

### 3. STARTING AND STOPPING THE ENGINE

#### 1) CHECK INDICATOR LIGHTS

- (1) Check if parking brake switch is ON.
- (2) Check if gear selector lever is in neutral position.
- (3) Check if hydraulic safety lever is in the lock position.
- (4) Turn the key to the ON position, and check following.

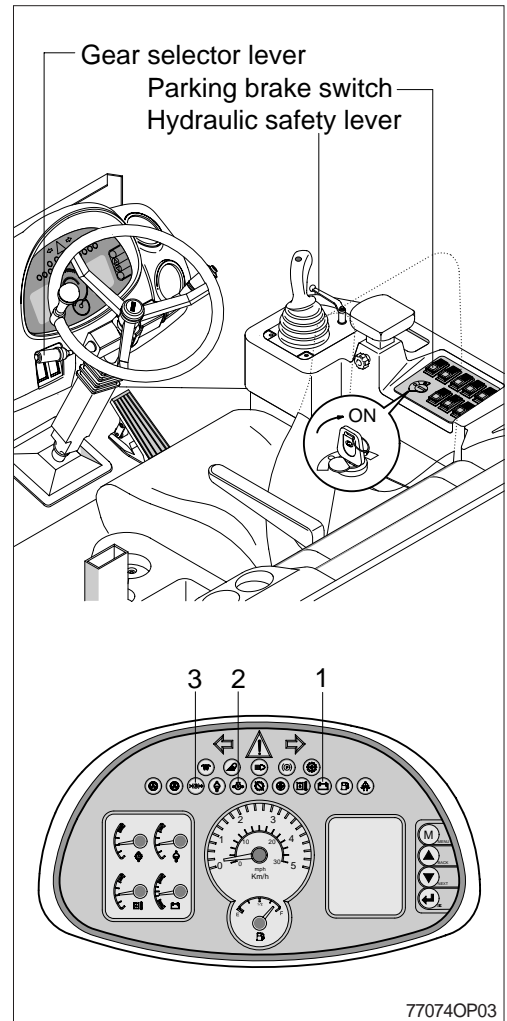
If all the lamps light ON after sounding buzzer for 3 seconds.

**If the lamps do not light or the buzzer is not sounded, check disconnection of wire.**

Only below lamps will light ON and all the other light will be turn OFF after 3 seconds.

- Charging warning lamp(1)
- Engine oil pressure warning lamp(2)
- Brake fail warning lamp(3)

**Start the engine after all of the lamps OFF.  
(Only above 3 lamps remain ON)**



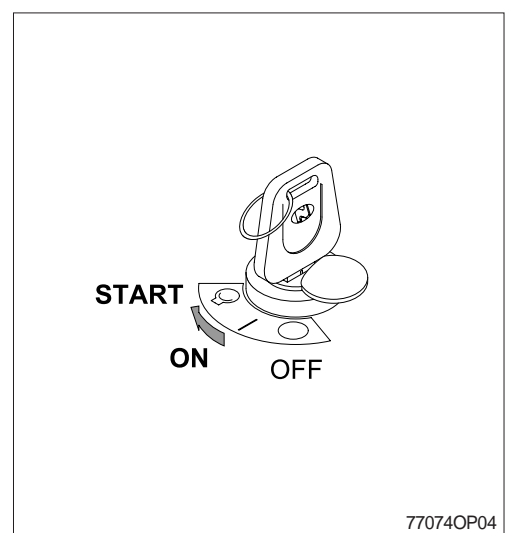
#### 2) STARTING ENGINE IN NORMAL TEMPERATURE

Sound the horn to warn the surroundings after checking if personnel or obstacles are in the area.

- (1) Turn the starting switch to START position to start the engine.

**If the engine does not start, allow the starter to cool for about 2 minutes before attempting to start the engine again.**

- (2) Release the starting switch instantly after the engine starts to avoid possible damage to the starting motor.



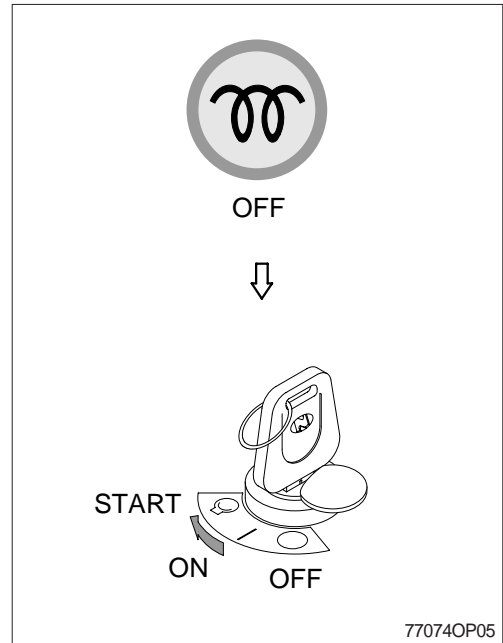
### 3) STARTING ENGINE IN A COLD WEATHER

Sound horn to warn surroundings after checking if there are obstacles in the area.

Replace the engine oil and fuel referring to recommended oils at page 6-9.

Fill the anti-freeze solution to the coolant as required.

- (1) Check if the parking brake is locked(With the parking switch ON).
- (2) Check if the gear selector lever is in the neutral position.
- (3) Check if the hydraulic safety lock lever is in the lock position.
- (4) Turn the starting switch to ON position, and wait the preheater pilot lamp OFF.



**When the preheater warning lamp is turned ON, the preheating function is actuated within 10~45 seconds in accordance with temperature of the air intake manifold.**

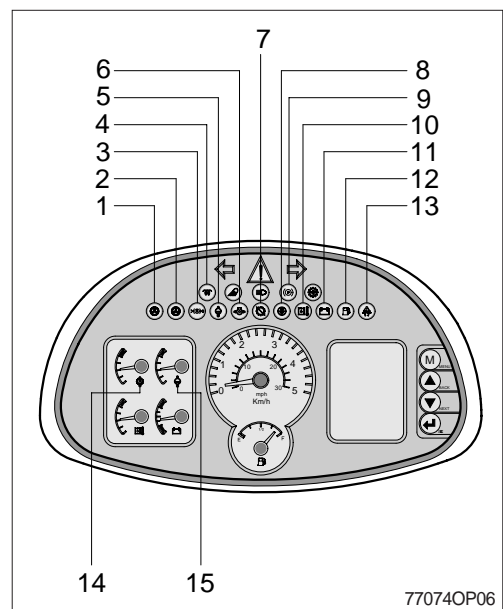
- (5) Start the engine by turning the starting switch to START position after the preheater pilot lamp OFF.
- (6) Release starting switch immediately after starting engine. The starting switch will automatically return to the ON position.

**After engine started, the preheating function is actuated to reduce the white smoke.**

### 4) INSPECTION AFTER ENGINE START

Inspect and confirm the following after engine starts.

- (1) Is the level gauge of hydraulic oil tank in the normal level?
- (2) Are there leakages of oil or water?
- (3) Are all the warning lamps(1-13) OFF?
- (4) Check the following after warming up operation.
  - Is the indicator of water temperature gauge (14) in the operating range?
  - Is the indicator of transmission oil temperature gauge(15) in the operating range?
  - Is the engine sound and the color of exhaust gas normal?
  - Are the sound and vibration normal?



**Do not increase engine speed quickly after starting, it can make damage engine or turbocharger.**

**If there are problems in the control panel, stop the engine immediately and correct problem as required.**