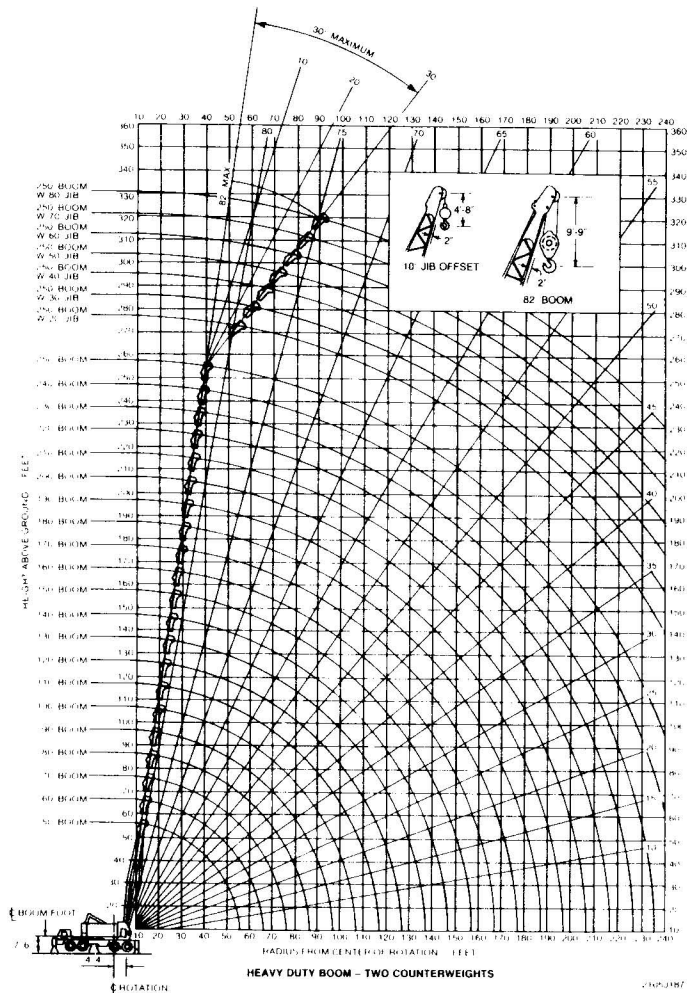


working ranges



two counterweights and
one bumper counterweight

RATINGS LIFT CRANE SERVICE

69" x 69" boom
heavy duty tip (25')



"on outriggers"
front float set

rated boom loads in pounds

Boom Length (ft)	Load Radius (ft)	Boom Angle Δ°	Boom Point Elev (ft)	Rated Load (lbs)			Boom Length (ft)	Load Radius (ft)	Boom Angle Δ°	Boom Point Elev (ft)	Rated Load (lbs)		
				360°	Over Side	Over Rear					360°	Over Side	Over Rear
50	12	82.0	56.6	300,000	300,000	300,000	60	14	81.4	66.4	258,500	258,500	258,500
	13	80.9	56.5	278,300	278,300	278,300		15	80.5	66.3	241,200	241,200	241,200
	14	79.7	56.3	258,500	258,500	258,500		16	79.5	66.1	228,100	228,100	228,100
	15	78.5	56.1	241,200	241,200	241,200		17	78.5	65.9	210,200	212,800	212,800
	16	77.4	55.8	225,300	226,100	226,100		18	77.6	65.6	201,000	201,000	201,000
	17	76.2	55.6	210,400	212,800	212,800		19	76.6	65.4	190,400	190,400	190,400
	18	75.0	55.3	201,000	201,000	201,000		20	75.6	65.1	180,900	180,900	180,900
	19	73.8	55.0	190,400	190,400	190,400		21	74.6	64.8	172,300	172,300	172,300
	20	72.6	54.7	180,900	180,900	180,900		22	73.6	64.5	164,500	164,500	164,500
	21	71.4	54.3	172,300	172,300	172,300		23	72.6	64.2	157,300	157,300	157,300
	22	70.2	54.0	164,500	164,500	164,500		24	71.6	63.9	150,700	150,700	150,700
	23	68.9	53.6	157,300	157,300	157,300		25	70.6	63.5	144,700	144,700	144,700
	24	67.7	53.2	150,700	150,700	150,700		26	69.5	63.1	138,100	138,100	138,100
	25	66.4	52.7	144,700	144,700	144,700		27	68.5	62.7	134,000	134,000	134,000
	26	65.2	52.2	138,100	138,100	138,100		28	67.5	62.3	129,200	129,200	129,200
	27	63.9	51.7	134,000	134,000	134,000		29	66.4	61.9	124,700	124,700	124,700
	28	62.6	51.2	129,200	129,200	129,200		30	65.4	61.4	120,600	120,600	120,600
	29	61.3	50.7	124,700	124,700	124,700		32	63.3	60.4	113,000	113,000	113,000
	30	60.0	50.1	120,600	120,600	120,600		34	61.1	59.3	106,400	106,400	106,400
	32	57.3	48.8	113,000	113,000	113,000		36	58.9	58.1	99,100	99,100	100,500
	34	54.5	47.4	106,400	106,400	106,400		38	56.6	56.8	91,500	91,500	95,200
	36	51.6	45.8	98,900	98,900	100,500		40	54.2	55.4	84,900	84,900	90,400
	38	48.5	44.1	91,400	91,400	96,200		45	48.1	51.2	71,700	71,700	80,400
	40	45.4	42.2	84,700	84,700	90,400		50	41.2	46.0	61,900	61,900	69,900
	45	36.4	36.2	71,600	71,600	75,200		55	33.1	39.2	54,300	54,300	59,300
	50	24.9	27.5	57,800	57,800	57,800		60	22.6	29.5	47,200	47,200	47,200

3222291

LIFTING OVER BOOM POINT WITH JIB ATTACHED

JIB LENGTH	20 FT	30 FT	40 FT	50 FT	60 FT	70 FT	80 FT
EFFECTIVE JIB WT — LBS	1500	1500	2000	2500	3000	3300	3600
EFFECTIVE JIB HOOK WT	1600	1600	1600	1600	1600	1600	1600

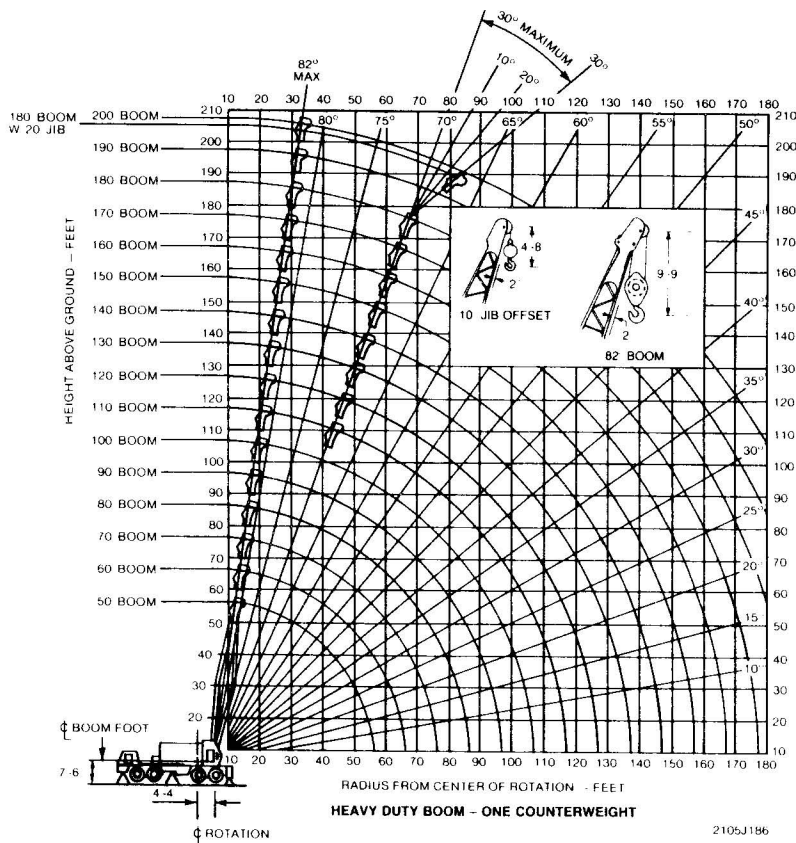
ALSO DEDUCT TWICE THE WEIGHT OF ANY LOAD SUSPENDED FROM JIB HOOK

WARNING

Do not attempt to lift more than **rated load at load radius** shown, or lift where no radius or load is listed, as machine may tip or collapse.

Do not attempt to lift more than **rated loads shown in shaded areas** — a machine failure may occur.

working ranges

RATINGS
LIFT CRANE SERVICE69" x 69" boom
heavy duty tip (25')

one counterweight

"on outriggers"
front float set

rated boom loads in pounds

Boom Length (ft)	Load Radius (ft)	Boom Angle x °	Boom Point Elev (ft)	Rated Load (lbs)		Boom Length (ft)	Load Radius (ft)	Boom Angle Δ °	Boom Point Elev (ft)	Rated Load (lbs)	
				360°	Over Rear					360°	Over Rear
50	12	82.0	56.6	300,000	300,000	60	14	81.4	66.4	258,000	258,500
	13	80.9	56.5	272,800	278,300		15	80.5	66.3	241,200	241,200
	14	79.7	56.3	258,500	258,500		16	79.5	66.1	226,100	226,100
	15	78.5	56.1	241,200	241,200		17	78.5	65.9	212,800	212,800
	16	77.4	55.8	226,100	226,100		18	77.6	65.6	201,000	201,000
	17	76.2	55.6	212,800	212,800		19	76.6	65.4	190,400	190,400
	18	75.0	55.3	201,000	201,000		20	75.6	65.1	172,900	172,900
	19	73.8	55.0	190,400	190,400		21	74.6	64.8	156,800	156,800
	20	72.6	54.7	172,400	172,400		22	73.6	64.5	143,400	143,400
	21	71.4	54.3	156,400	156,400		23	72.6	64.2	132,000	132,000
	22	70.2	54.0	143,000	143,000		24	71.6	63.9	122,200	122,200
	23	68.9	53.6	131,700	131,700		25	70.6	63.5	113,800	113,800
	24	67.7	53.2	121,900	121,900		26	69.5	63.1	105,800	106,400
	25	66.4	52.7	113,200	113,500		27	68.5	62.7	99,000	99,800
	26	65.2	52.2	105,500	106,100		28	67.5	62.3	93,000	94,000
	27	63.9	51.7	98,700	99,800		29	66.4	61.9	87,600	88,800
60	28	62.6	51.2	92,700	93,800		30	65.4	61.4	82,800	84,100
	29	61.3	50.7	87,400	88,600		32	63.3	60.4	74,600	76,000
	30	60.0	50.1	82,600	83,900		34	61.1	59.3	67,700	69,200
	32	57.3	48.8	74,400	75,900		36	58.9	58.1	61,900	63,500
	34	54.5	47.4	67,600	69,100		38	56.6	56.8	57,100	58,600
	36	51.6	45.8	61,800	63,400		40	54.2	55.4	52,800	54,400
	38	48.5	44.1	56,900	58,400		45	48.1	51.2	44,300	45,800
	40	45.4	42.2	52,700	54,200		50	41.2	46.0	38,000	39,400
	45	36.4	36.2	44,100	45,700		55	33.1	39.2	33,000	34,400
	50	24.9	27.5	37,800	39,200		60	22.6	29.5	29,000	30,300

3222291

DEDUCT FROM RATED BOOM LOADS WHEN
LIFTING OVER BOOM POINT WITH JIB ATTACHED

JIB LENGTH	20 FT.	30 FT.	40 FT.	50 FT.	60 FT.	70 FT.	80 FT.
EFFECTIVE JIB WT. - LBS	1500	1500	2000	2500	3000	3300	3600
EFFECTIVE JIB HOOK WT	1600	1600	1800	1900	1900	1800	1800

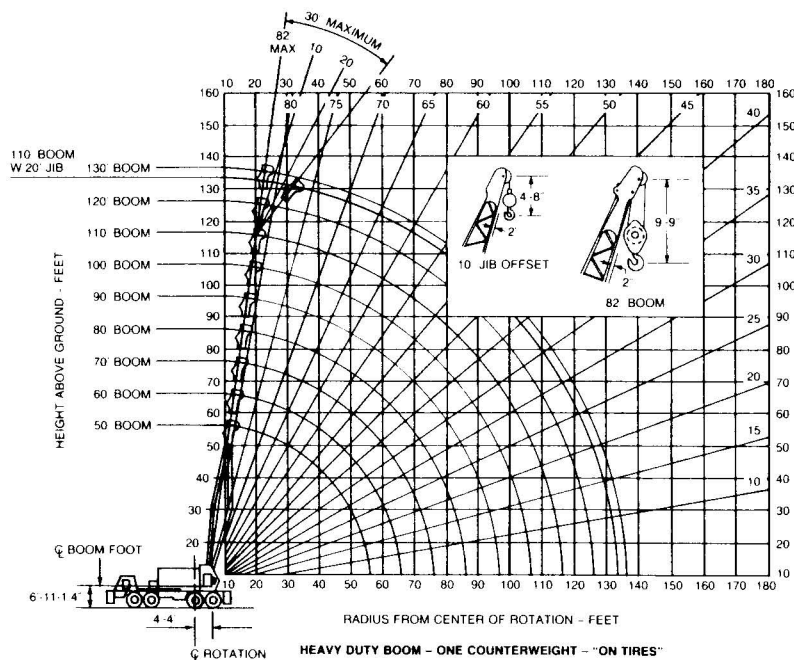
ALSO DEDUCT TWICE THE WEIGHT OF ANY LOAD SUSPENDED FROM JIB HOOK

WARNING

Do not attempt to lift more than **rated load at load radius** shown, or lift where no radius or load is listed as machine may tip or collapse.

Do not attempt to lift more than rated loads shown in **shaded areas** — a machine failure may occur.

working ranges



one counterweight and
one bumper counterweight

RATINGS LIFT CRANE SERVICE

69" x 69" boom
heavy duty tip (25')



"on tires"

rated boom loads in pounds

Boom Length (ft)	Load Radius (ft)	Boom Angle Δ°	Boom Point Elev (ft)	Stationary Ratings			Travel Ratings		Load Radius (ft)
				Over Side	Over Rear	Directly Over Rear	Creep	2.5 m.p.h.	
50	12	82.0	56.4	—	91,800	114,400	87,400	—	12
	13	80.9	56.2	—	87,800	109,800	83,800	—	13
	14	79.7	56.0	—	84,400	105,400	80,500	—	14
	15	78.5	55.8	—	81,400	101,300	77,400	—	15
	16	77.4	55.6	82,100	78,800	97,500	74,500	—	16
	17	76.2	55.3	58,400	75,900	93,900	71,800	—	17
	18	75.0	55.0	55,200	73,500	89,700	69,200	—	18
	19	73.8	54.7	52,200	71,200	83,600	66,800	—	19
	20	72.6	54.4	48,400	69,100	78,200	64,500	—	20
	21	71.4	54.1	46,900	67,100	73,500	62,400	—	21
	22	70.2	53.7	44,400	65,300	69,300	60,400	—	22
	23	68.9	53.3	41,800	63,500	65,500	58,500	—	23
	24	67.7	52.9	39,500	61,900	62,000	56,700	—	24
	25	66.4	52.5	37,500	59,900	58,900	55,100	—	25
	26	65.2	52.0	35,800	56,100	56,100	53,500	—	26
	27	63.9	51.5	33,900	53,500	53,500	52,000	—	27
	28	62.6	51.0	32,300	51,100	51,100	50,500	—	28
	29	61.3	50.4	30,800	48,900	48,900	48,900	—	29
	30	60.0	49.9	29,400	46,900	46,900	46,900	—	30
	32	57.3	48.6	27,000	43,200	43,200	43,200	—	32
50	34	54.5	47.2	24,800	40,000	40,000	40,000	—	34
	36	51.6	45.6	23,000	37,300	37,300	37,300	24,800	36
	38	48.5	43.9	21,300	34,800	34,800	34,800	23,400	38
	40	45.4	42.0	19,800	32,600	32,600	32,600	22,200	40
	45	36.4	36.0	16,800	28,000	28,000	28,000	19,700	45
	50	24.9	27.3	14,300	24,300	24,300	24,300	17,500	50

322291

LOAD RATINGS DEPEND ON TIRE CAPACITY AND CONDITION, INFLATED PER TABLE

TIRE INFLATION		
SIZE	STATIONARY	CREEP
14.00 x 24 - 20 PR	115 PSI	115 PSI

DEDUCT FROM RATED BOOM LOADS WHEN
LIFTING OVER BOOM POINT WITH JIB ATTACHED

JIB LENGTH	20 FT				
EFFECTIVE JIB WT LBS	1500				
EFFECTIVE JIB HOOK WT	1600				

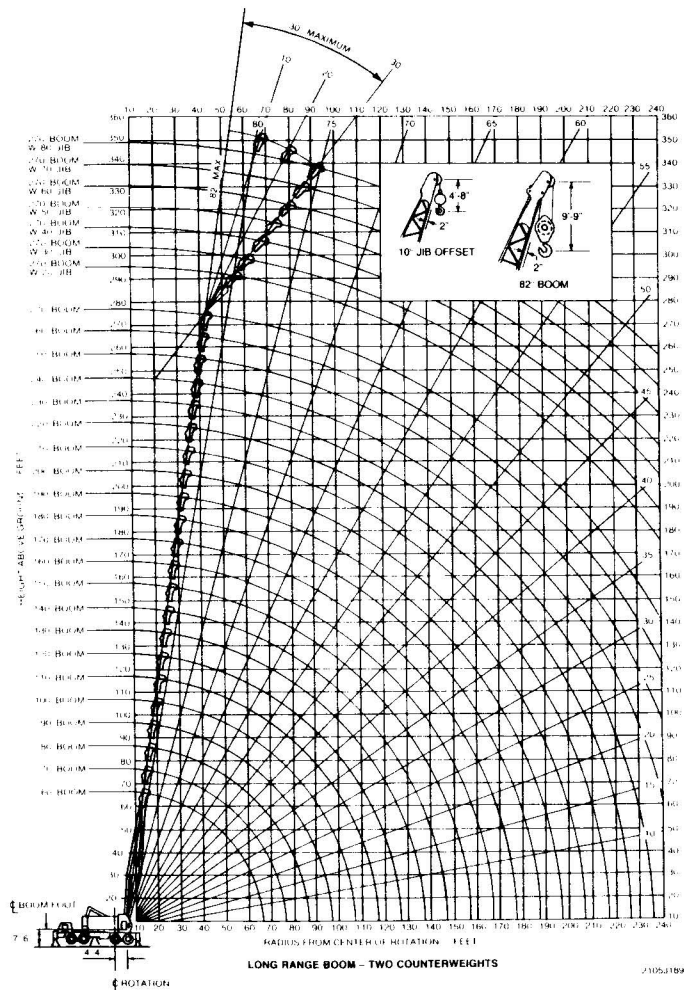
ALSO DEDUCT TWICE THE WEIGHT OF ANY LOAD SUSPENDED FROM JIB HOOK

WARNING

Do not attempt to lift more than **rated load** at **load radius** shown, or lift where no radius or load is listed as machine may tip or collapse.

Do not attempt to lift more than rated loads shown in **shaded areas** -- a machine failure may occur.

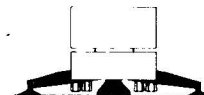
working ranges



two counterweights and
one bumper counterweight

RATINGS LIFT CRANE SERVICE

69" x 69" boom
long range tip (35')



"on outriggers"
front float set

rated boom loads in pounds

Boom Length (ft)	Load Radius (ft)	Boom Angle Δ°	Boom Point Elev. (ft)	Rated Load (lbs)			Boom Length (ft)	Load Radius (ft)	Boom Angle Δ°	Boom Point Elev. (ft)	Rated Load (lbs)		
				360°	Over Side	Over Rear					360°	Over Side	Over Rear
60	14	81.4	66.5	108,800	108,800	108,800	70	15	81.8	76.4	108,800	108,800	108,800
	15	80.5	66.3	108,800	108,800	108,800		16	81.0	76.3	108,800	108,800	108,800
	16	79.5	66.1	108,800	108,800	108,800		17	80.2	76.1	108,800	108,800	108,800
	17	78.5	65.9	108,800	108,800	108,800		18	79.4	75.9	108,800	108,800	108,800
	18	77.6	65.7	108,800	108,800	108,800		19	78.5	75.7	108,800	108,800	108,800
	19	76.6	65.4	108,800	108,800	108,800		20	77.7	75.5	108,800	108,800	108,800
	20	75.6	65.1	108,800	108,800	108,800		21	76.8	75.2	108,800	108,800	108,800
	21	74.6	64.9	108,800	108,800	108,800		22	76.0	75.0	104,500	104,500	104,500
	22	73.6	64.6	104,500	104,500	104,500		23	75.1	74.7	107,300	107,300	107,300
	23	72.6	64.2	107,300	107,300	107,300		24	74.3	74.4	150,700	150,700	150,700
	24	71.6	63.9	150,700	150,700	150,700		25	73.4	74.1	144,700	144,700	144,700
	25	70.6	63.5	144,700	144,700	144,700		26	72.6	73.8	138,100	138,100	138,100
	26	69.5	63.2	138,100	138,100	138,100		27	71.7	73.4	134,000	134,000	134,000
	27	68.5	62.8	134,000	134,000	134,000		28	70.9	73.1	128,200	128,200	128,200
	28	67.5	62.3	128,200	128,200	128,200		29	70.0	72.7	124,700	124,700	124,700
	29	66.4	61.9	124,700	124,700	124,700		30	69.1	72.3	120,800	120,800	120,800
70	30	65.4	61.4	120,800	120,800	120,800		32	67.3	71.5	113,000	113,000	113,000
	32	63.3	60.4	113,000	113,000	113,000		34	65.5	70.6	108,400	108,400	108,400
	34	61.1	59.4	108,400	108,400	108,400		36	63.7	69.6	99,900	99,900	99,500
	36	58.9	58.2	99,900	99,900	100,500		38	61.9	68.6	92,300	92,300	95,200
	38	56.6	56.9	92,300	92,300	95,200		40	60.0	67.4	85,800	85,800	90,400
	40	54.2	55.4	85,700	85,700	90,400		45	55.1	64.2	72,500	72,500	80,400
	45	48.1	51.3	72,800	72,800	80,400		50	49.9	60.2	62,700	62,700	70,700
	50	41.2	46.1	62,700	62,700	70,800		55	44.2	55.5	55,100	55,100	62,300
	55	33.1	39.3	55,100	55,100	60,400		60	37.9	49.6	48,000	48,000	55,800
	60	22.6	29.5	48,200	48,200	48,200		65	30.5	42.1	44,000	44,000	48,400
								70	20.9	31.4	39,800	39,800	40,200

DEDUCT FROM RATED BOOM LOADS WHEN LIFTING OVER BOOM POINT WITH JIB ATTACHED

JIB LENGTH	20 FT	30 FT	40 FT	50 FT	60 FT	70 FT	80 FT
EFFECTIVE JIB WT. - LBS	1500	1500	2000	2500	3000	3300	3600
EFFECTIVE JIB HOOK WT	1600	1600	1600	1600	1600	1600	1600
ALSO DEDUCT TWICE THE WEIGHT OF ANY LOAD SUSPENDED FROM JIB HOOK							

WARNING



Do not attempt to lift more than **rated load at load radius** shown, or lift where no radius or load is listed, as machine may tip or collapse.

Do not attempt to lift more than rated loads shown in **shaded areas** — a machine failure may occur.

32Z2291

working ranges

TRUCK CRANES

Dataquest Incorporated

P&H

RATINGS
LIFT CRANE SERVICE69" x 69" boom
long range tip (35')

rated boom loads in pounds

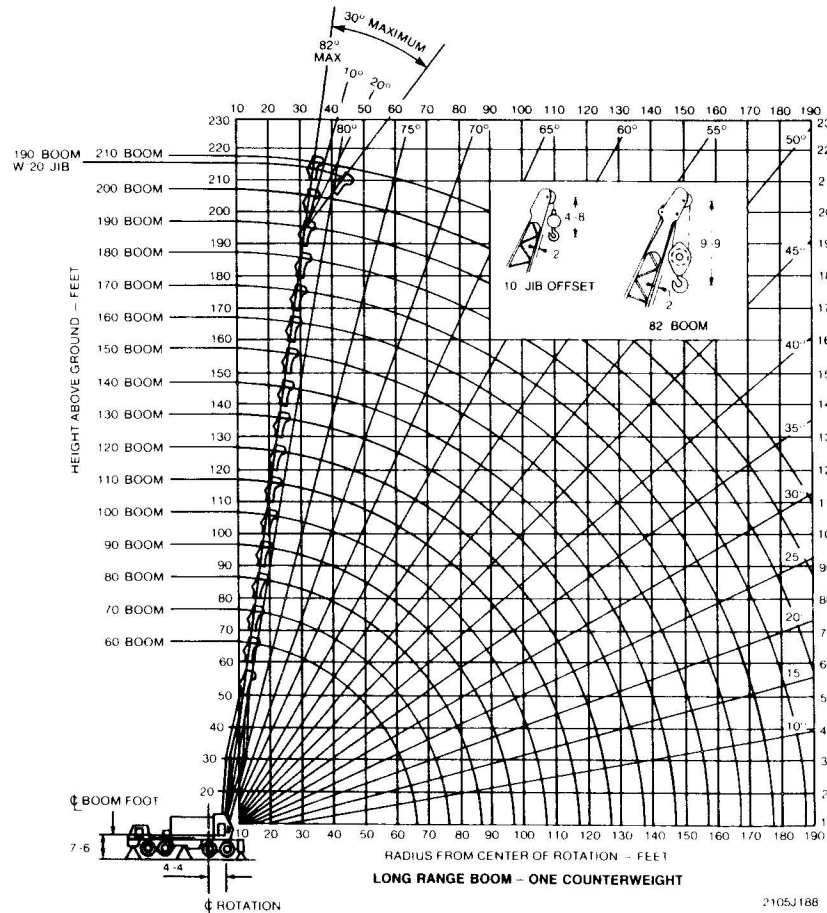
Boom Length (ft)	Load Radius (ft)	Boom Angle Δ°	Boom Point Elev. (ft)	Rated Load (lbs)		Boom Length (ft)	Load Radius (ft)	Boom Angle Δ°	Boom Point Elev. (ft)	Rated Load (lbs)	
				360°	Over Rear					360°	Over Rear
60	14	81.4	66.5	106,800	106,800	70	15	81.8	76.4	106,800	106,800
	15	80.5	66.3	106,800	106,800		16	81.0	76.3	106,800	106,800
	16	79.5	66.1	106,800	106,800		17	80.2	76.1	106,800	106,800
	17	78.5	65.9	106,800	106,800		18	79.4	75.9	106,800	106,800
	18	77.6	65.7	106,800	106,800		19	78.5	75.7	106,800	106,800
	19	76.6	65.4	106,800	106,800		20	77.7	75.5	106,800	106,800
	20	75.6	65.1	106,800	106,800		21	76.8	75.2	157,800	157,800
	21	74.6	64.9	157,500	157,500		22	76.0	75.0	144,300	144,300
	22	73.6	64.6	144,100	144,100		23	75.1	74.7	133,000	133,000
	23	72.6	64.2	132,800	132,800		24	74.3	74.4	123,100	123,100
	24	71.6	63.9	123,000	123,000		25	73.4	74.1	114,500	114,700
	25	70.6	63.5	114,300	114,600		26	72.6	73.8	106,700	107,200
	26	69.5	63.2	106,500	107,100		27	71.7	73.4	99,900	100,700
	27	68.5	62.8	99,700	100,600		28	70.9	73.1	93,900	94,900
	28	67.5	62.3	93,800	94,800		29	70.0	72.7	88,500	89,700
	29	66.4	61.9	88,400	89,600		30	69.1	72.3	83,700	84,900
70	30	65.4	61.4	83,600	84,800		32	67.3	71.5	75,500	76,800
	32	63.3	60.4	75,400	76,700		34	65.5	70.6	68,600	70,100
	34	61.1	59.4	68,500	70,000		36	63.7	69.6	62,800	64,300
	36	58.9	58.2	62,700	64,300		38	61.9	68.6	57,800	59,400
	38	56.6	56.9	57,800	59,400		40	60.0	67.4	53,800	55,200
	40	54.2	55.4	53,600	55,200		45	55.1	64.2	45,100	46,600
	45	48.1	51.3	45,100	46,600		50	49.9	60.2	38,700	40,200
	50	41.2	46.1	38,700	40,200		55	44.2	55.5	33,900	35,200
	55	33.1	39.3	33,900	35,200		60	37.9	49.6	29,900	31,200
	60	22.6	29.5	29,900	31,200		65	30.5	42.1	26,700	27,900
							70	23.1	34.0	24,000	25,100

DEDUCT FROM RATED BOOM LOADS WHEN
LIFTING OVER BOOM POINT WITH JIB ATTACHED

JIB LENGTH	20 FT	30 FT	40 FT	50 FT	60 FT	70 FT	80 FT
EFFECTIVE JIB WT -- LBS	1500	1500	2000	2500	3000	3300	3600
EFFECTIVE JIB HOOK WT	1600	1600	1600	1600	1600	1600	1600

ALSO DEDUCT TWICE THE WEIGHT OF ANY LOAD SUSPENDED FROM JIB HOOK

WARNING

Do not attempt to lift more than **rated load at load radius** shown, or lift where no radius or load is listed as machine may tip or collapse.Do not attempt to lift more than rated loads shown in **shaded areas** — a machine failure may occur

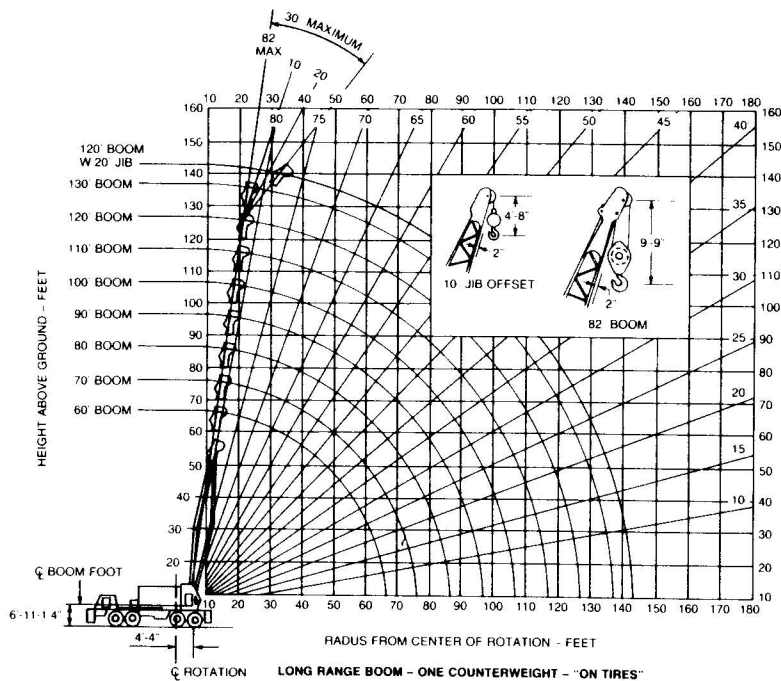
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working ranges

TRUCK CRANES

Dataquest Incorporated

P&H



RATINGS LIFT CRANE SERVICE



one counterweight and
one bumper counterweight

69" x 69" boom
long range tip (35')



"on tires"

rated boom loads in pounds

Boom Length (ft)	Load Radius (ft)	Boom Angle Δ	Boom Point Elev (ft)	Stationary Ratings			Travel Ratings		Load Radius (ft)
				Over Side	Over Rear	Directly Over Rear	Creep	2.5 m.p.h.	
60	14	81.4	66.2	—	85,100	108,000	81,100	—	14
	15	80.5	66.0	—	82,100	101,800	78,000	—	15
	16	79.5	65.8	—	79,300	96,100	75,100	—	16
	17	78.5	65.6	—	76,600	94,500	72,400	—	17
	18	77.6	65.4	—	74,200	90,500	69,800	—	18
	19	76.6	65.1	53,000	72,000	84,400	67,400	—	19
	20	75.6	64.9	50,300	69,800	79,000	65,200	—	20
	21	74.6	64.6	47,800	67,900	74,300	63,100	—	21
	22	73.6	64.3	45,200	66,000	70,100	61,100	—	22
	23	72.6	64.0	42,700	64,300	66,300	59,200	—	23
	24	71.6	63.6	40,400	62,800	62,800	57,400	—	24
	25	70.6	63.3	38,300	59,700	59,700	55,700	—	25
	26	69.6	62.9	36,400	56,900	56,900	54,200	—	26
	27	68.5	62.5	34,700	54,300	54,300	52,700	—	27
	28	67.5	62.1	33,100	51,900	51,900	51,300	—	28
	29	66.4	61.6	31,600	49,700	49,700	49,700	—	29
	30	65.4	61.2	30,200	47,700	47,700	47,700	—	30
	32	63.3	60.2	27,800	44,000	44,000	44,000	—	32
	34	61.1	59.1	25,700	40,800	40,800	40,800	—	34
	36	58.9	57.9	23,800	38,100	38,100	38,100	—	36
	38	56.6	56.6	22,100	35,600	35,600	35,600	—	38
40	54.3	55.2	20,700	33,400	33,400	33,400	33,400	—	40
	45	48.1	51.1	17,700	28,800	28,800	28,800	20,800	45
	50	41.2	45.9	15,200	25,200	25,200	25,200	18,400	50
	55	33.1	39.1	13,300	22,300	22,300	22,300	16,600	55
60	27.6	29.3	11,600	19,800	19,800	19,800	19,800	15,000	60

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LOAD RATINGS DEPEND ON TIRE CAPACITY AND CONDITION, INFLATED PER TABLE

TIRE INFLATION			
SIZE	STATIONARY	CREEP	2.5 MPH
14.00 x 24 20 PR	115 PSI	115 PSI	115 PSI

DEDUCT FROM RATED BOOM LOADS WHEN
LIFTING OVER BOOM POINT WITH JIB ATTACHED

JIB LENGTH	20 FT				
EFFECTIVE JIB WT LBS	1500				
EFFECTIVE JIB HOOK WT	1600				
ALSO DEDUCT TWICE THE WEIGHT OF ANY LOAD SUSPENDED FROM JIB HOOK					

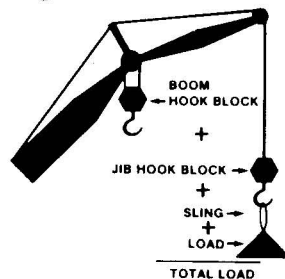
WARNING

Do not attempt to lift more than **rated load at load radius** shown, or lift where no radius or load is listed as machine may tip or collapse.

Do not attempt to lift more than rated loads shown in **shaded areas** — a machine failure may occur.

Jib ratings

The **total load** that can be lifted over a jib is limited by either the **rated jib loads** or by the **rated boom loads** on which the jib is mounted.



Follow these steps to determine the **total load** that can be lifted over the jib:

- Step 1 **Measure the jib load radius.** The load radius must not be longer than the longest radius in the rated boom load chart for the length of boom on which the jib is mounted.
- Step 2 **Determine the load rating of the boom** at the jib load radius by using the rated boom load chart for the counterweight, outrigger position, work area and length of boom (without jib) being used.
- Step 3 **Determine jib rating** for the length and offset of the jib from the rated jib load chart.
- Step 4 **The total load** that can be lifted is the **lower** of the two ratings determined in Steps 2 and 3.

WARNINGS

- Do not attempt to lift more with the jib (at any radius) than the rated load for the boom at that radius, as machine may tip or collapse.
- Do not attempt to lift more than rated jib loads shown in **shaded areas** — **jib may collapse** before machine tips.
- When lifting over jib point with hook block suspended from boom point, **include** the weight of the boom hook block as a part of the total load.

Jib Ratings For LIFT CRANE SERVICE

rated jib loads in pounds

Offset Angle of Jib to Boom Under Full Load	20 Foot Jib	30 Foot Jib	40 Foot Jib	50 Foot Jib	60 Foot Jib	70 Foot Jib	80 Foot Jib
10°	30,000*	20,000	16,000	13,000	10,700	9,000	7,800
20°	25,000	18,000	14,500	11,600	9,800	8,400	7,000
30°	23,000	17,000	13,500	11,000	9,300	7,700	6,100

Standard Wire Rope — 1 inch dia. Type 25

* Use 2 part of line for loads above 27,800 lbs.

Optional Wire Rope — 1 inch dia. Type 11 (Non-Rotating)

Use only 1 part of line. Loads not to exceed 15,300 lbs.
Use of Swivel is not approved with this rope.

Jib Ratings For CONCRETE BUCKET SERVICE

rated jib loads in pounds

Offset of Jib to Boom Under Full Load	20 Foot Jib	30 Foot Jib	40 Foot Jib	50 Foot Jib	60 Foot Jib	70 Foot Jib	80 Foot Jib
10°	24,000	16,000	12,800	10,400	8,550	7,200	6,250
20°	20,000	14,400	11,600	9,250	7,850	6,700	5,600
30°	18,400	13,600	10,800	8,800	7,450	6,150	4,900

Standard Wire Rope — 1 inch dia. Type 25

Use 1 part of line.

Optional Wire Rope — 1 inch dia. Type 11 (Non-Rotating)

Use only 1 part of line. Loads not to exceed 15,300 lbs.
Use of Swivel is not approved with this rope.

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WARNING

Do not attempt to lift more than rated loads in **shaded areas** — a machine failure may occur.

general

- Rated loads shown are for this machine as manufactured by Harnischfeger Corp. Rated loads only apply when all the instructions in this book are rigidly followed. Modifications to this machine or use of equipment other than that specified can reduce operating capacity.
- If improperly operated or maintained, this machine can be dangerous. Always operate and maintain this machine in compliance with the information in the Operators, Shop, Parts, and Safety Manuals furnished. If these manuals are missing, obtain replacements through your P&H distributor.
- Rated loads have been determined for ideal operating conditions. The user must limit or de-rate lifted loads to allow for adverse conditions (such as soft or uneven ground, out-of-level conditions, winds, side loads, pendulum action, jerking or sudden stopping of loads, inexperience of personnel, multiple machine lifts and traveling with a load.)
- This machine meets the requirements of A.N.S.I. B30.5-1968. Upper, lower, boom and jib structures have been tested per SAE J-987. Machine stability has been tested per SAE J-765a.

definitions

Rated Load: The total suspended load (including the weight of material and load handling equipment) that the machine can safely lift under ideal conditions at a given boom length, boom angle and load radius.

Load Radius: The horizontal distance measured between the center of rotation and the hoist load line or tackle with load applied.

Boom Angle: The angle between the longitudinal centerline of the boom and the horizontal.

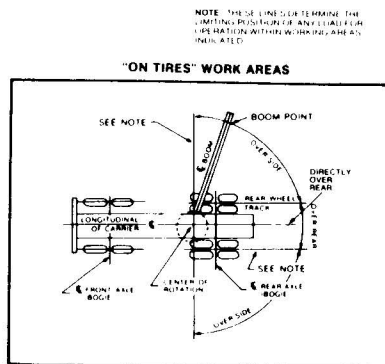
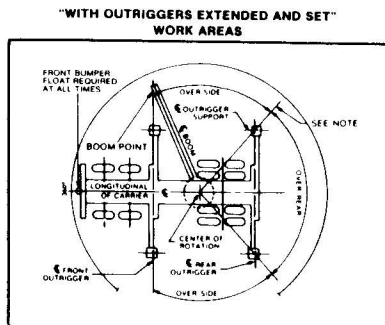
Boom Point Elevation: The vertical distance measured between the ground and the center of the boom point sheave.

Freely Suspended Load: Lifted load hanging free with no direct external force applied except by the hoist line.

Side Load: Horizontal force applied to the load or boom.

Creep: Motion less than 200 feet in a 30 minute period and not exceeding 1 mph.

Work Areas: Areas designated are 360°, "over side", "over rear" or "directly over rear" of carrier.



NOTE: THE SIDE LIFT IS TO BE LIMITED TO THE CAPACITY OF THE CARRIER AND TO THE STABILITY OF THE MACHINE. THE RATED LOADS ARE BASED ON THE MACHINE BEING USED AS INTENDED.

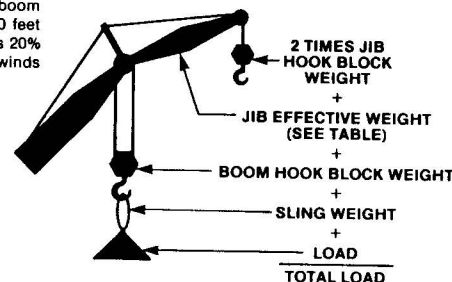
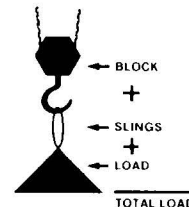
warnings

SET-UP

- Boom backstops are required for all boom lengths.
- 30 ft. live mast required for all boom lengths.
- The gantry position and boom hoist rope strength are determined by the maximum boom or boom plus jib combination as shown in the information section.
- The machine must be leveled to within 1% (one foot rise or fall in 100 foot distance) on firm supporting surface.
- This machine must be reeved and set-up as stated in information section.
- Front bumper float must be set for all operations on outriggers.
- When using 30 ft. live mast as a boom, boom backstops must be attached to mast.
- All "On Outrigger" ratings must have outriggers fully extended and set with tires clear of ground.
- Machine will tip when swung over side unless outriggers are fully extended and set — and —
 - 2 counterweights and boom are installed.
 - 1 counterweight without boom is installed.
- Two 15,000 lb. front bumper counterweights OR two auxiliary rear outriggers are used only to erect long booms or boom and jib combinations.
 - Do not use two front bumper counterweights AND two auxiliary rear outriggers at the same time.
 - Do not use for lifting loads in excess of the rating chart. Structural damage may result.

LIFTING OPERATIONS

- Rated loads are for stationary and level machines lifting freely suspended loads.
 - Rated loads do not exceed 85% of tipping as determined by SAE Crane Stability Test Code J-765a.
 - Ratings in shaded areas are based on factors other than machine stability (such as structural strength.)
- Attempting to lift more than rated loads may cause machine to tip or collapse. Do not tip machine to determine capacity.
- Weights of hooks, hook blocks, slings and other lifting devices are a part of the total load. Their total weight must be subtracted from the rated load to obtain the load that can be lifted.
- When lifting over the boom point with jib installed, deductions for the effective weights of the jib hook block, jib (see table), boom hook block and slings must be subtracted from the rated load to obtain the load that can be lifted.
- Wind can cause sufficient side load on the boom and load to tip the machine (or collapse the boom structures).
 - Rated loads allow for the effect on the boom of up to a 10 MPH wind measured 30 feet above the ground. Reduce rated loads 20% for the effect of the wind on boom for winds between 10 mph and 20 mph.
 - Rated loads make no allowance for the effect of the wind on the load. Do not lift load when side load due to wind exceeds 2% of the rated or reduced load.
 - Do not operate when wind speeds exceed 20 MPH. Contact manufacturer for special rating chart if crane work must be performed in wind speeds above 20 MPH.
 - Booms should be lowered (or tied off) when wind speed exceeds 50 MPH.



warnings

6. Rated loads are for machines leveled to within 1% (one foot rise or fall in 100 foot distance.)
 - Reduce rated loads by 20% when machine is between 1% and 2% out-of-level.
 - Do not operate if machine is more than 2% out-of-level.
7. Using two or more machines to lift a single load can be dangerous unless carefully engineered and coordinated.
 - Machine must be level.
 - Rigging must be equalized so that each machine lifts a share of the load which is well within its load rating.
 - Swing brakes must be released so that boom points are free to remain directly over the load attachment points at all times.
 - Care must be used to avoid side-loading.
8. **Do not attempt to operate** at load radii or boom lengths **where no load ratings are listed**. At these positions, machine could tip without any load on the hook.
9. **Do not guess at load ratings** in-between those listed on chart. When operating at a load radius or boom angle in-between listed numbers, proceed as follows:
 - For a load radius not shown, use rated load of next longer listed radius.
 - For a boom angle not shown, use rated load of next smaller boom angle.
10. Swing acceleration and deceleration must be smooth. Horizontal forces (side loads) at the boom point due to acceleration or deceleration must not exceed 2% of the lifted load.
11. When lifting loads "on tires", loads lifted over-rear and swung over-side will increase in radius due to tire deflection. This increase must be compensated for by raising boom, or machine may tip over. All tires must be inflated to 115 psi.
12. To help prevent tipping conditions when lifting loads "on tires", it is recommended that —
 - Minimum boom lengths be used.
 - Outriggers be extended as far as possible and be cleared of ground.

TRAVELING OPERATIONS

1. **TRAVEL WITH LOAD**
 - All tires must be evenly inflated to 115 psi.
 - Speeds not to exceed "creep" or 2.5 mph as shown on "on tires" load chart.
 - Only one bumper counterweight allowed. Two bumper counterweights may overload front carrier suspension.
 - Maximum approved boom length is 130 feet.
 - Maximum approved heavy duty boom and jib length is 110 ft. and 20 ft. of jib.
 - Maximum approved long range boom and jib length is 120 ft. and 20 ft. of jib.
 - Machine must be on firm, level surface with load centered directly over rear of machine and restrained from swinging.
 - Carrier acceleration and deceleration must be smooth.
2. **TRAVEL WITH BOOM WITHOUT LOAD**
 - All tires must be evenly inflated to 100 psi.
 - Speed not to exceed 2.5 mph with one bumper counterweight.
 - Two bumper counterweights are not allowed because front carrier suspension may be overloaded.
 - Maximum approved boom length is 130 ft.
 - Maximum approved heavy duty boom and jib length is 110 ft. and 20 ft. of jib.
 - Maximum approved long range boom and jib length is 120 ft. and 20 ft. of jib.
 - Machine must be on firm, level surface with boom centered directly over rear of machine.
 - Consult factory for approval of configurations other than those shown.
3. **TRAVEL WITHOUT BOOM**
 - All tires must be evenly inflated to 100 psi.
 - One bumper counterweight is allowed. Two bumper counterweights will overload front carrier suspension.
 - Upper of machine must be in line with long carrier axis

information

See Operators Manual For Boom Erection Procedure

HEAVY DUTY TIP BOOM ERECTION (MAXIMUM LENGTHS THAT CAN BE RAISED)

BOOM POSITION	BOOM ONLY		BOOM AND JIB	
	Two Counterweights	One Counterweight	Two Counterweights	One Counterweight
Over rear end with two bumper counterweights, outriggers set	250' boom maximum	—	250' boom maximum plus 20' to 80' jib maximum	—
Over rear end with one bumper counterweight, outriggers set	250' boom maximum	—	230' boom maximum plus 40' jib maximum 220' boom maximum plus 50' jib maximum 210' boom maximum plus 60' jib maximum 200' boom maximum plus 70' jib maximum 190' boom maximum plus 80' jib maximum	—
Over rear end with one bumper counterweight, aux. rear outriggers and standard outriggers set	250' boom maximum	—	250' boom maximum plus 20' to 80' jib maximum	—
Over rear end without bumper counterweight, outriggers set	230' boom maximum	200' boom maximum	200' boom maximum plus 20' to 80' jib maximum	180' boom maximum plus 20' jib maximum
Over side, outriggers set	230' boom maximum	200' boom maximum	200' boom maximum plus 20' to 80' jib maximum	180' boom maximum plus 20' jib maximum
Over rear end on tires	—	130' boom maximum	—	110' boom maximum plus 20' jib maximum
Over side, on tires	—	130' boom maximum	—	—

GANTRY POSITION AND BOOM HOIST ROPE FOR MAXIMUM BOOM OR BOOM PLUS JIB LENGTH COMBINATIONS

Gantry Position	Boom Length Feet	Boom Plus Jib Length — Ft.	Boom Hoist Rope
Lowered or Raised	230' maximum	230' maximum plus 60' maximum 220' maximum plus 70' maximum 210' maximum plus 80' maximum	Standard rope
Raised	250' maximum	250' maximum plus 80' maximum 250' maximum plus 70' maximum 240' maximum plus 80' maximum 230' maximum plus 80' maximum 230' maximum plus 70' maximum	(See wire rope data)

WARNINGS

Do not attempt to erect more than the maximum boom (or maximum boom with jib combination) because tipping or structural damage may occur

information

BOOM MAKE-UP ARRANGEMENT

LONG RANGE TIP BOOM

BOOM LENGTH (FEET)	BOOM INSERT ARRANGEMENT		BOOM ROLLERS		MID POINT	JIB BACKSTAY
	Base (25') = B Tip (35') = T		No. Required	Distance From Boom Point (Feet)	Distance From Boom Point (Feet)	Distance From Boom Point (Feet)
	RECOMMENDED	ALTERNATE				
60	B + T	—	0	—	—	—
70	B + 10' + T	—	0	—	—	—
80	B + 20' + T	—	0	—	—	—
90	B + 30' + T	B + 10' + 20' + T	0	—	—	—
100	B + 10' + 30' + T	—	0	—	—	—
110	B + 50' + T	B + 20' + 30' + T	0	—	—	—
120	B + 10' + 50' + T	B + 10' + 20' + 30' + T	0	—	—	86
130	B + 20' + 50' + T	B + 20' + 20' + 30' + T	0	—	—	86
140	B + 30' + 50' + T	B + 10' + 20' + 20' + 30' + T	0	—	—	86
150	B + 10' + 30' + 50' + T	—	0	—	—	86
160	B + 50' + 50' + T	B + 20' + 30' + 50' + T	0	—	—	86
170	B + 10' + 50' + 50' + T	B + 10' + 20' + 30' + 50' + T	1	85	—	86
180	B + 20' + 50' + 50' + T	B + 20' + 20' + 30' + 50' + T	1	85	—	86
190	B + 30' + 50' + 50' + T	B + 20' + 30' + 30' + 50' + T	1	85	—	86
200	B + 10' + 30' + 50' + 50' + T	B + 10' + 20' + 30' + 30' + 50' + T	1	85	—	86
210	B + 50' + 50' + 50' + T	B + 20' + 30' + 50' + 50' + T	1	85	—	86
220	B + 10' + 50' + 50' + 50' + T	B + 10' + 20' + 30' + 50' + 50' + T	2	85 & 135	—	86
230	B + 20' + 50' + 50' + 50' + T	B + 20' + 20' + 30' + 50' + 50' + T	2	85 & 135	—	86
240	B + 30' + 50' + 50' + 50' + T	B + 20' + 30' + 30' + 50' + 50' + T	2	85 & 135	135	86
250	B + 10' + 30' + 50' + 50' + 50' + T	B + 10' + 20' + 30' + 30' + 50' + 50' + T	2	85 & 135	135	86
260	B + 50' + 50' + 50' + 50' + T	B + 20' + 30' + 50' + 50' + 50' + T	2	85 & 135	135	86
270	B + 10' + 50' + 50' + 50' + 50' + T	B + 10' + 20' + 30' + 50' + 50' + 50' + T	2	85 & 135	135	86

WARNINGS

- Boom inserts must be arranged as indicated above or machine may tip or collapse.
- Arrange boom insert pendant lengths to match insert lengths. Tip pendants are 38'-6" long. For pendant information, refer to Parts Book.
- Mid point suspension pendant is required for 240 foot through 270 foot booms. Refer to Parts Book.

information

JIB MAKE-UP ARRANGEMENT CHART

JIB LENGTH (FEET)	JIB INSERT ARRANGEMENT
20	Jib Base (10') + Jib Tip (10')
30	Jib Base + 10' + Jib Tip
40	Jib Base + 20' + Jib Tip
50	Jib Base + 10' + 20' + Jib Tip
60	Jib Base + 20' + 20' + Jib Tip
70	Jib Base + 10' + 20' + 20' + Jib Tip
80	Jib Base + 10' + 10' + 20' + 20' + Jib Tip

WARNINGS

- Jib inserts must be arranged as indicated above or machine may tip or collapse.
- Jibs cannot be attached to heavy duty booms less than 110 ft. long.
- Jibs cannot be attached to long range booms less than 120 ft. long.

WIRE ROPE DATA

MAIN HOIST ROPE — STANDARD

1 inch diameter P&H type 25 (6 x 25 filler wire preformed extra improved plow steel with independent wire rope core)

- 103,400 pound minimum breaking strength

PARTS OF LINE	1	2	3	4	5
Total Maximum Lifted Load (Lbs.)	27,800	55,600	83,400	111,200	139,000

PARTS OF LINE	6	7	8	9	10
Total Maximum Lifted Load (Lbs.)	166,800	194,600	222,400	250,200	278,000

MAIN HOIST ROPE — SPECIAL

1 inch diameter P&H type 29 (6 x 25 filler wire preformed extra extra improved plow steel with independent wire rope core).

- 115,000 pound minimum breaking strength

PARTS OF LINE	10	
Total Maximum Lifted Load (Lbs.)	300,000	30,000# line pull permissible only when lifting loads exceeding 278,000#

JIB HOIST ROPE — STANDARD

1 inch diameter P&H type 25 (6 x 25 filler wire preformed extra improved plow steel with independent wire rope core)

- 103,400 pound minimum breaking strength

PARTS OF LINE	1	2	
Total Maximum Lifted Load (Lbs.)	27,800	30,000	

WARNING

Do not attempt to lift more than rated loads shown in **shaded areas** — a machine failure may occur

information

JIB HOIST ROPE — OPTIONAL (NON-ROTATING)

1 inch diameter P&H type 11 (18 x 7 Non-rotating preformed improved plow steel with fibre core)

- 76,600 pound minimum breaking strength
- use of swivel is not approved with this rope
- not approved for more than single part of line

PARTS OF LINE	1
Total Maximum Lifted Load (Lbs.)	15,300

BOOM HOIST ROPE — STANDARD

3/4 inch diameter P&H type 27D (6 x 26 Warrington Seale, preformed extra improved plow steel, right alternate lay with independent wire rope core)

- 58,800 pound minimum breaking strength
- Boom hoist reeving is 14 parts reeved as shown in the Operator's Manual

BOOM HOIST ROPE — SPECIAL

Required for:

260' Ft. of Long Range Boom plus 80' Jib or 270 Ft. of Boom plus 70' or 80' of Jib.
3/4 inch diameter P&H type 30D (6 x 26 Warrington Seale, preformed extra extra improved plow steel right alternate lay with independent wire rope core)

- 64,600 pound minimum breaking strength
- Boom hoist reeving is 14 parts reeved as shown in the Operator's Manual

BOOM PENDANTS

4 - 1 inch diameter P&H type 25 (6 x 25 filler wire preformed extra improved plow steel with independent wire rope core)

- 103,400 pound minimum breaking strength per pendant
- Must be replaced in matched pairs. Refer to Parts Book

JIB PENDANTS

3/4 inch diameter P&H type 29 (6 x 25 filler wire preformed extra extra improved plow steel with independent wire rope core)

- 64,600 pound minimum breaking strength per pendant
- Must be replaced in matched pairs. Refer to Parts Book

JIB BACKSTAY

7/8 inch diameter P&H type 25 (6 x 25 filler wire preformed extra improved plow steel with independent wire rope core)

- 79,600 pound minimum breaking strength
- Refer to parts book

MIDPOINT SUSPENSION PENDANTS

7/8 inch diameter P&H type 25 (6 x 25 filler wire preformed extra improved plow steel with independent wire rope core)

- 79,600 pound minimum breaking strength
- Matched sets. Refer to Parts Book.

WARNING

Do not attempt to lift more than rated loads shown in **shaded areas** — a machine failure may occur

information

WIRE ROPE LENGTH CHART (For Lift Crane Service)

USE	BOOM LENGTH	ROPE		ROPE LENGTH (FEET)										
		P&H TYPE	DIA. IN.	PARTS OF LINE										
				1	2	3	4	5	6	7	8	9	10	
BOOM HOIST	ALL	27D **30D	3/4	660 ft. (14 Part Reeving)										
HOIST LINE (FRONT OR REAR DRUM)	50	*25	1	120	175	230	285	340	395	450	505	560	615	
	60	25	1	140	205	270	335	400	465	530	595	660	725	
	70	25	1	160	235	310	385	460	535	610	685			
	80	25	1	180	265	350	435	520	605	690				
	90	25	1	200	295	390	485	580	675	770				
	100	25	1	220	325	430	535	640	745					
	110	25	1	240	355	470	585	700	815					
	120	25	1	260	385	510	635	760						
	130	25	1	280	415	550	685	820						
	140	25	1	300	445	590	735	880						
	150	25	1	320	475	630	785							
	160	25	1	340	505	670	835							
	170	25	1	360	535	710								
	180	25	1	380	565	750								
	190	25	1	400	595	790								
	200	25	1	420	625	830								
	210	25	1	440	655									
	220	25	1	460	685									
	230	25	1	480	715									
	240	25	1	500	745									
	250	25	1	520	775									
	260	25	1	540	805									
	270	25	1	560										

Extra Rope Length is Required for Operating Below Ground Level

*Type 29 for loads exceeding 278,000 pounds

**Special Boom Hoist Rope required for: 260' of Long Range Boom Plus 80' Jib or 270' of Boom Plus 70' or 80' of Jib

USE	BOOM LENGTH	ROPE		JIB LENGTHS									
				PARTS OF LINE									
		P&H TYPE	DIA. IN.	20' JIB		30' JIB		40' JIB		50' JIB	60' JIB	70' JIB	80' JIB
				1	2	1	2	1	2	1	1	1	1
JIB HOIST LINE (REAR DRUM)	110	25	1	280	415	300	445	320	340	360	380	400	
	120	25	1	300	445	320	475	340	360	380	400	420	
	130	25	1	320	475	340	505	360	380	400	420	440	
	140	25	1	340	505	360	535	380	400	420	440	460	
	150	25	1	360	535	380	565	400	420	440	460	480	
	160	25	1	380	565	400	595	420	440	460	480	500	
	170	25	1	400	595	420	625	440	460	480	500	520	
	180	25	1	420	625	440	655	460	480	500	520	540	
	190	25	1	440	655	460	685	480	500	520	540	560	
	200	25	1	460	685	480	715	500	520	540	560	580	
	210	25	1	480	715	500	745	520	540	560	580	600	
	220	25	1	500	745	520	775	540	560	580	600	620	
	230	25	1	520	775	540	805	560	580	600	620	640	
	240	24	1	540	805	560	835	580	600	620	640	660	
	250	25	1	560	835	580		600	620	640	660	680	
	260	25	1	580		600		620	640	660	680	700	
	270	25	1	600		620		640	660	680	700	720	