

 * Automotive Testing and Development Services, Inc. * Tue 16 June 2020 10:39 Page 1 of PRE * Single Roll Dyno Configuration *

Test = EPA 75

Options = CVS Bag Sec ShowTol Methane MethaneRF

Test Init Start	= 16 June 2020 10:35:43	Test Start	= 16 June 2020 10:39:02
Posttest Completed At	= 16 June 2020 11:27:53	Test Finish	= 16 June 2020 11:19:32
Hot Soak Start Time	= 15 June 2020 11:47:00		

Hot Soak Start Time	= 15 June 2020 11:47:00		
Personnel Information:: Driver Requestor	= REDACTED	Operator Supervisor	= REDACTED
Vehicle Information: VIN Vehicle Model Engine Family Ignition Status Automatic Sample Delay	= JEEP CHEROKEE = ECRXT03.05PV = No = 1	Cert Tracking ID Model Year Eng. Disp. Transmission Idle RPM	= 2964-EC299348 = 2014 = 3.0 =
Vehicle Conditions: Soak Start Time:	= JUNE 15, 2020 11:47	Ambient Limit Type	= OTHER7

Joak Start Time.	- JOHE 13, 2020 11.47	Allibrett Little Type	- OTTILIO
Test Specifications:			

rest specifications.			
TO-Number	= W0110	CVS BulkStream Flow :	= 3) 625 scfm
TestNet Number	= 2964		

Inertia	= 5500 (1b)	Road Load A	= 13.93 (lbs)	
Road Load B	= 0.4178	Road Load C	= 0.02593	
Fuel Information:	= DIE-DJ1621HW10	Specific gravity	= 0.8520	

Fue1	= DIE-DJ1621HW10	Specific gravity	= 0.8520
NHV	= 18083.00	Fuel R-Factor	= 0.60
CWF	= 0.8710	OWF	= 0.0000
HWF	= 0.1290	Fuel Calculation Type	<pre>= Diesel/EPA Calcs</pre>

Phase Information:		

Phase 1	Shift Tables AUTO
Phase 2	Con't
Phase 3	AUTO

Response Factors:	
Bag Methane	≈ 1.05

Pre Test	Remai	rks:
TEST :	#1 AS	RECEIVED

Post Test Remarks:

Dynamometer:

Non-Critical Information:			
Begin Odo	= 86149	Idle RPM	=
Test end Odometer	= 86160	Driveability	= Good
Engine performance	= No Problem	Brakes	= No Problem
Transmission	= No Problem	Vehicle stalls	= None

ID: ONT50886 **EPA 75 TEST** Printed on: Tue 16 June 2020 11:27 * Automotive Testing and Development Services, Inc. * Tue 16 June 2020 10:39 Page 1 of SUM * Single Roll Dyno Configuration *

SUMMARY REPORT

Test = EPA 75Test Id = ONT50886TestNet Number = 2964 Options = CVS Bag Sec ShowTol Methane MethaneRF
Test Init Start = 16 June 2020 10:35:43 Fuel Calculation Type = Diesel/EPA Calcs

SS calculated by Phase 1 Bag 1	THC (ppmC)	CO (ppm)	NOX (ppm)	CO2 (%)	CH4 (ppmC)	NM-HC (wRF)	FE (mpg)	Dyno Information Inertia = 5500
Range Sample	10.0 8.421	50.0 19.076	30.0 2.369	1.00 0.7516	10.0 4.372			Inertia Units = 1b
Range	10.0	50.0	30.0	1.00	10.0			There is a miss of
Ambient Net Conc.	3.101 5.495	0.859 18.266	-0.054 2.369	0.0506 0.7039	2.227 2.270	3.1180		Dynamometer will be set manually = Fa
								Dyno Coefficient Units = 2
Grams/ph. Grams/mi	0.4137 0.1149	2.7756 0.7710	0.5558 0.1544	1681.5312 467.1256	0.1977 0.0549	0.2348 0.0652	21.7165	Road Load A = 13.93
								Road Load B = 0.4178
Phase 2 Bag 2	THC	CO	NOX	C02	CH4	NM-HC	FE	
	(ppmC)	(ppm)	(ppm)	(%)	(ppmC)	(wRF)	(mpg)	Road Load $C = 0.02593$
Range	10.0	50.0	30.0	1.00	10.0			Use Augmented Braking System? = True
Sample	5.946	0.754	0.111	0.4253	4.906			
Range	10.0	50.0	30.0	1.00	10.0			
Ambient	3.072	0.770	0.069	0.0520	2.221			
Net Conc.	2.972	0.008	0.045	0.3749	2.755	0.0866		
Grams/ph.	0.3830	0.0021	0.0171	1533.1509	0.4108	0.0112	25.6115	
Grams/mi	0.0992	0.0005	0.0044	397.0629	0.1064	0.0029		
Phase 3 Bag 3	THC (ppmC)	CO (ppm)	NOX (ppm)	CO2	CH4 (ppmC)	NM-HC (wRF)	FE (mpg)	
	********	*******	******	******	******			
Range	10.0	50.0	30.0	1.00	10.0			
Sample	6.618	0.688	0.046	0.5993	5.697			
Range	10.0	50.0	30.0	1.00	10.0			
Ambient	3.029	0.627	-0.104	0.0522	2.308	0.0677		
Net Conc.	3.725	0.089	0.046	0.5494	3.493	0.0677		
Grams/ph.	0.2797	0.0135	0.0107	1309.0759	0.3034	0.0051	27.8601	
Grams/mi	0.0779	0.0038	0.0030	364.7201	0.0845	0.0014		
Test Summary	THC	CO	NOX	C02	CH4	NM - HC	FE	

0.0897

0.090

0.6085

0.0816

0.7142

0.0959

0.0154

0.015

0.2459

0.0330

0.0162

0.0022

25.2152

23.5595

26.6884

0.0351 402.7172

0.5729 3214.6821

0.0278 2842.2268

0.04

0.0768

0.0037

403

430.8665

381.4818

0.0966

0.097

0.7967

0.1068

0.6627

0.0890

|Grams g/mi

Grams g/mi

Phs1&2 gms Phs1&2 g/mi

Phs2&3 gms

|Phs2&3 g/mi

0.1613

0.16

2.7777

0.3723

0.0156

0.0021

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CVS Bag report MASS calculated by DF method

10.0 8.421 10.0 3.101 5.495 0.4137 0.1149	50.0 19.076 50.0 0.859 18.266 2.7756 0.7710	30.0 2.369 30.0 -0.054 2.369 0.5558 0.1544	1.00 0.7516 1.00 0.0506 0.7039 1681.5312 467.1256	10.0 4.372 10.0 2.227 2.270	3.1180		Baro(inHg) = 28.94 Temp(F) = 72.3 Tdew(F) = 49.8 Rhum(*) = 50.3 Ahum(gr/lb) = 61.3 NOX Factor = 0.9396	Phase Start = 10:39:02 Phase Finish = 10:47:28 Analysis End = 10:52:31 Elapsed (sec) = 506.1 Bag Fill (sec)= 506.0
8.421 10.0 3.101 5.495 0.4137 0.1149	19.076 50.0 0.859 18.266	2.369 30.0 -0.054 2.369	0.7516 1.00 0.0506 0.7039	4.372 10.0 2.227 2.270			Temp(F) = 72.3 Tdew(F) = 49.8 Rhum(%) = 50.3 Ahum(gr/lb) = 61.3	Phase Finish = 10:47:28 Analysis End = 10:52:31 Elapsed (sec) = 506.1
10.0 3.101 5.495 0.4137 0.1149	50.0 0.859 18.266	30.0 =0.054 2.369	1.00 0.0506 0.7039	10.0 2.227 2.270			Tdew(F) = 49.8 Rhum(%) = 50.3 Ahum(gr/lb) = 61.3	Analysis End = $10:52:31$ Elapsed (sec) = 506.1
3.101 5.495 0.4137 0.1149	0.859 18.266 2.7756	2.369 0.5558	0.0506 0.7039 1681.5312	2.227 2.270 0.1977			Rhum($%$) = 50.3 Ahum(gr/lb) = 61.3	Elapsed (sec) = 506.1
5.495 0.4137 0.1149	18.266 2.7756	2.369 0.5558	0.7039 1681.5312	0.1977			Ahum(gr/lb) = 61.3	124.4
0.4137 0.1149	2.7756	0.5558	1681.5312	0.1977				124.4
0.1149					U 2348		NOX Factor = 0.0304	Rac Eill (coc) = 506.0
0.1149					0 23/8		HOX 4CCOI - 0.9390	pag (111 (26c)- 200*0
	0.7710	0.1544	467.1256		0.2340	21.7165		Bag Anl (sec) = 302.8
				0.0549	0.0652		Vmix(ft3 20 C) = 4610.14	Drv Err (sec) = 0.0
							Dilu. Factor = 17.7645	Crank Time = 1.1
T110							Dist(mi) = 3.5997	
THC	со	NOX	C02	CH4	NM - HC	FE	Test Info	Times Info
opmC)	(ppm)	(ppm)	(%)	(ppmC)	(wRF)	(mpg)		
				•••••		11111111111111	****************	
							Baro(inHg) = 28.94	Phase Start = $10:47:28$
							Temp(F) $=$ 72.7	Phase Finish = $11:01:57$
				10.0			Tdew(F) = 44.0	Analysis End = $11:06:32$
3.072	0.770	0.069	0.0520	2.221			Rhum(%) = 44.4	
2.972	0.008	0.045	0.3749	2.755	0.0866		Ahum(gr/lb) = 50.5	Elapsed (sec) = 869.5
							NOX Factor = 0.8967	Bag Fill (sec)= 870.0
3830	0.0021	0.0171	1533.1509	0.4108	0.0112	25.6115		Bag Anl (sec) = 274.7
0.0992	0.0005	0.0044	397.0629	0.1064	0.0029		Vmix(ft3 20 C) = 7890.96	Drv Err (sec) = 0.0
							Dilu. Factor = 31.4617	Stop Time = 0.6
								Soak Start = 11:01:57 Soak Finish = 11:11:06
ΓHC opmC)	CO (ppm)	NOX (ppm)	CO2 (%)	CH4 (ppmC)	NM-HC (wRF)	FE (mpg)	Test Info	Elapsed (sec) = 548.7 Times Info
	50.0	20.0	1.00	10.0		• • • • • • • • •	P	
							=	Phase Start = 11:11:06
							•	Phase Finish = 11:19:32
								Analysis End = $11:24:18$
3.725	0.089	0.046	0.5494	3.493	0.06//			Elapsed (sec) = 506.2
0707	0.0105	0.0107	1000 0750	0.0004	0.0051	07.0604	NUX Factor $= 0.9305$	Bag Fill (sec)= 506.0
						27.8601		Bag Anl (sec) = 285.7
1.0779	0.0038	0.0030	364.7201	0.0845	0.0014			Drv Err (sec) = 0.0
							Dilu. Factor = 22.3342 Dist(mi) = 3.5893	Crank Time = 1:2
		NOV	C02	CH4	NM-HC	FE (mpg)	Avg Test Info	
THC	CO	NOX			(wRF)	\'''''''''''''''''	Es.	
THC	C0	NUX		*******	(WRF)		*********	
THC	CO	NUX		*******	(WRF)		 Baro(inHg) = 28.94	
THC 0.0966		0.0351		0.0897	********		f)	
0.0966	0.1613	0.0351	402.7172		0.0154	25.2152	Temp(F) = 73.0	
0.0966 0.097	0.1613 0.16	0.0351 0.04	402.7172 403	0.090	0.0154 0.015		Temp(F) = 73.0 Tdew(F) = 46.9	
0.0966 0.097 0.7967	0.1613 0.16 2.7777	0.0351 0.04 0.5729	402.7172 403 3214.6821	0.090 0.6085	0.0154 0.015 0.2459	25.2152	Temp(F) = 73.0 Tdew(F) = 46.9 $ \text{Rhum(*)} = 46.4$	
0.0966 0.097	0.1613 0.16	0.0351 0.04	402.7172 403 3214.6821 430.8665	0.090	0.0154 0.015		Temp(F) = 73.0 Tdew(F) = 46.9	
	0.3830 0.0992	10.0 50.0 50.0 5.946 0.754 10.0 50.0 3.072 0.770 2.972 0.008 0.3830 0.0021 0.00992 0.0005 0.0	10.0 50.0 30.0 5.946 0.754 0.111 10.0 50.0 30.0 3.072 0.770 0.069 2.972 0.008 0.045 0.3830 0.0021 0.0171 0.0992 0.0005 0.0044 OpmC) (ppm) (ppm) 10.0 50.0 30.0 6.618 0.688 0.046 10.0 50.0 30.0 3.029 0.627 -0.104 3.725 0.089 0.046	10.0 50.0 30.0 1.00 5.946 0.754 0.111 0.4253 10.0 50.0 30.0 1.00 3.072 0.770 0.069 0.0520 2.972 0.008 0.045 0.3749 0.3830 0.0021 0.0171 1533.1509 0.0992 0.0005 0.0044 397.0629 OpmC) (ppm) (ppm) (%) 10.0 50.0 30.0 1.00 6.618 0.688 0.046 0.5993 10.0 50.0 30.0 1.00 3.029 0.627 -0.104 0.0522 3.725 0.089 0.046 0.5494	10.0 50.0 30.0 1.00 10.0 5.946 0.754 0.111 0.4253 4.906 10.0 50.0 30.0 1.00 10.0 3.072 0.770 0.069 0.0520 2.221 2.972 0.008 0.045 0.3749 2.755 0.3830 0.0021 0.0171 1533.1509 0.4108 0.0992 0.0005 0.0044 397.0629 0.1064 0.0992 0.0005 0.0044 397.0629 0.1064 0.0992 0.0005 0.0044 0.0522 2.308 0.046 0.5993 5.697 10.0 50.0 30.0 1.00 10.0 3.029 0.627 -0.104 0.0522 2.308 3.725 0.089 0.046 0.5494 3.493 0.2797 0.0135 0.0107 1309.0759 0.3034	10.0	10.0	10.0 50.0 30.0 1.00 10.0

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CVS Bag report MASS calculated by DF method

Grams To Total (Bags) (gm/mi)

	Bag1	Bag2	Bag3

THC	0.0238	0.0514	0.0214
CO	0.1600	0.0003	0.0010
NOX	0.0320	0.0023	0.0008
NM-HC (wRF)	0.0135	0.0015	0.0004

Legend

* denotes Unstable Reading (wRF) denotes with Response Factor (woRF) denotes without Response Factor ID: ONT50886 EPA 75 TEST Printed on: Tue 16 June 2020 11:27 * Automotive Testing and Development Services, Inc. * Tue 16 June 2020 10:39 Page 1 of VAL * Single Roll Dyno Configuration *

DATA VALIDATION

PARAMETER DESCRIPTION	VALUE OF PARAMETER	LIMIT OF PARAMETER
Temperature	VALID	68 - 86 (degF)
Barometer	VALID	26.99 - 33.0001 (inHg)
Dew Point	VALID	-20 - 200 (degF)
Absolute Humidity	VALID	0 - 150 (gr/lb)
Crank Time	VALID	5 (sec)
Restart Attempts	VALID	1
Shutdown Time	VALID	5 (sec)
Pretest Soak Time	VALID	12 - 36 (hr)
Phase Length	VALID	2 (%)
Distance	VALID	2 (%)
Test Hold Conditions	VALID	60 (sec)
Leak Check	VALID	1
	VALID	1200 (sec)
Bag Analysis Time Bag Fill Time	VALID	5 (sec)
	VALID	THC -0.55 - 10 (ppm)
Ambient Bag Readings	VALID	CO -0.55 - 15 (ppm)
		NOX -0.55 - 2 (ppm)
		CO2 350 - 850 (ppm)
		CH4 -0.55 - 10 (ppm)
C1- D Ddiana	VALID	THC -0.55 (ppm)
Sample Bag Readings	VALID	CO -0.55 (ppm)
		NOX -0.55 (ppm)
		CO2 350 (ppm)
		CH4 -0.55 (ppm)
	MAL ID	Stabilization Time (T2) 10 (sec)
Bag Read Sequence	VALID	Integration Time (T3) 3 (sec)
		•
		Stability Time Out (T4) 30 (sec)
		Stability Chk Tolerance 2 (%)
Bag Zero/Span Sequence	VALID	Pre-Bag Z/S Offset 25 (%)
		Pre-Bag Zero Drift 1 (%)
		Post-Bag Z/S Drift 2 (%)
		Stabilization Time (T2) 10 (sec)
		Integration Time (T3) 3 (sec)
		Stability Time Out (T4) 30 (sec)
		Stability Chk Tolerance 2 (%)
Hot Soak Length	VALID	540 - 660 (sec)
Analyzer Overscale	VALID	10 (sec)
Venturi Inlet Temperature	VALID	32 - 300 (degF)