



DONGHAE MACHINERY & AVIATION Co., Ltd

# TECHNICAL SPECIFICATION

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## MODEL - 433 SERIES

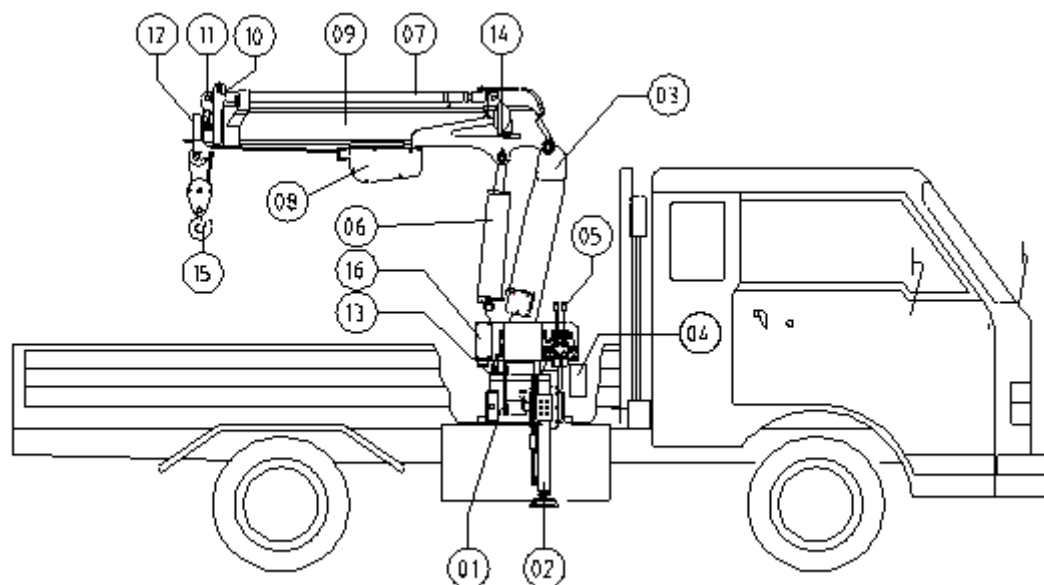


Model	DHS 433 Series
Revision	05
Date	May 16, 2012

DHS 433

Hydraulic Crane Leader

## 1. Terminology Diagram/DHS 433L

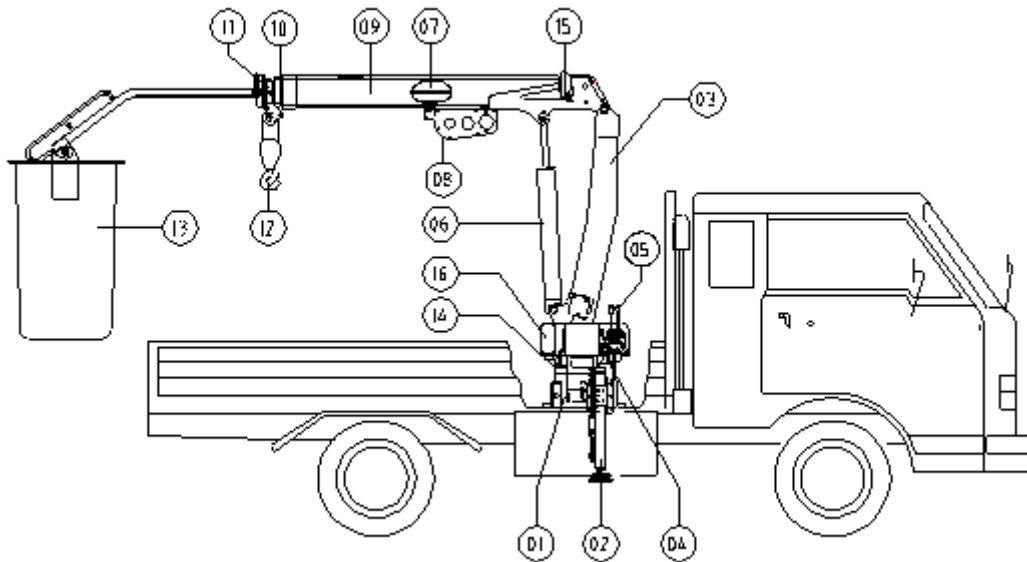


No.	Description	No.	Description
1	Unit (Including Oil Tank)	9	1 <sup>st</sup> Stage Boom
2	Front Outrigger	10	2 <sup>nd</sup> Stage Boom
3	Column	11	3 <sup>rd</sup> Stage Boom
4	Receiver	12	4 <sup>th</sup> Stage Boom
5	Outrigger Control Lever	13	Swing Base
6	Derrick Cylinder	14	Work Lamp
7	Telescopic Cylinder	15	Hook
8	Winch	16	Switch Box

DHS 433

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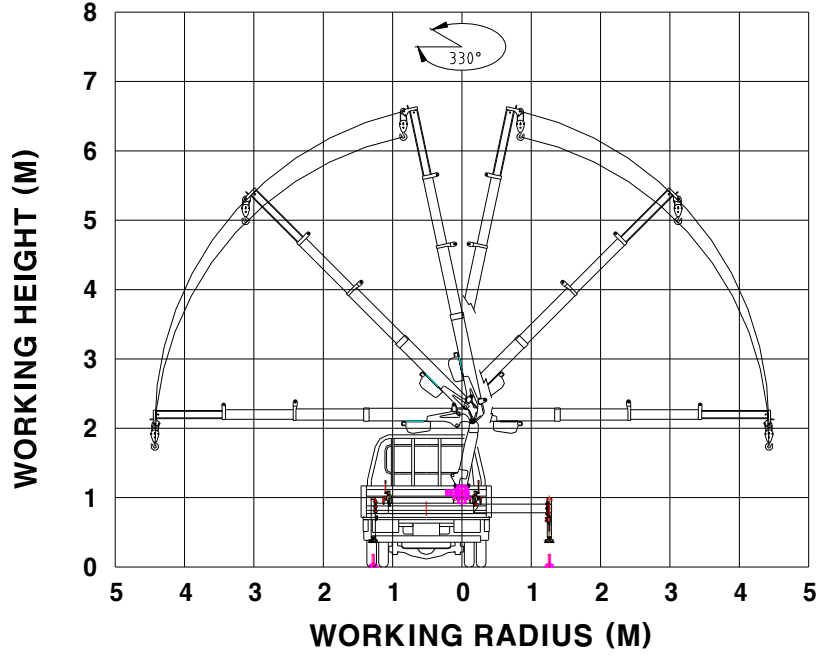
### 1-1. Terminology Diagram/DHS 433M



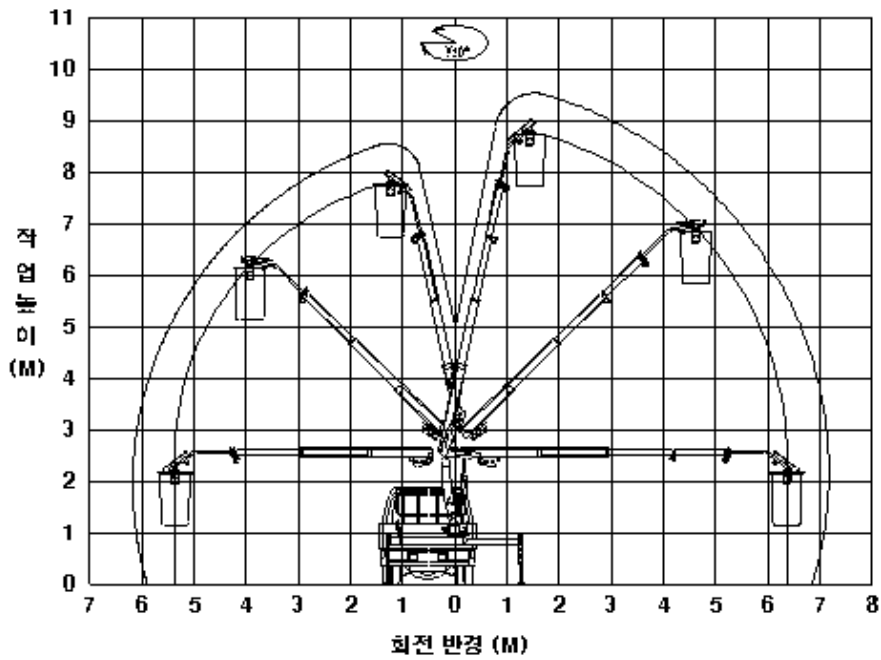
No.	Description	No.	Description
1	Unit (Including Oil Tank)	9	1 <sup>st</sup> Stage Boom
2	Front Outrigger	10	2 <sup>nd</sup> Stage Boom
3	Column	11	3 <sup>rd</sup> Stage Boom
4	Receiver	12	Hook
5	Outrigger Control Lever	13	Bucket (Option)
6	Derrick Cylinder	14	Swing Base
7	Telescopic Cylinder	15	Work Lamp
8	Winch	16	Switch Box

## 2. Working Radius/DHS 433L

### Winch Radius

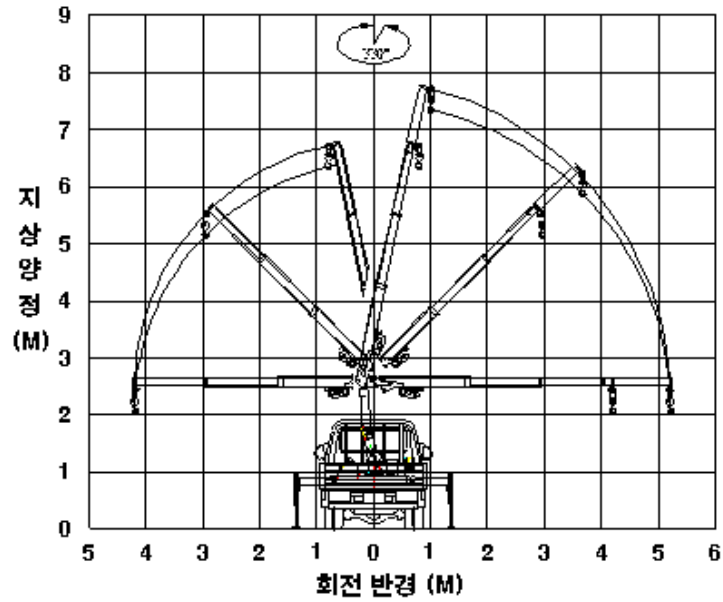


### Bucket Radius

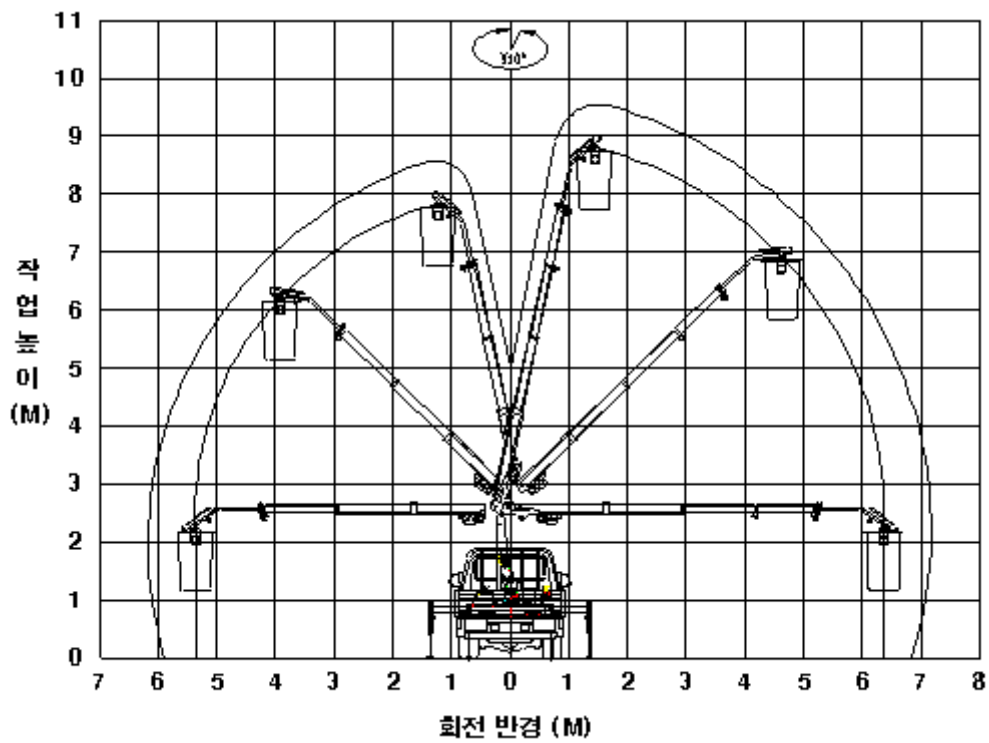


2-1. Working Radius/DHS 433M

Winch Radius



Bucket Radius



**DHS 433** \_\_\_\_\_ **Hydraulic Crane Leader**
**3. SPECIFICATION**
**3-1. DHS 433 L**

Specification of DHS 433 L			
No.	Description	Standard	
1	Product Name	DHS 433 L	
2	Manufacturer Name	DONGHAE MACNIHERY& AVIATION Co., Ltd	
3	Dimension (L x W x H)	1,448(mm) x 500(mm) x 1,523(mm)	
4	Permissible Vehicle for Mounting	Not less than 1 MT truck	
5	Maximum Lifting Height	Automatic Boom - 5.3 m	
		Manual Boom - 6.2 m	
6	Lifting Capacity (Load@Work Radius)	Automatic Boom	1,300 kg/2m
			850 kg/3m
		Manual Boom	600 kg/4.2m
			550 kg/4.5m
7	Boom		
	Boom Type	Telescopic	
	Operation Speed	Under 9° sec	
8	Winch		
	Hook Speed	Over 7 m/min	
	Wire Rope	Ø 6.35 x 17m	
	Type	Hydraulic Motor Driven, Worm Self-Locking brake System	
	Lifting Capacity	300 kg (Single Line), 600 kg (Double Line)	
9	Rotation		
	Rotation Angle	330°	
	Rotation Speed	Under 9° sec	
	Rotation Type	Hydraulic Motor Driven	
10	Outrigger		
	Type	Front Left Beam – Fixed Type	
		Front Right Beam- Horizontal Manually Extension Type	
		Front Left & Right Legs- Vertical Hydraulic Extension Type	
Span	Over 2.5 m		

No.	Description	Standard	
11	Hydraulic System		
	Hydraulic Driven Type		
	Pump	Rated Oil Flow	Over 8.4 ℓ/min
		Rated Power	180 kg
12	Control		
	Type	Wire Proportional Control Transmitter (PTO)	
		Wire Solenoid Control Transmitter (Motor)	
13	Hydraulic Oil Reservoir Capacity	16 ℓ	
14	KC Items	Emergency stop switch, emergency manual control lever, emergency power pack, winch pressure sensor, winch over-winding prevention device	
15	Safety Device	Proportional Valve, Counter Balance Valve, Auto Slewing Preventer, Pilot Check Valve, Relief Valve, Safety Hook Link, Auto Overload Control Sensor	

### 3-3. DHS 433 M

Specification of DHS 433 M		
No.	Description	Standard
1	Product Name	DHS 433 M
2	Manufacturer Name	DONGHAE MACNIHERY & AVIATION Co., Ltd
3	Dimension (L x W x H)	1,511(mm) x 1,518(mm) x 1,773(mm)
4	Permissible Vehicle for Mounting	Not less than 1 MT truck
5	Maximum Lifting Height	6.3 m
6	Lifting Capacity (Load@Work Radius)	1,300 kg/2 m
		850 kg/3 m
		600 kg/4.2 m
		Auxiliary Boom
7	Boom	
	Boom Type	Telescopic
	Operation Speed	Under 4.7° sec

No.	Description	Standard
8	Winch	
	Hook Speed	Over 10 m/min
	Wire Rope	Ø 6.3 x 27m
	Type	Hydraulic Motor Driven, Worm Self-Locking brake System
	Lifting Capacity	300 kg (Single Line), 600 kg (Double Line)
	Rotation	
	Rotation Angle	330°
	Rotation Speed	Under 9° sec
	Rotation Type	Hydraulic Motor Driven
	Outrigger	
	Type	Front Left & Right Beams - Horizontal Manually Extension Type
		Front Left & Right Legs- Vertical Hydraulic Extension Type
	Span	Over 2.5 m
11	Hydraulic System	
	Hydraulic Driven Type	PTO (M-PTO)
	Pump	Rated Oil Flow
Rated Power		180 kg
12	Control	
	Type	Wire Proportional Control Transmitter (PTO)
Wire Solenoid Control Transmitter (Motor)		
13	Hydraulic Oil Reservoir Capacity	16 ℓ
14	KC Items	Emergency stop switch, emergency manual control lever, emergency power pack, winch pressure sensor, winch over-winding prevention device
15	Safety Device	Proportional Valve, Counter Balance Valve, Auto Slewing Preventer, Pilot Check Valve, Relief Valve, Safety Hook Link, Auto Overload Control Sensor

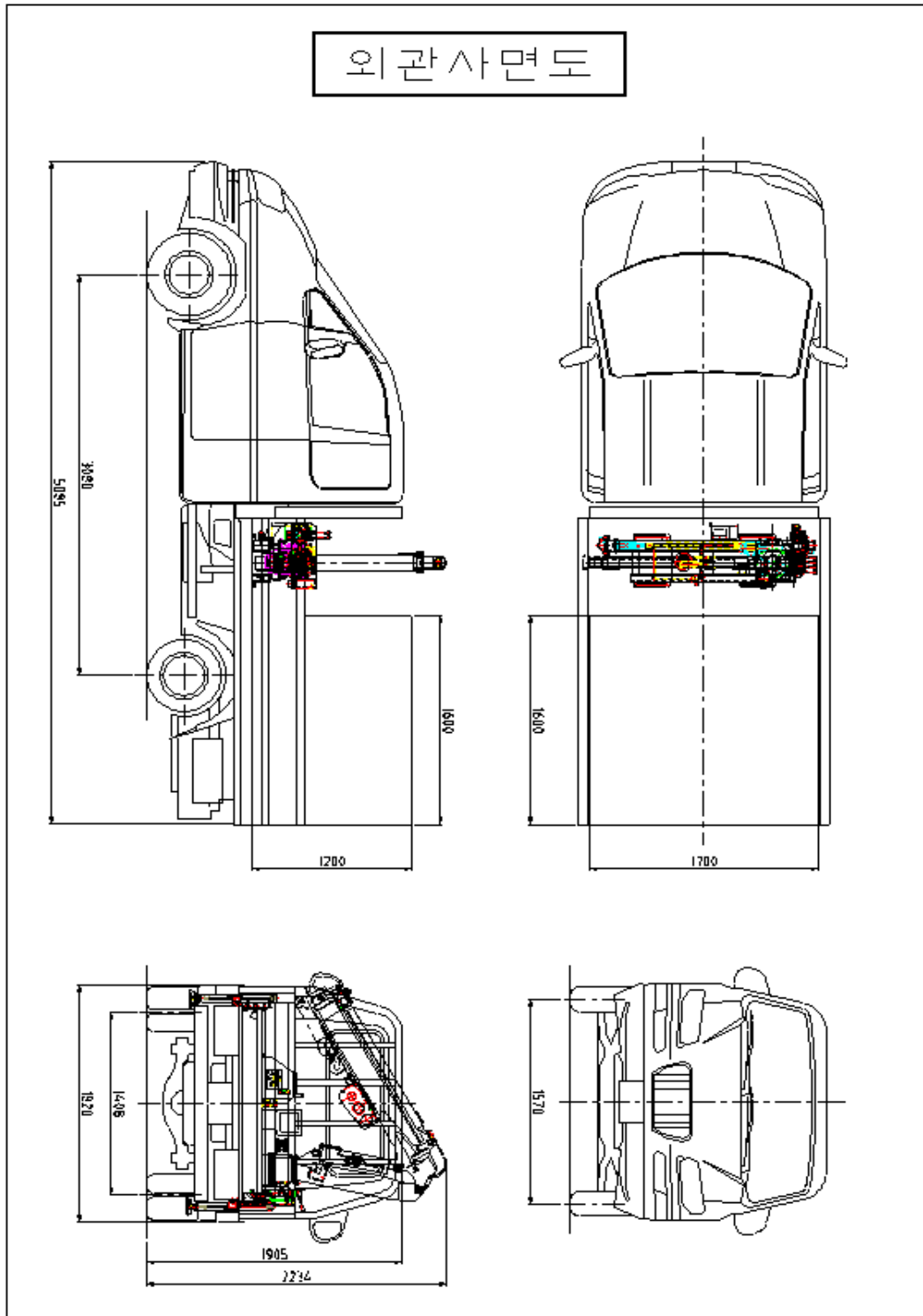
- **ALL TECHNICAL SPECIFICATION IS BASED ON STANDARD ITEM OF DONGHAE MACHINERY & AVIATION Co., Ltd.**
- **IT IS SUBJECTED TO CHANGE FOR THE IMPROVEMENT OF THE QUALITY WITHOUT PRIOR NOTICE.**



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## 4. OVERALL DIMENSION



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

## 5. MAIN COMPONENTS

### 1. Unit;

- 1) Unit is designed for fixing this unit to vehicle and it is connected with swing part of the column.
- 2) Unit and the part for fixing vehicle is fixed by special steel bolts with heat treatment on the main frame of vehicle.
- 3) Column is mounted on the swing base.  
Rotation system is driven by worm gear and worm wheel (swing) gear. Hydraulic cylinder pushes worm gear and the worm gear rotates worm wheel and then it makes the column rotated.
- 4) At the side of unit, solenoid valve and block, electro magnetic solenoid valve, manual valve are installed. And receiver box and switch box are also installed. Rotation angle is  $0^{\circ} \sim 330^{\circ}$ .

### 2. Outrigger:

- 1) There are one set of outrigger in this unit, one in left and the other in right.
- 2) The outrigger behind of driver's seat is fixed type and it is only available to extend and retract vertically. The outrigger behind of passenger's seat is available to extend and retract outrigger beam manually.
- 3) The outrigger behind of driver's seat is composed of legs and the outrigger behind of passenger's seat is composed of beams and legs. The appearance of beam is rectangle and a double-acting cylinder is used.
- 4) The outrigger is an equipment for preventing shaking of the vehicle when the crane operates. Without outrigger, the unit can be overturned and can be damaged to its frame.

### 3. Column;

The column is assembled with rotary bearing on the frame and connected with the 1st stage boom.

### 4. Oil Tank;

- 1) The oil tank locates at the outside of unit and its capacity is 16 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.

## DHS 433 Hydraulic Crane Leader

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 components of the unit.

### 5. Boom System;

1) The booms are composed of 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> stage boom.

2) The 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> stage booms are made of high tensile steel.

3) The 1st stage boom is fixed to the column and is moved by derrick cylinder and its refraction angle is  $-50^{\circ} \sim 78^{\circ}$ .

4) The 2<sup>nd</sup> and 3<sup>rd</sup> stage booms are extended at 1,225 mm and 2,450 mm separately and it is moved by telescopic cylinder.

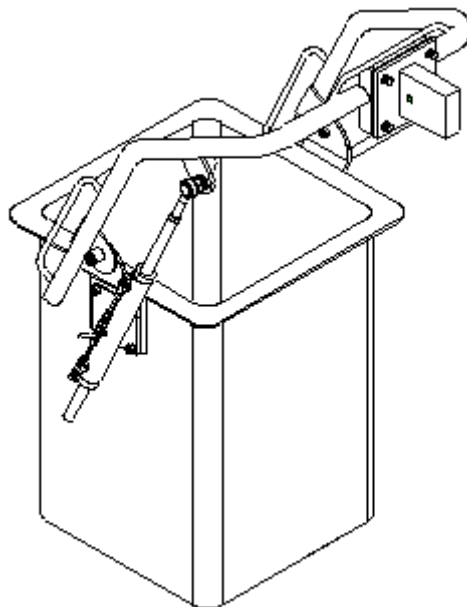
### 6. Bucket - Option

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>

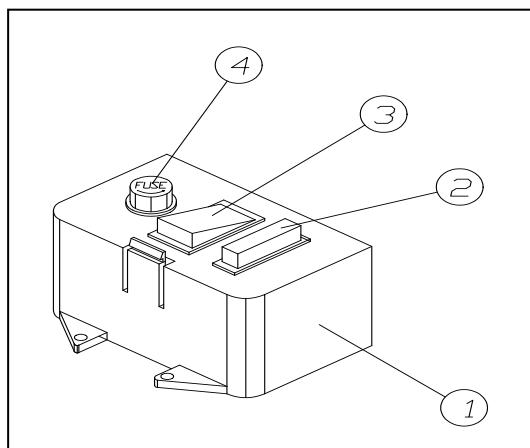
**DHS 433****Hydraulic Crane Leader****7. Emergency stop switch**

It is fitted at the unit and makes stop of all crane function in emergency. To restore function, turn to the switch to the clockwise.

**8. 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

**9. Emergency power pack**

When truck engine is out of order, this emergency power pack can operate aerial platform such as boom rotation, boom extension and retraction, outrigger extension and retraction etc. In an engine failure case, an operator who is in the bucket can get back to the ground using this unit.



**DHS 433 \_\_\_\_\_ Hydraulic Crane Leader****10. Boom Angle Gauge**

It shows boom angle to an operator. Referring to this gauge, operator can easily recognize the bucket angle.

**11. Winch pressure sensor**

It prevents lifting of overloaded material. With alarm sound, it makes stopped lifting overloaded material.

**12. Winch over-winding prevention device**

It prevents crash between winch hook and hook block, which might cause falling material and damage.

DHS 433

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<DHS 433L with KIA 1 MT truck>



<DHS 433M with KIA 1 MT truck>



DHS 433

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