

# **ED5800H**

## **Hydraulic Earth Drilling Rig**

# **SPECIFICATION**

March, 2011



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Due to company policy of continuous development and improvement, NIPPON SHARYO reserves the right to change designs and specifications without notice.

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## 1. FEATURES

### 1) High performance in deep drilling of 58m

The machine is specially designed for deep bored pile driving work equipped with

Boom length	Kelly bar No. of stage	Kelly bar length (Retracted)	Standard drilling depth	
			High position	Low position
23m	4-stage	Min. 16.6m	55m	<b>58m</b>

### 2) Hydraulic cylinder supported type kelly drive

A stable positioning of the kelly drive by hydraulic cylinders eliminate swaying of the kelly bar and gives a high degree of vertical drilling accuracy compared to the conventional rope-suspension type machines.

### 3) Compact design

The rear end radius of the machine is so compact as 3,570 mm at the end of its counter weight which allows it to work in confined area.

### 4) Versatile operating radius

The operating radius can be easily adjusted from 3,802mm to 5,408mm (Boom angle: 83.5° to 79.5° ) which allows to apply to wide operation range.

### 5) Robust suspension rope of 25mm in diameter plus large braking capacity

Adaptation of  $\phi$  25mm suspension rope for the kelly bar prolongs the life time of the suspension rope and minimizes rope maintenance work. A large brake drum provided with cooling fins is suitable for a heavy duty drilling work.

### 6) High power 147kW(200PS) diesel engine

A powerful 147kW(200PS) diesel engine allows the machine to maneuver simultaneous operation and assures it to operate efficiently.

### 7) Powerful 60kN-m drilling torque and 500mm thrusting stroke

60kN-m maximum torque for forward and reverse directions conforms to the widespread stratum.

### 8) Low speed winch control

Rope line speed can be controlled at the desired speed from 100% to 17% of its rating.

### 9) Easy maintenance

Adopting floating ring seals in drive tumblers, take-up tumblers and lower track rollers, and sealed bearings to every sheaves require minimum daily maintenance service. A grease-bath type swing pinion gear prolongs its service interval.

### 10) Low fuel consumption

The machine is powered by a direct fuel injection type diesel engine with a pair of variable displacement type plunger pumps of efficient performance, accordingly economical operation can be assured.

## 2. SPECIFICATIONS OF EARTH DRILLING RIG

**2.1 Model** ..... ED5800H

### 2.2 Nominal dimensions

1) Overall width in transportation	3,200 mm
2) Crawler overall width in working	4,110 mm
3) Crawler overall width in transportation	3,200 mm
4) Crawler center to center distance in transportation	2,440 mm
5) Crawler center to center distance in working	3,350 mm
6) Crawler shoe width	760 mm
7) Crawler overall length	5,320 mm
8) Tumblers center to center distance	4,460 mm
9) Ground clearance	359 mm
10) Gantry height (Working)	4,667 mm
11) Overall height (Transportation)	3,300 mm
12) Rear end radius (Counterweight end)	3,570 mm
13) Rear end clearance	970 mm

### 2.3 Performance

1) Boom length	23 m
2) Maximum drilling diameter (Bore)	2,000 mm
3) Maximum drilling depth (Front frame lower position)	58 m
4) Kelly bar thrusting stroke	500 mm
5) Bucket torque (Forward/reverse)	*69 / 78 kN·m
6) Bucket speed (High/low)	*26 / 13 min <sup>-1</sup>
7) Bucket suspension rope	φ 25 mm
8) Main (Bucket rope) drum winding/rewinding speed	*63 / 31 m/min
9) Auxiliary rope	φ 22.4 mm
10) Auxiliary drum winding/rewinding speed	*63 / 31 m/min
11) Auxiliary maximum lifting load	7.5 ton x 9.1 m
12) Boom drum winding/rewinding speed	*55 m/min
13) Swing speed	3.5 min <sup>-1</sup>
14) Travel speed	*1.4 km/hr.
15) Gradeability (Basic machine)	40 %

“\*”marked items change in accordance with load.

### 2.4 Weight

1) Basic machine	263 kN (26.8 ton)
2) Counterweight	142 kN (14.5 ton)
3) Front-end attachments	145 kN (14.8 ton)
4) Maximum operating weight	640 kN (65.2 ton)
5) Average ground pressure	94 kPa (0.958 kgf/cm <sup>2</sup> )

## 2.5 Diesel engine

- 1) Maker ..... Hino Motors, Ltd.  
2) Model ..... J08C-UT diesel engine  
3) Type ..... Water cooled, 4-cycle, Overhead valve, in-line  
6-cylinder, direct fuel injection, turbo-charged.

No. of cylinder x bore x stroke ..... 6 x 114 mm x 130 mm

Total displacement ..... 7,961 cc

Compression ratio ..... 18.0 : 1

Rated output ..... 147 kW / 2100 min<sup>-1</sup>

(200 PS / 2100 min<sup>-1</sup>)

Maximum torque ..... 750 N·m / 1600 min<sup>-1</sup>

(76.5 kgf·m / 1600 min<sup>-1</sup>)

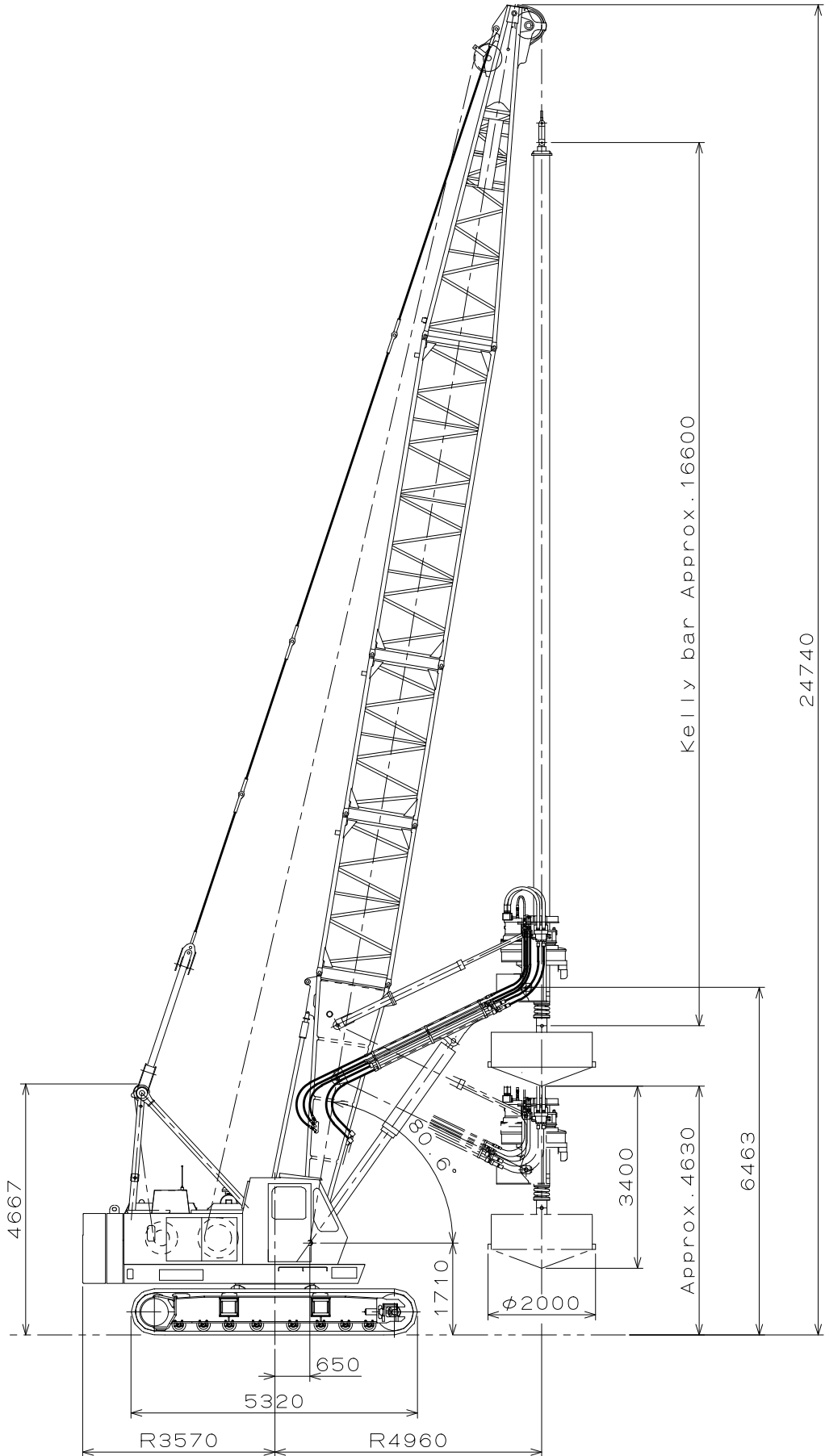
Fuel consumption rate ..... 234 g/kW · hr

(172 g/PS · hr)

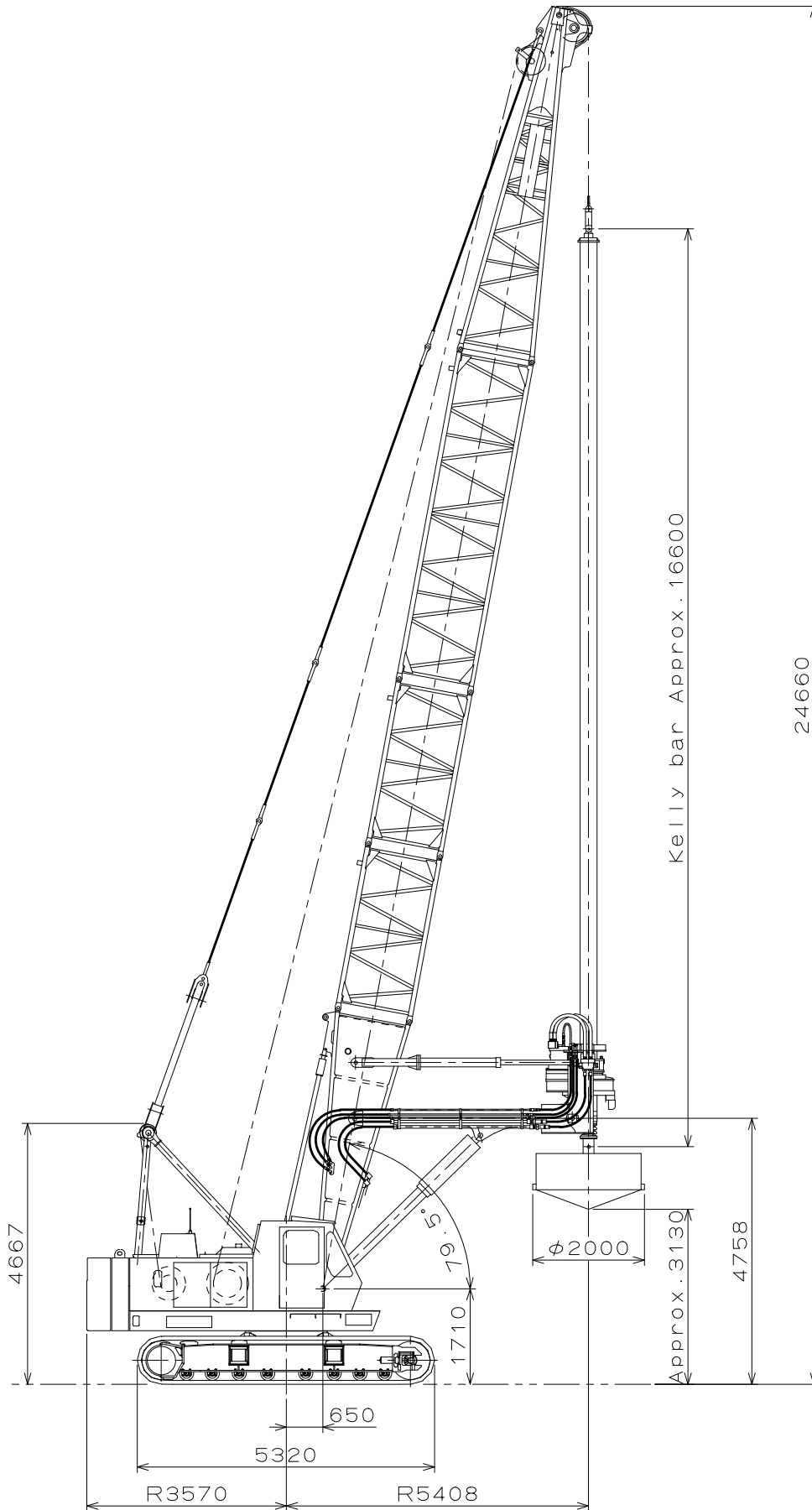
**2.6 Battery**..... DC24V-120A·h x 2 pcs.

**2.7 Fuel tank capacity**..... 250 liters

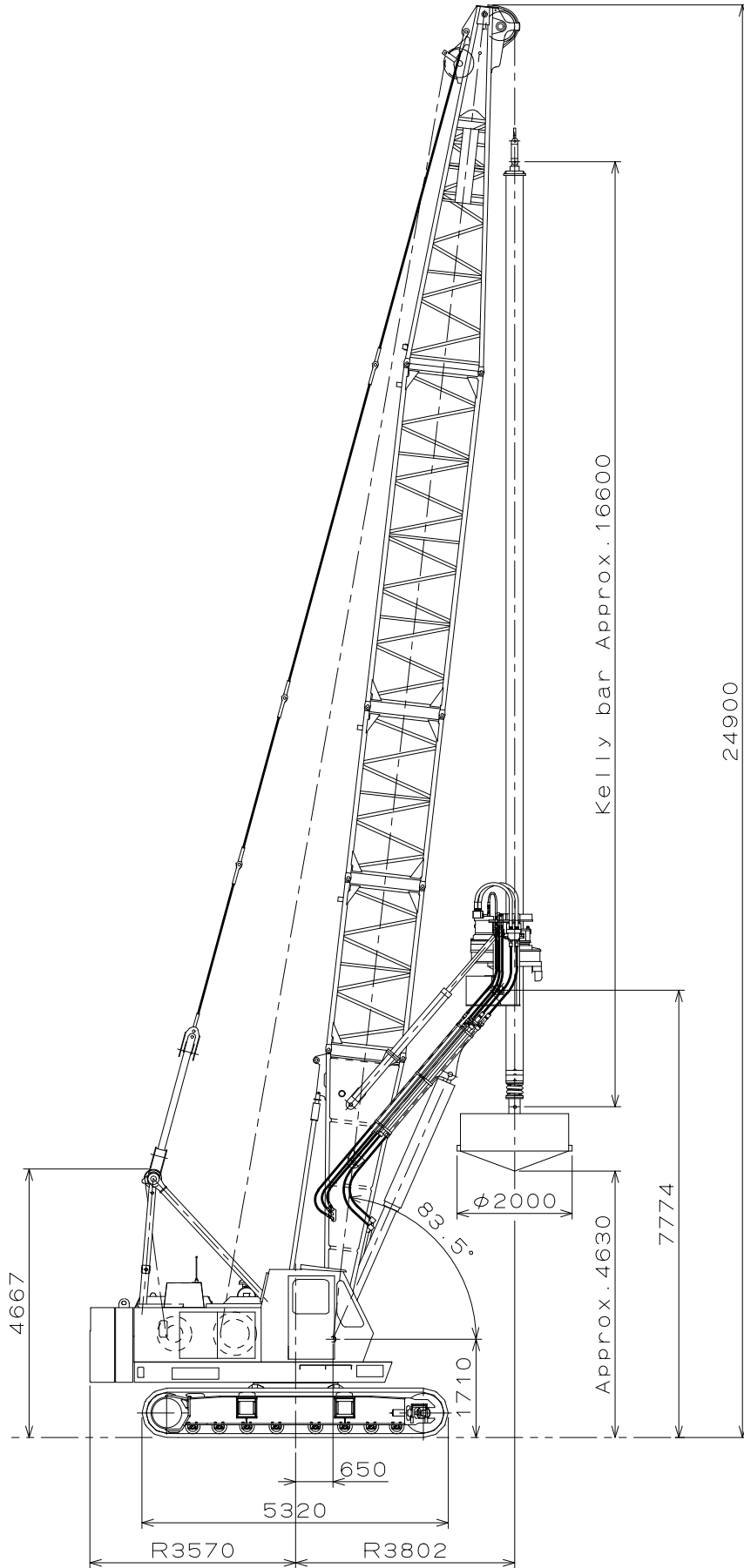
**3. GENERAL VIEW OF ED5800H with  $\phi$  2000 BUCKET(Optional)  
(Standard operating radius)**



**4. GENERAL VIEW OF ED5800H with  $\phi$  2000 BUCKET(Optional)  
(Maximum operating radius)**



**5. GENERAL VIEW OF ED5800H with  $\phi$  2000 BUCKET(Optional)  
(Minimum operating radius)**

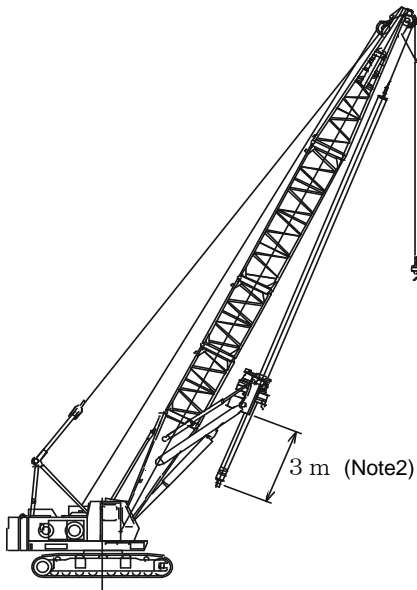




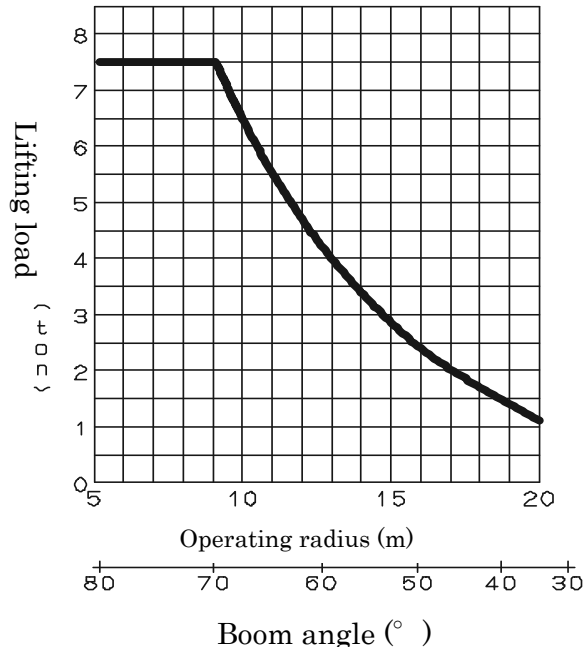
## 6. CRANE WORKING CAPACITY (Auxiliary hook)

**Rated lifting load table**

Radius(m)	5.2	7.0	9.1	10.0	12.0	14.0	16.0	18.0	20.0
Boom Angle(° )	80.0	75.4	69.9	67.4	61.9	56.0	49.7	42.7	34.6
Rated Lifting Load(t)	7.5	7.5	7.5	6.5	4.7	3.4	2.4	1.7	1.1



**Rated lifting load curve of auxiliary hook**



- Note 1 Auxiliary hook is used to lift up various materials as a stand pipe , reinforcement cage and tremie pipes, etc.
- Note 2 The rated lifting loads in the table are given when the machine is on firm and level surface without bucket and its kelly bar to be positioned to protrude approximately 3m from its kelly drive. (78 % of the tipping load)
- Note 3 Actual allowable lifting load shall be reduced the weight of all sling devices as hook from the load in the table.
- Note 4 The weight of 7.5 ton auxiliary hook is 60 kg.

## 7. TRANSPORTATION WEIGHT

Basic machine .....	26.8 t
(Excluding lower boom, front frame, counterweights)	
Counterweight (Inside) .....	5.7 t
Counterweight (Outside) .....	8.8 t
Lower boom .....	5.18 t
(Including backstop, front frame, erecting cylinder)	
Upper boom .....	1.1 t
3m insert boom .....	0.49 t
6m insert boom .....	0.74 t
Kelly drive .....	2.93 t
(Including kelly frame)	
Kelly bar .....	3.77 t
7.5T single hook block .....	0.06 t

## 8. STANDARD EQUIPMENT

### 1) Basic machine

- 14.5 ton (5.7 + 8.8) counterweight
- Three drums of main, auxiliary and boom
- Air conditioner (cool only)
- Electric fan in operator's cab
- Heater
- Radio
- Electric fuel pump
- Ash tray and sight level gauge with a bubble
- Standard tool set

### 2) Earth drill front-end attachments

- 23m lattice boom
- Kelly drive + 4-stage telescopic kelly bar
- Kelly drive frame + erecting cylinder
- Kelly rope ( $\phi$  25) with swivel (Rotary joint)
- 7.5T single hook block and auxiliary drum rope

## 9. OPTIONAL EQUIPMENT

- Moment limiter
- Depth meter
- Powerful heater

## **10. GENERAL CONDITIONS**

This specification shall cover the standard specification of Hydraulic Earth Drilling Rig; model ED5800H (here-in-after called "The machine") manufactured by NIPPON SHARYO, LTD.

The general arrangement and principal dimensions of the machine are shown in the drawings attached.

### **1) DESIGN AND WORKMANSHIP**

The machine shall be designed to perform the maximum efficiency with the least fuel consumption and the lowest maintenance costs.

The workmanship shall be of the first class in all respects.

The machine shall be built for simple mechanical arrangement and easy in inspection and maintenance.

### **2) MATERIALS**

The materials used in the manufacture of the machine shall be of the highest quality, free from defects and imperfections.

Principal materials such as bolts, nuts, seals and steel plates used in the machine confirm to the Japanese Industrial Standards. (Almost equal to ISO9001)

### **3) TEST AND INSPECTION**

Routine test and inspection in our factory shall be final.

### **4) PAINTING AND LETTERING**

Under-coating by anti-rust paint and enamel finishing shall be performed in accordance with manufacturer's standard practice.

Main parts of the equipment shall be painted in NISSHA Green and other equipment in manufacturer's standard.

### **5) SERVICE CONDITIONS**

The equipment shall meet the following service conditions.

Ambient temperature: -10 °C or higher and 40 °C or lower.

### **6) WARRANTY**

All the machines specified herein shall be warranted by us for a period of twelve (12) calendar months after the date of being put into operation, or fourteen (14) months after the date of shipment at a Japanese port, or one thousand engine operation hours according to the service hour meter, whichever is soonest.

The warranty shall cover defects in design, materials and workmanship only, shall not applicable to damage sustained mishandling of the machine or normal wear and tear.

The warranty shall not be applicable to the parts and materials mentioned below.

- ① Linings as brake/clutch bands and disc.
- ② Wear plates
- ③ Wire ropes
- ④ Rubber made parts
- ⑤ Seals as o-rings, seal rings, back-up rings, etc.
- ⑥ Gaskets and sheet packings
- ⑦ Filter elements
- ⑧ Batteries
- ⑨ Electric wiring
- ⑩ Glasses
- ⑪ Other quick moving parts
- ⑫ Lubricants

... concluded