



DH650

FULL HYDRAULIC CRAWLER CRANE

SPECIFICATIONS

The specification is based on the metric system. Figures quoted in the yard-pound system are for reference only.

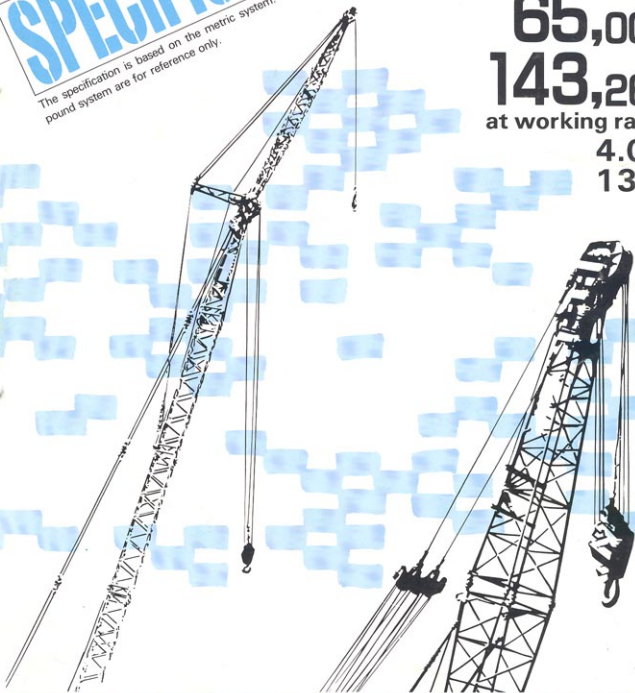
Max. lifting capacity

65,000kg

143,260lbs
at working radius of

4.00 m

13ft. 1in.



☐ NIPPON SHARYO, LTD.

SPECIFICATIONS

BASIC MACHINE UPPER MACHINERY

● DIESEL ENGINE

Model	EP100T
Type	Water-cooled, 4-cycle, 6-cylinder Direct injection
Net output	185 PS (136 kw)/2000 rpm
Maximum torque	73 kgf·m (528 ft.lbf)/1600 rpm
Bore x stroke	120 mm (4.7") x 130 mm (5.1")
Displacement	8821 cc (539 cf.in)
Fuel tank capacity	250 l (66 US.gal)
Battery	24V, 120AH x 2

● WINCH MECHANISM

Main drum: The drum equipped with clutch and brake is driven independently by a hydraulic motor.

Auxiliary and third drum: These drums equipped with clutches and brakes are mounted on one winch shaft driven by a hydraulic motor.

Clutch: Band type, internal expanding clutch powered by hydraulic cylinder
Brake: Band type, external contracting brake controlled by a foot pedal, pedal lock and alarm are equipped.

Main, aux. and third drum locks: Drum pawl locks are manually controlled from operator's seat.

Boom drum: The drum is an independent hydraulic drive type. It is directly splined on the winch shaft without any clutch.

Boom drum brake: Spring-set, hydraulic released, band type external contraction brake is automatically actuated when control lever is returned to neutral position.

Boom drum lock: Drum pawl lock is manually controlled from operator's seat.

Drum spec	Main	Aux.	Third	Boom
Total cable capacity (crane use)	200 (656)	125 (410)	125 (410)	160 (524)
Cable dia.	22.4 mm (88")	22.4 mm (88")	20 mm (78")	16 mm (63")
* Line speed (1st layer) High/low m/min (ft/min)	64/32 (209/105)	64/32 (209/105)	64/32 (209/105)	49 (161)
Line pull (1st layer)	15,800 (34,232 lbs)	15,800 (34,232 lbs)	15,800 (34,232 lbs)	9,900 (21,820 lbs)

* Figure changes in accordance with load

● SWING MECHANISM

Swing motion is made by an independent hydraulic drive system. Hydro-electrically controlled service brake and manually controlled parking brake are equipped in the swing motor.

Swing bearing: Sealed ball bearing with heat treated internal gear.

Service brake: Disc brake pads are hydro-electrically controlled by a switch on the swing lever grip and a solenoid valve.

Swing lock: Lock pin is manually inserted into a hole of track frame during transportations.

Swing speed: 2.9 rpm

● CONTROL

Main, aux. and boom hoist levers: Remote-controlled hydraulic servo.

Winch speed can be accurately controlled by changing lever stroke.

Travel, swing and third hoist lever: Direct control and hydraulically acting.

● GANTRY

Lowerable for transportation

● COUNTERWEIGHT

Removable, consists of two sections 16,000 kg (35,260 lbs)
8,000 kg + 4,000 kg + 4,000 kg
(17,640 lbs) + (8,800 lbs)
= (8,800 lbs)

● SAFETY DEVICE

Hook over hoist preventive device: When hook (main or aux) is wound up to its specified hoist limit, and alarm automatically makes a sound and winching drum automatically stops at the same time.

Boom over hoist preventive device: When boom is wound up to its specified angle limit, the alarm automatically makes the sound and winching drum automatically stops at the same time.

Boom angle indicator: A pendulum type boom angle indicator is equipped on the lower portion of the boom.

Moment limiter (optional): This system measures critical operational factors relative to rated capacity and gives the operator a continuous visual display of conditions for the load. An audio-visual warning alerts the operator as specified overload occurs.

● OPERATOR'S CAB

Frame mounted, one-man all-steel fully enclosed, full-vision with safety glass. Door with lock, windshield wiper, full reclining seat.

A noise proof type enclosure coated with sound absorbing materials assures low noise operation.

● CAB INSTRUMENTATION

Tachometer with hour meter, engine oil pressure, water and hydraulic oil temp. gauges, charge lamp and other necessary engine instruments and switches are fitted to ensure easy operation and maintenance.

LOWER MACHINERY

Crawlers: Left and right crawlers are independently driven by respective hydraulic motors via reduction gears, assuring smooth steerability. Both of hydraulic brake and spring loaded/hydraulic-released disc brake are automatically actuated to effect certain stopping as the lever is returned to neutral position.

Both crawlers are extendable and retractable by hydraulic cylinders to convert from wide track operating condition to a narrower overall width for transportation.

Track frame and side frame: All welded, unitized construction.

Crawler shoes: No. of shoe (on each side) 59 pcs.

No. of upper roller (on each side) 2 pcs.

No. of lower roller (on each side) 12 pcs.

Shoe width 800 mm (31.5")

Ground pressure: 0.73 kg/cm² (10.4 psi)

When equipped with 13 m (42'8") and 16,000 kg (35,260 lbs) counterweight, total operating weight 61,000 kg (134,440 lbs)

Travel speed: 0 ~ 0.8 km/h (0 ~ 0.50 m/h)

Gradeability: 40%

HYDRAULIC SYSTEM

Double-plunger pump plus 3-gear pump system assures both independent and simultaneous operations of all functions.

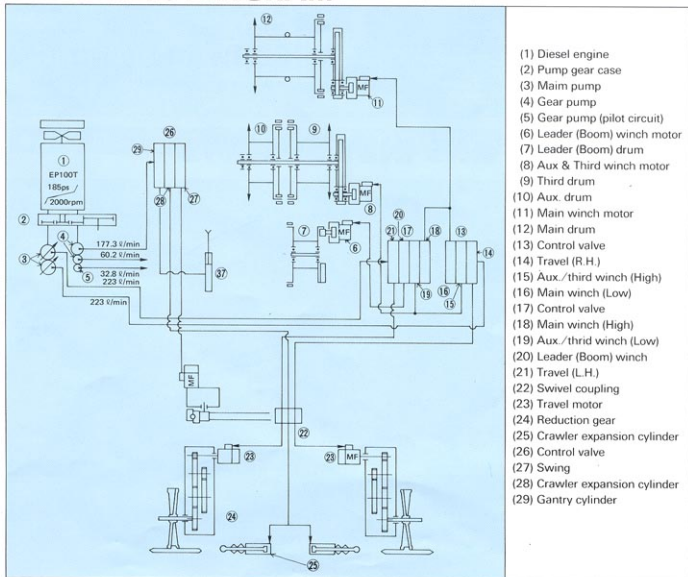
Main pump (double plunger pump)

Type	Plunger pump (upper)	Plunger pump (lower)
Setting pressure	245 kgf/cm ² (3,490 psi)	245 kgf/cm ² (3,490 psi)
Oil flow	223 l/min (84.4 US gal./min)	223 l/min (84.4 US gal./min)
Applications	Travel (right) Boom hoist Main hoist (high) Aux. hoist (low) Third hoist (low)	Travel (left) Main hoist (low) Aux. hoist (high) Third hoist (high)

Gear pump (Twin gear pump)

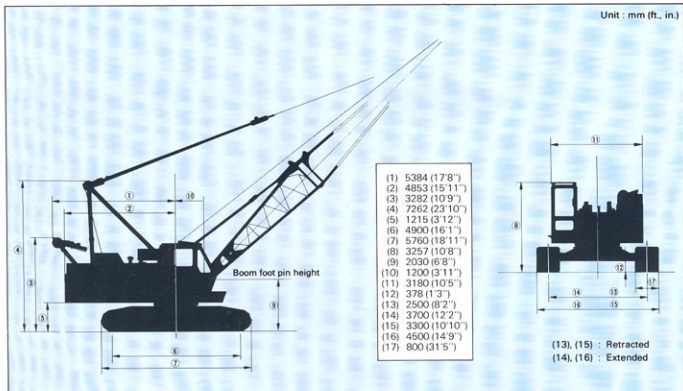
Type	Gear pump (1st)	Gear pump (2nd)	Gear pump (3rd)
Setting pressure	210 kg/cm ² (2,986 psi)	40 kg/cm ² (598 psi)	120 kg/cm ² (1,706 psi)
Oil flow	177 l/min (46.8 US gal./min)	32.8 l/min (8.7 US gal./min)	60.2 l/min (15.9 US gal./min)
Applications	Swing Expansion of crawler Gantry	Pilot circuit Clutches, brakes of winches	Pile driver front end attachments

HYDRAULIC DIAGRAM

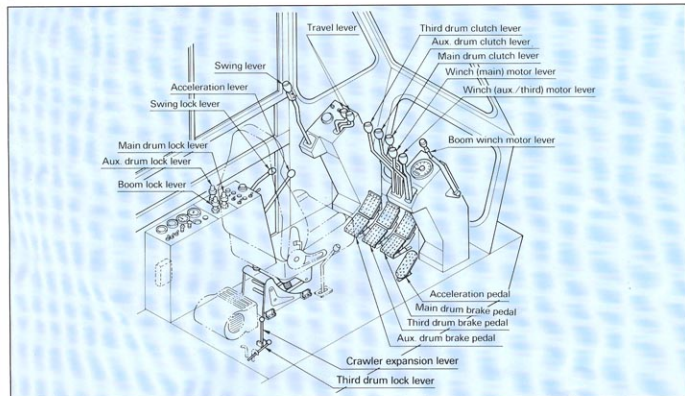


- (1) Diesel engine
- (2) Pump gear case
- (3) Main pump
- (4) Gear pump
- (5) Gear pump (pilot circuit)
- (6) Leader (Boom) winch motor
- (7) Leader (Boom) drum
- (8) Aux & Third winch motor
- (9) Third drum
- (10) Aux. drum
- (11) Main winch motor
- (12) Main drum
- (13) Control valve
- (14) Travel (R.H.)
- (15) Aux./third winch (High)
- (16) Main winch (Low)
- (17) Control valve
- (18) Main winch (High)
- (19) Aux./third winch (Low)
- (20) Leader (Boom) winch
- (21) Travel (L.H.)
- (22) Swivel coupling
- (23) Travel motor
- (24) Reduction gear
- (25) Crawler expansion cylinder
- (26) Control valve
- (27) Swing
- (28) Crawler expansion cylinder
- (29) Gantry cylinder

DIMENSIONS



CONTROL AND INSTRUMENTS



CRANE

BOOM AND JIB

● BOOM

Boom : Tubular high strength steel chords, lattice construction.

Basic boom : 2 pieces of upper section 6.5m (21'4") and lower section 6.5m (21'4") 13m (42'8")

Boom insert : Insert length 3m (9'10"), 6m (19'8"), 9m (29'6")

Boom point : Five offset boom point sheaves on anti-friction bearings.

Connection type : Pin connected.

Hook block : Five sheaves with swivel hook and 10-part hoist line, standard 65,000 kg (143,260 lbs)
30 and 6.6 metric ton single sheave with swivel hook for 1-5 part hoist line.

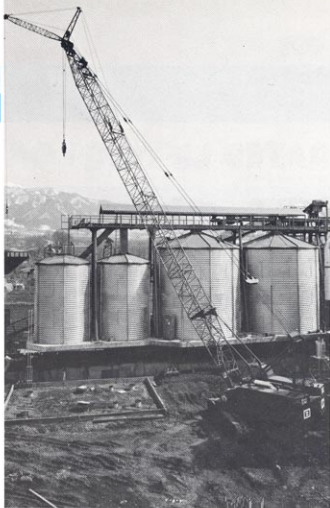
Maximum boom length: 55m (180'5")

Jib : Tubular lattice carbon steel construction Basic length, pin connected in two sections 6m (19'8")

Jib insert : Insert length 3m (9'10"), 6m (19'8")

Maximum jib length : 15m (49'2")

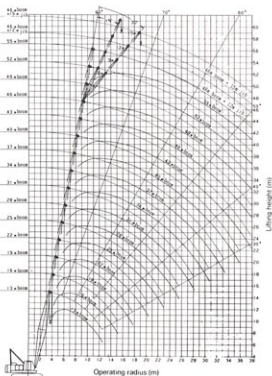
Maximum length, Boom + jib : 46m + 15m (150'11" + 49'2")



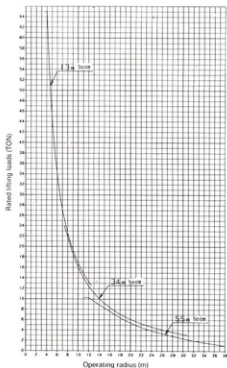
WORKING RANGES

Rated crane loads in kg(lbs)-Main boom in 360° work area with crawlers fully expanded.

● WORKING RANGE



● RATED LIFTING LOAD CURVES



RATED LIFTING LOADS OF MAIN BOOM

Working range m (ft. in)	13 (42'8") Boom	16 (52'6") Boom	19 (62'7") Boom	22 (72'2") Boom	25 (82'0") Boom	28 (91'10") Boom	31 (101'8") Boom
3.70 (12'2")	65.00 (143.26)						
4.00 (31'1")	65.00 (143.26)	59.80 × 4.23m (131.80 × 13'11")					
4.50 (14'9")	53.60 (118.13)	53.50 (117.91)	48.70 × 4.75m (107.33 × 15'7")				
5.00 (16'5")	44.95 (99.07)	44.80 (98.74)	44.70 (98.52)	41.00 × 5.27m (90.36 × 17'3")			
5.50 (18'1")	38.60 (85.07)	38.50 (84.85)	38.35 (84.52)	38.30 (84.41)	35.00 × 5.79m (77.14 × 18'12")		
6.00 (19'8")	33.85 (74.61)	33.70 (74.28)	33.60 (74.05)	33.50 (73.83)	33.35 (73.50)	30.80 × 6.31m (67.88 × 20'8")	27.00 × 6.83m (59.51 × 22'5")
7.00 (22'12")	27.05 (59.62)	26.90 (59.29)	26.80 (59.07)	26.70 (58.85)	26.55 (58.52)	26.50 (58.41)	26.35 (58.07)
8.00 (26'3")	22.45 (49.48)	22.35 (49.26)	22.20 (48.93)	22.10 (48.71)	22.00 (48.49)	21.90 (48.27)	21.75 (47.94)
9.00 (29'6")	19.15 (42.21)	19.05 (41.99)	18.90 (41.65)	18.80 (41.43)	18.65 (41.10)	18.60 (40.99)	18.45 (40.66)
10.00 (32'10")	16.70 (36.81)	16.55 (36.48)	16.40 (36.14)	16.30 (35.92)	16.20 (35.70)	16.10 (35.48)	15.95 (35.15)
12.00 (39'4")	13.20 (29.09)	13.05 (28.76)	12.90 (28.43)	12.80 (28.21)	12.65 (27.88)	12.60 (27.77)	12.45 (27.44)
14.00 (45'11")	12.40 × 12.58m 27.33 × 41'3"	10.70 (23.58)	10.55 (23.25)	10.45 (23.03)	10.30 (22.01)	10.20 (22.48)	10.05 (22.15)
16.00 (52'6")		9.60 × 15.18m (21.16 × 49'10")	8.85 (19.50)	8.75 (19.28)	8.60 (18.95)	8.55 (18.84)	8.40 (18.51)
18.00 (59'6")			7.70 × 17.78m (16.97 × 58'4")	7.50 (16.53)	7.35 (16.20)	7.25 (15.98)	7.10 (15.65)
20.00 (65'7")				6.50 (14.32)	6.35 (13.99)	6.25 (13.77)	6.10 (13.44)
22.00 (72'2")				6.35 × 20.38m (13.99 × 66'10")	5.55 (12.23)	5.45 (12.01)	5.30 (11.68)
24.00 (78'9")					5.20 × 22.98m (11.46 × 75'5")	4.80 (10.58)	4.65 (10.25)
26.00 (85'4")						4.40 × 25.57m (9.70 × 83'11")	4.10 (9.40)
28.00 (91'10")							3.65 (8.04)
30.00 (98'5")							3.65 × 28.17m (7.98 × 92'5")
32.00 (104'12")							
34.00 (111'7")							
36.00 (118'1")							
38.00 (124'8")							

Notes:

- The rated loads shown don't exceed 78% of tipping loads with the machine of firm lever ground.
- The rated loads shown include the weights of all lifting attachments such as hook, bucket, etc. The load to be actually lifted is the rated load minus the weight of all lifting attachments.

- When the jib is attached, the load to be actually lifted is the rated load minus jib boom weights.

Jib length	6 m (19'8")	9 m (29'6")	12 m (39'4")	15 m (49'3")
Jib weight	700 kg (1,540 lbs)	1,000 kg (2,200 lbs)	1,300 kg (2,870 lbs)	1,600 kg (3,530 lbs)

- The jib can be attached to boom of 25.0 m (82'0") to 46.0 m (150'11") long.
- Counterweight is 16,000 kg (35,260 lbs)
- In operation, Crawlers must be extended.

Hook capacity	65,000 kg (143,260 lbs)	30,000 kg (66,120 lbs)	6,600 kg (14,550 lbs)
Hook weight	750 kg (1,650 lbs)	410 kg (904 lbs)	130 kg (287 lbs)

RATED LIFTING LOADS OF JIB BOOM

Boom length (m) (ft. in)	25 (82'5")								28 (92'4")								31 (102'3")							
	6 (19'8")		9 (29'7")		12 (39'6")		15 (49'5")		6 (19'8")		9 (29'7")		12 (39'6")		15 (49'5")		6 (19'8")		9 (29'7")		12 (39'6")			
	Jib length (ft.)	15	30	15	30	15	30	15	30	15	30	15	30	15	30	15	30	15	30	15	30	15	30	
9 m (29'7")	6.00 (14.50)									6.00 (14.50)														
10 m (33'0")	6.00 (14.50)	6.00 (13.22)	5.00 (12.34)							6.00 (14.50)								6.00 (14.50)						
12 m (39'6")	6.00 (14.50)	6.00 (13.22)	5.00 (12.34)	5.00 (11.02)	4.40 (9.70)					6.00 (14.50)	6.00 (13.22)	5.60 (12.34)		4.40 (9.70)				6.00 (14.50)	6.00 (14.50)	5.60 (12.34)		4.40 (9.70)		
14 m (46'2")	6.00 (14.50)	6.00 (13.22)	5.00 (12.34)	5.00 (11.02)	4.40 (9.70)	4.00 (8.81)	3.30 (7.27)			6.00 (14.50)	6.00 (13.22)	5.60 (12.34)	5.00 (11.02)	4.40 (9.70)		3.30 (7.27)		6.00 (14.50)	6.00 (13.22)	5.60 (12.34)	5.00 (11.02)	4.40 (9.70)		
16 m (52'8")	6.00 (14.50)	6.00 (13.22)	5.00 (12.34)	5.00 (11.02)	4.40 (9.70)	4.00 (8.81)	3.30 (7.27)	3.00 (6.61)		6.00 (14.50)	6.00 (13.22)	5.60 (12.34)	5.00 (11.02)	4.40 (9.70)	4.00 (8.81)	3.30 (7.27)	3.00 (6.61)	6.00 (14.50)	6.00 (13.22)	5.60 (12.34)	5.00 (11.02)	4.40 (9.70)	4.00 (8.81)	
18 m (59'4")	6.00 (14.50)	6.00 (13.22)	5.00 (12.34)	5.00 (11.02)	4.40 (9.70)	4.00 (8.81)	3.30 (7.27)	3.00 (6.61)	3.00 (6.61)	6.00 (14.50)	6.00 (13.22)	5.60 (12.34)	5.00 (11.02)	4.40 (9.70)	4.00 (8.81)	3.30 (7.27)	3.00 (6.61)	6.00 (14.50)	6.00 (13.22)	5.60 (12.34)	5.00 (11.02)	4.40 (9.70)	4.00 (8.81)	
20 m (66'0")	6.25 (14.00)	6.25 (14.00)	5.00 (12.34)	5.00 (11.02)	4.40 (9.70)	4.00 (8.81)	3.30 (7.27)	3.00 (6.61)	3.00 (6.61)	6.25 (13.78)	6.00 (13.22)	5.60 (12.34)	5.00 (11.02)	4.40 (9.70)	4.00 (8.81)	3.30 (7.27)	3.00 (6.61)	6.25 (13.78)	6.00 (13.22)	5.60 (12.34)	5.00 (11.02)	4.40 (9.70)	4.00 (8.81)	
22 m (72'6")	5.55 (12.23)	5.35 (11.79)	5.55 (12.23)	5.00 (11.02)	4.40 (9.70)	4.00 (8.81)	3.30 (7.27)	3.00 (6.61)	3.00 (6.61)	5.45 (12.01)	5.45 (12.01)	5.45 (12.01)	5.00 (11.02)	4.40 (9.70)	4.00 (8.81)	3.30 (7.27)	3.00 (6.61)	5.55 (11.68)	5.30 (11.68)	5.30 (11.68)	5.00 (11.02)	4.40 (9.70)	4.00 (8.81)	
24 m (78'2")										4.80 (10.58)	4.80 (10.58)	4.80 (10.58)	4.80 (10.58)	4.40 (9.70)	4.00 (8.81)	3.30 (7.27)	3.00 (6.61)	4.65 (10.25)	4.65 (10.25)	4.65 (10.25)	4.65 (10.25)	4.40 (9.70)	4.00 (8.81)	
26 m (85'8")																		4.10 (9.04)	4.10 (9.04)	4.10 (9.04)	4.10 (9.04)	4.10 (9.04)	4.00 (8.81)	
28 m (92'4")																		3.65 (8.04)	3.65 (8.04)	3.65 (8.04)	3.65 (8.04)	3.65 (8.04)	3.65 (8.04)	
30 m (99'0")																								
32 m (105'6")																								
34 m (112'2")																								
36 m (118'1")																								
38 m (124'8")																								

Notes:

- The rated loads shown do not exceed 78% of tipping loads with the machine on firm level ground when crawlers are extended.
- The load to be actually lifted is rated load minus the hook weight.

Hook capacity	6,600 kg (14,550 lbs)
Hook weight	130 kg (287 lbs)

- Counterweight is 16,000 kg (35,260 lbs)
- In operation, crawlers must be extended.



Unit : kg (lbs)

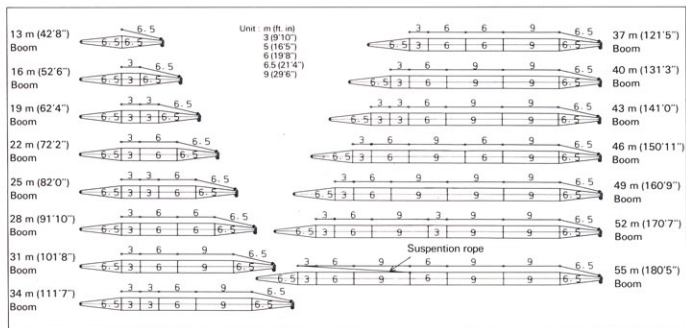
31 (101'8")		34 (111'7")						37 (121'5")						40 (141'1")					
15 (49'5")		6 (19'8")		9 (29'7")		12 (39'6")		15 (49'5")		6 (19'8")		9 (29'7")		12 (39'6")		15 (49'5")			
15	30	15	30	15	30	15	30	15	30	15	30	15	30	15	30	15	30	15	30
			6.60 (14.50)																
		6.60	6.00	5.80				6.00	6.00	5.60				6.60					
		(14.50)	(13.22)	(12.34)				(14.50)	(13.22)	(12.34)				(14.50)					
3.30 (7.27)		6.60	6.00	5.60	5.00	4.40		3.30		6.60	6.00	5.60	5.00	4.40					
		(14.50)	(13.22)	(12.34)	(11.02)	(9.70)		(7.27)		(14.50)	(13.22)	(12.34)	(11.02)	(9.70)					
3.30 (7.27)		6.60	6.00	5.60	5.00	4.40	4.00	3.30		6.60	6.00	5.60	5.00	4.40	4.00	3.30			
		(14.50)	(13.22)	(12.34)	(11.02)	(9.70)	(8.81)	(7.27)		(14.50)	(13.22)	(12.34)	(11.02)	(9.70)	(8.82)	(7.27)			
3.30	3.00	6.60	6.00	5.60	5.00	4.40	4.00	3.30	3.00	6.60	6.00	5.60	5.00	4.40	4.00	3.30	3.00		
		(14.50)	(13.22)	(12.34)	(11.02)	(9.70)	(8.81)	(7.27)	(6.61)	(14.50)	(13.22)	(12.34)	(11.02)	(9.70)	(8.82)	(7.27)	(6.61)		
3.30	3.00	6.05	6.00	5.60	5.00	4.40	4.00	3.30	3.00	5.95	5.95	5.60	5.00	4.40	4.00	3.30	3.00		
		(13.33)	(13.22)	(12.34)	(11.02)	(9.70)	(8.81)	(7.27)	(6.61)	(13.11)	(13.11)	(12.34)	(11.02)	(9.70)	(8.82)	(7.27)	(6.61)		
3.30	3.00	5.25	5.25	5.25	5.00	4.40	4.00	3.30	3.00	5.15	5.15	5.15	5.00	4.40	4.00	3.30	3.00		
		(11.57)	(11.57)	(11.57)	(11.02)	(9.70)	(8.81)	(7.27)	(6.61)	(11.35)	(11.35)	(11.35)	(11.02)	(9.70)	(8.82)	(7.27)	(6.61)		
3.30	3.00	4.60	4.60	4.60	4.60	4.40	4.00	3.30	3.00	4.50	4.50	4.50	4.50	4.40	4.00	3.30	3.00		
		(10.14)	(10.14)	(10.14)	(10.14)	(9.70)	(8.81)	(7.27)	(6.61)	(9.92)	(9.92)	(9.92)	(9.92)	(9.70)	(8.82)	(7.27)	(6.61)		
3.30	3.00	4.05	4.05	4.05	4.05	4.05	4.00	3.30	3.00	3.95	3.95	3.95	3.95	3.95	3.95	3.30	3.00		
		(8.93)	(8.93)	(8.93)	(8.93)	(8.93)	(8.81)	(7.27)	(6.61)	(8.71)	(8.71)	(8.71)	(8.71)	(8.71)	(8.71)	(7.27)	(6.61)		
3.30	3.00	3.55	3.55	3.55	3.55	3.55	3.55	3.30	3.00	3.50	3.50	3.50	3.50	3.50	3.50	3.30	3.00		
		(7.82)	(7.82)	(7.82)	(7.82)	(7.82)	(7.82)	(7.27)	(6.61)	(7.71)	(7.71)	(7.71)	(7.71)	(7.71)	(7.71)	(7.27)	(6.61)		
		3.20	3.20	3.20	3.20	3.20	3.20	3.00	3.00	3.10	3.10	3.10	3.10	3.10	3.10	3.00	2.95	2.95	2.95
		(7.05)	(7.05)	(7.05)	(7.05)	(7.05)	(7.05)	(6.61)	(6.61)	(6.83)	(6.83)	(6.83)	(6.83)	(6.83)	(6.83)	(6.61)	(5.73)	(5.73)	(5.73)
										2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.25	2.25	2.25
										(6.06)	(6.06)	(6.06)	(6.06)	(6.06)	(6.06)	(6.06)	(4.96)	(4.96)	(4.96)

Unit : kg (lbs)

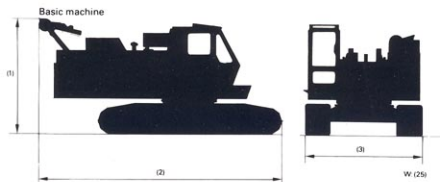
Boom length (m) (ft, in)	43 (141'9")								46 (151'8")							
	6 (19'6")		9 (29'7")		12 (39'6")		15 (49'5")		6 (19'8")		9 (29'7")		12 (39'6")		15 (49'5")	
Job length (m) (ft, in)	15	30	15	30	15	30	15	30	15	30	15	30	15	30	15	30
Job angle (degree)																
Working radius																
9 m (29'7")																
10 m (33'0")																
12 m (39'6")	6.60 (14.50)								6.60 (14.50)							
14 m (46'2")	6.60 (14.50)	6.60 (13.22)	5.60 (12.34)		4.40 (9.70)				6.60 (14.50)	6.60 (13.22)	5.60 (12.34)					
16 m (52'8")	6.60 (14.50)	6.60 (13.22)	5.60 (12.34)	5.50 (11.02)	4.40 (9.70)			3.30 (7.27)	6.60 (14.50)	6.60 (13.22)	5.60 (12.34)	5.00 (11.02)	4.40 (9.70)		3.30 (7.27)	
18 m (59'4")	6.60 (14.50)	6.60 (13.22)	5.60 (12.34)	5.50 (11.02)	4.40 (9.70)	4.00 (8.82)	3.30 (7.27)		6.60 (14.50)	6.60 (13.22)	5.60 (12.34)	5.00 (11.02)	4.40 (9.70)	4.00 (8.82)	3.30 (7.27)	
20 m (66'0")	5.70 (12.56)	5.70 (12.56)	5.60 (12.34)	5.50 (11.02)	4.40 (9.70)	4.00 (8.82)	3.30 (7.27)	3.00 (6.61)	5.60 (12.34)	5.60 (12.34)	5.60 (12.34)	5.00 (11.02)	4.40 (9.70)	4.00 (8.82)	3.30 (7.27)	3.00 (6.61)
22 m (72'6")	4.90 (10.80)	4.90 (10.80)	4.90 (10.80)	4.90 (10.80)	4.40 (9.70)	4.00 (8.82)	3.30 (7.27)	3.00 (6.61)	4.80 (10.58)	4.80 (10.58)	4.80 (10.58)	4.80 (10.58)	4.40 (9.70)	4.00 (8.82)	3.30 (7.27)	3.00 (6.61)
24 m (79'2")	4.25 (9.37)	4.25 (9.37)	4.25 (9.37)	4.25 (9.37)	4.25 (9.37)	4.00 (8.82)	3.30 (7.27)	3.00 (6.61)	4.15 (9.15)	4.15 (9.15)	4.15 (9.15)	4.15 (9.15)	4.15 (9.15)	4.00 (8.82)	3.30 (7.27)	3.00 (6.61)
26 m (85'8")	3.70 (8.15)	3.70 (8.15)	3.70 (8.15)	3.70 (8.15)	3.70 (8.15)	3.70 (8.15)	3.30 (7.27)	3.00 (6.61)	3.60 (7.93)	3.60 (7.93)	3.60 (7.93)	3.60 (7.93)	3.60 (7.93)	3.60 (7.93)	3.30 (7.27)	3.00 (6.61)
28 m (92'4")	3.25 (7.16)	3.25 (7.16)	3.25 (7.16)	3.25 (7.16)	3.25 (7.16)	3.25 (7.16)	3.25 (7.16)	3.00 (6.61)	3.15 (6.94)	3.15 (6.94)	3.15 (6.94)	3.15 (6.94)	3.15 (6.94)	3.15 (6.94)	3.15 (6.94)	3.00 (6.61)
30 m (99'0")	2.85 (6.28)	2.85 (6.28)	2.85 (6.28)	2.85 (6.28)	2.85 (6.28)	2.85 (6.28)	2.85 (6.28)	2.85 (6.28)	2.75 (6.06)	2.75 (6.06)	2.75 (6.06)	2.75 (6.06)	2.75 (6.06)	2.75 (6.06)	2.75 (6.06)	2.75 (6.06)
32 m (105'6")	2.45 (5.40)	2.45 (5.40)	2.45 (5.40)	2.45 (5.40)	2.45 (5.40)	2.45 (5.40)	2.45 (5.40)	2.45 (5.40)	2.35 (5.18)	2.35 (5.18)	2.35 (5.18)	2.35 (5.18)	2.35 (5.18)	2.35 (5.18)	2.35 (5.18)	2.35 (5.18)
34 m (112'2")	2.15 (4.73)	2.15 (4.73)	2.15 (4.73)	2.15 (4.73)	2.15 (4.73)	2.15 (4.73)	2.15 (4.73)	2.15 (4.73)	2.00 (4.41)	2.00 (4.41)	2.00 (4.41)	2.00 (4.41)	2.00 (4.41)	2.00 (4.41)	2.00 (4.41)	2.00 (4.41)
36 m (118'1")	1.85 (4.08)	1.85 (4.08)	1.85 (4.08)	1.85 (4.08)	1.85 (4.08)	1.85 (4.08)	1.85 (4.08)	1.85 (4.08)	1.70 (3.75)	1.70 (3.75)	1.70 (3.75)	1.70 (3.75)	1.70 (3.75)	1.70 (3.75)	1.70 (3.75)	1.70 (3.75)
38 m (124'8")	1.55 (3.42)	1.55 (3.42)	1.55 (3.42)	1.55 (3.42)	1.55 (3.42)	1.55 (3.42)	1.55 (3.42)	1.55 (3.42)	1.45 (3.20)	1.45 (3.20)	1.45 (3.20)	1.45 (3.20)	1.45 (3.20)	1.45 (3.20)	1.45 (3.20)	1.45 (3.20)



MAIN BOOM COMPOSITION



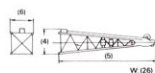
WEIGHTS AND DIMENSIONS FOR TRANSPORTATION



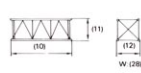
Unit : mm (ft. in)

(1) 3282 (10'9")	(21) 1460 (4'9")
(2) 7834 (25'8")	(22) 810 (2'0")
(3) 3300 (10'10")	(23) 1720 (5'8")
(4) 1500 (4'11")	(24) 440 (1'5")
(5) 6870 (22'6")	(25) 41000 kgf (90364 lbs)
(6) 1500 (4'11")	(26) 1410 kgf (3108 lbs)
(7) 6650 (21'10")	(27) 1320 kgf (2909 lbs)
(8) 1810 (5'11")	(28) 660 kgf (1455 lbs)
(9) 1500 (4'11")	(29) 910 kgf (2006 lbs)
(10) 6100 (20')	(30) 8000 kgf (17632 lbs)
(11) 1500 (4'11")	(31) 4000 kgf (8816 lbs)
(12) 1500 (4'11")	(32) 750 kgf (1653 lbs)
(13) 9100 (29'10")	(33) 1500 (4'11")
(14) 1500 (4'11")	(34) 3100 (10'2")
(15) 1500 (4'11")	(35) 1500 (4'11")
(16) 3180 (10'5")	(36) 410 (1'4")
(17) 1460 (4'9")	(37) 3000 (9'10")
(18) 700 (2'4")	(38) 1460 (4'9")
(19) 540 (1'9")	(39) 300 (1'2")
(20) 3000 (9'10")	

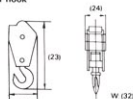
Upper boom



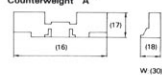
6M Insert boom



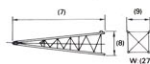
65T hook



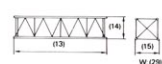
Counterweight "A"



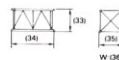
Lower boom



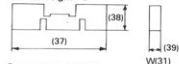
9M Insert boom



3M Insert boom



Counterweight "B"



Counterweight "C"

