



**DONGHAE MACHINERY & AVIATION Co., Ltd**

# TECHNICAL SPECIFICATION

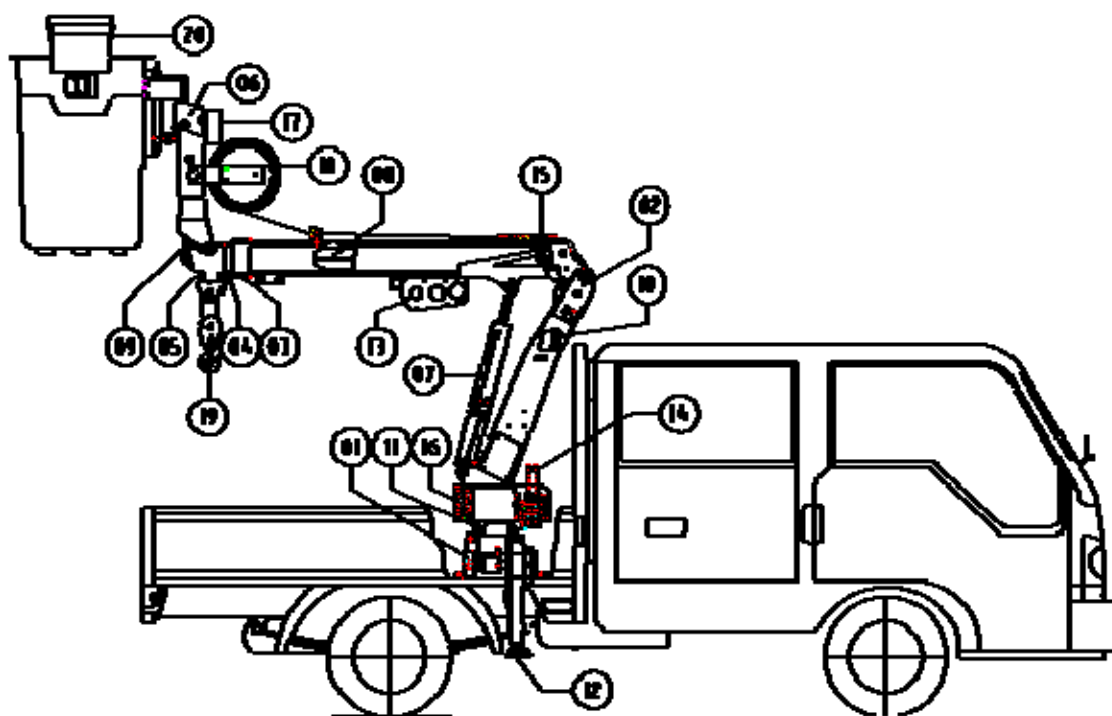
## MODEL - DHS 870



Model	DHS 870
Revision	06
Date	May 16, 2012

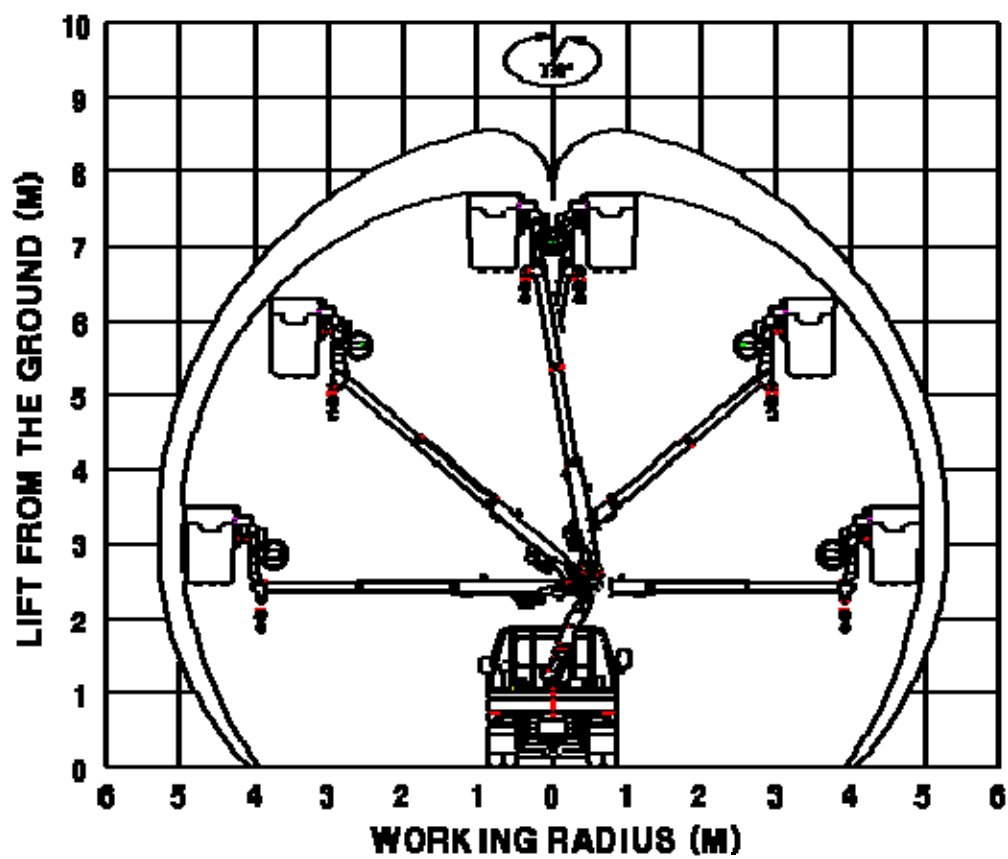
# DHS 870 Hydraulic Crane Leader

## 1. Terminology Diagram-For 1 MT Double Cabin Truck



No.	Description	No.	Description
1	Unit	11	Swing base
2	Column	12	Outrigger
3	1 <sup>st</sup> Stage Boom	13	Winch (Option)
4	2 <sup>nd</sup> Stage Boom	14	Lever of Outrigger Operation
5	3 <sup>rd</sup> Stage Boom	15	Work Lamp (Option)
6	Platform	16	Upper Connecting Terminal
7	Derrick Cylinder	17	Lower Connecting Terminal
8	Telescopic Cylinder	18	Hose reel
9	Platform Leveling Cylinder	19	Hook
10	Leveling Cylinder	20	OP DESK (Option)

## 2. Working Radius



# DHS 870 Hydraulic Crane Leader

## 3. SPECIFICATION

Specification of DHS 870			
No.	Description	Standard	
1	Product Name	DHS 870 Platform Type	
2	Manufacturer Name	DONGHAE MACNIHERY & AVIATION Co., Ltd	
3	Dimension (L x W x H)	2,335(mm) x 1,655(mm) x 1,756(mm)	
4	Permissible Vehicle for Mounting	Not less than 1MT truck	
5	Maximum Work Height	8 m	
6	Maximum Side Reach	5 m	
7	Boom Type	1 <sup>st</sup> Stage	Articulated
		2 <sup>nd</sup> & 3 <sup>rd</sup> Stage	Telescopic
8	Boom Material	1 <sup>st</sup> Stage	High tensile Hexagonal Steel
		2 <sup>nd</sup> & 3 <sup>rd</sup> Stage	Hexagonal Aluminum
9	Rotation Angle/Speed	Clockwise 180° & Counter clockwise -180°	
10	Rotation Device	Hydraulic Motor	
11	Platform	Material	F.R.P (Fiberglass Reinforced Plastic)
		Dimension	1,000 x 645 x 1,000(mm)
		Swing Angle	180° / Manual Wheel Bar
		Leveling	Auto horizontality by Hydraulic Cylinder
		Load Capacity	200kg (Including Operator)
		Occupancy	2 Personnel
		Feature	Platform Tilt & Arc Rotation
12	Winch (Option)	300 kg / Single line	
13	Operation Method	Wire or Wireless Transmitter	
14	Front Outrigger	Manual-Horizontal & Vertical Extending Type	
15	Maximum Outrigger Span	2.7 (m)	
16	Hydraulic Oil Reservoir Capacity	16 (ℓ)	
17	KC Items	Rear Outrigger, outrigger sensor, emergency stop switch, emergency manual control lever, emergency power pack, Boom rest bracket & interlock	

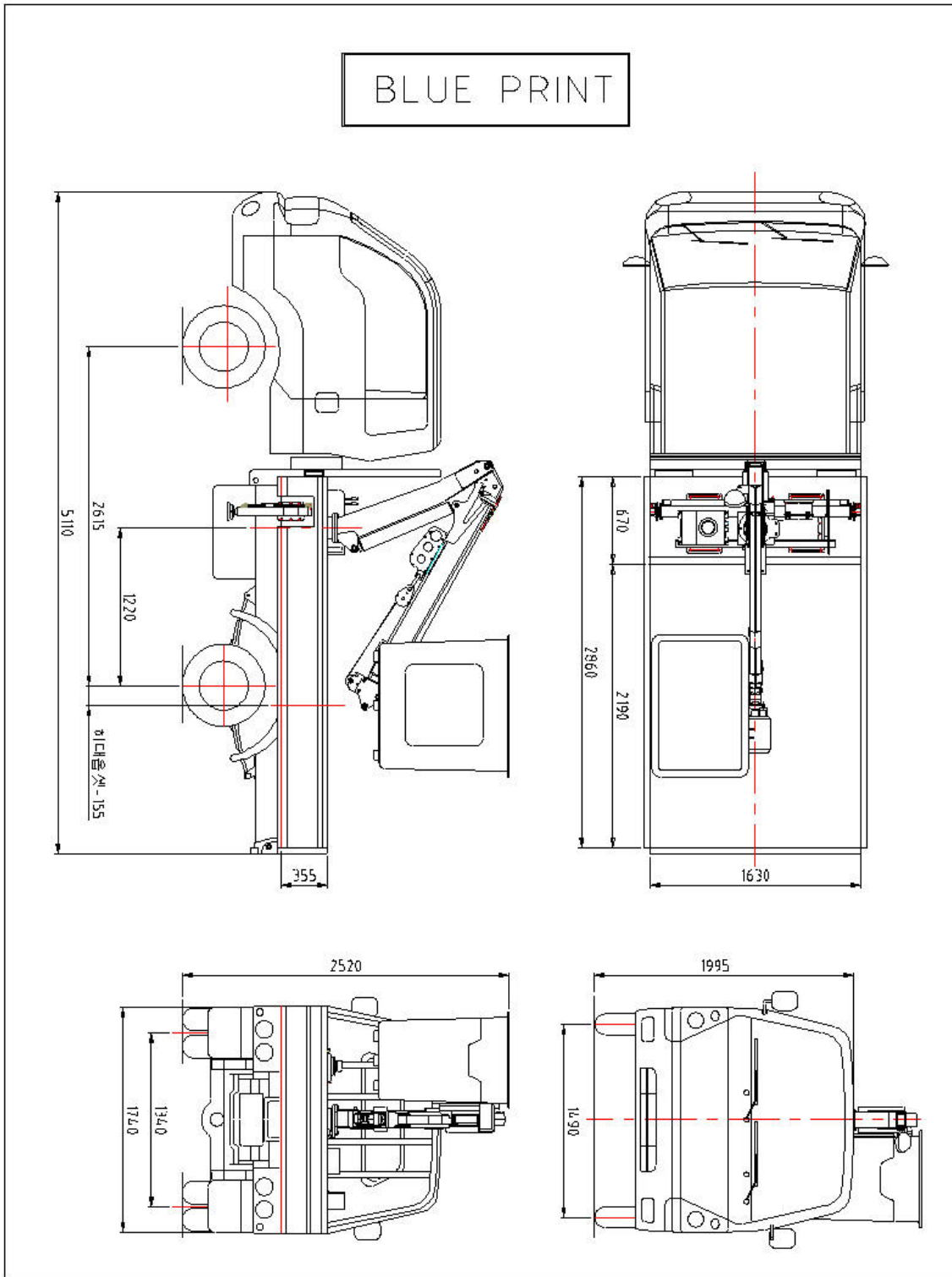
**DHS 870** Hydraulic Crane Leader

<b>No.</b>	<b>Description</b>	<b>Standard</b>
18	Operation Method	Transmitter
19	Safety Devices	Relief Valve, Counter Balance Valve, Proportional Control Valve, Vehicle Overturning Preventer, Column Swing Fixing Device, Overload Check 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.**

# DHS 870 Hydraulic Crane Leader

## 4. OVERALL DIMENSION



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

## DHS 870 Hydraulic Crane Leader

### 5. 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 is one set of outriggers in this unit.

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.

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;

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

2) In the inside of the column, there are solenoid valve and block to discharge and distribute hydraulic oil to every cylinder. Also a buzzer is inside to make a sound and notify the control device works. And there are switch, fuse, work lamp switch and receiver outside of the platform.

#### (4) Oil Tank;

1) The oil tank locates at the floor of base 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 870 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 1st stage boom made of high tensile steel is fixed to the column by pin, hinge and derrick cylinder and its refraction angle is  $-30^{\circ} \sim 80^{\circ}$ .

3) The 2<sup>nd</sup> & 3<sup>rd</sup> stage booms are made of high tensile aluminum and they have been fully tested and manufactured for the unit.

4) The 2<sup>nd</sup> & 3<sup>rd</sup> stage booms are simultaneously extended and retracted by the telescopic cylinder in the inside of 1<sup>st</sup> stage boom and its length is 3,400mm.

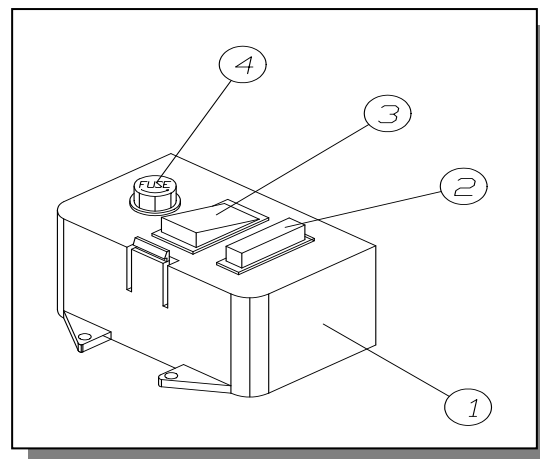
### (6) Bucket;

As a hydraulic cylinder is adopted, bucket keeps horizontality automatically according to change of boom angle. It is also possible of free arc rotation in 180 degrees and bucket tilt is available in an emergency case and removing garbage of the bucket. If there is angle deviation of the bucket, it can be controlled and adjusted by a transmitter.

### (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





## 5. SAFETY DEVICES

### (1) Proportional Valve

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

### (2) Pilot Check Valve and Counter Balance Valve

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

### (3) Overload Check Sensor

It makes alarm sound and shut down the movement when lifting an overloaded material beyond rated capacity with winch.

The more closer to the vehicle with fully retracted boom, the more heavy material can be lifted.

### (4) Auto Leveling Cylinder

It makes horizontality of the platform automatically.

### (5) Safe Angle Deviation Preventer of Platform

When occupying the platform and the platform tilts over 10 degrees up and down, the platform movement is limited.

### (6) 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.



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### **(7), Emergency Manual Control Lever**

When controller (wire transmitter) is out of order, this is an alternative control method to control aerial platform. Boom rotation, boom extension and retraction, outrigger extension and retraction are available to be controlled.

### **(8), Outrigger Sensor**

It is a kind of interlock device. Without full stabilizing of outrigger on the ground, boom rotation, boom extension and retraction are limited.

### **(9), Boom interlock**

Before driving the chassis, boom should be fully retracted. If not, outrigger can't be raised and retracted.

### **(10), Boom Angle Gauge**

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

### **(11), Bucket Rest Bracket**

It is used for bucket stowing before chassis traveling. If not, outrigger can't be raised and retracted.

### **(12), Chassis horizontal Sensor**

To prevent overturning of the chassis, outrigger should stabilize the chassis and make it on the surface level. If not, boom extension and retraction, boom rotation is limited.



### **(13), Emergency stop switch**

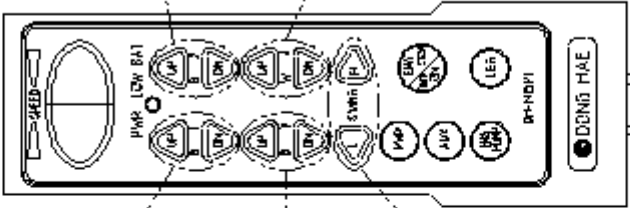


It is fitted at the unit and makes stop of all crane function in emergency. To restore function, turn to the switch to the clockwise.

6. EFFICIENCY OF THE CONTROL (WIRE/WIRELESS TRANSMITTER)

**CRANE OPERATION BY TRANSMITTER**

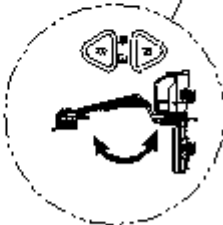
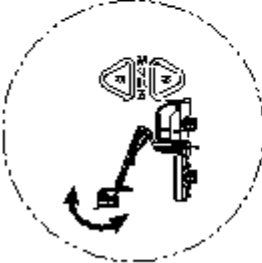




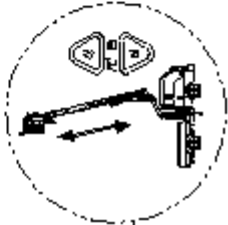



**TRANSMITTER CONTROLLER**

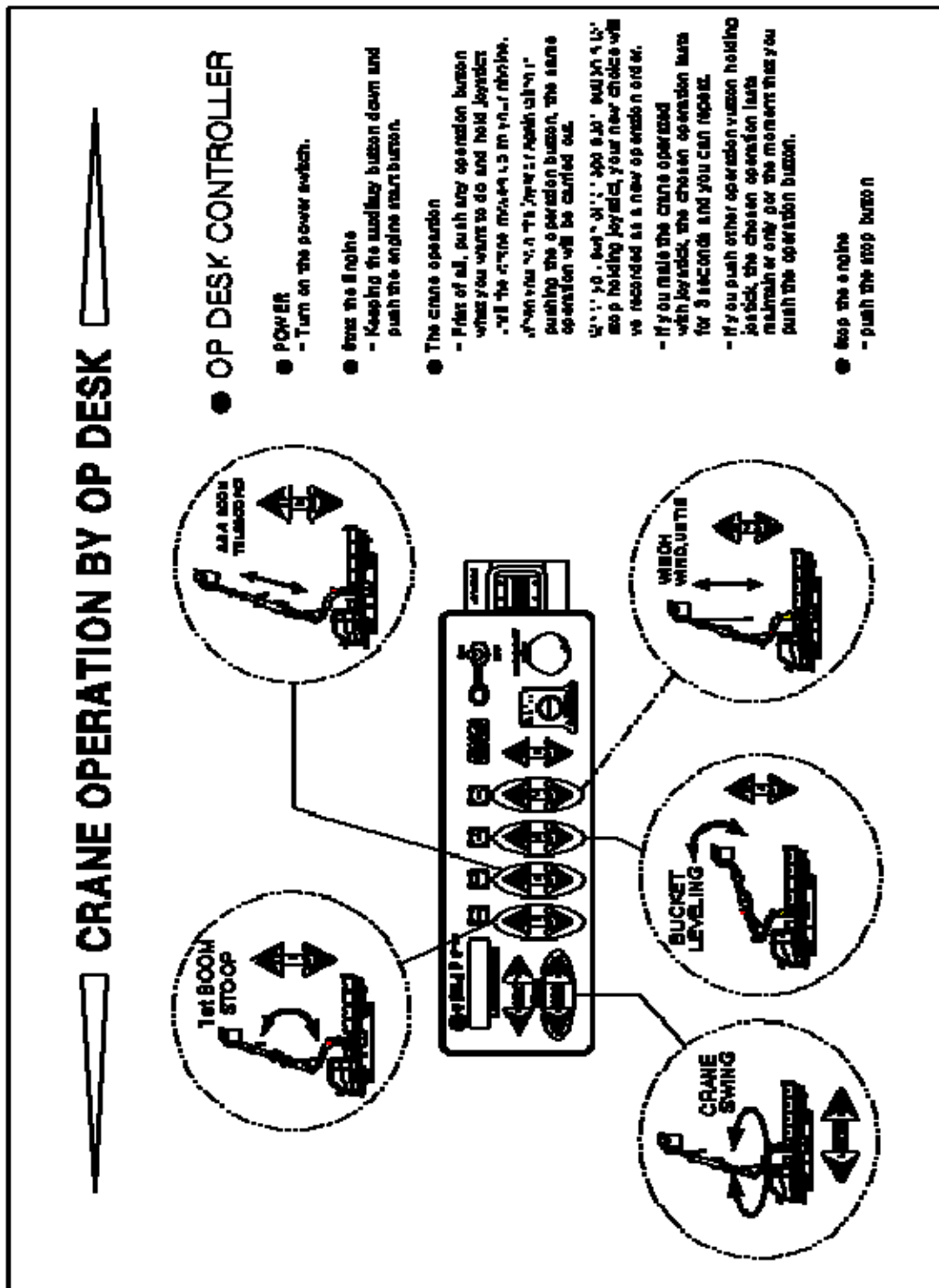
- **POWER**  
-Turn on the power switch
- **Start the engine**  
-Keeping the auxiliary button down and push the engine start button.
- **The crane operation**  
-First of all, push any operation button what you want to do and hold joystick until the crane moves up to your choice.  
-When you hold the joystick again without pushing the operation button, the same operation will be carried out.  
-When you push other operation button after stop holding joystick, your new choice will be recorded as a new operation order.  
-If you make the crane operated with joystick, the chosen operation lasts for 3 seconds and you can repeat  
-If you push other operation button holding joystick button, your new choice will be maintained only for the moment that you push the operation button.
- **Stop the engine**  
-Push the stop button

- **AUTO LEVELING PLATFORM AND 1 WINCH TYPE**

7. EFFICIENCY OF THE CONTROL (OP DESK CONTROLLER)



**DHS 870**

**Hydraulic Crane Leader**

