jib capacities shown above.
6. Determining lifting crane capacities with jib on the boom:
   a. When operating off the main boompeak sheaves with a jib on the boom, the following reductions in machine lifting capacities must be made:
      (1) 20′ jib .... 1,600 lbs. (3) 40′ jib .... 2,200 lbs.
      (2) 30′ jib .... 1,900 lbs. (4) 50′ jib .... 2,500 lbs.

MAXIMUM BOOM–JIB MACHINE CAN LIFT OFF GROUND UNASSISTED

*Reduced travel speeds are recommended with long booms; safe speeds depend on road conditions.

	Angle Boom		Tubular Boom	
	Boom	Boom + Jib	Boom	Boom + Jib
On tires and travel*				
Over rear	100′	80′ + 40′	100′	80′ + 40′
Over Side	100′	70′ + 40′	90′	70′ + 40′
On outriggers				
Over rear	100′	100′ + 40′	150′	130′ + 40′
Over side	100′	100′ + 40′	140′	120′ + 40′

GENERAL SPECIFICATIONS

CARRIER (8x4; Crane Carrier Corp.)

FRAME — Box section, high alloy, wide flange beam main members.

FRONT AXLES — Tandem, bogie beam mounted, Shuler Model FK I-beam; 88.2″ track.

REAR AXLES — Clark planetary Model BD50-60 double reduction, bogie beam mounted; 94″ track.

WHEELS AND RIMS — Cast spoke type; integral with planetary hub; 8.50″ x 20″ diameter rims.

TIRES — Single tires front, dual tires rear.

Standard — 12:00 x 20, 14-ply rating, non-directional tread.

Optional — 12:00 x 20, 14-ply rating, rock type tread.

Optional — 14:00 x 20, 18-ply rating, non-directional tread.

Optional — 14:00 x 20, 18-ply rating, rock type tread.

OUTRIGGERS — Full width, double-box front and rear, pin connected to carrier frame, hydraulically operated beam and jack cylinders are individually controlled from the ground.

BRAKES — (Air)

Service — Eight-wheel air brakes standard. MAXI-BRAKE on rear wheels, and single diaphram air chambers on front wheels. Internal expanding.

Size and Area —

Rear Wheels — 16½″ x 7″, total effective lining area 868 sq. in.

Front Wheels — 17¼″ x 4″, total effective lining area 500 sq. in.

Digging — Eight-wheel service brake applied with air valve on carrier dash.

Parking — Four-wheel rear brakes applied with air valve on carrier dash.

Emergency — Brakes on four rear wheels apply when air pressure drops below 40-60 p.s.i. in the system. Emergency brake may be manually applied at any time by hand control of dash mounted air valve.

STEERING — Power hydraulic, Ross Model TE-71; 21″ diameter wheel.

TURNING RADIUS — 51′ 6″ over outside of front bumper.

ENGINES — Gasoline or diesel, 12-volt alternator or generator, starter, pressure lubrication, radiator, air cleaner, 12 c.f.m. air compressor, hydraulic pump.

Standard — Waukesha F-817-G gasoline engine, six cylinder, four cycle, 5⅜″ bore, 6″ stroke, 817 cu. in.

displacement, 265 maximum horsepower at 2,250 r.p.m. full load speed. Governed load speed 2,400 r.p.m. Peak torque 721 ft. lbs. at 1,200 r.p.m.

Optional — GM 6-71 diesel engine, six cylinder, two cycle, 4¼" bore, 5" stroke, 425.6 cu. in. displacement, 238 maximum brake horsepower at 2,100 r.p.m. full load speed. Peak torque 649 ft. lbs. at 1,400 r.p.m.

Optional — Cummins NH-230 diesel engine, six cylinder, four cycle, 5½" bore, 6" stroke, 855 cu. in. displacemeint, 230 maximum brake horsepower at 2,100 r.p.m. full load speed. Peak torque 638 ft. lbs. at 1,500 r.p.m.

CLUTCH — Lipe Rollway, 14" 2-plate.

TRANSMISSIONS —

Main — Fuller 5H74 with five speeds forward and one reverse.

Auxiliary — Fuller 3C92 3-speed.

UNIVERSALS — Mechanics needle bearing type.

CAB — One-man, fully enclosed.

ELECTRICAL SYSTEM — 12-volt system, including sealed beam headlights, directional signals, lighting of instrument panel, and headlight dimmer switch.

WEIGHT — Carrier with hydraulic outriggers, 8 x 4 drive, ring gear, approximately 38,580 lbs.

STANDARD EQUIPMENT — Bus-type rear view mirrors, front tow hooks, lug wrench, tire gauge, and tire inflation hose. Instrument panel and dash includes speedometer, ammeter, fuel gauge, engine temperature gauge, air pressure gauge, oil pressure gauge, low air pressure warning buzzer, ignition switch, starter button, choke control, and hand throttle to supplement foot accelerator, a two-way reading bubble level, and windshield washer. High-pressure lube fittings at all bearing points; 60-gal. fuel tank mounted on right side of frame.

SPEEDS — TRANSMISSION RATIOS. All speeds given are for HC-98A with 12:00 x 20 tires and engines at governed full load speed. Speeds will vary with optional tires.

		Auxiliary — Fuller 3C92 3-speed					
	Main — Fuller	Waukesha F-817-G @ 2,250 rpm			GM 6058C or Cummins NH230 @ 2,100 rpm		
Gear	5H74 5-speed	2.64:1.00	1.00:1.00	.75:1.00	2.64:1.00	1.00:1:00	.75:1.00
High	1.00:1.00	10.6 m.p.h.	28.1 m.p.h.	37.5 m.p.h.	9.9 m.p.h.	26.3 m.p.h.	35.0 m.p.h.
Fourth	1.17:1.00	9.1 m.p.h.	24.0 m.p.h.	32.0 m.p.h.	8.5 m.p.h.	22.4 m.p.h.	29.9 m.p.h.
Third	1.98:1.00	5.4 m.p.h.	14.2 m.p.h.	18.9 m.p.h.	5.0 m.p.h.	13.2 m.p.h.	17.7 m.p.h.
Second	3.61:1.00	2.8 m.p.h.	7.8 m.p.h.	10.4 m.p.h.	2.7 m.p.h.	7.3 m.p.h.	9.7 m.p.h.
First	6.60:1:00	1.6 m.p.h.	4.3 m.p.h.	5.7 m.p.h.	1.5 m.p.h.	4.0 m.p.h.	5.3 m.p.h.
Reverse	6.51:1.00	1.6 m.p.h.	4.3 m.p.h.	5.8 m.p.h.	1.5 m.p.h.	4.0 m.p.h.	5.4 m.p.h.

UPPER

UPPER FRAME — All-welded, stress-relieved, precision machined unit. Side housings bolted to upper frame.

TURNTABLE ROLLERS — Eight adjustable, heat-treated, conical, hook-type rollers mounted on tapered roller bearings. Two equalized pairs mounted both front and rear.

TRANSMISSION — Link-Belt quadruple roller chain enclosed in oil-tight chain case with integral sump. Pump-driven oil stream lubrication. Engine pinion and chain wheel have machine-cut teeth.

REDUCTION SHAFT — Two-piece shaft, joined by an involute splined coupling mounted in side housings on anti-friction bearings.

Two Drive Pinions — Heat-treated, machine-cut teeth, involute splined to reduction shaft. Pinions mounted outside side housings.

CLUTCHES — Speed-o-Matic power hydraulic actuated for swing, operating drums, boomhoist and optional load lowering. Internal expanding two-shoe type, aluminum alloy shoes; 20" diameter, 5" face width. Third operating drum clutch 17¼" diameter, 4" face width. Load lowering clutches not available with gear-driven two-speed hoist or auxiliary, two-shoe rear drum brake.

Spiders — Involute splined to horizontal shafts.

DRUMS — Front, rear, and third operating (optional) drums.

Shafts — Mounted in line bores on anti-friction bearings. Front and rear drum shafts only extended to accommodate optional load lowering clutches. Special shaft required to accommodate two-speed, planetary-driven drums.

Spur Gears — Machine-cut teeth; mounted on anti-friction bearings on shaft.

Clutch Drums — Bolted to spur gears.

Brakes — Two-piece, external contracting band, mechanically foot pedal operated, front and rear drum 27" diameter 4" face width, third drum 18" diameter 3" face width.

Brake Drums — Involute splined to drum shaft.

Drum Laggings — Two-piece, removable; bolted to brake drum.

DRUM ROTATION INDICATOR (Optional) — Mounted on control stand. Dial actuated by flexible shaft from front and rear main operating drum shafts.

TWO-SPEED FRONT AND REAR DRUMS (Optional) —

Gear-driven, hoist only — Intermediate gears installed in side housings convert two-shoe load lowering clutches to high-speed hoist clutches; hoist rope speed increased 100% over standard speeds.

Planetary-driven, hoist and lowering — Planetary unit mounts between spur gear and two-shoe clutch drum on extended shaft; available for 70% increase or 40% decrease of standard hoist and load lowering rope speeds. Not available for front drum rope lowering. Two-shoe clutch gives standard speed. Planetary controlled by external contracting band through push-button located on clutch control lever.

AUXILIARY TWO-SHOE REAR DRUM BRAKE (Optional) — Increases brake lining contact area by 212 sq. in. Pressure on mechanical brake pedal applies the standard rear drum brake band and the auxiliary two-shoe brake simultaneously. Mechanical linkage actuates the control mechanism of a variable pressure valve to direct hydraulic pressure to the brake cylinder. Lowering clutch, two-speed gear-driven hoist, or two-speed planetary drive unit on lowering side of rear drum not available. Internal expanding two-shoe Speed-o-Matic power hydraulic brake, 20" diameter 5" face, brake spider involute splined to shaft, and brake drum bolted to anchor plate on machinery side housing.

HORIZONTAL SWING SHAFT — Mounted in line bore on anti-friction bearings.

Spur Gears — Machine-cut teeth. Mounted on shaft on anti-friction bearings.

Bevel Gear — Machine-cut teeth, involute splined to shaft, fully enclosed and running in oil.

INDEPENDENT BOOMHOIST — Spur gear driven with precision boom raising and lowering through a clutch. A rope drum locking pawl, manually controlled from operator's position, is provided.

Shaft — Mounted in line bore on anti-friction bearings.
Spur Gears — Machine-cut teeth mounted on anti-friction bearings on shaft.
Rope and Brake Drum — Involute splined to shaft. Ratchet wheel and 22" diameter 3¼" face width brake drum are cast integral.
Brake — External contracting band, 22" diameter 3" face width, spring applied and power hydraulically released.

BOOMHOIST LEVER KICK-OUT DEVICE — Special mechanism activated by boom at minimum radius "kicks out" boomhoist lever and disengages boom raising clutch. Boom must then be lowered before it can be raised again.

VERTICAL SWING SHAFT — Mounted in line bore on anti-friction bearings.

Bevel Gear — Machine-cut teeth, involute splined to shaft; fully enclosed and running in oil.
Swing Pinion — Involute splined to shaft; teeth mesh with internal teeth of ring gear.
Swing Brake — Two-directional, external contracting band; spring-applied and power hydraulically released.
Brake Drum — Involute splined to swing shaft.

SWING LOCK — Mechanically controlled pawl engages with internal teeth of ring gear.

SWING SPEED — 4 r.p.m.

GANTRY — Retractable — Mounted to upper to support bail, boom suspension system and two boomhoist rope sheaves. Used with all booms. For tubular booms over 130' boom mast is required. Also used for power lowering of counterweight.

Bail — Pinned to gantry frame. Contains three sheaves with bronze bushings for 8-part boomhoist with angle boom and four sheaves with anti-friction bearings for 10-part boomhoist with tubular boom; additional sheaves furnished for increased parts of line.

Speed-o-Matic Gantry Jack (Optional) — For power hydraulic raising and lowering of retractable high gantry. Controlled from rear of cab.

CAB — Operator's door, rear doors, and front window slide on ball bearing rollers. Full-vision operator's compartment with safety glass panels.

Elevated Operator Cabs (Optional) — Two or four ft. available. Upper portion of 4' cab is hinged and equipped with quick disconnect fittings for easy removal to reduce overall height.

COUNTERWEIGHTS — Removable and held in position by "T"-bolts. Power raising and lowering with boomhoist clutches through retractable high gantry. Optional power hydraulic cylinder suspended between high gantry backstays to raise or lower counterweight.

14,800 lb. ctwt. — Waukesha F-554-G, Waukesha 135GZU, GM 4030N, GM 4082, Cummins N495
13,900 lb. ctwt. — Caterpillar D333C-T

CONTROL SYSTEM — Speed-o-Matic power hydraulics; an open system. Operating pressure is transmitted through oil to all operating two-shoe clutch cylinders. The system includes a pump to provide a constant flow of oil, an accumulator to maintain operating pressure and variable pressure operator-controlled valves to regulate this pressure to each clutch cylinder.

Pump — Vickers; rated at 4.7 g.p.m. at 1,200 r.p.m.
Oil Filter — Link-Belt Speeder; replaceable Skinner ribbon-type filter element.
Relief Valve — Link-Belt Speeder; set to operate at 1,250 p.s.i.
Unloader Valve — Link-Belt Speeder; set to unload pump at a maximum 1,050 p.s.i. and to load pump when pressure drops below 900 p.s.i.
Accumulator — Link-Belt Speeder; piston-type, precharged with nitrogen gas to 650 p.s.i.
Sump Tank — Link-Belt Speeder; 7 gal. capacity with filter and strainer assembly.
Control Valves — Link-Belt Speeder; variable pressure type.

ENGINES — Full pressure lubrication, oil filter, air cleaner, hour meter, hand and foot throttles, 60-gal. capacity fuel tank with fuel gauge.

	Waukesha F-554-G (1)	Waukesha 135GZU with torque converter (2)	Caterpillar D-333C-T	GM 4-71 Series (Model 4030N)	GM 4-71 Series (Model 4082) with torque converter (3)	Cummins N495
Number of cylinders	6	6	6	4	4	4
Bore and stroke (inches)	4⅝ x 5½	4⅜ x 5	4¾ x 6	4¼ x 5	4¼ x 5	5⅛ x 6
Piston displacement (cu. in.)	554	451	636	283.7	283.7	495
High idle speed, r.p.m.	1,880	1,880 @ pinion 2,135 @ crankshaft	1,990	1,990	1,207 @ pinion 1,670 @ crankshaft	1,880
Engine r.p.m. F.L.S.	1,710		1,890	1,850		1,700
Net engine H.P. @ F.L.S.	109	121	110	110	118	108
Peak torque; Lbs. Ft.	427	730	418	351	1,170	358
Peak torque; r.p.m.	800	(output stall)	1,250	1,200	(output stall)	1,500
Electrical system	12 volt	12 volt	12 volt	12 volt	24 volt	24 volt
Batteries	(4)	2 6-volt	1 12-volt	2 6-volt	2 12-volt	2 12-volt
Clutch — Type	Friction-Hyd. cplg.	Disconnect between engine-converter	Friction	Friction-Hyd. cplg.	Disconnect between engine-converter	Friction
Make	Twin Disc		Twin Disc	Twin Disc		Twin Disc
Model	SP211-HP-1		SP111-HP-1	SP111-HP-1		SP111-HP-1
Transmission —						
No. chain wheel teeth	161	161	161	161	161	161
No. engine pinion teeth	18	18	17	17	28	18

(1) Two-speed Cotta transmission available for lifting crane service; reduces operating speeds approximately 50%.
(2) 2.5 ratio Allison TCOA-377-119 converter.
(3) 3.4 ratio Torqmatic TDCOA 435 Converter.
(4) Two 6-volt with friction clutch; one 12-volt with hydraulic coupling or two-speed Cotta transmission.

FRONT END CRANE BOOM EQUIPMENT

ANGLE BOOM — Two-piece 40′ total length, 20′ upper and lower sections; 34″ deep and 34″ wide at connections. Chord angles, alloy steel. Lower section 3″ x 3″ x 3/8″; upper section 3″ x 3″ x 5/16″.

Boomfoot — 1 5/8″ wide on 38″ centers.

Boompoint Machinery — Three 18″ root diameter sheaves mounted on anti-friction bearings on boompeak shaft. Two or four sheaves, or one wide-mouth sheave for dragline, optional.

Pin Connections — Permit easy removal and addition of extensions.

BOOM EXTENSIONS — Available in 5′, 10′, 15′ and 20′ lengths with proper length pendants.

BOOM BACKSTOPS — Dual, rigid type with spring-loaded bumpers.

BOOMHOIST BRIDLE — Serves as a connection between the pendants and live boomhoist rope. Bridle contains four, five, or six 9 1/2″ root diameter sheaves mounted on non-metallic bushings for 8- or 10-part boomhoist, and bronze bushings for 12-part boomhoist.

JIB — 20′ two-piece with 10′ upper and lower sections; 10′ extensions available or 30′ or 40′ jib. Jib is 23″ wide and 18″ deep at the connections; chord angles, lower section 2″ x 2″ x 1/4″, upper section and extensions 2″ x 2″ x 5/16″. Jib and extensions are bolted.

Jib Mast — 10′ high, mounted on jib base section; two deflector sheaves mounted on needle bearings for jib hoist line within the strut; two equalizer sheaves for jib front stay and jib backstay lines mounted to top of mast.

Jib Backstop — Wire rope type.

Peak Sheave — Mounted on anti-friction bearings.

Peak Shaft — Anchor is provided at peak of jib for two-part jib hoist line. Jib stay line anchors are suspended from shaft.

"HI-LITE" TUBULAR BOOM — Two-piece 40′ total length, 20′ upper and lower sections, 44″ deep and 44″ wide at connections. Square tube chords, alloy steel, 2 1/4″ with bracing of round steel tubing.

Boomfoot — 2 1/4″ wide on 50″ centers.

Boomfoot Adapter — Required to adapt 38″ centers of revolving frame boomfoot lugs to 50″ centers of tubular boomfeet.

Boompoint Machinery — Three 18″ root diameter sheaves mounted on anti-friction bearings on boompeak shaft. Two and four sheaves optional.

Pin Connections — Permit easy removal and additions of extensions.

BOOM EXTENSIONS — Available in 10′, 15′, and 20′ lengths with proper length pendants.

BOOM BACKSTOPS — Dual, telescoping; spring cushioned.

BOOMHOIST BRIDLE — Serves as a connection between the pendants and live boomhoist rope. Bridle contains 12″ root diameter sheaves mounted on anti-friction bearings.

Without Boom Mast — Five sheaves for 10-part boomhoist and six sheaves for 12-part boomhoist.

With Boom Mast — Connected to gantry by a shaft. Six sheaves for 12-part boomhoist; also contains two 9 1/2″ diameter sheaves mounted on non-metallic bushings enabling mast to be used as a short boom.

BOOM MAST — Mounted on boomfoot adapter, supports boomhoist bridle and mid-point suspension pendants. Boom mast and mid-point boom suspension pendants required for all main boom lengths over 130′. Boom mast retracts to 20′ for use as a short boom. Hydraulic extending cylinders optional.

JIB — Bolted or pin-connected, two-piece with 10′ upper and lower sections, 10′ extensions available for 30′, 40′, or 50′ jib.

Bolted — 24″ wide and 24″ deep at connections. Tubular chords, alloy steel, 1 1/2″ diameter.

Pin-connected — 24″ wide and 18″ deep at connections, tubular chords, alloy steel, 1 1/4″ diameter.

Jib Mast — 10′ high, mounted on jib base section. Two deflector sheaves mounted on anti-friction bearings for jib hoist line within the mast. Two equalizer sheaves for jib frontstay and jib backstay lines mounted to top of mast.

Jib Backstop — Wire rope type.

Peak Sheaves — Mount on anti-friction bearings.

Peak Shaft — Anchor is provided at peak of jib for two-part jib hoist line. Jib frontstay line anchors are suspended from shaft.

FAIRLEADER — Full-revolving type with barrel, sheaves and guide rollers mounted on anti-friction bearings.

TAGLINE WINDER — Rud-O-Matic Model 648; spring-wound drum type mounted on crane boom. Cable pull off drum — 60′ to 75′ from neutral.

BOOM ANGLE INDICATOR — Mounted on boom near base.

ROPE SUPPORTING ROLLERS — To deflect main hoist line over top of boom. Required when third drum rope passes over crane boom. Rollers mounted on anti-friction bearings, following numbers recommended:

Angle Boom — One through 45′; two through 65′; three through 85′; four through 100′.

Tubular Boom — One supplied as standard; two through 125′; three through 145′; four through 150′.

BOOM FOLDING EQUIPMENT (Optional) — To facilitate folding of pin-connected booms. Two folding links plus shorter pendants are inserted in boomhoist reeving. Eliminates need for "breaking" boomhoist reeving to fold boom.

Angle Boom — Extended head shaft for mounting of two 7:50 x 20, 8-ply rating heavy-duty express tires mounted on wheels.

Tubular "Hi-Lite" Boom — Two 4:00 x 18, 4-ply rating, grooved implement tires with spoked wheels mounted within a strut pinned to boom for folding.

WIRE ROPE—

TYPE AND SIZE USED

Live Boomhoist — Type "A", 5/8" dia., 3/4" dia.; Type "F", 5/8" dia., 3/4" dia.
Main hoist — Type "A", 3/4" dia.
Jib Hoistline — Type "K", 5/8" dia.
Dragline hoist — Type "A", 3/4" dia.
Dragline inhaul — Type "D", 7/8" dia.
Clamshell holding — Type "A", 3/4" dia.
Clamshell closing — Type "A", 3/4" dia.
Tagline — Type "A", 5/16" dia.
Jib staylines — Type "A", 5/8" dia.; Type "F", 5/8" dia.
Boom pendants — Type "N", 1 1/4" dia.
Mid-point suspension pendants (Boom mast) — Type "C", 1" dia.

WIRE ROPE TYPES

Type "A" — 6 x 25 (6 x 19 class), filler wire, improved plow steel, preformed, fiber center, right lay, regular lay.
Type "C" — 6 x 25 (6 x 19 class) filler wire, improved plow steel, preformed, independent wire rope center, right lay, regular lay.
Type "D" — 6 x 25 (6 x 19 class), filler wire, improved plow steel, preformed, independent wire rope center, right lay, lang lay.
Type "F" — 6 x 25 (6 x 19 class), filler wire, improved plow steel, preformed, independent wire rope center, right lay, regular lay.
Type "K" — 18 x 7 non-rotating, improved plow steel, fiber center.
Type "N" — 6 x 25 (6 x 19 class) filler wire, extra-high tensile strength steel, preformed, independent wire rope center, right lay, regular lay.

JIB MAST STAYLINES

ANGLE JIB

Backstay — For all boom lengths, 51' long. Rope length adjusted to fix jib angle to boom.
Frontstay — For all booms with 20' jib, 48' long; with 30' jib, 70'; with 40' jib, 100'.

TUBULAR JIB

Bolted connections, backstay — 45' 3 3/4" long (40' 11 3/4" plus two each 2' 2" long) for 30° jib to boom angle; removal of 2' 2" lengths allow 15° and in-line jib-to-boom angle.
Frontstay — For all booms with 20' jib, 55' long; with 30' jib, 75'; with 40' jib, 95'; with 50' jib, 115'.
Pin connections, backstay — 52' 5" long (43' 9" plus two each 4' 4" long) for 30° jib to boom angle: removal of 4' 4" lengths allow 15° and in-line jib to boom angle.
Frontstay — 20' jib basic pendant 43' 9" long. Two pendants 9' 6" long supplied with each 10' jib extension.

MAIN HOIST LINE LENGTH

Parts of Line	BOOM LENGTH											
	40'	50'	60'	70'	80'	90'	100'	110'	120'	130'	140'	150'
1	95	115	135	155	175	195	215	235	255	275	295	315
2	140	170	200	230	260	290	320	350	380	410	440	470
3	185	225	265	305	345	385	425	465	505	545	585	625
4	230	280	330	380	430	480	530	580	630	680	730	780
5	275	335	395	455	515	575	635	695	755	815		
6	320	390	460	530	600	670	740	810	880	950		

LIVE BOOMHOIST ROPE LENGTH

Parts of Line	Angle Boom	Tubular Boom	Tubular Boom & Mast
8	255'	—	—
10	310'	310'	—
12	360'	360'	390'

JIB HOISTLINE LENGTH

shown in feet	Parts of Line	BOOM LENGTH (Angle or Tubular)									
		40'	50'	60'	70'	80'	90'	100'	110'*	120'*	130'*
20' Jib Tubular or Angle	1	135	155	175	195	215	235	255	275	295	315
(except as noted)	2	200	230	260	290	320	350	380	410	440	470
30' Jib Tubular or Angle	1	155	175	195	215	235	255	275	295	315	335
(except as noted)	2	230	260	290	320	350	380	410	440	470	500
40' Jib Tubular or Angle	1	175	195	215	235	255	275	295	315	335	355
(except as noted)	2	260	290	320	350	380	410	440	470	500	530
50' Jib Tubular or Angle	1	195	215	235	255	275	295	315	335	355	375
(except as noted)	2	290	320	350	380	410	440	470	500	530	560

*Tubular boom and jib only

DRAGLINE ROPE LENGTH

Cable lengths shown in feet	Parts of Line	BOOM LENGTH				
		40'	45'	50'	55'	60'
Hoist	1	95	105	115	125	135
Inhaul	1	52	58	64	70	76

CLAMSHELL ROPE LENGTH

Cable lengths shown in feet	Parts of Line	BOOM LENGTH				
		40'	45'	50'	55'	60'
Holding	1	105	115	125	135	145
Closing	1	140	150	160	170	180
Tagline		Furnished with Rud-O-Matic #648				

We are constantly improving our products and therefore reserve the right to change designs and specifications. For certified dimensions, consult factory.

fmc CORPORATION

Link-Belt Speeder

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