

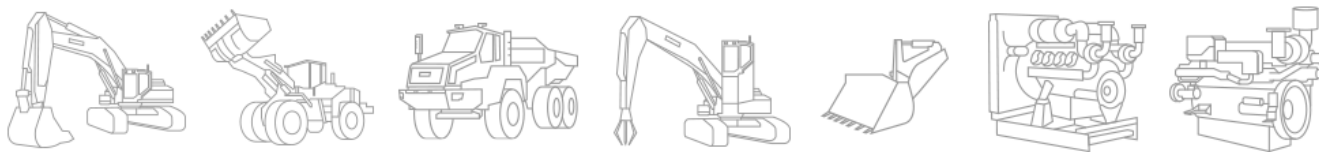
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DX05/08 Gen Stage5 DPF/SCR Regeneration Strategy

22. July. 2024

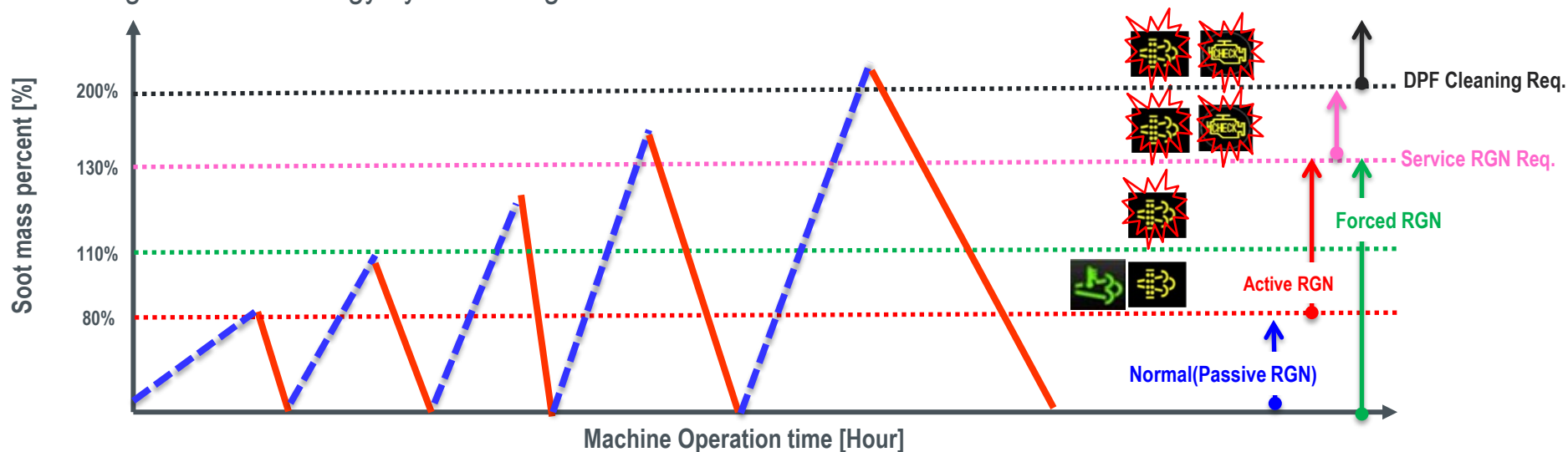
Engine BG, Engine development, Large&Medium Engine Test Team




HD Hyundai Infracore



DPF Regeneration Strategy

Active Regeneration Strategy by exceeding of soot mass

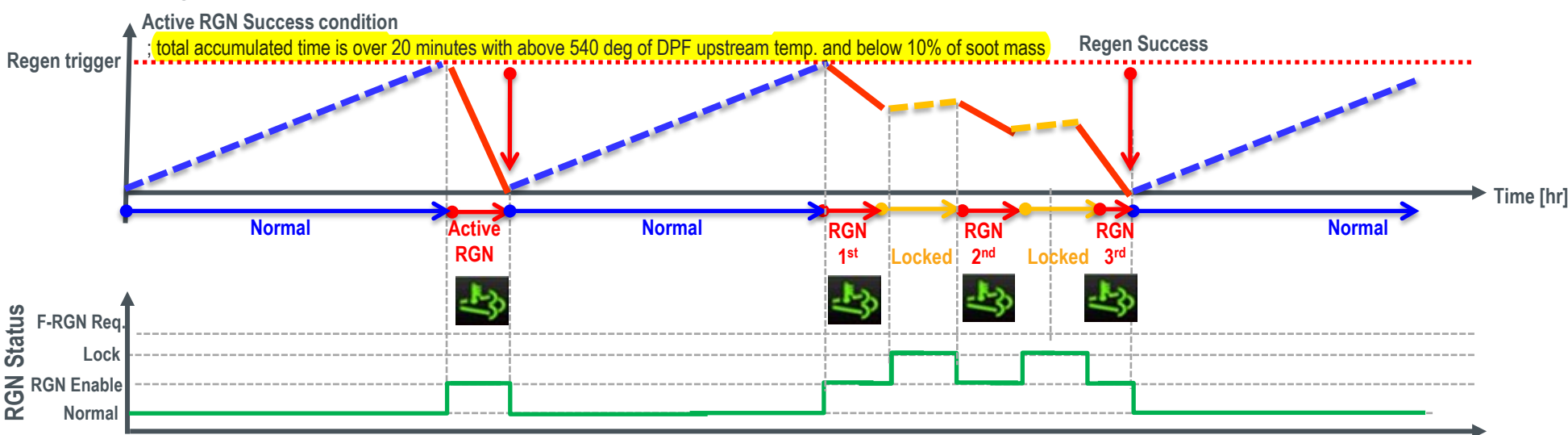


No.	Soot quantity [%]	Active RGN lamp 	DPF lamp 	Check engine Lamp 	Torque de-rate	Remark
1	Under 80%	Off	Off	Off	No	- No Action (Passive regeneration dependent on machine CUP)
2	80% ~ 110%	On	On (If active RGN is failed)	Off	No	- Start active RGN. With high temp.(480~640°C) during running(Active RGN lamp on) - If active RGN is failed, then DPF lamp will be on.
3	111% ~ 130%	On	Slow Blink	Off	Mild Torque de-rate	- Soot percent is over 110%, then Soot max level1 fault is detected and DPF lamp will be slow blinking. - Engine power is limited to 75%.
4	131% ~ 200%	Off	Fast Blink	Blink	Severe Torque de-rate	- If Soot percent is over 130% , then Soot max level2 fault is detected and active/forced RGN is inhibited - Service call is needed and perform the Service RGN by Diagnostic tool - Start service RGN with low ~ high temp.(400~640°C) during running by diagnostic tool. - Engine power is limited to 50%.
5	Over 200%	Off	Off	Blink	Severe Torque de-rate	- If Soot percent is over 200% , then active/forced/service RGN is inhibited - Service call is needed and perform the DPF cleaning in center - Engine power is limited to 50%.

* Soot 100% equal in weight DX05 43g, DX08 51g

DPF Regeneration Strategy

Active Regeneration Procedure



Procedure	Operation time [hour]	Status	Active RGN lamp
Normal Case	~ Time to 80% of DPF	NO RGN	Off
	Until 1.5 hr after the regeneration starts	Active RGN*	On
	Soot % reset	Success	Off

* If engine rpm remain long idle area(750~1050rpm) over 7 min., then active RGN will be aborted.

Procedure	Operation time [hour]	Status	Active RGN lamp
Worst Case	~ Time to 80% of DPF	Normal	Off
	1st attempt for regeneration (Maximum 1.5hr)	1 st Active RGN	On
	1st regeneration lock time (6hr)	1 st Lock	Off
	2nd attempt for regeneration (Maximum 1.5hr)	2 nd Active RGN	On
	2nd regeneration lock time (6hr)	2 nd Lock	Off
	3rd attempt for regeneration (Maximum 1.5hr)	3 rd Active RGN	On
	Soot % reset	Success	Off

DPF Regeneration Strategy

Forced and Service Regeneration by switch or diagnostic tool is performed as below procedure.

	Mode	Engine speed [rpm]	Temperature [degC]	Time [min.]
Forced RGN	Normal	50 / 60 Hz	-	-
	Heat up 1	50 / 60 Hz	-	1~5 min.
	Heat up 2 (Low temp.)	50 / 60 Hz	DOC inlet > 250°C DPF inlet temp. = 470~520 °C	10~15 min.
	Forced Regeneration (High temp.)	50 / 60 Hz	DPF inlet temp. = 550~640°C	15~25 min
	Cool down	50 / 60 Hz	-	4 min.

Forced RGN Success condition

; total accumulated time is over 20 minutes with above 540 deg of DPF upstream temp. and below 10% of soot mass

	Mode	Engine speed [rpm]	Temperature [degC]	Time [min.]
Service RGN	Normal	50 / 60 Hz	-	-
	Heat up 1	50 / 60 Hz	-	1~5 min.
	Heat up 2 (Low temp.)	50 / 60 Hz	DOC inlet > 250°C DPF inlet temp. = 380~400 °C	10~15 min.
	Service Regeneration	50 / 60 Hz	DPF inlet temp. = 400~640 °C	110~120 min
	Cool down	50 / 60 Hz	-	4 min.

Service RGN Success condition

; total accumulated time is over 45 minutes with above 540 deg of DPF upstream temp. and below 10% of soot mass

Forced/Service regeneration release condition

1. Coolant temperature is over 40degC
2. Parking brake is engaged. and safety lever is in the safe position
3. Pedal position is less than 100 %
4. Soot load mass percent is between 0% and 130% for forced RGN
5. Soot load mass percent is between Step 0% and 200% for service RGN
6. Battery voltage is over than 20V

Regeneration notice

1. Do not stop the engine during DPF regeneration to burn soot completely.
2. Be aware of high exhaust gas temperatures during DPF regeneration.

