



DONGHAE MACHINERY & AVIATION Co., Ltd

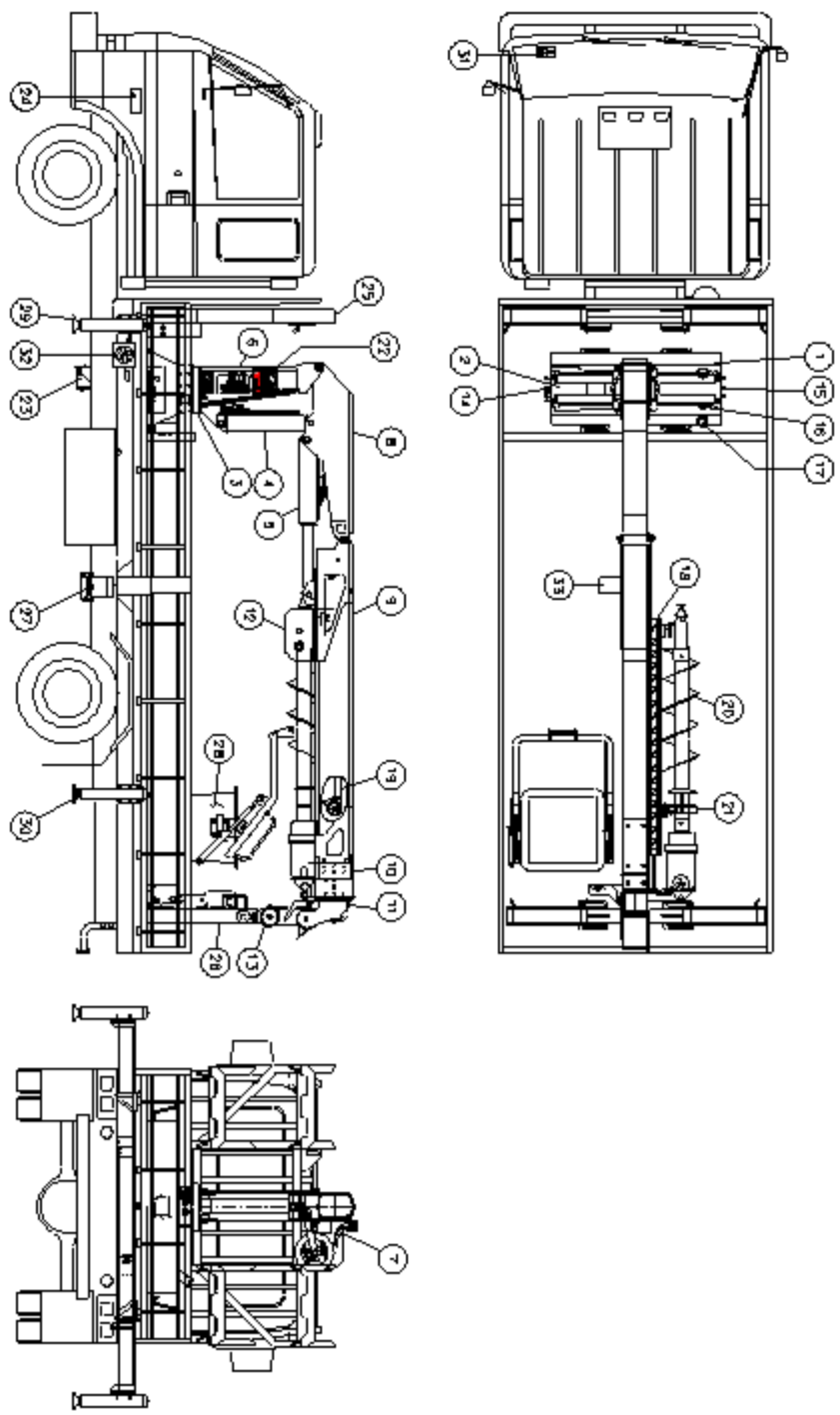
TECHNICAL SPECIFICATION

MODEL - DH SUPER 3000



| | |
|----------|----------------|
| Model | DH SUPER 3000A |
| Revision | 05 |
| Date | May 16, 2012 |

1. Terminology Diagram/DH Super 3000A



DH Super 3000 ————— Hydraulic Crane Leader

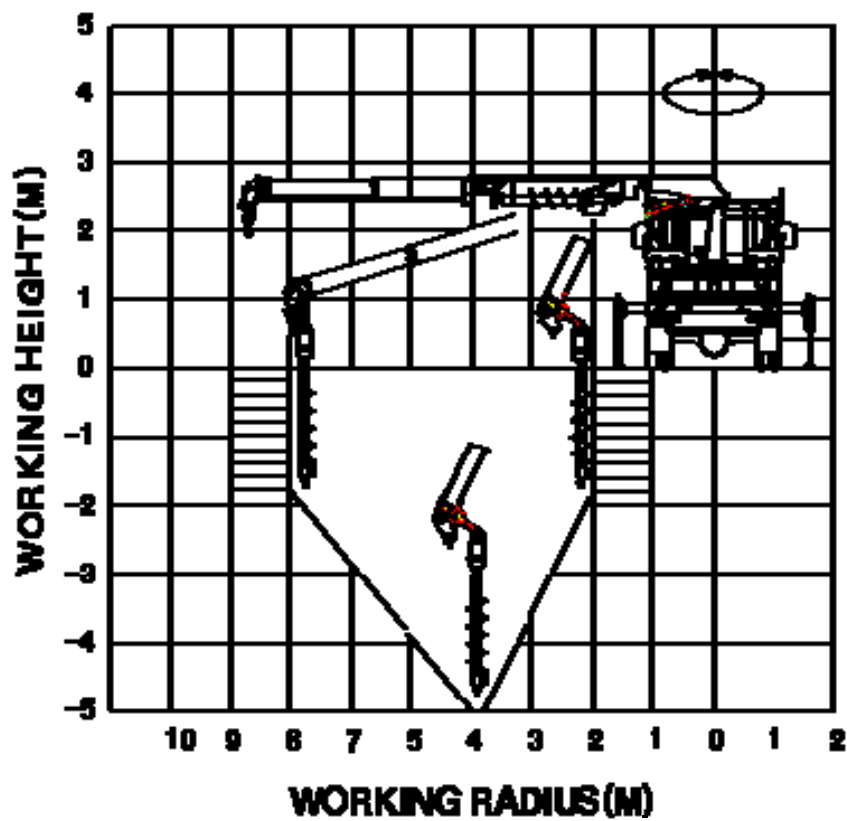
2. COMPONENTS DESCRIPTION/DH Super 3000

| No. | Description | Remark | No. | Description | Remark |
|-----|--|--------|-----|---|--------|
| 1 | Hydraulic unit | | 18 | Hose guide | |
| 2 | Base | | 19 | 3 rd stage cylinder | |
| 3 | Rotary bearing | | 20 | Auger drill | Option |
| 4 | 1 st stage cylinder | | 21 | Auger housing | |
| 5 | 2 nd stage cylinder | | 22 | Receiver | |
| 6 | Column | | 23 | Hydraulic pump | |
| 7 | Auger hose | Option | 24 | Engine accelerating device | |
| 8 | 1 st stage boom | | 25 | Front communication pole carrying bracket | Option |
| 9 | 2 nd stage boom | | 26 | Rear communication pole carrying bracket | Option |
| 10 | 3 rd stage boom | | 27 | Emergency hydraulic unit | Option |
| 11 | 4 th stage boom | | 28 | FRP bucket for 1 person | Option |
| 12 | Winch | | 29 | Front outrigger | |
| 13 | Hook | | 30 | Rear outrigger | |
| 14 | Outrigger control lever (Driver's side) | | 31 | P.T.O. Switch | |
| 15 | Outrigger control lever (Passenger's side) | | 32 | Oil cooler | Option |
| 16 | Rotary cylinder | | 33 | Work lamp | |
| 17 | Oil feeder | | | | |

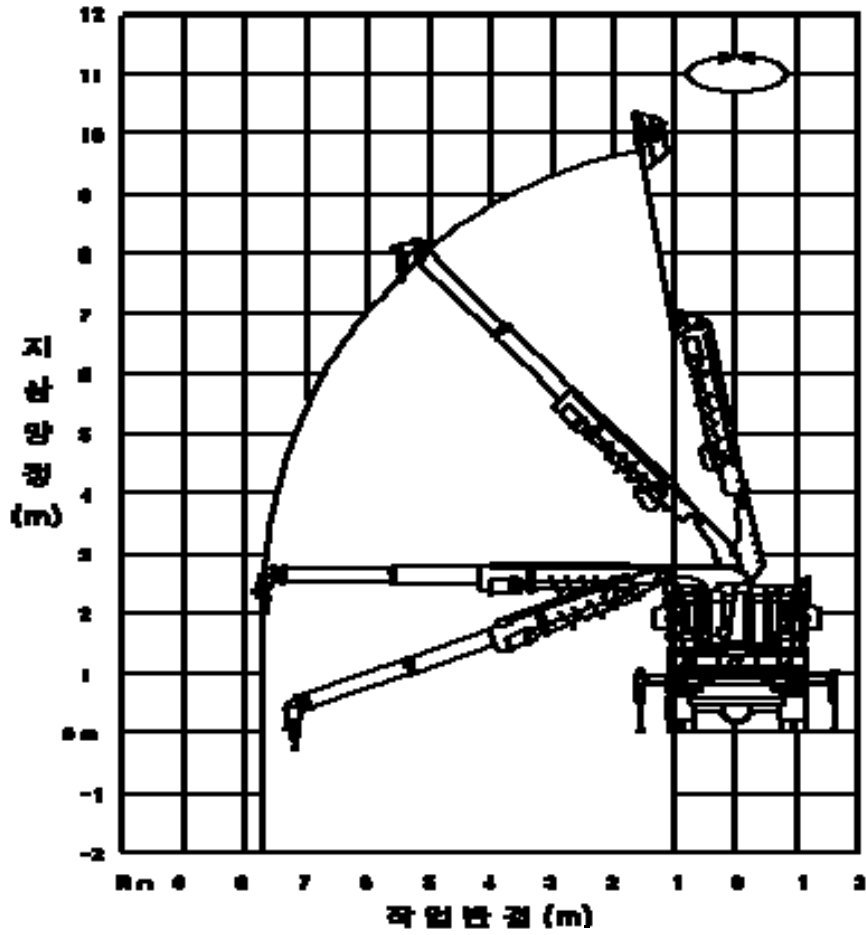
DH Super 3000

 Hydraulic Crane Leader

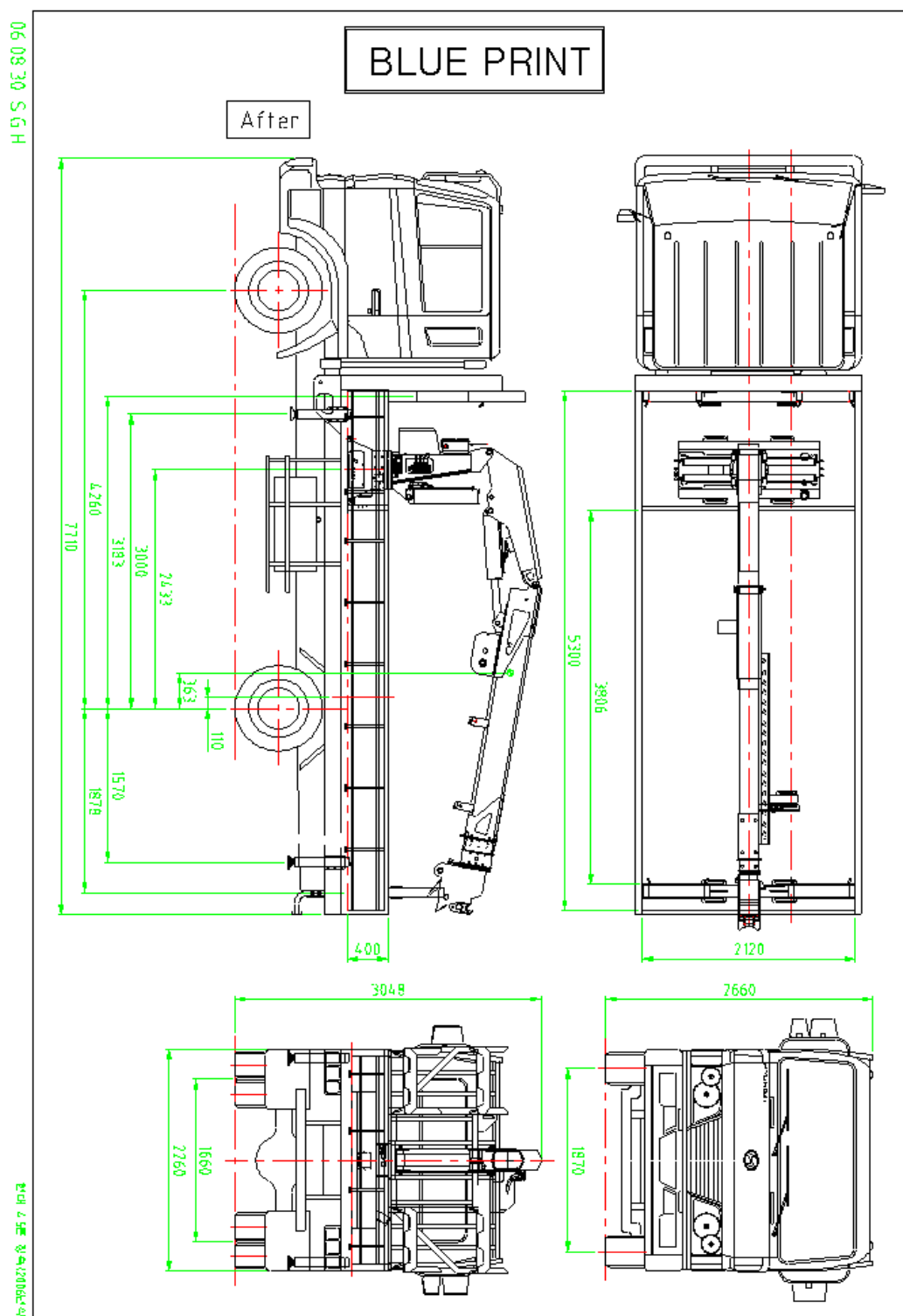
3. Drilling Radius/ DH Super 3000



4. Lifting Capacity/ DH Super 3000



5. Overall Sketch



◆ Truck Specification may be different up to customer's selection.

DH Super 3000 --- Hydraulic Crane Leader

6. General introduction

The unit called “DH SUPER 3000” is designed for multi-purposed usage such as lifting materials, aerial work and setting up the communication pole. It is driven by P.T.O (Power Take Off), which uses engine power of the vehicle and controlled by proportional control using wire or wireless transmitter.

To secure the safety of the unit, vehicle and personnel, the unit has diverse kinds of safety devices.

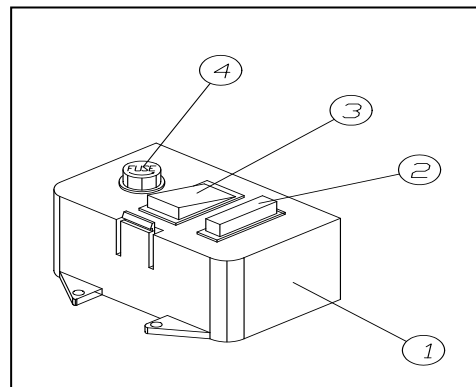
| No. | Description | Standard |
|-----|----------------------------------|---|
| 1 | Dimension | 4,900(mm) x 1,600(mm) x 1,700(mm) |
| 2 | Permissible vehicle for mounting | Not less than 3.5 MT truck |
| 3 | Maximum work height | 10.8 (From ground to the bucket top) |
| | | 9.5m (From ground to the winch hook) |
| 4 | Maximum Side Reach | 7.8m (Bucket) |
| 5 | Rotation angle/Speed | Clockwise 180° & Counter clockwise -180°/30sec |
| 6 | Rotation device | Hydraulic rack gear |
| 7 | Drilling depth | 1.5M |
| 8 | Auger drill diameter | 300mm |
| 9 | Load capacity | 2.5MT/2.4m, 1.7/4.6, 1.2/6, 0.78/7.8 |
| 10 | Operation method | Wire or wireless transmitter/ Manual control lever |
| 11 | Front outrigger type | Automatic & contained hydraulic cylinder |
| 12 | Oil tank capacity | 70 Liter |

- ALL TECHNICAL SPECIFICATION IS BASED ON STANDARD ITEM OF DONGHAE MACHINERY & AVIATION Co., Ltd.
- IT IS SUBJECTED TO CHANGE FOR THE IMPROVEMENT OF THE QUALITY WITHOUT PRIOR NOTICE.

7. PTO

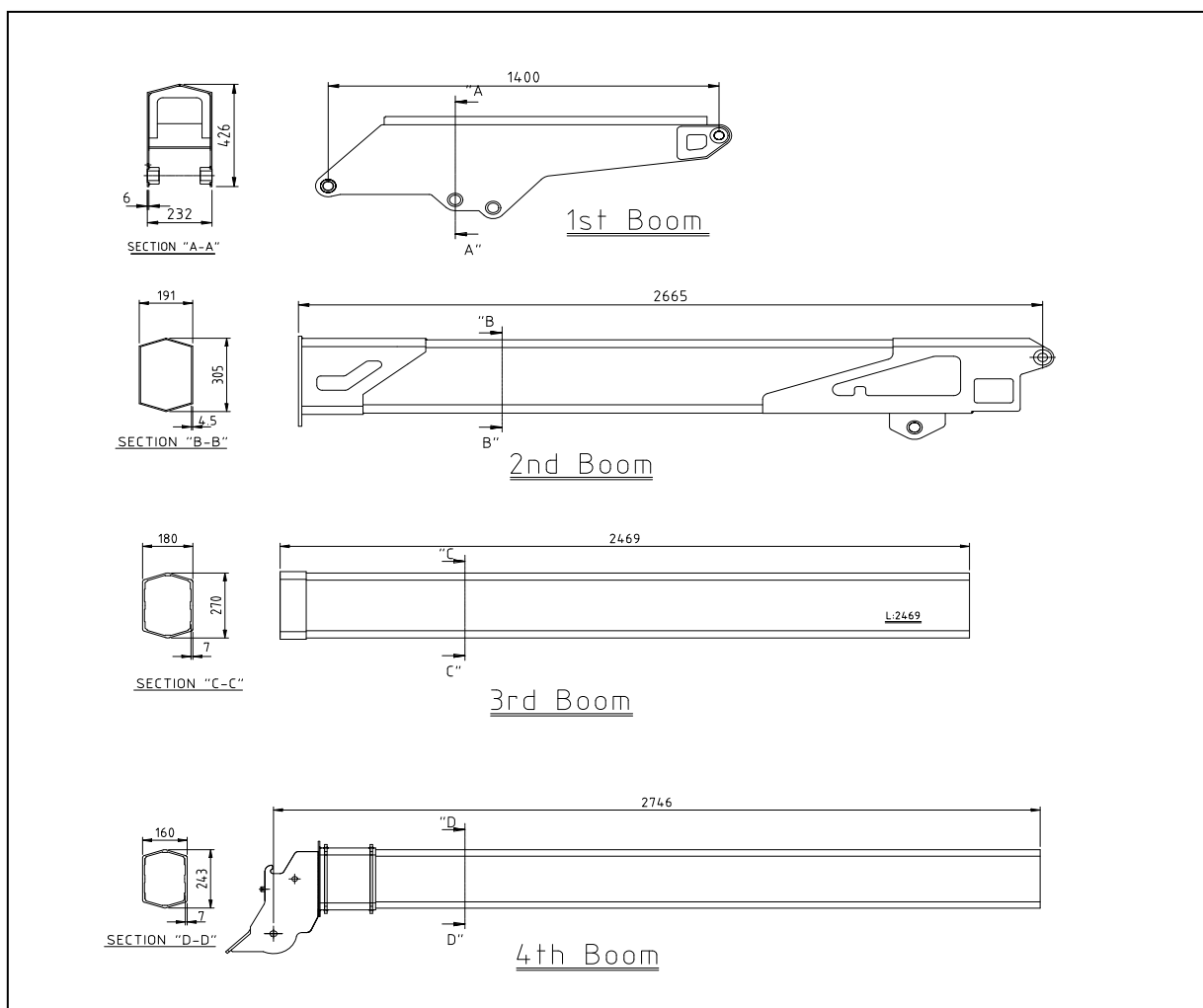
The oil pump is driven by the P.T.O via Propeller shaft. The P.T.O conversion switch box locates at the cabin of the vehicle.

- ① P.T.O Switch Box
- ② P.T.O Lamp
- ③ P.T.O Switch
- ④ P.T.O Fuse



8. Boom Structure

(1), Boom sectional size



DH Super 3000 --- Hydraulic Crane Leader

(2), Boom length

The radius of boom when fully retracted is not less than 2.2 m. The radius length when boom is fully extended is not less than 7.3 m.

Refer to the chapter 1, 2 & 3 for its work radius and load chart.

(3), Boom detail

- Operated by Hydraulic cylinder.
- Type: 1st & 2nd stage booms - Articulated boom.
3rd & 4th stage booms - Telescopic boom.
- Material: 1st stage boom – High tensile pentagonal steel.
2nd stage boom – High tensile hexagonal steel.
3rd & 4th stage booms – Aluminum hexagonal boom..
- 1st stage boom elevation range is from (0°) to (78°) (Minimum).
- 2nd stage boom elevation range is from (-69°) to (0°) (Minimum).
- Turning angle 360 °
Non continuous rotation – clockwise(180°) and counter clockwise (-180°)
- Lifting capacity is not less than (700)kg at 0° with 2nd stage boom fully extended.
- Maximum lifting capacity is (3) Metric ton.
- Digging radius distance when boom at 0° is (2.2)m.(Minimum)
- Digging radius distance with 4th stage boom fully extended at 0° is (7.3)m.

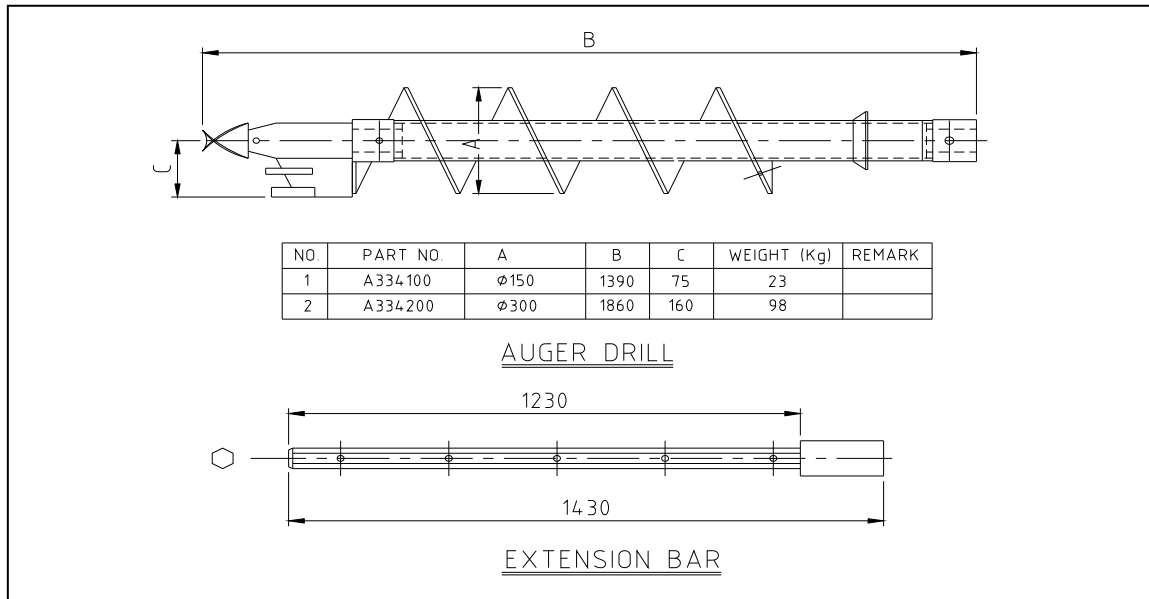
9. Auger

(1), Specification of Auger Drill

| | | |
|------------------------------|-------------------|---------------|
| Material | Drill body | STPG 370 Pipe |
| | Drill wing | SM45C |
| | Bit blade | Carbide tip |
| Distance between drill wings | 300 mm | |
| Drill diameter | 300 mm | |
| Excavation depth | 1.5 m | |
| Excavation range | 2 ~ 7 m | |
| Revolution | 20 ~ 40 (rev/min) | |
| Torque | Over 300kgm | |
| Power source | Hydraulic motor | |

DH Super 3000 --- Hydraulic Crane Leader

(2), Diagram of Auger drill



10. Main Components

(1) Unit:

- 1) Unit is designed for fixing this crane to vehicle and it is connected with swing part of the crane.
- 2) The part for fixing base and vehicle is fixed by special steel bolts with heat treatment.
- 3) Column is mounted over the bearing of rotary shaft. Rotation system is driven by rack gear and spur one. Hydraulic cylinder pushes rack gear and the rack gear rotates spur gear and then it makes the column rotated. Rotation angle is $0^{\circ} \sim 180^{\circ}$ and $0^{\circ} \sim (-180^{\circ})$.

(2) Outrigger:

- 1) There are two set of outriggers in this unit, one in front and the other in rear.
- 2) Manual valve lever controls raise and lowering the outriggers and extending & retracting of the outriggers are operated by automatically or manually according to option.
- 3) The outriggers are composed of beams and legs. The appearance of beam is rectangle and a double-acting cylinder is used.
- 4) To prevent shake of the vehicle, the outriggers are used when the unit operates. The vehicle may be turned over if you do not set the outriggers and operates the unit.
- 5) Pilot check valve prevents up & down joggle of the outrigger legs and prevents also tilt of the vehicle when hose breakage happens.

(3), Column

DH Super 3000 --- Hydraulic Crane Leader

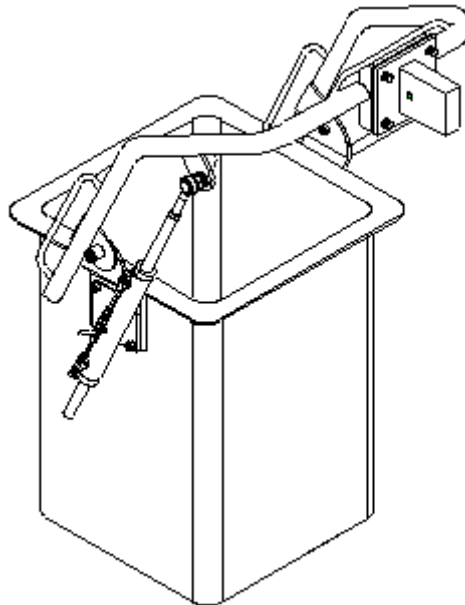
- 1) The column is assembled with rotary bearing on the base and connected with the 1st stage boom and 1st stage cylinder.
- 2) In the inside of the column, there are solenoid valve and block to discharge and distribute hydraulic oil to every cylinder. Also there are power switch, fuse and work lamp switch outside of the column.

(4), Oil Tank

- 1) The oil tank locates at the floor of base and its capacity is 50 liters.
- 2) Oil amount is shown at the oil gauge of the side of oil tank. Make sure the oil amount always should be over the maximum limit of the oil gauge.
- 3) There are one oil feeder, one oil filter and a drain outside of the tank and another oil filter is inside of the oil tank.
- 4) Hydraulic oil influences the expected life span of the main component of the unit.

(5), Bucket

- 1) It is used for aerial work attaching at the end of 4th stage boom.
- 2) It keeps the horizontality by dead weight owing to the change of boom angle.
- 3) To keep the horizontality, move the lever of cylinder at the side of the bucket.
- 4) To let the bucket in horizontality, always open the lever to keep the horizontality by dead weight when the boom rises or lowers. But fix the lever when you work in the bucket without movement.



■ **Bucket is not insulated. Extremely be careful not to get electric shock.**

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(6), Winch (Option)

- 1) It is a hydraulic winch for lifting a heavy material.
- 2) It is composed of a hydraulic motor, a gear, a drum and a brake. Its lifting capacity is 750 kg.
- 3), Auger, aerial and lifting work have to be operated separately.

11. SAFETY DEVICES

(1) Manual valve:

It prevents rapid movement when the unit operates and makes the cylinder operated smoothly.

(2) Pilot check valve:

These prevent boom falling abruptly if there is a hydraulic line failure or cutting off.

(3) Preventive device for swing range deviation:

It is a device to prevent the overturning of the vehicle, it controls the swing angle to the front side of the vehicle in the 120° (Each 60° from the center line)

(4) Overload check sensor:

It stops the unit operation when the unit lifts over the rated load with alarm sound. It is possible to lift heavier load than the rated load when the boom is fully retracted and close to the vehicle.

(5) Leveling cylinder:

It keeps the horizontality of the bucket by dead weight. Open the lever when the boom rises or lowers and then fix the lever when you work in the bucket without movement. (Manual lever)

(6) Lock catch:

It is device to prevent the crane turning when the vehicle is running.

(7) Warning alarm:

It is a device to make a warning sound in the case of unsafe working situation.

Replace the cause of alarm after stop operation.

(8) Preventive device for Overwind:

It prevents the collision between hook and the end of the boom when the winch is wound and the boom is extended.

(9) Emergency Hydraulic Unit (Option);

- ① When you have to operate the unit under the engine failure, use the emergency pump. Pressing the pump do the operation what you have to do.
- ② Do not operate the unit under the engine failure except an emergency case. (The battery could be discharged and it will cause hazard to the unit.)

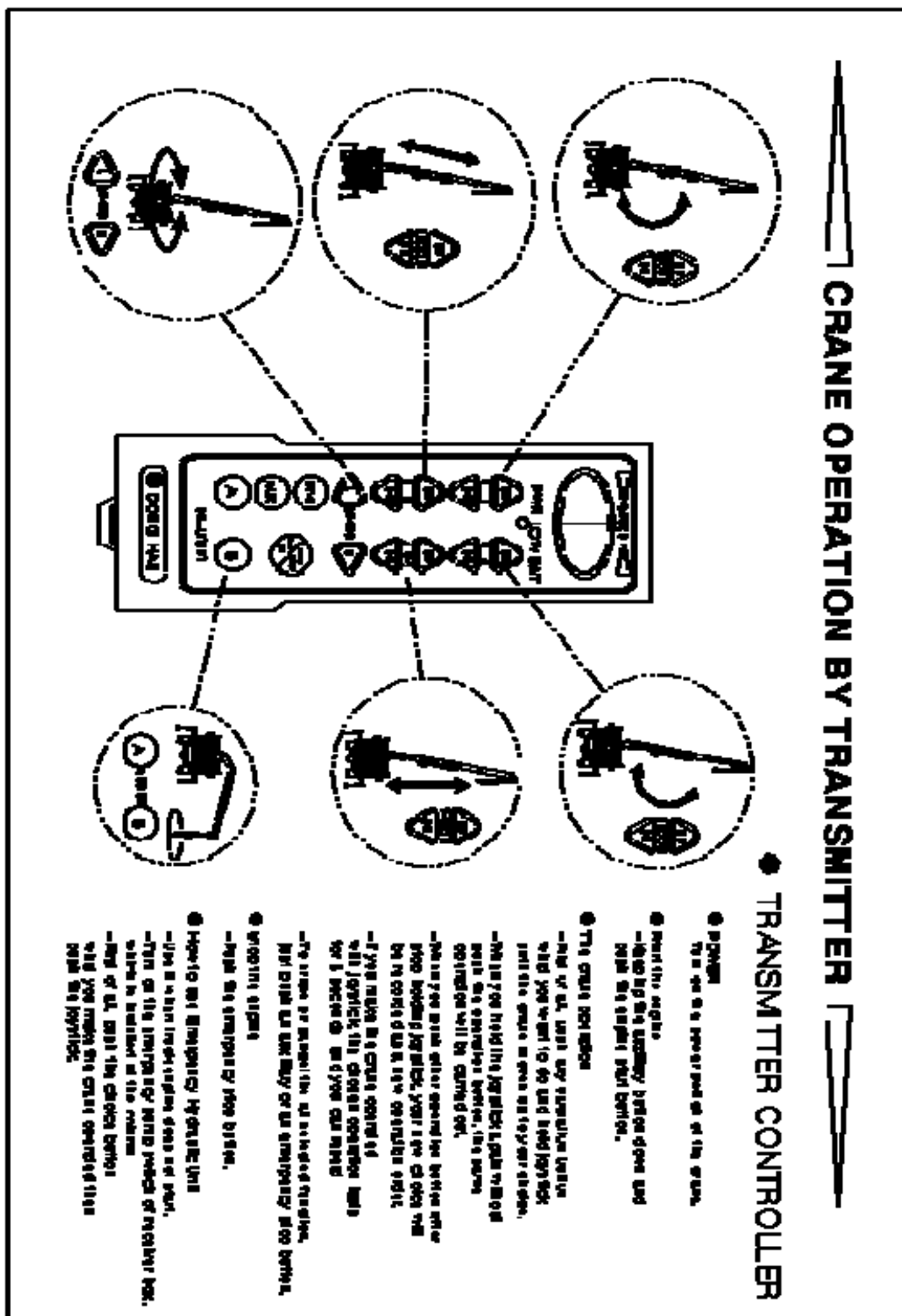


(10) Emergency manual valve:

- 1), Its usage is for the case that battery and transmitter are out of order when the engine is on.
- 2), Before operating, contact with headquarter or A/S center for more safe work.
- 3), Detach the Emergency manual valve cover from column.
- 4), Lock the metering valve located on behind outrigger manual valve.
- 5), Check the label on column, expect the crane operation.
- 6), Make the equipment return to safe condition by operating the lever as slowly as it can.
- 7), Get the metering valve to the original position.



11. Efficiency of the control (Wire/Wireless transmitter)





- The End -