

Appendix H

HIGHWAY MOBILE SOURCE EMISSION FACTORS TABLES

All of the emission factor tables for each vehicle type are given within this appendix. Each emission factor table has a two digit identification table number. If the contents of the table is altitude dependent, then this table has an additional third digit in its number. The tables numbers have the following format:

VT.#.R

where:

VT indicates the vehicle type

1 = LDGV, 2 = LDGT1, 3 = LDGT2, 4 = HDGV,
5 = LDDV, 6 = LDDT, 7 = HDDV, and
8 = MC.

indicates which of the types of tables are referenced

R indicates the region code

1 = Low altitude non-California region and
2 = High altitude non-California region.

In addition to this coding scheme for the tables numbers, the table titles include the information to avoid confusion. Table H-1 gives a summary of every table number.

TABLE 1.1A.1
 NONTAMPERED EXHAUST EMISSION RATES FOR
 LOW ALTITUDE
 LIGHT DUTY GASOLINE POWERED VEHICLES

* BER = ZML + (DR1 * M), for mileage up to 50K miles (M <= 5)
 = ZML + DR1*5.0 + DR2*(M - 5.0), for mileage greater then 50K miles (M > 5)

Pol	Model Years	Zero Mile Emission Level	Det. Rate 1	Det. Rate 2	50,000 Mile Emission Level	100,000 Mile Emission Level
HC	Pre-1968	7.250	0.180	0.180	8.150	9.050
	1968-1969	4.430	0.250	0.250	5.680	6.930
	1970-1971	3.000	0.370	0.370	4.850	6.700
	1972-1974	3.380	0.160	0.160	4.180	4.980
	1975-1979	1.060	0.280	0.280	2.460	3.860
	1980	0.360	0.205	0.205	1.385	2.410
	1981	0.287	0.101	0.285	0.792	2.217
	1982	0.286	0.105	0.271	0.811	2.166
	1983	0.241	0.089	0.274	0.686	2.056
	1984	0.247	0.073	0.282	0.612	2.022
	1985	0.249	0.077	0.284	0.634	2.054
	1986	0.253	0.071	0.282	0.608	2.018
	1987	0.253	0.070	0.271	0.603	1.958
	1988	0.257	0.070	0.265	0.607	1.932
	1989	0.258	0.073	0.277	0.623	2.008
	1990	0.260	0.075	0.280	0.635	2.035
	1991	0.261	0.075	0.281	0.636	2.041
	1992-1993	0.261	0.076	0.283	0.641	2.056
	1994	0.247	0.074	0.279	0.617	2.012
	1995	0.233	0.073	0.275	0.598	1.973
	1996	0.210	0.072	0.273	0.570	1.935
	1997	0.193	0.072	0.273	0.553	1.918
	1998+	0.184	0.072	0.273	0.544	1.909
CO	Pre-1968	78.270	2.250	2.250	89.520	100.770
	1968-1969	56.340	2.550	2.550	69.090	81.840
	1970-1971	42.170	3.130	3.130	57.820	73.470
	1972-1974	40.940	2.350	2.350	52.690	64.440
	1975-1979	17.720	2.460	2.460	30.020	42.320
	1980	6.090	1.958	1.958	15.880	25.670
	1981	3.069	1.663	3.609	11.384	29.429
	1982	3.105	1.727	3.318	11.740	28.330
	1983	3.255	1.549	3.345	11.000	27.725
	1984	3.184	1.193	3.604	9.149	27.169
	1985	2.920	1.331	3.547	9.575	27.310
	1986	2.740	1.240	3.554	8.940	26.710
	1987	2.704	1.242	3.403	8.914	25.929
	1988	2.490	1.289	3.286	8.935	25.365
	1989	2.424	1.343	3.423	9.139	26.254
	1990	2.203	1.423	3.407	9.318	26.353
	1991	2.166	1.439	3.419	9.361	26.456
1992+	2.147	1.448	3.434	9.387	26.557	
NOx	Pre-1968	3.440	0.000	0.000	3.440	3.440
	1968-1972	4.350	0.000	0.000	4.350	4.350
	1973-1974	2.860	0.050	0.050	3.110	3.360
	1975-1976	2.440	0.040	0.040	2.640	2.840
	1977-1979	1.790	0.110	0.110	2.340	2.890
	1980	1.500	0.102	0.102	2.010	2.520
	1981	0.648	0.063	0.190	0.963	1.913
	1982	0.635	0.066	0.190	0.965	1.915
	1983	0.578	0.067	0.199	0.913	1.908
	1984	0.465	0.079	0.224	0.860	1.980
	1985	0.469	0.078	0.210	0.859	1.909
	1986	0.425	0.082	0.214	0.835	1.905
	1987	0.442	0.078	0.213	0.832	1.897
	1988	0.483	0.077	0.204	0.868	1.888
	1989	0.478	0.080	0.198	0.878	1.868
	1990	0.464	0.082	0.189	0.874	1.819
	1991	0.465	0.082	0.188	0.875	1.815
	1992-1993	0.467	0.083	0.186	0.882	1.812
	1994	0.365	0.083	0.189	0.780	1.725
1995	0.240	0.083	0.193	0.655	1.620	
1996+	0.178	0.083	0.195	0.593	1.568	

* WHERE : BER = Nontampered basic exhaust emission rates in grams/mile,
 ZML = Zero mile level in grams/mile,
 DR1 = Deterioration rate for <= 50K miles, in grams/mile/10K miles,
 DR2 = Deterioration rate for > 50K miles, in grams/mile/10K miles,
 M = Cumulative mileage / 10,000 miles.

DATE : JUNE 30, 1995

H-4
TABLE 1.1A.2
NONTAMPERED EXHAUST EMISSION RATES FOR
HIGH ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES

* BER = ZML + (DR1 * M), for mileage up to 50K miles (M <= 5)
= ZML + DR1*5.0 + DR2*(M - 5.0), for mileage greater than 50K miles (M > 5)

Pol	Model Years	Zero Mile Emission Level	Det. Rate 1	Det. Rate 2	50,000 Mile Emission Level	100,000 Mile Emission Level
HC	Pre-1968	9.350	0.180	0.180	10.250	11.150
	1968-1969	5.600	0.250	0.250	6.850	8.100
	1970-1971	4.580	0.370	0.370	6.430	8.280
	1972-1974	4.620	0.160	0.160	5.420	6.220
	1975-1976	2.000	0.280	0.280	3.400	4.800
	1977	0.930	0.280	0.280	2.330	3.730
	1978-1979	2.080	0.280	0.280	3.480	4.880
	1980	0.780	0.205	0.205	1.805	2.830
	1981	0.531	0.101	0.285	1.036	2.461
	1982	0.350	0.105	0.271	0.875	2.230
	1983	0.223	0.089	0.274	0.668	2.038
	1984	0.247	0.073	0.282	0.612	2.022
	1985	0.249	0.077	0.284	0.634	2.054
	1986	0.253	0.071	0.282	0.608	2.018
	1987	0.253	0.070	0.271	0.603	1.958
	1988	0.257	0.070	0.265	0.607	1.932
	1989	0.258	0.073	0.277	0.623	2.008
	1990	0.260	0.075	0.280	0.635	2.035
	1991	0.261	0.075	0.281	0.636	2.041
	1992-1993	0.261	0.076	0.283	0.641	2.056
	1994	0.247	0.074	0.279	0.617	2.012
	1995	0.233	0.073	0.275	0.598	1.973
	1996	0.210	0.072	0.273	0.570	1.935
	1997	0.193	0.072	0.273	0.553	1.918
	1998+	0.184	0.072	0.273	0.544	1.909
	CO	Pre-1968	117.700	2.250	2.250	128.950
1968-1969		85.540	2.550	2.550	98.290	111.040
1970-1971		79.640	3.130	3.130	95.290	110.940
1972-1974		75.680	2.350	2.350	87.430	99.180
1975-1976		47.030	2.460	2.460	59.330	71.630
1977		19.630	2.460	2.460	31.930	44.230
1978-1979		41.830	2.460	2.460	54.130	66.430
1980		22.800	1.958	1.958	32.590	42.380
1981		11.998	1.663	3.609	20.313	38.358
1982		8.269	1.727	3.318	16.904	33.494
1983		3.286	1.549	3.345	11.031	27.756
1984		3.184	1.193	3.604	9.149	27.169
1985		2.920	1.331	3.547	9.575	27.310
1986		2.740	1.240	3.554	8.940	26.710
1987		2.704	1.242	3.403	8.914	25.929
1988		2.490	1.289	3.286	8.935	25.365
1989		2.424	1.343	3.423	9.139	26.254
1990		2.203	1.423	3.407	9.318	26.353
1991		2.166	1.439	3.419	9.361	26.456
1992+		2.147	1.448	3.434	9.387	26.557
NOx	Pre-1968	1.960	0.000	0.000	1.960	1.960
	1968-1972	2.910	0.000	0.000	2.910	2.910
	1973-1974	1.920	0.050	0.050	2.170	2.420
	1975-1976	1.700	0.040	0.040	1.900	2.100
	1977	1.370	0.110	0.110	1.920	2.470
	1978-1979	0.970	0.110	0.110	1.520	2.070
	1980	0.820	0.102	0.102	1.330	1.840
	1981	0.504	0.063	0.190	0.819	1.769
	1982	0.625	0.066	0.190	0.955	1.905
	1983	0.766	0.067	0.199	1.101	2.096
	1984	0.465	0.079	0.224	0.860	1.980
	1985	0.469	0.078	0.210	0.859	1.909
	1986	0.425	0.082	0.214	0.835	1.905
	1987	0.442	0.078	0.213	0.832	1.897
	1988	0.483	0.077	0.204	0.868	1.888
	1989	0.478	0.080	0.198	0.878	1.868
	1990	0.464	0.082	0.189	0.874	1.819
1991	0.465	0.082	0.188	0.875	1.815	
1992-1993	0.467	0.083	0.186	0.882	1.812	
1994	0.365	0.083	0.189	0.780	1.725	
1995	0.240	0.083	0.193	0.655	1.620	
1996+	0.178	0.083	0.195	0.593	1.568	

* WHERE : BER = Nontampered basic exhaust emission rates in grams/mile,
ZML = Zero mile level in grams/mile,
DR1 = Deterioration rate for <= 50K miles, in grams/mile/10K miles,
DR2 = Deterioration rate for > 50K miles, in grams/mile/10K miles,
M = Cumulative mileage / 10,000 miles.

DATE : JUNE 30, 1995

TABLE 1.1B.1

DATE : JUNE 30, 1995

EXHAUST EMISSION RATES FOR
LOW ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES
AT VARIOUS MILEAGE LEVELS
(ADJUSTED FOR INDUSTRY AVERAGE FUEL. RATES INCLUDE TAMPERING)

Pol	Model Years	Emission Rate (Grams/Mile)						
		0K	25K	50K	75K	100K	125K	150K
HC	Pre-1968	7.250	7.700	8.150	8.600	9.050	9.500	9.950
	1968-1969	4.430	5.060	5.690	6.322	6.954	7.586	8.212
	1970-1971	3.000	3.930	4.859	5.791	6.724	7.656	8.582
	1972	3.381	3.790	4.199	4.613	5.027	5.442	5.845
	1973-1974	3.383	3.810	4.237	4.680	5.122	5.565	5.974
	1975	1.224	2.252	3.311	4.395	5.479	6.563	7.410
	1976	1.234	2.277	3.352	4.450	5.548	6.646	7.500
	1977	1.234	2.272	3.341	4.429	5.516	6.603	7.456
	1978-1979	1.244	2.299	3.388	4.495	5.602	6.708	7.569
	1980	0.447	1.299	2.189	3.109	4.029	4.949	5.604
	1981	0.357	0.683	1.012	1.980	2.951	3.928	4.784
	1982	0.356	0.693	1.032	1.957	2.883	3.815	4.629
	1983	0.304	0.595	0.889	1.821	2.755	3.693	4.516
	1984	0.286	0.519	0.753	1.600	2.448	3.296	4.118
	1985	0.289	0.533	0.778	1.631	2.485	3.339	4.167
	1986	0.293	0.508	0.725	1.560	2.394	3.229	4.049
	1987	0.293	0.505	0.719	1.519	2.320	3.120	3.908
	1988	0.298	0.509	0.723	1.506	2.289	3.073	3.843
	1989	0.299	0.519	0.742	1.559	2.377	3.196	4.000
	1990	0.301	0.527	0.756	1.582	2.409	3.236	4.049
	1991	0.302	0.528	0.757	1.586	2.416	3.245	4.062
	1992-1993	0.302	0.531	0.763	1.598	2.433	3.269	4.091
	1994	0.286	0.509	0.735	1.558	2.382	3.206	4.017
	1995	0.270	0.490	0.713	1.525	2.337	3.149	3.948
	1996	0.243	0.461	0.680	1.487	2.293	3.100	3.893
	1997	0.224	0.441	0.661	1.467	2.273	3.080	3.873
1998+	0.213	0.431	0.650	1.456	2.263	3.069	3.863	
CO	Pre-1968	78.270	83.895	89.520	95.145	100.770	106.395	112.020
	1968-1969	56.353	62.841	69.330	75.884	82.438	88.993	95.403
	1970-1971	42.183	50.127	58.071	66.084	74.097	82.110	89.973
	1972	40.966	47.080	53.194	59.446	65.698	71.951	77.901
	1973-1974	41.019	47.610	54.202	61.208	68.215	75.222	81.323
	1975	19.268	28.214	37.235	46.963	56.696	66.431	73.640
	1976	19.346	28.294	37.326	46.987	56.653	66.322	73.539
	1977	19.337	28.182	37.131	46.552	55.978	65.404	72.573
	1978-1979	19.420	28.318	37.318	46.791	56.269	65.749	72.950
	1980	6.911	14.617	22.348	31.011	39.685	48.362	54.338
	1981	3.493	8.303	13.139	24.685	36.249	47.857	58.027
	1982	3.527	8.501	13.501	24.170	34.857	45.584	54.945
	1983	3.686	8.168	12.677	23.317	33.972	44.662	54.074
	1984	3.469	6.864	10.266	20.405	30.555	40.715	50.582
	1985	3.182	6.952	10.729	20.713	30.709	40.713	50.425
	1986	2.984	6.449	9.929	19.841	29.760	39.686	49.397
	1987	2.943	6.402	9.875	19.329	28.788	38.253	47.543
	1988	2.711	6.297	9.898	19.034	28.175	37.322	46.294
	1989	2.639	6.372	10.120	19.628	29.142	38.660	48.005
	1990	2.399	6.349	10.314	19.779	29.249	38.724	48.026
1991	2.358	6.353	10.361	19.858	29.361	38.869	48.203	
1992+	2.338	6.356	10.389	19.927	29.471	39.019	48.394	
NOx	Pre-1968	3.440	3.440	3.440	3.440	3.440	3.440	3.440
	1968-1972	4.350	4.350	4.350	4.350	4.350	4.350	4.350
	1973	2.891	3.080	3.269	3.415	3.561	3.707	3.836
	1974	2.894	3.092	3.289	3.438	3.586	3.735	3.865
	1975-1976	2.535	2.835	3.135	3.299	3.464	3.629	3.742
	1977-1979	1.884	2.356	2.829	3.168	3.507	3.846	4.134
	1980	1.624	2.108	2.592	2.924	3.256	3.588	3.860
	1981	0.767	0.973	1.180	1.800	2.420	3.040	3.595
	1982	0.754	0.969	1.184	1.806	2.427	3.049	3.606
	1983	0.692	0.912	1.132	1.785	2.439	3.092	3.677
	1984	0.547	0.791	1.035	1.702	2.369	3.036	3.689
	1985	0.552	0.793	1.034	1.660	2.287	2.913	3.526
	1986	0.501	0.750	1.000	1.634	2.269	2.904	3.528
	1987	0.520	0.758	0.995	1.627	2.259	2.891	3.511
	1988	0.568	0.802	1.037	1.643	2.248	2.854	3.448
	1989	0.562	0.805	1.049	1.637	2.225	2.813	3.390
	1990	0.546	0.795	1.044	1.606	2.168	2.730	3.281
	1991	0.547	0.796	1.045	1.604	2.164	2.723	3.271
	1992-1993	0.549	0.801	1.053	1.607	2.160	2.714	3.256
	1994	0.431	0.683	0.935	1.497	2.059	2.621	3.172
1995	0.286	0.538	0.790	1.364	1.937	2.511	3.074	
1996+	0.214	0.466	0.718	1.298	1.877	2.457	3.025	

TABLE 1.1B.2

DATE : JUNE 30, 1995

EXHAUST EMISSION RATES FOR
HIGH ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES
AT VARIOUS MILEAGE LEVELS
(ADJUSTED FOR INDUSTRY AVERAGE FUEL. RATES INCLUDE TAMPERING)

Pol	Model Years	Emission Rate (Grams/Mile)						
		0K	25K	50K	75K	100K	125K	150K
HC	Pre-1968	9.350	9.800	10.250	10.700	11.150	11.600	12.050
	1968-1969	5.601	6.230	6.860	7.492	8.124	8.756	9.382
	1970-1971	4.580	5.510	6.439	7.371	8.304	9.236	10.162
	1972	4.621	5.030	5.439	5.853	6.267	6.682	7.085
	1973-1974	4.623	5.050	5.477	5.920	6.362	6.805	7.214
	1975	2.283	3.310	4.369	5.453	6.537	7.621	8.468
	1976	2.300	3.342	4.418	5.516	6.614	7.712	8.566
	1977	1.086	2.124	3.194	4.281	5.369	6.456	7.308
	1978-1979	2.408	3.463	4.553	5.660	6.766	7.873	8.733
	1980	0.930	1.782	2.672	3.592	4.512	5.431	6.086
	1981	0.639	0.965	1.294	2.263	3.234	4.211	5.066
	1982	0.430	0.767	1.106	2.031	2.957	3.889	4.703
	1983	0.283	0.574	0.869	1.800	2.734	3.672	4.495
	1984	0.286	0.519	0.753	1.600	2.448	3.296	4.118
	1985	0.289	0.533	0.778	1.631	2.485	3.339	4.167
	1986	0.293	0.508	0.725	1.560	2.394	3.229	4.049
	1987	0.293	0.505	0.719	1.519	2.320	3.120	3.908
	1988	0.298	0.509	0.723	1.506	2.289	3.073	3.843
	1989	0.299	0.519	0.742	1.559	2.377	3.196	4.000
	1990	0.301	0.527	0.756	1.582	2.409	3.236	4.049
	1991	0.302	0.528	0.757	1.586	2.416	3.245	4.062
	1992-1993	0.302	0.531	0.763	1.598	2.433	3.269	4.091
	1994	0.286	0.509	0.735	1.558	2.382	3.206	4.017
	1995	0.270	0.490	0.713	1.525	2.337	3.149	3.948
	1996	0.243	0.461	0.680	1.487	2.293	3.100	3.893
	1997	0.224	0.441	0.661	1.467	2.273	3.080	3.873
	1998+	0.213	0.431	0.650	1.456	2.263	3.069	3.863
CO	Pre-1968	117.700	123.325	128.950	134.575	140.200	145.825	151.450
	1968-1969	85.553	92.041	98.530	105.084	111.638	118.193	124.603
	1970-1971	79.653	87.597	95.541	103.554	111.567	119.580	127.443
	1972	75.706	81.820	87.934	94.186	100.438	106.691	112.641
	1973-1974	75.759	82.350	88.942	95.948	102.955	109.962	116.063
	1975	50.617	59.563	68.584	78.312	88.045	97.780	104.989
	1976	50.822	59.771	68.802	78.463	88.130	97.798	105.016
	1977	21.388	30.233	39.182	48.604	58.029	67.456	74.625
	1978-1979	45.417	54.314	63.315	72.788	82.266	91.746	98.947
	1980	25.001	32.707	40.438	49.102	57.775	66.453	72.428
	1981	13.199	18.009	22.844	34.390	45.955	57.562	67.732
	1982	9.140	14.114	19.114	29.783	40.470	51.197	60.558
	1983	3.720	8.202	12.711	23.350	34.006	44.696	54.108
	1984	3.469	6.864	10.266	20.405	30.555	40.715	50.582
	1985	3.182	6.952	10.729	20.713	30.709	40.713	50.425
	1986	2.984	6.449	9.929	19.841	29.760	39.686	49.397
	1987	2.943	6.402	9.875	19.329	28.788	38.253	47.543
	1988	2.711	6.297	9.898	19.034	28.175	37.322	46.294
	1989	2.639	6.372	10.120	19.628	29.142	38.660	48.005
	1990	2.399	6.349	10.314	19.779	29.249	38.724	48.026
1991	2.358	6.353	10.361	19.858	29.361	38.869	48.203	
1992+	2.338	6.356	10.389	19.927	29.471	39.019	48.394	
NOx	Pre-1968	1.960	1.960	1.960	1.960	1.960	1.960	1.960
	1968-1972	2.910	2.910	2.910	2.910	2.910	2.910	2.910
	1973	1.951	2.140	2.329	2.475	2.621	2.767	2.896
	1974	1.954	2.152	2.349	2.498	2.646	2.795	2.925
	1975-1976	1.795	2.095	2.395	2.559	2.724	2.889	3.002
	1977	1.464	1.936	2.409	2.748	3.087	3.426	3.714
	1978-1979	1.064	1.536	2.009	2.348	2.687	3.026	3.314
	1980	0.937	1.420	1.904	2.236	2.568	2.900	3.173
	1981	0.604	0.810	1.016	1.636	2.256	2.876	3.432
	1982	0.742	0.957	1.173	1.794	2.416	3.038	3.594
	1983	0.906	1.126	1.347	2.000	2.653	3.307	3.891
	1984	0.547	0.791	1.035	1.702	2.369	3.036	3.689
	1985	0.552	0.793	1.034	1.660	2.287	2.913	3.526
	1986	0.501	0.750	1.000	1.634	2.269	2.904	3.528
	1987	0.520	0.758	0.995	1.627	2.259	2.891	3.511
	1988	0.568	0.802	1.037	1.643	2.248	2.854	3.448
	1989	0.562	0.805	1.049	1.637	2.225	2.813	3.390
	1990	0.546	0.795	1.044	1.606	2.168	2.730	3.281
	1991	0.547	0.796	1.045	1.604	2.164	2.723	3.271
	1992-1993	0.549	0.801	1.053	1.607	2.160	2.714	3.256
1994	0.431	0.683	0.935	1.497	2.059	2.621	3.172	
1995	0.286	0.538	0.790	1.364	1.937	2.511	3.074	
1996+	0.214	0.466	0.718	1.298	1.877	2.457	3.025	

TABLE 1.1C

ASSUMED COMPLIANCE RATE OF EMISSION STANDARDS FOR
LIGHT DUTY GASOLINE POWERED VEHICLES
UNDER THE CALIFORNIA LEV PROGRAM

YEAR	TIER1	TLEV interm.	TLEV	LEV interm.	LEV	ULEV interm.	ULEV	ZEV
1994	0.90	0.10	0.00	0.00	0.00	0.00	0.00	0.00
1995	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.80	0.00	0.20	0.00	0.00	0.00	0.00	0.00
1997	0.73	0.00	0.00	0.25	0.00	0.02	0.00	0.00
1998	0.48	0.00	0.00	0.48	0.00	0.02	0.00	0.02
1999	0.23	0.00	0.00	0.00	0.73	0.00	0.02	0.02
2000	0.00	0.00	0.00	0.00	0.96	0.00	0.02	0.02
2001	0.00	0.00	0.00	0.00	0.90	0.00	0.05	0.05
2002	0.00	0.00	0.00	0.00	0.85	0.00	0.10	0.05
2003	0.00	0.00	0.00	0.00	0.75	0.00	0.15	0.10
2004	0.00	0.00	0.00	0.00	0.75	0.00	0.15	0.10
2005+	0.00	0.00	0.00	0.00	0.75	0.00	0.15	0.10

DATE : JUNE 30, 1995

TABLE 1.1D

CALIFORNIA LOW-EMITTING VEHICLES EMISSION RATES FOR
LIGHT DUTY GASOLINE POWERED VEHICLES
(MAXIMUM BENEFIT*)

POL	EMISSION LEVEL	ZERO MILE	DET. RATE 1	DET. RATE 2
HC	TLEV inter.	0.1340	0.0175	0.0175
	TLEV	0.0890	0.0116	0.0116
	LEV inter.	0.0750	0.0098	0.0098
	LEV	0.0560	0.0073	0.0073
	ULEV inter.	0.0430	0.0057	0.0055
	ULEV	0.0300	0.0039	0.0039
CO	TLEV inter.	2.4820	0.2896	0.2896
	TLEV	2.4820	0.2896	0.2896
	LEV inter.	0.6200	0.4758	0.4758
	LEV	0.6200	0.4758	0.4758
	ULEV inter.	0.6200	0.4758	0.4758
	ULEV	0.6200	0.4758	0.4758
NOx	TLEV inter.	0.1740	0.0433	0.0433
	TLEV	0.1740	0.0433	0.0433
	LEV inter.	0.1310	0.0325	0.0325
	LEV	0.0870	0.0217	0.0217
	ULEV inter.	0.1310	0.0325	0.0325
	ULEV	0.0870	0.0217	0.0217

* These emission rates assume that a "maximum benefit" inspection and maintenance (I/M) program is in place. The maximum benefit I/M program is one designed to ensure compliance for the fleet, on average, with its applicable emission standards at the end of its useful life.

DATE : JUNE 30, 1995

TABLE 1.1E

CALIFORNIA LOW-EMITTING VEHICLES EMISSION RATES FOR
 LIGHT DUTY GASOLINE POWERED VEHICLES
 (no I/M program)

POL	EMISSION LEVEL	ZERO MILE	DET. RATE 1	DET. RATE 2
HC	TLEV inter.	0.1340	0.0638	0.2648
	TLEV	0.0890	0.0638	0.2648
	LEV inter.	0.0750	0.0638	0.2648
	LEV	0.0560	0.0638	0.2648
	ULEV inter.	0.0430	0.0638	0.2648
	ULEV	0.0300	0.0638	0.2648
CO	TLEV inter.	2.4820	1.4480	3.4340
	TLEV	2.4820	1.4480	3.4340
	LEV inter.	0.6200	1.4480	3.4340
	LEV	0.6200	1.4480	3.4340
	ULEV inter.	0.6200	1.4480	3.4340
	ULEV	0.6200	1.4480	3.4340
NOx	TLEV inter.	0.1740	0.0830	0.1950
	TLEV	0.1740	0.0830	0.1950
	LEV inter.	0.1310	0.0830	0.1950
	LEV	0.0870	0.0830	0.1950
	ULEV inter.	0.1310	0.0830	0.1950
	ULEV	0.0870	0.0830	0.1950

DATE : JUNE 30, 1995

TABLE 1.2A.1

NONTAMPERED CRANKCASE EMISSIONS
FROM VEHICLES WITH OPERATING EVAPORATIVE SYSTEMS*
FOR LOW ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES

Model Years	Crankcase (Gm/Mile)
Pre-1963	4.10
1963-1967	0.80
1968+	0.00

* Vehicles with measurable purge capacity and no major vapor leaks
in their fuel systems.

DATE : JUNE 30, 1995

TABLE 1.2A.2

NONTAMPERED CRANKCASE EMISSIONS
FROM VEHICLES WITH OPERATING EVAPORATIVE SYSTEMS*
FOR HIGH ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES

Model Years	Crankcase (Gm/Mile)
Pre-1963	5.29
1963-1967	1.03
1968+	0.00

* Vehicles with measurable purge capacity and no major vapor leaks
in their fuel systems.

DATE : JUNE 30, 1995

TABLE 1.2B.1

TAMPERING OFFSETS FOR TOTAL CRANKCASE EMISSIONS
FOR LOW ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES
AT VARIOUS MILEAGE INTERVALS

Model Years	Tampering Offset (Grams/Mile)*						
	0K	25K	50K	75K	100K	125K	150K
Pre-1968	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1968-1974	0.014	0.021	0.028	0.035	0.042	0.049	0.050
1975-1977	0.013	0.020	0.027	0.034	0.041	0.048	0.050
1978-1979	0.013	0.020	0.027	0.034	0.041	0.047	0.049
1980	0.013	0.020	0.026	0.033	0.040	0.047	0.048
1981+	0.000	0.002	0.009	0.011	0.013	0.015	0.015

* Based on averages of 4.23 trips per day and 28.31 miles per day.

DATE : JUNE 30, 1995

TABLE 1.2B.2

TAMPERING OFFSETS FOR TOTAL CRANKCASE EMISSIONS
FOR HIGH ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES
AT VARIOUS MILEAGE INTERVALS

Model Years	Tampering Offset (Grams/Mile)*						
	0K	25K	50K	75K	100K	125K	150K
Pre-1968	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1968-1974	0.014	0.021	0.028	0.035	0.042	0.049	0.050
1975-1977	0.013	0.020	0.027	0.034	0.041	0.048	0.050
1978-1979	0.013	0.020	0.027	0.034	0.041	0.047	0.049
1980	0.013	0.020	0.026	0.033	0.040	0.047	0.048
1981+	0.000	0.002	0.009	0.011	0.013	0.015	0.015

* Based on averages of 4.23 trips per day and 28.31 miles per day.

DATE : JUNE 30, 1995

TABLE 1.2C
 RUNNING LOSS EMISSIONS FOR
 LIGHT DUTY GASOLINE POWERED VEHICLES

Model Years	Fuel RVP (psi)	Emission Rate (Grams/Mile)														
		80.0F		87.0F		95.0F		105.0F		105.0F						
		7.1 mph	19.6 mph	47.9 mph	7.1 mph	19.6 mph	47.9 mph	7.1 mph	19.6 mph	47.9 mph	7.1 mph	19.6 mph	47.9 mph	7.1 mph	19.6 mph	47.9 mph
VEHICLES WITH OPERATING EVAPORATIVE SYSTEMS*																
Pre-1971	7.0	1.17	0.42	0.17	2.17	0.78	0.32	5.39	1.95	0.80	10.06	3.65	1.49			
	9.0	4.76	1.73	0.71	7.86	2.85	1.17	12.79	4.63	1.90	25.80	9.35	3.82			
	10.4	8.55	3.10	1.27	13.35	4.84	1.98	23.70	8.58	3.51	38.27	13.86	5.67			
	11.7	13.61	4.93	2.02	22.64	8.20	3.36	34.05	12.33	5.05	50.06	18.14	7.42			
1971+	7.0	0.07	0.03	0.00	0.08	0.03	0.00	0.15	0.04	0.00	0.30	0.07	0.00			
	9.0	0.12	0.04	0.00	0.21	0.05	0.00	0.54	0.10	0.00	1.74	0.32	0.00			
	10.4	0.25	0.06	0.00	0.60	0.12	0.00	1.55	0.29	0.00	2.89	0.53	0.01			
	11.7	0.62	0.12	0.00	1.45	0.27	0.01	2.50	0.46	0.01	3.87	0.69	0.01			

VEHICLES FAILING EITHER PURGE OR PRESSURE TEST

Pre-1971	7.0	1.17	0.42	0.17	2.17	0.78	0.32	5.39	1.95	0.80	10.06	3.65	1.49			
	9.0	4.76	1.73	0.71	7.86	2.85	1.17	12.79	4.63	1.90	25.80	9.35	3.82			
	10.4	8.55	3.10	1.27	13.35	4.84	1.98	23.70	8.58	3.51	38.27	13.86	5.67			
	11.7	13.61	4.93	2.02	22.64	8.20	3.36	34.05	12.33	5.05	50.06	18.14	7.42			
1971+	7.0	1.00	0.36	0.15	1.69	0.61	0.25	3.78	1.37	0.56	7.05	2.55	1.05			
	9.0	4.05	1.47	0.60	6.14	2.22	0.91	8.96	3.24	1.33	18.07	6.54	2.68			
	10.4	7.27	2.63	1.08	10.42	3.77	1.54	16.59	6.01	2.46	26.80	9.71	3.97			
	11.7	11.58	4.19	1.72	17.67	6.40	2.62	23.84	8.63	3.53	35.05	12.70	5.20			

* Vehicles with measurable purge capacity and no major vapor leaks in their fuel systems.

DATE : JUNE 30, 1995

TABLE 1.2D

REFUELING EMISSIONS* FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

Model Years	Fuel Economy (miles/gal)	Uncontrolled (grams/mile)	With Onboard (grams/mile)
Pre-1971	12.46	0.309	0.309
1971	12.06	0.319	0.319
1972	12.15	0.317	0.317
1973-1974	11.95	0.322	0.322
1975	13.20	0.292	0.292
1976	14.58	0.264	0.264
1977	15.32	0.251	0.251
1978	16.55	0.233	0.233
1979	16.83	0.229	0.229
1980	19.42	0.198	0.198
1981	20.74	0.186	0.186
1982	21.55	0.179	0.179
1983	21.52	0.179	0.179
1984	21.85	0.176	0.176
1985	22.47	0.171	0.171
1986	23.21	0.166	0.166
1987	23.42	0.164	0.164
1988	23.74	0.162	0.162
1989	23.31	0.165	0.165
1990	23.03	0.167	0.167
1991	22.73	0.169	0.169
1992	22.71	0.170	0.170
1993	22.68	0.170	0.170
1994	22.66	0.170	0.170
1995-1997	22.64	0.170	0.170
1998	22.64	0.170	0.107
1999	22.64	0.170	0.043
2000+	22.64	0.170	0.012

* Refueling Emissions (g/mi) = [Displacement (g/gal)
+ Spillage (g/gal)] / Fuel Economy (mi/gal).

Fuel volatility of 9.0 RVP is assumed.
The algorithm for Onboard effects was taken from MOBILE5b
and reflects the phase-in included in the Final Rule.

DATE : JUNE 30, 1995

TABLE 1.4A

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate (per vehicle*)	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate*** (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.049	14390.	0.017	14390.	1799.
2	0.079	13612.	0.082	14196.	10768.
3	0.083	12875.	0.086	13428.	24576.
4	0.082	12180.	0.085	12701.	37637.
5	0.084	11522.	0.087	12016.	49991.
6	0.081	10899.	0.084	11366.	61679.
7	0.077	10310.	0.080	10752.	72735.
8	0.056	9751.	0.058	10170.	83193.
9	0.050	9225.	0.052	9620.	93085.
10	0.051	8726.	0.053	9100.	102442.
11	0.050	8254.	0.052	8608.	111294.
12	0.054	7807.	0.056	8142.	119667.
13	0.047	7386.	0.049	7702.	127586.
14	0.037	6987.	0.038	7286.	135078.
15	0.024	6608.	0.025	6892.	142165.
16	0.019	6251.	0.020	6519.	148869.
17	0.014	5913.	0.014	6167.	155210.
18	0.015	5594.	0.015	5833.	161208.
19	0.011	5291.	0.011	5518.	166882.
20	0.008	5005.	0.008	5220.	172249.
21	0.006	4735.	0.006	4938.	177326.
22	0.005	4478.	0.005	4671.	182129.
23	0.004	4237.	0.004	4418.	186672.
24	0.003	4007.	0.003	4180.	190970.
25+	0.010	3790.	0.010	3953.	195034.

* Default information that may be altered by the MOBILE5a user with information about the local area.

** The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 25+ references the oldest model year vehicles.

*** Sales weighted fleet mileage accumulation adjusted to January 1, where: $JANMAR(1) = MAR(1)$ and,
 $JANMAR(MYI) = .25 * MAR(MYI) + .75 * MAR(MYI-1)$, $MYI = 2, \dots, 25+$.

DATE : JUNE 30, 1995

TABLE 1.4C

TRIPS PER DAY AND MILES PER DAY FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

Model Year Index*	Trips per Day	Miles per Day
1	4.66	39.42
2	4.60	38.89
3	4.54	36.79
4	4.48	34.80
5	4.43	32.92
6	4.37	31.14
7	4.31	29.46
8	4.25	27.86
9	4.19	26.35
10	4.13	24.93
11	4.08	23.58
12	4.02	22.31
13	3.96	21.10
14	3.90	19.96
15	3.84	18.88
16	3.78	17.86
17	3.72	16.89
18	3.67	15.98
19	3.61	15.12
20	3.55	14.30
21	3.49	13.53
22	3.43	12.80
23	3.37	12.10
24	3.31	11.45
25+	3.26	10.83

* The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 25+ references the oldest model year vehicles.

DATE : JUNE 30, 1995

TABLE 1.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
LIGHT DUTY GASOLINE POWERED VEHICLES
JANUARY 1, 1995

Model Years	(A)	(B)	(C=A*B/DAF)		(D)	(C*D/TFNORM)	
	LDV Registration	Fleet Sales Fraction	(A*B)	LDGV Registration	Annual Mileage Accrual Rate	(C*D)	Travel Fractions
1995	0.049	0.999	0.049	0.017	14390.	243.6	0.024
1994	0.079	0.999	0.079	0.082	14196.	1162.1	0.112
1993	0.083	0.999	0.083	0.086	13428.	1154.9	0.112
1992	0.082	0.999	0.082	0.085	12701.	1079.3	0.104
1991	0.084	0.999	0.084	0.087	12016.	1047.0	0.101
1990	0.081	1.000	0.081	0.084	11366.	955.0	0.092
1989	0.077	1.000	0.077	0.080	10752.	858.8	0.083
1988	0.056	1.000	0.056	0.058	10170.	590.8	0.057
1987	0.050	0.997	0.050	0.052	9620.	498.9	0.048
1986	0.051	0.997	0.051	0.053	9100.	481.4	0.047
1985	0.050	0.991	0.050	0.052	8608.	446.9	0.043
1984	0.054	0.983	0.053	0.056	8142.	456.5	0.044
1983	0.047	0.979	0.046	0.049	7702.	375.9	0.036
1982	0.037	0.953	0.035	0.038	7286.	279.1	0.027
1981	0.024	0.941	0.023	0.025	6892.	171.2	0.017
1980	0.019	0.956	0.018	0.020	6519.	127.4	0.012
1979	0.014	0.979	0.014	0.014	6167.	88.1	0.009
1978	0.015	0.991	0.015	0.015	5833.	88.9	0.009
1977	0.011	0.995	0.011	0.011	5518.	60.1	0.006
1976	0.008	0.997	0.008	0.008	5220.	40.8	0.004
1975	0.006	0.998	0.006	0.006	4938.	29.4	0.003
1974	0.005	0.997	0.005	0.005	4671.	23.7	0.002
1973	0.004	0.998	0.004	0.004	4418.	18.2	0.002
1972	0.003	0.998	0.003	0.003	4180.	13.0	0.001
1971-	0.010	0.999	0.010	0.010	3953.	40.9	0.004

DAF: $\overline{0.991}$ TFNORM: $\overline{10332.0}$

WHERE :

- A = July 1 registration mix from Table 1.4A,
- B = Gasoline fleet sales fractions,
- D = Sales weighted fleet mileage accumulation rate from Table 1.4A.

NOTE : In general, the travel weighting fractions will change for every calendar year since the sales fraction (column B) changes for almost every model year.

For the first model year (A*B) must be divided by 3 in order to properly adjust registration from July 1 to January 1.

DATE : JUNE 30, 1995

TABLE 1.6A.1

SPEED CORRECTION FACTOR COEFFICIENTS FOR LOW ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES

$$SF(s) = EXP(A + B*s + C*s**2 + D*s**3 + E*s**4 + F*s**5), \text{ HC \& CO}$$

$$= A + B*s + C*s**2 + D*s**3 + E*s**4 + F*s**5, \text{ NOx}$$

$$* \text{ SCF}(s, \text{sadj}) = SF(s)/SF(\text{sadj})$$

Pollutant and Model Years	A	B	C	D	E	F
HC						
Pre-1968	0.231026E+01	-0.289572E+00	0.152990E-01	-0.446689E-03	0.648183E-05	-0.363456E-07
1968	0.239726E+01	-0.299985E+00	0.161351E-01	-0.487491E-03	0.729093E-05	-0.419769E-07
1969	0.240873E+01	-0.308187E+00	0.168168E-01	-0.506843E-03	0.753855E-05	-0.431596E-07
1970	0.223217E+01	-0.284985E+00	0.153833E-01	-0.456738E-03	0.673486E-05	-0.383798E-07
1971	0.225223E+01	-0.287778E+00	0.156820E-01	-0.473179E-03	0.707954E-05	-0.408456E-07
1972	0.234948E+01	-0.304959E+00	0.168416E-01	-0.509623E-03	0.759516E-05	-0.434963E-07
1973-1974	0.268382E+01	-0.344633E+00	0.195417E-01	-0.625720E-03	0.978442E-05	-0.583369E-07
1975-1976	0.239540E+01	-0.335781E+00	0.211609E-01	-0.731550E-03	0.120715E-04	-0.748567E-07
CO						
Pre-1968	0.233989E+01	-0.296978E+00	0.160071E-01	-0.477396E-03	0.706752E-05	-0.403978E-07
1968	0.246551E+01	-0.305023E+00	0.160497E-01	-0.473969E-03	0.699075E-05	-0.399758E-07
1969	0.277804E+01	-0.319130E+00	0.153183E-01	-0.422327E-03	0.584948E-05	-0.314969E-07
1970	0.278899E+01	-0.327107E+00	0.162943E-01	-0.467573E-03	0.671906E-05	-0.374401E-07
1971	0.270743E+01	-0.331038E+00	0.176179E-01	-0.538583E-03	0.817402E-05	-0.477803E-07
1972	0.268454E+01	-0.332817E+00	0.176277E-01	-0.524123E-03	0.772221E-05	-0.437025E-07
1973-1974	0.283929E+01	-0.368756E+00	0.210782E-01	-0.676438E-03	0.106267E-04	-0.636405E-07
1975-1976	0.248747E+01	-0.391562E+00	0.270721E-01	-0.976178E-03	0.165270E-04	-0.104317E-06
NOx						
Pre-1968	0.168635E+01	-0.118303E+00	0.654975E-02	-0.137139E-03	0.100849E-05	0.000000E+00
1968	0.122677E+01	-0.444978E-01	0.262476E-02	-0.567150E-04	0.434293E-06	0.000000E+00
1969	0.101743E+01	-0.118958E-01	0.914365E-03	-0.215740E-04	0.182300E-06	0.000000E+00
1970	0.987600E+00	-0.195674E-01	0.169645E-02	-0.404000E-04	0.328001E-06	0.000000E+00
1971	0.115917E+01	-0.444536E-01	0.296425E-02	-0.668990E-04	0.522365E-06	0.000000E+00
1972	0.128169E+01	-0.804874E-01	0.535735E-02	-0.118891E-03	0.901060E-06	0.000000E+00
1973-1974	0.783838E+00	0.328549E-03	0.106029E-02	-0.319350E-04	0.290389E-06	0.000000E+00
1975-1976	0.942131E+00	-0.423240E-01	0.386253E-02	-0.939853E-04	0.753883E-06	0.000000E+00

* WHERE : s = average speed (mph),
sadj = basic test procedure speed; adjusted for fraction of cold start operation x
and fraction of hot start operation w, [1/sadj = (w+x)/26 + (1-w-x)/16].

TABLE 1.6A.2

SPEED CORRECTION FACTOR COEFFICIENTS FOR HIGH ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES

$$SF(s) = EXP(A + B*s + C*s**2 + D*s**3 + E*s**4 + F*s**5), \text{ HC \& CO}$$

$$= A + B*s + C*s**2 + D*s**3 + E*s**4 + F*s**5, \text{ NOx}$$

$$* \text{ SCF}(s, \text{sadj}) = SF(s)/SF(\text{sadj})$$

Pollutant and Model Years	A	B	C	D	E	F
HC						
Pre-1968	0.224612E+01	-0.290973E+00	0.158890E-01	-0.472494E-03	0.694077E-05	-0.392798E-07
1968	0.202779E+01	-0.273049E+00	0.153577E-01	-0.460304E-03	0.678527E-05	-0.384880E-07
1969	0.215056E+01	-0.283620E+00	0.153836E-01	-0.442136E-03	0.628732E-05	-0.346311E-07
1970	0.223021E+01	-0.293648E+00	0.162356E-01	-0.484148E-03	0.711591E-05	-0.402861E-07
1971	0.212230E+01	-0.291072E+00	0.169089E-01	-0.526148E-03	0.802705E-05	-0.470117E-07
1972	0.215361E+01	-0.283451E+00	0.156948E-01	-0.469759E-03	0.693832E-05	-0.394707E-07
1973-1974	0.211340E+01	-0.285676E+00	0.163180E-01	-0.500793E-03	0.755067E-05	-0.437187E-07
1975-1976	0.239540E+01	-0.335781E+00	0.211609E-01	-0.731550E-03	0.120715E-04	-0.748567E-07
CO						
Pre-1968	0.181978E+01	-0.254663E+00	0.152347E-01	-0.487397E-03	0.758207E-05	-0.449514E-07
1968	0.186919E+01	-0.276679E+00	0.172335E-01	-0.558279E-03	0.871678E-05	-0.516980E-07
1969	0.182133E+01	-0.272054E+00	0.170304E-01	-0.552021E-03	0.862543E-05	-0.511440E-07
1970	0.201421E+01	-0.295188E+00	0.186353E-01	-0.621606E-03	0.993657E-05	-0.599779E-07
1971	0.204533E+01	-0.310618E+00	0.204852E-01	-0.708527E-03	0.116215E-04	-0.715690E-07
1972	0.231868E+01	-0.341147E+00	0.209446E-01	-0.665891E-03	0.102225E-04	-0.598265E-07
1973-1974	0.215487E+01	-0.329116E+00	0.210112E-01	-0.689057E-03	0.108390E-04	-0.647125E-07
1975-1976	0.248747E+01	-0.391562E+00	0.270721E-01	-0.976178E-03	0.165270E-04	-0.104317E-06
NOx						
Pre-1968	0.244424E+01	-0.250107E+00	0.138293E-01	-0.287025E-03	0.207585E-05	0.000000E+00
1968	0.188656E+01	-0.161289E+00	0.904995E-02	-0.185609E-03	0.132555E-05	0.000000E+00
1969	0.155777E+01	-0.113032E+00	0.671832E-02	-0.143409E-03	0.106079E-05	0.000000E+00
1970	0.204516E+01	-0.194014E+00	0.110736E-01	-0.231754E-03	0.168372E-05	0.000000E+00
1971	0.163262E+01	-0.121861E+00	0.703020E-02	-0.146293E-03	0.106141E-05	0.000000E+00
1972	0.144825E+01	-0.122444E+00	0.795024E-02	-0.171078E-03	0.125777E-05	0.000000E+00
1973-1974	0.153447E+01	-0.125671E+00	0.785919E-02	-0.169428E-03	0.125494E-05	0.000000E+00
1975-1976	0.942131E+00	-0.423240E-01	0.386253E-02	-0.939853E-04	0.753883E-06	0.000000E+00

* WHERE : s = average speed (mph),
sadj = basic test procedure speed; adjusted for fraction of cold start operation x
and fraction of hot start operation w, $[1/\text{sadj} = (w+x)/26 + (1-w-x)/16]$.

TABLE 1.6B

SPEED CORRECTION FACTOR COEFFICIENTS FOR LIGHT DUTY GASOLINE POWERED VEHICLES

* SCF(s,sadj) = SF(s)/SF(sadj), for s <= 48.0 mph

SF(s) = A/s + b, for 1977+ HC/CO and 1980+ NOx

= EXP((A + B * s) + (C * s**2)), for 1977-79 NOx

Speed Range (in MPH)	Model Years	Coefficient						
		HC		CO		NOx		
		A	B	A	B	A	B	C
2.5-19.6	1977-1979							
	1980	19.6000	0.0000	21.2805	-0.0857	0.3467	-0.0261	0.0004
	1981	13.9841	0.2865	15.1792	0.2255	1.4560	0.9260	
	1982	13.9841	0.2865	15.1792	0.2255	1.4560	0.9260	
	1983	14.3026	0.2703	18.6488	0.0485	1.4560	0.9260	
	1984	14.2955	0.2706	17.8068	0.0914	1.4560	0.9260	
	1985	14.9050	0.2395	17.9416	0.1050	1.4560	0.9260	
	1986	15.3831	0.2151	17.7062	0.0966	1.4560	0.9260	
	1987	14.9675	0.2364	15.5822	0.2050	1.4560	0.9260	
	1988	11.5304	0.4116	10.1580	0.4816	1.4560	0.9260	
	1989	11.0875	0.4343	9.2325	0.5289	1.4560	0.9260	
	1990	10.7212	0.4530	9.5102	0.5148	1.4560	0.9260	
	1991+	10.0146	0.4891	9.4537	0.5177	1.4560	0.9260	
			9.8987	0.4950	9.4851	0.5161	1.4560	0.9260
19.6-48.0	1977-1979							
	1980	19.6000	0.0000	19.6000	0.0000	0.3467	-0.0261	0.0004
	1981	22.6600	-0.1500	23.1300	-0.1800	5.5000	0.7100	
	1982	15.8200	0.1900	13.9400	0.3100	-4.2000	1.2100	
	1983	14.9900	0.2300	13.1000	0.3400	-3.9900	1.2000	
	1984	14.4400	0.2600	9.0800	0.5400	-5.2500	1.2700	
	1985	15.1500	0.2300	9.7900	0.5000	-4.1000	1.2100	
	1986	14.3900	0.2700	9.5500	0.5100	-3.8400	1.2000	
	1987	14.6900	0.2400	11.4700	0.4100	-3.3200	1.1700	
	1988	15.5200	0.2100	16.9800	0.1300	-2.3100	1.1200	
	1989	16.4600	0.1600	20.6500	-0.0500	-1.3500	1.0700	
	1990	17.4200	0.1100	21.1200	-0.0800	-2.0400	1.1000	
	1991+	18.4000	0.0600	22.5600	-0.1500	-2.4900	1.1300	
			18.7000	0.0400	23.2500	-0.1900	-2.7000	1.1400

* WHERE: s = average speed (mph)

sadj = basic test procedure speed at 19.6 mph

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TABLE 1.6C

HIGH-SPEED SPEED CORRECTION FACTOR COEFFICIENTS FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

$$* \text{HSCF}(s) = \text{SCF48} * (1.0 + (\text{SCF65} - \text{SCF48}) * (s - S1) / (65.0 - S1))$$

SCF65 coefficients for various pollutants at high speeds.

Model year	HC	CO	NOx
	(s > 55.0)	(s > 55.0)	(s > 48.0)
pre-1982	1.270000	2.800000	1.950000
1982	1.230000	2.660000	1.920000
1983	1.160000	2.440000	1.910000
1984	1.080000	2.190000	1.890000
1985	1.030000	2.010000	1.800000
1986	0.940000	1.730000	1.750000
1987	0.890000	1.570000	1.750000
1988	0.800000	1.290000	1.680000
1989	0.840000	1.390000	1.650000
1990	0.790000	1.230000	1.580000
1991+	0.790000	1.210000	1.570000

- * WHERE: s = average speed (mph)
 SCF48 = the speed correction factor at 48.0 mph calculated using the coefficients listed in Table 1.6A for model years through 1976 or Table 1.6B for model year 1977 and later
 SCF65 = the coefficient listed in the table above
 S1 = 55.0 mph for HC and CO or 48.0 mph for NOx.

NOTE: The maximum speed allowed in Mobile5a is 65.0 mph.

NOTE: The speed correction factors for HC and CO do not change between 48.0 and 55.0 mph. HC and CO at speeds between 48.0 and 55.0 mph use the 48.0 mph speed correction factor calculated using the coefficients listed in Table 1.6A for model years through 1976 or in Table 1.6B for model year 1977 and later.

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TABLE 1.7A

LOW (< 75F) TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

* $TCF(1) = TC(1) * (T - 75.0)$, 1980+ CO,
 $TCF(b) = EXP [TC(b) * (T - 75.0)]$, all others

Pol	Model Years	Test Segment 1	Test Segment 2	Test Segment 3	
HC	Pre-1968	-0.20623E-01	-0.24032E-02	-0.10081E-02	
	1968-1969	-0.24462E-01	-0.32017E-02	-0.86884E-03	
	1970-1971	-0.21255E-01	-0.52755E-03	0.93659E-03	
	1972-1974	-0.21427E-01	-0.39442E-03	0.49731E-02	
	1975-1979	-0.23517E-01	-0.88057E-02	-0.16222E-02	
	1980	-0.26820E-01	-0.75815E-02	-0.51660E-02	
	1981	-0.32775E-01	-0.83176E-02	-0.90264E-02	
	1982	-0.32082E-01	-0.85130E-02	-0.90264E-02	
	1983	-0.36491E-01	-0.74210E-02	-0.59700E-02	
	1984	-0.35513E-01	-0.81506E-02	-0.65977E-02	
	1985	-0.32437E-01	-0.78173E-02	-0.63349E-02	
	1986	-0.30471E-01	-0.84450E-02	-0.68826E-02	
	1987	-0.30325E-01	-0.90327E-02	-0.73839E-02	
	1988	-0.27959E-01	-0.94236E-02	-0.77326E-02	
	1989	-0.26867E-01	-0.85843E-02	-0.70257E-02	
	1990	-0.24273E-01	-0.83468E-02	-0.68413E-02	
	1991	-0.23768E-01	-0.82591E-02	-0.67700E-02	
	1992+	-0.23768E-01	-0.82591E-02	-0.67700E-02	
	CO	Pre-1968	-0.13487E-01	0.15784E-02	0.11097E-02
		1968-1969	-0.21126E-01	-0.15289E-02	0.15749E-02
1970-1971		-0.20843E-01	-0.59951E-02	0.18253E-02	
1972-1974		-0.19091E-01	-0.42373E-03	0.57982E-02	
1975-1979		-0.24835E-01	-0.88336E-02	-0.11553E-02	
1980		-0.12448E+01	-0.12478E-01	-0.74106E-02	
1981		-0.13095E+01	-0.14584E-01	-0.11371E-01	
1982		-0.12840E+01	-0.14584E-01	-0.11371E-01	
1983		-0.11761E+01	-0.13550E-01	-0.90777E-02	
1984		-0.11636E+01	-0.14658E-01	-0.90777E-02	
1985		-0.10515E+01	-0.14282E-01	-0.90777E-02	
1986		-0.10032E+01	-0.15277E-01	-0.90777E-02	
1987		-0.10146E+01	-0.16146E-01	-0.90777E-02	
1988		-0.94629E+00	-0.16807E-01	-0.90777E-02	
1989		-0.88655E+00	-0.15614E-01	-0.90777E-02	
1990		-0.79324E+00	-0.15360E-01	-0.90777E-02	
1991		-0.77390E+00	-0.15250E-01	-0.90777E-02	
1992+		-0.77390E+00	-0.15250E-01	-0.90777E-02	
NOx		Pre-1968	-0.16897E-03	-0.89245E-02	-0.72580E-02
		1968-1972	-0.25074E-03	-0.59791E-02	-0.62690E-02
	1973-1974	0.38855E-02	-0.24156E-02	-0.21188E-02	
	1975-1976	-0.45504E-04	-0.12575E-02	-0.53153E-03	
	1977-1979	-0.76044E-02	-0.68045E-02	-0.54198E-02	
	1980	-0.19000E-02	-0.61656E-02	-0.49643E-02	
	1981	-0.45479E-02	-0.74823E-02	-0.90882E-02	
	1982	-0.47657E-02	-0.69890E-02	-0.90882E-02	
	1983	-0.43258E-02	-0.97539E-02	-0.10132E-01	
	1984	-0.43258E-02	-0.93986E-02	-0.10036E-01	
	1985	-0.43258E-02	-0.85213E-02	-0.91794E-02	
	1986	-0.43258E-02	-0.78839E-02	-0.88096E-02	
	1987	-0.43258E-02	-0.77871E-02	-0.88966E-02	
	1988	-0.43258E-02	-0.70534E-02	-0.83745E-02	
	1989	-0.43258E-02	-0.68079E-02	-0.79177E-02	
	1990	-0.43258E-02	-0.60641E-02	-0.72042E-02	
	1991	-0.43258E-02	-0.59229E-02	-0.70563E-02	
	1992+	-0.43258E-02	-0.59229E-02	-0.70563E-02	

* WHERE :

TCF(b) = Low temperature correction factor for appropriate pollutant,
ambient temperature (< 75F), and model year, for test segment b,
T = Ambient temperature (Fahrenheit),
TC(b) = Low temperature correction factor coefficient for appropriate
pollutant, reference temperature, and model year, for test segment b.

NOTE : The low temperature correction factor is used in conjunction with
the correction factor given in Table 1.7C.

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TABLE 1.7B

HIGH (> 75F) TEMPERATURE CORRECTION FACTOR COEFFICIENTS
AND FUEL RVP CORRECTION FACTORS FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

$$\begin{aligned} * \text{TCF}(b) &= \text{EXP} [\text{TC}(b) * (T - 75.0)], \text{ Pre-1980} \\ \text{TRCF}(b) &= \text{EXP} [\text{RC}(b) * (\text{RVP} - 9.0) + \text{TC}(b) * (T - 75.0) \\ &\quad + \text{TRC}(b) * (\text{RVP} - 9.0) * (T - 75.0)], \text{ 1980+} \end{aligned}$$

Pol	Model Years	Parameter	Test Segment 1	Test Segment 2	Test Segment 3			
HC	Pre-1968 1968-1969 1970-1971 1972-1974 1975-1979 1980-1982	TC	-0.14381E-01	0.13219E-02	0.34799E-02			
			-0.12552E-01	0.42667E-02	0.75843E-02			
			-0.10888E-01	-0.47925E-03	0.76666E-02			
			-0.66107E-02	0.26288E-02	0.12320E-01			
			-0.14095E-01	0.26179E-01	0.24297E-01			
			0.91402E-01	0.42060E-01	0.93179E-01			
	1983+	RC TC TRC RC TC TRC	0.44270E-02	0.48358E-02	0.74688E-02			
			0.29466E-02	0.00000E+00	0.47276E-02			
			0.23202E-01	0.15373E+00	0.13263E+00			
			0.00000E+00	0.86550E-02	0.83730E-02			
			0.00000E+00	0.00000E+00	0.56009E-02			
			CO	Pre-1968 1968-1969 1970-1971 1972-1974 1975-1979 1980-1982	TC	-0.14691E-01	0.37462E-02	0.11014E-01
						-0.38767E-01	0.84685E-02	0.25179E-01
-0.21165E-01	0.23603E-01	0.28483E-01						
-0.13146E-01	0.24717E-01	0.25848E-01						
-0.19612E-01	0.48537E-01	0.31439E-01						
0.91345E-01	0.13968E+00	0.16322E+00						
1983+	RC TC TRC RC TC TRC	0.62182E-02	0.14943E-01	0.14923E-01				
		0.00000E+00	0.00000E+00	0.00000E+00				
		0.40748E-01	0.26214E+00	0.23218E+00				
		0.35170E-02	0.14966E-01	0.20695E-01				
		0.00000E+00	0.56416E-02	0.82344E-02				
		NOx	Pre-1968 1968-1972 1973-1974 1975-1976 1977-1979 1980-1982	TC	0.38841E-02	-0.87325E-02	-0.10839E-01	
					-0.10389E-02	-0.92466E-02	-0.10108E-01	
-0.18301E-01	-0.10925E-01				-0.18042E-01			
-0.71420E-02	-0.87910E-02				-0.75470E-02			
-0.26153E-01	-0.18603E-01				-0.20878E-01			
0.00000E+00	-0.40024E-01				0.00000E+00			
1983+	RC TC TRC RC TC TRC		0.00000E+00	0.00000E+00	0.00000E+00			
			0.00000E+00	0.00000E+00	0.00000E+00			
			0.00000E+00	0.00000E+00	0.00000E+00			
			0.14219E-01	0.27491E-01	0.00000E+00			
			0.00000E+00	0.37789E-02	0.00000E+00			
			0.00000E+00	0.00000E+00	0.00000E+00			
			0.00000E+00	0.00000E+00	0.00000E+00			

* WHERE :

TCF(b) = High temperature correction factor for appropriate pollutant,
ambient temperature, and model year, for test segment b,
T = Ambient temperature (Fahrenheit),
TC(b) = High temperature correction factor coefficient for appropriate
pollutant, temperature, and model year, for test segment b,
TRCF(b) = High temperature and fuel RVP correction factor
for appropriate pollutant, ambient temperature, fuel RVP,
and model year, for test segment b,
RC(b) = Fuel RVP correction factor coefficient for appropriate
pollutant, fuel RVP, and model year, for test segment b,
RVP = Fuel volatility in psi,
TRC(b) = Combined temperature and fuel RVP correction factor coefficient
for appropriate pollutant, fuel RVP, ambient temperature,
and model year, for test segment b.

NOTE : The temperature correction factor is used in conjunction with
the correction factor given in Table 1.7C.

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TABLE 1.7C

NORMALIZED BAG FRACTIONS FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

Pol	Model Years	Normalized Fractions												
		Test Segment 1			Test Segment 2			Test Segment 3			Total Test			
		B1	D11	D12	B2	D21	D22	B3	D31	D32	B0	D01	D02	
HC	Pre-1968	1.2820	0.0250		0.9730	0.0280		0.8390	0.0190		1.0000	0.0249		
	1968-1969	1.3450	0.0740		0.9460	0.0540		0.8420	0.0480		1.0000	0.0565		
	1970-1971	1.3450	0.1780		0.9190	0.1180		0.8940	0.0930		1.0000	0.1235		
	1972-1974	1.3890	0.0440		0.9030	0.0560		0.8910	0.0360		1.0000	0.0481		
	1975-1979	1.9360	0.3240		0.7340	0.2670		0.8010	0.2100		1.0000	0.2632		
	1980	2.2000	0.7140		0.5710	0.1710		0.9140	0.1430		1.0000	0.2752		
	1981	2.5130	0.6113	1.0996	0.4831	0.3181	0.8432	0.8448	0.3479	0.7530	1.0000	0.3866	0.8714	
	1982	2.5041	0.6428	1.0552	0.4947	0.3348	0.7959	0.8294	0.3690	0.7107	1.0000	0.4076	0.8260	
	1983	2.9497	0.5043	1.0717	0.3629	0.3623	1.0388	0.7446	0.4132	0.9638	1.0000	0.4054	1.0251	
	1984	2.8847	0.3627	1.1283	0.3935	0.2834	1.0891	0.7353	0.3164	1.0169	1.0000	0.3087	1.0774	
	1985	2.9379	0.3530	1.0389	0.3826	0.2800	1.0114	0.7159	0.3093	0.9364	1.0000	0.3031	0.9966	
	1986	2.9446	0.2861	1.0055	0.3881	0.2490	0.9876	0.7004	0.2685	0.9128	1.0000	0.2619	0.9708	
	1987	2.9623	0.2846	0.9768	0.3834	0.2579	0.9714	0.6961	0.2768	0.8972	1.0000	0.2686	0.9522	
	1988	3.0028	0.2580	0.9027	0.3765	0.2521	0.9140	0.6786	0.2658	0.8389	1.0000	0.2571	0.8911	
	1989	3.0026	0.2584	0.9026	0.3775	0.2423	0.9043	0.6768	0.2556	0.8275	1.0000	0.2493	0.8830	
	1990	3.0346	0.2414	0.8449	0.3723	0.2335	0.8535	0.6626	0.2429	0.7750	1.0000	0.2377	0.8303	
	1991	3.0392	0.2382	0.8364	0.3717	0.2312	0.8455	0.6603	0.2399	0.7666	1.0000	0.2350	0.8221	
	1992+	3.0406	0.2373	0.8338	0.3716	0.2297	0.8422	0.6595	0.2382	0.7630	1.0000	0.2336	0.8188	
	CO	Pre-1968	1.2770	0.0330		1.0170	0.0290		0.7580	0.0250		1.0000	0.0287	
		1968-1969	1.4420	0.0710		0.9960	0.0420		0.6740	0.0330		1.0000	0.0455	
1970-1971		1.5530	0.1090		0.9330	0.0790		0.7110	0.0380		1.0000	0.0740		
1972-1974		1.4020	0.0540		0.9860	0.0690		0.7230	0.0370		1.0000	0.0572		
1975-1979		1.8100	0.1490		0.8610	0.1590		0.6540	0.0930		1.0000	0.1389		
1980		2.3970	0.2770		0.6470	0.0610		0.6190	0.0760		1.0000	0.1096		
1981		2.9011	0.6068	1.1728	0.3343	0.2704	1.1378	0.8358	0.3693	0.9873	1.0000	0.3667	1.1039	
1982		2.8432	0.6100	1.1301	0.3660	0.2529	1.0578	0.8191	0.3718	0.9264	1.0000	0.3589	1.0368	
1983		2.4578	0.5397	0.9562	0.4189	0.2495	0.8853	1.0089	0.4067	0.9200	1.0000	0.3522	0.9094	
1984		2.1375	0.3153	0.8224	0.5202	0.1638	0.7041	1.0573	0.2425	0.7680	1.0000	0.2165	0.7459	
1985		2.2061	0.3460	0.8644	0.5201	0.2033	0.7799	1.0058	0.2786	0.8061	1.0000	0.2533	0.8045	
1986		2.0835	0.2654	0.8075	0.5741	0.1864	0.7296	0.9952	0.2259	0.7408	1.0000	0.2134	0.7487	
1987		2.0401	0.2575	0.7692	0.5978	0.1862	0.7098	0.9827	0.2203	0.7035	1.0000	0.2102	0.7203	
1988		2.0076	0.2418	0.7479	0.6309	0.2013	0.7202	0.9440	0.2183	0.6779	1.0000	0.2143	0.7143	
1989		2.0803	0.2616	0.8051	0.6070	0.2181	0.7727	0.9349	0.2386	0.7322	1.0000	0.2327	0.7683	
1990		2.1101	0.2665	0.8298	0.6170	0.2452	0.8230	0.8934	0.2545	0.7515	1.0000	0.2521	0.8049	
1991		2.1189	0.2678	0.8375	0.6173	0.2505	0.8342	0.8861	0.2579	0.7580	1.0000	0.2561	0.8141	
1992+		2.1287	0.2701	0.8454	0.6152	0.2539	0.8431	0.8826	0.2611	0.7653	1.0000	0.2592	0.8223	
NOx		Pre-1968	1.1210	0.0090		0.7850	0.0010		1.3190	-0.0090		1.0000	-0.0001	
		1968-1972	1.1610	0.0000		0.7960	0.0000		1.2670	0.0000		1.0000	0.0000	
	1973-1974	1.2470	0.0240		0.7790	0.0070		1.2360	0.0280		1.0000	0.0162		
	1975-1976	1.2950	0.0250		0.7850	0.0080		1.1880	0.0330		1.0000	0.0183		
	1977-1979	1.3770	0.0500		0.7580	0.0610		1.1770	0.0780		1.0000	0.0634		
	1980	1.3130	0.0470		0.8110	0.0340		1.1250	0.0540		1.0000	0.0421		
	1981	1.7148	0.1001	0.2681	0.7407	0.0985	0.2732	0.9555	0.0956	0.2869	1.0000	0.0980	0.2759	
	1982	1.6938	0.1092	0.2772	0.7505	0.1027	0.2761	0.9527	0.1029	0.2939	1.0000	0.1041	0.2812	
	1983	1.8098	0.1898	0.4940	0.5484	0.1621	0.4125	1.2507	0.1835	0.4745	1.0000	0.1737	0.4462	
	1984	1.7817	0.2579	0.6466	0.6205	0.2094	0.5266	1.1344	0.2473	0.6212	1.0000	0.2297	0.5772	
	1985	1.8112	0.2182	0.5529	0.6012	0.1919	0.4694	1.1489	0.2173	0.5415	1.0000	0.2042	0.5063	
	1986	1.8058	0.2186	0.5601	0.6277	0.1988	0.4890	1.1024	0.2225	0.5581	1.0000	0.2094	0.5225	
	1987	1.7773	0.1936	0.5170	0.6404	0.1822	0.4663	1.0997	0.2003	0.5229	1.0000	0.1895	0.4922	
	1988	1.7890	0.1592	0.4436	0.6362	0.1645	0.4272	1.0989	0.1731	0.4638	1.0000	0.1658	0.4406	
	1989	1.8221	0.1661	0.4425	0.6184	0.1715	0.4206	1.1079	0.1807	0.4601	1.0000	0.1729	0.4359	
	1990	1.8429	0.1464	0.3948	0.6089	0.1650	0.3934	1.1104	0.1673	0.4209	1.0000	0.1618	0.4012	
	1991	1.8476	0.1437	0.3865	0.6068	0.1642	0.3879	1.1109	0.1655	0.4138	1.0000	0.1603	0.3947	
	1992+	1.8506	0.1428	0.3821	0.6051	0.1640	0.3841	1.1118	0.1649	0.4095	1.0000	0.1599	0.3906	

NOTE : The fractions given in this table are used in the calculation of the operating-mode/temperature correction factor (OMTCF).

WHERE :
 OMTCF = [(TERM1 + TERM2 + TERM3)/DENOM],
 TERM1 = W*TCF(1)*(B1+D11*M), or *[B1+D11*5.0+D12*(M-5.0)],
 TERM2 = (1-W-X)*TCF(2)*(B2+D21*M), or *[B2+D21*5.0+D22*(M-5.0)],
 TERM3 = X*TCF(3)*(B3+D31*M), or *[B3+D31*5.0+D32*(M-5.0)],
 DENOM = B0+D01*M, or = B0+D01*5.0+D02*(M-5.0),
 W = Fraction of VMT in the cold start mode,
 X = Fraction of VMT in the hot start mode,
 TCF(b) = Temperature correction factor for pollutant/model year/test segment b from Table 1.7A,
 M = Cumulative mileage / 10,000 miles.

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TABLE 1.8A

AIR CONDITIONING CORRECTION FACTOR COEFFICIENTS FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

$$* \text{ACCF} = U * V * (A + B * (T - 75) - 1) + 1$$

Model Years	HC		CO		NOx	
	A	B	A	B	A	B
Pre-1975	0.1023E+01	0.3344E-02	0.1202E+01	0.1808E-02	0.1299E+01	0.5643E-04
1975+	0.1000E+01	0.3512E-02	0.1130E+01	0.1528E-02	0.1221E+01	0.4262E-03

* WHERE :

ACCF = Air Conditioning Correction Factor,
 V = Fraction of vehicles equipped with AC given in Table 1.1.8B,
 U = Fraction of vehicles with AC that are using it = (DI-DILO)/(DIHI-DILO),
 0 ≤ U ≤ 1,
 DI = Discomfort index = (DB+WB)*.4+15,
 DILO = The highest discomfort index where no AC is used,
 DIHI = The lowest discomfort index where all vehicles with AC use it,
 DB = Dry bulb temperature (Fahrenheit),
 WB = Wet bulb temperature (Fahrenheit),
 T = Ambient temperature (Fahrenheit).

TABLE 1.8B

ESTIMATED FRACTION OF
LIGHT DUTY GASOLINE POWERED VEHICLES
EQUIPPED WITH AIR CONDITIONING

Model Years	Fraction Equipped With Air Conditioning
Pre-1962	0.07
1962-1964	0.14
1965-1966	0.24
1967-1968	0.37
1969-1971	0.51
1972-1976	0.61
1977+	0.72

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TABLE 1.8C

EXTRA LOAD CORRECTION FACTOR COEFFICIENTS FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

$$* \text{ XLCF} = (\text{XLC}-1) * \text{U} + 1$$

Model Years	Coefficients (XLC)		
	HC	CO	NOx
Pre-1968	1.0786	1.2765	0.9535
1968-1969	1.0495	1.1384	1.0313
1970-1971	1.0852	1.2478	1.0313
1972	1.0556	1.1347	1.0313
1973-1974	1.0556	1.1347	1.0753
1975+	1.0455	1.3058	1.0719

* WHERE :

XLCF = Extra load correction factor,
 U = Fraction of VMT with an extra load,
 XLC = Correction factor coefficient.

TABLE 1.8D

TRAILER TOWING CORRECTION FACTOR COEFFICIENTS FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

$$* \text{ TTCF} = (\text{TTC}-1) * \text{U} + 1$$

Model Years	Coefficients (TTC)		
	HC	CO	NOx
Pre-1968	1.2614	1.9327	1.1184
1968 1969	1.2762	1.8940	1.1384
1970 1971	1.4598	2.4753	1.1384
1972	1.7288	2.1414	1.1384
1973 1974	1.7288	2.1414	1.2170
1975+	1.5909	3.9722	1.3875

* WHERE :

TTCF = Trailer towing correction factor,
 U = Fraction of VMT towing a trailer,
 TTC = Correction factor coefficient.

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TABLE 1.9A

TAMPERING AND MISFUELING RATES FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

Model Years	System	Zero Mile Level	Det. Rate 1	Det. Rate 2	50,000 Mile Level	100,000 Mile Level
NON-I/M AREA						
Pre-1981	Air Pump Disablement	0.0072	0.02610	0.04122	0.138	0.344
	Catalyst Removal	0.0084	0.01930	0.01878	0.105	0.199
	EGR System Disabled	0.0412	0.03470	0.01126	0.215	0.271
	Filler Neck Damaged	0.0027	0.02420	0.02641	0.124	0.256
	Fuel Tank Misfueled	-0.0286	0.01000	-0.00021	0.021	0.020
	Total Misfueled	-0.0259	0.03420	0.02617	0.145	0.276
	PCV System Disabled	0.0107	0.00220	0.00220	0.022	0.033
	Cannister Disconnect Both Cannister & Cap	0.0192 0.0334	0.00970 0.00960	0.01979 0.02252	0.068 0.081	0.167 0.194
1981-1983	Air Pump Disablement	0.0033	0.00480	0.03593	0.027	0.207
	Catalyst Removal	-0.0019	0.00380	0.01374	0.017	0.086
	EGR System Disabled	0.0225	0.00400	0.00941	0.043	0.090
	Filler Neck Damaged	-0.0110	0.00670	0.00611	0.022	0.053
	Fuel Tank Misfueled	0.0220	-0.00330	0.00280	0.005	0.020
	Total Misfueled	0.0110	0.00340	0.00903	0.028	0.073
	PCV System Disabled	-0.0036	0.00220	0.00063	0.007	0.011
	Cannister Disconnect Both Cannister & Cap	0.0078 0.0110	0.00130 0.00460	0.00132 0.01295	0.014 0.034	0.021 0.099
1984+	Air Pump Disablement	0.0006	0.00280	0.01041	0.015	0.067
	Catalyst Removal	-0.0008	0.00140	0.00146	0.006	0.013
	EGR System Disabled	0.0061	0.00170	0.00234	0.015	0.026
	Filler Neck Damaged	-0.0009	0.00060	0.00060	0.002	0.005
	Fuel Tank Misfueled	0.0009	0.00190	0.00190	0.010	0.020
	Total Misfueled	0.0000	0.00250	0.00250	0.012	0.025
	PCV System Disabled	-0.0002	0.00130	0.00052	0.006	0.009
	Cannister Disconnect Both Cannister & Cap	-0.0013 -0.0012	0.00260 0.00550	0.00103 0.00127	0.012 0.026	0.017 0.033
WITH I/M AREA						
Pre-1981	Air Pump Disablement	0.0668	0.00550	0.03111	0.094	0.250
	Catalyst Removal	0.0067	0.00840	0.00840	0.049	0.091
	EGR System Disabled	0.0744	0.01050	0.01050	0.127	0.179
	Filler Neck Damaged	0.0379	0.00890	0.00890	0.082	0.127
	Fuel Tank Misfueled	0.0528	-0.00380	-0.00380	0.034	0.015
	Total Misfueled	0.0907	0.00510	0.00510	0.116	0.142
	PCV System Disabled	0.0048	0.00230	0.00230	0.016	0.028
	Cannister Disconnect Both Cannister & Cap	0.0099 -0.0116	0.00850 0.01560	0.01243 0.01349	0.052 0.066	0.115 0.134
1981-1983	Air Pump Disablement	0.0066	0.00290	0.01591	0.021	0.101
	Catalyst Removal	-0.0152	0.00600	0.00600	0.015	0.045
	EGR System Disabled	0.0203	0.00140	0.00167	0.027	0.036
	Filler Neck Damaged	-0.0005	0.00090	0.00040	0.004	0.006
	Fuel Tank Misfueled	0.0112	0.00080	-0.00030	0.015	0.014
	Total Misfueled	0.0108	0.00170	0.00014	0.019	0.020
	PCV System Disabled	-0.0028	0.00210	0.00210	0.008	0.018
	Cannister Disconnect Both Cannister & Cap	-0.0158 -0.0173	0.00850 0.01220	0.00026 0.00203	0.027 0.044	0.028 0.054
1984+	Air Pump Disablement	0.0053	0.00110	0.00055	0.011	0.014
	Catalyst Removal	0.0000	0.00030	0.00030	0.002	0.003
	EGR System Disabled	0.0012	0.00060	0.00092	0.004	0.009
	Filler Neck Damaged	0.0000	0.00020	0.00020	0.001	0.002
	Fuel Tank Misfueled	0.0000	0.00340	0.00340	0.017	0.034
	Total Misfueled	0.0000	0.00360	0.00360	0.018	0.036
	PCV System Disabled	-0.0018	0.00140	0.00355	0.005	0.023
	Cannister Disconnect Both Cannister & Cap	-0.0013 -0.0012	0.00260 0.00550	0.00103 0.00127	0.012 0.026	0.017 0.033

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TABLE 1.9B

EXCESS EMISSIONS
DUE TO TAMPERING AND/OR MISFUELING FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

Type of Tampering	Emission Control System	Pollutant	Excess Emissions (g/mi)			
			FTP	Bag 1	Bag 2	Bag 3
Air Pump Disablement	Oxidation	HC	1.37	1.80	1.37	1.04
		CO	30.61	34.67	33.90	21.28
	3way/Oxidation 3way	HC	0.85	1.36	0.76	0.61
		CO	21.02	31.80	18.21	18.25
Catalyst Removal	Oxidation	HC	3.05	2.31	3.40	2.95
		CO	28.01	41.40	28.97	16.06
	3way/Oxidation 3way	HC	2.04	1.80	2.25	1.81
		CO	13.74	16.32	14.11	11.07
NOx		1.52	1.49	1.36	1.83	
Total Misfueled	Oxidation	HC	2.47	2.30	2.57	2.40
		CO	20.96	46.50	13.13	16.62
	3way/Oxidation 3way	HC	1.44	1.42	1.56	1.21
		CO	6.57	8.08	6.60	5.37
NOx		0.57	0.64	0.45	0.74	
EGR System Disabled		NOx				
		Pre-1975	1.21	1.40	0.96	1.54
		1975-1976	3.31	3.82	2.63	4.21
		1977-1980	3.48	4.11	2.68	4.53
	1981+	1.23	1.36	1.19	1.21	
EGR System Disabled and Catalyst Removal		NOx	3.39	3.02	3.46	3.55
EGR System Disabled and Total Misfueled		NOx	1.99	2.12	1.85	2.16

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TABLE 1.9C

EXCESS CRANKCASE EMISSIONS FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

Model Years	Excess Crankcase (Gm/Mile)
PCV System Disabled	
1964-1970	1.28
1971-1974	1.27
1975-1977	1.26
1978-1979	1.24
1980	1.22
1981+	1.21

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TABLE 1.9D

RUNNING LOSS EMISSION RATE FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

MODEL YEARS 1972-2020

Fuel RVP psi	Ambient Temp F	Trip Length (duration)					
		> 0 & ≤10min	> 10 & ≤20min	> 20 & ≤30min	> 30 & ≤40min	> 40 & ≤50min	>50min
SPEED 7.1 MPH							
7.0	80.0	0.30	0.30	0.31	0.32	0.34	0.40
	87.0	0.32	0.36	0.36	0.39	0.42	0.52
	95.0	0.34	0.44	0.54	0.71	0.83	1.14
	105.0	0.37	0.61	0.95	1.40	1.80	2.38
9.0	80.0	0.33	0.41	0.48	0.59	0.66	0.86
	87.0	0.35	0.52	0.73	0.99	1.23	1.61
	95.0	0.61	1.01	1.48	2.46	3.38	4.50
	105.0	0.83	1.93	4.58	8.61	12.07	14.73
10.4	80.0	0.36	0.56	0.81	1.14	1.44	1.91
	87.0	0.62	1.05	1.63	2.77	3.81	5.01
	95.0	0.79	1.79	4.10	7.66	10.73	13.15
	105.0	1.05	2.86	7.81	15.09	20.24	24.26
11.7	80.0	0.62	1.06	1.67	2.84	3.92	5.16
	87.0	0.77	1.70	3.81	7.07	9.91	12.24
	95.0	0.97	2.53	6.66	12.76	17.65	21.12
	105.0	1.26	3.74	10.94	20.17	27.34	32.36
SPEED 19.6 MPH							
7.0	80.0	0.09	0.11	0.12	0.12	0.13	0.15
	87.0	0.09	0.13	0.13	0.14	0.15	0.18
	95.0	0.10	0.14	0.15	0.20	0.23	0.32
	105.0	0.11	0.18	0.20	0.31	0.41	0.61
9.0	80.0	0.10	0.13	0.14	0.17	0.19	0.24
	87.0	0.10	0.16	0.17	0.23	0.29	0.41
	95.0	0.14	0.30	0.35	0.51	0.61	0.77
	105.0	0.15	0.37	0.63	1.46	2.09	2.88
10.4	80.0	0.11	0.17	0.18	0.26	0.34	0.49
	87.0	0.14	0.31	0.37	0.57	0.69	0.88
	95.0	0.15	0.36	0.59	1.32	1.87	2.56
	105.0	0.16	0.45	0.98	2.56	3.46	4.81
11.7	80.0	0.14	0.31	0.37	0.57	0.70	0.91
	87.0	0.14	0.35	0.56	1.22	1.71	2.36
	95.0	0.16	0.42	0.84	2.15	3.05	4.18
	105.0	0.18	0.53	1.33	3.26	4.55	6.35
SPEED 47.9 MPH							
7.0	80.0	0.02	0.02	0.02	0.02	0.02	0.02
	87.0	0.02	0.02	0.02	0.02	0.02	0.02
	95.0	0.02	0.02	0.02	0.02	0.02	0.02
	105.0	0.06	0.02	0.02	0.02	0.02	0.02
9.0	80.0	0.02	0.02	0.02	0.02	0.02	0.02
	87.0	0.02	0.02	0.02	0.02	0.02	0.02
	95.0	0.02	0.02	0.02	0.02	0.02	0.02
	105.0	0.09	0.02	0.02	0.02	0.02	0.02
10.4	80.0	0.02	0.02	0.02	0.02	0.02	0.02
	87.0	0.02	0.02	0.02	0.02	0.02	0.02
	95.0	0.08	0.02	0.02	0.02	0.02	0.02
	105.0	0.09	0.03	0.03	0.03	0.03	0.03
11.7	80.0	0.02	0.02	0.02	0.02	0.02	0.02
	87.0	0.05	0.03	0.03	0.03	0.03	0.03
	95.0	0.09	0.05	0.04	0.03	0.03	0.03
	105.0	0.09	0.05	0.04	0.03	0.03	0.03

TABLE 1.9E

RUNNING LOSS EMISSION RATE FOR
PRESSURE/PURGE TEST FAILED VEHICLES

Fuel RVP psi	Ambient Temp F	Trip Length (duration)					
		> 0 & ≤10min	> 10 & ≤20min	> 20 & ≤30min	> 30 & ≤40min	> 40 & ≤50min	>50min
7.0	80.0	1.08	4.91	5.20	5.20	5.20	5.20
	87.0	1.63	6.85	10.47	10.47	13.18	11.14
	95.0	2.34	9.35	17.20	27.99	36.95	47.17
	105.0	3.36	15.55	30.37	51.83	70.03	93.51
9.0	80.0	2.20	8.85	15.88	24.45	32.34	40.21
	87.0	2.88	11.24	22.32	41.86	55.05	74.61
	95.0	3.88	19.21	38.05	65.68	89.90	120.26
	105.0	6.48	34.29	72.58	134.85	188.43	251.53
10.4	80.0	3.03	11.76	23.74	45.69	60.06	82.22
	87.0	3.99	19.84	39.52	68.66	94.18	126.01
	95.0	6.05	31.82	66.96	123.65	172.52	230.39
	105.0	8.99	48.78	105.72	201.18	282.84	377.19
11.7	80.0	4.04	20.13	40.19	70.04	96.17	128.70
	87.0	5.84	30.58	64.14	118.01	164.53	219.78
	95.0	8.13	43.83	94.44	178.65	250.83	334.66
	105.0	11.38	62.53	137.11	263.89	372.01	495.78

DATE : JUNE 30, 1995

TABLE 1.9F

TECHNOLOGY GROUP FRACTIONS
FOR RESTING LOSS HC BY MODEL YEAR FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

MODEL YEAR	OPEN BOTTOM CANISTER	CLOSED BOTTOM CANISTER
Pre-1981	0.438	0.562
1981	0.438	0.562
1982	0.409	0.591
1983	0.404	0.596
1984	0.423	0.577
1985	0.370	0.630
1986	0.351	0.649
1987	0.184	0.816
1988	0.158	0.842
1989	0.078	0.922
1990	0.070	0.930
1991	0.088	0.912
1992+	0.000	1.000

DATE : JUNE 30, 1995

TABLE 1.9G.1

HOT SOAK EMISSION RATES FOR
LOW ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES

AMBIENT TEMPERATURE 82F

MODEL YEAR	AT 9.0 RVP			AT 11.5 RVP		
	PASS	FAILED PURGE	FAILED PRESSURE	PASS	FAILED PURGE	FAILED PRESSURE
Pre -1971	14.67	14.67	14.67	22.45	22.45	22.45
1971	10.63	14.67	14.67	15.68	22.45	22.45
1972-1977	7.79	14.50	14.67	11.96	22.19	22.45
1978-1980	2.20	5.83	5.89	4.17	17.69	17.90

HOT SOAK EMISSION RATES FOR 1981+ PASS
LOW ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES
AMBIENT TEMPERATURE 82F

FOR RVP LESS THAN 9.0 FOR RVP 9.0 OR GREATER
EMISSION RATE = A+B*RVP EMISSION RATE = C+D*RVP+E*RVP**2

FUEL DELIVERY SYSTEM	A	B	C	D	E
CARB	0.255930	0.138230	-1.326657	0.000000	0.034897
TBI	0.258327	0.041297	-4.609710	0.582190	0.000000
PFI	-0.406730	0.102970	18.495880	-4.253800	0.250720

DIURNAL EMISSION RATES FOR
LOW ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES

MINIMUM TEMPERATURE 60F, MAXIMUM 84F

MODEL YEAR	AT 9.0 RVP			AT 11.5 RVP		
	PASS	FAILED PURGE	FAILED PRESSURE	PASS	FAILED PURGE	FAILED PRESSURE
Pre -1971	34.27	34.27	34.27	56.18	56.18	56.18
1971	23.74	34.27	34.27	46.07	56.18	56.18
1972-1977	16.81	17.71	24.12	31.28	34.96	38.88
1978-1980	12.99	13.77	20.18	22.29	24.98	28.89

DATE : JUNE 30, 1995

TABLE 1.9G.2

HOT SOAK EMISSION RATES FOR
HIGH ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES

AMBIENT TEMPERATURE 82F

MODEL YEAR	AT 9.0 RVP			AT 11.5 RVP		
	PASS	FAILED PURGE	FAILED PRESSURE	PASS	FAILED PURGE	FAILED PRESSURE
Pre -1971	19.07	19.07	19.07	29.18	29.18	29.18
1971	13.82	19.07	19.07	20.38	29.18	29.18
1972-1976	10.03	14.52	19.07	18.87	27.30	36.74
1977	7.79	14.50	14.67	11.96	22.19	22.45
1978-1980	2.86	7.58	7.66	5.42	23.00	23.27

HOT SOAK EMISSION RATES FOR 1981+ PASS
HIGH ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES
AMBIENT TEMPERATURE 82F

FUEL DELIVERY SYSTEM	FOR RVP LESS THAN 9.0 EMISSION RATE = A+B*RVP		FOR RVP 9.0 OR GREATER EMISSION RATE = C+D*RVP+E*RVP**2		
	A	B	C	D	E
CARB	0.255930	0.138230	-1.326657	0.000000	0.034897
TBI	0.258327	0.041297	-4.609710	0.582190	0.000000
PFI	-0.406730	0.102970	18.495880	-4.253800	0.250720

DIURNAL EMISSION RATES FOR
HIGH ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES

MINIMUM TEMPERATURE 60F, MAXIMUM 84F

MODEL YEAR	AT 9.0 RVP			AT 11.5 RVP		
	PASS	FAILED PURGE	FAILED PRESSURE	PASS	FAILED PURGE	FAILED PRESSURE
Pre -1971	44.55	44.55	44.55	73.03	73.03	73.03
1971	30.86	44.55	44.55	59.89	73.03	73.03
1972-1976	20.81	24.47	38.11	43.78	55.71	66.80
1977	16.81	17.71	24.12	31.28	34.96	38.88
1978-1980	16.89	17.90	26.23	28.98	32.47	37.56

DATE : JUNE 30, 1995

TABLE 1.10A.1

METHANE OFFSETS*
FOR LOW ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES

Model Years	Methane Offsets (g/mi)			
	FTP	Bag 1	Bag 2	Bag 3
Pre-1975	0.279	0.366	0.282	0.207
1975-1979	0.136	0.196	0.132	0.097
1980	0.066	0.086	0.062	0.057
1981-1982	0.086	0.115	0.083	0.069
1983+	0.063	0.082	0.060	0.056

* Methane offsets are used to estimate nonmethane hydrocarbon emissions (NMHC), i.e., NMHC = Total HC - Methane Offset.

VOC/TOG CORRECTION FACTOR FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

VOC/TOG = (Total HC - Methane offset)*FID + Methane offset.

* FID=SHRMKT(1)*CF +
SHRMKT(2)*(CF+0.074*OXYCNT(1)*100)+
SHRMKT(3)*(CF+0.062*OXYCNT(2)*100)

Model Years	TOG	VOG
Pre-1975	1.0352	1.0239
1975	1.0226	0.9975
1976-1977	1.0219	0.9959
1978-1979	1.0211	0.9942
1980	1.0206	0.9905
1981	1.0211	0.9710
1982	1.0211	0.9709
1983	1.0218	0.9690
1984	1.0213	0.9680
1985	1.0202	0.9705
1986	1.0196	0.9719
1987	1.1090	0.9734
1988	1.0175	0.9768
1989	1.0172	0.9777
1990	1.0167	0.9787
1991+	1.0163	0.9797

The correction factor is the same for Gasoline, Ether blend and Alcohol blend fueled vehicles in MOBILE5a

* WHERE:
FID -FID correction factor (TOG or VOC)
SHRMKT(i)-Market share for i=1-Gasoline,i=2-Ether blend,
i=3-Alcohol blend.
CF -Coefficients from the table above (TOG or VOC)
OXYCNT(j)-Oxygen content adjustment for j=1-Ether blend,
j=2-Alcohol blend.

DATE : JUNE 30, 1995

TABLE 1.10A.2

METHANE OFFSETS*
FOR HIGH ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES

Model Years	Methane Offsets (g/mi)			
	FTP	Bag 1	Bag 2	Bag 3
Pre-1975	0.376	0.494	0.381	0.279
1975-1976	0.255	0.368	0.248	0.182
1977	0.119	0.172	0.116	0.085
1978-1979	0.264	0.382	0.257	0.189
1980	0.142	0.186	0.134	0.123
1981-1982	0.142	0.190	0.138	0.115
1983+	0.086	0.115	0.084	0.069

* Methane offsets are used to estimate nonmethane hydrocarbon emissions (NMHC), i.e., NMHC = Total HC - Methane Offset.

VOC/TOG CORRECTION FACTOR FOR
LIGHT DUTY GASOLINE POWERED VEHICLES

VOC/TOG = (Total HC - Methane offset)*FID + Methane offset.

* FID=SHRMKT(1)*CF +
SHRMKT(2)*(CF+0.074*OXYCNT(1)*100)+
SHRMKT(3)*(CF+0.062*OXYCNT(2)*100)

Model Years	TOG	VOG
Pre-1975	1.0352	1.0239
1975	1.0226	0.9975
1976-1977	1.0219	0.9959
1978-1979	1.0211	0.9942
1980	1.0206	0.9905
1981	1.0211	0.9710
1982	1.0211	0.9709
1983	1.0218	0.9690
1984	1.0213	0.9680
1985	1.0202	0.9705
1986	1.0196	0.9719
1987	1.1090	0.9734
1988	1.0175	0.9768
1989	1.0172	0.9777
1990	1.0167	0.9787
1991+	1.0163	0.9797

The correction factor is the same for Gasoline, Ether blend and Alcohol blend fueled vehicles in MOBILE5a

* WHERE:

FID -FID correction factor (TOG or VOC)
SHRMKT(i)-Market share for i=1-Gasoline,i=2-Ether blend,
i=3-Alcohol blend.
CF -Coefficients from the table above (TOG or VOC)
OXYCNT(j)-Oxygen content adjustment for j=1-Ether blend,
j=2-Alcohol blend.

DATE : JUNE 30, 1995

TABLE 1.10C

PERCENT TECHNOLOGY DISTRIBUTIONS
 (EXHAUST AND EVAPORATIVE EMISSION SYSTEMS)
 FOR LIGHT DUTY GASOLINE POWERED VEHICLES

Model Years	Air Pump Only	Oxidation Catalyst	3Way Catalyst	EGR System	Air Pump & Oxidation or 3Way Catalyst	EGR System & 3Way Catalyst
Pre-1968	0.0	0.0	0.0	0.0	0.0	0.0
1968-1971	5.0	0.0	0.0	0.0	0.0	0.0
1972	10.0	0.0	0.0	0.0	0.0	0.0
1973	30.0	0.0	0.0	80.0	0.0	0.0
1974	30.0	0.0	0.0	90.0	0.0	0.0
1975	15.0	80.0	0.0	90.0	30.0	0.0
1976	10.0	85.0	0.0	90.0	30.0	0.0
1977	10.0	85.0	0.0	90.0	20.0	0.0
1978-1979	5.0	90.0	0.0	90.0	25.0	0.0
1980	0.0	88.0	7.0	97.0	65.0	7.0
1981	0.0	15.0	85.0	90.0	75.0	85.0
1982	0.0	14.0	86.0	90.0	70.0	85.0
1983	0.0	12.0	88.0	90.0	60.0	85.0
1984-1985	0.0	0.0	100.0	93.0	60.0	93.0
1986	0.0	0.0	100.0	93.0	40.0	93.0
1987+	0.0	0.0	100.0	90.0	30.0	90.0

Model Years	Evaporative Canister	PCV System
Pre-1963	0.0	0.0
1963-1967	0.0	0.0
1968-1970	0.0	100.0
1971+	100.0	100.0

DATE : JUNE 30, 1995

TABLE 1.10D

PERCENT TECHNOLOGY DISTRIBUTIONS
(FUEL DELIVERY SYSTEMS)
FOR LIGHT DUTY GASOLINE POWERED VEHICLES

<u>Model Years</u>	<u>Carbureted</u>	<u>Ported Fuel-Injected</u>	<u>Throttle-Body Fuel-Injected</u>
1981	91.0	6.1	2.9
1982	83.2	6.2	10.6
1983	72.9	8.8	18.3
1984	60.8	11.0	28.2
1985	48.5	30.7	20.8
1986	32.4	39.2	28.4
1987	25.9	37.2	36.9
1988	10.1	49.2	40.7
1989	12.8	59.7	27.5
1990	2.0	76.1	21.9
1991	0.3	79.5	20.2
1992+	0.3	79.5	20.2

DATE : JUNE 30, 1995

TABLE 1.10E

EVAPORATIVE TEST PROCEDURE
PHASE-IN PERCENTAGE

MODEL YEAR	% MEETING NEW TP REQUIREMENT
1996	20.0
1997	40.0
1998	90.0
1999	100.0

EVAPORATIVE TEST PROCEDURE
EMISSION REDUCTION PERCENTAGE

EMISSION SOURCE	PROBLEM FREE	PURGE FAILURE	PRESSURE FAILURE
Hot soak	50.0	30.0	30.0
Diurnal			
Full	50.0	0.0	0.0
Multiple 2-3	75.0	0.0	0.0
Multiple 4	40.0	0.0	0.0
Partial	50.0	0.0	0.0
Running Loss	80.0	30.0	30.0
Resting Loss	75.0	75.0	75.0

DATE : JUNE 30, 1995

DATE : JUNE 30, 1995

TABLE 1.11A.1
 BY-MODEL-YEAR EMISSION LEVELS FOR LOW ALTITUDE
 LIGHT DUTY GASOLINE POWERED VEHICLES
 TOTAL NONMETHANE HC

		January 1 of Calendar Year																							
		1985		1986		1987		1988		1989		1990		1991		1992		1993		1994		1995		1996	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1961	20.0	1962	20.0	1963	16.7	1964	16.7	1965	16.7	1966	16.7	1967	16.7	1968	14.4	1969	14.4	1970	14.4	1971	15.3	1972	15.0	1973	15.0
1962	19.7	1963	16.4	1964	16.4	1965	16.4	1966	16.4	1967	16.4	1968	14.1	1969	14.1	1970	14.1	1971	14.3	1972	14.7	1973	14.7	1974	9.4
1963	16.2	1964	16.2	1965	16.2	1966	16.2	1967	16.2	1968	13.6	1969	13.9	1970	13.9	1971	14.0	1972	14.3	1973	9.2	1974	9.2	1975	9.4
1964	16.0	1965	16.0	1966	16.0	1967	16.0	1968	13.6	1969	13.6	1970	14.4	1971	14.4	1972	14.0	1973	8.9	1974	8.9	1975	8.9	1976	9.7
1965	15.7	1966	15.7	1967	15.7	1968	15.7	1969	13.3	1970	13.3	1971	13.6	1972	8.7	1973	8.7	1974	8.7	1975	8.7	1976	9.5	1977	9.5
1966	15.5	1967	15.5	1968	13.1	1969	13.1	1970	13.1	1971	14.2	1972	8.5	1973	8.5	1974	8.5	1975	8.5	1976	9.2	1977	9.2	1978	9.2
1967	15.3	1968	12.8	1969	12.8	1970	13.4	1971	13.4	1972	9.1	1973	8.3	1974	8.3	1975	8.3	1976	8.9	1977	8.9	1978	8.9	1979	8.3
1968	12.6	1969	12.6	1970	13.1	1971	13.4	1972	8.8	1973	8.8	1974	8.1	1975	8.6	1976	8.6	1977	8.6	1978	8.6	1979	8.0	1980	8.0
1969	12.3	1970	12.3	1971	12.9	1972	8.5	1973	8.5	1974	8.5	1975	8.3	1976	8.3	1977	8.3	1978	8.3	1979	7.7	1980	7.7	1981	5.7
1970	12.4	1971	8.3	1972	8.3	1973	8.3	1974	8.3	1975	8.5	1976	8.0	1977	8.0	1978	8.0	1979	7.4	1980	7.4	1981	5.4	1982	5.4
1971	12.1	1972	8.0	1973	8.0	1974	8.0	1975	8.2	1976	8.2	1977	7.7	1978	7.7	1979	7.1	1980	7.1	1981	7.4	1982	5.1	1983	5.0
1972	7.7	1973	7.7	1974	7.7	1975	7.8	1976	7.8	1977	7.8	1978	6.8	1979	6.8	1980	6.8	1981	4.9	1982	4.8	1983	4.7	1984	4.6
1973	7.5	1974	7.5	1975	7.4	1976	7.4	1977	7.4	1978	6.8	1979	6.5	1980	6.5	1981	4.7	1982	4.5	1983	4.4	1984	4.3	1985	4.3
1974	7.2	1975	7.0	1976	7.1	1977	7.1	1978	6.5	1979	6.5	1980	4.4	1981	4.4	1982	4.1	1983	4.1	1984	4.0	1985	4.0	1986	4.0
1975	6.6	1976	6.6	1977	6.6	1978	6.6	1979	6.1	1980	6.1	1981	3.8	1982	3.8	1983	3.7	1984	3.6	1985	3.6	1986	3.6	1987	3.5
1976	6.2	1977	6.2	1978	5.7	1979	5.7	1980	4.1	1981	4.1	1982	3.4	1983	3.4	1984	3.3	1985	3.2	1986	3.2	1987	3.2	1988	3.1
1977	5.8	1978	5.3	1979	5.3	1980	3.8	1981	3.8	1982	2.9	1983	2.9	1984	2.9	1985	2.8	1986	2.9	1987	2.8	1988	2.7	1989	2.7
1978	4.9	1979	4.9	1980	3.4	1981	3.4	1982	3.1	1983	3.0	1984	2.4	1985	2.4	1986	2.5	1987	2.4	1988	2.3	1989	2.4	1990	2.4
1979	4.4	1980	3.1	1981	2.3	1982	2.2	1983	2.1	1984	2.0	1985	2.0	1986	2.0	1987	2.0	1988	1.9	1989	1.9	1990	2.0	1991	2.0
1980	2.7	1981	1.8	1982	1.8	1983	1.7	1984	1.6	1985	1.6	1986	1.5	1987	1.5	1988	1.5	1989	1.5	1990	1.5	1991	1.5	1992	1.5
1981	1.3	1982	1.4	1983	1.2	1984	1.1	1985	1.1	1986	1.1	1987	1.1	1988	1.1	1989	1.1	1990	1.1	1991	1.1	1992	1.1	1993	1.1
1982	1.2	1983	1.1	1984	1.0	1985	1.0	1986	1.0	1987	1.0	1988	1.0	1989	1.0	1990	1.0	1991	1.0	1992	1.0	1993	1.0	1994	1.0
1983	1.0	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9	1991	0.9	1992	0.9	1993	0.9	1994	0.8	1995	0.8
1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.7	1990	0.7	1991	0.7	1992	0.7	1993	0.7	1994	0.7	1995	0.7	1996	0.7
1985	0.7	1986	0.7	1987	0.7	1988	0.7	1989	0.7	1990	0.7	1991	0.7	1992	0.7	1993	0.7	1994	0.7	1995	0.7	1996	0.6	1997	0.6

*MY -- Indicates the model year.

**E -- Indicates the average grams/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the FTP test conditions:

19.6 MPH, TEMP=75 Degrees F,

20.6% of VMT traveled in cold start,

52.1% of VMT in stabilized,

27.3% of VMT in hot start,

60 TO 84F diurnal,

75F for hot soak and running loss emissions,

9.0 psi fuel RVP,

54.57% average in-use fuel tank level, including refueling emissions.

Emissions are based on the January 1 mileage accumulation figures given in Table 1.4A.1

Continued on the next page.

TABLE 1.11A.1 (continued)
 BY-MODEL-YEAR EMISSION LEVELS FOR LOW ALTITUDE
 LIGHT DUTY GASOLINE POWERED VEHICLES
 TOTAL NONMETHANE HC

	January 1 of Calendar Year																								
	1997	1998	1999	2000	2003	2005	2008	2010	2012	2015	2018	2020													
	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**											
1973	9.6	1974	9.6	1975	10.6	1976	10.6	1977	10.6	1979	9.8	1981	7.7	1984	7.4	1986	7.3	1988	6.9	1991	7.2	1994	7.1	1996	6.9
1974	9.4	1975	10.3	1976	10.3	1977	10.3	1978	10.3	1980	7.3	1982	7.3	1985	7.2	1987	6.9	1989	6.9	1992	7.0	1995	6.9	1997	6.6
1975	10.0	1976	10.1	1977	10.1	1978	9.3	1979	9.3	1981	7.2	1983	6.9	1986	6.9	1988	6.5	1990	6.8	1993	6.8	1996	6.5	1998	6.2
1976	9.8	1977	9.8	1978	9.1	1979	9.1	1980	9.1	1982	6.8	1984	6.7	1987	6.4	1989	6.5	1991	6.6	1994	6.5	1997	6.2	1999	6.0
1977	9.5	1978	8.8	1979	8.8	1980	6.6	1981	6.6	1983	6.5	1985	6.5	1988	6.1	1990	6.3	1992	6.4	1995	6.2	1998	5.8	2000	5.8
1978	8.5	1979	8.5	1980	6.4	1981	6.5	1982	6.5	1984	6.2	1986	6.2	1989	6.1	1991	6.1	1993	6.1	1996	5.9	1999	5.6	2001	5.6
1979	8.3	1980	6.1	1981	6.3	1982	6.1	1983	6.1	1985	6.0	1987	5.7	1990	5.9	1992	5.9	1994	5.8	1997	5.5	2000	5.3	2002	5.3
1980	5.9	1981	6.0	1982	5.8	1983	5.7	1984	5.7	1986	5.7	1988	5.4	1991	5.6	1993	5.6	1995	5.5	1998	5.1	2001	5.1	2003	5.1
1981	5.7	1982	5.6	1983	5.5	1984	5.5	1985	5.5	1987	5.2	1989	5.3	1992	5.4	1994	5.3	1996	4.9	1999	4.9	2002	4.9	2004	4.9
1982	5.3	1983	5.2	1984	5.2	1985	4.8	1986	4.8	1988	4.9	1990	5.1	1993	5.1	1995	5.0	1997	4.8	2000	4.6	2003	4.6	2005	4.6
1983	4.9	1984	4.9	1985	4.9	1986	4.8	1987	4.8	1989	4.8	1991	4.8	1994	4.8	1996	4.6	1998	4.3	2001	4.3	2004	4.3	2006	4.3
1984	4.6	1985	4.6	1986	4.5	1987	4.4	1988	4.4	1990	4.5	1992	4.5	1995	4.4	1997	4.2	1999	4.0	2002	4.0	2005	4.0	2007	4.0
1985	4.3	1986	4.2	1987	4.1	1988	4.0	1989	4.0	1991	4.2	1993	4.2	1996	4.0	1998	3.8	2000	3.7	2003	3.7	2006	3.7	2008	3.7
1986	3.9	1987	3.8	1988	3.7	1989	3.8	1990	3.8	1992	3.9	1994	3.8	1997	3.6	1999	3.4	2001	3.4	2004	3.4	2007	3.4	2009	3.4
1987	3.4	1988	3.4	1989	3.5	1990	3.5	1991	3.5	1993	3.5	1995	3.4	1998	3.1	2000	3.1	2002	3.1	2005	3.1	2008	3.1	2010	3.1
1988	3.0	1989	3.1	1990	3.2	1991	3.2	1992	3.2	1994	3.1	1996	3.0	1999	2.8	2001	2.8	2003	2.8	2006	2.8	2009	2.8	2011	2.8
1989	2.8	1990	2.8	1991	2.8	1992	2.8	1993	2.8	1995	2.7	1997	2.6	2000	2.4	2002	2.4	2004	2.4	2007	2.4	2010	2.4	2012	2.4
1990	2.4	1991	2.4	1992	2.4	1993	2.4	1994	2.4	1996	2.2	1998	2.0	2001	2.0	2003	2.0	2005	2.0	2008	2.0	2011	2.0	2013	2.0
1991	2.0	1992	2.0	1993	2.0	1994	2.0	1995	2.0	1997	1.8	1999	1.6	2002	1.6	2004	1.6	2006	1.6	2009	1.6	2012	1.6	2014	1.6
1992	1.6	1993	1.6	1994	1.5	1995	1.5	1996	1.5	1998	1.2	2000	1.2	2003	1.2	2005	1.2	2007	1.2	2010	1.2	2013	1.2	2015	1.2
1993	1.1	1994	1.1	1995	1.0	1996	1.0	1997	1.0	1999	0.8	2001	0.8	2004	0.8	2006	0.8	2008	0.8	2011	0.8	2014	0.8	2016	0.8
1994	1.0	1995	0.9	1996	0.9	1997	0.8	1998	0.8	2000	0.7	2002	0.7	2005	0.7	2007	0.7	2009	0.7	2012	0.7	2015	0.7	2017	0.7
1995	0.8	1996	0.8	1997	0.7	1998	0.6	1999	0.6	2001	0.6	2003	0.6	2006	0.6	2008	0.6	2010	0.6	2013	0.6	2016	0.6	2018	0.6
1996	0.6	1997	0.6	1998	0.5	1999	0.5	2000	0.5	2002	0.5	2004	0.5	2007	0.5	2009	0.5	2011	0.5	2014	0.5	2017	0.5	2019	0.5
1997	0.5	1998	0.4	1999	0.4	2000	0.4	2001	0.4	2003	0.4	2005	0.4	2008	0.4	2010	0.4	2012	0.4	2015	0.4	2018	0.4	2020	0.4

*MY -- Indicates the model year.

**E -- Indicates the average grams/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the FTP test conditions:

- 19.6 MPH, TEMP=75 Degrees F,
- 20.6% of VMT traveled in cold start,
- 52.1% of VMT in stabilized,
- 27.3% of VMT in hot start,
- 60 TO 84F diurnal,
- 75F for hot soak and running loss emissions,
- 9.0 psi fuel RVP,
- 54.57% average in-use fuel tank level, including refueling emissions.

Emissions are based on the January 1 mileage accumulation figures given in Table 1.4A.1

DATE : JUNE 30, 1995

TABLE 1.11B.1
BY-MODEL-YEAR EMISSION LEVELS FOR LOW ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES
CO

1985	1986		1987		1988		1989		1990		1991		1992		1993		1994		1995		1996		
	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	
1961	122.2	1962	122.2	1963	122.2	1964	122.2	1965	122.2	1966	122.2	1967	122.2	1968	106.1	1969	106.1	1970	103.2	1971	103.2	1972	86.7
1962	121.3	1963	121.3	1964	121.3	1965	121.3	1966	121.3	1967	121.3	1968	105.1	1969	105.1	1970	101.9	1971	101.9	1972	85.8	1973	85.8
1963	120.3	1964	120.3	1965	120.3	1966	120.3	1967	120.3	1968	104.0	1969	104.0	1970	100.6	1971	100.6	1972	84.8	1973	84.8	1974	84.8
1964	119.3	1965	119.3	1966	119.3	1967	119.3	1968	102.8	1969	102.8	1970	99.2	1971	99.2	1972	83.7	1973	83.7	1974	83.7	1975	66.9
1965	118.2	1966	118.2	1967	118.2	1968	101.6	1969	101.6	1970	97.7	1971	97.7	1972	82.6	1973	82.6	1974	82.6	1975	65.6	1976	65.9
1966	117.1	1967	117.1	1968	100.3	1969	100.3	1970	96.1	1971	96.1	1972	81.4	1973	81.4	1974	81.4	1975	64.3	1976	64.5	1977	64.5
1967	115.8	1968	98.9	1969	98.9	1970	94.4	1971	94.4	1972	80.1	1973	80.1	1974	80.1	1975	62.9	1976	63.1	1977	63.1	1978	63.4
1968	97.5	1969	97.5	1970	92.6	1971	92.6	1972	78.8	1973	78.8	1974	78.8	1975	61.4	1976	61.6	1977	61.6	1978	61.9	1979	61.9
1969	95.9	1970	90.7	1971	90.7	1972	77.4	1973	77.4	1974	77.4	1975	59.8	1976	60.0	1977	60.0	1978	60.3	1979	60.3	1980	39.5
1970	88.8	1971	88.8	1972	75.9	1973	75.9	1974	75.9	1975	58.1	1976	58.4	1977	58.4	1978	58.6	1979	58.6	1980	38.1	1981	51.2
1971	86.7	1972	74.3	1973	74.3	1974	74.3	1975	56.4	1976	56.6	1977	56.6	1978	56.8	1979	56.8	1980	36.7	1981	48.5	1982	46.0
1972	72.7	1973	72.7	1974	72.7	1975	54.5	1976	54.7	1977	54.7	1978	54.9	1979	54.9	1980	35.2	1981	45.7	1982	43.4	1983	42.9
1973	70.9	1974	70.9	1975	52.5	1976	52.7	1977	52.7	1978	53.0	1979	53.0	1980	33.6	1981	42.8	1982	40.7	1983	40.2	1984	40.3
1974	69.0	1975	50.4	1976	50.6	1977	50.6	1978	50.9	1979	50.9	1980	32.0	1981	39.7	1982	37.9	1983	37.3	1984	37.2	1985	37.3
1975	48.2	1976	48.4	1977	48.4	1978	48.6	1979	48.6	1980	30.2	1981	36.4	1982	34.9	1983	34.2	1984	34.0	1985	34.0	1986	33.4
1976	46.1	1977	46.1	1978	46.3	1979	46.3	1980	28.3	1981	32.9	1982	31.7	1983	31.0	1984	30.5	1985	30.6	1986	30.0	1987	29.1
1977	43.6	1978	43.8	1979	43.8	1980	26.3	1981	29.3	1982	28.3	1983	27.6	1984	26.8	1985	27.0	1986	26.4	1987	25.6	1988	25.1
1978	41.2	1979	41.2	1980	24.2	1981	25.4	1982	24.7	1983	24.0	1984	22.9	1985	23.2	1986	22.5	1987	22.0	1988	21.6	1989	22.3
1979	38.4	1980	22.0	1981	21.3	1982	21.0	1983	20.2	1984	18.9	1985	19.2	1986	18.5	1987	18.1	1988	17.8	1989	18.4	1990	18.5
1980	19.7	1981	17.0	1982	17.0	1983	16.2	1984	14.5	1985	14.9	1986	14.2	1987	14.0	1988	13.9	1989	14.3	1990	14.5	1991	14.5
1981	12.4	1982	12.8	1983	12.0	1984	9.9	1985	10.4	1986	9.7	1987	9.7	1988	9.7	1989	9.9	1990	10.1	1991	10.2	1992	10.2
1982	10.4	1983	9.9	1984	8.3	1985	8.6	1986	8.1	1987	8.0	1988	8.0	1989	8.1	1990	8.2	1991	8.2	1992	8.3	1993	8.3
1983	7.7	1984	6.6	1985	6.7	1986	6.3	1987	6.3	1988	6.1	1989	6.2	1990	6.2	1991	6.2	1992	6.2	1993	6.2	1994	6.2
1984	4.9	1985	4.7	1986	4.4	1987	4.4	1988	4.2	1989	4.2	1990	4.1	1991	4.0	1992	4.0	1993	4.0	1994	4.0	1995	4.0
1985	3.4	1986	3.2	1987	3.2	1988	3.0	1989	2.9	1990	2.7	1991	2.6	1992	2.6	1993	2.6	1994	2.6	1995	2.6	1996	2.6

*MY -- Indicates the model year.

**E -- Indicates the average grams/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the FTP test conditions:
19.6 MPH, TEMP=75 Degrees F,
20.6% of VMT traveled in cold start,
52.1% of VMT in stabilized,
27.3% of VMT in hot start.
Emissions are based on the January 1 mileage accumulation figures given in Table 1.4A.1

Continued on the next page.

TABLE 1.11B.1 (continued)
 BY-MODEL-YEAR EMISSION LEVELS FOR LOW ALTITUDE
 LIGHT DUTY GASOLINE POWERED VEHICLES
 CO

	January 1 of Calendar Year																						
	1997	1998	1999	2000	2003	2005	2008	2010	2012	2015	2018	2020											
	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**									
1973	86.7	1974	86.7	1975	70.3	1976	70.6	1979	70.8	1981	69.3	1984	66.8	1986	65.7	1988	61.5	1991	64.1	1994	64.3	1996	64.3
1974	85.8	1975	69.2	1976	69.5	1977	69.5	1980	47.1	1982	63.6	1985	64.8	1987	61.8	1989	62.4	1992	62.8	1995	62.8	1997	62.8
1975	68.1	1976	68.4	1977	68.4	1978	68.6	1981	66.0	1983	61.6	1986	62.5	1988	58.5	1990	60.7	1993	61.2	1996	61.2	1998	61.2
1976	67.2	1977	67.2	1978	67.4	1979	67.4	1982	60.4	1984	61.7	1987	58.6	1989	59.1	1991	59.3	1994	59.5	1997	59.5	1999	59.5
1977	65.9	1978	66.2	1979	66.2	1980	44.2	1983	58.2	1985	59.5	1988	55.2	1990	57.3	1992	57.7	1995	57.7	1998	57.7	2000	57.7
1978	64.8	1979	64.8	1980	43.1	1981	60.3	1984	57.8	1986	56.9	1989	55.4	1991	55.6	1993	55.8	1996	55.8	1999	55.8	2001	55.8
1979	63.4	1980	42.0	1981	58.2	1982	54.9	1985	55.5	1987	52.9	1990	53.4	1992	53.8	1994	53.8	1997	53.8	2000	53.8	2002	53.8
1980	40.8	1981	56.0	1982	52.9	1983	52.9	1986	52.7	1988	49.1	1991	51.5	1993	51.7	1995	51.7	1998	51.7	2001	51.7	2003	51.7
1981	53.6	1982	50.7	1983	50.2	1984	51.2	1987	48.6	1989	49.1	1992	49.5	1994	49.5	1996	49.5	1999	49.5	2002	49.5	2004	49.5
1982	48.4	1983	47.9	1984	48.7	1985	48.5	1988	45.0	1990	46.7	1993	47.1	1995	47.1	1997	47.1	2000	47.1	2003	47.1	2005	47.1
1983	45.5	1984	46.0	1985	45.9	1986	45.3	1989	44.2	1991	44.4	1994	44.6	1996	44.6	1998	44.6	2001	44.6	2004	44.6	2006	44.6
1984	43.3	1985	43.2	1986	42.6	1987	41.2	1990	41.6	1992	42.0	1995	42.0	1997	42.0	1999	42.0	2002	42.0	2005	42.0	2007	42.0
1985	40.3	1986	39.7	1987	38.4	1988	37.4	1991	39.0	1993	39.2	1996	39.2	1998	39.2	2000	39.2	2003	39.2	2006	39.2	2008	39.2
1986	36.6	1987	35.5	1988	34.6	1989	35.9	1992	36.2	1994	36.2	1997	36.2	1999	36.2	2001	36.2	2004	36.2	2007	36.2	2009	36.2
1987	32.4	1988	31.6	1989	32.7	1990	32.8	1993	33.1	1995	33.1	1998	33.1	2000	33.1	2002	33.1	2005	33.1	2008	33.1	2010	33.1
1988	28.4	1989	29.4	1990	29.5	1991	29.7	1994	29.8	1996	29.8	1999	29.8	2001	29.8	2003	29.8	2006	29.8	2009	29.8	2011	29.8
1989	26.0	1990	26.1	1991	26.2	1992	26.3	1995	26.3	1997	26.3	2000	26.3	2002	26.3	2004	26.3	2007	26.3	2010	26.3	2012	26.3
1990	22.4	1991	22.5	1992	22.6	1993	22.6	1996	22.6	1998	22.6	2001	22.6	2003	22.6	2005	22.6	2008	22.6	2011	22.6	2013	22.6
1991	18.6	1992	18.7	1993	18.7	1994	18.7	1997	18.7	1999	18.7	2002	18.7	2004	18.7	2006	18.7	2009	18.7	2012	18.7	2014	18.7
1992	14.6	1993	14.6	1994	14.6	1995	14.6	1998	14.6	2000	14.6	2003	14.6	2005	14.6	2007	14.6	2010	14.6	2013	14.6	2015	14.6
1993	10.2	1994	10.2	1995	10.2	1996	10.2	1999	10.2	2001	10.2	2004	10.2	2006	10.2	2008	10.2	2011	10.2	2014	10.2	2016	10.2
1994	8.3	1995	8.3	1996	8.3	1997	8.3	2000	8.3	2002	8.3	2005	8.3	2007	8.3	2009	8.3	2012	8.3	2015	8.3	2017	8.3
1995	6.2	1996	6.2	1997	6.2	1998	6.2	2001	6.2	2003	6.2	2006	6.2	2008	6.2	2010	6.2	2013	6.2	2016	6.2	2018	6.2
1996	4.0	1997	4.0	1998	4.0	1999	4.0	2002	4.0	2004	4.0	2007	4.0	2009	4.0	2011	4.0	2014	4.0	2017	4.0	2019	4.0
1997	2.6	1998	2.6	1999	2.6	2000	2.6	2003	2.6	2005	2.6	2008	2.6	2010	2.6	2012	2.6	2015	2.6	2018	2.6	2020	2.6

*MY -- Indicates the model year.

**E -- Indicates the average grams/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the FTP test conditions:

- 19.6 MPH, TEMP=75 Degrees F,
- 20.6% of VMT traveled in cold start,
- 52.1% of VMT in stabilized,
- 27.3% of VMT in hot start.

Emissions are based on the January 1 mileage accumulation figures given in Table 1.4A.1

DATE : JUNE 30, 1995
 TABLE 1.11C.1
 BY-MODEL-YEAR EMISSION LEVELS FOR LOW ALTITUDE
 LIGHT DUTY GASOLINE POWERED VEHICLES
 NOx

	1985		1986		1987		1988		1989		1990		1991		1992		1993		1994		1995		1996		
	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	
1961	3.4	1962	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	4.3
1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	4.3
1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.8	1975	3.8
1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.7	1974	3.7	1975	3.2	1976	3.2
1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.7	1974	3.7	1975	3.1	1976	3.1	1977	3.7
1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.7	1974	3.7	1975	3.1	1976	3.1	1977	3.6	1978	3.6
1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.7	1974	3.7	1975	3.1	1976	3.1	1977	3.6	1978	3.6	1979	3.6
1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.6	1974	3.6	1975	3.1	1976	3.1	1977	3.5	1978	3.5	1979	3.5	1980	3.1
1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.6	1974	3.6	1975	3.0	1976	3.0	1977	3.4	1978	3.4	1979	3.4	1980	3.1	1981	3.2
1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.6	1975	3.0	1976	3.0	1977	3.4	1978	3.4	1979	3.4	1980	3.0	1981	3.1	1982	3.1
1971	4.3	1972	4.3	1973	3.6	1974	3.6	1975	3.0	1976	3.0	1977	3.3	1978	3.3	1979	3.3	1980	2.9	1981	2.9	1982	2.9	1983	3.0
1972	4.3	1973	3.5	1974	3.5	1975	3.0	1976	3.0	1977	3.2	1978	3.2	1979	3.2	1980	2.8	1981	2.8	1982	2.8	1983	2.8	1984	3.0
1973	3.5	1974	3.5	1975	3.0	1976	3.0	1977	3.0	1978	3.2	1979	3.2	1980	2.8	1981	2.8	1982	2.8	1983	2.8	1984	2.8	1985	2.7
1974	3.5	1975	2.9	1976	2.9	1977	2.9	1978	3.1	1979	3.1	1980	2.8	1981	2.8	1982	2.6	1983	2.6	1984	2.6	1985	2.5	1986	2.5
1975	2.9	1976	2.9	1977	2.9	1978	3.0	1979	3.0	1980	2.7	1981	2.7	1982	2.4	1983	2.4	1984	2.4	1985	2.4	1986	2.3	1987	2.3
1976	2.9	1977	2.9	1978	2.9	1979	2.9	1980	2.6	1981	2.6	1982	2.2	1983	2.2	1984	2.2	1985	2.4	1986	2.4	1987	2.3	1988	2.3
1977	2.8	1978	2.8	1979	2.8	1980	2.8	1981	2.0	1982	2.0	1983	2.0	1984	2.0	1985	2.1	1986	2.0	1987	2.0	1988	2.0	1989	2.0
1978	2.7	1979	2.7	1980	2.4	1981	1.8	1982	1.8	1983	1.8	1984	1.9	1985	1.9	1986	1.8	1987	1.8	1988	1.8	1989	1.8	1990	1.8
1979	2.6	1980	2.3	1981	1.6	1982	1.6	1983	1.6	1984	1.6	1985	1.6	1986	1.6	1987	1.5	1988	1.5	1989	1.5	1990	1.5	1991	1.5
1980	2.2	1981	1.3	1982	1.4	1983	1.3	1984	1.3	1985	1.3	1986	1.3	1987	1.3	1988	1.3	1989	1.3	1990	1.3	1991	1.3	1992	1.3
1981	1.1	1982	1.1	1983	1.0	1984	1.0	1985	1.0	1986	1.0	1987	1.0	1988	1.0	1989	1.0	1990	1.0	1991	1.0	1992	1.0	1993	1.0
1982	1.0	1983	0.9	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9	1991	0.9	1992	0.9	1993	0.9	1994	0.9
1983	0.8	1984	0.8	1985	0.8	1986	0.7	1987	0.7	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8	1993	0.8	1994	0.8	1995	0.7
1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.7	1989	0.7	1990	0.6	1991	0.6	1992	0.6	1993	0.6	1994	0.6	1995	0.6	1996	0.4
1985	0.6	1986	0.5	1987	0.5	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6	1994	0.6	1995	0.4	1996	0.3	1997	0.2

*MY -- Indicates the model year.

**E -- Indicates the average grams/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the FTP test conditions:

- 19.6 MPH, TEMP=75 Degrees F,
- 20.6% of VMT traveled in cold start,
- 52.1% of VMT in stabilized,
- 27.3% of VMT in hot start.

Emissions are based on the January 1 mileage accumulation figures given in Table 1.4A.1

Continued on the next page.

TABLE 1.11C.1 (continued)
 BY-MODEL-YEAR EMISSION LEVELS FOR LOW ALTITUDE
 LIGHT DUTY GASOLINE POWERED VEHICLES
 NOx

	1997		1998		1999		2000		2003		2008		2010		2012		2015		2018		2020		
	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	
1973	3.8	1974	3.8	1975	3.2	1976	3.2	1977	3.9	1981	4.2	1984	4.8	1986	4.6	1988	4.4	1991	4.2	1994	4.1	1996	4.0
1974	3.8	1975	3.2	1976	3.2	1977	3.9	1980	3.5	1982	4.1	1985	4.4	1987	4.4	1989	4.1	1992	4.1	1995	3.9	1997	3.9
1975	3.2	1976	3.8	1977	3.8	1978	3.8	1981	4.0	1983	4.1	1986	4.4	1988	4.2	1990	4.2	1993	4.0	1996	3.8	1998	3.8
1976	3.2	1977	3.8	1978	3.8	1979	3.8	1982	4.0	1984	4.4	1987	4.2	1989	4.1	1991	3.9	1994	3.9	1997	3.7	1999	3.7
1977	3.7	1978	3.7	1979	3.7	1980	3.3	1983	3.9	1985	4.1	1988	4.0	1990	3.8	1992	3.8	1995	3.6	1998	3.6	2000	3.6
1978	3.7	1979	3.7	1980	3.3	1981	3.7	1984	4.2	1986	4.0	1989	3.8	1991	3.7	1993	3.7	1996	3.5	1999	3.5	2001	3.5
1979	3.6	1980	3.2	1981	3.6	1982	3.6	1985	3.8	1987	3.9	1990	3.6	1992	3.5	1994	3.3	1997	3.3	2000	3.3	2002	3.3
1980	3.2	1981	3.5	1982	3.5	1983	3.5	1986	3.7	1988	3.6	1991	3.4	1993	3.4	1995	3.2	1998	3.2	2001	3.2	2003	3.2
1981	3.4	1982	3.4	1983	3.4	1984	3.7	1987	3.6	1989	3.4	1992	3.3	1994	3.2	1996	3.1	1999	3.1	2002	3.1	2004	3.1
1982	3.2	1983	3.3	1984	3.6	1985	3.4	1988	3.3	1990	3.2	1993	3.2	1995	3.0	1997	2.9	2000	2.9	2003	2.9	2005	2.9
1983	3.1	1984	3.4	1985	3.2	1986	3.3	1989	3.1	1991	3.0	1994	2.9	1996	2.8	1998	2.8	2001	2.8	2004	2.8	2006	2.8
1984	3.2	1985	3.1	1986	3.1	1987	3.1	1990	2.9	1992	2.9	1995	2.7	1997	2.6	1999	2.6	2002	2.6	2005	2.6	2007	2.6
1985	2.9	1986	2.9	1987	2.9	1988	2.8	1991	2.7	1993	2.7	1996	2.4	1998	2.4	2000	2.4	2003	2.4	2006	2.4	2008	2.4
1986	2.7	1987	2.7	1988	2.7	1989	2.6	1992	2.5	1994	2.4	1997	2.3	1999	2.3	2001	2.3	2004	2.3	2007	2.3	2009	2.3
1987	2.5	1988	2.5	1989	2.4	1990	2.4	1993	2.3	1995	2.1	1998	2.1	2000	2.1	2002	2.1	2005	2.1	2008	2.1	2010	2.1
1988	2.2	1989	2.2	1990	2.2	1991	2.2	1994	2.1	1996	1.9	1999	1.9	2001	1.9	2003	1.9	2006	1.9	2009	1.9	2011	1.9
1989	2.0	1990	2.0	1991	2.0	1992	2.0	1995	1.7	1997	1.7	2000	1.7	2002	1.7	2004	1.7	2007	1.7	2010	1.7	2012	1.7
1990	1.7	1991	1.7	1992	1.7	1993	1.7	1996	1.4	1998	1.4	2001	1.4	2003	1.4	2005	1.4	2008	1.4	2011	1.4	2013	1.4
1991	1.5	1992	1.5	1993	1.5	1994	1.4	1997	1.2	1999	1.2	2002	1.2	2004	1.2	2006	1.2	2009	1.2	2012	1.2	2014	1.2
1992	1.3	1993	1.3	1994	1.2	1995	1.0	1998	1.0	1999	1.0	2003	1.0	2005	1.0	2007	1.0	2010	1.0	2013	1.0	2015	1.0
1993	1.0	1994	0.9	1995	0.8	1996	0.7	1999	0.7	2001	0.7	2004	0.7	2006	0.7	2008	0.7	2011	0.7	2014	0.7	2016	0.7
1994	0.8	1995	0.6	1996	0.6	1997	0.6	2000	0.6	2002	0.6	2005	0.6	2007	0.6	2009	0.6	2012	0.6	2015	0.6	2017	0.6
1995	0.5	1996	0.4	1997	0.4	1998	0.4	2001	0.4	2003	0.4	2006	0.4	2008	0.4	2010	0.4	2013	0.4	2016	0.4	2018	0.4
1996	0.3	1997	0.3	1998	0.3	1999	0.3	2002	0.3	2004	0.3	2007	0.3	2009	0.3	2011	0.3	2014	0.3	2017	0.3	2019	0.3
1997	0.2	1998	0.2	1999	0.2	2000	0.2	2003	0.2	2005	0.2	2008	0.2	2010	0.2	2012	0.2	2015	0.2	2018	0.2	2020	0.2

*MY -- Indicates the model year.

**E -- Indicates the average grams/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the FTP test conditions:

- 19.6 MPH, TEMP=75 Degrees F,
- 20.6% of VMT traveled in cold start,
- 52.1% of VMT in stabilized,
- 27.3% of VMT in hot start.

Emissions are based on the January 1 mileage accumulation figures given in Table 1.4A.1

DATE : JUNE 30, 1995

TABLE 1.11A.2
BY-MODEL-YEAR EMISSION LEVELS FOR HIGH ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES
TOTAL NONMETHANE HC

	January 1 of Calendar Year												
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1961	24.2	19.7	19.4	19.7	19.7	20.0	19.7	19.7	19.7	16.6	16.6	17.9	17.5
1962	24.0	19.4	19.4	19.7	19.7	19.7	19.7	16.2	16.2	17.5	17.5	17.1	17.5
1963	19.4	19.4	19.4	19.4	19.4	19.4	19.4	15.9	15.9	16.7	16.7	10.9	10.9
1964	19.2	19.2	19.2	19.2	19.2	19.2	19.2	16.8	16.8	10.6	10.6	10.6	10.6
1965	18.9	18.9	18.9	18.9	18.9	18.9	18.9	15.9	15.9	10.4	10.4	10.4	10.4
1966	18.6	18.6	18.6	18.6	18.6	18.6	18.6	10.1	10.1	10.1	10.1	10.5	10.6
1967	18.4	18.4	18.4	18.4	18.4	18.4	18.4	9.9	9.9	10.2	10.2	10.2	10.8
1968	14.4	14.4	14.4	14.4	14.4	14.4	14.4	9.7	9.7	9.9	9.9	8.5	8.8
1969	14.2	15.0	15.0	15.3	15.3	15.4	15.4	9.5	9.5	8.2	8.2	8.9	8.9
1970	14.6	14.8	14.8	14.8	14.8	14.8	14.8	9.2	9.2	8.3	8.3	8.6	8.6
1971	14.3	14.3	14.3	14.3	14.3	14.3	14.3	8.9	8.9	8.6	8.6	8.6	8.6
1972	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.0	8.0	5.5	5.5	5.1	5.1
1973	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.0	5.5	5.5	5.1	5.1
1974	8.2	8.2	8.2	8.2	8.2	8.2	8.2	7.6	7.6	4.8	4.8	4.5	4.5
1975	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.7	7.7	4.2	4.2	4.0	4.0
1976	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.1	4.1	3.7	3.7	3.6	3.6
1977	5.7	6.1	6.1	6.5	6.5	6.9	6.9	3.5	3.5	3.2	3.2	3.2	3.2
1978	6.1	6.1	6.1	6.1	6.1	6.1	6.1	2.9	2.9	2.9	2.9	2.8	2.7
1979	5.6	5.6	5.6	5.6	5.6	5.6	5.6	2.4	2.4	2.4	2.4	2.4	2.4
1980	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0	1.9	1.9	1.9	2.0
1981	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.6
1982	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.1	1.1	1.1	1.1	1.1	1.1
1983	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1984	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9
1985	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.7
1986	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6

*MY -- Indicates the model year.

**E -- Indicates the average grams/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the FTP test conditions:

- 19.6 MPH, TEMP=75 Degrees F,
- 20.6% of VMT traveled in cold start,
- 52.1% of VMT in stabilized,
- 27.3% of VMT in hot start,
- 60 TO 84F diurnal,
- 75F for hot soak and running loss emissions,
- 9.0 psi fuel RVP,
- 54.57% average in-use fuel tank level, including refueling emissions.

Emissions are based on the January 1 mileage accumulation figures given in Table 2.4A.1

Continued on the next page.

TABLE 1.11A.2 (continued)
 BY-MODEL-YEAR EMISSION LEVELS FOR HIGH ALTITUDE
 LIGHT DUTY GASOLINE POWERED VEHICLES
 TOTAL NONMETHANE HC

1997	1998		1999		2000		2003		2008		2010		2015		2018		2020						
	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**					
1973	11.3	1974	11.3	1975	12.1	1976	12.1	1979	11.2	1981	8.2	1984	7.4	1986	7.3	1988	7.0	1991	7.3	1994	7.2	1996	7.0
1974	11.1	1975	11.8	1976	11.8	1977	10.2	1980	8.0	1982	7.5	1985	7.2	1987	6.9	1989	7.0	1992	7.1	1995	6.9	1997	6.7
1975	11.4	1976	11.5	1977	10.0	1978	10.7	1981	7.7	1983	7.2	1986	6.9	1988	6.6	1990	6.8	1993	6.9	1996	6.6	1998	6.3
1976	11.2	1977	9.7	1978	10.4	1979	10.4	1982	7.0	1984	6.7	1987	6.5	1989	6.6	1991	6.6	1994	6.6	1997	6.3	1999	6.1
1977	9.4	1978	10.1	1979	10.1	1980	7.2	1983	6.7	1985	6.5	1988	6.1	1990	6.4	1992	6.4	1995	6.3	1998	5.9	2000	5.8
1978	9.8	1979	9.8	1980	7.0	1981	6.9	1984	6.2	1986	6.2	1989	6.1	1991	6.2	1993	6.2	1996	5.9	1999	5.6	2001	5.6
1979	9.5	1980	6.7	1981	6.6	1982	6.3	1985	6.0	1987	5.8	1990	5.9	1992	6.0	1994	5.9	1997	5.6	2000	5.4	2002	5.4
1980	6.5	1981	6.4	1982	6.0	1983	6.0	1986	5.7	1988	5.4	1991	5.7	1993	5.7	1995	5.6	1998	5.2	2001	5.2	2003	5.2
1981	6.1	1982	5.7	1983	5.6	1984	5.4	1987	5.3	1989	5.4	1992	5.4	1994	5.4	1996	5.2	1999	4.9	2002	4.9	2004	4.9
1982	5.4	1983	5.3	1984	5.2	1985	5.2	1988	4.9	1990	5.1	1993	5.2	1995	5.0	1997	4.8	2000	4.6	2003	4.6	2005	4.6
1983	5.0	1984	4.9	1985	4.9	1986	4.9	1989	4.8	1991	4.9	1994	4.8	1996	4.6	1998	4.4	2001	4.4	2004	4.4	2006	4.4
1984	4.6	1985	4.6	1986	4.6	1987	4.4	1990	4.5	1992	4.6	1995	4.4	1997	4.3	1999	4.1	2002	4.1	2005	4.1	2007	4.1
1985	4.3	1986	4.2	1987	4.1	1988	4.1	1991	4.2	1993	4.3	1996	4.0	1998	3.8	2000	3.8	2003	3.8	2006	3.8	2008	3.8
1986	3.9	1987	3.8	1988	3.7	1989	3.9	1992	3.9	1994	3.9	1997	3.6	1999	3.5	2001	3.5	2004	3.5	2007	3.5	2009	3.5
1987	3.5	1988	3.4	1989	3.5	1990	3.6	1993	3.6	1995	3.5	1998	3.2	2000	3.1	2002	3.1	2005	3.1	2008	3.1	2010	3.1
1988	3.1	1989	3.2	1990	3.2	1991	3.2	1994	3.2	1996	3.0	1999	2.8	2001	2.8	2003	2.8	2006	2.8	2009	2.8	2011	2.8
1989	2.8	1990	2.8	1991	2.8	1992	2.8	1995	2.8	1997	2.6	2000	2.4	2002	2.4	2004	2.4	2007	2.4	2010	2.4	2012	2.4
1990	2.4	1991	2.4	1992	2.4	1993	2.4	1996	2.3	1998	2.1	2001	2.1	2003	2.1	2005	2.1	2008	2.1	2011	2.1	2013	2.1
1991	2.0	1992	2.0	1993	2.0	1994	2.0	1997	1.8	1999	1.7	2002	1.7	2004	1.7	2006	1.7	2009	1.7	2012	1.7	2014	1.7
1992	1.6	1993	1.6	1994	1.5	1995	1.5	1998	1.3	2000	1.2	2003	1.2	2005	1.2	2007	1.2	2010	1.2	2013	1.2	2015	1.2
1993	1.1	1994	1.1	1995	1.1	1996	1.0	1999	0.8	2001	0.8	2004	0.8	2006	0.8	2008	0.8	2011	0.8	2014	0.8	2016	0.8
1994	1.0	1995	1.0	1996	0.9	1997	0.8	2000	0.7	2002	0.7	2005	0.7	2007	0.7	2009	0.7	2012	0.7	2015	0.7	2017	0.7
1995	0.8	1996	0.8	1997	0.7	1998	0.6	2001	0.6	2003	0.6	2006	0.6	2008	0.6	2010	0.6	2013	0.6	2016	0.6	2018	0.6
1996	0.6	1997	0.6	1998	0.5	1999	0.5	2002	0.5	2004	0.5	2007	0.5	2009	0.5	2011	0.5	2014	0.5	2017	0.5	2019	0.5
1997	0.5	1998	0.4	1999	0.4	2000	0.4	2003	0.4	2005	0.4	2008	0.4	2010	0.4	2012	0.4	2015	0.4	2018	0.4	2020	0.4

*MY -- Indicates the model year.

**E -- Indicates the average grams/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the FTP test conditions:

- 19.6 MPH, TEMP=75 Degrees F,
- 20.6% of VMT traveled in cold start,
- 52.1% of VMT in stabilized,
- 27.3% of VMT in hot start,
- 60 TO 84F diurnal,
- 75F for hot soak and running loss emissions,
- 9.0 psi fuel RVP,
- 54.57% average in-use fuel tank level, including refueling emissions.

Emissions are based on the January 1 mileage accumulation figures given in Table 2.4A.1

DATE : JUNE 30, 1995

TABLE 1.11B.2
BY-MODEL-YEAR EMISSION LEVELS FOR HIGH ALTITUDE
LIGHT DUTY GASOLINE POWERED VEHICLES
CO

1985	1986		1987		1988		1989		1990		1991		1992		1993		1994		1995		1996		
	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	
1961	161.6	1962	161.6	1963	161.6	1964	161.6	1965	161.6	1966	161.6	1967	161.6	1968	135.3	1969	135.3	1970	140.7	1971	140.7	1972	121.5
1962	160.7	1963	160.7	1964	160.7	1965	160.7	1966	160.7	1967	160.7	1968	134.3	1969	134.3	1970	139.4	1971	139.4	1972	120.5	1973	120.5
1963	159.7	1964	159.7	1965	159.7	1966	159.7	1967	159.7	1968	133.2	1969	133.2	1970	138.1	1971	138.1	1972	119.5	1973	119.5	1974	119.5
1964	158.7	1965	158.7	1966	158.7	1967	158.7	1968	132.0	1969	132.0	1970	136.6	1971	136.6	1972	118.4	1973	118.4	1974	118.4	1975	98.2
1965	157.6	1966	157.6	1967	157.6	1968	130.8	1969	130.8	1970	135.1	1971	135.1	1972	117.3	1973	117.3	1974	117.3	1975	97.0	1976	97.4
1966	156.5	1967	156.5	1968	129.5	1969	129.5	1970	133.5	1971	133.5	1972	116.1	1973	116.1	1974	116.1	1975	95.6	1976	96.0	1977	66.6
1967	155.3	1968	128.1	1969	128.1	1970	131.9	1971	131.9	1972	114.9	1973	114.9	1974	114.9	1975	94.2	1976	94.6	1977	65.2	1978	89.4
1968	126.7	1969	126.7	1970	130.1	1971	130.1	1972	113.5	1973	113.5	1974	113.5	1975	92.7	1976	93.1	1977	63.7	1978	87.9	1979	87.9
1969	125.1	1970	128.2	1971	128.2	1972	112.1	1973	112.1	1974	112.1	1975	91.1	1976	91.5	1977	62.1	1978	86.3	1979	86.3	1980	57.6
1970	126.2	1971	126.2	1972	110.6	1973	110.6	1974	109.1	1975	89.5	1976	89.8	1977	60.4	1978	84.6	1979	84.6	1980	56.2	1981	60.9
1971	124.1	1972	109.1	1973	109.1	1974	109.1	1975	87.7	1976	88.1	1977	58.6	1978	82.8	1979	82.8	1980	54.8	1981	58.2	1982	51.6
1972	107.4	1973	107.4	1974	107.4	1975	85.9	1976	86.2	1977	56.8	1978	80.9	1979	80.9	1980	53.3	1981	55.5	1982	49.1	1983	42.9
1973	105.6	1974	105.6	1975	83.9	1976	84.2	1977	54.8	1978	79.0	1979	79.0	1980	51.7	1981	52.5	1982	46.4	1983	40.2	1984	40.3
1974	103.8	1975	81.8	1976	82.1	1977	52.7	1978	76.9	1979	76.9	1980	50.0	1981	49.4	1982	43.5	1983	37.3	1984	37.2	1985	37.3
1975	79.6	1976	79.9	1977	50.5	1978	74.6	1979	74.6	1980	48.3	1981	46.1	1982	40.5	1983	34.3	1984	34.0	1985	34.0	1986	33.4
1976	77.6	1977	48.1	1978	72.3	1979	72.3	1980	46.4	1981	42.7	1982	37.3	1983	31.1	1984	30.5	1985	30.6	1986	30.0	1987	29.1
1977	45.7	1978	69.8	1979	69.8	1980	44.4	1981	39.0	1982	33.9	1983	27.7	1984	26.8	1985	27.0	1986	26.4	1987	25.6	1988	25.1
1978	67.2	1979	67.2	1980	42.3	1981	35.1	1982	30.3	1983	24.1	1984	22.9	1985	23.2	1986	22.5	1987	22.0	1988	21.6	1989	22.3
1979	64.4	1980	40.1	1981	31.0	1982	26.6	1983	20.3	1984	18.9	1985	19.2	1986	18.5	1987	18.1	1988	17.8	1989	18.4	1990	18.5
1980	37.8	1981	26.7	1982	22.6	1983	16.2	1984	14.5	1985	14.9	1986	14.2	1987	14.0	1988	13.9	1989	14.3	1990	14.5	1991	14.5
1981	22.1	1982	18.4	1983	12.0	1984	9.9	1985	10.4	1986	9.7	1987	9.7	1988	9.7	1989	9.9	1990	10.1	1991	10.2	1992	10.2
1982	16.1	1983	9.9	1984	8.3	1985	8.6	1986	8.1	1987	8.0	1988	8.0	1989	8.1	1990	8.2	1991	8.2	1992	8.3	1993	8.3
1983	7.7	1984	6.6	1985	6.7	1986	6.3	1987	6.3	1988	6.1	1989	6.2	1990	6.2	1991	6.2	1992	6.2	1993	6.2	1994	6.2
1984	4.9	1985	4.7	1986	4.4	1987	4.4	1988	4.2	1989	4.2	1990	4.1	1991	4.0	1992	4.0	1993	4.0	1994	4.0	1995	4.0
1985	3.4	1986	3.2	1987	3.2	1988	3.0	1989	2.9	1990	2.7	1991	2.6	1992	2.6	1993	2.6	1994	2.6	1995	2.6	1996	2.6

*MY -- Indicates the model year.

**E -- Indicates the average grams/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the FTP test conditions:

- 19.6 MPH, TEMP=75 Degrees F,
- 20.6% of VMT traveled in cold start,
- 52.1% of VMT in stabilized,
- 27.3% of VMT in hot start.

Emissions are based on the January 1 mileage accumulation figures given in Table 2.4A.1

Continued on the next page.

TABLE 1.11B.2 (continued)
 BY-MODEL-YEAR EMISSION LEVELS FOR HIGH ALTITUDE
 LIGHT DUTY GASOLINE POWERED VEHICLES
 CO

	January 1 of Calendar Year																						
	1997	1998	1999	2000	2003	2005	2008	2010	2012	2015	2018	2020											
	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**									
1973	121.5	1974	121.5	1975	101.6	1976	102.0	1979	96.8	1984	66.8	1986	65.7	1988	61.5	1991	64.1	1994	64.3	1996	64.3	1997	64.3
1974	120.5	1975	100.6	1976	101.0	1977	71.5	1980	65.2	1982	69.2	1983	61.8	1984	61.8	1985	62.4	1986	62.8	1987	62.8	1988	62.8
1975	99.4	1976	99.8	1977	70.4	1978	94.6	1981	75.7	1986	62.5	1988	58.5	1989	58.5	1990	60.7	1993	61.2	1996	61.2	1998	61.2
1976	98.6	1977	69.2	1978	93.4	1979	93.4	1982	66.0	1984	61.7	1987	59.1	1991	59.3	1994	59.5	1997	59.5	1999	59.5	2000	59.5
1977	67.9	1978	92.1	1979	92.1	1980	62.3	1983	58.3	1985	59.5	1988	57.3	1992	57.7	1995	57.7	1998	57.7	2000	57.7	2000	57.7
1978	90.8	1979	90.8	1980	61.2	1981	70.0	1984	57.8	1986	56.9	1989	55.6	1993	55.8	1996	55.8	1999	55.8	2001	55.8	2001	55.8
1979	89.4	1980	60.1	1981	67.9	1982	60.5	1985	55.5	1987	52.9	1990	53.8	1994	53.8	1997	53.8	2000	53.8	2002	53.8	2002	53.8
1980	58.8	1981	65.7	1982	58.5	1983	52.4	1986	52.7	1988	49.4	1991	51.5	1993	51.7	1998	51.7	2001	51.7	2003	51.7	2003	51.7
1981	63.4	1982	56.3	1983	50.2	1984	51.2	1987	48.6	1989	49.1	1992	49.5	1994	49.5	1999	49.5	2002	49.5	2004	49.5	2004	49.5
1982	54.0	1983	47.9	1984	48.7	1985	48.5	1988	45.0	1990	46.7	1993	47.1	1995	47.1	2000	47.1	2003	47.1	2005	47.1	2005	47.1
1983	45.5	1984	46.0	1985	45.9	1986	45.3	1989	44.2	1991	44.4	1994	44.6	1998	44.6	2001	44.6	2004	44.6	2006	44.6	2006	44.6
1984	43.3	1985	43.2	1986	42.6	1987	41.2	1990	41.6	1992	42.0	1995	42.0	1999	42.0	2002	42.0	2005	42.0	2007	42.0	2007	42.0
1985	40.3	1986	39.7	1987	38.4	1988	37.4	1991	39.0	1993	39.2	1996	39.2	2000	39.2	2003	39.2	2006	39.2	2008	39.2	2008	39.2
1986	36.6	1987	35.5	1988	34.6	1989	35.9	1992	36.2	1994	36.2	1997	36.2	2001	36.2	2004	36.2	2007	36.2	2009	36.2	2009	36.2
1987	32.4	1988	31.6	1989	32.7	1990	32.8	1993	33.1	1995	33.1	1998	33.1	2002	33.1	2005	33.1	2008	33.1	2010	33.1	2010	33.1
1988	28.4	1989	29.4	1990	29.5	1991	29.7	1994	29.8	1996	29.8	1999	29.8	2003	29.8	2006	29.8	2009	29.8	2011	29.8	2011	29.8
1989	26.0	1990	26.1	1991	26.2	1992	26.3	1995	26.3	1997	26.3	2000	26.3	2004	26.3	2007	26.3	2010	26.3	2012	26.3	2012	26.3
1990	22.4	1991	22.5	1992	22.6	1993	22.6	1996	22.6	1998	22.6	2001	22.6	2005	22.6	2008	22.6	2011	22.6	2013	22.6	2013	22.6
1991	18.6	1992	18.7	1993	18.7	1994	18.7	1997	18.7	1999	18.7	2002	18.7	2006	18.7	2009	18.7	2012	18.7	2014	18.7	2014	18.7
1992	14.6	1993	14.6	1994	14.6	1995	14.6	1998	14.6	2000	14.6	2003	14.6	2007	14.6	2010	14.6	2013	14.6	2015	14.6	2015	14.6
1993	10.2	1994	10.2	1995	10.2	1996	10.2	1999	10.2	2001	10.2	2004	10.2	2008	10.2	2011	10.2	2014	10.2	2016	10.2	2016	10.2
1994	8.3	1995	8.3	1996	8.3	1997	8.3	2000	8.3	2002	8.3	2005	8.3	2009	8.3	2012	8.3	2015	8.3	2017	8.3	2017	8.3
1995	6.2	1996	6.2	1997	6.2	1998	6.2	2001	6.2	2003	6.2	2006	6.2	2010	6.2	2013	6.2	2016	6.2	2018	6.2	2018	6.2
1996	4.0	1997	4.0	1998	4.0	1999	4.0	2002	4.0	2004	4.0	2007	4.0	2011	4.0	2014	4.0	2017	4.0	2019	4.0	2019	4.0
1997	2.6	1998	2.6	1999	2.6	2000	2.6	2003	2.6	2005	2.6	2008	2.6	2012	2.6	2015	2.6	2018	2.6	2020	2.6	2020	2.6

*MY -- Indicates the model year.

**E -- Indicates the average grams/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the FTP test conditions:

- 19.6 MPH, TEMP=75 Degrees F,
- 20.6% of VMT traveled in cold start,
- 52.1% of VMT in stabilized,
- 27.3% of VMT in hot start.

Emissions are based on the January 1 mileage accumulation figures given in Table 2.4A.1

TABLE 1.11C.2 (continued)
 BY-MODEL-YEAR EMISSION LEVELS FOR HIGH ALTITUDE
 LIGHT DUTY GASOLINE POWERED VEHICLES
 NOx

	January 1 of Calendar Year																		
	1997		1998		1999		2000		2003		2010		2015		2018		2020		
	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	
1973	2.9	1974	2.9	1975	2.5	1976	2.5	1977	3.1	1978	4.8	1979	4.6	1980	4.4	1981	4.4	1982	4.4
1974	2.9	1975	2.5	1976	2.5	1977	3.5	1978	2.8	1979	4.4	1980	4.4	1981	4.4	1982	4.4	1983	4.4
1975	2.4	1976	2.4	1977	3.4	1978	3.0	1979	3.9	1980	4.4	1981	4.4	1982	4.4	1983	4.4	1984	4.4
1976	2.4	1977	3.4	1978	3.0	1979	3.0	1980	3.9	1981	4.2	1982	4.1	1983	4.1	1984	4.1	1985	4.1
1977	3.3	1978	2.9	1979	2.9	1980	2.7	1981	4.1	1982	4.0	1983	3.8	1984	3.8	1985	3.8	1986	3.8
1978	2.9	1979	2.9	1980	2.6	1981	3.6	1982	4.1	1983	3.8	1984	3.7	1985	3.7	1986	3.7	1987	3.7
1979	2.8	1980	2.6	1981	3.5	1982	3.6	1983	3.8	1984	3.6	1985	3.5	1986	3.5	1987	3.5	1988	3.5
1980	2.5	1981	3.3	1982	3.5	1983	3.5	1984	3.7	1985	3.6	1986	3.4	1987	3.4	1988	3.4	1989	3.4
1981	3.2	1982	3.4	1983	3.6	1984	3.7	1985	3.6	1986	3.3	1987	3.2	1988	3.2	1989	3.2	1990	3.2
1982	3.2	1983	3.5	1984	3.5	1985	3.4	1986	3.3	1987	3.2	1988	3.0	1989	3.0	1990	3.0	1991	3.0
1983	3.3	1984	3.4	1985	3.2	1986	3.3	1987	3.1	1988	3.2	1989	2.8	1990	2.8	1991	2.8	1992	2.8
1984	3.2	1985	3.1	1986	3.1	1987	3.1	1988	2.9	1989	2.7	1990	2.6	1991	2.6	1992	2.6	1993	2.6
1985	2.9	1986	2.9	1987	2.9	1988	2.8	1989	2.7	1990	2.4	1991	2.4	1992	2.4	1993	2.4	1994	2.4
1986	2.7	1987	2.7	1988	2.7	1989	2.6	1990	2.5	1991	2.3	1992	2.3	1993	2.3	1994	2.3	1995	2.3
1987	2.5	1988	2.5	1989	2.4	1990	2.4	1991	2.3	1992	2.1	1993	2.1	1994	2.1	1995	2.1	1996	2.1
1988	2.2	1989	2.2	1990	2.2	1991	2.2	1992	2.1	1993	1.9	1994	1.9	1995	1.9	1996	1.9	1997	1.9
1989	2.0	1990	2.0	1991	2.0	1992	2.0	1993	1.7	1994	1.7	1995	1.7	1996	1.7	1997	1.7	1998	1.7
1990	1.7	1991	1.7	1992	1.7	1993	1.7	1994	1.4	1995	1.4	1996	1.4	1997	1.4	1998	1.4	1999	1.4
1991	1.5	1992	1.5	1993	1.5	1994	1.4	1995	1.2	1996	1.2	1997	1.2	1998	1.2	1999	1.2	2000	1.2
1992	1.3	1993	1.3	1994	1.2	1995	1.0	1996	1.0	1997	1.0	1998	1.0	1999	1.0	2000	1.0	2001	1.0
1993	1.0	1994	0.9	1995	0.8	1996	0.7	1997	0.7	1998	0.7	1999	0.7	2000	0.7	2001	0.7	2002	0.7
1994	0.8	1995	0.6	1996	0.6	1997	0.6	1998	0.6	1999	0.6	2000	0.6	2001	0.6	2002	0.6	2003	0.6
1995	0.5	1996	0.4	1997	0.4	1998	0.4	1999	0.4	2000	0.4	2001	0.4	2002	0.4	2003	0.4	2004	0.4
1996	0.3	1997	0.3	1998	0.3	1999	0.3	2000	0.3	2001	0.3	2002	0.3	2003	0.3	2004	0.3	2005	0.3
1997	0.2	1998	0.2	1999	0.2	2000	0.2	2001	0.2	2002	0.2	2003	0.2	2004	0.2	2005	0.2	2006	0.2

*MY -- Indicates the model year.

**E -- Indicates the average grams/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the FTP test conditions:

- 19.6 MPH, TEMP=75 Degrees F,
- 20.6% of VMT traveled in cold start,
- 52.1% of VMT in stabilized,
- 27.3% of VMT in hot start.

Emissions are based on the January 1 mileage accumulation figures given in Table 2.4A.1

TABLE 1.12A

THE IMPACT OF OXYGENATED FUELS ON EMISSIONS
BY MODEL YEAR HC AVERAGE EMISSION LEVELS WITHOUT OXYGENATED FUEL AND BENEFIT FACTORS

NUM	1981		1982		1983		1984		1985		1986		1987		1988		1989		
	HC*	B**	HC*	B**	HC*	B**	HC*	B**	HC*	B**	HC*	B**	HC*	B**	HC*	B**	HC*	B**	
1	0.38	5.40	0.39	5.11	0.33	4.99	0.32	4.97	0.33	4.77	0.33	4.52	0.33	4.29	0.33	3.97	0.33	4.15	
2	0.52	5.36	0.53	5.09	0.44	5.04	0.41	5.09	0.43	4.90	0.42	4.70	0.42	4.49	0.42	4.19	0.43	4.36	
3	0.68	5.34	0.69	5.10	0.59	5.10	0.53	5.22	0.55	5.05	0.53	4.91	0.52	4.71	0.53	4.45	0.54	4.61	
4	1.08	5.45	1.09	5.23	0.75	5.17	0.65	5.36	0.68	5.21	0.64	5.13	0.64	4.94	0.64	4.72	0.66	4.87	
5	1.32	5.55	1.33	5.35	1.20	5.49	1.10	5.77	1.13	5.67	1.10	5.45	0.85	5.30	0.84	5.14	0.87	5.25	
6	1.58	5.65	1.57	5.46	1.45	5.61	1.36	5.90	1.39	5.82	1.35	5.68	1.08	5.56	1.07	5.43	1.10	5.52	
7	1.85	5.73	1.82	5.55	1.70	5.72	1.63	6.02	1.66	5.96	1.62	6.02	1.32	5.76	1.31	5.66	1.36	5.74	
8	2.13	5.80	2.09	5.63	1.97	5.81	1.91	6.12	1.94	6.08	1.90	6.16	1.58	5.93	1.56	5.86	1.62	5.93	
9	2.48	5.91	2.41	5.75	2.33	5.94	2.33	6.24	2.36	6.22	2.34	6.30	2.27	6.24	2.24	6.21	2.32	6.27	
10	2.76	5.96	2.67	5.81	2.59	6.00	2.61	6.30	2.63	6.28	2.61	6.37	2.53	6.32	2.49	6.30	2.59	6.35	
11	3.02	6.00	2.91	5.85	2.84	6.04	2.87	6.39	2.90	6.33	2.88	6.42	2.78	6.38	2.73	6.36	2.85	6.41	
12	3.28	6.02	3.15	5.88	3.08	6.08	3.12	6.39	3.16	6.36	3.14	6.46	3.03	6.42	2.98	6.42	3.11	6.45	
13	3.51	6.04	3.37	5.90	3.30	6.09	3.36	6.41	3.40	6.38	3.38	6.49	3.27	6.45	3.22	6.45	3.36	6.48	
14	3.66	6.04	3.52	5.91	3.47	6.10	3.53	6.42	3.60	6.40	3.59	6.51	3.47	6.47	3.44	6.48	3.60	6.50	
15	3.81	6.05	3.67	5.92	3.63	6.11	3.69	6.43	3.79	6.41	3.80	6.52	3.68	6.49	3.66	6.50	3.83	6.52	
16	3.95	6.05	3.81	5.92	3.77	6.11	3.84	6.43	3.95	6.42	3.97	6.53	3.85	6.51	3.85	6.52	4.02	6.54	
17	4.08	6.04	3.94	5.92	3.91	6.11	3.98	6.44	4.08	6.42	4.10	6.54	3.98	6.51	3.98	6.52	4.15	6.54	
18	4.21	6.04	4.07	5.92	4.04	6.11	4.11	6.44	4.21	6.42	4.23	6.54	4.11	6.52	4.11	6.53	4.27	6.55	
19	4.33	6.04	4.19	5.92	4.16	6.11	4.23	6.45	4.33	6.43	4.35	6.55	4.24	6.53	4.23	6.54	4.39	6.55	
20	4.44	6.04	4.30	5.92	4.28	6.11	4.35	6.45	4.44	6.43	4.46	6.55	4.35	6.53	4.35	6.55	4.50	6.56	
21	4.54	6.03	4.41	5.92	4.39	6.11	4.46	6.46	4.55	6.43	4.57	6.56	4.47	6.54	4.46	6.55	4.61	6.56	
22	4.65	6.03	4.52	5.92	4.50	6.11	4.57	6.46	4.65	6.43	4.68	6.56	4.58	6.54	4.57	6.56	4.71	6.56	
23	4.74	6.03	4.61	5.92	4.60	6.11	4.67	6.46	4.75	6.43	4.78	6.56	4.68	6.55	4.68	6.56	4.81	6.57	
24	4.83	6.03	4.71	5.92	4.70	6.11	4.77	6.47	4.85	6.44	4.87	6.57	4.78	6.55	4.77	6.57	4.90	6.57	
25																			

Continued on the next page

HC* Indicates the average emission levels without oxygenated fuels
B** Indicate the benefit factors

To interpolate the benefit factor the following formula should be used:
 $BENFAC = (BEFADJ * (Y2 - Y1) + X2 * Y1 - X1 * Y2) / (X2 - X1)$
 where: BEFADJ - basic emission factor
 Y1, Y2 - lower and upper benefit factor
 X1, X2 - lower and upper interpolation values

For Pre-1981 LDGV or
 Pre-1991 LDGT1+2 or
 HDGV or MC : BENFAC=NOCAT* 1.57+CAT* 4.46
 where: NOCAT - fraction of vehicles that are not catalyst equipped
 CAT - fraction of vehicles that are catalyst equipped

There is no effect on NOx.

For additional information see Table 1.13
 "Exhaust Effects of Oxygenated Fuel Blends Percent of Change in Emissions"

TABLE 1.12A (continued)

THE IMPACT OF OXYGENATED FUELS ON EMISSIONS
BY MODEL YEAR HC AVERAGE EMISSION LEVELS WITHOUT OXYGENATED FUEL AND BENEFIT FACTORS

NUM	1990		1991		1992		1993		1994		1995		1996		1997		1998	
	HC*	B**	HC*	B**	HC*	B**	HC*	B**	HC*	B**	HC*	B**	HC*	B**	HC*	B**	HC*	B**
1	0.34	4.01	0.34	4.00	0.34	4.01	0.34	4.01	0.32	4.01	0.31	4.00	0.28	4.01	0.27	4.01	0.26	4.02
2	0.44	4.24	0.44	4.23	0.44	4.25	0.44	4.25	0.42	4.24	0.40	4.23	0.38	4.23	0.36	4.23	0.35	4.24
3	0.55	4.51	0.55	4.50	0.55	4.52	0.55	4.52	0.53	4.49	0.51	4.47	0.49	4.47	0.47	4.47	0.46	4.48
4	0.67	4.78	0.67	4.78	0.67	4.79	0.67	4.79	0.65	4.77	0.63	4.73	0.61	4.72	0.59	4.72	0.58	4.72
5	0.88	5.18	0.89	5.18	0.89	5.19	0.89	5.19	0.87	5.17	0.84	5.14	0.81	5.12	0.80	5.12	0.79	5.12
6	1.12	5.48	1.13	5.48	1.13	5.48	1.13	5.48	1.10	5.46	1.07	5.43	1.04	5.42	1.03	5.42	1.02	5.42
7	1.38	5.71	1.38	5.72	1.39	5.72	1.39	5.72	1.36	5.70	1.32	5.67	1.29	5.65	1.27	5.65	1.26	5.65
8	1.64	5.92	1.65	5.92	1.66	5.93	1.66	5.93	1.62	5.90	1.58	5.87	1.55	5.85	1.53	5.85	1.52	5.85
9	1.91	6.10	1.92	6.10	1.93	6.11	1.93	6.11	1.89	6.08	1.85	6.05	1.82	6.02	1.80	6.02	1.79	6.02
10	2.35	6.28	2.36	6.29	2.37	6.30	2.37	6.30	2.33	6.27	2.29	6.24	2.25	6.22	2.24	6.21	2.23	6.21
11	2.61	6.36	2.63	6.37	2.64	6.38	2.64	6.38	2.59	6.36	2.55	6.35	2.51	6.34	2.49	6.34	2.49	6.33
12	2.88	6.42	2.89	6.42	2.91	6.43	2.91	6.43	2.86	6.43	2.81	6.43	2.77	6.43	2.75	6.44	2.75	6.44
13	3.14	6.46	3.16	6.46	3.18	6.47	3.18	6.47	3.13	6.47	3.08	6.47	3.03	6.47	3.02	6.47	3.01	6.47
14	3.41	6.49	3.43	6.49	3.45	6.50	3.45	6.50	3.39	6.50	3.34	6.50	3.29	6.50	3.28	6.50	3.27	6.50
15	3.66	6.52	3.69	6.52	3.71	6.52	3.71	6.52	3.65	6.52	3.60	6.52	3.55	6.52	3.54	6.52	3.53	6.53
16	3.92	6.54	3.95	6.54	3.97	6.55	3.97	6.55	3.91	6.55	3.85	6.55	3.81	6.55	3.79	6.55	3.78	6.55
17	4.12	6.55	4.15	6.56	4.17	6.56	4.17	6.56	4.11	6.56	4.06	6.56	4.01	6.56	3.99	6.56	3.98	6.56
18	4.24	6.56	4.28	6.56	4.30	6.56	4.30	6.56	4.24	6.56	4.18	6.56	4.13	6.56	4.12	6.56	4.11	6.56
19	4.36	6.56	4.39	6.56	4.42	6.57	4.42	6.57	4.36	6.57	4.30	6.57	4.26	6.57	4.24	6.57	4.23	6.57
20	4.48	6.56	4.51	6.57	4.53	6.57	4.53	6.57	4.47	6.57	4.41	6.57	4.37	6.57	4.35	6.57	4.34	6.57
21	4.59	6.57	4.62	6.57	4.64	6.57	4.64	6.57	4.58	6.57	4.52	6.57	4.48	6.57	4.46	6.57	4.45	6.57
22	4.69	6.57	4.72	6.57	4.74	6.57	4.74	6.57	4.68	6.57	4.63	6.57	4.58	6.57	4.57	6.57	4.56	6.57
23	4.79	6.57	4.82	6.57	4.84	6.58	4.84	6.58	4.78	6.58	4.73	6.58	4.68	6.58	4.66	6.58	4.66	6.58
24	4.88	6.57	4.91	6.58	4.93	6.58	4.93	6.58	4.87	6.58	4.82	6.58	4.77	6.58	4.76	6.58	4.75	6.58
25	4.97	6.58	5.00	6.58	5.02	6.58	5.02	6.58	4.96	6.58	4.91	6.58	4.86	6.58	4.85	6.58	4.84	6.58

HC* Indicates the average emission levels without oxygenated fuels
B** Indicates the benefit factors

To interpolate the benefit factor the following formula should be used:

$$BENFAC = (BENFADJ * (Y2 - Y1) + X2 * Y1 - X1 * Y2) / (X2 - X1)$$

where: BENFADJ - basic emission factor

Y1, Y2 - lower and upper benefit factor

X1, X2 - lower and upper interpolation values

For Pre-1981 LDGV or

Pre-1991 LDGT1+2 or

HDGV or MC : BENFAC=NOCAT* 1.57+CAT* 4.46

where: NOCAT - fraction of vehicles that are not catalyst equipped

CAT - fraction of vehicles that are catalyst equipped

There is no effect on NOx.

For additional information see Table 1.13

"Exhaust Effects of Oxygenated Fuel Blends Percent of Change in Emissions"

DATE : JUNE 30, 1995

TABLE 1.12B

THE IMPACT OF OXYGENATED FUELS ON EMISSIONS
BY MODEL YEAR CO AVERAGE EMISSION LEVELS WITHOUT OXYGENATED FUEL AND BENEFIT FACTORS

NUM	1981		1982		1983		1984		1985		1986		1987		1988		1989	
	CO*	B**	CO*	B**	CO*	B**	CO*	B**	CO*	B**	CO*	B**	CO*	B**	CO*	B**	CO*	B**
1	4.96	8.42	5.08	8.39	5.05	7.97	4.59	7.17	4.52	6.98	4.27	6.39	4.24	6.30	4.12	5.92	4.11	5.93
2	7.13	8.87	7.34	8.84	7.08	8.48	6.16	7.77	6.27	7.61	5.91	7.08	5.88	7.01	5.83	6.70	5.89	6.72
3	9.46	9.17	9.74	9.15	9.23	8.83	7.80	8.23	8.09	8.10	7.58	7.65	7.55	7.59	7.54	7.33	7.68	7.36
4	11.91	9.37	12.25	9.35	11.38	9.09	9.37	8.59	9.75	9.07	9.01	8.12	8.95	8.06	8.90	7.84	9.11	7.88
5	15.02	9.62	15.12	9.58	14.26	9.42	12.42	9.14	12.77	9.07	12.03	8.84	11.85	8.78	11.71	8.63	12.04	8.67
6	18.26	9.79	18.09	9.75	17.27	9.64	15.64	9.49	15.96	9.43	15.22	9.30	14.91	9.24	14.67	9.13	15.13	9.17
7	21.59	9.93	21.15	9.88	20.36	9.81	18.98	9.73	19.26	9.69	18.53	9.60	18.08	9.55	17.75	9.47	18.34	9.51
8	24.97	10.03	24.27	9.98	23.51	9.94	22.38	9.90	22.63	9.88	21.92	9.82	21.33	9.78	20.90	9.71	21.63	9.75
9	28.39	10.12	27.40	10.06	26.68	10.04	25.83	10.04	26.04	10.02	25.36	9.99	24.61	9.95	24.09	9.90	24.96	9.94
10	32.96	10.27	31.52	10.21	31.13	10.22	31.22	10.25	31.24	10.23	30.81	10.23	29.88	10.19	29.23	10.16	30.22	10.19
11	36.15	10.31	34.44	10.25	34.08	10.27	34.42	10.31	34.42	10.30	34.01	10.30	32.93	10.27	32.19	10.25	33.52	10.27
12	39.12	10.35	37.19	10.30	36.92	10.31	37.49	10.37	37.50	10.36	37.13	10.37	35.92	10.34	35.12	10.32	36.39	10.35
13	42.03	10.39	39.87	10.34	39.68	10.36	40.49	10.42	40.52	10.41	40.18	10.43	38.83	10.40	37.96	10.38	39.40	10.41
14	44.46	10.42	42.13	10.37	42.02	10.39	42.99	10.46	43.16	10.46	42.90	10.47	41.42	10.45	40.59	10.43	42.21	10.46
15	45.81	10.44	43.53	10.38	43.55	10.41	44.57	10.48	45.11	10.49	45.06	10.51	43.59	10.49	43.02	10.48	44.78	10.51
16	47.11	10.45	44.87	10.40	45.03	10.43	46.10	10.51	47.01	10.52	47.17	10.55	45.71	10.52	45.41	10.52	47.30	10.55
17	48.31	10.46	46.12	10.41	46.38	10.45	47.49	10.53	48.58	10.54	48.87	10.57	47.44	10.55	47.31	10.55	49.24	10.58
18	49.41	10.47	47.27	10.42	47.57	10.46	48.70	10.55	49.75	10.56	50.06	10.59	48.70	10.57	48.59	10.58	50.43	10.60
19	50.46	10.48	48.38	10.43	48.72	10.47	49.86	10.58	50.86	10.58	51.20	10.61	49.91	10.59	49.83	10.60	51.58	10.62
20	51.45	10.49	49.43	10.44	49.82	10.49	50.98	10.58	51.93	10.59	52.29	10.63	51.07	10.61	51.02	10.62	52.67	10.64
21	52.40	10.50	50.44	10.45	50.87	10.50	52.05	10.60	52.95	10.61	53.34	10.65	52.18	10.63	52.17	10.64	53.72	10.65
22	53.31	10.51	51.40	10.46	51.88	10.51	53.07	10.62	53.93	10.62	54.34	10.66	53.25	10.65	53.27	10.65	54.72	10.67
23	54.16	10.52	52.32	10.47	52.85	10.52	54.05	10.63	54.86	10.64	55.29	10.68	54.28	10.66	54.32	10.67	55.68	10.69
24	54.98	10.53	53.20	10.48	53.77	10.53	54.98	10.64	55.74	10.65	56.20	10.69	55.26	10.68	55.33	10.69	56.60	10.70
25	55.76	10.54	54.04	10.48	54.64	10.54	55.88	10.66	56.59	10.66	57.07	10.70	56.20	10.69	56.30	10.70	57.48	10.71

Continued on the next page

CO* Indicates the average emission levels without oxygenated fuels
B** Indicate the benefit factors

To interpolate the benefit factor the following formula should be used:

$$BENFAC = (BENFADJ * (Y2 - Y1) + X2 * Y1 - X1 * Y2) / (X2 - X1)$$

where: BENFADJ - basic emission factor

Y1, Y2 - lower and upper benefit factor

X1, X2 - lower and upper interpolation values

For Pre-1981 LDGV or

Pre-1991 LDGT1+2 or

HDGV or MC

where: BENFAC=NOCAT* 7.00+CAT* 9.97

NOCAT - fraction of vehicles that are not catalyst equipped

CAT - fraction of vehicles that are catalyst equipped

There is no effect on NOx.

For additional information see Table 1.13

"Exhaust Effects of Oxygenated Fuel Blends Percent of Change in Emissions"

TABLE 1.12B (continued)

THE IMPACT OF OXYGENATED FUELS ON EMISSIONS
BY MODEL YEAR CO AVERAGE EMISSION LEVELS WITHOUT OXYGENATED FUEL AND BENEFIT FACTORS

NUM	1990		1991		1992		1993		1994		1995		1996		1997		1998	
	CO*	B**	CO*	B**	CO*	B**	CO*	B**	CO*	B**	CO*	B**	CO*	B**	CO*	B**	CO*	B**
1	4.01	5.63	4.00	5.58	3.99	5.56	3.99	5.56	3.99	5.56	3.99	5.56	3.99	5.56	3.99	5.56	3.99	5.56
2	5.90	6.50	5.91	6.46	5.91	6.45	5.91	6.45	5.91	6.45	5.91	6.45	5.91	6.45	5.91	6.45	5.91	6.45
3	7.78	7.20	7.81	7.17	7.83	7.16	7.83	7.16	7.83	7.16	7.83	7.16	7.83	7.16	7.83	7.16	7.83	7.16
4	9.24	7.75	9.27	7.73	9.30	7.73	9.30	7.73	9.30	7.73	9.30	7.73	9.30	7.73	9.30	7.73	9.30	7.73
5	12.16	8.59	12.21	8.57	12.25	8.57	12.25	8.57	12.25	8.57	12.25	8.57	12.25	8.57	12.25	8.57	12.25	8.57
6	15.25	9.11	15.31	9.11	15.37	9.11	15.37	9.11	15.37	9.11	15.37	9.11	15.37	9.11	15.37	9.11	15.37	9.11
7	18.46	9.47	18.54	9.47	18.60	9.47	18.60	9.47	18.60	9.47	18.60	9.47	18.60	9.47	18.60	9.47	18.60	9.47
8	21.75	9.73	21.84	9.73	21.92	9.73	21.92	9.73	21.92	9.73	21.92	9.73	21.92	9.73	21.92	9.73	21.92	9.73
9	25.08	9.92	25.19	9.92	25.29	9.93	25.29	9.93	25.29	9.93	25.29	9.93	25.29	9.93	25.29	9.93	25.29	9.93
10	30.29	10.18	30.40	10.18	30.51	10.18	30.51	10.18	30.51	10.18	30.51	10.18	30.51	10.18	30.51	10.18	30.51	10.18
11	33.40	10.27	33.53	10.27	33.66	10.28	33.66	10.28	33.66	10.28	33.66	10.28	33.66	10.28	33.66	10.28	33.66	10.28
12	36.51	10.35	36.65	10.35	36.80	10.35	36.80	10.35	36.80	10.35	36.80	10.35	36.80	10.35	36.80	10.35	36.80	10.35
13	39.56	10.41	39.73	10.42	39.90	10.42	39.90	10.42	39.90	10.42	39.90	10.42	39.90	10.42	39.90	10.42	39.90	10.42
14	42.50	10.47	42.71	10.47	42.91	10.48	42.91	10.48	42.91	10.48	42.91	10.48	42.91	10.48	42.91	10.48	42.91	10.48
15	45.38	10.52	45.65	10.53	45.87	10.53	45.87	10.53	45.87	10.53	45.87	10.53	45.87	10.53	45.87	10.53	45.87	10.53
16	48.20	10.57	48.53	10.57	48.79	10.57	48.79	10.57	48.79	10.57	48.79	10.57	48.79	10.57	48.79	10.57	48.79	10.57
17	50.29	10.60	50.65	10.60	50.92	10.61	50.92	10.61	50.92	10.61	50.92	10.61	50.92	10.61	50.92	10.61	50.92	10.61
18	51.45	10.62	51.79	10.62	52.05	10.62	52.05	10.62	52.05	10.62	52.05	10.62	52.05	10.62	52.05	10.62	52.05	10.62
19	52.55	10.64	52.89	10.64	53.13	10.64	53.13	10.64	53.13	10.64	53.13	10.64	53.13	10.64	53.13	10.64	53.13	10.64
20	53.60	10.65	53.93	10.66	54.16	10.66	54.16	10.66	54.16	10.66	54.16	10.66	54.16	10.66	54.16	10.66	54.16	10.66
21	54.61	10.67	54.93	10.67	55.14	10.68	55.14	10.68	55.14	10.68	55.14	10.68	55.14	10.68	55.14	10.68	55.14	10.68
22	55.57	10.68	55.88	10.69	56.08	10.69	56.08	10.69	56.08	10.69	56.08	10.69	56.08	10.69	56.08	10.69	56.08	10.69
23	56.49	10.70	56.78	10.70	56.98	10.71	56.98	10.71	56.98	10.71	56.98	10.71	56.98	10.71	56.98	10.71	56.98	10.71
24	57.37	10.71	57.65	10.72	57.83	10.72	57.83	10.72	57.83	10.72	57.83	10.72	57.83	10.72	57.83	10.72	57.83	10.72
25	58.20	10.73	58.47	10.73	58.64	10.73	58.64	10.73	58.64	10.73	58.64	10.73	58.64	10.73	58.64	10.73	58.64	10.73

CO* Indicates the average emission levels without oxygenated fuels
B** Indicates the benefit factors

To interpolate the benefit factor the following formula should be used:

$$BENFAC = (BENFADJ * (Y2 - Y1) + X2 * Y1 - X1 * Y2) / (X2 - X1)$$

where: BENFADJ - basic emission factor

Y1, Y2 - lower and upper benefit factor

X1, X2 - lower and upper interpolation values

For Pre-1981 LDGV or

Pre-1991 LDGT1+2 or

HDGV or MC : BENFAC=NOCAT* 7.00+CAT* 9.97

where: NOCAT - fraction of vehicles that are not catalyst equipped

CAT - fraction of vehicles that are catalyst equipped

There is no effect on NOx.

For additional information see Table 1.13

"Exhaust Effects of Oxygenated Fuel Blends Percent of Change in Emissions"

DATE : JUNE 30, 1995

TABLE 1.13

REID VAPOR PRESSURE OF SUMMER TIME REFORMULATED GASOLINE

REGION	PHASE 1 (1995)	PHASE 1 (Complex Model 1997)	PHASE 2 (2000)
1	7.1	7.1	6.8
2	8.0	8.0	7.5

EXHAUST EFFECTS OF OXYGENATED FUEL BLENDS
PERCENT CHANGE IN EMISSIONS FOR
1980 AND EARLIER MODEL YEAR
LIGHT DUTY GASOLINE POWERED VEHICLES

VEHICLE	HC	CO	NOx
Non catalyst	-1.57%	-7.00%	-0.00%
Open loop	-4.46%	-9.97%	-0.00%

EXHAUST EFFECTS OF OXYGENATED FUEL BLENDS
PERCENT CHANGE IN EMISSIONS PER PERCENT OF OXYGEN IN FUEL FOR
1981 AND LATER MODEL YEAR
LIGHT DUTY GASOLINE POWERED VEHICLES
(CLOSED LOOP)

	FUEL SYSTEM	HC EMISSIONS		CO EMISSIONS	
		% CHANGE	g/mi*	% CHANGE	g/mi*
Normal Emitters	PFI	-4.01%	0.33	-3.46%	3.50
	TBI	-2.93%	0.38	-4.93%	3.72
	Carb	-6.15%	0.33	-6.77%	4.18
High Emitters	PFI	-5.78%	1.83	-9.87%	15.26
	TBI	-5.78%	1.83	-9.87%	15.26
	Carb	-6.59%	3.14	-9.87%	15.26
Very High Emitters	PFI	-6.59%	3.14	-11.44%	95.79
	TBI	-6.59%	3.14	-11.44%	95.79
	Carb	-6.59%	3.14	-11.44%	95.79

* These rates are for vehicles using EPA certification test fuel.

Note that oxygenates have no effect on NOx emissions.

ADDITIONAL EXHAUST HC REDUCTION FOR REFORMULATED GASOLINE FOR
LIGHT DUTY GASOLINE POWERED VEHICLES
(APPLIED AFTER ADJUSTMENTS FOR RVP AND OXYGENATED FUEL EFFECTS)

REGION	PHASE1	PHASE2
1	1.122	1.801
2	1.117	1.779

PERCENT CHANGE IN EXHAUST EMISSIONS FROM INDUSTRY AVERAGE FUEL
WHEN USING EPA CERTIFICATION TEST FUEL

HC	CO	NOx
-13.6%	-8.0%	-13.8%

Continued on the next page

TABLE 1.13 (continued)

SEASONAL VARIATION IN REFORMULATED GASOLINE

Month	SUMMER*	WINTER**
	7	1
Ethanol Market Share	0.0%	30.0%
Ethanol Oxygen Content (by weight)	N/A	3.5%
Ether Blend Market Share	100.0%	70.0%
Ether Blend Oxygen Content	2.1%	1.5%
RVP Waiver	N/A	Yes
Fuel RVP	Fixed	User supplied

- * User supplied RVP and oxygenated fuel program parameters are ignored in summer when Reformulated Gasoline is specified.
- ** Default oxygenated fuel program parameters can be overridden by the user in winter if the market share for oxygenated fuels is 100% and the combined oxygen content is at least 2.1%

REFORMULATED GASOLINE
ASSUMED COMPLEX MODEL PARAMETERS

	BASELINE	-----PHASE 1-----		-----PHASE 2-----	
	INDUSTRY AVERAGE	REGION 1	REGION 2	REGION 1	REGION 2
MTBE*	0.00	2.10	2.10	2.10	2.10
ETBE*	0.00	0.00	0.00	0.00	0.00
Ethanol*	0.00	0.00	0.00	0.00	0.00
TAME*	0.00	0.00	0.00	0.00	0.00
SULFUR (ppm)	339.00	339.00	339.00	134.00	134.00
RVP (psi)	8.70	7.10	8.00	6.70	6.70
E200 (%)	41.00	41.00	41.00	44.44	44.44
E300 (%)	83.00	83.00	83.00	84.91	84.91
Aromatics**	32.00	27.20	25.50	24.79	24.79
Olefins**	9.20	9.20	9.20	12.56	12.56
Benzene**	1.53	0.95	0.95	0.95	0.95

- * Percent fuel oxygen content by weight.
- ** Percent fuel content by volume.

DATE : JUNE 30, 1995