

## 4. MODE SELECTION SYSTEM

### 1) STRUCTURE OF CAPO SYSTEM

CAPO, Computer Aided Power Optimization system, is the name of mode selection system developed by Hyundai.

#### (1) Work mode

3 work modes can be selected for the optimal work speed of the machine operation.

##### ① Heavy duty work mode

The boom priority solenoid is activated to make the boom operation speed faster.

##### ② General work mode

When key switch is turned ON, this mode is selected automatically and swing operation speed is faster than heavy duty work mode.

##### ③ Breaker operation mode

It sets the pump flow to the optimal operation of breaker by activating the max flow cut-off solenoid.

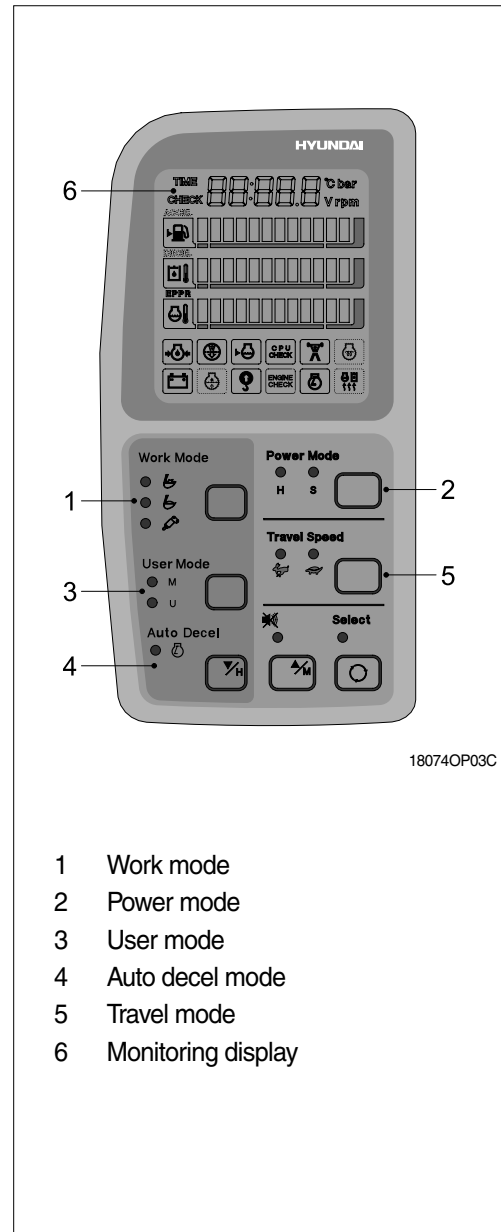
#### (2) Power mode

Power mode designed for various work loads maintains high performance and reduces fuel consumption.

- H mode : High power
- S mode : Standard power

#### (3) User mode

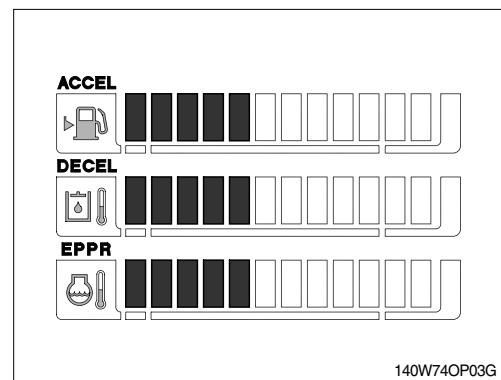
- M : Maximum power
- U : You can change the engine and pump power and memorize it for your preference.



- 1 Work mode
- 2 Power mode
- 3 User mode
- 4 Auto decel mode
- 5 Travel mode
- 6 Monitoring display

### How to modulate the memory set

- ① Each memory mode has a initial set which are mid-range of max engine speed, auto decel rpm, and EPPR valve input current.  
When you select U, cluster LCD displays.



- ② To change the engine high idle speed, press the USER mode switch and SELECT switch at the same time and then ACCEL blinks at 0.5 seconds interval.
  - By pressing ▲ or ▼ switch, █ will increase or decrease.
- ③ To change DECEL rpm, press the USER mode switch and SELECT switch once more and then DECEL blinks at 0.5 seconds interval.
  - By pressing ▲ or ▼ switch, █ will increase or decrease.
- ④ To change EPPR current, press the USER mode switch and SELECT switch one more and then EPPR blinks at 0.5 seconds interval.
  - By pressing ▲ or ▼ switch, █ will increase or decrease.

· LCD segment vs parameter setting



Segment ( █ )	ACCEL (rpm)	DECEL (rpm)	EPPR (mA)
1	High idle-900	Low idle(950)	150
2	High idle-800	1050	200
3	High idle-700	1100	250
4	High idle-600	1150	300
5	High idle-500	Decel rpm(1200)	350
6	High idle-400	1250	400
7	High idle-300	1300	450
8	High idle-200	1350	500
9	High idle-100	1400	550
10	High idle	1500	600

- ⑤ To memorize the final setting, press the USER mode switch and SELECT switch one more time.

(4) Auto decel mode

Engine quick deceleration.

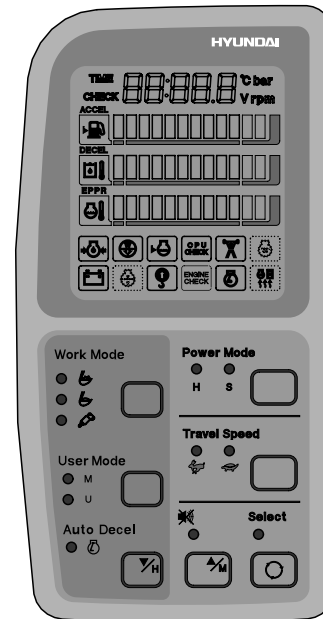
(5) Travel mode

-  : Low speed traveling.
-  : High speed traveling.

(6) Monitoring system

Information of machine performance as monitored by the CPU controller can be displayed on the **monitoring display**.

※ Refer to 4-12 page for details.



18074OP03H

### (7) Self diagnostic system

The CPU controller diagnoses problems in the CAPO system caused by electric parts' malfunction and by open or short circuit, which are displayed on the **monitoring display** as error codes.

### (8) Anti-restart system

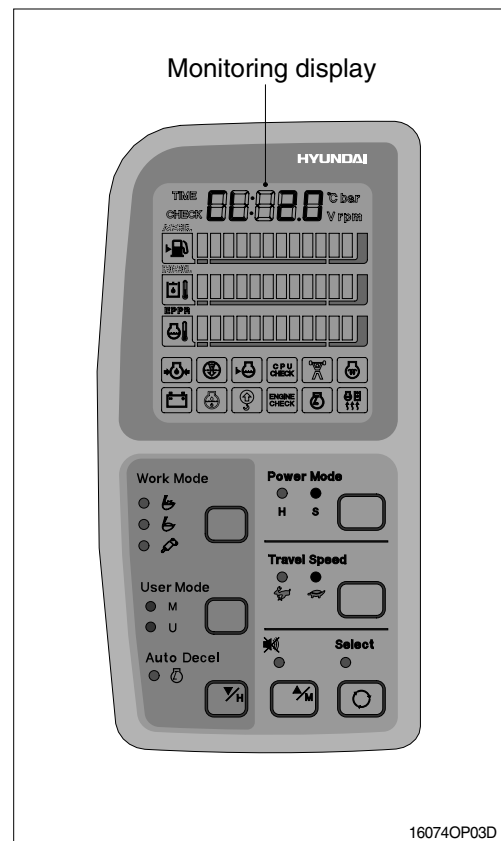
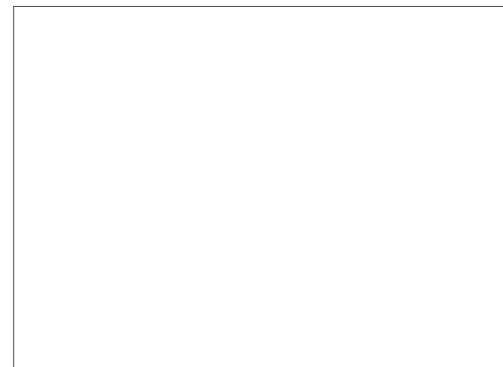
The system protects the starter from inadvertent restarting after the engine is already operational.

## 2) HOW TO OPERATE MODE SELECTION SYSTEM

### (1) When start key is turned ON

- ① When start key is turned ON, all illumination lamps are ON and all lamps are OFF automatically after 5 seconds. But a battery charging warning lamp and an engine oil pressure warning lamp keep turned ON until engine starting.
- ② After lamp check **CL : 2.0**, the version of cluster program, is displayed on **Monitoring display** for 2 seconds.
- ③ After the version of program is displayed, the cluster returns to default. Exactly engine rpm, battery charging warning lamp and engine oil pressure warning lamp are turned ON and S mode, auto decel, low travel speed(Turtle mark) are displayed.
- ④ In default condition self-diagnostic function including trouble detecting of electric system can be carried out.

※ Refer to 4-12 page for details.



16074OP03D

## (2) After engine start

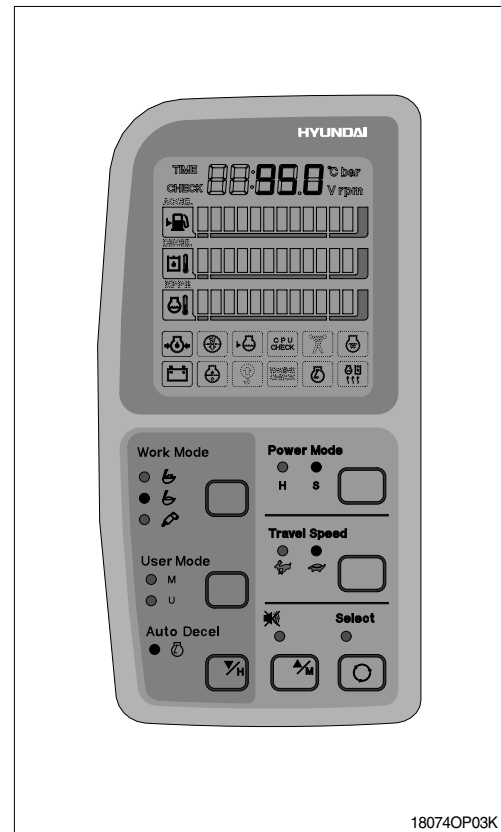
- ① When the engine is started, three lamps are ON as below.

Mode		Status
Work mode		ON
Power mode	S	ON
Travel mode	Low()	ON
Auto decel mode		ON

- In this condition, tachometer indicates low idle,  $950 \pm 100$ rpm.
- If coolant temperature is below  $30^{\circ}\text{C}$ , after 10 seconds the engine speed increases to  $1200 \pm 100$ rpm automatically to warm up the machine.
- After 2-3 minutes, you can select any mode depending on job requirement.

- ② Self-diagnostic function can be carried out the same as start key is ON.

※ Refer to 4-12 page for details.



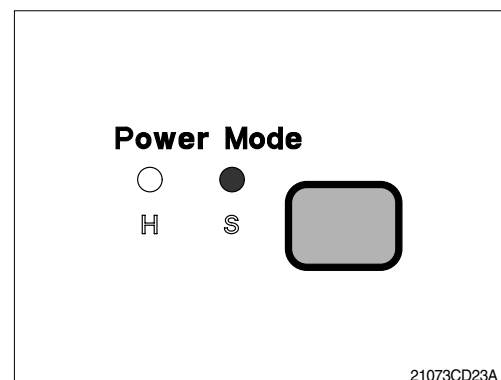
## 3) SELECTION OF POWER MODE

### (1) S mode

When the accel dial is at setting 10 and auto decel mode is cancelled and S mode is selected.

Engine rpm	Effect
$1900 \pm 50$	Same power as <b>non</b> mode type machine.

- ※ When the accel dial is located below 9 the engine speed decreases about 100rpm per dial set.

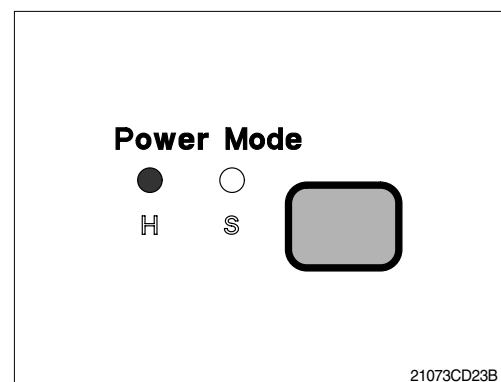


### (2) H mode

When the accel dial is at setting 10 and auto decel mode is cancelled and H mode is selected.

Engine rpm	Effect
$2000 \pm 50$	Approximately 110% of power and speed available than <b>non</b> mode type machine or <b>S</b> mode.

- ※ When the accel dial is located below 9 the engine speed decreases about 100rpm per dial set.



### (3) M mode

When the accel dial is at setting 10 and auto decel mode is cancelled and M mode is selected.

Engine rpm	Effect
2200 ± 50	Approximately 130% of power and speed available than <b>non</b> mode type machine or <b>S</b> mode.

※ When the accel dial is located below 9 the engine speed decreases about 100rpm per dial set.

