

4. MODE SELECTION(CAPO) SYSTEM

1) STRUCTURE OF CAPO SYSTEM

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

(1) Power mode

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

- H mode : Heavy duty operation
- S mode : General operation
- L mode : Light duty operation
- F mode : Finishing operation

(2) Auto decel mode

Engine quick deceleration.

(3) Travel mode

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

(4) Monitoring system

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

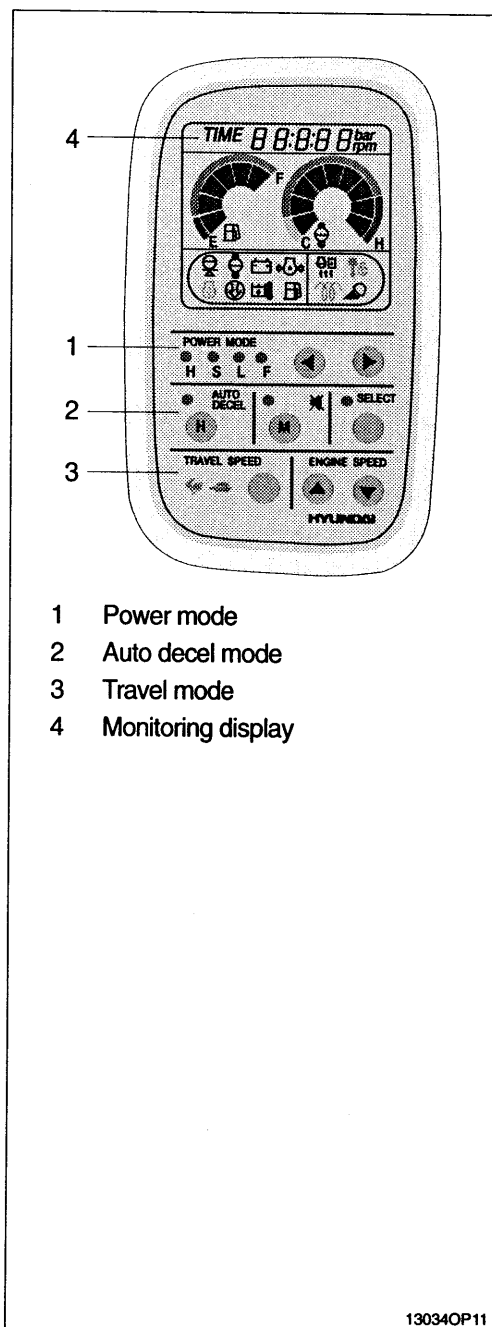
※ Refer to 4-10 page for details.

(5) Self diagnostic system

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

(6) Anti-restart system

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



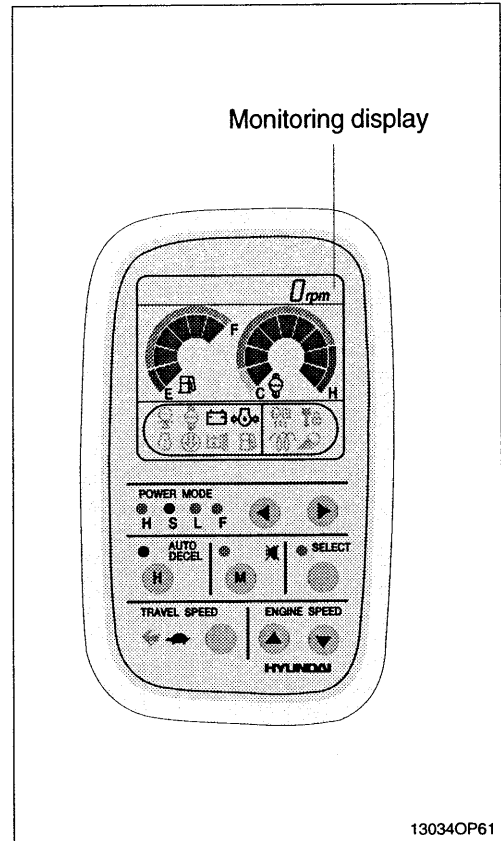
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2) HOW TO OPERATE MODE SELECTION SYSTEM

(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 2 seconds. But a battery charging warning lamp and an engine oil pressure warning lamp keep turned ON until engine starting.
- ② After lamp check 「CLS : 11」, 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 4-10 page for details.



(2) After engine start

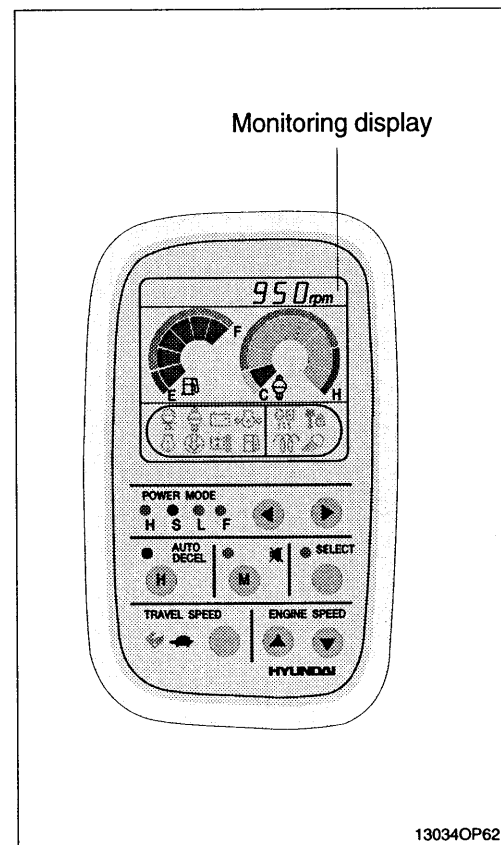
- ① When the engine is started, three lamps are ON as below.

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

- In this condition, tachometer indicates low idle, 950 ± 100 rpm.
- If coolant temperature is below 30°C , after 10 seconds the engine speed increases to 1200 ± 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 like start key is ON.

※ Refer to 4-10 page for details.

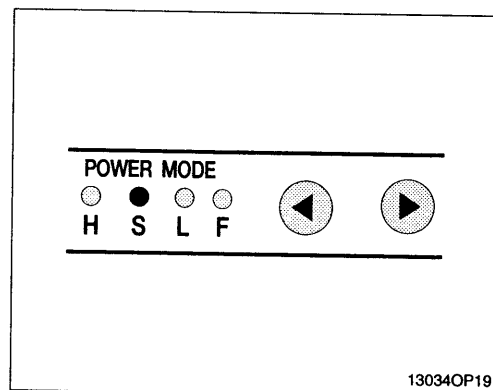


3) SELECTION OF POWER MODE

(1) S mode

If you press auto decel switch at control panel, auto decel mode is cancelled and S mode is selected.

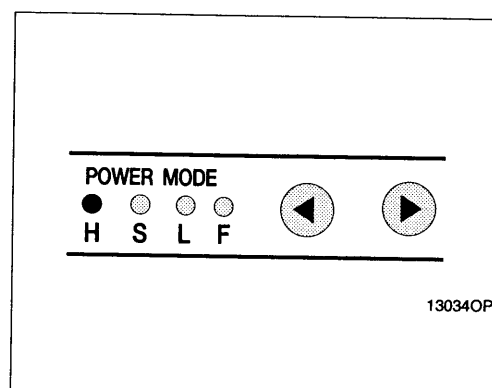
Engine rpm	Effect
2250 \pm 50	Same power as non mode type machine.



(2) H mode

If you press the left switch(◀), H mode is selected and indication lamp is turned ON.

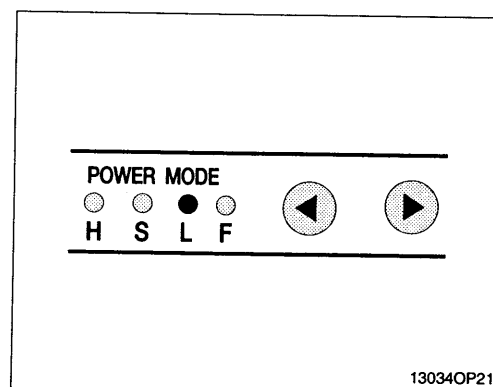
Engine rpm	Effect
2450 \pm 50	Approximately 110% of power and speed available than non mode type machine or S mode.



(3) L mode

If you press the right switch(▶), L mode is selected and indication lamp is turned ON.

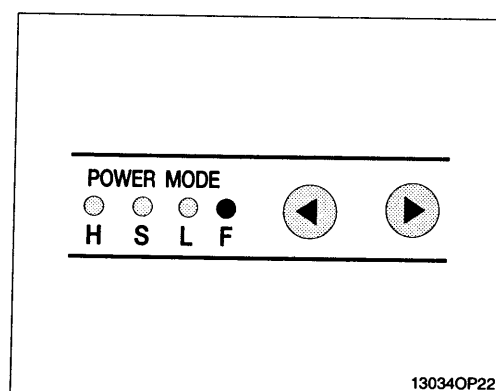
Engine rpm	Effect
2250 \pm 50	Economic operation for light work. Max flow cut off function is activated.



(4) F mode

If you press the right switch(▶), F mode is selected and indication lamp is turned ON.

Engine rpm	Effect
1750 \pm 50	Reduce speed of engine and hydraulic flow, so precise control is provided for fine finishing operation.



4) MONITORING DISPLAY

Information of machine performance as monitored by the CPU controller can be displayed on the cluster when the operator selects a display mode by touching **SELECT** switch alone or with **BUZZER STOP** switch on the cluster as below.

Display group	How to select display mode		Name	Display on the cluster
	Group selection	Display mode selection		
Group 0 (Default)	Way 1 Key switch ON or START	Initial	Engine rpm	<i>0 rpm</i>
		Touch SELECT 1 time	Time	<i>TIME 12:30</i>
	Way 2 Touch AUTO DECEL switch while pressing BUZZER STOP at group 1~4.	Touch SELECT 2 times	Front pump pressure	<i>P 1:100 bar</i>
		Touch SELECT 3 times	Rear pump pressure	<i>P 2:200 bar</i>
		Touch SELECT 4 times	Pilot pressure	<i>P 3:30 bar</i>
Group 1 (Volt, temp, EPPR press, version)	Touch SELECT switch once while pressing BUZZER STOP . In this group SELECT LED ON	Default	Battery voltage(V)	<i>62.48</i>
		Touch SELECT 1 time	Potentiometer voltage(V)	<i>P a:2.5</i>
		Touch SELECT 2 times	Hydraulic oil temperature(°C)	<i>H d:50</i>
		Touch SELECT 3 times	Power shift pressure (EPPR valve)	<i>E P r:10 bar</i>
		Touch SELECT 4 times	Model & Version	<i>03C:11</i>
Group 2 (Error code)	Touch SELECT switch twice while pressing BUZZER STOP . In this group BUZZER STOP LED blinks	Default	Current error	<i>E r r:03</i>
		Touch SELECT 1 time	Recorded error (Only key switch ON)	<i>TIME E r r:03</i>
		Press speed up(▲) & speed down(▼) at the same time	Recorded error deletion (Only key switch ON)	<i>TIME E r r:00</i>
Group 3 (Switch input)	Touch SELECT switch 3 times while pressing BUZZER STOP . In this group SELECT LED blinks at 0.5sec intervals	Default	Pump prolix switch	<i>P P:on or oFF</i>
		Touch SELECT 1 time	Auto decel pressure switch	<i>d P:on or oFF</i>
		Touch SELECT 2 times	Power boost switch	<i>P b:on or oFF</i>
		Touch SELECT 3 times	Parking switch	<i>P r:on or oFF</i>
Group 4 (Output)	Touch SELECT switch 4 times while pressing BUZZER STOP . In this group SELECT LED blinks at 1sec intervals	Default	Hourmeter	<i>H a:on or oFF</i>
		Touch SELECT 1 time	Neutral relay (Anti-restart relay)	<i>n r:on or oFF</i>
		Touch SELECT 2 times	Power boost solenoid (2-stage relief solenoid)	<i>P S:on or oFF</i>
		Touch SELECT 3 times	Transmission oil lamp	<i>o L:on or oFF</i>
		Touch SELECT 4 times	Brake fail lamp	<i>b L:on or oFF</i>

※ By touching **SELECT** switch once while pressing **BUZZER STOP**, display group shifts.

Example : Group 0 → 1 → 2 → 3 → 4 → 0