

## GROUP 2 MONITORING SYSTEM

### 1. OUTLINE

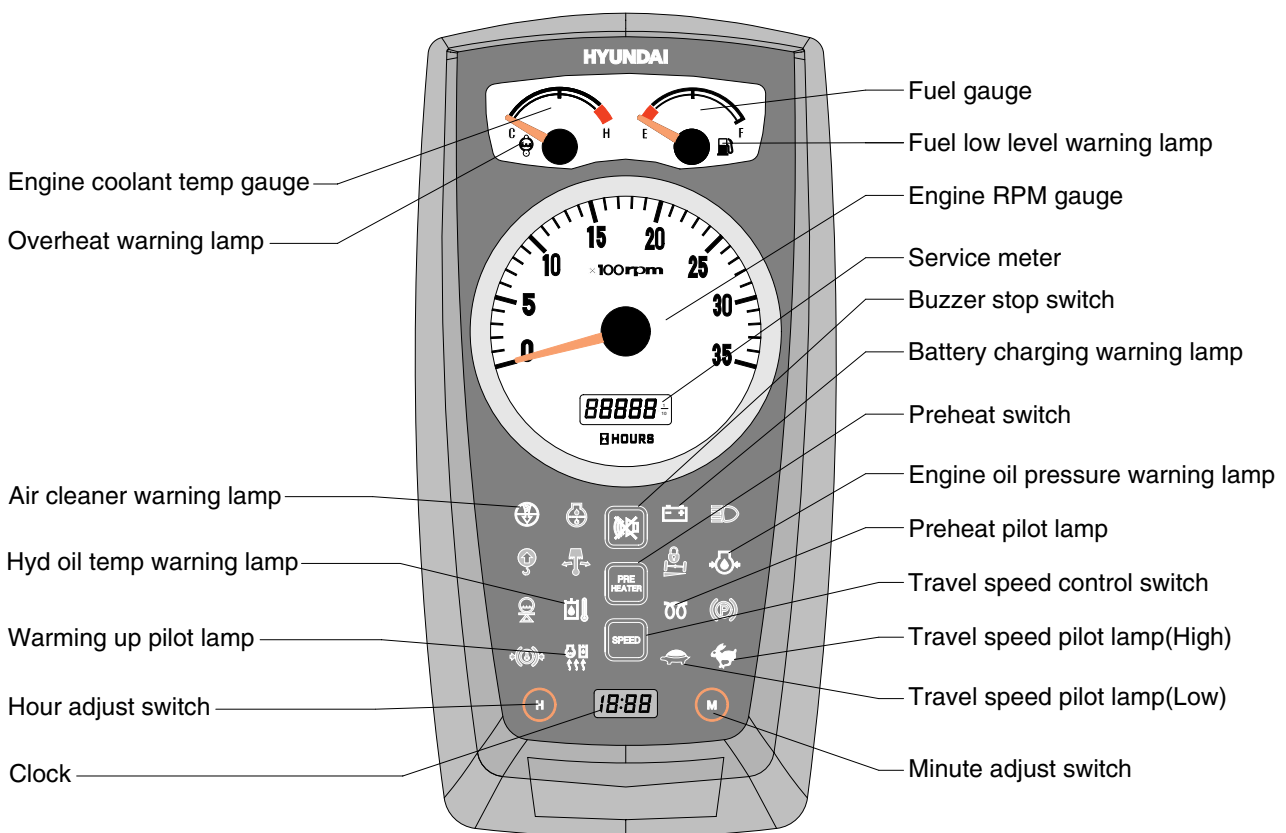
Monitoring system consists of the monitor part and switch part.

The monitor part gives warnings when any abnormality occurs in the machine and informs the condition of the machine.

Various select switches are built into the monitor panel, which act as the control portion of the machine control system.

### 2. CLUSTER

#### 1) MONITOR PANEL



R5573CD02A

## 2) CLUSTER CHECK PROCEDURE

### (1) Start key : ON

- ① Check monitor initial 6 seconds
  - a. All lamps light up.
  - b. Buzzer sound.
- ② Check monitor after 3 seconds : Indicate machine condition
  - a. Tachometer : 0 rpm
  - b. Fuel gauge : Pointed at appropriate level
  - c. Engine coolant temperature gauge : Pointed at appropriate level
  - d. Warning lamp
    - ※ During start key **ON** the engine oil pressure lamp and battery charging lamp go on, but it is not abnormal.
    - ※ When engine coolant temperature below 30°C, the warming up lamp lights up and then operating the preheat switch.

### (2) Start of engine

- ① Check machine condition
  - a. Tachometer pointed at present rpm
  - b. Gauge and warning lamp : Indicate at present condition.
    - ※ When normal condition : All warning lamp OFF
  - c. Travel speed pilot lamp : Low(Turtle)
- ② When abnormal condition
  - a. The lamp lights up and the buzzer sounds.
  - b. If **BUZZER STOP** switch is pressed, buzzer sound is canceled but the lamp light up until normal condition.

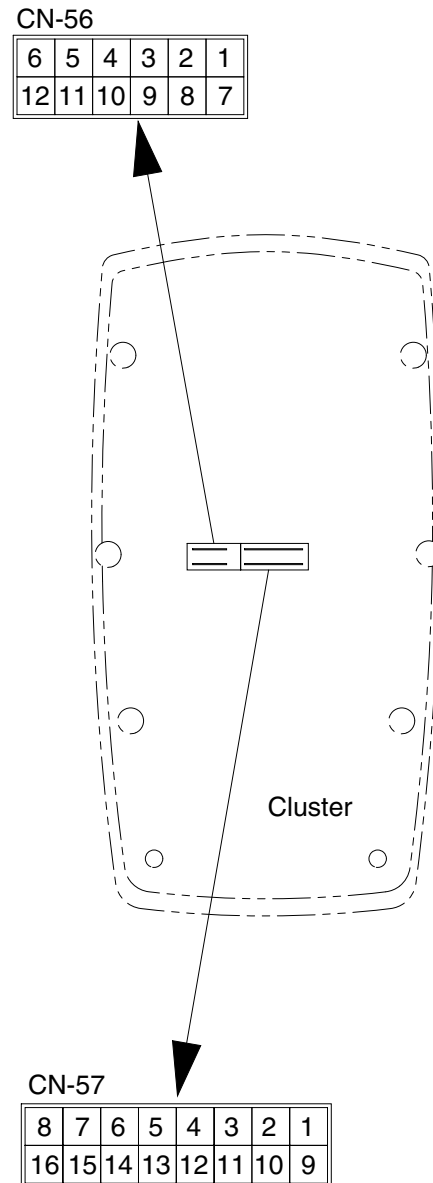
### 3. CLUSTER CONNECTOR

#### 1) CN-56 CONNECTOR

No.	Signal	Input/Output
1	Power IG 12V	-
2	Power 12V	-
3	Fuel level sender	Input
4	Water temp sender	Input
5	Tacho signal	Input
6	GND	-
7	GND	-
8	GND	-
9	Travel signal	Output
10	Pre-heat signal	Output
11	Anti-restart signal	Output
12	Null	-

#### 2) CN-57 CONNECTOR

No.	Signal	Input/Output
1	Air cleaner signal	Input
2	Hyd oil temp signal	Input
3	Engine oil pressure	Input
4	Alt signal	Input
5	Null	-
6	Null	-
7	Null	-
8	Null	-
9	Null	-
10	Null	-
11	Null	-
12	Null	-
13	Null	-
14	Illumination	Input
15	Null	-
16	GND	-



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## 4. CLUSTER FUNCTION

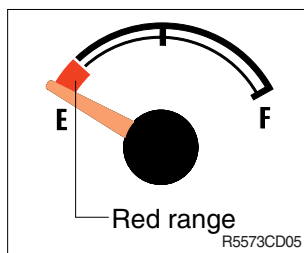
### 1) GAUGES AND DISPLAYS



#### (1) Service meter



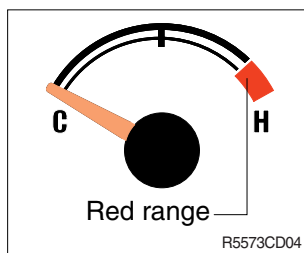
- ① This meter shows the total operation hours of the machine.
- ② Always ensure the operating condition of the meter during the machine operation.  
Inspect and service the machine based on hours as indicated in chapter 6, **maintenance**.


#### (2) Fuel gauge



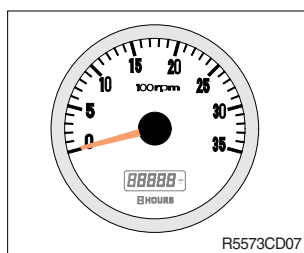
- ① This gauge indicates the amount of fuel in the fuel tank.
- ② Fill the fuel when the red range or warning lamp  ON.  
※ If the gauge illuminates the red range or warning lamp  on even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.

#### (3) Engine coolant temperature gauge



- ① This indicates the temperature of coolant.  
· Red range : Above 105°C(221°F)
- ② When the red range pointed or warning lamp  ON, engine do not abruptly stop but run it at medium speed to allow it to cool gradually, then stop it.  
Check the radiator and engine.  
※ If the engine is stopped without cooled down running, the temperature of engine parts will rise suddenly, this could cause severe engine trouble.

#### (4) Engine rpm gauge



- ① This gauge displays the number of engine revolutions per minute.

#### (5) Clock



- ① This displays the current time.
- ② Refer to the hour/minute adjust switch for adjusting time.

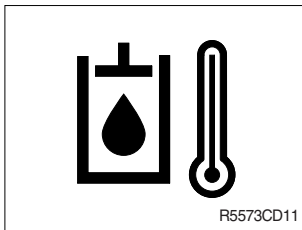
## 2) WARNING AND PILOT LAMPS

### (1) Fuel low level warning lamp



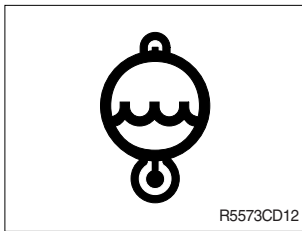
- ① This lamp blinks and the buzzer sounds when the level of fuel is below 13 l (3.4U.S. gal).
- ② Fill the fuel immediately when the lamp blinks.

### (2) Hydraulic oil temperature warning lamp



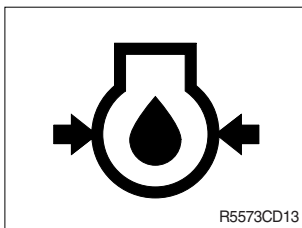
- ① This warning lamp operates and the buzzer sounds when the temperature of hydraulic oil is over 105 °C ( 221 °F) .
- ② Check the hydraulic oil level when the lamp blinks.
- ③ Check for debris between oil cooler and radiator.

### (3) Overheat warning lamp



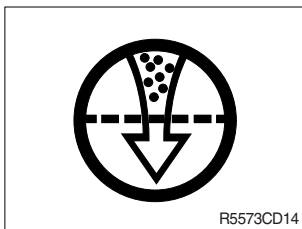
- ① This lamp blinks and the buzzer sounds when the temperature of coolant is over the normal temperature 110°C ( 230°F) .
- ② Check the cooling system when the lamp blinks.

### (4) Engine oil pressure warning lamp



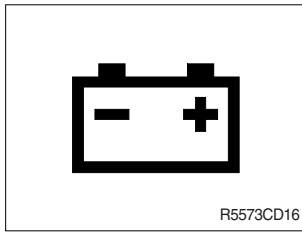
- ① This lamp blinks and the buzzer sounds after starting the engine because of the low oil pressure.
- ② If the lamp blinks during engine operation, shut OFF engine immediately. Check oil level.

### (5) Air cleaner warning lamp



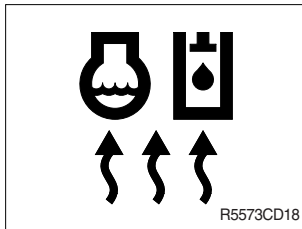
- ① This lamp blinks and the buzzer sounds when the filter of air cleaner is clogged.
- ② Check the filter and clean or replace it.

**(6) Battery charging warning lamp**



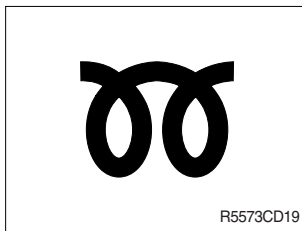
- ① This lamp blinks and the buzzer sounds when the starting switch is ON, it is turned OFF after starting the engine.
- ② Check the battery charging circuit when this lamp blinks during engine operation.

**(7) Warming up pilot lamp**



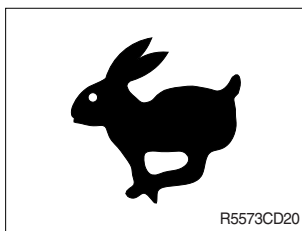
- ① This lamp is turned ON when the coolant temperature is below 30°C (86 °F).
- ② Warming up operation needed until this lamp OFF.

**(8) Preheat pilot lamp**



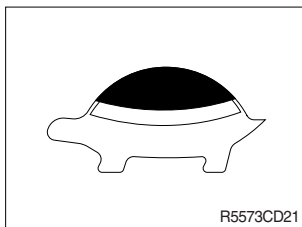
- ① When engine preheating switch is turned ON, pilot lamp comes ON.
- ② Refer to the preheating switch for details.

**(9) Travel speed pilot lamp(High)**



- ① When this lamp turned ON, the machine travel high speed.
- ② Refer to the travel speed select switch for details.

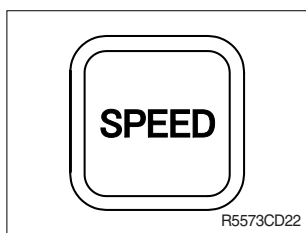
**(10) Travel speed pilot lamp(Low)**



- ① When this lamp turned ON, the machine travel low speed.
- ② Refer to the travel speed select switch for details.

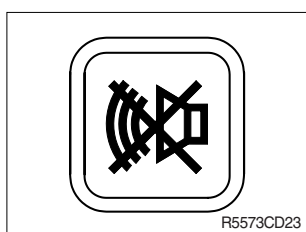
### 3) SWITCHS

#### (1) Travel speed control switch



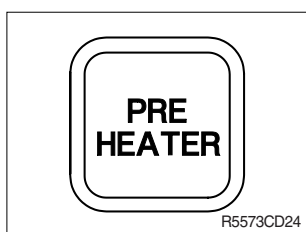
- ① This switch is to control the travel speed which is changed to high speed(Rabbit mark) by pressing the switch and low speed(Turtle mark) by pressing it again.

#### (2) Buzzer stop switch



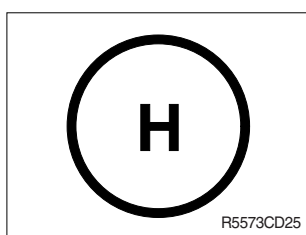
- ① When the starting switch is turned ON first, normally the alarm buzzer sounds for 6 seconds during lamp check operation.
- ② The red lamp lights ON and the buzzer sounds when the machine has a problem.  
In this case, press this switch and buzzer stops, but the red lamp lights until the problem is cleared.

#### (3) Preheat switch



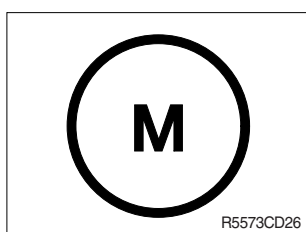
- ① In case of severe cold weather, this switch is used to preheat engine before starting.
- ② When this switch is pressed, the preheat pilot lamp is turned ON for 15 seconds in sequence and lamp OFF when the time is completed.
- ③ When the start key move to ON position, the preheat function is activated automatically under the coolant temperature is below 10° C(50° F).

#### (4) Hour adjust switch



- ① This switch is used to adjust hour.
- ② The switch is pressed, hour is increased.

#### (5) Minute adjust switch



- ① This switch is used to adjust minute.
- ② The switch is pressed, minute is increased.

