



Team Results for Clean Snowmobile Challenge 2019 Team 10



2019 Clean Snowmobile Competition - Lab Emission Event Emission Data Sheet

Test Date : 2019/03/07 10:42:40
Team Name : Ferris State
Team Number : 10
Model : Polaris
Engine : Polaris
Displacement[cc] : 798.00
100% Speed : 5861
100% Torque : 68.8
No of Strokes : 2
Fuel : Gas H/C: 1.95 O/C: 0.00

ModeNum	:	1	2	3	4	5
Weighting	:	0.12	0.27	0.25	0.31	0.05
Power	kW :	0.0	0.0	0.0	0.0	0.0
HC_m	g/hr :	**	**	**	**	**
CO_m	g/hr :	**	**	**	**	**
NOx_m	g/hr :	**	**	**	**	**
Soot_m	mg/hr:	**	**	**	**	**
N2O_m	mg/hr:	**	**	**	**	**
CO2_m	g/hr :	**	**	**	**	**
CH4_m	g/hr :	**	**	**	**	**
W_HC	g/hr :	**	**	**	**	**
W_CO	g/hr :	**	**	**	**	**
W_NOx	g/hr :	**	**	**	**	**
W_HCNOx	g/hr :	**	**	**	**	**
W_Soot	mg/hr:	**	**	**	**	**
W_N2O	g/hr :	**	**	**	**	**
W_CO2	g/hr :	**	**	**	**	**
W_CH4	g/hr :	**	**	**	**	**

Total Weighted Power [kW] 0.000

Weighted Emissions

	HC	CO	NOx	HC+NOx
Total Mass [g/hr]	****	****	****	****
Specific Mass [g/kW-hr]	****	****	****	****
BSFC [g/kW-hr]	****			

Total Soot [mg/hr]	****	Specific Soot [mg/kW-hr]	****
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Not Used for Competition

Total N2O [mg/hr]	****	Specific N2O [mg/kW-hr]	****
Total CO2 [g/hr]	****	Specific CO2 [g/kW-hr]	****
Total CH4 [g/hr]	****	Specific CH4 [g/kW-hr]	****
RMC BSFC [g/kW-hr]	0		

EMISSION TESTS:

	Value	Limit	Result
Power	42.26	<96.94 kW	PASS
Soot	****	<50 mg/kW-hr	FAIL
CO	****	<275 g/kW-hr	FAIL
HC + NOX	****	<90 g/kW-hr	FAIL
E-Score	0.00	>175	FAIL
Valid Data for All 5 Modes			FAIL
RMC			FAIL (-50 Points)
LAB EMISSION TEST			FAIL



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Modal Raw Data : Engine / Environmental

ModeNum		1	2	3	4	5
Total Points	points	1	1	1	1	1
PtsInMode	points	1	1	1	1	1
Speed	rpm	0.00	0.00	0.00	0.00	0.00
Torque	Nm	0.00	0.00	0.00	0.00	0.00
Power	kW	0.00	0.00	0.00	0.00	0.00
BSFC	g/kw-hr	**	**	**	**	**
Fuel	g/hr	#####	#####	#####	#####	#####
T_int	degC	0.00	0.00	0.00	0.00	0.00
RelHumid	%	0.00	0.00	0.00	0.00	0.00
Baro	in Hg	0.00	0.00	0.00	0.00	0.00
Baro	mmHg	0.00	0.00	0.00	0.00	0.00
Pvap_kPa	kPa	0.00	0.00	0.00	0.00	0.00
Pvap_inHg	inHg	0.00	0.00	0.00	0.00	0.00
AbsHumidity	grains/lb	**	**	**	**	**
SatPres	kPa	0.00	0.00	0.00	0.00	0.00
Hum Factor		1.00	1.00	1.00	1.00	1.00
F_fac		**	**	**	**	**
K_fac		**	**	**	**	**
Humidity	g/kg	**	**	**	**	**
H2		**	**	**	**	**
WetDry Factor		1.00	1.00	1.00	1.00	1.00



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Modal Emissions Concentrations

ModeNum		1	2	3	4	5
THC	ppmC1	0.00	0.00	0.00	0.00	0.00
CO	%	0.00	0.00	0.00	0.00	0.00
N2O	ppm	0.00	0.00	0.00	0.00	0.00
CH4	ppm	0.00	0.00	0.00	0.00	0.00
CO2	%	0.00	0.00	0.00	0.00	0.00
O2	%	0.00	0.00	0.00	0.00	0.00
CNOx	ppm	0.00	0.00	0.00	0.00	0.00
AHC	ppm	0.00	0.00	0.00	0.00	0.00
C2H2	ppm	0.00	0.00	0.00	0.00	0.00
C2H4	ppm	0.00	0.00	0.00	0.00	0.00
C3H6	ppm	0.00	0.00	0.00	0.00	0.00
C4H6	ppm	0.00	0.00	0.00	0.00	0.00
ETOH	ppm	0.00	0.00	0.00	0.00	0.00
H2O	%	0.00	0.00	0.00	0.00	0.00
HCHO	ppm	0.00	0.00	0.00	0.00	0.00
HCN	ppm	0.00	0.00	0.00	0.00	0.00
HNCO	ppm	0.00	0.00	0.00	0.00	0.00
MECHO	ppm	0.00	0.00	0.00	0.00	0.00
NC5	ppm	0.00	0.00	0.00	0.00	0.00
NH3	ppm	0.00	0.00	0.00	0.00	0.00
NO	ppm	0.00	0.00	0.00	0.00	0.00
NO2	ppm	0.00	0.00	0.00	0.00	0.00
Soot	mg/m3	0.00	0.00	0.00	0.00	0.00
AFR	:1	**	**	**	**	**



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Measurement Accuracy (SAE paper 961804)

ModeNum	H2_XLS %	ModalHC_Dry %	ModalFTIR_H2O %	N2 %	Ar %	AFR :1	Tr_Eff -
1	**	0.000	0.000	0.000	0.000	**	**
2	**	0.000	0.000	0.000	0.000	**	**
3	**	0.000	0.000	0.000	0.000	**	**
4	**	0.000	0.000	0.000	0.000	**	**
5	**	0.000	0.000	0.000	0.000	**	**

ModeNum	ModalWHC %	ModalC1 %	ModalC8 %	ModalSUM_HC %	ModalT_Emiss %	ModalError %
1	**	**	**	**	**	**
2	**	**	**	**	**	**
3	**	**	**	**	**	**
4	**	**	**	**	**	**
5	**	**	**	**	**	**

Carbon Balance Verification

		1	2	3	4	5
Power	kW	0	0	0	0	0
BSFC	g/kw-hr	**	**	**	**	**
Fuel_MassFlow	g/hr	9999999	9999999	9999999	9999999	9999999
HC_m	g/hr	**	**	**	**	**
CO_m	g/hr	**	**	**	**	**
CO2_m	g/hr	**	**	**	**	**
TW_Power	kW	0				
TW_BSFC	g/kw-hr	**				
Fuel_MassFlow	g/hr	9999999	9999999	9999999	9999999	9999999
FuelCalc	g/hr	**	**	**	**	**
FuelCalcDev	%	**	**	**	**	**

\$HCR_ENG	1.949
\$OCR_ENG	0
MassFracCFuel H/C ratio	0.85943

Power Run

Team 10

TeamNumber	10
TeamName	Ferris State
Model	Polaris
Engine	Polaris

Displacement cc	798.00
RatedSpeed	5861
RatedTorque	68.8

