Eng: CHIPPED 1Z/AHU TDI, TDIMEISTER VARIANT 13 CAM
Calculated Test Results

Date: 09-06-2008
Time: 6:56:35 pm

Projected Performance

Engine RPM	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000	5250	5500
Brk Tq, ft lb	89.1	99.9	116	153	182	178	175	173	169	165	161	156	150	142	135	127	118	109	99.0
Brake HP	16.97	23.79	33.26	50.9	69.2	76.4	83.5	90.3	96.5	102	107	111	114	115	116	114	112	109	104
Exh Pres, PSI	1.0	2.0	3.8	8.5	14.1	15.1	16.2	17.2	18.4	19.3	20.2	21.0	21.7	22.3	23.0	23.3	23.6	23.4	23.5
Boost, PSI	0.9	1.8	3.7	8.5	13.0	13.0	13.0	13.0	13.0	13.0	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
Vol Eff, %	75.0	81.4	92.5	118.5	141.4	141.3	141.4	141.6	141.5	141.1	140.2	138.6	136.5	133.8	130.6	126.9	122.9	118.5	113.8
Actual CFM	25.11	34.07	46.47	69.4	94.7	106	118	130	142	154	164	174	183	190	197	202	206	208	210
Fuel Flow, lb/hr	5.48	7.44	10.15	15.16	20.68	23.25	25.85	28.47	31.03	33.52	35.86	38.01	39.91	41.58	42.98	44.08	44.92	45.50	45.77
Nitrous, lb/hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ntrs Fuel, lb/hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BMEP, PSI	116	130	152	199	237	232	229	225	220	215	210	203	195	186	176	165	153	142	129
A/F Mxtr Qlty, %	95.1	98.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
BSFC, lb/HP-hr	0.323	0.313	0.305	0.298	0.299	0.304	0.310	0.315	0.322	0.329	0.334	0.342	0.350	0.361	0.372	0.385	0.401	0.419	0.442
Thermal Eff, %	50.2	51.5	52.1	51.8	51.0	50.5	50.1	49.68	49.17	48.64	48.37	47.96	47.46	46.91	46.42	45.86	45.23	44.67	43.99
IMEP, PSI	140	156	180	229	269	266	264	262	259	256	253	248	242	234	226	217	207	198	187
Frctn Tq, ft-lbs	18.62	20.02	21.48	23.14	24.77	26.12	27.48	28.86	30.24	31.63	33.02	34.42	35.82	37.22	38.64	40.05	41.48	42.91	44.35
Frctn HP	3.55	4.76	6.13	7.71	9.43	11.19	13.08	15.11	17.27	19.57	22.01	24.57	27.28	30.12	33.10	36.22	39.49	42.89	46.44
FMEP, PSI	24.27	26.08	27.99	30.15	32.28	34.04	35.81	37.60	39.40	41.21	43.03	44.85	46.68	48.51	50.3	52.2	54.0	55.9	57.8
Mech Eff, %	82.7	83.3	84.4	86.8	88.0	87.2	86.5	85.7	84.8	83.9	83.0	81.9	80.7	79.3	77.7	76.0	73.9	71.7	69.1
Motoring HP	3.71	5.02	6.55	8.41	11.00	13.63	16.62	19.94	23.64	27.62	31.91	36.53	41.41	46.59	52.1	57.8	63.7	69.5	75.7
Pumpng Work, HP	-0.16	-0.26	-0.41	-0.71	-1.57	-2.44	-3.54	-4.83	-6.36	-8.05	-9.90	-11.95	-14.13	-16.46	-19.03	-21.57	-24.19	-26.57	-29.24
Residual Exh, %	4.7	4.4	3.9	3.4	3.3	3.4	3.5	3.4	3.6	3.5	3.7	3.6	3.6	3.9	3.9	4.0	4.4	4.4	4.8
Shrt Circuit, %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exh Temp, deg F	933	991	1044	1109	1155	1176	1187	1197	1207	1216	1232	1243	1253	1262	1273	1282	1290	1297	1304
Mx Cyl Pres, PSI	1610	1762	2009	2577	3086	3058	3062	3074	3078	3072	3071	3044	3002	2946	2879	2799	2711	2620	2520
Mx Cyl Tmp, deg F	4058	4104	4131	4146	4152	4094	4087	4087	4086	4081	4098	4098	4097	4093	4087	4077	4066	4056	4041
In Port Tmp, deg F	192	187	184	183	186	186	187	187	188	188	188	188	188	189	189	190	190	191	193
Piston Spd, ft/min	627	783	940	1097	1253	1410	1567	1723	1880	2037	2193	2350	2507	2663	2820	2977	3133	3290	3447
Piston Gs @ TDC	70	110	160	220	280	360	440	540	640	750	870	1000	1140	1280	1440	1600	1780	1960	2150
Coolant HP	9.44	11.15	12.95	15.04	17.15	19.07	20.90	22.79	24.77	26.75	28.93	31.07	33.22	35.36	37.57	39.75	41.97	44.21	46.48
Blow By, CFM	1.8	1.9	2.2	2.8	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.3	3.3	3.2	3.2	3.1	3.0	2.9	2.8
In Tun Pres, PSI	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.4	0.4	0.4	0.6	0.7	0.9	1.0	1.1	1.1	1.2
Avg In Vel, ft/sec	52	65	78	91	104	117	131	144	157	170	183	196	209	222	235	248	261	274	287
Avg Ex Vel, ft/sec	65	82	98	115	131	147	164	180	196	213	229	246	262	278	295	311	327	344	360
Mach #	0.152	0.190	0.228	0.267	0.305	0.343	0.381	0.419	0.457	0.495	0.533	0.571	0.609	0.647	0.685	0.724	0.762	0.800	0.838
Act In FlowArea,%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Act Ex FlowArea,%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Valve Toss																			
Knock Index	38.4	37.9	42.3	61.1	81.2	77.2	74.4	71.9	69.7	66.8	65.2	62.2	58.7	55.2	51.4	47.7	43.9	40.6	37.4
Spark Advnc, deg	24.5	24.5	24.5	24.5	24.5	26.9	27.1	27.4	27.7	27.9	28.2	28.4	28.7	29.0	29.2	29.5	29.8	30.0	30.3
Injctr Dty Cyc, %																			
Inj Plse Wdth, ms																			
Calc Error	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Compressor Eff, %	57.4	59.4	62.0	64.9	66.3	67.5	68.6	69.7	70.7	71.6	72.4	73.1	73.7	74.2	74.5	74.8	75.0	75.1	75.2
Cmprssr Pres Ratio	1.06	1.13	1.26	1.59	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89
Compressor HP	0.2	0.4	1.1	3.4	6.4	7.1	7.8	8.4	9.1	9.7	10.2	10.7	11.2	11.6	11.9	12.2	12.4	12.5	12.6
Turbo Wastegt, %	0.0	0.0	0.0	0.0	5.7	12.9	18.6	22.9	28.0	31.4	34.4	36.7	38.6	40.1	41.2	42.2	43.0	43.5	43.9
Turbo Surge, %	0.0	0.0	0.0	1.7	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PkTq=182@2000 Avg=142
PkHP=116@4500 Avg=86.6

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Special Calculations

------ Valve Flow & Cam Calculations			------------------	--Int--	--Exh--
Overlap Area, deg*sq-in	0.7		Vlv Area, deg*sq-in	92.2	86.8
Total Exh/Int %	94.2		Total Avg Flow Coef	0.227	0.287
Lobe Separation, deg	110.8		Lobe Area, inch*deg	26.51	25.89
Overlap, deg	35		Duration, deg	257	251
Overlap @ .050, deg	-15		Opening Events, deg	17	53
			Closing Events, deg	60	18
------------------	--Int--	--Exh--	Duration @.050, deg	209	204
Duration @.200, deg	136	133	Opn Evnts @.050, deg	-7	32
TDC Tappet Lift, in	0.031	0.034	Cls Evnts @.050, deg	36	-8
Gross Valve Lift, in	0.400	0.400	Lobe Centerlns, deg	111.6	110.0
Net Valve Lift, in	0.394	0.394	Grss Tappet Lft, in	0.400	0.400

------ General Engine Calculations			----------	
Displacement, ccs	1896.7		Displacement, cu in	115.72
Dynamic Comp. Ratio	16.01		Compression Ratio	19.50
Theo. Crank Comprssn,PSI	520		Clearance Volume, ccs	25.6
Pk Secondary Tuning RPM	na		Idle Vacuum, ''Hg	21.9
Pk Secondary Tuning RPM	na		Idle Vacuum, ''Hg	21.9

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