



AMERICAN

STIFFLEG CRANES

MODELS:

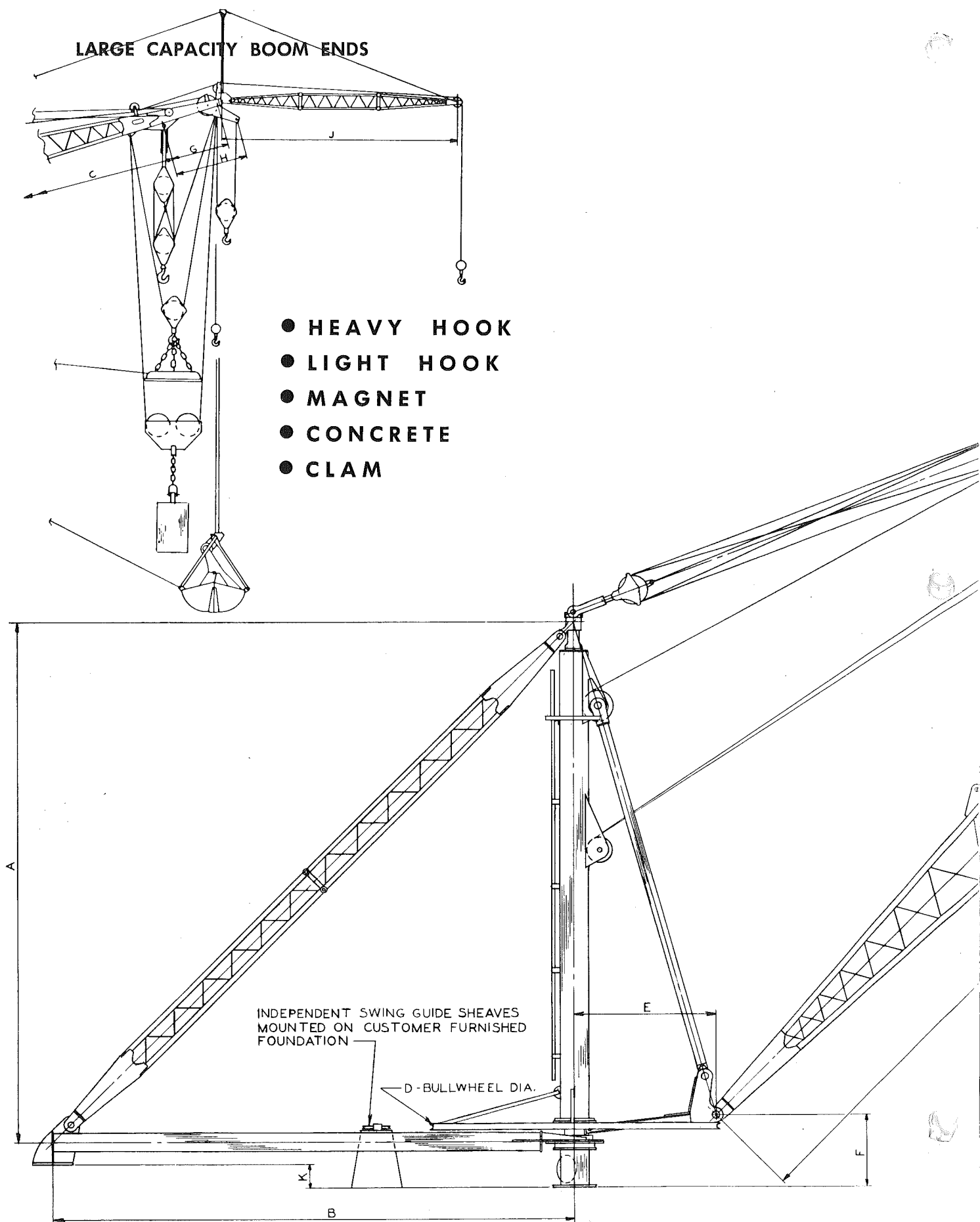
S-10, S-20, S-30, S-40, S-50, S-60, S-70

SPECIFICATIONS

THE MODERN STIFFLEG DERRICK WITH CRANE BOOM



AMERICAN STIFF

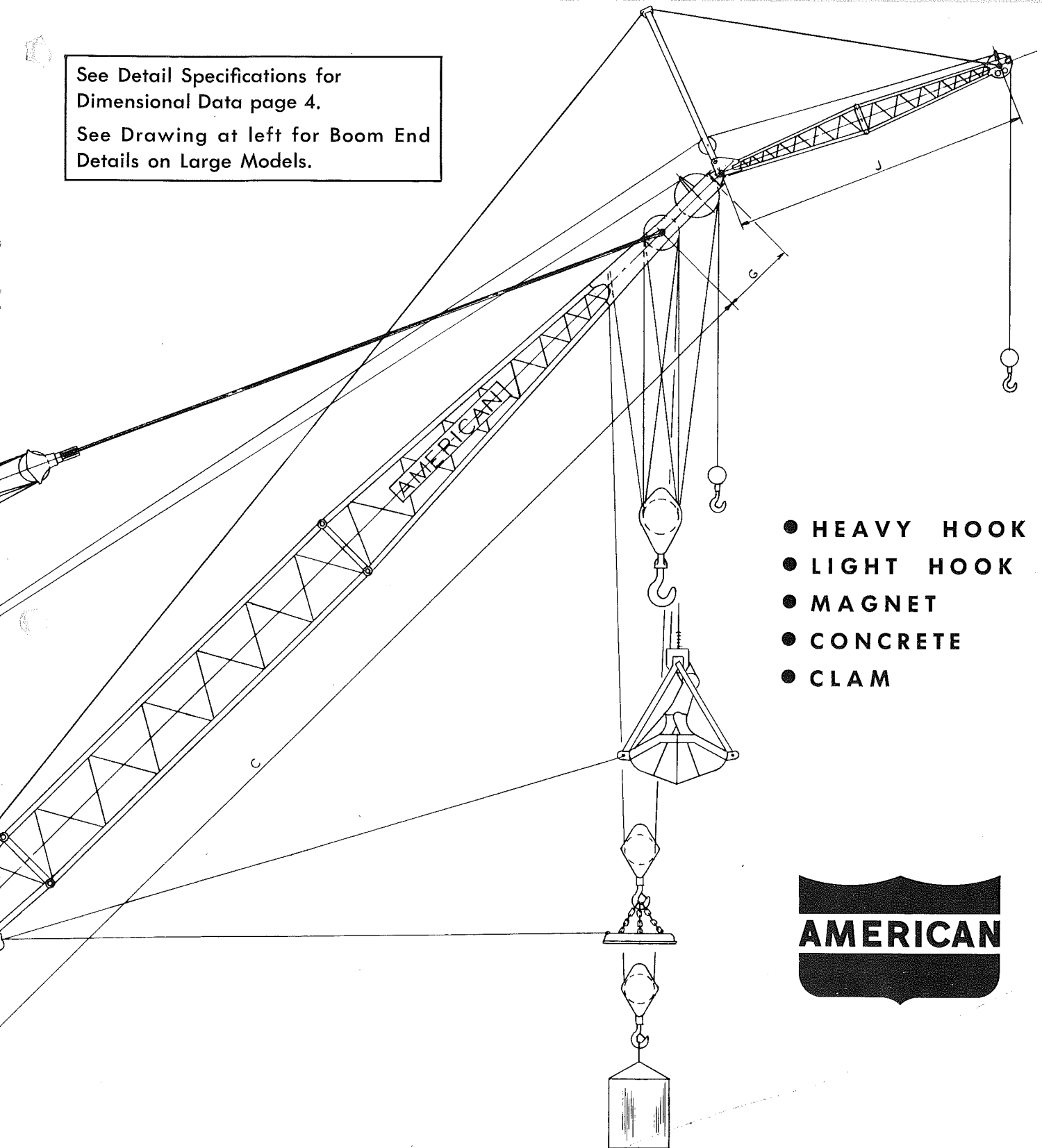




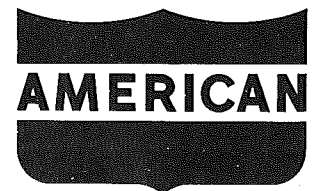
FLEG CRANE

See Detail Specifications for
Dimensional Data page 4.

See Drawing at left for Boom End
Details on Large Models.



- HEAVY HOOK
- LIGHT HOOK
- MAGNET
- CONCRETE
- CLAM



THE MODERN STIFFLEG DERRICK WITH CRANE BOOM



STIFFLEG CRANE DIMENSIONS AND SPECIFICATIONS

CRANE MODEL	S-10	S-20	S-30	S-40	S-50	S-60	S-70
A Mast Height	22'0"	29'0"	37'0"	44'0"	52'0"	63'0"	74'0"
B Sill Length — Standard	22'0"	29'0"	37'0"	44'0"	52'0"	63'0"	74'0"
Short	16'0"	22'0"	28'0"	33'0"	39'0"	47'0"	56'0"
C Boom — Min. Length	40'0"	60'0"	60'0"	110'0"	110'0"	110'0"	130'0"
Max. Length	100'0"	120'0"	160'0"	180'0"	200'0"	200'0"	250'0"
D Bull Wheel Diameter	12'0"	16'0"	20'0"	24'0"	28'0"	32'0"	36'0"
E Mast to Boom Foot	6'0"	8'0"	10'0"	12'0"	14'0"	16'0"	18'0"
F Foundation to Boom Foot	4'3"	4'8"	5'0"	5'10 1/4"	6'4"	7'0"	8'7"
G Integral Jib — Length	4'0"	4'0"	5'0"	6'6"	6'6"	6'8"	6'8"
Capacity (1 part)Tons	5	7	9	14	15	15	15
H Short Jib — Length	—	—	—	11'0"	11'0"	11'6"	11'6"
Capacity (2 part)Tons	—	—	—	25	25	35	35
J Hinged Jib — Length	20'0"	20'0"	30'0"	30'0"	30'0"	30'0"	30'0"
Capacity (1 part)Tons	6	6	9	9	15	15	15
K Mast Foundation to Stiffleg Foundations	1'9"	1'6"	1'8"	1'11"	2'2"	2'5"	2'11"
Parts of Boom Line	12	12	16	20	24	28	28
Rope Diameter	5/8"	3/4"	7/8"	1"	1 1/8"	1 1/4"	1 1/2"
Parts of Load Line (Max. Load) . .	12	10	12	16	20	22	24
Rope Diameter	5/8"	3/4"	7/8"	7/8"	1"	1 1/8"	1 1/2"
Hoist — Min. Line PullLbs.	9,000	14,000	18,000	22,000	30,000	45,000	57,000
Max. Clam L.P.Lbs.	20,000	28,000	28,000	28,000	35,000	50,000	—
Swinger — Recommended L.P. . .Lbs.	7,000	10,000	17,000	24,000	33,000	48,000	60,000
Minimum American Hoist Model Number	90B	170B	240B	240B	330B	480B	650A

Certain applications may require a larger or smaller hoist.
Jib capacities are dependent on available hoist line pull.

APPROXIMATE REACTIONS AND WEIGHTS

(in thousands of pounds)

CRANE MODEL	S-10	S-20	S-30	S-40	S-50	S-60	S-70
Mast Reactions							
Vertical Thrust	200	300	450	700	1,100	1,740	2,400
Vertical Uplift* (includes 50% impact) . .	50	75	110	150	220	275	335
Stiffleg Reactions							
Vertical Thrust	105	160	240	370	580	900	1,130
Vertical Uplift (includes 50% impact) . .	126	200	305	435	720	1,120	1,620
Max. Horiz. Reaction from Hoist and Swing Lines	45	56	72	72	100	140	180
Crane Weight — No Load Tackle	23	40	58	101	154	270	460

Reactions from rated hook load, with sills, no wind or impact (unless noted), sills at 90 degrees.

*Uplift greater with boom between stifflegs.



DUTY CYCLE GROSS LOADS AND MAXIMUM OPERATING RADII

Service	Hoist Model	Gross Load	MAXIMUM OPERATING RADII IN FEET			
			S-10	S-20	S-30	S-40
Concrete Placing With 25% Impact Factor	Mod 170B — 3 yd.	18,000#	70'	—	—	—
	Mod 240B — 4 yd.	24,000#	50'	120'	160'	—
	Mod 330B — 6 yd.	36,000#	—	80'	140'	—
	Mod 480B — 8 yd.	48,000#	—	—	120'	180'
Magnet Work With 50% Impact Factor	Mod 120B — 56"	13,000#	80'	—	—	—
	Mod 170B — 66"	18,000#	55'	125'	—	—
	Mod 240B — 80"	28,000#	—	90'	150'	—
Clamshell Bucket (2 line) With 50% Impact Factor	Mod 240B	14,000#	80'	—	—	—
	Mod 330B	20,000#	50'	120'	—	—
	Mod 480B	28,000#	—	90'	150'	—
Clamshell Bucket (4 line) With 50% Impact Factor	Mod 170B	18,000#	55'	125'	—	—
	Mod 240B	25,000#	—	95'	160'	—
	Mod 330B	36,000#	—	70'	120'	180'
	Mod 480B	50,000#	—	—	90'	160'

Recommended boom length should equal or not exceed 10 feet greater than the radius shown above. Consult factory if other than standard sill lengths and 90° sill angles are used. Above recommendations are based on hoisting ability only. Consult hoist literature for brake lowering capabilities.

APPROXIMATE TACKLE WEIGHTS—POUNDS

(To be deducted from capacity chart ratings for net hook load. Pages 6 and 7.)

Tackle Capacity Tons	Short Boom Range	Medium Boom Range	Long Boom Range	Tackle Capacity Tons	Short Boom Range	Medium Boom Range	Long Boom Range
10	1,000	1,000	1,000	125	11,000	13,000	15,000
20	1,500	1,500	2,000	150	14,000	16,000	19,000
30	2,000	2,500	3,000	175	17,000	19,000	22,000
40	2,500	3,000	4,000	200	22,000	24,000	28,000
50	3,000	4,000	5,000	225	27,000	29,000	33,000
60	4,000	5,000	6,000	250	32,000	35,000	39,000
75	6,000	7,000	8,000	275	38,000	41,000	45,000
100	8,000	10,000	11,000	300	44,000	47,000	52,000



AMERICAN STIFFLEG CRANE

MODEL S-10				MODEL S-20			
Boom Length Ranges — Feet		40'-50'	60'-70'	80'-100'	Boom Length Ranges — Feet		60' 70'-90' 100'-120'
Radius					Radius		
15	.....	*90,000	—	—	20	.....	125,000 —
20	.....	*77,000	67,000	—	25	.....	116,000 103,000 —
25	.....	67,000	61,000	41,000	30	.....	107,000 97,000 73,000
30	.....	59,000	54,000	38,000	35	.....	99,000 90,000 67,000
35	.....	53,000	49,000	36,000	40	.....	91,000 83,000 63,000
40	.....	47,000	44,000	34,000	45	.....	83,000 78,000 59,000
45	.....	43,000	40,000	32,000	50	.....	77,000 73,000 56,000
50	.....	39,000	37,000	29,000	55	.....	72,000 68,000 53,000
55	.....	34,000	33,000	27,000	60	.....	67,000 64,000 51,000
60	.....	—	30,000	25,000	65	.....	60,000 60,000 48,000
65	.....	—	27,000	23,000	70	.....	— 57,000 46,000
70	.....	—	25,000	22,000	75	.....	— 54,000 44,000
75	.....	—	23,000	20,000	80	.....	— 50,000 42,000
80	.....	—	—	19,000	85	.....	— 48,000 40,000
85	.....	—	—	18,000	90	.....	— 46,000 38,000
90	.....	—	—	17,000	95	.....	— 42,000 37,000
95	.....	—	—	16,000	100	.....	— — 35,000
100	.....	—	—	15,000	105	.....	— — 33,000
105	.....	—	—	14,000	110	.....	— — 32,000
* 120B Hoist Required				115	.....	— — 31,000	
				120	.....	— — 30,000	
				125	.....	— — 27,000	
MODEL S-30				MODEL S-40			
Boom Length Ranges — Feet		60'-90'	100'-130'	140'-160'	Boom Length Ranges — Feet		110'-120' 130'-150' 160'-180'
Radius					Radius		
30	.....	167,000	—	—	35	.....	225,000 — —
35	.....	156,000	115,000	—	40	.....	225,000 206,000 183,000
40	.....	146,000	108,000	85,000	50	.....	215,000 191,000 169,000
50	.....	128,000	100,000	80,000	60	.....	194,000 177,000 156,000
60	.....	113,000	92,000	76,000	70	.....	175,000 163,000 142,000
70	.....	101,000	86,000	71,000	80	.....	159,000 150,000 130,000
80	.....	92,000	79,000	67,000	90	.....	145,000 139,000 119,000
90	.....	83,000	73,000	63,000	100	.....	132,000 129,000 110,000
100	.....	—	68,000	59,000	110	.....	121,000 119,000 102,000
110	.....	—	63,000	55,000	120	.....	112,000 109,000 96,000
120	.....	—	59,000	52,000	130	.....	104,000 100,000 89,000
130	.....	—	56,000	49,000	140	.....	— 92,000 83,000
140	.....	—	—	46,000	150	.....	— 84,000 77,000
150	.....	—	—	43,000	160	.....	— 79,000 70,000
160	.....	—	—	40,000	170	.....	— — 64,000
165	.....	—	—	39,000	180	.....	— — 59,000
					185	.....	— — 57,000



HOOK WORK CAPACITIES

MODEL S-50				MODEL S-60			
Boom Length		140'-160'	170'-200'	Boom Length		140'-160'	170'-200'
Ranges — Feet 110'-130'				Ranges — Feet 110'-130'			
Radius				Radius			
35	400,000	—	—	40	600,000	—	—
40	400,000	400,000	—	50	600,000	600,000	512,000
50	396,000	396,000	372,000	60	600,000	595,000	490,000
60	352,000	350,000	310,000	70	562,000	559,000	466,000
70	316,000	316,000	275,000	80	512,000	510,000	444,000
80	288,000	287,000	250,000	90	474,000	468,000	422,000
90	262,000	264,000	232,000	100	440,000	435,000	400,000
100	248,000	240,000	218,000	110	408,000	400,000	380,000
110	220,000	220,000	204,000	120	380,000	378,000	360,000
120	204,000	200,000	198,000	130	356,000	352,000	338,000
130	187,000	182,000	176,000	140	336,000	332,000	318,000
140	173,000	168,000	162,000	150	—	312,000	300,000
150	—	156,000	150,000	160	—	296,000	283,000
160	—	138,000	136,000	170	—	283,000	266,000
170	—	—	128,000	180	—	—	250,000
180	—	—	120,000	190	—	—	235,000
190	—	—	112,000	200	—	—	221,000
200	—	—	105,000	205	—	—	212,000
205	—	—	101,000				

MODEL S-70			
Boom Length		160'-200'	210'-250'
Ranges — Feet 130'-150'			
Radius			
50	1,000,000	—	—
60	940,000	930,000	—
70	855,000	850,000	625,000
80	785,000	780,000	575,000
90	725,000	720,000	535,000
100	675,000	670,000	500,000
110	630,000	625,000	470,000
120	595,000	590,000	440,000
130	560,000	550,000	410,000
140	525,000	515,000	390,000
150	495,000	490,000	370,000
160	460,000	450,000	350,000
170	435,000	425,000	330,000
180	—	400,000	310,000
190	—	375,000	295,000
200	—	355,000	280,000
210	—	335,000	265,000
220	—	—	250,000
230	—	—	235,000
240	—	—	220,000
250	—	—	205,000
255	—	—	200,000

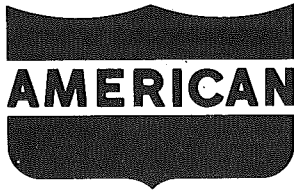
All lifting tables are gross hook work capacities in pounds. Tackle weight, slings, etc., to be deducted for net capacities.

For duty cycle work, these capacities are reduced to compensate for impact loading. See Duty Cycle Chart page 5.

APPROXIMATE CAPACITY
REDUCTION FACTORS

Standard sill and 60° sill angle	80% capacity
Standard sill and 75° sill angle	90% capacity
Standard sill and 90° sill angle	100% capacity
Standard sill and 105° sill angle	85% capacity
Short sill and 60° sill angle	60% capacity
Short sill and 75° sill angle	67% capacity
Short sill and 90° sill angle	75% capacity
Short sill and 105° sill angle	65% capacity

Consult factory for capacity reduction factors when
sill angle is less than 60° or greater than 105°.





AMERICAN STIFFLEG CRANE

STANDARD FEATURES

Boom — Crane type lightweight alloy chord and tubular lattice construction. Wide spread boom feet eliminates need for sway rods. Pin connected for fast assembly and length changes. Pendent suspension for length of boom furnished. Various jibs available (See page 2).

Mast — Large diameter tubular steel construction. Lower end flange attached to the mast bottom assembly; upper end axially bored for gudgeon pin for mast top assembly. Lead sheaves mounted high on the mast for ideal cable lead. Ladder and service platform included for ease of maintenance.

Mast Bottom Assembly —

- Alloy steel tubular casting bolted to mast and pin connected to horizontal strut which supports boom. Incorporates inner race of double thrust taper roller bearing.
- Ductile iron self-aligning ball ring carries roller bearing outer race.
- Split cast steel outer rings with accurately machined spherical seat supports ball rings and bolts to sill block.

Mast Top Assembly —

- High alloy gudgeon pin is attached to mast and rotates on radial and thrust roller bearings located in the mast top casting.
- Independent alloy steel stiffleg connections permit variable angle between stifflegs through S-40 size.
- Roller bearing cast steel thrust cap pins to gudgeon pin and to boom block hanger.

Boom Supporting Struts — Vertical strut is triangular, tubular weldment pin connected to upper mast and to the horizontal strut. Triangular horizontal strut of wide flange construction (pin connected to mast bottom casting and vertical strut) provides heavy support for boom foot pins.

Stifflegs — Light weight alloy chord and tubular lattice construction pin connected to mast top and to sills.

Sills — Tubular steel construction. Heavy bolted splice

connection can be furnished if variable length is desired. Outer ends have heavy foundation bolting plate and pin connect to stifflegs. Inner ends have heavy bored ring plates which fit accurately over outer rings of mast bottom assembly and permits variable angles between sills (through S-40 size).

Sill Block — Steel tubular weldment carrying variable diameter sheaves to avoid line interference.

Bullwheel — Two piece weldment with ship channel rims. Radial and chord angles carry swing forces directly to boom Sections bolted to each other, to mast bottom, and to horizontal strut.

Swing Line Guide Sheaves — Mounted in structural steel bracket for separate mounting on customer provided foundations appropriate for swinger location.

Sheaves — Cast steel, grooved to suit wire rope one size larger than specified. Anti-friction bearings individually grease lubricated.

Load Tackle (Optional) — Lower block complete with swivel hook and adequate weight to assure lowering empty hook. Upper block suspended from hanger provides improved load clearance at short load radius. Upper block on Models S-10, S-20 and S-30 built into boom point. Sheaves and hooks are anti-friction bearing equipped.

Painting — Prime coat plus American Hoist & Derrick factory finish coat.

Codes and Standards — American Hoist & Derrick Company standards developed through more than 80 years of experience plus the applicable requirement of the following design standards:

- American Standards Association Safety Code B 30 for Cranes, Derricks and Hoists
- American Institute of Steel Construction
- American Welding Society

NOTE: In accordance with varying material situations and the Company's policy of constant product improvement, these specifications subject to change without notice and without incurring responsibility to units previously sold.

**AMERICAN HOIST
& DERRICK COMPANY**
ST. PAUL, MINNESOTA 55107

SOLD & SERVICED BY

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