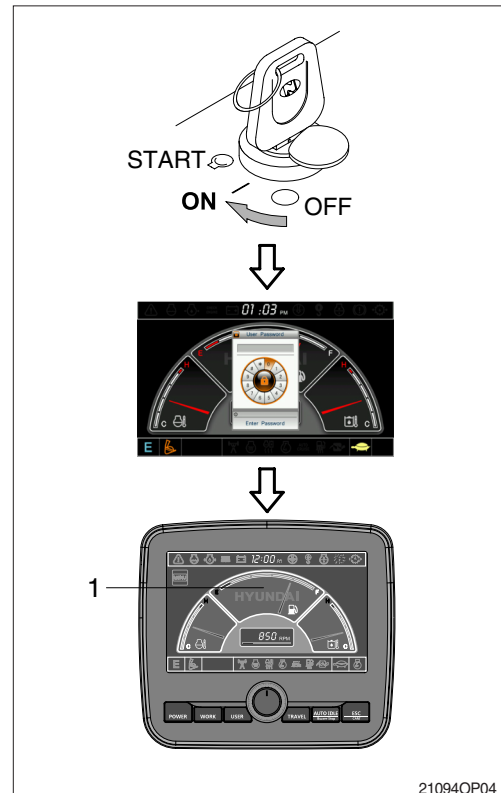


3. STARTING AND STOP THE ENGINE

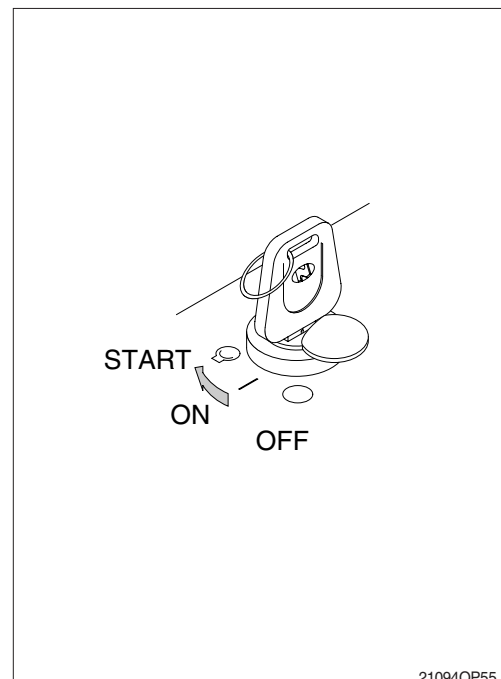
1) CHECK INDICATOR LIGHTS

- (1) Check if all the operating levers are in the neutral position.
- (2) Turn the starting switch to the ON position.
Buzzer sounding for 4 seconds with HYUNDAI logo on cluster.
 - ※ If the ESL mode is set to the enable, enter the password to start engine.
 - ※ If the password has failed 5 times, please wait 30 minutes before re-attempting to enter the password.
 - ※ Refer to page 3-17 for ESL mode.
- (3) After initialization of cluster, the operating screen is displayed on LCD (1).
Also, self-diagnostic function is carried out.



2) STARTING ENGINE IN NORMAL TEMPERATURE

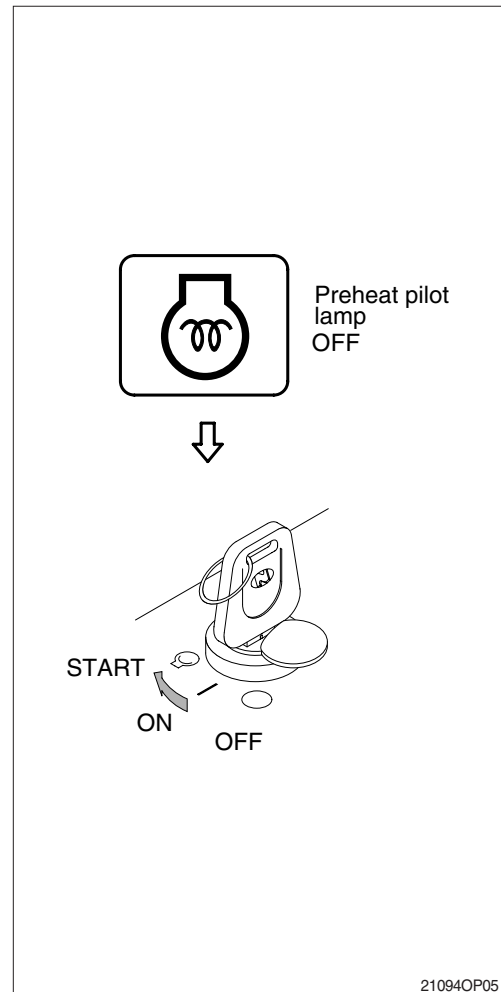
- ※ Sound the horn to warn the surroundings after checking if personnel or obstacles are in the area.
- (1) Turn the starting switch to START position to start the engine.
 - ※ If the engine does not start, allow the starter to cool for about 2 minutes before re-attempting to start the engine again.
 - (2) Release the starting switch instantly after the engine starts to avoid possible damage to the starting motor.



3) STARTING ENGINE IN 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 2-28.
- ※ Fill the anti-freeze solution to the coolant as required.
- ※ If you turn ON the starting switch, the fuel warmer is automatically operated to heat the fuel by sensing the coolant temperature.

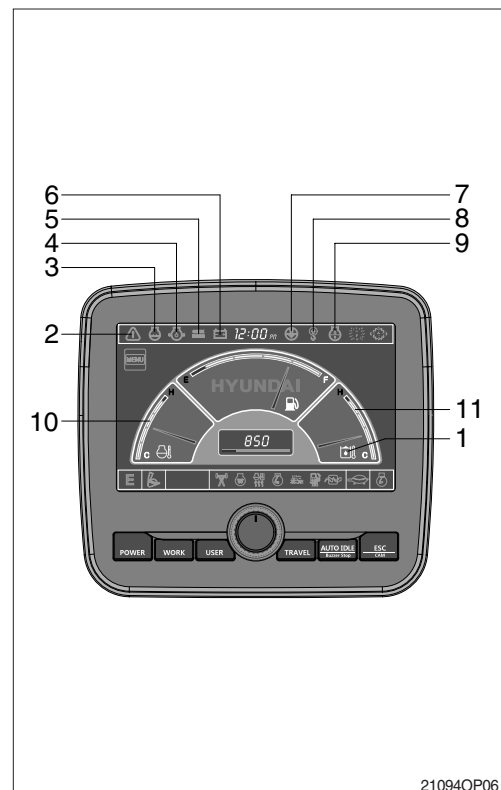
- (1) Check if all the levers are in the neutral position.
- (2) Turn the starting switch to the ON position, and wait 1~2 minutes. More time may take according to ambient temperature.
- (3) Start the engine by turning the starting switch to the START position after the preheat pilot lamp OFF.
- ※ If the engine does not start, allow the starter to cool for about 2 minutes before attempting to start the engine again.
- (4) Release the starting switch immediately after starting engine.
- (5) The operation for warming up machine is automatic.



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 turned OFF (1~9)?
 - (4) Are the indicator of water temperature gauge (10) and hydraulic temperature gauge (11) in the operating range?
 - (5) Are the engine sound and the color of exhaust gas normal?
 - (6) Are the sound and vibration normal?
- ※ Do not increase engine speed quickly after starting, it can damage engine or turbocharger.
 - ※ If there are problems in the cluster, stop the engine immediately and correct problems as required.



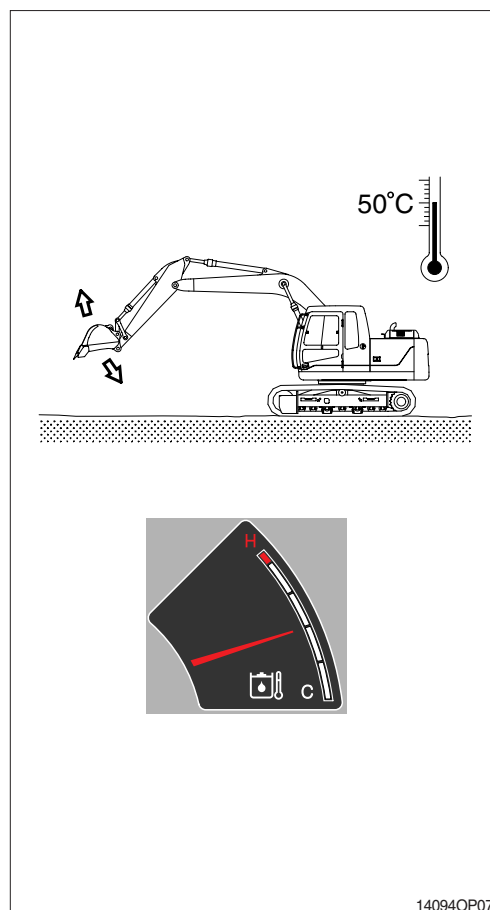
5) WARMING-UP OPERATION

※ The most suitable temperature for the hydraulic oil is about 50°C (122°F).

It can cause serious trouble in the hydraulic system by sudden operation when the hydraulic oil temperature is below 25°C (77°F).

Then temperature must be raised to at least 25°C (77°F) before starting work.

- (1) Run the engine at low idle speed for 5 minutes.
- (2) Speed up the engine by accel dial and run the engine at mid-range speed.
- (3) Operate bucket lever for 5 minutes.
※ **Do not operate anything except bucket lever.**
- (4) Run the engine at the high speed and operate the bucket lever and arm lever for 5-10 minutes.
※ **Operate only the bucket lever and arm lever.**
- (5) This warming-up operation will be completed by operation of all cylinders several times, and operation of swing and traveling.
※ **Increase the time for warming-up during winter.**

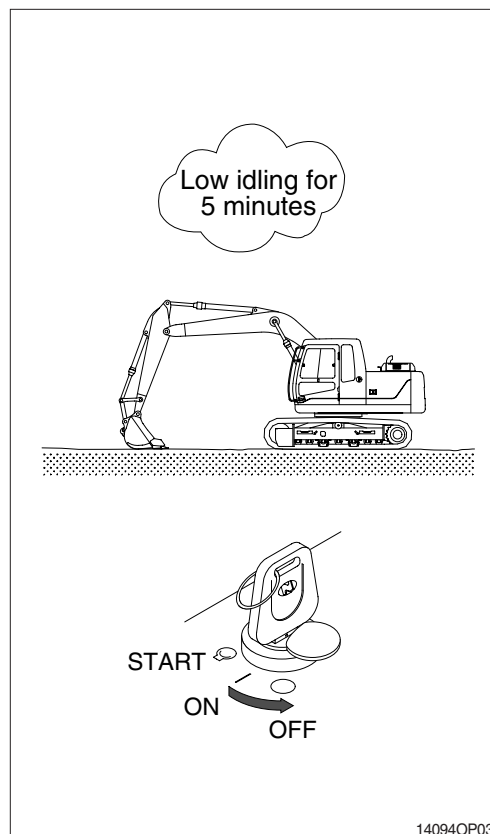


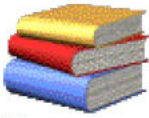
6) TO STOP THE ENGINE

※ If the engine is abruptly stopped before it has cooled down, engine life may be greatly shortened. Consequently, do not abruptly stop the engine apart from an emergency.

※ In particular, if the engine has overheated, do not abruptly stop it but run it at medium speed to allow it to cool gradually, then stop it.

- (1) Down the bucket on the ground then put all the levers in the neutral position.
- (2) Run the engine at low idle speed for about 5 minutes.
- (3) Return the key of starting switch to the OFF position.
- (4) Remove the key to prevent other people using the machine and LOCK safety lever.
- (5) Lock the cab door.





Service Manual

The service manual has been prepared as an aid to improve the quality of repairs by giving the serviceman an accurate understanding of the product and showing him the correct way to perform repairs and make judgements. Make sure you understand the contents of this manual and use it to full effect at every opportunity.

This service manual mainly contents the necessary technical information for operation performed in a service workshop.

- If the documents cannot be opened correctly, download and install **ASIA LANGUAGE FONT PAC** for Acrobat reader.

Crawler Excavators

R55-3	R55-7	R55-7A	R55-9
R80-7	R80-7A	R110-7	R110-7A
R130LC-3	R140LC-7	R140LC-7A	R140LC-9
R160LC-3	R160LC-7	R160LC-7A	R145CR-9
R180LC-3	R180LC-7	R180LC-7A	R160,180LC-9
R210LC-3	R210LC-7	R210LC-7A	R210LC-9
	R210NLC-7	R210NLC-7A	R210NLC-9
R210,220LC-7H	R210LC-7(#8001-)	R210LC-7H(#9001-)	R235LCR-9
R250LC-3	R250LC-7	R250LC-7A	R250LC-9
R290LC-3	R290LC-7	R290LC-7A	R290LC-9
R300LC-7	R305LC-7	R370LC-7	
R320LC-3	R320LC-7	R320LC-7A	R320LC-9
R360LC-3	R360LC-7	R360LC-7A	R380LC-9
R450LC-3	R450LC-7	R450LC-7A	R480,520LC-9
	R500LC-7	R500LC-7A	
		R800LC-7A	



MINI EXCAVATOR

R15-7	R22-7	R28-7	R36N-7
R16-7	R35-7	R75-7	
R35Z-7	R35Z-7A		
R16-9			
R27Z-9			

Wheel Excavators

R95W-3	R55W-7	R55W-7A	R55W-9
R130W-3	R140W-7	R140W-7A	R140W-9
R170W-3	R170W-7	R170W-7A	R170W-9
R200W-3	R200W-7	R200W-7A	R210W-9



Wheel Loaders

HL720-3



HL730-3		
HL730TM-3	HL730(TM)-7	HL730(TM)-7A
HL740-3(~#0847)		
HL740TM-3(~#0250)		
HL740(#0848~)/740TM-3(#0251~)	HL740(TM)-7	HL740(TM)-7A
HL750	HL757-7	HL757(TM)-7A
HL750TM	HL757TM-7	
HL760(#1001~#1301)	HL760-7	HL760-7A
HL760(#1302~)		
HL770(#1001~#1170)	HL770-7	HL770-7A
HL770(#1171~)		
HL780-3	HL780-3A	HL780-7A
	HL730-9	HL760-9
	HL740-9	HL770-9
	HL757-9	HL780-9

Backhoe Loader



HB90/HB100

Crawler Dozers



H70

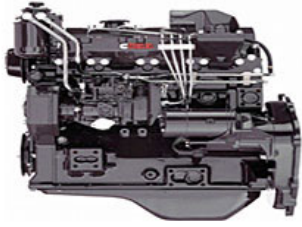
Skid Steer Loaders



HSL810	HSL650-7	HSL650-7A
	HSL850-7	HSL850-7A
T-SERIES		
HSL500T	HSL1500T	
HSL600T-680T		
HSL800T		

Engine Service Manual

ISUZU 4JG2	MITSUBISHI S4S, S6S
KUBOTA 03-M-E2B	MITSUBISHI 4G63-32HL, 4G64-33HL



YANMAR 3TNV, 4TNV
YANMAR 4TNE94, 98, 106
YANMAR 4TNV94L
YANMAR TNV SERIES-ECM
YANMAR FUEL INJECTION
YANMAR TNV ELEC T-SHOOTING
YANMAR TNV-Series Service Tool Manual
KUBOTA V3300
KUBOTA V3600
KUBOTA V2203M-E3B
KUBOTA Operator's manual
HYUNDAI D6A
HYUNDAI D6B
HYUNDAI L4GC
HYUNDAI D4DA

mitsubishi S4K, S6K
mitsubishi L2(A,B,E), L3(A,B,E)
mitsubishi S6S-T
mitsubishi SL, SM
mitsubishi D04FD-TAA

LPG & BI-FUEL IMPCO S/MANUAL
GM 4.3L
CUMMINS QSB4.5 & 6.7

CUMMINS ENGINE ELE CIRCUIT
IVECO F4GE
IVECO Operator's manual