

VIE Precision Matrix

2/17/2016

37 test results have been reported. Lab C had to abandon their engine after test two and has restarted testing at test 1.

All reported data is posted at: <ftp://ftp.astmtmc.cmu.edu/refdata/gas/VIE/data/ltms.csv>
The field COM2 will identify the test as a precision matrix test with a value of "MATRIX".

Oils: 542-2 (0W-20), 544 (5W-30) and 1010-1 (5W-20) Estimated matrix completion : Week of March 21, 2016

Please note that the PM Design Statisticians have revised the matrix design as follows:

For stand A2 the 5th-11th tests have been moved to A1 because of a failed engine in A2. A2 testing ends at test 4.

Oil assignments on stand A1 have been changed from previous A2 assignments for runs 7 and 10.

G2 assignments for runs 10 and 11 have been flip-flopped.

B1 test 10 has been changed from 542-2 to 544.

The revised matrix is shown as follows.

VIE Precision Matrix

Step	Run Order	A 1	A 2	G 1	G 2	B	D	C	F	Eng. Hrs
	SOT Engine Hours	150	150	150	150	150	150	150	150	
1	1	544 113244-VIE	1010-1 110587-VIE	542-2 105705-VIE	544 113224-VIE	542-2 110003-VIE	542-2 110588-VIE	544 113298-VIE 544 116040-VIE (new engine)	1010-1 113223-VIE	350
	2	544 113247-VIE	1010-1 110725-VIE	1010-1 113235-VIE	542-2 105704-VIE	544 113258-VIE	542-2 113293-VIE	1010-1 113300-VIE	544 113220-VIE	550
	3	542-2 111451-VIE	542-2 111176-VIE	1010-1 113236-VIE	1010-1 108989-VIE	1010-1 110595-VIE	544 113292-VIE	542-2 113299-VIE Oil Con. Engine Abandoned	544 113221-VIE	750
	4	1010-1 110726-VIE	544 113243-VIE	544 113225-VIE	1010-1 113234-VIE	544 113259-VIE	1010-1 110589-VIE	542-2	542-2 113222-VIE	950
2	5	544 113246-VIE	544 113245-VIE Failed Eng.		542-2 113229-VIE	544 113260-VIE				1150
	6	1010-1	1010-1		542-2 113230-VIE	542-2 110004-VIE				1350
	7	1010-1	544		544 113226-VIE	542-2 113261-VIE				1550
	8	542-2	542-2		544 113227-VIE	1010-1 113265-VIE				1750
	9	542-2	542-2		1010-1 113238-VIE	1010-1				1950
	10	544	1010-1		542-2	544				2150
	11	1010-1	1010-1		544					2350
	EOT Engine Hours	950	2350	950	2350	2150	950	950	950	Total Runs
	Runs/ Engine	4	11	4	11	10	4	4	4	52

Test Reported

Invalid

VIE Precision Matrix

Sorted by Engine Hours

IND	Testkey	Lab/Stand	FEI1	FEI2	FEISUM	Total Oil Cons., ml	Engine Hours	Comment
542-2	110588-VIE	D2	2.77	1.7	4.47	400	370	
	105705-VIE	G1	2.34	1.7	4.04	700	390	
	110003-VIE	B1	3	1.86	4.86	600	399	
	105704-VIE	G2	2.93	2.16	5.09	800	561	
	113293-VIE	D2	2.53	1.74	4.27	400	571	
	111176-VIE	A2	2.46	1.48	3.94	600	776	
	111451-VIE	A1	2.32	1.41	3.73	1100	779	
	113222-VIE	F2	2.72	1.99	4.71	700	968	
	113229-VIE	G2	2.3	1.73	4.03	1000	1154	
	113230-VIE	G2	2.02	1.31	3.33	1200	1371	
	110004-VIE	B1	1.91	1.07	2.98	800	1406	
	113261-VIE	B1	1.84	0.78	2.62	1200	1603	
544	113224-VIE	G2	1.36	1.83	3.19	600	363	
	113298-VIE	C2	2.14	2.08	4.22	700	368	
	113244-VIE	A1	1.07	0.49	1.56	1000	374	
	113220-VIE	F2	0.84	1.51	2.35	650	569	
	113247-VIE	A1	1.44	1.47	2.91	800	579	
	113258-VIE	B1	1.48	1.64	3.12	1000	597	
	113221-VIE	F2	1.04	1.64	2.68	700	768	
	113292-VIE	D2	1.48	1.24	2.72	800	772	
	113243-VIE	A2	1.24	1.11	2.35	700	978	
	113259-VIE	B1	1.04	1.38	2.42	800	992	
	113225-VIE	G1	1.1	1.04	2.14	1600	1002	
	113260-VIE	B1	0.89	1.02	1.91	1000	1210	
113226-VIE	G2	1.07	1.1	2.17	1000	1568		
1010-1	113223-VIE	F2	2.12	2.14	4.26	500	364	
	110587-VIE	A2	1.6	1.74	3.34	600	374	
	113300-VIE	C2	2.18	1.82	4	1100	570	
	110725-VIE	A2	1.84	1.59	3.43	700	574	
	113235-VIE	G1	1.67	1.51	3.18	1100	602	
	108989-VIE	G2	1.95	2.12	4.07	1000	758	
	110595-VIE	B1	1.77	1.99	3.76	1000	794	
	113236-VIE	G1	1.59	1.49	3.08	1700	803	
	110589-VIE	D2	1.83	1.68	3.51	900	928	
	113234-VIE	G2	1.71	2	3.71	1100	956	
	110726-VIE	A1	1.57	1.43	3	700	1003	
113265-VIE	B1	1.34	0.75	2.09	600	1799		

Guidelines on Running the PM

1. If engine fails before the matrix finishes, move remaining tests to another matrix engine.
2. After all labs run the Step 1 tests, reassess engine “health” at the labs to determine the engines that will run additional tests to reach higher engine hours.

If there are any questions please let me know.

Best regards,
Frank

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<ftp://ftp.astmtmc.cmu.edu/docs/gas/GF6matrix/StatusReports/VIE/20160217VIEMatrixTestStatus.pdf>