

Jet-A Fuel Density Variation with Temperature

Gulfstream G-450

Temp °F	Temp °C	Min and Max Density lb./USG based on relative density to water @ 15.5° C x 8.336		Typical Density lb./USG Typ	Lb. Jet-A fuel @ 4,370 USG			Δ γ Max-Min	Δ Wt./Max Fuel Δγ x 4,370
		Min	Max		# Max γ	# Typ γ	# Min γ		
-4	-20.0	6.68	7.19	6.985	31,420	30,524	29,192	0.510	2,229
-3	-19.4	6.677	7.187	6.982	31,406	30,510	29,177	0.510	2,229
-2	-18.9	6.673	7.183	6.979	31,391	30,496	29,162	0.510	2,229
-1	-18.3	6.670	7.180	6.975	31,377	30,482	29,148	0.510	2,229
0	-17.8	6.667	7.177	6.972	31,362	30,468	29,133	0.510	2,229
1	-17.2	6.663	7.173	6.969	31,347	30,454	29,119	0.510	2,229
2	-16.7	6.660	7.170	6.966	31,333	30,440	29,104	0.510	2,229
3	-16.1	6.657	7.167	6.962	31,318	30,426	29,090	0.510	2,229
4	-15.6	6.653	7.163	6.959	31,304	30,412	29,075	0.510	2,229
5	-15.0	6.650	7.160	6.956	31,289	30,398	29,061	0.510	2,229
6	-14.4	6.647	7.157	6.953	31,275	30,384	29,046	0.510	2,229
7	-13.9	6.643	7.153	6.950	31,260	30,370	29,031	0.510	2,229
8	-13.3	6.640	7.150	6.946	31,246	30,355	29,017	0.510	2,229
9	-12.8	6.637	7.147	6.943	31,231	30,341	29,002	0.510	2,229
10	-12.2	6.633	7.143	6.940	31,216	30,327	28,988	0.510	2,229
11	-11.7	6.630	7.140	6.937	31,202	30,313	28,973	0.510	2,229
12	-11.1	6.627	7.137	6.933	31,187	30,299	28,959	0.510	2,229
13	-10.6	6.623	7.133	6.930	31,173	30,285	28,944	0.510	2,229
14	-10.0	6.62	7.13	6.927	31,158	30,271	28,929	0.510	2,229
15	-9.4	6.616	7.127	6.923	31,144	30,255	28,912	0.511	2,231
16	-8.9	6.612	7.123	6.920	31,129	30,238	28,895	0.511	2,234
17	-8.3	6.608	7.120	6.916	31,114	30,222	28,878	0.512	2,236
18	-7.8	6.604	7.117	6.912	31,100	30,206	28,861	0.512	2,238
19	-7.2	6.601	7.113	6.908	31,085	30,190	28,844	0.513	2,241

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20	-6.7	6.597	7.110	6.905	31,071	30,173	28,827	0.513	2,243
21	-6.1	6.593	7.107	6.901	31,056	30,157	28,810	0.514	2,246
22	-5.6	6.589	7.103	6.897	31,042	30,141	28,793	0.514	2,248
23	-5.0	6.585	7.100	6.894	31,027	30,125	28,776	0.515	2,251
24	-4.4	6.581	7.097	6.890	31,012	30,108	28,759	0.516	2,253
25	-3.9	6.577	7.093	6.886	30,998	30,092	28,742	0.516	2,255
26	-3.3	6.573	7.090	6.882	30,983	30,076	28,725	0.517	2,258
27	-2.8	6.569	7.087	6.879	30,969	30,060	28,708	0.517	2,260
28	-2.2	6.566	7.083	6.875	30,954	30,043	28,691	0.518	2,263
29	-1.7	6.562	7.080	6.871	30,940	30,027	28,674	0.518	2,265
30	-1.1	6.558	7.077	6.867	30,925	30,011	28,657	0.519	2,268
31	-0.6	6.554	7.073	6.864	30,910	29,994	28,640	0.519	2,270
32	0.0	6.55	7.07	6.860	30,896	29,978	28,624	0.520	2,272
33	0.6	6.547	7.067	6.857	30,884	29,964	28,609	0.521	2,275
34	1.1	6.543	7.064	6.854	30,872	29,950	28,594	0.521	2,277
35	1.7	6.540	7.062	6.850	30,859	29,936	28,580	0.522	2,280
36	2.2	6.537	7.059	6.847	30,847	29,922	28,565	0.522	2,282
37	2.8	6.533	7.056	6.844	30,835	29,908	28,551	0.523	2,285
38	3.3	6.530	7.053	6.841	30,823	29,894	28,536	0.523	2,287
39	3.9	6.527	7.051	6.837	30,811	29,880	28,522	0.524	2,289
40	4.4	6.523	7.048	6.834	30,799	29,866	28,507	0.524	2,292
41	5.0	6.520	7.045	6.831	30,787	29,851	28,492	0.525	2,294
42	5.6	6.517	7.042	6.828	30,775	29,837	28,478	0.526	2,297
43	6.1	6.513	7.039	6.825	30,762	29,823	28,463	0.526	2,299
44	6.7	6.510	7.037	6.821	30,750	29,809	28,449	0.527	2,302
45	7.2	6.507	7.034	6.818	30,738	29,795	28,434	0.527	2,304
46	7.8	6.503	7.031	6.815	30,726	29,781	28,420	0.528	2,306
47	8.3	6.500	7.028	6.812	30,714	29,767	28,405	0.528	2,309

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48	8.9	6.497	7.026	6.808	30,702	29,753	28,390	0.529	2,311
49	9.4	6.493	7.023	6.805	30,690	29,739	28,376	0.529	2,314
50	10.0	6.49	7.02	6.802	30,677	29,725	28,361	0.530	2,316
51	10.6	6.485	7.015	6.800	30,656	29,715	28,339	0.530	2,316
52	11.1	6.480	7.010	6.798	30,634	29,705	28,318	0.530	2,316
53	11.7	6.475	7.005	6.795	30,612	29,695	28,296	0.530	2,316
54	12.2	6.47	7.00	6.793	30,590	29,685	28,274	0.530	2,316
55	12.8	6.468	6.998	6.790	30,581	29,671	28,265	0.530	2,316
56	13.3	6.466	6.996	6.787	30,573	29,657	28,256	0.530	2,316
57	13.9	6.464	6.994	6.783	30,564	29,643	28,248	0.530	2,316
58	14.4	6.462	6.992	6.780	30,555	29,629	28,239	0.530	2,316
59	15.0	6.46	6.99	6.777	30,546	29,615	28,230	0.530	2,316
60	15.6	6.458	6.988	6.773	30,535	29,597	28,219	0.530	2,316
61	16.1	6.455	6.985	6.769	30,524	29,578	28,208	0.530	2,316
62	16.7	6.453	6.983	6.764	30,514	29,560	28,197	0.530	2,316
63	17.2	6.45	6.98	6.760	30,503	29,541	28,187	0.530	2,316
64	17.8	6.446	6.976	6.757	30,485	29,526	28,169	0.530	2,316
65	18.3	6.442	6.972	6.753	30,468	29,511	28,152	0.530	2,316
66	18.9	6.438	6.968	6.750	30,450	29,497	28,134	0.530	2,316
67	19.4	6.434	6.964	6.746	30,433	29,482	28,117	0.530	2,316
68	20.0	6.43	6.96	6.743	30,415	29,467	28,099	0.530	2,316
69	20.6	6.426	6.956	6.740	30,398	29,452	28,082	0.530	2,316
70	21.1	6.422	6.952	6.736	30,380	29,437	28,064	0.530	2,316
71	21.7	6.418	6.948	6.733	30,363	29,422	28,047	0.530	2,316
72	22.2	6.414	6.944	6.729	30,345	29,407	28,029	0.530	2,316
73	22.8	6.410	6.940	6.726	30,328	29,393	28,012	0.530	2,316
74	23.3	6.406	6.936	6.723	30,310	29,378	27,994	0.530	2,316
75	23.9	6.402	6.932	6.719	30,293	29,363	27,977	0.530	2,316

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76	24.4	6.398	6.928	6.716	30,275	29,348	27,959	0.530	2,316
77	25.0	6.39	6.93	6.710	30,284	29,323	27,924	0.540	2,360
78	25.6	6.387	6.927	6.707	30,270	29,311	27,910	0.540	2,360
79	26.1	6.383	6.923	6.704	30,255	29,298	27,895	0.540	2,360
80	26.7	6.380	6.920	6.702	30,240	29,286	27,881	0.540	2,360
81	27.2	6.377	6.917	6.699	30,226	29,274	27,866	0.540	2,360
82	27.8	6.373	6.913	6.696	30,211	29,262	27,851	0.540	2,360
83	28.3	6.370	6.910	6.693	30,197	29,250	27,837	0.540	2,360
84	28.9	6.367	6.907	6.691	30,182	29,238	27,822	0.540	2,360
85	29.4	6.363	6.903	6.688	30,168	29,226	27,808	0.540	2,360
86	30.0	6.36	6.90	6.685	30,153	29,213	27,793	0.540	2,360
87	30.6	6.357	6.897	6.682	30,141	29,199	27,779	0.541	2,362
88	31.1	6.353	6.894	6.678	30,129	29,185	27,764	0.541	2,365
89	31.7	6.350	6.892	6.675	30,117	29,170	27,750	0.542	2,367
90	32.2	6.347	6.889	6.672	30,104	29,156	27,735	0.542	2,370
91	32.8	6.343	6.886	6.669	30,092	29,142	27,720	0.543	2,372
92	33.3	6.340	6.883	6.665	30,080	29,128	27,706	0.543	2,374
93	33.9	6.337	6.881	6.662	30,068	29,113	27,691	0.544	2,377
94	34.4	6.333	6.878	6.659	30,056	29,099	27,677	0.544	2,379
95	35.0	6.330	6.875	6.656	30,044	29,085	27,662	0.545	2,382
96	35.6	6.327	6.872	6.652	30,032	29,070	27,648	0.546	2,384
97	36.1	6.323	6.869	6.649	30,019	29,056	27,633	0.546	2,387
98	36.7	6.320	6.867	6.646	30,007	29,042	27,618	0.547	2,389
99	37.2	6.317	6.864	6.642	29,995	29,027	27,604	0.547	2,391
100	37.8	6.313	6.861	6.639	29,983	29,013	27,589	0.548	2,394
101	38.3	6.310	6.858	6.636	29,971	28,999	27,575	0.548	2,396
102	38.9	6.307	6.856	6.633	29,959	28,984	27,560	0.549	2,399
103	39.4	6.303	6.853	6.629	29,947	28,970	27,546	0.549	2,401

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104	40.0	6.30	6.85	6.626	29,935	28,956	27,531	0.550	2,404
105	40.6	6.297	6.847	6.622	29,920	28,940	27,516	0.550	2,404
106	41.1	6.293	6.843	6.619	29,905	28,924	27,502	0.550	2,404
107	41.7	6.290	6.840	6.615	29,891	28,908	27,487	0.550	2,404
108	42.2	6.287	6.837	6.611	29,876	28,892	27,473	0.550	2,404
109	42.8	6.283	6.833	6.608	29,862	28,876	27,458	0.550	2,404
110	43.3	6.280	6.830	6.604	29,847	28,859	27,444	0.550	2,404
111	43.9	6.277	6.827	6.600	29,833	28,843	27,429	0.550	2,404
112	44.4	6.273	6.823	6.597	29,818	28,827	27,414	0.550	2,404
113	45.0	6.270	6.820	6.593	29,803	28,811	27,400	0.550	2,404
114	45.6	6.267	6.817	6.589	29,789	28,795	27,385	0.550	2,404
115	46.1	6.263	6.813	6.586	29,774	28,779	27,371	0.550	2,404
116	46.7	6.260	6.810	6.582	29,760	28,763	27,356	0.550	2,404
117	47.2	6.257	6.807	6.578	29,745	28,747	27,342	0.550	2,404
118	47.8	6.253	6.803	6.575	29,731	28,731	27,327	0.550	2,404
119	48.3	6.250	6.800	6.571	29,716	28,715	27,313	0.550	2,404
120	48.9	6.247	6.797	6.567	29,701	28,699	27,298	0.550	2,404
121	49.4	6.243	6.793	6.564	29,687	28,683	27,283	0.550	2,404
122	50.0	6.24	6.79	6.560	29,672	28,667	27,269	0.550	2,404

= Baseline Temperature/Density Conditions
 Numbers in Bold = Fixed Values from Original GAC Document

Avg Decrease / 10°F @ Typ Density: 147
 Avg Decrease / 5°C @ Typ Density: 133