PODIUM

ADVANCED TECHNOLOGIES

SCG 007C

Operating Limits

V05

PODIUM ENGINEERING S.R.L.

Head office & Operations Via Carlo Viola 65, 11026 Pont-Saint-Martin (AO), Italy | **VAT number** IT01158110070
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Version	Initials	Update	Date
V00	MT	Initial draft	10.12.20
V01	FV	Main engine and gearbox parameters added	11.02.21
V02	LB	Main suspension, brakes and steering parameters added	23.02.21
V03	LB	FTE and RTE travel limits and damper temperatures added	24.02.21
V04	LB	Wheel bearing grease temperature limit added	01.03.21
V05	LB	Rockers and driveshaft torque sensor max temp added	11.03.21

General Information

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Updates for each version are marked in magenta.

Definitions:

- The normal operating limits are acceptable for continuous operation.
- The warning limit is the threshold at which investigation is required and, if applicable, a warning is triggered in the data.
- The absolute limit is the threshold at which the car operation must be modified or a component or system must be inspected following the occurrence.

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Measure	Units	Normal limit	Warning limit	Maximum limit	Notes
FRONT SUSPENSION					
Pushrod load	kN	30	43	60	Inspect welding if warning limit reached. Inspect entire suspension if limit reached.
Lateral damper bump travel (from full extended position)	mm			65.2	
Front third element travel (from full extended position)	mm			86.97	
Lateral damper temperature	^{0}C		120		
Third element temperature	^{0}C		120		
Wheel bearing grease temperature	^{0}C			150	Inspect and send it to Pankl for rebuild
Rocker bearing temperature	^{0}C			120	Replace if max limit is reached
Front rim temperature	^{0}C		150		Inspect rim if max limit reached
STEERING					
Column torque	Nm	50	50	TBA	Inspect column if max limit reached
Rack travel	mm			44	
REAR SUSPENSION					
Pushrod load	kN	53	60	90	Inspect welding if warning limit reached. Inspect entire suspension if limit reached.
Lateral damper bump travel (from full extended position)	mm			80.2	
Front third element travel (from full extended position)	mm			86.97	
Lateral damper temperature	^{0}C		120		
Third element temperature	^{0}C		120		
Wheel bearing grease temperature	^{0}C			150	Inspect and send it to Pankl for rebuild
Rear rim temperature			150		
Driveshaft torque	Nm			5000	Measure twist and check sensor calibration if max limit reached
Driveshaft torque sensor temperature	^{0}C			110	Replace if max limit is reached

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Rocker bearing temperature				177	Replace if max limit is reached
BRAKES					
Front brake pressure	barA	100	120	TBA	
Rear brake pressure	barA	100	120	TBA	
Front Master cylinder travel	mm	16.7		30	Check brake system if warning limit reached
Rear Master cylinder travel	mm	13.7		30	Check brake system if warning limit reached
Front disc temperature	^{0}C	650	650		
Rear disc temperature	^{0}C	650	650		
Front caliper temperature	^{0}C	150	150	180	Inspect caliper if max limit reached
Rear caliper temperature	^{0}C	150	150	180	Inspect caliper if max limit reached
Front brake wear (minimum pad and disc stack)	mm			49	Change brake material if max limit reached
Rear brake wear (minimum pad and disc stack)	mm			49	Change brakes material max limit reached
ENGINE					
Max Engine speed	rpm	7500		>8000	
Max water temp out of engine (Tmot1-Tmot2)	^{0}C	110		>115	
Min water temp out of engine (Tmot1-Tmot2)	^{0}C	60	20	<10	
Max water pressure (Pmot-in)	barA	3		3.5	
Min water pressure (Pmot-in)	barA	2.5		1.5	
Max Header tank pressure (Pwat)	barA	3		3.5	
Min Header tank pressure (Pwat)	barA	2		1.5	
Max oil temperature (Toil)	^{0}C	125		130	
Min oil temperature (Toil)	^{0}C	60	20	<10	
Oil pressure @1500 rpm (Poil)	barA	1.5		<0.5 @2000 rpm	
Oil pressure @5000 rpm (Poil)	barA	6.5		<3.5	

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Min Oil tank level (Oillvl)	ltrs	2.5		<2.5	
Max Oil tank level (Oillvl)	ltrs	3		>3	
Min Crank case pressure (Pcrank)	barA	0.6			
Max Crank case pressure (Pcrank)	barA	0.85		>0.95	
Charge air temperature after CAC (T21_1-T21_2)	^{0}C	40		50	
Charge air pressure after CAC (P21_1-P21_2)	barA	2.5		>2.5	
Plenum inlet temperature (Tinlet)	^{0}C	40		50	
Min Plenum inlet pressure (P22_1-P22_2)	barA	0.3			
Max Plenum inlet pressure (P22_1-P22_2)	barA	2.5		>2.5	
Min Barometric pressure (Pbaro)	barA	0.95		<0.95	
Min Turbo speed (nturbo)	rpm	25000			
Max Turbo speed (nturbo)	rpm	185000		>185000	
Min fuel rail pressure (Prail_1-Prail_2)	barG	60		<60	
Max fuel rail pressure (Prail_1-Prail_2)	barG	150		>180	
Min fuel rail temperature (Trail1-Trail2)	^{0}C	10			
Max fuel rail temperature (Trail1-Trail2)	^{0}C	60		>80	
Min PFI fuel rail pressure (Pfuel_1-Pfuel_2)	barG	6		<5.5	
Max fuel rail pressure (Pfuel_1-Pfuel_2)	barG	6		>6.5	
Min PFI fuel rail temperature (Tfuel1-Tfuel2)	^{0}C	10			

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Max PFI fuel rail temperature (Tfuel1-Tfuel2)	^{0}C	60		>80	
Exhaust temperature (Texh1-Texh2)	^{0}C	800		>850	
Min lambda	-	0.8		<0.8	
Max lambda	-	1.05		>1.05	
Max Clutch wear travel	mm	6		>6	Clutch to be replaced
Max clutch release travel	mm	4.5		>5	Value to be evaluated from current locking position (variable with wear), check clutch in case of occurence
Oil catch tank level					
GEARBOX					
Max gearbox oil temperature	^{0}C	100	110		
Min gearbox oil temperature	^{0}C	90		<65	Full input torque can not be applied until the critical temperature is reached. Warming up with run up wheels permitted.
Max gearbox outlet pressure	barG	2.0			Due to scavenging nature of the system cornering and banking can surge the system, pressure drops can be tolerated by the system. The important thing is that the pressure picks up quickly afterwards and there is no increase in oil temperature as a result
Min gearbox outlet pressure	barG	0.5			Due to scavenging nature of the system cornering and banking can surge the system, pressure drops can be tolerated by the system. The important thing is that the pressure picks up quickly afterwards and there is no increase in oil temperature as a result
FUEL SYSTEM					
Fuel cell pressure	barA	1.2			
ELECTRICAL SYSTEM					
Engine alternator temperature	^{0}C				
Gearbox alternator temperature	^{0}C				
Starter temperature	^{0}C				
Gearbox actuator temperature	^{0}C				
Powerbox temperature	^{0}C				
ECU temperature	^{0}C				
Battery temperature	^{0}C				
COCKPIT					
Cockpit temperature at ambient <25 ^{0}C	^{0}C	30	30	32	Max limit to be respected within 8 minutes after a pitstop
Cockpit temperature at ambient >25 ^{0}C	^{0}C	Ambient +5	Ambient +5	Ambient +7	Max limit to be respected within 8 minutes after a pitstop

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