

US EPA ARCHIVE DOCUMENT

H-278
TABLE 8.1.1
NONTAMPERED EXHAUST EMISSION RATES FOR
LOW ALTITUDE
MOTORCYCLES
* $BER = ZML + (DR * M)$

Pol	Model Years	Zero Mile Emission Level	Deterioration Rate	12,000 Mile Emission Level	24,000 Mile Emission Level
HC	Pre-1978	8.780	0.750	9.680	10.580
	1978-1979	2.400	1.440	4.128	5.856
	1980-1981	1.930	1.150	3.310	4.690
	1982-1984	1.650	0.950	2.790	3.930
	1985-1987	1.310	0.750	2.210	3.110
	1988+	1.200	0.700	2.040	2.880
CO	Pre-1978	33.420	3.220	37.284	41.148
	1978-1979	24.390	3.560	28.662	32.934
	1980-1981	17.510	2.530	20.546	23.582
	1982+	17.400	2.460	20.352	23.304
NOx	Pre-1978	0.250	0.030	0.286	0.322
	1978-1979	0.680	0.000	0.680	0.680
	1980+	0.850	0.000	0.850	0.850

* WHERE : BER = Nontampered basic exhaust emission rates in grams/mile,
ZML = Zero mile level in grams/mile,
DR = Deterioration rate in grams/mile/10K miles,
M = Cumulative mileage / 10,000 miles.
DATE : JUNE 30, 1995

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TABLE 8.1.2
NONTAMPERED EXHAUST EMISSION RATES FOR
HIGH ALTITUDE
MOTORCYCLES

* $BER = ZML + (DR * M)$

Pol	Model Years	Zero Mile Emission Level	Deterioration Rate	12,000 Mile Emission Level	24,000 Mile Emission Level
HC	Pre-1978	11.430	0.750	12.330	13.230
	1978-1979	3.020	1.440	4.748	6.476
	1980-1981	2.950	1.150	4.330	5.710
	1982-1984	2.520	0.950	3.660	4.800
	1985-1987	2.000	0.750	2.900	3.800
	1988+	1.840	0.700	2.680	3.520
CO	Pre-1978	50.130	3.220	53.994	57.858
	1978-1979	37.070	3.560	41.342	45.614
	1980-1981	33.090	2.530	36.126	39.162
	1982+	32.890	2.460	35.842	38.794
NOx	Pre-1978	0.140	0.030	0.176	0.212
	1978-1979	0.450	0.000	0.450	0.450
	1980+	0.570	0.000	0.570	0.570

* WHERE : BER = Nontampered basic exhaust emission rates in grams/mile,
ZML = Zero mile level in grams/mile,
DR = Deterioration rate in grams/mile/10K miles,
M = Cumulative mileage / 10,000 miles.
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TABLE 8.2.1

NONTAMPERED CRANKCASE EMISSIONS
FROM VEHICLES WITH OPERATING EVAPORATIVE SYSTEMS*
FOR LOW ALTITUDE
MOTORCYCLES

Model Years	Crankcase (Gm/Mile)
Pre-1978	0.31
1978+	0.00

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

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TABLE 8.2.2

NONTAMPERED CRANKCASE EMISSIONS
FROM VEHICLES WITH OPERATING EVAPORATIVE SYSTEMS*
FOR HIGH ALTITUDE
MOTORCYCLES

Model Years	Crankcase (Gm/Mile)
Pre-1978	0.40
1978+	0.00

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

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TABLE 8.4

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
MOTORCYCLES

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	0.144	4786.	0.000	0.	0.
2	0.168	4475.	0.196	4786.	2393.
3	0.135	4164.	0.158	4475.	7024.
4	0.109	3853.	0.127	4164.	11343.
5	0.088	3543.	0.103	3853.	15352.
6	0.070	3232.	0.082	3543.	19050.
7	0.056	2921.	0.065	3232.	22437.
8	0.045	2611.	0.053	2921.	25514.
9	0.036	2300.	0.042	2611.	28280.
10	0.029	1989.	0.034	2300.	30735.
11	0.023	1678.	0.027	1989.	32880.
12	0.097	1368.	0.113	1678.	34713.
13	0.000	0.	0.000	1368.	36236.
14	0.000	0.	0.000	0.	36920.
15	0.000	0.	0.000	0.	36920.
16	0.000	0.	0.000	0.	36920.
17	0.000	0.	0.000	0.	36920.
18	0.000	0.	0.000	0.	36920.
19	0.000	0.	0.000	0.	36920.
20	0.000	0.	0.000	0.	36920.
21	0.000	0.	0.000	0.	36920.
22	0.000	0.	0.000	0.	36920.
23	0.000	0.	0.000	0.	36920.
24	0.000	0.	0.000	0.	36920.
25+	0.000	0.	0.000	0.	36920.

* 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: $JMAR(1) = 0$ and,
 $JMAR(MYI) = MAR(MYI-1)$, $MYI = 2, \dots, 25+$.

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TABLE 8.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
MOTORCYCLES
JANUARY 1, 1995

Model Years	(A) MC Fleet Registration	(B) Sales Fraction	(C=A*B/DAF) MC (A*B)	(D) Annual Mileage Accrual Rate	(C*D/TFNORM) Travel (C*D) Fractions
1995	0.144	1.000	0.144	0.000	0.0
1994	0.168	1.000	0.168	0.196	4786.
1993	0.135	1.000	0.135	0.158	4475.
1992	0.109	1.000	0.109	0.127	4164.
1991	0.088	1.000	0.088	0.103	3853.
1990	0.070	1.000	0.070	0.082	3543.
1989	0.056	1.000	0.056	0.065	3232.
1988	0.045	1.000	0.045	0.053	2921.
1987	0.036	1.000	0.036	0.042	2611.
1986	0.029	1.000	0.029	0.034	2300.
1985	0.023	1.000	0.023	0.027	1989.
1984	0.097	1.000	0.097	0.113	1678.
1983	0.000	1.000	0.000	0.000	1368.
1982	0.000	1.000	0.000	0.000	0.
1981	0.000	1.000	0.000	0.000	0.
1980	0.000	1.000	0.000	0.000	0.
1979	0.000	1.000	0.000	0.000	0.
1978	0.000	1.000	0.000	0.000	0.
1977	0.000	1.000	0.000	0.000	0.
1976	0.000	1.000	0.000	0.000	0.
1975	0.000	1.000	0.000	0.000	0.
1974	0.000	1.000	0.000	0.000	0.
1973	0.000	1.000	0.000	0.000	0.
1972	0.000	1.000	0.000	0.000	0.
1971-	0.000	1.000	0.000	0.000	0.

DAF: 1.000

TFNORM: 3657.4

WHERE :

- A = July 1 registration mix from Table 8.4,
- B = Gasoline fleet sales fractions,
- D = Sales weighted fleet mileage accumulation rate from Table 8.4.

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

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TABLE 8.6.1

SPEED CORRECTION FACTOR COEFFICIENTS FOR LOW ALTITUDE
MOTORCYCLES

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

Pollutant and Model Years	A	B	C	D	E	F
HC						
Pre-1978	0.231026E+01	-0.289572E+00	0.152990E-01	-0.446689E-03	0.648183E-05	-0.363456E-07
1978-1979	0.240873E+01	-0.308187E+00	0.168168E-01	-0.506843E-03	0.753855E-05	-0.431596E-07
1980+	0.225223E+01	-0.287778E+00	0.156820E-01	-0.473179E-03	0.707954E-05	-0.408456E-07
CO						
Pre-1978	0.233989E+01	-0.296978E+00	0.160071E-01	-0.477396E-03	0.706752E-05	-0.403978E-07
1978-1979	0.277804E+01	-0.319130E+00	0.153183E-01	-0.422327E-03	0.584948E-05	-0.314969E-07
1980+	0.270743E+01	-0.331038E+00	0.176179E-01	-0.538583E-03	0.817402E-05	-0.477803E-07
NOX						
Pre-1978	0.168635E+01	-0.118303E+00	0.654975E-02	-0.137139E-03	0.100849E-05	0.000000E+00
1978+	0.128169E+01	-0.804874E-01	0.535735E-02	-0.118891E-03	0.901060E-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, $[1/\text{sadj} = (w+x)/26 + (1-w-x)/16]$.

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TABLE 8.6.2

SPEED CORRECTION FACTOR COEFFICIENTS FOR HIGH ALTITUDE

MOTORCYCLES

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

Pollutant and Model Years	A	B	C	D	E	F
HC						
Pre-1978	0.224612E+01	-0.290973E+00	0.158890E-01	-0.472494E-03	0.694077E-05	-0.392798E-07
1978-1979	0.215056E+01	-0.283620E+00	0.153836E-01	-0.442136E-03	0.628732E-05	-0.346311E-07
1980+	0.212230E+01	-0.291072E+00	0.169089E-01	-0.526148E-03	0.802705E-05	-0.470117E-07
CO						
Pre-1978	0.181978E+01	-0.254663E+00	0.152347E-01	-0.487397E-03	0.758207E-05	-0.449514E-07
1978-1979	0.182133E+01	-0.272054E+00	0.170304E-01	-0.552021E-03	0.862543E-05	-0.511440E-07
1980+	0.204533E+01	-0.310618E+00	0.204852E-01	-0.708527E-03	0.116215E-04	-0.715690E-07
NOX						
Pre-1978	0.244424E+01	-0.250107E+00	0.138293E-01	-0.287025E-03	0.207585E-05	0.000000E+00
1978+	0.144825E+01	-0.122444E+00	0.795024E-02	-0.171078E-03	0.125777E-05	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, $[1/\text{sadj} = (w+x)/26 + (1-w-x)/16]$.

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TABLE 8.6C

HIGH-SPEED SPEED CORRECTION FACTOR COEFFICIENTS FOR
MOTORCYCLES

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

SCF65 coefficients for various pollutants at high speeds.

Model year	HC (s > 55.0)	CO (s > 55.0)	NOx (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 8.6

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 8.6

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TABLE 8.7A

LOW (< 75F) TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
MOTORCYCLES

$$* \text{TCF}(b) = \text{EXP} [\text{TC}(b) * (T - 75.0)]$$

Po1	Model Years	Test Segment 1	Test Segment 2	Test Segment 3
HC	Pre-1978	-0.20623E-01	-0.24032E-02	-0.10081E-02
	1978-1979	-0.24462E-01	-0.32017E-02	-0.86884E-03
	1980+	-0.21255E-01	-0.52755E-03	0.93659E-03
CO	Pre-1978	-0.13487E-01	0.15784E-02	0.11097E-02
	1978-1979	-0.21126E-01	-0.15289E-02	0.15749E-02
	1980+	-0.20843E-01	-0.59951E-02	0.18253E-02
NOx	Pre-1978	-0.16897E-03	-0.89245E-02	-0.72580E-02
	1978+	-0.25074E-03	-0.59791E-02	-0.62690E-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 8.7C.

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TABLE 8.7B

HIGH (> 75F) TEMPERATURE CORRECTION FACTOR COEFFICIENTS
MOTORCYCLES

$$* \text{TCF}(b) = \text{EXP} [\text{TC}(b) * (T - 75.0)]$$

Po1	Model Years	Test Segment 1	Test Segment 2	Test Segment 3
HC	Pre-1978	-0.14381E-01	0.13219E-02	0.34799E-02
	1978-1979	-0.12552E-01	0.42667E-02	0.75843E-02
	1980+	-0.10888E-01	-0.47925E-03	0.76666E-02
CO	Pre-1978	-0.14691E-01	0.37462E-02	0.11014E-01
	1978-1979	-0.38767E-01	0.84685E-02	0.25179E-01
	1980+	-0.21165E-01	0.23603E-01	0.28483E-01
NOx	Pre-1978	0.38841E-02	-0.87325E-02	-0.10839E-01
	1978+	-0.10389E-02	-0.92466E-02	-0.10108E-01

* 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.

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

NOTE : The temperature correction factor is used in conjunction with
the correction factor given in Table 8.7C.

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TABLE 8.7C

NORMALIZED BAG FRACTIONS FOR
MOTORCYCLES

Poll	Model Years	Normalized Fractions							
		Test Segment 1 B1	D1	Test Segment 2 B2	D2	Test Segment 3 B3	D3	Total B0	Test D0
HC	Pre-1978	1.2823	0.1059	0.9726	0.0774	0.8393	0.0843	1.0000	0.0854
	1978-1979	1.2818	0.7474	0.9728	0.5470	0.8392	0.5929	1.0000	0.6012
	1980+	1.2829	0.7427	0.9713	0.5454	0.8414	0.5869	1.0000	0.5973
CO	Pre-1978	1.2772	0.1523	1.0172	0.0877	0.7580	0.0712	1.0000	0.0964
	1978-1979	1.2774	0.2308	1.0171	0.1324	0.7580	0.1078	1.0000	0.1459
	1980+	1.2776	0.2284	1.0171	0.1314	0.7579	0.1068	1.0000	0.1445
NOx	Pre-1978	1.1112	0.1984	0.7937	0.1191	1.3097	0.1191	1.0000	0.1191
	1978+	1.1118	0.0000	0.7899	0.0000	1.3166	0.0000	1.0000	0.0000

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+D1*M),
 TERM2 = (1-W-X)*TCF(2)*(B2+D2*M),
 TERM3 = X*TCF(3)*(B3+D3*M),
 DENOM = B0 + D0*M,
 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, for test segment b from Table 8.7A,
 M = Cumulative mileage / 10,000 miles.

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TABLE 8.9G.1

HOT SOAK EMISSION RATES FOR
LOW ALTITUDE
MOTORCYCLES

AMBIENT TEMPERATURE 82F

MODEL YEAR	-----	
	AT 9.0 RVP	AT 11.5 RVP

Pre -1978	4.01	6.14
1978-1979	9.01	13.79
1980-1981	9.64	14.75
1982-1984	9.95	15.22
1985-2020	9.90	15.15

DIURNAL EMISSION RATES FOR
LOW ALTITUDE
MOTORCYCLES

MINIMUM TEMPERATURE 60F, MAXIMUM 84F

MODEL YEAR	-----	
	AT 9.0 RVP	AT 11.5 RVP

Pre -1978	14.72	20.21
1978-1979	16.98	24.36
1980-1981	17.32	24.99
1982-1984	17.43	25.19
1985-2020	17.54	25.39

Note that motorcycles have no evaporative control canisters.

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TABLE 8.9G.2

HOT SOAK EMISSION RATES FOR
HIGH ALTITUDE
MOTORCYCLES

AMBIENT TEMPERATURE 82F

MODEL YEAR	-----	
	AT 9.0 RVP	AT 11.5 RVP

Pre -1978	5.21	7.98
1978-1979	11.71	17.93
1980-1981	12.53	19.17
1982-1984	12.93	19.79
1985-2020	12.87	19.69

DIURNAL EMISSION RATES FOR
HIGH ALTITUDE
MOTORCYCLES

MINIMUM TEMPERATURE 60F, MAXIMUM 84F

MODEL YEAR	-----	
	AT 9.0 RVP	AT 11.5 RVP

Pre -1978	19.14	26.27
1978-1979	22.07	31.67
1980-1981	22.52	32.49
1982-1984	22.66	32.75
1985-2020	22.80	33.01

Note that motorcycles have no evaporative control canisters.

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TABLE 8.10A.1

METHANE OFFSETS*
FOR LOW ALTITUDE
MOTORCYCLES

Model Years	Methane Offsets (Grams/Mile)
Pre-1978	0.511
1978-1979	0.251
1980+	0.221

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

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TABLE 8.10A.2

METHANE OFFSETS*
FOR HIGH ALTITUDE
MOTORCYCLES

Model Years	Methane Offsets (Grams/Mile)
Pre-1978	0.511
1978-1979	0.251
1980+	0.221

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

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TABLE 8.11A.1
BY-MODEL-YEAR EMISSION LEVELS FOR LOW ALTITUDE
MOTORCYCLES
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**	MY*	E**	MY*	E**	MY*	E**																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
+		1961	0.0	1962	0.0	1963	0.0	1964	0.0	1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	6.4	1986	6.2	1987	5.9	1988	5.4	1989	5.2	1990	4.9	1991	4.7	1992	4.4	1993	4.1	1994	3.8	1995	3.4	1996	3.0	1997	2.6	1998	2.2	1999	1.8	2000	1.4	2001	1.0	2002	0.6	2003	0.2	2004	-0.2	2005	-0.6	2006	-1.0	2007	-1.4	2008	-1.8	2009	-2.2	2010	-2.6	2011	-3.0	2012	-3.4	2013	-3.8	2014	-4.2	2015	-4.6	2016	-5.0	2017	-5.4	2018	-5.8	2019	-6.2	2020	-6.6	2021	-7.0	2022	-7.4	2023	-7.8	2024	-8.2	2025	-8.6	2026	-9.0	2027	-9.4	2028	-9.8	2029	-10.2	2030	-10.6	2031	-11.0	2032	-11.4	2033	-11.8	2034	-12.2	2035	-12.6	2036	-13.0	2037	-13.4	2038	-13.8	2039	-14.2	2040	-14.6	2041	-15.0	2042	-15.4	2043	-15.8	2044	-16.2	2045	-16.6	2046	-17.0	2047	-17.4	2048	-17.8	2049	-18.2	2050	-18.6	2051	-19.0	2052	-19.4	2053	-19.8	2054	-20.2	2055	-20.6	2056	-21.0	2057	-21.4	2058	-21.8	2059	-22.2	2060	-22.6	2061	-23.0	2062	-23.4	2063	-23.8	2064	-24.2	2065	-24.6	2066	-25.0	2067	-25.4	2068	-25.8	2069	-26.2	2070	-26.6	2071	-27.0	2072	-27.4	2073	-27.8	2074	-28.2	2075	-28.6	2076	-29.0	2077	-29.4	2078	-29.8	2079	-30.2	2080	-30.6	2081	-31.0	2082	-31.4	2083	-31.8	2084	-32.2	2085	-32.6	2086	-33.0	2087	-33.4	2088	-33.8	2089	-34.2	2090	-34.6	2091	-35.0	2092	-35.4	2093	-35.8	2094	-36.2	2095	-36.6	2096	-37.0	2097	-37.4	2098	-37.8	2099	-38.2	2100	-38.6	2101	-39.0	2102	-39.4	2103	-39.8	2104	-40.2	2105	-40.6	2106	-41.0	2107	-41.4	2108	-41.8	2109	-42.2	2110	-42.6	2111	-43.0	2112	-43.4	2113	-43.8	2114	-44.2	2115	-44.6	2116	-45.0	2117	-45.4	2118	-45.8	2119	-46.2	2120	-46.6	2121	-47.0	2122	-47.4	2123	-47.8	2124	-48.2	2125	-48.6	2126	-49.0	2127	-49.4	2128	-49.8	2129	-50.2	2130	-50.6	2131	-51.0	2132	-51.4	2133	-51.8	2134	-52.2	2135	-52.6	2136	-53.0	2137	-53.4	2138	-53.8	2139	-54.2	2140	-54.6	2141	-55.0	2142	-55.4	2143	-55.8	2144	-56.2	2145	-56.6	2146	-57.0	2147	-57.4	2148	-57.8	2149	-58.2	2150	-58.6	2151	-59.0	2152	-59.4	2153	-59.8	2154	-60.2	2155	-60.6	2156	-61.0	2157	-61.4	2158	-61.8	2159	-62.2	2160	-62.6	2161	-63.0	2162	-63.4	2163	-63.8	2164	-64.2	2165	-64.6	2166	-65.0	2167	-65.4	2168	-65.8	2169	-66.2	2170	-66.6	2171	-67.0	2172	-67.4	2173	-67.8	2174	-68.2	2175	-68.6	2176	-69.0	2177	-69.4	2178	-69.8	2179	-70.2	2180	-70.6	2181	-71.0	2182	-71.4	2183	-71.8	2184	-72.2	2185	-72.6	2186	-73.0	2187	-73.4	2188	-73.8	2189	-74.2	2190	-74.6	2191	-75.0	2192	-75.4	2193	-75.8	2194	-76.2	2195	-76.6	2196	-77.0	2197	-77.4	2198	-77.8	2199	-78.2	2200	-78.6	2201	-79.0	2202	-79.4	2203	-79.8	2204	-80.2	2205	-80.6	2206	-81.0	2207	-81.4	2208	-81.8	2209	-82.2	2210	-82.6	2211	-83.0	2212	-83.4	2213	-83.8	2214	-84.2	2215	-84.6	2216	-85.0	2217	-85.4	2218	-85.8	2219	-86.2	2220	-86.6	2221	-87.0	2222	-87.4	2223	-87.8	2224	-88.2	2225	-88.6	2226	-89.0	2227	-89.4	2228	-89.8	2229	-90.2	2230	-90.6	2231	-91.0	2232	-91.4	2233	-91.8	2234	-92.2	2235	-92.6	2236	-93.0	2237	-93.4	2238	-93.8	2239	-94.2	2240	-94.6	2241	-95.0	2242	-95.4	2243	-95.8	2244	-96.2	2245	-96.6	2246	-97.0	2247	-97.4	2248	-97.8	2249	-98.2	2250	-98.6	2251	-99.0	2252	-99.4	2253	-99.8	2254	-100.2	2255	-100.6	2256	-101.0	2257	-101.4	2258	-101.8	2259	-102.2	2260	-102.6	2261	-103.0	2262	-103.4	2263	-103.8	2264	-104.2	2265	-104.6	2266	-105.0	2267	-105.4	2268	-105.8	2269	-106.2	2270	-106.6	2271	-107.0	2272	-107.4	2273	-107.8	2274	-108.2	2275	-108.6	2276	-109.0	2277	-109.4	2278	-109.8	2279	-110.2	2280	-110.6	2281	-111.0	2282	-111.4	2283	-111.8	2284	-112.2	2285	-112.6	2286	-113.0	2287	-113.4	2288	-113.8	2289	-114.2	2290	-114.6	2291	-115.0	2292	-115.4	2293	-115.8	2294	-116.2	2295	-116.6	2296	-117.0	2297	-117.4	2298	-117.8	2299	-118.2	2300	-118.6	2301	-119.0	2302	-119.4	2303	-119.8	2304	-120.2	2305	-120.6	2306	-121.0	2307	-121.4	2308	-121.8	2309	-122.2	2310	-122.6	2311	-123.0	2312	-123.4	2313	-123.8	2314	-124.2	2315	-124.6	2316	-125.0	2317	-125.4	2318	-125.8	2319	-126.2	2320	-126.6	2321	-127.0	2322	-127.4	2323	-127.8	2324	-128.2	2325	-128.6	2326	-129.0	2327	-129.4	2328	-129.8	2329	-130.2	2330	-130.6	2331	-131.0	2332	-131.4	2333	-131.8	2334	-132.2	2335	-132.6	2336	-133.0	2337	-133.4	2338	-133.8	2339	-134.2	2340	-134.6	2341	-135.0	2342	-135.4	2343	-135.8	2344	-136.2	2345	-136.6	2346	-137.0	2347	-137.4	2348	-137.8	2349	-138.2	2350	-138.6	2351	-139.0	2352	-139.4	2353	-139.8	2354	-140.2	2355	-140.6	2356	-141.0	2357	-141.4	2358	-141.8	2359	-142.2	2360	-142.6	2361	-143.0	2362	-143.4	2363	-143.8	2364	-144.2	2365	-144.6	2366	-145.0	2367	-145.4	2368	-145.8	2369	-146.2	2370	-146.6	2371	-147.0	2372	-147.4	2373	-147.8	2374	-148.2	2375	-148.6	2376	-149.0	2377	-149.4	2378	-149.8	2379	-150.2	2380	-150.6	2381	-151.0	2382	-151.4	2383	-151.8	2384	-152.2	2385	-152.6	2386	-153.0	2387	-153.4	2388	-153.8	2389	-154.2	2390	-154.6	2391	-155.0	2392	-155.4	2393	-155.8	2394	-156.2	2395	-156.6	2396	-157.0	2397	-157.4	2398	-157.8	2399	-158.2	2400	-158.6	2401	-159.0	2402	-159.4	2403	-159.8	2404	-160.2	2405	-160.6	2406	-161.0	2407	-161.4	2408	-161.8	2409	-162.2	2410	-162.6	2411	-163.0	2412	-163.4	2413	-163.8	2414	-164.2	2415	-164.6	2416	-165.0	2417	-165.4	2418	-165.8	2419	-166.2	2420	-166.6	2421	-167.0	2422	-167.4	2423	-167.8	2424	-168.2	2425	-168.6	2426	-169.0	2427	-169.4	2428	-169.8	2429	-170.2	2430	-170.6	2431	-171.0	2432	-171.4	2433	-171.8	2434	-172.2	2435	-172.6	2436	-173.0	2437	-173.4	2438	-173.8	2439	-174.2	2440	-174.6	2441	-175.0	2442	-175.4	2443	-175.8	2444	-176.2	2445	-176.6	2446	-177.0	2447	-177.4	2448	-177.8	2449	-178.2	2450	-178.6	2451	-179.0	2452	-179.4	2453	-179.8	2454	-180.2	2455	-180.6	2456	-181.0	2457	-181.4	2458	-181.8	2459	-182.2	2460	-182.6	2461	-183.0	2462	-183.4	2463	-183.8	2464	-184.2	2465	-184.6	2466	-185.0	2467	-185.4	2468	-185.8	2469	-186.2	2470	-186.6	2471	-187.0	2472	-187.4	2473	-187.8	2474	-188.2	2475	-188.6	2476	-189.0	2477	-189.4	2478	-189.8	2479	-190.2	2480	-190.6	2481	-191.0	2482	-191.4	2483	-191.8	2484	-192.2	2485	-192.6	2486	-193.0	2487	-193.4	2488	-193.8	2489	-194.2	2490	-194.6	2491	-195.0	2492	-195.4	2493	-195.8	2494	-196.2	2495	-196.6	2496	-197.0	2497	-197.4	2498	-197.8	2499	-198.2	2500	-198.6	2501	-199.0	2502	-199.4	2503	-199.8	2504	-200.2	2505	-200.6	2506	-201.0	2507	-201.4	2508	-201.8	2509	-202.2	2510	-202.6	2511	-203.0	2512	-203.4	2513	-203.8	2514	-204.2	2515	-204.6	2516	-205.0	2517	-205.4	2518	-205.8	2519	-206.2	2520	-206.6	2521	-207.0	2522	-207.4	2523	-207.8	2524	-208.2	2525	-208.6	2526	-209.0	2527	-209.4	2528	-209.8	2529	-210.2	2530	-210.6	2531	-211.0	2532	-211.4	2533	-211.8	2534	-212.2	2535	-212.6	2536	-213.0	2537	-213.4	2538	-213.8	2539	-214.2	2540	-214.6	2541	-215.0	2542	-215.4	2543	-215.8	2544	-216.2	2545	-216.6	2546	-217.0	2547	-217.4	2548	-217.8	2549	-218.2	2550	-218.6	2551	-219.0	2552	-219.4	2553	-219.8	2554	-220.2	2555	-220.6	2556	-221.0	2557	-221.4	2558	-221.8	2559	-222.2	2560	-222.6	2561	-223.0	2562	-223.4	2563	-223.8	2564	-224.2	2565	-224.6	2566	-225.0	2567	-225.4	2568	-225.8	2569	-226.2	2570	-226.6	2571	-227.0	2572	-227.4	2573	-227.8	2574	-228.2	2575	-228.6	2576	-229.0	2577	-229.4	2578	-229.8	2579	-230.2	2580	-230.6	2581	-231.0	2582	-231.4	2583	-231.8	2584	-232.2	2585	-232.6	2586	-233.0	2587	-233.4	2588	-233.8	2589	-234.2	2590	-234.6	2591	-235.0	2592	-235.4	2593	-235.8	2594	-236.2	2595	-236.6	2596	-237.0	2597	-237.4	2598	-237.8	2599	-238.2	2600	-238.6	2601	-239.0	2602	-239.4	2603	-239.8	2604	-240.2	2605	-240.6	2606	-241.0	2607	-241.4	2608	-241.8	2609	-242.2	2610	-

*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,
9.0 psi fuel RVP,
54.57% average in-use fuel tank level.
Emissions are based on January 1 mileage accumulation figures given in Table 1.4.8

Continued on the next page.

TABLE 8.11A.1 (continued)
BY-MODEL-YEAR EMISSION LEVELS FOR LOW ALTITUDE
MOTORCYCLES
TOTAL NONMETHANE HC

1997		1998		1999		2000		2003		January 1 of Calendar Year 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	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1979	0.0	1984	0.0	1986	0.0	1988	0.0	1991	0.0	1994	0.0	1996	0.0
1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1980	0.0	1985	0.0	1987	0.0	1989	0.0	1992	0.0	1995	0.0	1997	0.0
1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1981	0.0	1986	0.0	1988	0.0	1990	0.0	1993	0.0	1996	0.0	1998	0.0
1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1982	0.0	1987	0.0	1989	0.0	1991	0.0	1994	0.0	1997	0.0	1999	0.0
1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1983	0.0	1988	0.0	1990	0.0	1992	0.0	1995	0.0	1998	0.0	2000	0.0
1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1984	0.0	1989	0.0	1991	0.0	1993	0.0	1996	0.0	1999	0.0	2001	0.0
1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1985	0.0	1990	0.0	1992	0.0	1994	0.0	1997	0.0	2000	0.0	2002	0.0
1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1986	0.0	1991	0.0	1993	0.0	1995	0.0	1998	0.0	2001	0.0	2003	0.0
1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1987	0.0	1992	0.0	1994	0.0	1996	0.0	1999	0.0	2002	0.0	2004	0.0
1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1988	0.0	1993	0.0	1995	0.0	1997	0.0	2000	0.0	2003	0.0	2005	0.0
1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1989	0.0	1994	0.0	1996	0.0	1998	0.0	2001	0.0	2004	0.0	2006	0.0
1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0	1990	0.0	1995	0.0	1997	0.0	1999	0.0	2002	0.0	2005	0.0	2007	0.0
1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0	1991	0.0	1996	0.0	1998	0.0	2000	0.0	2003	0.0	2006	0.0	2008	0.0
1986	6.4	1987	6.4	1988	6.1	1989	6.1	1990	6.1	1992	6.1	1997	6.1	1999	6.1	2001	6.1	2004	6.1	2007	6.1	2009	6.1
1987	6.2	1988	5.9	1989	5.9	1990	5.9	1991	5.9	1993	5.9	1998	5.9	2000	5.9	2002	5.9	2005	5.9	2008	5.9	2010	5.9
1988	5.7	1989	5.7	1990	5.7	1991	5.7	1992	5.7	1994	5.7	1999	5.7	2001	5.7	2003	5.7	2006	5.7	2009	5.7	2011	5.7
1989	5.4	1990	5.4	1991	5.4	1992	5.4	1993	5.4	1995	5.4	2000	5.4	2002	5.4	2004	5.4	2007	5.4	2010	5.4	2012	5.4
1990	5.2	1991	5.2	1992	5.2	1993	5.2	1994	5.2	1996	5.2	2001	5.2	2003	5.2	2005	5.2	2008	5.2	2011	5.2	2013	5.2
1991	4.9	1992	4.9	1993	4.9	1994	4.9	1995	4.9	1997	4.9	2002	4.9	2004	4.9	2006	4.9	2009	4.9	2012	4.9	2014	4.9
1992	4.7	1993	4.7	1994	4.7	1995	4.7	1996	4.7	1998	4.7	2003	4.7	2005	4.7	2007	4.7	2010	4.7	2013	4.7	2015	4.7
1993	4.4	1994	4.4	1995	4.4	1996	4.4	1997	4.4	1999	4.4	2004	4.4	2006	4.4	2008	4.4	2011	4.4	2014	4.4	2016	4.4
1994	4.1	1995	4.1	1996	4.1	1997	4.1	1998	4.1	2000	4.1	2005	4.1	2007	4.1	2009	4.1	2012	4.1	2015	4.1	2017	4.1
1995	3.8	1996	3.8	1997	3.8	1998	3.8	1999	3.8	2001	3.8	2006	3.8	2008	3.8	2010	3.8	2013	3.8	2016	3.8	2018	3.8
1996	3.4	1997	3.4	1998	3.4	1999	3.4	2000	3.4	2002	3.4	2007	3.4	2009	3.4	2011	3.4	2014	3.4	2017	3.4	2019	3.4
1997	3.0	1998	3.0	1999	3.0	2000	3.0	2001	3.0	2003	3.0	2008	3.0	2010	3.0	2012	3.0	2015	3.0	2018	3.0	2020	3.0

*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:
 HT -- Indicates the model year.

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, 9.0 psi fuel RVP, 54.57% average in-use fuel tank level. Emissions are based on January 1 mil

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DATE : JUNE 30, 1995

TABLE 8.11B.1
BY-MODEL-YEAR EMISSION LEVELS FOR LOW ALTITUDE
MOTORCYCLES
CO

		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**	MY*	E**	MY*	E**	MY*	E**				
+		1961	0.0	1962	0.0	1963	0.0	1964	0.0	1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0		
		1962	0.0	1963	0.0	1964	0.0	1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0		
		1963	0.0	1964	0.0	1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0		
		1964	0.0	1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0		
		1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0		
		1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0		
		1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0		
		1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0		
		1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0		
		1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0		
		1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0		
		1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0		
		1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0		
		1974	44.6	1975	44.6	1976	44.6	1977	44.6	1978	36.8	1979	36.8	1980	26.3	1981	26.3	1982	25.9	1983	25.9	1984	25.9	1985	25.9	1986	25.9	1987	25.9	1988	25.9	1989	25.9	1990	25.9		
		1975	44.0	1976	44.0	1977	44.0	1978	36.1	1979	36.1	1980	25.8	1981	25.8	1982	25.5	1983	25.5	1984	25.5	1985	25.5	1986	25.5	1987	25.5	1988	25.5	1989	25.5	1990	25.5	1991	25.5		
		1976	43.3	1977	43.3	1978	35.3	1979	35.3	1980	25.3	1981	25.3	1982	25.0	1983	25.0	1984	25.0	1985	25.0	1986	25.0	1987	25.0	1988	25.0	1989	25.0	1990	25.0	1991	25.0	1992	25.0		
		1977	42.5	1978	34.5	1979	34.5	1980	24.7	1981	24.7	1982	24.4	1983	24.4	1984	24.4	1985	24.4	1986	24.4	1987	24.4	1988	24.4	1989	24.4	1990	24.4	1991	24.4	1992	24.4	1993	24.4		
		1978	33.5	1979	33.5	1980	24.0	1981	24.0	1982	23.7	1983	23.7	1984	23.7	1985	23.7	1986	23.7	1987	23.7	1988	23.7	1989	23.7	1990	23.7	1991	23.7	1992	23.7	1993	23.7	1994	23.7		
		1979	32.4	1980	23.2	1981	23.2	1982	22.9	1983	22.9	1984	22.9	1985	22.9	1986	22.9	1987	22.9	1988	22.9	1989	22.9	1990	22.9	1991	22.9	1992	22.9	1993	22.9	1994	22.9	1995	22.9		
		1980	22.3	1981	22.1	1982	22.1	1983	22.1	1984	22.1	1985	22.1	1986	22.1	1987	22.1	1988	22.1	1989	22.1	1990	22.1	1991	22.1	1992	22.1	1993	22.1	1994	22.1	1995	22.1	1996	22.1		
		1981	21.4	1982	21.2	1983	21.2	1984	21.2	1985	21.2	1986	21.2	1987	21.2	1988	21.2	1989	21.2	1990	21.2	1991	21.2	1992	21.2	1993	21.2	1994	21.2	1995	21.2	1996	21.2	1997	21.2		
		1982	20.2	1983	20.2	1984	20.2	1985	20.2	1986	20.2	1987	20.2	1988	20.2	1989	20.2	1990	20.2	1991	20.2	1992	20.2	1993	20.2	1994	20.2	1995	20.2	1996	20.2	1997	20.2	1998	20.2		
		1983	19.1	1984	19.1	1985	19.1	1986	19.1	1987	19.1	1988	19.1	1989	19.1	1990	19.1	1991	19.1	1992	19.1	1993	19.1	1994	19.1	1995	19.1	1996	19.1	1997	19.1	1998	19.1				
		1984	18.0	1985	18.0	1986	18.0	1987	18.0	1988	18.0	1989	18.0	1990	18.0	1991	18.0	1992	18.0	1993	18.0	1994	18.0	1995	18.0	1996	18.0	1997	18.0	1998	18.0	1999	18.0	2000	18.0		
		1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0	1990	0.0	1991	0.0	1992	0.0	1993	0.0	1994	0.0	1995	0.0	1996	0.0	1997	0.0	1998	0.0	1999	0.0	2000	0.0	2001	0.0		

*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 1.4.8

Continued on the next page.

TABLE 8.11B.1 (continued)
BY-MODEL-YEAR EMISSION LEVELS
FOR LOW ALTITUDE
MOTORCYCLES
CO

January 1 of Calendar Year																					
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	0.0	1974	0.0	1975	0.0	1976	0.0	1979	0.0	1984	0.0	1986	0.0	1988	0.0	1991	0.0	1994	0.0	1996	0.0
1974	0.0	1975	0.0	1976	0.0	1977	0.0	1980	0.0	1985	0.0	1987	0.0	1989	0.0	1992	0.0	1995	0.0	1997	0.0
1975	0.0	1976	0.0	1977	0.0	1978	0.0	1981	0.0	1986	0.0	1988	0.0	1990	0.0	1993	0.0	1996	0.0	1998	0.0
1976	0.0	1977	0.0	1978	0.0	1979	0.0	1982	0.0	1987	0.0	1989	0.0	1991	0.0	1994	0.0	1997	0.0	1999	0.0
1977	0.0	1978	0.0	1979	0.0	1980	0.0	1983	0.0	1988	0.0	1990	0.0	1992	0.0	1995	0.0	1998	0.0	2000	0.0
1978	0.0	1979	0.0	1980	0.0	1981	0.0	1984	0.0	1989	0.0	1991	0.0	1993	0.0	1996	0.0	1999	0.0	2001	0.0
1979	0.0	1980	0.0	1981	0.0	1982	0.0	1985	0.0	1990	0.0	1992	0.0	1994	0.0	1997	0.0	2000	0.0	2002	0.0
1980	0.0	1981	0.0	1982	0.0	1983	0.0	1986	0.0	1991	0.0	1993	0.0	1995	0.0	1998	0.0	2001	0.0	2003	0.0
1981	0.0	1982	0.0	1983	0.0	1984	0.0	1987	0.0	1992	0.0	1994	0.0	1996	0.0	1999	0.0	2002	0.0	2004	0.0
1982	0.0	1983	0.0	1984	0.0	1985	0.0	1988	0.0	1993	0.0	1995	0.0	1997	0.0	2000	0.0	2003	0.0	2005	0.0
1983	0.0	1984	0.0	1985	0.0	1986	0.0	1989	0.0	1994	0.0	1996	0.0	1998	0.0	2001	0.0	2004	0.0	2006	0.0
1984	0.0	1985	0.0	1986	0.0	1987	0.0	1990	0.0	1995	0.0	1997	0.0	1999	0.0	2002	0.0	2005	0.0	2007	0.0
1985	0.0	1986	0.0	1987	0.0	1988	0.0	1991	0.0	1996	0.0	1998	0.0	2000	0.0	2003	0.0	2006	0.0	2008	0.0
1986	25.9	1987	25.9	1988	25.9	1989	25.9	1992	25.9	1997	25.9	1999	25.9	2001	25.9	2004	25.9	2007	25.9	2009	25.9
1987	25.5	1988	25.5	1989	25.5	1990	25.5	1993	25.5	1998	25.5	2000	25.5	2002	25.5	2005	25.5	2008	25.5	2010	25.5
1988	25.0	1989	25.0	1990	25.0	1991	25.0	1994	25.0	1999	25.0	2001	25.0	2003	25.0	2006	25.0	2009	25.0	2011	25.0
1989	24.4	1990	24.4	1991	24.4	1992	24.4	1995	24.4	2000	24.4	2002	24.4	2004	24.4	2007	24.4	2010	24.4	2012	24.4
1990	23.7	1991	23.7	1992	23.7	1993	23.7	1996	23.7	2001	23.7	2003	23.7	2005	23.7	2008	23.7	2011	23.7	2013	23.7
1991	22.9	1992	22.9	1993	22.9	1994	22.9	1997	22.9	2002	22.9	2004	22.9	2006	22.9	2009	22.9	2012	22.9	2014	22.9
1992	22.1	1993	22.1	1994	22.1	1995	22.1	1998	22.1	2003	22.1	2005	22.1	2007	22.1	2010	22.1	2013	22.1	2015	22.1
1993	21.2	1994	21.2	1995	21.2	1996	21.2	1999	21.2	2004	21.2	2006	21.2	2008	21.2	2011	21.2	2014	21.2	2016	21.2
1994	20.2	1995	20.2	1996	20.2	1997	20.2	2000	20.2	2005	20.2	2007	20.2	2009	20.2	2012	20.2	2015	20.2	2017	20.2
1995	19.1	1996	19.1	1997	19.1	1998	19.1	2001	19.1	2006	19.1	2008	19.1	2010	19.1	2013	19.1	2016	19.1	2018	19.1
1996	18.0	1997	18.0	1998	18.0	1999	18.0	2002	18.0	2007	18.0	2009	18.0	2011	18.0	2014	18.0	2017	18.0	2019	18.0
1997	0.0	1998	0.0	1999	0.0	2000	0.0	2003	0.0	2008	0.0	2010	0.0	2012	0.0	2015	0.0	2018	0.0	2020	0.0

*MY -- Indicates the model year.

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 1.4.8

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DATE : JUNE 30, 1995

TABLE 8.11C.1
BY-MODEL-YEAR EMISSION LEVELS FOR LOW ALTITUDE
MOTORCYCLES
NOx

		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**	MY*	E**	MY*	E**	MY*	E**																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
+		1961	0.0	1962	0.0	1963	0.0	1964	0.0	1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0	1990	0.0	1991	0.0	1992	0.0	1993	0.0	1994	0.0	1995	0.0	1996	0.0	1997	0.0	1998	0.0	1999	0.0	2000	0.0	2001	0.0	2002	0.0	2003	0.0	2004	0.0	2005	0.0	2006	0.0	2007	0.0	2008	0.0	2009	0.0	2010	0.0	2011	0.0	2012	0.0	2013	0.0	2014	0.0	2015	0.0	2016	0.0	2017	0.0	2018	0.0	2019	0.0	2020	0.0	2021	0.0	2022	0.0	2023	0.0	2024	0.0	2025	0.0	2026	0.0	2027	0.0	2028	0.0	2029	0.0	2030	0.0	2031	0.0	2032	0.0	2033	0.0	2034	0.0	2035	0.0	2036	0.0	2037	0.0	2038	0.0	2039	0.0	2040	0.0	2041	0.0	2042	0.0	2043	0.0	2044	0.0	2045	0.0	2046	0.0	2047	0.0	2048	0.0	2049	0.0	2050	0.0	2051	0.0	2052	0.0	2053	0.0	2054	0.0	2055	0.0	2056	0.0	2057	0.0	2058	0.0	2059	0.0	2060	0.0	2061	0.0	2062	0.0	2063	0.0	2064	0.0	2065	0.0	2066	0.0	2067	0.0	2068	0.0	2069	0.0	2070	0.0	2071	0.0	2072	0.0	2073	0.0	2074	0.0	2075	0.0	2076	0.0	2077	0.0	2078	0.0	2079	0.0	2080	0.0	2081	0.0	2082	0.0	2083	0.0	2084	0.0	2085	0.0	2086	0.0	2087	0.0	2088	0.0	2089	0.0	2090	0.0	2091	0.0	2092	0.0	2093	0.0	2094	0.0	2095	0.0	2096	0.0	2097	0.0	2098	0.0	2099	0.0	2100	0.0	2101	0.0	2102	0.0	2103	0.0	2104	0.0	2105	0.0	2106	0.0	2107	0.0	2108	0.0	2109	0.0	2110	0.0	2111	0.0	2112	0.0	2113	0.0	2114	0.0	2115	0.0	2116	0.0	2117	0.0	2118	0.0	2119	0.0	2120	0.0	2121	0.0	2122	0.0	2123	0.0	2124	0.0	2125	0.0	2126	0.0	2127	0.0	2128	0.0	2129	0.0	2130	0.0	2131	0.0	2132	0.0	2133	0.0	2134	0.0	2135	0.0	2136	0.0	2137	0.0	2138	0.0	2139	0.0	2140	0.0	2141	0.0	2142	0.0	2143	0.0	2144	0.0	2145	0.0	2146	0.0	2147	0.0	2148	0.0	2149	0.0	2150	0.0	2151	0.0	2152	0.0	2153	0.0	2154	0.0	2155	0.0	2156	0.0	2157	0.0	2158	0.0	2159	0.0	2160	0.0	2161	0.0	2162	0.0	2163	0.0	2164	0.0	2165	0.0	2166	0.0	2167	0.0	2168	0.0	2169	0.0	2170	0.0	2171	0.0	2172	0.0	2173	0.0	2174	0.0	2175	0.0	2176	0.0	2177	0.0	2178	0.0	2179	0.0	2180	0.0	2181	0.0	2182	0.0	2183	0.0	2184	0.0	2185	0.0	2186	0.0	2187	0.0	2188	0.0	2189	0.0	2190	0.0	2191	0.0	2192	0.0	2193	0.0	2194	0.0	2195	0.0	2196	0.0	2197	0.0	2198	0.0	2199	0.0	2200	0.0	2201	0.0	2202	0.0	2203	0.0	2204	0.0	2205	0.0	2206	0.0	2207	0.0	2208	0.0	2209	0.0	2210	0.0	2211	0.0	2212	0.0	2213	0.0	2214	0.0	2215	0.0	2216	0.0	2217	0.0	2218	0.0	2219	0.0	2220	0.0	2221	0.0	2222	0.0	2223	0.0	2224	0.0	2225	0.0	2226	0.0	2227	0.0	2228	0.0	2229	0.0	2230	0.0	2231	0.0	2232	0.0	2233	0.0	2234	0.0	2235	0.0	2236	0.0	2237	0.0	2238	0.0	2239	0.0	2240	0.0	2241	0.0	2242	0.0	2243	0.0	2244	0.0	2245	0.0	2246	0.0	2247	0.0	2248	0.0	2249	0.0	2250	0.0	2251	0.0	2252	0.0	2253	0.0	2254	0.0	2255	0.0	2256	0.0	2257	0.0	2258	0.0	2259	0.0	2260	0.0	2261	0.0	2262	0.0	2263	0.0	2264	0.0	2265	0.0	2266	0.0	2267	0.0	2268	0.0	2269	0.0	2270	0.0	2271	0.0	2272	0.0	2273	0.0	2274	0.0	2275	0.0	2276	0.0	2277	0.0	2278	0.0	2279	0.0	2280	0.0	2281	0.0	2282	0.0	2283	0.0	2284	0.0	2285	0.0	2286	0.0	2287	0.0	2288	0.0	2289	0.0	2290	0.0	2291	0.0	2292	0.0	2293	0.0	2294	0.0	2295	0.0	2296	0.0	2297	0.0	2298	0.0	2299	0.0	2300	0.0	2301	0.0	2302	0.0	2303	0.0	2304	0.0	2305	0.0	2306	0.0	2307	0.0	2308	0.0	2309	0.0	2310	0.0	2311	0.0	2312	0.0	2313	0.0	2314	0.0	2315	0.0	2316	0.0	2317	0.0	2318	0.0	2319	0.0	2320	0.0	2321	0.0	2322	0.0	2323	0.0	2324	0.0	2325	0.0	2326	0.0	2327	0.0	2328	0.0	2329	0.0	2330	0.0	2331	0.0	2332	0.0	2333	0.0	2334	0.0	2335	0.0	2336	0.0	2337	0.0	2338	0.0	2339	0.0	2340	0.0	2341	0.0	2342	0.0	2343	0.0	2344	0.0	2345	0.0	2346	0.0	2347	0.0	2348	0.0	2349	0.0	2350	0.0	2351	0.0	2352	0.0	2353	0.0	2354	0.0	2355	0.0	2356	0.0	2357	0.0	2358	0.0	2359	0.0	2360	0.0	2361	0.0	2362	0.0	2363	0.0	2364	0.0	2365	0.0	2366	0.0	2367	0.0	2368	0.0	2369	0.0	2370	0.0	2371	0.0	2372	0.0	2373	0.0	2374	0.0	2375	0.0	2376	0.0	2377	0.0	2378	0.0	2379	0.0	2380	0.0	2381	0.0	2382	0.0	2383	0.0	2384	0.0	2385	0.0	2386	0.0	2387	0.0	2388	0.0	2389	0.0	2390	0.0	2391	0.0	2392	0.0	2393	0.0	2394	0.0	2395	0.0	2396	0.0	2397	0.0	2398	0.0	2399	0.0	2400	0.0	2401	0.0	2402	0.0	2403	0.0	2404	0.0	2405	0.0	2406	0.0	2407	0.0	2408	0.0	2409	0.0	2410	0.0	2411	0.0	2412	0.0	2413	0.0	2414	0.0	2415	0.0	2416	0.0	2417	0.0	2418	0.0	2419	0.0	2420	0.0	2421	0.0	2422	0.0	2423	0.0	2424	0.0	2425	0.0	2426	0.0	2427	0.0	2428	0.0	2429	0.0	2430	0.0	2431	0.0	2432	0.0	2433	0.0	2434	0.0	2435	0.0	2436	0.0	2437	0.0	2438	0.0	2439	0.0	2440	0.0	2441	0.0	2442	0.0	2443	0.0	2444	0.0	2445	0.0	2446	0.0	2447	0.0	2448	0.0	2449	0.0	2450	0.0	2451	0.0	2452	0.0	2453	0.0	2454	0.0	2455	0.0	2456	0.0	2457	0.0	2458	0.0	2459	0.0	2460	0.0	2461	0.0	2462	0.0	2463	0.0	2464	0.0	2465	0.0	2466	0.0	2467	0.0	2468	0.0	2469	0.0	2470	0.0	2471	0.0	2472	0.0	2473	0.0	2474	0.0	2475	0.0	2476	0.0	2477	0.0	2478	0.0	2479	0.0	2480	0.0	2481	0.0	2482	0.0	2483	0.0	2484	0.0	2485	0.0	2486	0.0	2487	0.0	2488	0.0	2489	0.0	2490	0.0	2491	0.0	2492	0.0	2493	0.0	2494	0.0	2495	0.0	2496	0.0	2497	0.0	2498	0.0	2499	0.0	2500	0.0	2501	0.0	2502	0.0	2503	0.0	2504	0.0	2505	0.0	2506	0.0	2507	0.0	2508	0.0	2509	0.0	2510	0.0	2511	0.0	2512	0.0	2513	0.0	2514	0.0	2515	0.0	2516	0.0	2517	0.0	2518	0.0	2519	0.0	2520	0.0	2521	0.0	2522	0.0	2523	0.0	2524	0.0	2525	0.0	2526	0.0	2527	0.0	2528	0.0	2529	0.0	2530	0.0	2531	0.0	2532	0.0	2533	0.0	2534	0.0	2535	0.0	2536	0.0	2537	0.0	2538	0.0	2539	0.0	2540	0.0	2541	0.0	2542	0.0	2543	0.0	2544	0.0	2545	0.0	2546	0.0	2547	0.0	2548	0.0	2549	0.0	2550	0.0	2551	0.0	2552	0.0	2553	0.0	2554	0.0	2555	0.0	2556	0.0	2557	0.0	2558	0.0	2559	0.0	2560	0.0	2561	0.0	2562	0.0	2563	0.0	2564	0.0	2565	0.0	2566	0.0	2567	0.0	2568	0.0	2569	0.0	2570	0.0	2571	0.0	2572	0.0	2573	0.0	2574	0.0	2575	0.0	2576	0.0	2577	0.0	2578	0.0	2579	0.0	2580	0.0	2581	0.0	2582	0.0	2583	0.0	2584	0.0	2585	0.0	2586	0.0	2587	0.0	2588	0.0	2589	0.0	2590	0.0	2591	0.0	2592	0.0	2593	0.0	2594	0.0	2595	0.0	2596	0.0	2597	0.0	2598	0.0	2599	0.0	2600	0.0	2601	0.0	2602	0.0	2603	0.0	2604	0.0	2605	0.0	2606	0.0	2607	0.0	2608	0.0	2609	0.0	2610	0.0	2611	0.0	2612	0.0	2613	0.0	2614	0.0	2615	0.0	2616	0.0	2617	0.0	2618	0.0	2619	0.0	2620	0.0	2621	0.0	2622	0.0	2623	0.0	2624	0.0	2625	0.0	2626	0.0	2627	0.0	2628	0.0	2629	0.0	2630	0.0	2631	0.0	2632	0.0	2633	0.0	2634	0.0	2635	0.0	2636	0.0	2637	0.0	2638	0.0	2639	0.0	2640	0.0	2641	0.0	2642	0.0	2643	0.0	2644	0.0	2645	0.0	2646	0.0	2647	0.0	2648	0.0	2649	0.0	2650	0.0	2651	0.0	2652	0.0	2653	0.0	2654	0.0	2655	0.0	2656	0.0	2657	0.0	2658	0.0	2659	0.0	2660	0.0	2661	0.0	2662	0.0	2663	0.0	2664	0.0	2665	0

*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 1.4.8

Continued on the next page.

TABLE 8.11C.1 (continued)
BY-MODEL-YEAR EMISSION LEVELS
FOR LOW ALTITUDE
MOTORCYCLES
NOx

	1997		1998		1999		2000		2003		January 1 of Calendar Year 2005		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**	MY*	E**
+	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1979	0.0	1984	0.0	1986	0.0	1987	0.0	1988	0.0	1991	0.0	1994	0.0
	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1980	0.0	1985	0.0	1987	0.0	1988	0.0	1989	0.0	1992	0.0	1995	0.0
	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1981	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0	1993	0.0	1996	0.0
	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1982	0.0	1987	0.0	1988	0.0	1989	0.0	1990	0.0	1994	0.0	1997	0.0
	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1983	0.0	1988	0.0	1989	0.0	1990	0.0	1991	0.0	1995	0.0	1998	0.0
	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1984	0.0	1989	0.0	1990	0.0	1991	0.0	1992	0.0	1996	0.0	1999	0.0
	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1985	0.0	1990	0.0	1991	0.0	1992	0.0	1993	0.0	1997	0.0	2000	0.0
	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1986	0.0	1991	0.0	1992	0.0	1993	0.0	1994	0.0	1998	0.0	2001	0.0
	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1987	0.0	1992	0.0	1993	0.0	1994	0.0	1995	0.0	1999	0.0	2002	0.0
	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1988	0.0	1993	0.0	1994	0.0	1995	0.0	1996	0.0	2000	0.0	2003	0.0
	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1989	0.0	1994	0.0	1995	0.0	1996	0.0	1997	0.0	2001	0.0	2004	0.0
	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0	1990	0.0	1995	0.0	1996	0.0	1997	0.0	1998	0.0	2002	0.0	2005	0.0
	1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0	1991	0.0	1996	0.0	1997	0.0	1998	0.0	1999	0.0	2003	0.0	2006	0.0
	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9	1992	0.9	1997	0.9	1998	0.9	1999	0.9	2000	0.9	2004	0.9	2007	0.9
	1987	0.9	1988	0.9	1989	0.9	1990	0.9	1991	0.9	1993	0.9	1998	0.9	1999	0.9	2000	0.9	2001	0.9	2005	0.9	2008	0.9
	1988	0.9	1989	0.9	1990	0.9	1991	0.9	1992	0.9	1994	0.9	1999	0.9	2000	0.9	2001	0.9	2002	0.9	2006	0.9	2009	0.9
	1989	0.9	1990	0.9	1991	0.9	1992	0.9	1993	0.9	1995	0.9	2000	0.9	2001	0.9	2002	0.9	2003	0.9	2007	0.9	2010	0.9
	1990	0.9	1991	0.9	1992	0.9	1993	0.9	1994	0.9	1996	0.9	2001	0.9	2002	0.9	2003	0.9	2004	0.9	2008	0.9	2011	0.9
	1991	0.9	1992	0.9	1993	0.9	1994	0.9	1995	0.9	1997	0.9	2002	0.9	2003	0.9	2004	0.9	2005	0.9	2009	0.9	2012	0.9
	1992	0.9	1993	0.9	1994	0.9	1995	0.9	1996	0.9	1998	0.9	2003	0.9	2004	0.9	2005	0.9	2006	0.9	2010	0.9	2013	0.9
	1993	0.9	1994	0.9	1995	0.9	1996	0.9	1997	0.9	1999	0.9	2004	0.9	2005	0.9	2006	0.9	2007	0.9	2011	0.9	2014	0.9
	1994	0.9	1995	0.9	1996	0.9	1997	0.9	1998	0.9	2000	0.9	2005	0.9	2006	0.9	2007	0.9	2008	0.9	2012	0.9	2015	0.9
	1995	0.9	1996	0.9	1997	0.9	1998	0.9	1999	0.9	2001	0.9	2006	0.9	2007	0.9	2008	0.9	2009	0.9	2013	0.9	2016	0.9
	1996	0.9	1997	0.9	1998	0.9	1999	0.9	2000	0.9	2002	0.9	2007	0.9	2008	0.9	2009	0.9	2010	0.9	2014	0.9	2017	0.9
	1997	0.0	1998	0.0	1999	0.0	2000	0.0	2001	0.0	2003	0.0	2008	0.0	2009	0.0	2010	0.0	2011	0.0	2015	0.0	2018	0.0

*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, VMT=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 1.4.8

H-300

DATE : JUNE 30, 1995

TABLE 8.11A.2
BY-MODEL-YEAR EMISSION LEVELS FOR HIGH ALTITUDE
MOTORCYCLES
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**	MY*	E**	MY*	E**	MY*	E**	MY*	E**		
+		1961	0.0	1962	0.0	1963	0.0	1964	0.0	1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0
		1962	0.0	1963	0.0	1964	0.0	1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0
		1963	0.0	1964	0.0	1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0
		1964	0.0	1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0
		1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0
		1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0
		1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0
		1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0
		1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0
		1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0
		1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0
		1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0
		1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0	1990	0.0
		1974	17.5	1975	17.5	1976	17.5	1977	17.5	1978	17.5	1979	12.1	1980	12.1	1981	12.1	1982	12.1	1983	12.1	1984	12.1	1985	12.1	1986	12.1	1987	12.1	1988	12.1	1989	12.1	1990	12.1	1991	12.1
		1975	17.3	1976	17.3	1977	17.3	1978	11.7	1979	11.7	1980	10.9	1981	10.9	1982	10.9	1983	10.9	1984	10.9	1985	10.9	1986	10.9	1987	10.9	1988	10.9	1989	10.9	1990	10.9	1991	10.9	1992	10.9
		1976	17.0	1977	17.0	1978	11.4	1979	11.4	1980	10.5	1981	10.5	1982	10.5	1983	10.5	1984	10.5	1985	10.5	1986	10.5	1987	10.5	1988	10.5	1989	10.5	1990	10.5	1991	10.5	1992	10.5	1993	10.5
		1977	16.8	1978	16.8	1979	10.9	1980	10.9	1981	10.2	1982	10.2	1983	10.2	1984	10.2	1985	10.2	1986	10.2	1987	10.2	1988	10.2	1989	10.2	1990	10.2	1991	10.2	1992	10.2	1993	10.2	1994	10.2
		1978	10.5	1979	10.5	1980	9.8	1981	9.8	1982	9.8	1983	8.9	1984	8.9	1985	8.9	1986	8.9	1987	8.9	1988	8.9	1989	8.9	1990	8.9	1991	8.9	1992	8.9	1993	8.9	1994	8.9	1995	8.9
		1979	10.0	1980	9.4	1981	9.4	1982	9.4	1983	8.6	1984	8.6	1985	8.6	1986	8.6	1987	8.6	1988	8.6	1989	8.6	1990	8.6	1991	8.6	1992	8.6	1993	8.6	1994	8.6	1995	8.6	1996	8.6
		1980	9.0	1981	9.0	1982	8.2	1983	8.2	1984	8.2	1985	7.4	1986	7.4	1987	7.4	1988	7.4	1989	7.4	1990	7.4	1991	7.4	1992	7.4	1993	7.4	1994	7.4	1995	7.4	1996	7.4	1997	7.4
		1981	8.6	1982	7.9	1983	7.9	1984	7.9	1985	7.9	1986	7.1	1987	7.1	1988	7.1	1989	7.1	1990	7.1	1991	7.1	1992	7.1	1993	7.1	1994	7.1	1995	7.1	1996	7.1	1997	7.1	1998	7.1
		1982	7.5	1983	7.5	1984	7.5	1985	6.7	1986	6.7	1987	6.7	1988	6.7	1989	6.7	1990	6.7	1991	6.7	1992	6.7	1993	6.7	1994	6.7	1995	6.7	1996	6.7	1997	6.7	1998	6.7	1999	6.7
		1983	7.0	1984	7.0	1985	6.4	1986	6.4	1987	6.4	1988	6.4	1989	6.4	1990	6.4	1991	6.4	1992	6.4	1993	6.4	1994	6.4	1995	6.4	1996	6.4	1997	6.4	1998	6.4	1999	6.4	2000	6.4
		1984	6.6	1985	6.6	1986	6.0	1987	6.0	1988	6.0	1989	5.9	1990	5.9	1991	5.9	1992	5.9	1993	5.9	1994	5.9	1995	5.9	1996	5.9	1997	5.9	1998	5.9	1999	5.9	2000	5.9	2001	5.9
		1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0	1990	0.0	1991	0.0	1992	0.0	1993	0.0	1994	0.0	1995	0.0	1996	0.0	1997	0.0	1998	0.0	1999	0.0	2000	0.0	2001	0.0	2002	0.0

*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,
9.0 psi fuel RVP,
54.57% average in-use fuel tank level.
Emissions are based on January 1 mileage accumulation figures given in Table 2.4.8

Continued on the next page.

TABLE 8.11A.2 (continued)
BY-MODEL-YEAR EMISSION LEVELS FOR HIGH ALTITUDE
MOTORCYCLES
TOTAL NONMETHANE HC

1997			1998			1999			2000			2003			January 1 of Calendar Year 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**	MY*	E**	MY*	E**	MY*	E**	MY*	E**			
1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0	1990	0.0			
1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0	1990	0.0	1991	0.0			
1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0	1990	0.0	1991	0.0	1992	0.0			
1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1987	0.0	1988	0.0	1989	0.0	1990	0.0	1991	0.0	1992	0.0	1993	0.0			
1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1988	0.0	1989	0.0	1990	0.0	1991	0.0	1992	0.0	1993	0.0	1994	0.0			
1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1989	0.0	1990	0.0	1991	0.0	1992	0.0	1993	0.0	1994	0.0	1995	0.0			
1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1990	0.0	1991	0.0	1992	0.0	1993	0.0	1994	0.0	1995	0.0	1996	0.0			
1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1991	0.0	1992	0.0	1993	0.0	1994	0.0	1995	0.0	1996	0.0	1997	0.0			
1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0	1992	0.0	1993	0.0	1994	0.0	1995	0.0	1996	0.0	1997	0.0	1998	0.0			
1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0	1993	0.0	1994	0.0	1995	0.0	1996	0.0	1997	0.0	1998	0.0	1999	0.0			
1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0	1990	0.0	1994	0.0	1995	0.0	1996	0.0	1997	0.0	1998	0.0	1999	0.0	2000	0.0			
1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0	1990	0.0	1991	0.0	1995	0.0	1996	0.0	1997	0.0	1998	0.0	1999	0.0	2000	0.0	2001	0.0			
1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0	1990	0.0	1991	0.0	1992	0.0	1996	0.0	1997	0.0	1998	0.0	1999	0.0	2000	0.0	2001	0.0	2002	0.0			
1986	7.1	1987	7.1	1988	6.8	1989	6.8	1990	6.8	1991	6.8	1992	6.8	1993	6.8	1997	6.8	1998	6.8	1999	6.8	2000	6.8	2001	6.8	2002	6.8	2003	6.8			
1987	6.9	1988	6.5	1989	6.5	1990	6.5	1991	6.5	1992	6.5	1993	6.5	1994	6.5	1998	6.5	1999	6.5	2000	6.5	2001	6.5	2002	6.5	2003	6.5	2004	6.5			
1988	6.3	1989	6.3	1990	6.3	1991	6.3	1992	6.3	1993	6.3	1994	6.3	1995	6.3	2000	6.3	2001	6.3	2002	6.3	2003	6.3	2004	6.3	2005	6.3	2006	6.3			
1989	6.1	1990	6.1	1991	6.1	1992	6.1	1993	6.1	1994	6.1	1995	6.1	1996	6.1	2000	6.1	2001	6.1	2002	6.1	2003	6.1	2004	6.1	2005	6.1	2006	6.1			
1990	5.8	1991	5.8	1992	5.8	1993	5.8	1994	5.8	1995	5.8	1996	5.8	1997	5.8	2001	5.8	2002	5.8	2003	5.8	2004	5.8	2005	5.8	2006	5.8	2007	5.8			
1991	5.6	1992	5.6	1993	5.6	1994	5.6	1995	5.6	1996	5.6	1997	5.6	1998	5.6	2002	5.6	2003	5.6	2004	5.6	2005	5.6	2006	5.6	2007	5.6	2008	5.6			
1992	5.3	1993	5.3	1994	5.3	1995	5.3	1996	5.3	1997	5.3	1998	5.3	1999	5.3	2003	5.3	2004	5.3	2005	5.3	2006	5.3	2007	5.3	2008	5.3	2009	5.3			
1993	5.0	1994	5.0	1995	5.0	1996	5.0	1997	5.0	1998	5.0	1999	5.0	2000	5.0	2004	5.0	2005	5.0	2006	5.0	2007	5.0	2008	5.0	2009	5.0	2010	5.0			
1994	4.7	1995	4.7	1996	4.7	1997	4.7	1998	4.7	1999	4.7	2000	4.7	2001	4.7	2005	4.7	2006	4.7	2007	4.7	2008	4.7	2009	4.7	2010	4.7	2011	4.7			
1995	4.4	1996	4.4	1997	4.4	1998	4.4	1999	4.4	2000	4.4	2001	4.4	2002	4.4	2006	4.4	2007	4.4	2008	4.4	2009	4.4	2010	4.4	2011	4.4	2012	4.4			
1996	4.1	1997	4.1	1998	4.1	1999	4.1	2000	4.1	2001	4.1	2002	4.1	2003	4.1	2007	4.1	2008	4.1	2009	4.1	2010	4.1	2011	4.1	2012	4.1	2013	4.1			
1997	0.0	1998	0.0	1999	0.0	2000	0.0	2001	0.0	2002	0.0	2003	0.0	2004	0.0	2008	0.0	2009	0.0	2010	0.0	2011	0.0	2012	0.0	2013	0.0	2014	0.0			

*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:

Emission levels are calculated for 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, 9.0 psi fuel RVP, 54.57% average in-use fuel tank level. Emissions are based on January 1 mil.

TABLE 8.11B.2
BY-MODEL-YEAR EMISSION LEVELS FOR HIGH ALTITUDE
MOTORCYCLES
CO

Continued on the next page.

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TABLE 8.11B.2 (continued)
BY-MODEL-YEAR EMISSION LEVELS FOR HIGH ALTITUDE
MOTORCYCLES
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**	MY* E**	MY* E**	MY* E**	MY* E**	MY* E**
1973	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1974	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1975	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1976	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1977	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1978	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1982	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1983	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1984	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1985	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1986	41.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1987	41.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1988	40.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1989	39.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1990	39.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1991	38.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1992	37.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1993	36.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1994	35.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1995	34.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1996	33.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*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 2.4.8

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TABLE 8.11C.2
BY-MODEL-YEAR EMISSION LEVELS FOR HIGH ALTITUDE
MOTORCYCLES
NOx

DATE : JUNE 30, 1995

		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**	MY*	E**	MY*	E**	MY*	E**	MY*	E**		
+		1961	0.0	1962	0.0	1963	0.0	1964	0.0	1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0
		1962	0.0	1963	0.0	1964	0.0	1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0
		1963	0.0	1964	0.0	1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0
		1964	0.0	1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0
		1965	0.0	1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0
		1966	0.0	1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0
		1967	0.0	1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0
		1968	0.0	1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0
		1969	0.0	1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0
		1970	0.0	1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0
		1971	0.0	1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0
		1972	0.0	1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0
		1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0	1990	0.0
		1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.4	1979	0.4	1980	0.4	1981	0.4	1982	0.4	1983	0.4	1984	0.4	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6
		1975	0.2	1976	0.2	1977	0.2	1978	0.2	1979	0.4	1980	0.4	1981	0.4	1982	0.4	1983	0.4	1984	0.4	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6
		1976	0.2	1977	0.2	1978	0.4	1979	0.4	1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6
		1977	0.2	1978	0.4	1979	0.4	1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6	1994	0.6
		1978	0.4	1979	0.4	1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6	1994	0.6	1995	0.6
		1979	0.4	1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6	1994	0.6	1995	0.6	1996	0.6
		1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6	1994	0.6	1995	0.6	1996	0.6	1997	0.6
		1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6	1994	0.6	1995	0.6	1996	0.6	1997	0.6	1998	0.6
		1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6	1994	0.6	1995	0.6	1996	0.6	1997	0.6	1998	0.6	1999	0.6
		1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6	1994	0.6	1995	0.6	1996	0.6	1997	0.6	1998	0.6	1999	0.6	2000	0.6
		1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6	1994	0.6	1995	0.6	1996	0.6	1997	0.6	1998	0.6	1999	0.6	2000	0.6	2001	0.6
		1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0	1990	0.0	1991	0.0	1992	0.0	1993	0.0	1994	0.0	1995	0.0	1996	0.0	1997	0.0	1998	0.0	1999	0.0	2000	0.0	2001	0.0	2002	0.0

*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 2.4.8

Continued on the next page.

TABLE 8.11C.2 (continued)
BY-MODEL-YEAR EMISSION LEVELS
FOR HIGH ALTITUDE
MOTORCYCLES
NOx

January 1 of Calendar Year									
1997		1998		1999		2000		2003	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1997		1998		1999		2000		2003	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
2000		2003		2008		2010		2012	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
2015		2018		2020					
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1973	0.0	1974	0.0	1975	0.0	1976	0.0	1977	0.0
1974	0.0	1975	0.0	1976	0.0	1977	0.0	1978	0.0
1975	0.0	1976	0.0	1977	0.0	1978	0.0	1979	0.0
1976	0.0	1977	0.0	1978	0.0	1979	0.0	1980	0.0
1977	0.0	1978	0.0	1979	0.0	1980	0.0	1981	0.0
1978	0.0	1979	0.0	1980	0.0	1981	0.0	1982	0.0
1979	0.0	1980	0.0	1981	0.0	1982	0.0	1983	0.0
1980	0.0	1981	0.0	1982	0.0	1983	0.0	1984	0.0
1981	0.0	1982	0.0	1983	0.0	1984	0.0	1985	0.0
1982	0.0	1983	0.0	1984	0.0	1985	0.0	1986	0.0
1983	0.0	1984	0.0	1985	0.0	1986	0.0	1987	0.0
1984	0.0	1985	0.0	1986	0.0	1987	0.0	1988	0.0
1985	0.0	1986	0.0	1987	0.0	1988	0.0	1989	0.0
1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6
1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6
1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6
1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6
1990	0.6	1991	0.6	1992	0.6	1993	0.6	1994	0.6
1991	0.6	1992	0.6	1993	0.6	1994	0.6	1995	0.6
1992	0.6	1993	0.6	1994	0.6	1995	0.6	1996	0.6
1993	0.6	1994	0.6	1995	0.6	1996	0.6	1997	0.6
1994	0.6	1995	0.6	1996	0.6	1997	0.6	1998	0.6
1995	0.6	1996	0.6	1997	0.6	1998	0.6	1999	0.6
1996	0.6	1997	0.6	1998	0.6	1999	0.6	2000	0.6
1997	0.0	1998	0.0	1999	0.0	2000	0.0	2001	0.0

*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 2.4.8

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TABLE 8.12A

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	0.86	5.34	0.88	5.11	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	1.08	5.45	1.09	5.23	0.96	5.35	0.87	5.60	0.89	5.47	0.86	5.45	0.85	5.30	0.84	5.14	0.87	5.25
6	1.32	5.55	1.33	5.35	1.20	5.49	1.10	5.77	1.13	5.67	1.10	5.68	1.08	5.56	1.07	5.43	1.10	5.52
7	1.58	5.65	1.57	5.46	1.45	5.61	1.36	5.90	1.39	5.82	1.35	5.86	1.32	5.76	1.31	5.66	1.36	5.74
8	1.85	5.73	1.82	5.55	1.70	5.72	1.63	6.02	1.66	5.96	1.62	6.02	1.58	5.93	1.56	5.86	1.62	5.93
9	2.13	5.80	2.09	5.63	1.97	5.81	1.91	6.12	1.94	6.08	1.90	6.16	1.85	6.08	1.82	6.03	1.89	6.10
10	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
11	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
12	3.02	6.00	2.91	5.85	2.84	6.04	2.87	6.35	2.90	6.33	2.88	6.42	2.78	6.38	2.73	6.36	2.85	6.41
13	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
14	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
15	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
16	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
17	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
18	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
19	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
20	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
21	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
22	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
23	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
24	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
25	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

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:

$$\text{BENFAC} = (\text{BEFADJ}^*(Y2-Y1) + X2*Y1 - X1*Y2) / (X2 - X1)$$

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 8.13

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

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TABLE 8.12A (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	4.76	0.63	4.73	0.60	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	6.03	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	6.56	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** Indicate the benefit factors

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

$$\text{BENFAC} = (\text{BEFADJ} * (Y2 - Y1) + X2 * Y1 - X1 * Y2) / (X2 - X1)$$

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

where: BENFAC=NOCAT* 1.57+CAT* 4.46

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 8.13

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

DATE : JUNE 30, 1995

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TABLE 8.12B

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	8.50	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	33.32	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	10.57	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	54.95	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:
$$\text{BENFAC} = (\text{BEFADJ} * (\text{Y2} - \text{Y1}) + \text{X2} * \text{Y1} - \text{X1} * \text{Y2}) / (\text{X2} - \text{X1})$$

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* 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 8.13
"Exhaust Effects of Oxygenated Fuel Blends Percent of Change in Emissions"

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TABLE 8.12B (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** Indicate the benefit factors

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

$$\text{BENFAC} = (\text{BEFADJ} * (\text{Y2} - \text{Y1}) + \text{X2} * \text{Y1} - \text{X1} * \text{Y2}) / (\text{X2} - \text{X1})$$

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

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 8.13

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

DATE : JUNE 30, 1995

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TABLE 8.13

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
MOTORCYCLES

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

ADDITIONAL EXHAUST HC REDUCTION FOR REFORMULATED GASOLINE FOR
MOTORCYCLES
(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 8.13 (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 INDUSTRY AVERAGE	-----PHASE 1----- REGION 1	-----PHASE 1----- REGION 2	-----PHASE 2----- REGION 1	-----PHASE 2----- 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