

Table 3.2 Chassis Dynamometer Test Data (LDGV)

LDGV

No.	Date	Engine	Weight_kg	Odometer_km	Capacity_cc	Std. or Cycle	Lvl.	Ave. Spd. km/h	NOx_g/km
379	30/10/96		1,983		2,800	TISI 1280-2538	3	33.6	0.122
380	30/10/96		2,135		3,000	TISI 1280-2538	3	33.6	3.090
381	31/10/96		1,966		2,799	TISI 1280-2538	3	33.6	0.115
382	18/11/96		1,473		2,800	TISI 1280-2538	3	33.6	0.300
383	28/11/96		1,493		2,800	TISI 1280-2538	3	33.6	0.319
384	29/11/96		1,879		2,960	TISI 1280-2538	3	33.6	15.918
385	04/12/96		1,961		2,799	TISI 1280-2538	3	33.6	0.103
386	19/12/96		1,501		5,700	TISI 1280-2538	3	33.6	0.036
387	23/12/96		1,607		4,000	TISI 1280-2538	3	33.6	1.466
388	25/12/96		1,917		3,000	TISI 1280-2538	3	33.6	1.386
389	26/12/96		1,879		2,960	TISI 1120-2535	2	18.7	1.731
390	26/12/96		1,879		2,960	TISI 1280-2538	3	33.6	7.014
391	1996/12/27		2,475		4,476	TISI 1120-2535	2	18.7	1.171
392	1996/12/27		2,160			TISI 1120-2535	2	18.7	1.253
393	27/12/96		2,475		4,500	TISI 1280-2538	3	33.6	4.746
394	15/1/97		2,414		6,750	TISI 1280-2538	3	33.6	0.099
395	16/1/97		2,172		3,497	TISI 1280-2538	3	33.6	2.557
396	31/1/97		1,122		1,557	TISI 1280-2538	3	33.6	16.200
397	31/1/97		2,193		3,500	TISI 1280-2538	3	33.6	1.732
398	04/2/97		852		987	TISI 1280-2538	3	33.6	0.407
399	1997/2/7		1,263		1,626	TISI 1120-2535	2	18.7	2.841
400	07/2/97		1,263		1,626	TISI 1280-2538	3	33.6	11.514
401	10/2/97		1,379		1,626	TISI 1280-2538	3	33.6	12.430
402	20/2/97		1,886		2,972	TISI 1280-2538	3	33.6	3.331
403	26/2/97		2,005		3,200	TISI 1280-2538	3	33.6	0.124
404	03/3/97		1,943		3,200	TISI 1280-2538	3	33.6	0.108
405	07/3/97		2,385			TISI 1280-2538	3	33.6	0.255
406	24/3/97		1,648		3,200	TISI 1280-2538	3	33.6	0.115
407	24/3/97		1,279			TISI 1280-2538	3	33.6	0.393
408	28/3/97		1,665		3,600	TISI 1280-2538	3	33.6	0.095
409	04/4/97		2,430		4,476	TISI 1280-2538	3	33.6	2.723
410	10/4/97		2,430		4,476	TISI 1280-2538	3	33.6	2.208
411	11/4/97		1,519			TISI 1280-2538	3	33.6	0.134
412	11/4/97		2,430		4,476	TISI 1280-2538	3	33.6	2.770
413	24/4/97		2,430		4,476	TISI 1280-2538	3	33.6	7.853
414	25/4/97		1,909		2,693	TISI 1280-2538	3	33.6	0.070
415	25/4/97		1,292		1,300	TISI 1280-2538	3	33.6	0.296
416	29/4/97		1,020		1,331	TISI 1280-2538	3	33.6	0.261
417	29/4/97		2,078		2,972	TISI 1280-2538	3	33.6	2.735
418	07/5/97		1,304		2,156	TISI 1280-2538	3	33.6	0.527
419	08/5/97		3,047		5,753	TISI 1280-2538	3	33.6	0.110
420	27/5/97		1,302		2,000	TISI 1280-2538	3	33.6	0.957
421	28/5/97		1,271		2,000	TISI 1280-2538	3	33.6	0.416
422	28/5/97		1,210		1,998	TISI 1280-2538	3	33.6	0.570
423	29/5/97		1,947			TISI 1280-2538	3	33.6	0.318
424	30/5/97				4,000	TISI 1280-2538	3	33.6	0.516
425	06/6/97		2,389		4,476	TISI 1280-2538	3	33.6	6.397
426	13/6/97		1,308			TISI 1280-2538	3	33.6	1.231
427	17/6/97		1,295		1,297	TISI 1280-2538	3	33.6	0.837
428	18/6/97		1,812			TISI 1280-2538	3	33.6	0.266
429	20/6/97		1,614		3,200	TISI 1280-2538	3	33.6	0.097
430	02/7/97		2,335		4,476	TISI 1365-2539	4	33.6	3.220
431	1997/7/9		2,442		4,476	TISI 1365-2539	4	33.6	0.127
432	1997/7/17		1,904		2,430	TISI 1365-2539	4	33.6	0.327

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No.	Date	Engine	Weight_kg	Odometer_km	Capacity_cc	Std. or Cycle	Lvl.	Ave. Spd._km/h	NOx_g/km
433	15/8/97		1,995		2,972	TISI 1280-2538	3	33.6	11.580
434	1997/8/19		1,614		2,394	TISI 1365-2539	4	33.6	0.306
435	19/8/97		1,995		2,972	TISI 1280-2538	3	33.6	10.550
436	1997/8/20		1,614		2,394	TISI 1365-2539	4	33.6	0.243
437	1997/8/22		1,614		2,394	TISI 1365-2539	4	33.6	0.221
438	22/8/97		1,769		4,600	TISI 1365-2539	4	33.6	0.104
439	1997/8/29		1,790		2,350	TISI 1365-2539	4	33.6	0.101
440	1997/9/3		1,790		2,350	TISI 1365-2539	4	33.6	0.102
441	1997/9/5		1,622		5,700	TISI 1280-2538	3	33.6	0.288
442	09/9/97		2,110		2,500	TISI 1280-2538	3	33.6	4.431
443	1997/9/16		1,990		3,274	TISI 1365-2539	4	33.6	0.255
444	1997/9/17		1,908		2,430	TISI 1365-2539	4	33.6	0.367
445	1997/9/23		1,982		3,274	TISI 1365-2539	4	33.6	0.242
446	1997/10/1		1,494		2,500	TISI 1365-2539	4	33.6	0.094
447	1997/10/15		1,809		3,000	TISI 1365-2539	4	33.6	1.275
448	1997/10/22		1,789		2,350	TISI 1365-2539	4	33.6	0.100
449	1997/11/11		1,334		2,200	TISI 1365-2539	4	33.6	0.220
450	1997/11/12		1,548		2,997	TISI 1365-2539	4	33.6	0.442
451	1997/11/18		1,473		2,400	TISI 1365-2539	4	33.6	0.263
452	1997/11/26		2,185		3,500	TISI 1365-2539	4	33.6	0.602
453	1997/11/27		2,185		3,500	TISI 1365-2539	4	33.6	0.511
454	1997/12/23		1,538		2,300	TISI 1365-2539	4	33.6	0.094
455	1998/2/20		2,332		4,500	TISI 1365-2539	4	33.6	1.355
456	1998/2/27		1,741		3,000	TISI 1365-2539	4	33.6	0.102
457	1998/3/10		2,332		4,500	TISI 1365-2539	4	33.6	1.366
458	1998/6/4		1,311		2,275	TISI 1365-2539	4	33.6	0.265
459	1998/6/9		2,334		4,500	TISI 1365-2539	4	33.6	1.160
460	1998/6/11		2,228		3,500	TISI 1365-2539	4	33.6	0.244
461	1998/6/25		2,334		4,500	TISI 1365-2539	4	33.6	1.168
462	1998/6/26		2,175		3,955	TISI 1365-2539	4	33.6	0.714
463	01/7/98		1,663		3,199	TISI 1280-2538	3	33.6	0.108
464	1998/8/14		2,781		5,800	TISI 1365-2539	4	33.6	0.478
465	1998/9/10		2,519		4,663	TISI 1365-2539	4	33.6	0.092
466	1998/11/27		2,491		4,700	TISI 1365-2539	4	33.6	0.062
467	1998/12/1		2,271		4,500	TISI 1365-2539	4	33.6	1.019
468	1998/12/27		2,147		2,970	TISI 1365-2539	4	33.6	0.388
469	1999/1/6		2,000		1,240	TISI 1365-2539	4	33.6	1.338
470	1999/1/22		2,006		2,400	TISI 1365-2539	4	33.6	0.281
471	1999/12/14	DI	1,100	142,520	1,498	test 60,80,100 km	99		2.115
472	1999/12/15	DI	1,100	142,799	1,498	BKK cycle	99	24.6	1.971
473	2000/2/29	DI	1,100	97,828	1,300	BKK cycle	99	24.6	1.900
474	2000/6/6	DI	1,567		1,796	TISI.1440-1997	5	33.6	0.034
475	2000/6/15	DI	1,567		1,796	TISI.1440-1997	5	33.6	0.109
476	2000/6/15	DI	1,567		1,796	TISI.1440-1997	5	33.6	0.026
477	2000/11/24	IDI	2,500		4,663	TISI.1440-1997	5	33.6	0.057
478	2000/11/28	DI	1,134		1,598	TISI.1440-1997	5	33.6	0.058
479	2001/2/7	DI	1,350		1,796	TISI.1440-1997	5	33.6	3.780
480	2001/2/13	IDI	2,180		3,378	TISI.1440-1996	5	33.6	0.279
481	2001/2/13	IDI	1,900		3,378	TISI.1440-1997	5	33.6	0.490
482	2001/5/23	DI	1,360		1,668	TISI.1440-1997	5	33.6	0.024
483	2001/5/23	DI	1,590		1,973	TISI.1440-1997	5	33.6	0.092
484	2001/5/24	DI	1,130		1,834	TISI.1440-1997	5	33.6	0.059
485	2001/5/24	DI	1,130		1,834	TISI.1440-1997	5	33.6	0.052
486	2001/7/20	IDI	2,080		2,693	TISI.1440-1997	5	33.6	0.046

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487	2001/7/20	IDI	2,130		3,378	TISI.1440-1997	5	33.6	0.267
488	2001/9/26	DI	1,540		1,997	TISI.1870-1999	6	33.6	0.083
489	2001/9/26	DI	1,500		1,994	TISI.1870-1999	6	33.6	0.168
490	2001/9/26	DI	1,500		1,994	TISI.1870-1999	6	33.6	0.095
491	2001/9/27	DI	1,540		1,997	TISI.1870-1999	6	33.6	0.025
492	2001/9/27	DI	1,540		1,997	TISI.1870-1999	6	33.6	0.024
493	2001/9/27	DI	1,540		1,997	TISI.1870-1999	6	33.6	0.080
494	2001/10/10	IDI	1,360		1,794	1999/102/EC(EURO III)	7	33.6	0.097
495	2001/10/11	DI	1,360		1,970	1999/102/EC(EURO III)	7	33.6	0.041
496	2001/10/12	IDI	1,360		1,794	1999/102/EC(EURO III)	7	33.6	0.109
497	2001/10/12	DI	1,360		1,970	1999/102/EC(EURO III)	7	33.6	0.219
498	2001/10/13	DI	1,360		1,970	1999/102/EC(EURO III)	7	33.6	0.132
499	2001/10/16	IDI	1,360		1,794	1999/102/EC(EURO III)	7	33.6	0.110
500	2001/10/16	DI	1,360		1,970	1999/102/EC(EURO III)	7	33.6	0.151
501	2001/10/17	IDI	1,360		1,794	1999/102/EC(EURO III)	7	33.6	0.110
502	2001/10/18	IDI	1,360		1,794	1999/102/EC(EURO III)	7	33.6	0.112
503	2001/10/19	IDI	1,360		1,794	1999/102/EC(EURO III)	7	33.6	0.139
504	2001/11/7	DI	1,810		2,960	TISI.1440-1997	5	33.6	0.894
505	2001/12/13	DI	1,590		1,995	TISI.1870-1999	6	33.6	0.038
506	2001/12/13	DI	1,130		1,597	TISI.1870-1999	6	33.6	0.077
507	2001/12/19	DI	2,150		3,500	TISI.1870-1999	6	33.6	0.039
508	2001/12/20	DI	1,590		2,198	TISI.1870-1999	6	33.6	0.013
509	2002/1/18	DI	1,590		1,796	TISI.1870-1999	6	33.6	0.020
510		Nissan Cefiro		100,000			1	18.7	3.930
511		Mitsubishi Lancer		64,000			1	18.7	0.250
512		Toyota Corolla		140,000			1	18.7	1.490
513		Volvo		27,000			2	18.7	0.2
514		Toyota Corolla					3	33.6	0.2
515		Honda Civic					3	33.6	0.3
516		Gasoline	1,448			1440-2540	5	33.6	0.167
517		Gasoline	923			1440-2540	5	33.6	0.031
518		Gasoline	1,104			1440-2540	5	33.6	0.080
519		Gasoline	1,103			1440-2540	5	33.6	0.106
520		Gasoline	1,815			1440-2540	5	33.6	0.116
521		Gasoline	1,616			1440-2540	5	33.6	0.050
522		Gasoline	1,670			1440-2540	5	33.6	0.081
523		Gasoline	1,359			1440-2540	5	33.6	0.005
524		Gasoline	1,363			1440-2540	5	33.6	0.141
525		Gasoline	1,643			1440-2540	5	33.6	0.080
526		Gasoline	1,934			1440-2540	5	33.6	0.210
527		Gasoline	1,115			1440-2540	5	33.6	0.082
528		Gasoline	1,648			1440-2540	5	33.6	0.156
529		Gasoline	1,455			1440-2540	5	33.6	0.074
530		Gasoline	1,070			1440-2540	5	33.6	0.072
531		Gasoline	1,394			1440-2540	5	33.6	0.096
532		Gasoline	948			1440-2540	5	33.6	0.012
533		Gasoline	1,332			1440-2540	5	33.6	0.066
534		Gasoline	965			1440-2540	5	33.6	0.013
535		Gasoline	1,542			1440-2540	5	33.6	0.023
536		Gasoline	1,560			1440-2540	5	33.6	0.107
537		Gasoline	1,940			1440-2540	5	33.6	0.045
538		Gasoline	1,997			1440-2540	5	33.6	0.031
539		Gasoline	992			1440-2540	5	33.6	0.030
540		Gasoline	2,034			1440-2540	5	33.6	0.128

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No.	Date	Engine	Weight_kg	Odometer_km	Capacity_cc	Std. or Cycle	Lvl.	Ave. Spd._km/h	NOx_g/km
541		Gasoline	1,593			1440-2540	5	33.6	0.067
542		Gasoline	1,660			1440-2540	5	33.6	0.078
543		Gasoline	1,437			1440-2540	5	33.6	0.112
544		Gasoline	1,822			1440-2540	5	33.6	0.098
545		Gasoline	2,445			1440-2540	5	33.6	0.228
546		Gasoline	1,934			1440-2540	5	33.6	0.046
547		Gasoline	1,934			1440-2540	5	33.6	0.093
548		Gasoline	1,644			1440-2540	5	33.6	0.020
549		Gasoline	1,658			1440-2540	5	33.6	0.133
550		Gasoline	1,658			1440-2540	5	33.6	0.161
551		Gasoline	1,850			1440-2540	5	33.6	0.111
552		Gasoline	2,465			1440-2540	5	33.6	0.061
553		Gasoline	1,387			1440-2540	5	33.6	0.095
554		Gasoline	1,077			1440-2540	5	33.6	0.018
555		Gasoline	1,557			1440-2540	5	33.6	0.082
556		Gasoline	1,739			1440-2540	5	33.6	0.078
557		Gasoline	1,336			1440-2540	5	33.6	0.100
558		Gasoline	1,830			1440-2540	5	33.6	0.119
559		Gasoline	1,901			1440-2540	5	33.6	0.190
560		Gasoline	1,354			1440-2540	5	33.6	0.099
561		Gasoline	1,400			1440-2540	5	33.6	0.166
562		Gasoline	1,901			1440-2540	5	33.6	0.165
563		Gasoline	1,766			1440-2540	5	33.6	0.241
564		Gasoline	2,438			1440-2540	5	33.6	0.060
565		Gasoline	1,587			1440-2540	5	33.6	0.002
566		Gasoline	783			1440-2540	5	33.6	0.107
567		Gasoline	787			1440-2540	5	33.6	0.264
568		Gasoline	1,726			1440-2540	5	33.6	0.245
569		Gasoline	2,443			1440-2540	5	33.6	0.067
570		Gasoline	787			1440-2540	5	33.6	0.139
571		Gasoline	1,743			1440-2540	5	33.6	0.144
572		Gasoline	1,176			1440-2540	5	33.6	0.037
573		Gasoline	1,363			1440-2540	5	33.6	0.002
574		Gasoline	1,190			1440-2540	5	33.6	0.129
575		Gasoline	994			1440-2540	5	33.6	0.034
576		Gasoline	1,125			1440-2540	5	33.6	0.086
577		Gasoline	1,338			1440-2540	5	33.6	0.080
578		Gasoline	1,888			1440-2540	5	33.6	0.165
579		Gasoline	102			1440-2540	5	33.6	0.038
580		Gasoline	1,593			1440-2540	5	33.6	0.139
581		Gasoline	1,478			1440-2540	5	33.6	0.036
582		Gasoline	1,368			1440-2540	5	33.6	0.027
583		Gasoline	1,726			1440-2540	5	33.6	0.041
584		Gasoline	2,020			1440-2540	5	33.6	0.207
585		Gasoline	1,392			1440-2540	5	33.6	0.001
586		Gasoline	7,976			1440-2540	5	33.6	0.147
587		Gasoline	1,601			1440-2540	5	33.6	0.136
588		Gasoline	768			1440-2540	5	33.6	0.040
589		Gasoline	1,902			1440-2540	5	33.6	0.196
590		Gasoline	1,568			1440-2540	5	33.6	0.024
591		Gasoline	2,476			1440-2540	5	33.6	0.033
592		Gasoline	1,719			1440-2540	5	33.6	0.105
593		Gasoline	1,537			1440-2540	5	33.6	0.011
594		Gasoline	1,537			1440-2540	5	33.6	0.020

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595		Gasoline	1,510			1440-2540	5	33.6	0.127
596		Gasoline	2,052			1440-2540	5	33.6	0.056
597		Gasoline	2,018			1440-2540	5	33.6	0.207
598		Gasoline	1,872			1440-2540	5	33.6	0.007
599		Gasoline	2,528			1440-2540	5	33.6	0.103
600		Gasoline	1,872			1440-2540	5	33.6	0.021
601		Gasoline	1,882			1440-2540	5	33.6	0.027
602		Gasoline	1,906			1440-2540	5	33.6	0.160
603		Gasoline	1,661			1440-2540	5	33.6	0.030
604		Gasoline	1,495			1440-2540	5	33.6	0.054
605		Gasoline	2,484			1440-2540	5	33.6	0.046
606		Gasoline	2,497			1440-2540	5	33.6	0.062
607		Gasoline	1,947			1440-2540	5	33.6	0.049
608		Gasoline	1,947			1440-2540	5	33.6	0.003
609		Gasoline	1,993			1440-2540	5	33.6	0.105
610		Gasoline	1,583			1440-2540	5	33.6	0.005
611		Gasoline	2,014			1440-2540	5	33.6	0.061
612		Gasoline	1,470			1440-2540	5	33.6	0.056
613		Gasoline	1,345			1440-2540	5	33.6	0.059
614		Gasoline	2,014			1440-2540	5	33.6	0.235
615		Gasoline	1,679			1440-2540	5	33.6	0.101
616		Gasoline	1,564			1440-2540	5	33.6	0.054
617		Gasoline	960			1440-2540	5	33.6	0.035
618		Gasoline	998			1440-2540	5	33.6	0.051
619		Gasoline	2,253			1440-2540	5	33.6	0.231
620		Gasoline	1,134			1440-2540	5	33.6	0.105
621		Gasoline	2,135			1440-2540	5	33.6	0.209
622		Gasoline	1,503			1440-2540	5	33.6	0.033
623		Gasoline	2,120			1440-2540	5	33.6	0.290
624		Gasoline	1,459			1440-2540	5	33.6	0.125
625		Gasoline	2,035			1440-2540	5	33.6	0.149
626		Gasoline	2,159			1440-2540	5	33.6	0.205
627		Gasoline	1,342			1440-2540	5	33.6	0.019
628		Gasoline	1,247			1440-2540	5	33.6	0.163
629		Gasoline	1,864			1440-2540	5	33.6	0.131
630		Gasoline	1,760			1440-2540	5	33.6	0.019
631		Gasoline	2,473			1440-2540	5	33.6	0.088
632		Gasoline	2,156			1440-2540	5	33.6	0.184
633		Gasoline	1,296			1440-2540	5	33.6	0.075
634		Gasoline	2,016			1440-2540	5	33.6	0.107
635		Gasoline	1,540			1440-2540	5	33.6	0.039
636		Gasoline	2,150			1440-2540	5	33.6	0.155
637		Gasoline	1,969			1440-2540	5	33.6	0.111
638		Gasoline	2,398			1440-2540	5	33.6	0.092
639		Gasoline	1,576			1440-2540	5	33.6	0.068
640		Gasoline	2,488			1440-2540	5	33.6	0.150
641		Gasoline	2,055			1440-2540	5	33.6	0.101
642		Gasoline	2,465			1440-2540	5	33.6	0.077
643		Gasoline	2,465			1440-2540	5	33.6	0.129
644		Gasoline	1,985			1440-2540	5	33.6	0.117
645		Gasoline	2,475			1440-2540	5	33.6	0.235
646		Gasoline	1,985			1440-2540	5	33.6	0.054
647		Gasoline	1,307			1870-2540	6	33.6	0.006
648		Gasoline	1,186			1870-2540	6	33.6	0.114

Table 3.2 Chassis Dynamometer Test Data (LDGV)

LDGV

No.	Date	Engine	Weight_kg	Odometer_km	Capacity_cc	Std. or Cycle	Lvl.	Ave. Spd._km/h	NOx_g/km
649		Gasoline	1,566			1870-2540	6	33.6	0.096
650		Gasoline	2,531			1870-2540	6	33.6	0.035
651		Gasoline	2,498			1870-2540	6	33.6	0.058
652		Gasoline	2,493			1870-2540	6	33.6	0.111
653		Gasoline	2,066			1870-2540	6	33.6	0.035
654		Gasoline	1,505			1870-2540	6	33.6	0.120
655		Gasoline	1,364			1870-2540	6	33.6	0.012
656		Gasoline	2,493			1870-2540	6	33.6	0.080
657		Gasoline	1,446			1870-2540	6	33.6	0.106
658		Gasoline	1,462			1870-2540	6	33.6	0.131
659		Gasoline	115			1870-2540	6	33.6	0.018
660		Gasoline	1,366			1870-2540	6	33.6	0.027
661		Gasoline	1,624			1870-2540	6	33.6	0.109
662		Gasoline	1,590			1870-2540	6	33.6	0.015
663		Gasoline	1,438			1870-2540	6	33.6	0.109
664		Gasoline	1,535			1870-2540	6	33.6	0.023
665		Gasoline	1,538			1870-2540	6	33.6	0.171
666		Gasoline	2,051			1870-2540	6	33.6	0.090
667		Gasoline	1,302			1870-2540	6	33.6	0.201
668		Gasoline	1,024			1870-2540	6	33.6	0.011
669		Gasoline	1,631			1870-2540	6	33.6	0.238
670		Gasoline	1,573			1870-2540	6	33.6	0.014
671		Gasoline	1,456			1440-2540	5	33.6	0.012
672		Gasoline	1,560			1440-2540	5	33.6	0.529
673		Gasoline	1,363			1440-2540	5	33.6	0.389
674		Gasoline	2,025			1440-2540	5	33.6	0.161
675		Gasoline	1,796			1440-2540	5	33.6	0.448
676		Gasoline	1,864			1440-2540	5	33.6	0.466
677		Gasoline	1,643			1440-2540	5	33.6	0.267
678		Gasoline	1,643			1440-2540	5	33.6	0.258
679		Gasoline	1,658			1440-2540	5	33.6	0.186
680		Gasoline	1,884			1440-2540	5	33.6	0.349
681		Gasoline	787			1440-2540	5	33.6	0.764
682		Gasoline	783			1440-2540	5	33.6	0.709
683		Gasoline	2,162			1440-2540	5	33.6	0.331
684		Gasoline	2,108			1440-2540	5	33.6	0.598
685		Gasoline	1,364			1440-2540	5	33.6	0.234
686		Gasoline	1,663			1440-2540	5	33.6	0.461
687		Gasoline	1,655			1440-2540	5	33.6	0.869
688		Gasoline	1,441			1440-2540	5	33.6	0.310
689		Gasoline	1,441			1440-2540	5	33.6	0.303
690		Gasoline	1,718			1440-2540	5	33.6	1.122
691		Gasoline	2,043			1440-2540	5	33.6	0.423
692		Gasoline	1,243			1440-2540	5	33.6	4.451
693		Gasoline	796			1440-2540	5	33.6	0.324
694		Gasoline	2,066			1870-2540	6	33.6	1.105
695		Gasoline	760			1870-2540	6	33.6	0.067
696		Gasoline	1,547			1870-2540	6	33.6	0.293

Table 3.3 Chassis Dynamometer Test Data (LDDV/T)

LDDV/T

No.	Date	Engine	Weight_kg	Odometer_km	Capacity_cc	Std. or Cycle	Lvl.	Ave. Spd._km/h	NOx_g/km
1	1995/7/8	Diesel	1,639		2,779	TISI 1140	1	18.7	1.330
2	1995/10/5	Diesel	1,809		2,184	TISI 1140	1	18.7	0.818
3	1995/10/5	Diesel	2,266		2,495	TISI 1140	1	18.7	3.215
4	1995/10/12	Diesel	2,125		3,000	TISI 1140	1	18.7	1.054
5	1995/10/12	Diesel	1,290		1,900	TISI 1140	1	18.7	1.267
6	1995/12/12	Diesel	1,590			TISI 1140	1	18.7	2.466
7	1995/12/12	Diesel	1,460			TISI 1140	1	18.7	2.466
8	1995/12/14	Diesel	1,426		2,446	TISI 1140	1	18.7	2.001
9	1995/12/19	Diesel	1,466			TISI 1140	1	18.7	2.612
10	1995/12/21	Diesel	1,433			TISI 1140	1	18.7	2.909
11	1996/1/26	Diesel	2,466		4,163	TISI 1140	1	18.7	2.843
12	1996/3/5	Diesel	2,048		2,779	TISI 1140	1	18.7	1.451
13	1996/3/15	Diesel	2,095		3,000	TISI 1285	2	33.6	4.828
14	1996/7/12	Diesel	1,956		2,982	TISI 1285	2	33.6	4.362
15	1996/7/23	Diesel	1,932		2,779	TISI 1285	2	33.6	5.35
16	1996/9/3	Diesel	1,536		2,499	TISI 1370-2539	3	33.6	0.764
17	1996/9/19	Diesel	1,598		2,800	TISI 1140	1	18.7	1.246
18	1996/9/19	Diesel	1,698		2,779	TISI 1285	2	33.6	5.047
19	1996/9/25	Diesel	1,602		2,500	TISI 1370-2539	3	33.6	1.201
20	1996/11/19	Diesel	1,722		2,765	TISI 1140	1	18.7	1.365
21	1996/11/19	Diesel	1,822		2,765	TISI 1285	2	33.6	5.529
22	1996/11/20	Diesel	1,578			TISI 1370-2539	3	33.6	0.737
23	1996/11/21	Diesel	1,478		2,669	TISI 1370-2539	3	33.6	0.737
24	1996/11/22	Diesel	1,478		2,669	TISI 1370-2539	3	33.6	0.745
25	1996/11/22	Diesel	1,578			TISI 1370-2539	3	33.6	0.745
26	1996/12/23	Diesel	2,049			TISI 1370-2539	3	33.6	1.12
27	1996/12/24	Diesel	1,949		2,800	TISI 1370-2539	3	33.6	1.12
28	1996/12/25	Diesel	1,949		2,800	TISI 1370-2539	3	33.6	1.217
29	1996/12/25	Diesel	2,049			TISI 1370-2539	3	33.6	1.217
30	1997/1/8	Diesel	1,734		2,163	TISI 1370-2539	3	33.6	0.985
31	1997/1/10	Diesel	1,734			TISI 1370-2539	3	33.6	0.974
32	1997/2/7	Diesel	2,734		2,663	TISI 1370-2539	3	33.6	0.985
33	1997/2/9	Diesel	2,734		2,663	TISI 1370-2539	3	33.6	0.974
34	1997/2/26	Diesel	2,135		2,835	TISI 1370-2539	3	33.6	0.706
35	1997/10/8	Diesel	2,609		4,163	TISI 1370-2539	3	33.6	1.727
36	1997/10/8	Diesel	2,609		4,163	TISI 1370-2539	3	33.6	1.727
37	1998/3/30	Diesel	2,035		2,835	TISI 1370-2539	3	33.6	0.706
38	1999/1/1/3	IDI	1,500	58,452	2,446	BKK cycle	99	24.6	2.468
39	1999/1/1/3	IDI	1,500	58,510	2,446	BKK cycle	99	24.6	2.191
40	2000/3/21	DI	1,523		2,499	TISI.1435-1997	4	33.6	0.983
41	2000/3/22	DI	1,590		2,771	TISI.1435-1997	4	33.6	0.939
42	2000/3/22	DI	1,590		2,499	TISI.1435-1997	4	33.6	1.050
43	2000/3/28	IDI	1,520		2,446	TISI.1435-1997	4	33.6	1.068
44	2000/3/28	DI	1,590		2,477	TISI.1435-1997	4	33.6	0.901
45	2000/3/30	DI	1,627		2,663	TISI.1435-1997	4	33.6	1.100
46	2000/3/31	DI	1,627		2,663	TISI.1435-1997	4	33.6	1.095
47	2000/4/11	DI	2,500		2,800	TISI.1435-1997	4	33.6	2.117
48	2000/5/10	DI	1,775		2,151	TISI.1435-1997	4	33.6	0.715
49	2000/5/30	IDI	1,590		2,446	TISI.1435-1997	4	33.6	1.384
50	2000/6/8	IDI	2,070		3,000	TISI.1435-1997	4	33.6	1.086
51	2000/6/14	IDI	2,160		3,000	TISI.1435-1997	4	33.6	1.078
52	2000/6/15	IDI	1,850		2,800	TISI.1435-1997	4	33.6	1.073
53	2000/6/16	IDI	2,070		3,000	TISI.1435-1997	4	33.6	0.690

Table 3.3 Chassis Dynamometer Test Data (LDDV/T)

LDDV/T

No.	Date	Engine	Weight_kg	Odometer_km	Capacity_cc	Std. or Cycle	Lvl.	Ave. Spd._km/h	NOx_g/km
54	2000/6/16	IDI	2,590		4,200	TISI.1435-1997	4	33.6	1.572
55	2000/6/16	DI	2,500		2,385	TISI.1435-1997	4	33.6	1.526
56	2000/6/21	DI	2,500		2,385	TISI.1435-1997	4	33.6	1.512
57	2000/7/6	IDI	1,950		2,800	TISI.1435-1997	4	33.6	1.072
58	2000/7/11	IDI	2,590		4,200	TISI.1435-1997	4	33.6	1.353
59	2000/7/20	IDI	2,590		4,200	TISI.1435-1997	4	33.6	1.377
60	2000/8/2	IDI	1,850		2,500	TISI.1435-1997	4	33.6	2.416
61	2000/8/2	IDI	1,850		2,500	TISI.1435-1997	4	33.6	1.071
62	2000/8/3	IDI	2,110		2,982	TISI.1435-1997	4	33.6	1.189
63	2000/8/8	DI	1,845		2,902	TISI.1435-1997	4	33.6	1.079
64	2000/8/8	IDI	1,950		3,000	TISI.1435-1997	4	33.6	1.585
65	2000/8/9	DI	1,845		2,902	TISI.1435-1997	4	33.6	1.076
66	2000/8/16	IDI	1,850		2,982	TISI.1435-1997	4	33.6	0.536
67	2000/8/16	IDI	1,850		2,779	TISI.1435-1997	4	33.6	1.139
68	2000/8/29	IDI	2,180		2,982	TISI.1435-1997	4	33.6	0.807
69	2000/8/30	IDI	2,170		2,982	TISI.1435-1997	4	33.6	1.143
70	2000/9/13	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.173
71	2000/9/15	IDI	2,180		2,982	TISI.1435-1997	4	33.6	1.053
72	2000/9/20	DI	2,500		2,835	TISI.1435-1997	4	33.6	1.453
73	2000/9/22	IDI	1,950		2,982	TISI.1435-1997	4	33.6	1.566
74	2000/9/28	DI	1,590		2,835	TISI.1435-1997	4	33.6	0.839
75	2000/9/29	DI	1,590		2,835	TISI.1435-1997	4	33.6	0.817
76	2000/9/29	IDI	2,110		2,982	TISI.1435-1997	4	33.6	0.681
77	2000/10/3	IDI	2,180		2,982	TISI.1435-1997	4	33.6	0.629
78	2000/10/3	DI	1,590		2,835	TISI.1875-1999	5	33.6	0.815
79	2000/10/4	IDI	2,180		2,982	TISI.1435-1997	4	33.6	0.644
80	2000/10/4	DI	2,500		2,835	TISI.1435-1997	4	33.6	1.382
81	2000/10/6	IDI	1,980		2,446	TISI.1435-1997	4	33.6	0.938
82	2000/10/7	DI	1,740		2,300	TISI.1435-1997	4	33.6	1.063
83	2000/10/13	IDI	1,490		2,446	TISI.1435-1997	4	33.6	1.064
84	2000/10/18	IDI	1,590		2,446	TISI.1285-1995	3	33.6	1.316
85	2000/10/25	IDI	2,100		2,982	TISI.1435-1997	4	33.6	0.769
86	2000/11/2	IDI	2,550		4,163	TISI.1435-1997	4	33.6	2.053
87	2000/11/14	IDI	2,180		2,982	TISI.1435-1997	4	33.6	0.822
88	2000/11/16	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.142
89	2000/11/17	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.421
90	2000/11/21	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.455
91	2000/11/22	IDI	1,980		2,982	TISI.1435-1997	4	33.6	0.470
92	2000/11/28	DI	1,590		2,835	TISI.1435-1997	4	33.6	0.802
93	2000/11/29	IDI	1,590		2,982	TISI.1435-1997	4	33.6	0.684
94	2000/11/29	DI	1,590		2,663	TISI.1435-1997	4	33.6	0.824
95	2000/11/29	DI	1,590		2,892	TISI.1435-1997	4	33.6	0.820
96	2000/11/30	DI	1,590		2,499	TISI.1435-1997	4	33.6	0.946
97	2000/11/30	DI	1,590		2,477	TISI.1875-1999	5	33.6	0.712
98	2000/12/1	DI	1,700		2,999	TISI.1435-1997	4	33.6	0.584
99	2000/12/1	IDI	1,730		2,982	TISI.1435-1997	4	33.6	0.811
100	2000/12/1	DI	1,590		2,477	TISI.1875-1999	5	33.6	0.710
101	2000/12/7	DI	1,590		2,835	TISI.1875-1999	5	33.6	0.613
102	2000/12/8	DI	1,590		2,835	TISI.1875-1999	5	33.6	0.596
103	2000/12/14	DI	2,000		2,500	TISI.1435-1997	4	33.6	1.497
104	2000/12/15	DI	1,865		2,151	TISI.1435-1997	4	33.6	1.325
105	2000/12/19	DI	2,000		2,500	TISI.1435-1997	4	33.6	1.489
106	2000/12/20	DI	1,865		2,151	TISI.1435-1997	4	33.6	1.288
107	2001/1/11	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.405

Table 3.3 Chassis Dynamometer Test Data (LDDV/T)

LDDV/T

No.	Date	Engine	Weight_kg	Odometer_km	Capacity_cc	Std. or Cycle	Lvl.	Ave. Spd._km/h	NOx_g/km
108	2001/1/12	IDI	2,100		2,800	TISI.1435-1997	4	33.6	1.079
109	2001/1/12	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.295
110	2001/1/12	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.399
111	2001/1/16	DI	1,810		2,835	TISI.1875-1999	5	33.6	0.774
112	2001/1/16	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.286
113	2001/1/17	DI	1,590		2,499	TISI.1285-1994	3	33.6	2.850
114	2001/1/17	DI	1,810		2,835	TISI.1875-1999	5	33.6	0.749
115	2001/1/18	IDI	1,700		2,446	TISI.1435-1997	4	33.6	0.897
116	2001/1/18	IDI	2,180		2,982	TISI.1435-1997	4	33.6	1.391
117	2001/1/19	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.276
118	2001/1/19	IDI	2,180		2,982	TISI.1435-1997	4	33.6	1.370
119	2001/1/23	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.274
120	2001/1/24	IDI	1,730		2,779	TISI.1435-1997	4	33.6	0.985
121	2001/1/25	DI	1,740		2,148	TISI.1435-1997	4	33.6	0.373
122	2001/1/25	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.496
123	2001/1/26	IDI	2,180		2,982	TISI.1435-1997	4	33.6	0.519
124	2001/1/26	IDI	2,180		2,982	TISI.1435-1997	4	33.6	0.637
125	2001/1/30	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.416
126	2001/1/31	DI	1,735		3,157	TISI.1435-1997	4	33.6	0.964
127	2001/2/1	IDI	2,180		2,982	TISI.1435-1997	4	33.6	0.795
128	2001/2/1	IDI	2,180		2,982	TISI.1435-1997	4	33.6	0.630
129	2001/2/2	DI	1,750		2,800	TISI.1435-1997	4	33.6	6.418
130	2001/2/14	IDI	2,550		4,163	TISI.1435-1997	4	33.6	3.186
131	2001/2/14	IDI	1,730		2,985	TISI.1435-1997	4	33.6	1.227
132	2001/2/15	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.361
133	2001/2/16	IDI	2,170		2,982	TISI.1435-1997	4	33.6	0.540
134	2001/2/16	IDI	1,850		2,446	TISI.1435-1997	4	33.6	0.790
135	2001/2/16	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.354
136	2001/2/16	IDI	2,550		4,163	TISI.1435-1997	4	33.6	3.509
137	2001/2/20	IDI	1,850		2,982	TISI.1435-1997	4	33.6	1.024
138	2001/2/21	DI	1,605		1,995	TISI.1435-1997	4	33.6	0.606
139	2001/2/21	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.153
140	2001/2/21	IDI	1,850		2,779	TISI.1435-1997	4	33.6	1.090
141	2001/2/22	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.208
142	2001/2/28	IDI	1,980		2,982	TISI.1435-1997	4	33.6	1.099
143	2001/2/28	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.146
144	2001/3/7	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.149
145	2001/3/9	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.090
146	2001/3/15	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.026
147	2001/3/15	IDI	1,850		2,779	TISI.1435-1997	4	33.6	0.817
148	2001/3/16	DI	1,980		2,663	TISI.1435-1997	4	33.6	1.330
149	2001/3/20	IDI	1,850		2,779	TISI.1435-1997	4	33.6	1.094
150	2001/3/20	IDI	1,850		2,779	TISI.1435-1997	4	33.6	0.956
151	2001/3/21	DI	1,790		2,771	TISI.1435-1997	4	33.6	1.829
152	2001/3/23	DI	1,980		2,663	TISI.1435-1997	4	33.6	1.145
153	2001/3/27	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.309
154	2001/3/27	DI	1,790		2,771	TISI.1435-1997	4	33.6	1.940
155	2001/3/28	DI	2,500		3,200	TISI.1435-1997	4	33.6	1.583
156	2001/3/28	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.326
157	2001/3/28	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.783
158	2001/3/29	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.412
159	2001/3/29	DI	2,500		3,200	TISI.1435-1997	4	33.6	1.561
160	2001/3/30	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.779
161	2001/4/3	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.776

Table 3.3 Chassis Dynamometer Test Data (LDDV/T)

LDDV/T

No.	Date	Engine	Weight_kg	Odometer_km	Capacity_cc	Std. or Cycle	Lvl.	Ave. Spd._km/h	NOx_g/km
162	2001/4/4	IDI	2,100		2,982	TISI.1435-1997	4	33.6	0.785
163	2001/4/4	IDI	1,850		2,985	TISI.1435-1997	4	33.6	1.035
164	2001/4/4	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.469
165	2001/4/5	IDI	1,850		2,779	TISI.1435-1997	4	33.6	1.073
166	2001/4/5	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.467
167	2001/4/5	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.454
168	2001/4/10	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.226
169	2001/4/10	DI	1,980		2,663	TISI.1435-1997	4	33.6	1.324
170	2001/4/10	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.310
171	2001/4/11	DI	1,980		2,663	TISI.1435-1997	4	33.6	1.222
172	2001/4/12	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.063
173	2001/4/24	IDI	1,850		2,779	TISI.1435-1997	4	33.6	2.085
174	2001/4/26	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.207
175	2001/5/1	DI	1,590		2,663	TISI.1435-1997	4	33.6	1.037
176	2001/5/1	IDI	1,590		2,446	TISI.1435-1997	4	33.6	0.747
177	2001/5/25	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.239
178	2001/5/25	IDI	1,850		2,982	TISI.1435-1997	4	33.6	0.825
179	2001/5/29	DI	1,810		2,835	TISI.1435-1997	4	33.6	0.910
180	2001/5/29	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.494
181	2001/5/30	DI	1,805		2,500	TISI.1435-1997	4	33.6	0.921
182	2001/5/30	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.485
183	2001/6/1	IDI	1,850		2,446	TISI.1435-1997	4	33.6	2.984
184	2001/6/1	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.223
185	2001/6/1	IDI	2,550		4,163	TISI.1435-1997	4	33.6	2.739
186	2001/6/6	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.145
187	2001/6/14	DI	1,980		2,663	TISI.1435-1997	4	33.6	1.224
188	2001/6/14	IDI	2,170		2,982	TISI.1435-1997	4	33.6	0.642
189	2001/6/15	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.508
190	2001/6/16	DI	1,590		2,500	TISI.1435-1997	4	33.6	1.353
191	2001/6/16	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.512
192	2001/6/19	DI	1,590		2,500	TISI.1435-1997	4	33.6	1.356
193	2001/6/19	DI	1,590		2,500	TISI.1435-1997	4	33.6	1.353
194	2001/6/21	IDI	1,850		2,446	TISI.1435-1997	4	33.6	0.965
195	2001/6/22	IDI	1,850		2,982	TISI.1435-1997	4	33.6	1.121
196	2001/6/22	IDI	2,180		3,000	TISI.1435-1997	4	33.6	1.275
197	2001/6/22	IDI	2,100		2,779	TISI.1435-1997	4	33.6	2.240
198	2001/6/29	IDI	2,180		2,982	TISI.1435-1997	4	33.6	0.992
199	2001/6/29	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.469
200	2001/6/29	IDI	2,180		2,982	TISI.1435-1997	4	33.6	0.720
201	2001/6/29	IDI	1,850		2,779	TISI.1435-1997	4	33.6	1.182
202	2001/7/3	IDI	1,590		2,446	TISI.1435-1997	4	33.6	0.949
203	2001/7/3	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.286
204	2001/7/4	DI	2,210		2,800	TISI.1435-1997	4	33.6	0.823
205	2001/7/4	DI	2,180		3,153	TISI.1435-1997	4	33.6	0.892
206	2001/7/4	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.462
207	2001/7/4	IDI	2,500		2,779	TISI.1435-1997	4	33.6	1.129
208	2001/7/10	IDI	2,100		2,779	TISI.1435-1997	4	33.6	0.905
209	2001/7/10	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.119
210	2001/7/10	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.346
211	2001/7/12	DI	1,390		1,896	TISI.1435-1997	4	33.6	0.497
212	2001/7/12	IDI	2,180		2,982	TISI.1435-1997	4	33.6	0.928
213	2001/7/13	IDI	2,100		3,000	TISI.1435-1997	4	33.6	1.060
214	2001/7/13	IDI	2,180		3,000	TISI.1435-1997	4	33.6	0.814
215	2001/7/17	IDI	1,850		2,982	TISI.1435-1997	4	33.6	0.916

Table 3.3 Chassis Dynamometer Test Data (LDDV/T)

LDDV/T

No.	Date	Engine	Weight_kg	Odometer_km	Capacity_cc	Std. or Cycle	Lvl.	Ave. Spd._km/h	NOx_g/km
216	2001/7/17	DI	2,180		3,153	TISI.1435-1997	4	33.6	0.845
217	2001/7/17	IDI	2,100		2,779	TISI.1435-1997	4	33.6	2.229
218	2001/7/18	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.192
219	2001/7/18	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.350
220	2001/7/18	IDI	2,180		2,982	TISI.1435-1997	4	33.6	0.854
221	2001/7/19	IDI	1,850		2,982	TISI.1435-1997	4	33.6	0.491
222	2001/7/19	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.362
223	2001/7/19	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.227
224	2001/7/19	IDI	1,850		2,779	TISI.1435-1997	4	33.6	1.820
225	2001/7/20	IDI	1,850		2,779	TISI.1435-1997	4	33.6	1.823
226	2001/7/24	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.864
227	2001/7/24	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.862
228	2001/7/24	IDI	1,850		2,779	TISI.1435-1997	4	33.6	1.826
229	2001/7/25	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.847
230	2001/7/25	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.870
231	2001/7/25	IDI	1,850		2,779	TISI.1435-1997	4	33.6	0.691
232	2001/7/25	IDI	2,550		2,779	TISI.1435-1997	4	33.6	0.691
233	2001/7/26	IDI	2,500		4,163	TISI.1435-1997	4	33.6	1.861
234	2001/7/26	IDI	2,100		2,779	TISI.1435-1997	4	33.6	0.937
235	2001/7/27	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.182
236	2001/7/27	IDI	1,850		2,779	TISI.1435-1997	4	33.6	0.992
237	2001/7/27	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.127
238	2001/7/31	DI	1,810		2,151	TISI.1875-1999	5	33.6	0.554
239	2001/7/31	DI	2,150		2,151	TISI.1875-1999	5	33.6	0.553
240	2001/8/1	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.279
241	2001/8/1	IDI	2,050		2,663	TISI.1435-1997	4	33.6	1.162
242	2001/8/2	IDI	2,100		2,779	TISI.1435-1997	4	33.6	0.888
243	2001/8/2	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.209
244	2001/8/3	IDI	1,740		2,663	TISI.1435-1997	4	33.6	1.253
245	2001/8/3	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.570
246	2001/8/7	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.265
247	2001/8/7	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.247
248	2001/8/7	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.569
249	2001/8/7	IDI	1,850		2,779	TISI.1435-1997	4	33.6	0.775
250	2001/8/8	IDI	1,850		2,982	TISI.1435-1997	4	33.6	0.536
251	2001/8/8	IDI	2,100		2,446	TISI.1435-1997	4	33.6	0.994
252	2001/8/9	IDI	1,810		2,982	TISI.1435-1997	4	33.6	0.750
253	2001/8/10	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.294
254	2001/8/10	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.259
255	2001/8/15	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.563
256	2001/8/16	IDI	2,180		2,982	TISI.1435-1997	4	33.6	0.972
257	2001/8/16	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.570
258	2001/8/16	DI	1,470		1,997	TISI.1875-1999	5	33.6	0.384
259	2001/8/17	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.065
260	2001/8/17	IDI	2,180		2,982	TISI.1435-1997	4	33.6	0.963
261	2001/8/21	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.303
262	2001/8/21	IDI	2,100		2,779	TISI.1435-1997	4	33.6	0.964
263	2001/8/22	DI	1,980		2,663	TISI.1435-1997	4	33.6	0.816
264	2001/8/22	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.689
265	2001/8/23	IDI	1,850		2,982	TISI.1435-1997	4	33.6	0.527
266	2001/8/23	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.693
267	2001/8/23	DI	1,810		2,835	TISI.1435-1997	4	33.6	1.515
268	2001/8/24	DI	1,810		2,835	TISI.1435-1997	4	33.6	1.504
269	2001/8/24	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.692

Table 3.3 Chassis Dynamometer Test Data (LDDV/T)

LDDV/T									
No.	Date	Engine	Weight_kg	Odometer_km	Capacity_cc	Std. or Cycle	Lvl.	Ave. Spd._km/h	NOx_g/km
270	2001/8/28	IDI	2,180		2,982	TISI.1435-1997	4	33.6	1.425
271	2001/8/28	DI	1,605		2,000	TISI.1875-1999	5	33.6	0.464
272	2001/8/29	IDI	2,180		2,982	TISI.1435-1997	4	33.6	0.845
273	2001/8/29	IDI	2,100		2,779	TISI.1435-1997	4	33.6	0.994
274	2001/8/29	IDI	2,180		2,982	TISI.1435-1997	4	33.6	1.429
275	2001/8/30	IDI	2,550		4,163	TISI.1435-1997	4	33.6	1.606
276	2001/8/31	IDI	2,550		2,982	TISI.1435-1997	4	33.6	0.748
277	2001/8/31	IDI	1,850		4,163	TISI.1435-1997	4	33.6	1.603
278	2001/9/6	IDI	2,100		2,779	TISI.1435-1997	4	33.6	0.898
279	2001/9/7	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.234
280	2001/9/7	IDI	2,100		2,982	TISI.1435-1997	4	33.6	0.831
281	2001/9/11	IDI	1,980		3,153	TISI.1435-1997	4	33.6	1.136
282	2001/9/11	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.343
283	2001/9/12	IDI	2,100		2,779	TISI.1435-1997	4	33.6	0.924
284	2001/9/12	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.133
285	2001/9/12	IDI	2,180		3,000	TISI.1435-1997	4	33.6	1.507
286	2001/9/13	IDI	2,100		2,779	TISI.1435-1997	4	33.6	0.803
287	2001/9/13	IDI	1,850		2,446	TISI.1435-1997	4	33.6	1.201
288	2001/9/13	IDI	2,180		3,000	TISI.1435-1997	4	33.6	1.530
289	2001/9/18	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.581
290	2001/9/18	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.150
291	2001/9/19	IDI	2,100		2,779	TISI.1435-1997	4	33.6	0.988
292	2001/9/19	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.575
293	2001/9/25	IDI	2,100		2,779	TISI.1435-1997	4	33.6	0.968
294	2001/9/25	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.421
295	2001/9/26	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.407
296	2001/9/28	IDI	2,100		2,779	TISI.1435-1997	4	33.6	0.904
297	2001/9/28	IDI	1,850		2,779	TISI.1435-1997	4	33.6	1.207
298	2001/9/28	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.380
299	2001/10/2	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.391
300	2001/10/5	DI	1,775		2,151	TISI.1875-1999	5	33.6	0.837
301	2001/10/5	IDI	2,180		2,982	TISI.1875-1999	5	33.6	0.413
302	2001/10/5	IDI	2,180		2,982	TISI.1875-1999	5	33.6	0.369
303	2001/10/5	IDI	2,100		2,779	TISI.1435-1997	4	33.6	0.956
304	2001/10/5	IDI	2,100		2,982	TISI.1435-1997	4	33.6	0.711
305	2001/10/9	DI	1,775		2,151	TISI.1875-1999	5	33.6	0.836
306	2001/10/10	IDI	2,100		2,779	TISI.1875-1999	5	33.6	0.790
307	2001/10/10	IDI	1,850		2,446	TISI.1435-1997	4	33.6	0.659
308	2001/10/10	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.082
309	2001/10/11	IDI	2,100		2,779	TISI.1435-1997	4	33.6	1.056
310	2001/10/12	DI	2,180		2,982	TISI.1875-1999	5	33.6	0.513
311	2001/10/16	IDI	2,100		2,779	TISI.1435-1997	4	33.6	0.984
312	2001/10/19	IDI	1,850		2,982	TISI.1435-1997	4	33.6	0.562
313	2001/10/25	IDI	2,100		2,779	TISI.1875-1999	5	33.6	0.975
314	2001/10/26	IDI	2,550		4,163	TISI.1875-1999	5	33.6	0.929
315	2001/10/26	IDI	2,100		2,779	TISI.1875-1999	5	33.6	0.972
316	2001/10/27	IDI	2,550		4,163	TISI.1875-1999	5	33.6	0.932
317	2001/11/6	IDI	2,550		4,163	TISI.1875-1999	5	33.6	0.908
318	2001/11/6	IDI	2,100		2,779	TISI.1875-1999	5	33.6	0.799
319	2001/11/6	DI	1,735		3,153	TISI.1875-1999	5	33.6	0.876
320	2001/11/7	DI	1,735		3,153	TISI.1875-1999	5	33.6	0.869
321	2001/11/7	IDI	2,550		4,163	TISI.1875-1999	5	33.6	0.905
322	2001/11/9	DI	2,150		2,874	TISI.1875-1999	5	33.6	0.800
323	2001/11/9	DI	2,550		4,163	TISI.1875-1999	5	33.6	1.112

Table 3.3 Chassis Dynamometer Test Data (LDDV/T)

LDDV/T

No.	Date	Engine	Weight_kg	Odometer_km	Capacity_cc	Std. or Cycle	Lvl.	Ave. Spd._km/h	NOx_g/km
324	2001/11/9	IDI	1,850		2,779	TISI.1435-1997	4	33.6	0.619
325	2001/11/13	IDI	2,150		2,874	TISI.1875-1999	5	33.6	0.786
326	2001/11/13	IDI	2,550		4,163	TISI.1875-1999	5	33.6	1.118
327	2001/11/14	IDI	2,550		4,163	TISI.1875-1999	5	33.6	1.119
328	2001/11/14	IDI	1,990		2,446	TISI.1435-1997	4	33.6	1.164
329	2001/11/22	IDI	2,100		2,779	TISI.1875-1999	5	33.6	0.786
330	2001/11/23	IDI	2,550		4,163	TISI.1875-1999	5	33.6	0.778
331	2001/11/23	IDI	2,100		2,779	TISI.1435-1997	4	33.6	0.934
332	2001/11/27	IDI	2,550		4,163	TISI.1875-1999	5	33.6	0.759
333	2001/11/28	IDI	2,100		2,982	TISI.1875-1999	5	33.6	0.718
334	2001/11/30	IDI	2,100		2,779	TISI.1875-1999	5	33.6	0.862
335	2001/12/7	IDI	2,550		4,163	TISI.1875-1999	5	33.6	0.722
336	2001/12/7	IDI	2,100		2,779	TISI.1875-1999	5	33.6	0.907
337	2001/12/12	IDI	2,550		4,163	TISI.1875-1999	5	33.6	0.714
338	2001/12/12	DI	1,590		2,477	TISI.1875-1999	5	33.6	0.598
339	2001/12/12	DI	1,590		2,835	TISI.1875-1999	5	33.6	0.746
340	2001/12/13	DI	1,590		2,953	TISI.1875-1999	5	33.6	0.842
341	2001/12/13	DI	1,590		2,835	TISI.1875-1999	5	33.6	0.736
342	2001/12/13	DI	1,590		2,477	TISI.1875-1999	5	33.6	0.622
343	2001/12/14	IDI	1,810		2,438	TISI.1870-1999	5	33.6	0.287
344	2001/12/14	IDI	1,590		2,982	TISI.1875-1999	5	33.6	0.547
345	2001/12/14	DI	1,590		2,953	TISI.1875-1999	5	33.6	0.853
346	2001/12/18	DI	1,700		2,999	TISI.1875-1999	5	33.6	0.715
347	2001/12/18	DI	1,590		2,499	TISI.1875-1999	5	33.6	0.804
348	2001/12/19	DI	1,805		2,892	TISI.1875-1999	5	33.6	0.825
349	2001/12/19	IDI	1,590		2,494	TISI.1875-1999	5	33.6	0.632
350	2001/12/19	DI	1,700		2,999	TISI.1875-1999	5	33.6	0.736
351	2001/12/19	DI	1,605		1,995	TISI.1875-1999	5	33.6	0.989
352	2001/12/20	DI	1,805		2,892	TISI.1875-1999	5	33.6	0.828
353	2001/12/20	DI	1,605		1,995	TISI.1875-1999	5	33.6	0.981
354	2002/1/3	DI	2,100		2,700	TISI.1875-1999	5	33.6	0.789
355	2002/1/4	IDI	1,850		2,982	TISI.1875-1999	5	33.6	0.734
356	2002/1/8	IDI	2,100		2,779	TISI.1875-1999	5	33.6	0.797
357	2002/1/8	IDI	1,850		2,779	TISI.1875-1999	5	33.6	1.161
358	2002/1/8	DI	2,270		3,907	TISI.1875-1999	5	33.6	2.857
359	2002/1/9	DI	1,850		2,663	TISI.1875-1999	5	33.6	0.541
360	2002/1/9	IDI	1,850		2,779	TISI.1875-1999	5	33.6	1.163
361	2002/1/10	IDI	1,850		2,779	TISI.1875-1999	5	33.6	1.158
362	2002/1/10	DI	2,270		3,907	TISI.1875-1999	5	33.6	2.844
363	2002/1/10	DI	2,270		3,200	TISI.1435-1997	4	33.6	1.073
364	2002/1/11	IDI	2,040		2,779	TISI.1875-1999	5	33.6	1.131
365	2002/1/11	IDI	2,040		2,982	TISI.1875-1999	5	33.6	0.846
366	2002/1/15	IDI	2,040		2,779	TISI.1875-1999	5	33.6	1.127
367	2002/1/15	IDI	2,040		2,982	TISI.1875-1999	5	33.6	0.861
368	2002/1/17	IDI	2,040		2,779	TISI.1875-1999	5	33.6	1.129
369	2002/1/18	IDI	2,040		2,779	TISI.1875-1999	5	33.6	0.824
370	2002/1/23	IDI	2,040		2,779	TISI.1875-1999	5	33.6	0.809
371	2002/1/23	IDI	2,040		2,982	TISI.1875-1999	5	33.6	0.915
372	2002/1/25	IDI	2,040		2,982	TISI.1875-1999	5	33.6	0.924
373	2002/1/29	IDI	2,040		2,982	TISI.1875-1999	5	33.6	0.612
374	2002/1/31	IDI	2,550		4,163	TISI.1875-1999	5	33.6	1.107
375	2002/1/31	IDI	2,040		2,772	TISI.1875-1999	5	33.6	0.991
376	2002/2/1	IDI	2,550		4,163	TISI.1875-1999	5	33.6	1.095
377	2002/2/1	IDI	2,040		2,772	TISI.1875-1999	5	33.6	0.986

Table 3.3 Chassis Dynamometer Test Data (LDDV/T)

LDDV/T

No.	Date	Engine	Weight_kg	Odometer_km	Capacity_cc	Std. or Cycle	Lvl.	Ave. Spd._km/h	NOx_g/km
378	2002/2/1	DI	1,520		2,500	TISI.1875-1999	5	33.6	0.896
379	2002/2/1	DI	1,520		2,500	TISI.1875-1999	5	33.6	0.933
380	2002/2/5	IDI	2,550		4,163	TISI.1875-1999	5	33.6	1.097
381	2002/2/5	IDI	1,810		2,982	TISI.1875-1999	5	33.6	0.532
382	2002/2/5	DI	1,520		2,500	TISI.1875-1999	5	33.6	0.889
383	2002/2/5	DI	1,520		2,500	TISI.1875-1999	5	33.6	0.890
384	2002/2/6	IDI	2,150		2,962	TISI.1875-1999	5	33.6	0.458
385	2002/2/6	IDI	1,810		2,446	TISI.1875-1999	5	33.6	0.766
386	2002/2/6	DI	1,520		2,500	TISI.1875-1999	5	33.6	0.898
387	2002/2/6	DI	1,520		2,500	TISI.1875-1999	5	33.6	0.891
388	2002/2/8	IDI	2,550		4,163	TISI.1875-1999	5	33.6	0.976
389	2002/2/12	IDI	2,040		2,779	TISI.1875-1999	5	33.6	0.771
390	2002/2/12	IDI	2,040		2,779	TISI.1875-1999	5	33.6	0.753
391	2002/2/12	IDI	2,550		4,163	TISI.1875-1999	5	33.6	0.977
392	2002/2/13	IDI	2,040		2,779	TISI.1875-1999	5	33.6	0.707
393	2002/2/13	IDI	1,810		2,779	TISI.1875-1999	5	33.6	0.946
394	2002/2/14	IDI	1,810		2,779	TISI.1875-1999	5	33.6	0.970
395	2002/2/22	IDI	2,040		2,779	TISI.1875-1999	5	33.6	0.930
396	2002/2/22	DI	2,040		2,446	TISI.1875-1999	5	33.6	1.122
397	2002/2/28	IDI	1,810		2,446	TISI.1875-1999	5	33.6	0.784
398	2002/2/28	IDI	2,040		2,779	TISI.1875-1999	5	33.6	0.929
399	2002/2/28	DI	2,040		2,446	TISI.1875-1999	5	33.6	1.115
400	2002/3/1	DI	2,040		2,446	TISI.1875-1999	5	33.6	1.120
401	2002/3/5	IDI	2,040		2,779	TISI.1875-1999	5	33.6	0.936
402	2002/3/6	IDI	2,040		2,779	TISI.1875-1999	5	33.6	0.940
403	2002/3/6	IDI	2,040		2,779	TISI.1875-1999	5	33.6	0.907
404	2002/3/7	IDI	2,040		2,779	TISI.1875-1999	5	33.6	0.903
405	2002/3/7	IDI	2,040		2,779	TISI.1875-1999	5	33.6	0.786
406	2002/3/7	DI	1,810		2,663	TISI.1875-1999	5	33.6	0.802
407	2002/3/13	IDI	2,040		2,982	TISI.1875-1999	5	33.6	0.779
408	2002/3/13	IDI	1,810		2,446	TISI.1875-1999	5	33.6	0.642
409	2002/3/19	IDI	2,040		2,779	TISI.1875-1999	5	33.6	0.776
410	2002/3/20	IDI	2,040		2,779	TISI.1875-1999	5	33.6	0.750
411	2002/3/20	IDI	2,040		2,779	TISI.1875-1999	5	33.6	0.759
412	2002/3/26	IDI	1,810		2,446	TISI.1875-1999	5	33.6	0.637
413	2002/3/27	IDI	2,040		2,040	TISI.1875-1999	5	33.6	0.588
414	2002/3/28	IDI	1,810		2,982	TISI.1875-1999	5	33.6	0.750
415	2002/6/14	IDI	1,590		2,446	TISI.1435-1997	4	33.6	1.587
416	2002/6/14	IDI	1,590		2,446	TISI.1435-1997	4	33.6	1.512
417	2002/6/16	IDI	1,590		2,446	TISI.1435-1997	4	33.6	1.589
418	2002/6/16	IDI	1,590		2,446	TISI.1435-1997	4	33.6	1.515
419	2002/6/19	IDI	1,590		2,446	TISI.1435-1997	4	33.6	1.440
420	2002/6/19	IDI	1,590		2,446	TISI.1435-1997	4	33.6	1.409
421	2002/6/20	IDI	1,590		2,446	TISI.1435-1997	4	33.6	1.395
422	2002/6/20	IDI	1,590		2,446	TISI.1435-1997	4	33.6	1.400
423		DI					1	18.7	1.800
424		IDI					1	18.7	0.816
425		IDI					1	18.7	1.383
426		Diesel	1,696			1435-2540	4	33.6	0.790
427		Diesel	1,451			1435-2540	4	33.6	0.777
428		Diesel	1,535			1435-2540	4	33.6	0.814
429		Diesel	2,163			1435-2540	4	33.6	0.559
430		Diesel	2,111			1435-2540	4	33.6	0.637
431		Diesel	1,945			1435-2540	4	33.6	1.141

Table 3.3 Chassis Dynamometer Test Data (LDDV/T)

LDDV/T

No.	Date	Engine	Weight_kg	Odometer_km	Capacity_cc	Std. or Cycle	Lvl.	Ave. Spd._km/h	NOx_g/km
432		Diesel	2,051			1435-2540	4	33.6	2.126
433		Diesel	2,051			1435-2540	4	33.6	1.505
434		Diesel	1,871			1435-2540	4	33.6	1.425
435		Diesel	1,871			1435-2540	4	33.6	1.385
436		Diesel	2,033			1435-2540	4	33.6	0.840
437		Diesel	1,765			1435-2540	4	33.6	0.894
438		Diesel	2,521			1435-2540	4	33.6	2.242
439		Diesel	2,002			1435-2540	4	33.6	1.072
440		Diesel	2,057			1435-2540	4	33.6	0.716
441		Diesel	2,030			1435-2540	4	33.6	1.258
442		Diesel	1,831			1435-2540	4	33.6	0.747
443		Diesel	1,736			1435-2540	4	33.6	1.231
444		Diesel	1,868			1435-2540	4	33.6	0.835

Table 3.4 Chassis Dynamometer Test Data (HDDV/T)

HDDV/T

No.	Date	Engine	Weight_kg	Odometer_km	Capacity_cc	Std. or Cycle	Lvl.	Ave. Spd._km/h	NOx_g/km
1	2000/8/22	DI	11,000		7,961	New York City		11.42603	18.136
2	2000/8/23	DI	11,000		10,964	New York City	3	11.42603	38.791
3	2000/8/23	DI	15,000		10,964	New York City	3	11.42603	42.864
4	2000/8/24	DI	11,000		8,720	New York City	1	11.42603	77.169
5	2000/8/24	DI	15,000		8,720	New York City		11.42603	83.913
6	2000/8/25	DI	11,000		8,720	New York City	1	11.42603	51.312
7	2000/8/25	DI	1,500		8,720	New York City	1	11.42603	57.243
8	2000/8/28	DI	1,500		7,961	New York City	3	11.42603	20.796
9	2000/8/29	DI	11,000		7,961	New York City	3	11.42603	18.453
10	2000/8/30	DI	11,000		10,964	New York City	1	11.42603	40.992
11	2000/8/30	DI	15,000		10,964	New York City	3	11.42603	45.663
12	2000/8/31	DI	11,000		8,720	New York City	1	11.42603	68.979
13	2000/8/31	DI	15,000		8,720	New York City	1	11.42603	80.174
14	2000/9/1	DI	11,000		8,720	New York City	1	11.42603	56.624
15	2000/9/1	DI	15,000		8,720	New York City	1	11.42603	63.005
16	2000/9/5	DI	7,500		5,958	New York City		11.42603	18.681
17	2000/9/5	DI	11,000		5,958	New York City		11.42603	22.345
18	2000/9/6	DI	7,500		5,958	New York City		11.42603	23.082
19	2000/9/6	DI	11,000		5,958	New York City		11.42603	26.466
20	2000/9/7	DI	8,000		6,443	New York City		11.42603	21.186
21	2000/9/7	DI	12,000		6,443	New York City		11.42603	24.650
22	2000/9/8	DI	8,000		6,443	New York City		11.42603	19.096
23	2000/9/8	DI	12,000		6,443	New York City		11.42603	21.083
24	2000/9/9	DI	8,000		6,443	New York City	3	11.42603	15.436
25	2000/9/13	DI	11,000		5,959	New York City	3	11.42603	28.522
26	2000/9/13	DI	7,500		5,958	New York City		11.42603	25.147
27	2000/9/14	DI	8,000		6,443	New York City		11.42603	23.593
28	2000/9/14	DI	12,000		6,443	New York City		11.42603	26.371
29	2000/9/15	DI	12,000		6,443	New York City		11.42603	18.000
30	2000/9/27	DI	11,000		5,958	New York City	3	11.42603	24.750
31	2000/9/27	DI	7,500		5,958	New York City		11.42603	21.248
32	2001/12/3	DI	30,000		-	New York City	0	11.42603	36.266
33	2001/12/4	DI	21,000		-	New York City	0	11.42603	23.580
34	2001/12/4	DI	25,000		-	New York City	0	11.42603	29.733
35	2001/12/11	DI	30,000		-	New York City	0	11.42603	37.582
36	2001/12/12	DI	25,000		-	New York City	0	11.42603	32.142
37	2001/12/14	DI	21,000		-	New York City	0	11.42603	25.145



3.3 References

Report "Measurement of Diesel Particulate Emissions and Characteristics" is shown in the following pages.



ディーゼルパティキュレートの測定法と排出特性について*

Measurement of Diesel Particulate Emissions and Characteristics

新村 恵一¹⁾ 浅海 靖男²⁾ 山田 達男³⁾
Keiichi Niimura Yasuo Asami Tatsuo Yamada

Key Words: Diesel Engine, Emission, Soot/Measurement, Nitric Oxide, Particulate, Dilution Tunnel, Soluble Organic Fraction, Sulfer

1. ま え が き

ディーゼルエンジンから排出されるパティキュレートについて、米国や一部の欧州諸国では既に規制が行われており、国内においても規制の導入が予定されている。パティキュレートと排出ガス(NO_x)はトレードオフの関係にあり、両者を同時に低減することは一般的に困難である。本稿では、パティキュレートの測定法、直噴式ディーゼルエンジンのパティキュレート排出量ならびにそれを構成する成分、燃料中の硫黄分がパティキュレートに及ぼす影響について述べる。

2. パティキュレートの測定法

パティキュレートとは、米国EPAの規定によれば、「51.7°C以下に希釈した排出ガスから、特殊なテフロンコーティングされたガラスファイバ製フィルタ上に捕集される、凝縮水以外のすべての物質」とされている。

パティキュレートを構成する物質は通常、有機溶剤に溶解するSOF(Soluble Organic Fraction)と黒煙主体の有機溶剤に溶解しない物質ISF(Insoluble Fraction)に分けられる。本稿では捕集フィルタをソックス抽出装置で処理し、抽出されて重量が減少した分をSOF、残りをISFとした。

図1にパティキュレートの測定に使用した全流式希釈トンネルの概要を示す。全長約12mのかなり

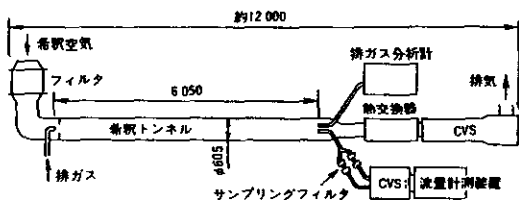


図1 全流式希釈トンネルの構成

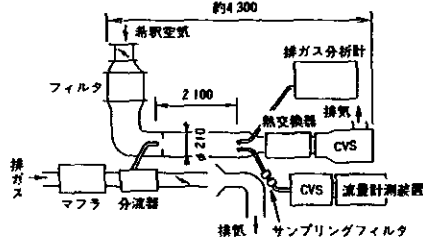


図2 分流式希釈トンネルの構成

大がかりな設備である。図中のサンプリングフィルタにパティキュレートを捕集し、捕集前後のフィルタの重量を電子マイクロ天秤で測定する。この重量の差がパティキュレート排出量となる。

全流式希釈トンネルはスペースの面で、開発用のテストベンチ毎に設置することは困難である。そのため設備の小型化、簡易化を狙った分流式希釈トンネルも開発が進められている。この方法は排出ガスの一部を分流してミニトンネルで希釈した後パティキュレートを捕集し、測定したパティキュレートと分流比から全体の排出量を求めるもので、本試験にも使用している。図2に設備概要を示す。

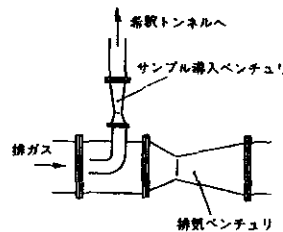


図3 ツインベンチュリ型分流器

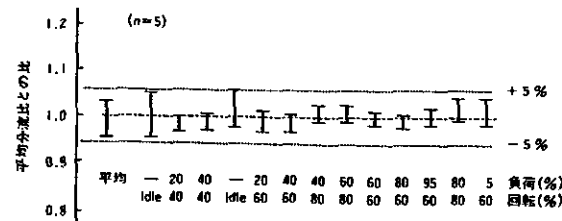


図4 分流性能

分流式希釈トンネルでは、排ガスを常に一定の割合で分流する必要がある。図3に本試験に使用したツインベンチュリ型分流器の構成を示す。分流器にはいくつかの方式があるが、圧力損失が小さく、小排気量から大排気量の種々のエンジンに対してベンチュリ交換のみで容易に対応できるツインベンチュリ型分流器を採用した。本分流器ではマフラ等によって排気の脈動を排除し、調整バルブで二つのベンチュリの出口圧力を合わせることにによって、常に同じ分流比が得られる。図4に、今後の排ガス規制に適用される測定モードの運転条件にて調査した分流性能を示す。各モード点での値及びその平均値ともバラツキは±5%の範囲に入っており、分流性能はほぼ満足できる水準である。

分流式希釈トンネルで希釈比及びサンプリング流量を一定として希釈排ガス流量を変化させた場合について、パティキュレート及びSOFの測定値を調べた。結果を図5に示す。希釈排ガス流量の変化とともに、分流比、レイノルズ数が変化し、サンプルガスの吸引速度は排ガスの流速と一致しなくなる。これらの条件にもかかわらず、パティキュレート、SOFの測定値はほとんど変化しない。分流式希釈トンネルで混合が十分に行われていると考えられる。

このように高性能の分流器を使用して、希釈排ガス温度、排ガス導入部の構造、管の径と長さの関係等を全流式希釈トンネルと合わせることで、分流式希釈トンネルで全流式希釈トンネルと同等の測定結果が得られる^{(1)~(3)}。図6に示すように、分流式希釈トンネルと

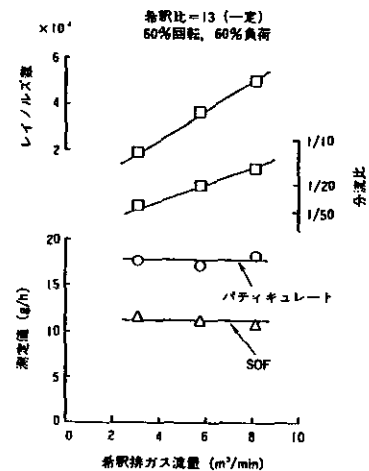


図5 レイノルズ数、分流比とパティキュレート測定値の関係

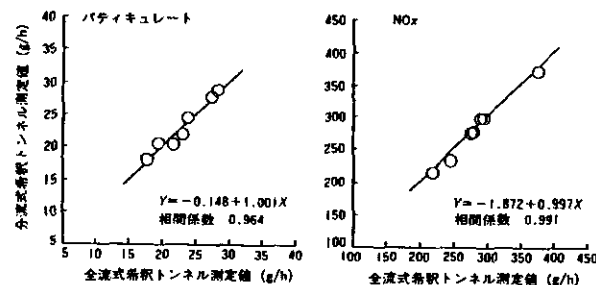


図6 分流式希釈トンネルと全流式希釈トンネルのパティキュレート、NO_x測定値の相関

全流式希釈トンネルを用いたパティキュレート、ガス(NO_x)の測定値間には、ほぼ1:1の高い相関関係がある。

* 1990年2月14日受付。
1)・2)・3) 日産ディーゼル工業研究所 (362 上尾市大字1-1)。

3. 大型直噴式ディーゼルエンジンのパティキュレート排出量及びその構成成分

3.1. NO_xとパティキュレート

図7に、代表エンジンにて、前記モード運転条件で燃料噴射時期を遅延していった場合のNO_xとパティキュレートの関係を示す。燃料はJIS2号市販軽油を使用している。以後も特にことわらない限り、燃料はこれと同等のものを使用している。噴射時期を遅延するとNO_xの低減につれてパティキュレートが急速に悪化する。

3.2. 燃料噴射時期のパティキュレートへの影響

表1に、本試験に使用したエンジンの主要諸元を示す。いずれも昭和58年規制適合エンジンである。

燃料噴射時期遅延によるパティキュレート構成成分への影響について、エンジンA(無過給)、エンジンD(ターボ過給)を用いて調べた。結果を図8に示す。エンジン運転条件は、回転速度一定(定格の60%)で負荷を変数とする定常運転とした。燃料噴射時期は、基準噴射時期の場合及びNO_xが30%減少するまで遅延した場合とした。パティキュレートの測定には分流式希釈トンネルを用いた。

エンジンA(無過給)では100%負荷における排出量が他の負荷に比較して格段に多い。また全体的にISFが支配的である。燃料噴射時期を遅延するとSOF、ISFとも大幅に増加する。特に高負荷時のISFの増加が顕著である。

エンジンD(ターボ過給)では負荷によるパティキュレート排出量の差は小さい。SOFは低負荷ほど、ISFは高負荷ほど多い。燃料噴射時期を遅延すると、SOF、ISFとも増加するが、増加量はエンジンA(無過給)に比較して小さい。

負荷と出力当りのパティキュレート排出量の関係では、エンジンA、エンジンDとも負荷50%付近で最小値を示す。

4. SOFの構成成分

SOFの主成分は未燃燃料成分と潤滑油成分であることが知られている。本試験では採取したパティキュレートから、ソックス抽出装置を用いて酸化メチレンによりSOFを抽出し、ガスクロマトグラ

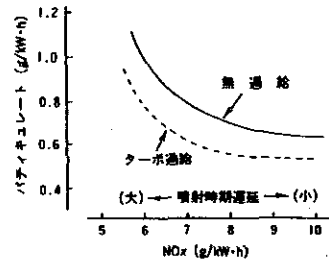


図7 燃料噴射時期遅延によるNO_xとパティキュレートの関係

表1 供試エンジンの主要諸元

	エンジンA	エンジンB	エンジンC	エンジンD	エンジンE
燃焼方式	DI	DI	DI	DI	DI
給気方式	無過給	ターボ過給	インタクーラ付ターボ過給	ターボ過給	インタクーラ付ターボ過給
気筒	V8気筒	直列6気筒	直列6気筒	直列6気筒	直列6気筒
総排気量(L)	17.0	12.5	12.5	6.9	6.9

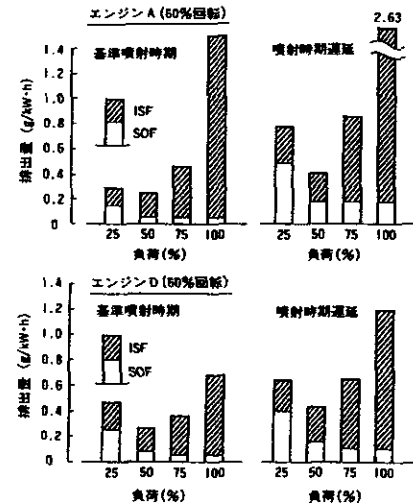


図8 燃料噴射時期のパティキュレートへの影響

フにより両成分の構成を分析した。

エンジンA、B、Cについて、EPA・HDDトランジェントサイクルで全流式希釈トンネルを用いて採取したSOFをこの方法で調べた。結果を図9に示す。いずれのエンジンも燃料成分に比較して、潤滑

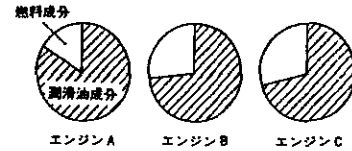


図9 米国EPA・HDDトランジェントサイクルのSOFの構成

表2 供試燃料の主要諸元

燃料	I	II	III	IV	V	VI	VII	VIII
硫黄含有率(wt%)	0	0.02	0.38	0.41	0.05	0.10	0.21	0.41
密度(g/cm ³ , 15°C)	0.814	0.818	0.841	0.840	0.829	0.830	0.831	0.833
セタン指数	49	65	60	57	61	60	60	60
50%留出温度(°C)	220	279	296	283	279	279	279	281
90%留出温度(°C)	243	349	326	346	331	331	332	332
備考	硫黄分とともに他の成分も変化				硫黄分以外 JIS2号相当			

油成分の寄与率が格段に高い。

5. 燃料中の硫黄分とパティキュレートの関係

パティキュレート中のISFは黒煙が主成分であるが、この他に無視できない量の硫酸及び硫酸塩が含まれていることが知られている。本試験では全流式希釈トンネル及び分流式希釈トンネルを用いて、燃料の硫黄含有率を変数としてパティキュレート排

出量の変化を調べた。表2に供試燃料の主要諸元を示す。燃料I~IVは硫黄分とともに他の成分も変化しており、V~VIIIは硫黄分以外の成分はJIS2号相当で硫黄分のみが段階的に変化している。

燃料硫黄分のパティキュレートへの影響として、サルフェート(硫酸イオン)の重量を測定し、結合水の推定値を加えた、サルフェートの定量は、捕集フィルタをアンモニア蒸気に曝露してサルフェートを一旦硫酸アンモニウムに変換した後、純水で抽出してイオンクロマトグラフで分析した。結合水は文献(4)等を参考に、サルフェート量の1.3倍と推定した。

5.1. 硫黄含有率のパティキュレートへの影響

図10にエンジンA、Eについて、硫黄含有率を変えた場合のパティキュレート排出量と構成成分の変化を示す。両エンジンとも、硫黄含有率の変化に対応して、パティキュレート中のサルフェート及び結合水、SOFが変化する。

硫黄含有率約0.4%の場合を基準に、硫黄含有率を低減した場合のパティキュレートの減少率を図11に示す。パティキュレートの減少率は、高負荷、低負荷それぞれの減少率の単純平均とした。硫黄含有率の低下に

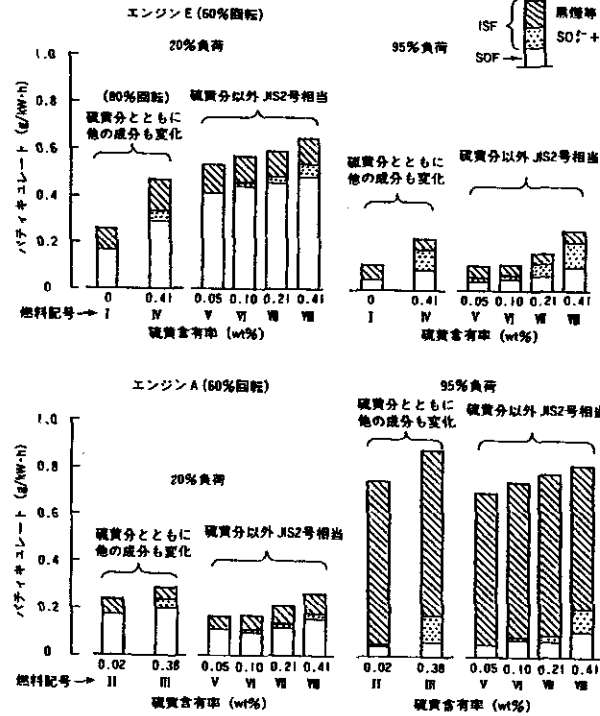


図10 硫黄含有率のパティキュレート構成成分への影響

4. Countermeasures for NO₂ in BMR

4.1 Input/Output Files of MOBILE 5a

In order to calculate the effect of the countermeasures on Buses and H-Truck emission factors, the fourth run were implemented twice with different conditions.

The following table shows the titles of input/output files of MOBILE 5a. Each case has two groups of files, input and output files, output files come after input files.

Table 4.1 List of Input/Output Files

Case	Type for Calculation	Title *
2011 (EURO 4)	LDGV	TAcIDES(JICA) Yr2011 1/4 LDGV e4
	Taxi (Gasoline)	TAcIDES(JICA) Yr2011 2/4 Taxi(G) e4
	LDDV, LDDT, HDDV, MC	TAcIDES(JICA) Yr2011 4/4 LDDV/T,HDDV,MC e4
2011 (NG2)	HDDV	TAcIDES(JICA) Yr2011 4/4 HDDV(NG2)
2011 (NG3)	HDDV	TAcIDES(JICA) Yr2011 4/4 HDDV(NG3)
2011 (NG2+NG3)	HDDV	TAcIDES(JICA) Yr2011 4/4 HDDV(NG2+NG3)
2011 (VR1/2)	HDDV	TAcIDES(JICA) Yr2011 4/4 HDDV(VR1/2)
2011 (NG2+VR1)	HDDV	TAcIDES(JICA) Yr2011 4/4 HDDV(NG2+VR1)
2011 (Real EURO) Truck	HDDV	TAcIDES(JICA) Yr2011 4/4 Real EURO Truck
2011 (Real EURO) Bus	HDDV	TAcIDES(JICA) Yr2011 4/4 Real EURO Bus

*Note: titles are printed in the 2nd line of the input file and the 10th line of the output file.



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 1 1 3 99 03 0.1290 0.0830 0.1950
 1 1 3 04 07 0.0850 0.0830 0.1950
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 1 1 3 08 09 0.0770 0.0830 0.1950
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1
 TAcidES(JICA) Yr2011 4/4 LDDV/T,HDDV,MC e4
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1 MOBILE5a - (DATED 93085)

IBM-PC VERSION (1.00) MOBILE5a
 (C) COPYRIGHT 1993, TRINITY CONSULTANTS, INC.
 SERIAL NUMBER 8242 SOLD TO SECOT CO. LTD

Run Began on 11/27/2002 at 19:51:50

1TAcIDES(JICA) Yr2011 1/4 LDGV e4
 MOBILE5a (26-Mar-93)

0 Replacement Tampering and Misfueling Rates Input by User:
 0 Non-I/M Case

0 MYG1:pre1981

Component	LDGV		LDGT1		LDGT2		HDGV	
	ZML	DET	ZML	DET	ZML	DET	ZML	DET
Air Pump	0.0000	0.0000	0.0320	0.0767	0.0320	0.0767	0.0320	0.0767
Catalyst	0.0000	0.0000	0.0785	0.0444	0.0785	0.0444	0.0785	0.0444
Fuel Inlet	0.0000	0.0000	0.1519	0.0297	0.1519	0.0297	0.1519	0.0297
Other Misfueling	0.0000	0.0000	-0.1519	-0.0297	-0.1519	-0.0297	-0.1519	-0.0297
EGR System	0.0000	0.0000	-0.2435	0.1198	-0.2435	0.1198	-0.2435	0.1198
Evap Canister	0.0000	0.0000	-0.0195	0.0438	-0.0195	0.0438	-0.0195	0.0438
PCV System	0.0000	0.0000	0.0000	0.0073	0.0000	0.0073	0.0000	0.0073
Cap	0.0000	0.0000	-0.1849	0.0839	-0.1849	0.0839	-0.1849	0.0839
All Misfueling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

0 MYG2:1981-83

Component	LDGV		LDGT1		LDGT2		HDGV	
	ZML	DET	ZML	DET	ZML	DET	ZML	DET
Air Pump	0.0000	0.0000	-0.0389	0.0299	-0.0389	0.0299	-0.0389	0.0299
Catalyst	0.0000	0.0000	-0.0018	0.0258	-0.0018	0.0258	-0.0018	0.0258
Fuel Inlet	0.0000	0.0000	0.0017	0.0188	0.0017	0.0188	0.0017	0.0188
Other Misfueling	0.0000	0.0000	0.0080	-0.0173	0.0080	-0.0173	0.0080	-0.0173
EGR System	0.0000	0.0000	-0.0204	0.0258	-0.0204	0.0258	-0.0204	0.0258
Evap Canister	0.0000	0.0000	0.0009	0.0057	0.0009	0.0057	0.0009	0.0057
PCV System	0.0000	0.0000	0.0145	0.0003	0.0145	0.0003	0.0145	0.0003
Cap	0.0000	0.0000	-0.0590	0.0270	-0.0590	0.0270	-0.0590	0.0270
All Misfueling	0.0000	0.0000	0.0097	0.0015	0.0097	0.0015	0.0097	0.0015

0 MYG2:1984+

Component	LDGV		LDGT1		LDGT2		HDGV	
	ZML	DET	ZML	DET	ZML	DET	ZML	DET
Air Pump	0.0000	0.0000	-0.0039	0.0088	-0.0039	0.0088	-0.0039	0.0088
Catalyst	0.0000	0.0000	0.0024	0.0035	0.0024	0.0035	0.0024	0.0035
Fuel Inlet	0.0000	0.0000	0.0075	0.0006	0.0075	0.0006	0.0075	0.0006
Other Misfueling	0.0000	0.0000	-0.0150	0.0045	-0.0150	0.0045	-0.0150	0.0045
EGR System	0.0000	0.0000	-0.0019	0.0053	-0.0019	0.0053	-0.0019	0.0053
Evap Canister	0.0000	0.0000	0.0100	0.0011	0.0100	0.0011	0.0100	0.0011
PCV System	0.0000	0.0000	0.0011	0.0009	0.0011	0.0009	0.0011	0.0009
Cap	0.0000	0.0000	0.0092	0.0047	0.0092	0.0047	0.0092	0.0047
All Misfueling	0.0000	0.0000	-0.0075	0.0051	-0.0075	0.0051	-0.0075	0.0051

0 I/M Case

0 MYG1:pre1981

Component	LDGV		LDGT1		LDGT2		HDGV	
	ZML	DET	ZML	DET	ZML	DET	ZML	DET
Air Pump	0.0000	0.0000	0.0615	0.0304	0.0615	0.0304	0.0615	0.0304
Catalyst	0.0000	0.0000	0.1037	0.0203	0.1037	0.0203	0.1037	0.0203
Fuel Inlet	0.0000	0.0000	0.1376	0.0210	0.1376	0.0210	0.1376	0.0210
Other Misfueling	0.0000	0.0000	-0.2261	-0.0032	-0.2261	-0.0032	-0.2261	-0.0032
EGR System	0.0000	0.0000	0.0808	0.0114	0.0808	0.0114	0.0808	0.0114
Evap Canister	0.0000	0.0000	0.0695	0.0093	0.0695	0.0093	0.0695	0.0093
PCV System	0.0000	0.0000	-0.0156	0.0040	-0.0156	0.0040	-0.0156	0.0040
Cap	0.0000	0.0000	0.0471	0.0150	0.0471	0.0150	0.0471	0.0150
All Misfueling	0.0000	0.0000	-0.0885	0.0178	-0.0885	0.0178	-0.0885	0.0178



0 MYG2:1981-83

Component	LDGV		LDGT1		LDGT2		HDGV	
	ZML	DET	ZML	DET	ZML	DET	ZML	DET
Air Pump	0.0000	0.0000-0.0318	0.0148-0.0318	0.0148-0.0318	0.0148-0.0318	0.0148-0.0318	0.0148	0.0148
Catalyst	0.0000	0.0000-0.0062	0.0109-0.0062	0.0109-0.0062	0.0109-0.0062	0.0109-0.0062	0.0109	0.0109
Fuel Inlet	0.0000	0.0000 0.0201	0.0031 0.0201	0.0031 0.0201	0.0031 0.0201	0.0031 0.0201	0.0031	0.0031
Other Misfueling	0.0000	0.0000-0.0781	0.0167-0.0781	0.0167-0.0781	0.0167-0.0781	0.0167-0.0781	0.0167	0.0167
EGR System	0.0000	0.0000 0.0538	0.0000 0.0538	0.0000 0.0538	0.0000 0.0538	0.0000 0.0538	0.0000	0.0000
Evap Canister	0.0000	0.0000-0.0126	0.0128-0.0126	0.0128-0.0126	0.0128-0.0126	0.0128-0.0126	0.0128	0.0128
PCV System	0.0000	0.0000-0.0261	0.0079-0.0261	0.0079-0.0261	0.0079-0.0261	0.0079-0.0261	0.0079	0.0079
Cap	0.0000	0.0000-0.0314	0.0184-0.0314	0.0184-0.0314	0.0184-0.0314	0.0184-0.0314	0.0184	0.0184
All Misfueling	0.0000	0.0000-0.0580	0.0198-0.0580	0.0198-0.0580	0.0198-0.0580	0.0198-0.0580	0.0198	0.0198

0 MYG2: 1984+

Component	LDGV		LDGT1		LDGT2		HDGV	
	ZML	DET	ZML	DET	ZML	DET	ZML	DET
Air Pump	0.0000	0.0000-0.0262	0.0164-0.0262	0.0164-0.0262	0.0164-0.0262	0.0164-0.0262	0.0164	0.0164
Catalyst	0.0000	0.0000 0.0006	0.0043 0.0006	0.0043 0.0006	0.0043 0.0006	0.0043 0.0006	0.0043	0.0043
Fuel Inlet	0.0000	0.0000-0.0122	0.0081-0.0122	0.0081-0.0122	0.0081-0.0122	0.0081-0.0122	0.0081	0.0081
Other Misfueling	0.0000	0.0000 0.0319	-0.0076 0.0319	-0.0076 0.0319	-0.0076 0.0319	-0.0076 0.0319	-0.0076	-0.0076
EGR System	0.0000	0.0000-0.0021	0.0027-0.0021	0.0027-0.0021	0.0027-0.0021	0.0027-0.0021	0.0027	0.0027
Evap Canister	0.0000	0.0000 0.0100	0.0011 0.0100	0.0011 0.0100	0.0011 0.0100	0.0011 0.0100	0.0011	0.0011
PCV System	0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000	0.0000
Cap	0.0000	0.0000 0.0092	0.0047 0.0092	0.0047 0.0092	0.0047 0.0092	0.0047 0.0092	0.0047	0.0047
All Misfueling	0.0000	0.0000 0.0197	0.0005 0.0197	0.0005 0.0197	0.0005 0.0197	0.0005 0.0197	0.0005	0.0005

0 Emission Factor Modification Profile

Equation	Reg	Veh	Pol	First MY	Last MY	Base	DR	50K DR	Altered
1	1	1	3	1971	1994	3.44	0.00	0.00	Yes
2	1	1	3	1995	1995	0.50	0.08	0.22	Yes
3	1	1	3	1996	1998	0.21	0.08	0.19	Yes
4	1	1	3	1999	2003	0.13	0.08	0.19	Yes
5	1	1	3	2004	2007	0.09	0.08	0.19	Yes
6	1	1	3	2008	2009	0.08	0.08	0.19	Yes
7	1	1	3	2010	2020	0.04	0.08	0.19	Yes

01/M program selected:

0 Start year (January 1): 1997
 Pre-1981 MYR stringency rate: 25%
 First model year covered: 1960
 Last model year covered: 2020
 Waiver rate (pre-1981): 3.0%
 Waiver rate (1981 and newer): 3.0%
 Compliance Rate: 96.0%
 Inspection type: Test Only
 Inspection frequency: Annual
 Vehicle types covered: LDGV - Yes
 LDGT1 - No
 LDGT2 - No
 HDGV - No
 1981 & later MYR test type: Idle
 Cutpoints, HC: 220.000 CO: 1.200 NOx: 999.000

0 Replacement Diesel Sales Fractions Input by User:

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
LDDV:	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
LDDT:	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
LDDV:	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
LDDT:	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
	2007	2008	2009	2010	2011					
LDDV:	0.010	0.010	0.010	0.010	0.010					
LDDT:	0.010	0.010	0.010	0.010	0.010					

0 Total HC emission factors include evaporative HC emission factors.

0 Emission factors are as of July 1st of the indicated calendar year.
 0 User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.



0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

05 km/hr

 Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	3.1	3.1	3.1		3.1	3.1	3.1	3.1	3.1	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.81	0.00	0.00	0.00	0.00	2.02	2.30	12.48	0.81	4.06

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

010 km/hr

 Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	6.2	6.2	6.2		6.2	6.2	6.2	6.2	6.2	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.34	0.00	0.00	0.00	0.00	1.78	2.02	10.98	0.72	3.52

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

015 km/hr

 Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	9.3	9.3	9.3		9.3	9.3	9.3	9.3	9.3	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.18	0.00	0.00	0.00	0.00	1.59	1.80	9.79	0.68	3.18

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

020 km/hr

 Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	12.4	12.4	12.4		12.4	12.4	12.4	12.4	12.4	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.11	0.00	0.00	0.00	0.00	1.43	1.63	8.85	0.67	2.95

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

025 km/hr

 Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	12.4	12.4	12.4		12.4	12.4	12.4	12.4	12.4	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.11	0.00	0.00	0.00	0.00	1.43	1.63	8.85	0.67	2.95



+

Veh. Spd.:	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)									
Exhst NOX:	2.06	0.00	0.00	0.00	0.00	1.31	1.49	8.11	0.70 2.77

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

030 km/hr

	Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
	Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
O Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HdGV	LDDV	LDDT	HDDV	MC All Veh

+

Veh. Spd.:	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)									
Exhst NOX:	2.03	0.00	0.00	0.00	0.00	1.22	1.39	7.53	0.73 2.64

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

035 km/hr

	Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
	Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
O Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HdGV	LDDV	LDDT	HDDV	MC All Veh

+

Veh. Spd.:	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)									
Exhst NOX:	2.05	0.00	0.00	0.00	0.00	1.15	1.31	7.10	0.78 2.56

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

040 km/hr

	Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
	Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
O Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HdGV	LDDV	LDDT	HDDV	MC All Veh

+

Veh. Spd.:	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)									
Exhst NOX:	2.08	0.00	0.00	0.00	0.00	1.10	1.25	6.77	0.83 2.51

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

045 km/hr

	Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
	Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
O Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HdGV	LDDV	LDDT	HDDV	MC All Veh

+

Veh. Spd.:	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)									
Exhst NOX:	2.10	0.00	0.00	0.00	0.00	1.06	1.20	6.55	0.88 2.48

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied tampering and misfueling rates, basic exhaust emissions rates,



mileage accrual distributions, veh registration distributions.
 OCal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

050 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020
 O Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Spd.: 31.1 31.1 31.1 31.1 31.1 31.1 31.1 31.1 31.1
 VMT Mix: 0.430 0.000 0.000 0.000 0.000 0.070 0.155 0.178 0.167
 O Composite Emission Factors (Gm/Mile)
 Exhst NOX: 2.12 0.00 0.00 0.00 0.00 1.04 1.18 6.43 0.92 2.47

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied tampering and misfueling rates, basic exhaust emissions rates,
 mileage accrual distributions, veh registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

055 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020
 O Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Spd.: 34.2 34.2 34.2 34.2 34.2 34.2 34.2 34.2 34.2
 VMT Mix: 0.430 0.000 0.000 0.000 0.000 0.070 0.155 0.178 0.167
 O Composite Emission Factors (Gm/Mile)
 Exhst NOX: 2.14 0.00 0.00 0.00 0.00 1.04 1.18 6.40 0.95 2.47

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied tampering and misfueling rates, basic exhaust emissions rates,
 mileage accrual distributions, veh registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

060 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020
 O Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Spd.: 37.3 37.3 37.3 37.3 37.3 37.3 37.3 37.3 37.3
 VMT Mix: 0.430 0.000 0.000 0.000 0.000 0.070 0.155 0.178 0.167
 O Composite Emission Factors (Gm/Mile)
 Exhst NOX: 2.15 0.00 0.00 0.00 0.00 1.04 1.19 6.45 0.98 2.49

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied tampering and misfueling rates, basic exhaust emissions rates,
 mileage accrual distributions, veh registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

065 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020
 O Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Spd.: 40.4 40.4 40.4 40.4 40.4 40.4 40.4 40.4 40.4
 VMT Mix: 0.430 0.000 0.000 0.000 0.000 0.070 0.155 0.178 0.167
 O Composite Emission Factors (Gm/Mile)
 Exhst NOX: 2.16 0.00 0.00 0.00 0.00 1.07 1.21 6.60 1.00 2.53

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied tampering and misfueling rates, basic exhaust emissions rates,
 mileage accrual distributions, veh registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

070 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020



0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	43.5	43.5	43.5		43.5	43.5	43.5	43.5	43.5	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.17	0.00	0.00	0.00	0.00	1.11	1.26	6.84	1.02	2.59

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

075 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	46.6	46.6	46.6		46.6	46.6	46.6	46.6	46.6	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.18	0.00	0.00	0.00	0.00	1.16	1.32	7.18	1.03	2.67

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

080 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	49.7	49.7	49.7		49.7	49.7	49.7	49.7	49.7	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.29	0.00	0.00	0.00	0.00	1.24	1.41	7.65	1.10	2.84

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

085 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	52.8	52.8	52.8		52.8	52.8	52.8	52.8	52.8	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.49	0.00	0.00	0.00	0.00	1.34	1.52	8.26	1.21	3.07

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

090 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	55.9	55.9	55.9		55.9	55.9	55.9	55.9	55.9	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.68	0.00	0.00	0.00	0.00	1.46	1.66	9.04	1.31	3.34

0Emission factors are as of July 1st of the indicated calendar year.



0User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

095 km/hr

 Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

0Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +

Veh. Spd.:	59.0	59.0	59.0	59.0	59.0	59.0	59.0	59.0	59.0
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	

0Composite Emission Factors (Gm/Mile)

Exhst NOX:	2.88	0.00	0.00	0.00	0.00	1.63	1.85	10.04	1.42	3.66
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0Emission factors are as of July 1st of the indicated calendar year.

0User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

0100 km/hr

 Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

0Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +

Veh. Spd.:	62.1	62.1	62.1	62.1	62.1	62.1	62.1	62.1	62.1
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	

0Composite Emission Factors (Gm/Mile)

Exhst NOX:	3.08	0.00	0.00	0.00	0.00	1.83	2.08	11.29	1.52	4.04
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0 MYG2: 1981-83

Component	LDGV		LDGT1		LDGT2		HDGV	
	ZML	DET	ZML	DET	ZML	DET	ZML	DET
Air Pump	0.0000	0.0000-0.0318	0.0148	0.0318	0.0148	0.0318	0.0148	0.0148
Catalyst	0.0000	0.0000-0.0062	0.0109	0.0062	0.0109	0.0062	0.0109	0.0109
Fuel Inlet	0.0000	0.0000-0.0201	0.0031	0.0201	0.0031	0.0201	0.0031	0.0031
Other Misfueling	0.0000	0.0000-0.0781	0.0167	0.0781	0.0167	0.0781	0.0167	0.0167
EGR System	0.0000	0.0000-0.0538	0.0000	0.0538	0.0000	0.0538	0.0000	0.0000
Evap Canister	0.0000	0.0000-0.0126	0.0128	0.0126	0.0128	0.0126	0.0128	0.0128
PCV System	0.0000	0.0000-0.0261	0.0079	0.0261	0.0079	0.0261	0.0079	0.0079
Cap	0.0000	0.0000-0.0314	0.0184	0.0314	0.0184	0.0314	0.0184	0.0184
All Misfueling	0.0000	0.0000-0.0580	0.0198	0.0580	0.0198	0.0580	0.0198	0.0198

0 MYG2: 1984+

Component	LDGV		LDGT1		LDGT2		HDGV	
	ZML	DET	ZML	DET	ZML	DET	ZML	DET
Air Pump	0.0000	0.0000-0.0262	0.0164	0.0262	0.0164	0.0262	0.0164	0.0164
Catalyst	0.0000	0.0000-0.0006	0.0043	0.0006	0.0043	0.0006	0.0043	0.0043
Fuel Inlet	0.0000	0.0000-0.0122	0.0081	0.0122	0.0081	0.0122	0.0081	0.0081
Other Misfueling	0.0000	0.0000-0.0319	-0.0076	0.0319	-0.0076	0.0319	-0.0076	-0.0076
EGR System	0.0000	0.0000-0.0021	0.0027	0.0021	0.0027	0.0021	0.0027	0.0027
Evap Canister	0.0000	0.0000-0.0100	0.0011	0.0100	0.0011	0.0100	0.0011	0.0011
PCV System	0.0000	0.0000-0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Cap	0.0000	0.0000-0.0092	0.0047	0.0092	0.0047	0.0092	0.0047	0.0047
All Misfueling	0.0000	0.0000-0.0197	0.0005	0.0197	0.0005	0.0197	0.0005	0.0005

0 Emission Factor Modification Profile

Equation	Reg	Veh	Pol	First MY	Last MY	Base	DR	50K DR	Altered
1	1	1	3	1971	1994	3.44	0.00	0.00	Yes
2	1	1	3	1995	1995	0.50	0.08	0.22	Yes
3	1	1	3	1996	1998	0.21	0.08	0.19	Yes
4	1	1	3	1999	2003	0.13	0.08	0.19	Yes
5	1	1	3	2004	2007	0.09	0.08	0.19	Yes
6	1	1	3	2008	2009	0.08	0.08	0.19	Yes
7	1	1	3	2010	2020	0.04	0.08	0.19	Yes

01/M program selected:

0 Start year (January 1): 1997
 Pre-1981 MYR stringency rate: 25%
 First model year covered: 1960
 Last model year covered: 2020
 Waiver rate (pre-1981): 3.0%
 Waiver rate (1981 and newer): 3.0%
 Compliance Rate: 96.0%
 Inspection type: Test Only
 Inspection frequency: Annual
 Vehicle types covered: LDGV - Yes
 LDGT1 - No
 LDGT2 - No
 HDGV - No
 1981 & later MYR test type: Idle
 Cutpoints, HC: 220.000 CO: 1.200 NOx: 999.000

0 Replacement Diesel Sales Fractions Input by User:

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
LDDV:	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
LDDT:	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
LDDV:	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
LDDT:	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
	2007	2008	2009	2010	2011					
LDDV:	0.010	0.010	0.010	0.010	0.010					
LDDT:	0.010	0.010	0.010	0.010	0.010					

0 Total HC emission factors include evaporative HC emission factors.

0 Emission factors are as of July 1st of the indicated calendar year.
 0 User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.



OCal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

05 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0		Period 2 Yr: 2020			
OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	3.1	3.1	3.1		3.1	3.1	3.1	3.1	3.1	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	1.27	0.00	0.00	0.00	0.00	1.76	2.03	11.07	0.81	3.09

OEmission factors are as of July 1st of the indicated calendar year.
 OUser supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

OCal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

010 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0		Period 2 Yr: 2020			
OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	6.2	6.2	6.2		6.2	6.2	6.2	6.2	6.2	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	1.06	0.00	0.00	0.00	0.00	1.55	1.78	9.73	0.72	2.69

OEmission factors are as of July 1st of the indicated calendar year.
 OUser supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

OCal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

015 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0		Period 2 Yr: 2020			
OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	9.3	9.3	9.3		9.3	9.3	9.3	9.3	9.3	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	0.99	0.00	0.00	0.00	0.00	1.38	1.59	8.68	0.68	2.42

OEmission factors are as of July 1st of the indicated calendar year.
 OUser supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

OCal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

020 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0		Period 2 Yr: 2020			
OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	12.4	12.4	12.4		12.4	12.4	12.4	12.4	12.4	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	0.95	0.00	0.00	0.00	0.00	1.25	1.44	7.85	0.67	2.23

OEmission factors are as of July 1st of the indicated calendar year.
 OUser supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

OCal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

025 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0		Period 2 Yr: 2020			
OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:										
VMT Mix:										
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:										



+

Veh. Spd.:	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)									
Exhst NOX:	0.93	0.00	0.00	0.00	0.00	1.14	1.32	7.19	0.70 2.08

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

030 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)				
		Period 1 RVP: 9.0			Period 2 RVP: 9.0 Period 2 Yr: 2020				
O Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDLT	HDDV	MC All Veh
+									
Veh. Spd.:	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	
O Composite Emission Factors (Gm/Mile)									
Exhst NOX:	0.92	0.00	0.00	0.00	0.00	1.06	1.22	6.68	0.73 1.97

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

035 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)				
		Period 1 RVP: 9.0			Period 2 RVP: 9.0 Period 2 Yr: 2020				
O Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDLT	HDDV	MC All Veh
+									
Veh. Spd.:	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	
O Composite Emission Factors (Gm/Mile)									
Exhst NOX:	0.93	0.00	0.00	0.00	0.00	1.00	1.15	6.29	0.78 1.90

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

040 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)				
		Period 1 RVP: 9.0			Period 2 RVP: 9.0 Period 2 Yr: 2020				
O Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDLT	HDDV	MC All Veh
+									
Veh. Spd.:	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	
O Composite Emission Factors (Gm/Mile)									
Exhst NOX:	0.94	0.00	0.00	0.00	0.00	0.95	1.10	6.00	0.83 1.85

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

045 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)				
		Period 1 RVP: 9.0			Period 2 RVP: 9.0 Period 2 Yr: 2020				
O Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDLT	HDDV	MC All Veh
+									
Veh. Spd.:	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	
O Composite Emission Factors (Gm/Mile)									
Exhst NOX:	0.95	0.00	0.00	0.00	0.00	0.92	1.06	5.81	0.88 1.82

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied tampering and misfueling rates, basic exhaust emissions rates,



mileage accrual distributions, veh registration distributions.
 Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

050 km/hr

		Minimum Temp: 75. (F)		Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0		Period 2 RVP: 9.0		Period 2 Yr: 2020			
QVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC All Veh
+									
Veh. Spd.:	31.1	31.1	31.1		31.1	31.1	31.1	31.1	31.1
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167
QComposite Emission Factors (Gm/Mile)									
Exhst NOX:	0.96	0.00	0.00	0.00	0.00	0.90	1.04	5.70	0.92 1.81

Q Emission factors are as of July 1st of the indicated calendar year.
 Q User supplied tampering and misfueling rates, basic exhaust emissions rates,
 mileage accrual distributions, veh registration distributions.
 Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

055 km/hr

		Minimum Temp: 75. (F)		Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0		Period 2 RVP: 9.0		Period 2 Yr: 2020			
QVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC All Veh
+									
Veh. Spd.:	34.2	34.2	34.2		34.2	34.2	34.2	34.2	34.2
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167
QComposite Emission Factors (Gm/Mile)									
Exhst NOX:	0.97	0.00	0.00	0.00	0.00	0.90	1.04	5.67	0.95 1.81

Q Emission factors are as of July 1st of the indicated calendar year.
 Q User supplied tampering and misfueling rates, basic exhaust emissions rates,
 mileage accrual distributions, veh registration distributions.
 Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

060 km/hr

		Minimum Temp: 75. (F)		Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0		Period 2 RVP: 9.0		Period 2 Yr: 2020			
QVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC All Veh
+									
Veh. Spd.:	37.3	37.3	37.3		37.3	37.3	37.3	37.3	37.3
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167
QComposite Emission Factors (Gm/Mile)									
Exhst NOX:	0.97	0.00	0.00	0.00	0.00	0.91	1.05	5.72	0.98 1.83

Q Emission factors are as of July 1st of the indicated calendar year.
 Q User supplied tampering and misfueling rates, basic exhaust emissions rates,
 mileage accrual distributions, veh registration distributions.
 Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

065 km/hr

		Minimum Temp: 75. (F)		Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0		Period 2 RVP: 9.0		Period 2 Yr: 2020			
QVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC All Veh
+									
Veh. Spd.:	40.4	40.4	40.4		40.4	40.4	40.4	40.4	40.4
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167
QComposite Emission Factors (Gm/Mile)									
Exhst NOX:	0.98	0.00	0.00	0.00	0.00	0.93	1.07	5.85	1.00 1.86

Q Emission factors are as of July 1st of the indicated calendar year.
 Q User supplied tampering and misfueling rates, basic exhaust emissions rates,
 mileage accrual distributions, veh registration distributions.
 Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

070 km/hr

		Minimum Temp: 75. (F)		Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0		Period 2 RVP: 9.0		Period 2 Yr: 2020			



075 km/hr

Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	43.5	43.5	43.5		43.5	43.5	43.5	43.5	43.5	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	0.98	0.00	0.00	0.00	0.00	0.96	1.11	6.06	1.02	1.91

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

075 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	46.6	46.6	46.6		46.6	46.6	46.6	46.6	46.6	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	0.99	0.00	0.00	0.00	0.00	1.01	1.17	6.37	1.03	1.98

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

080 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	49.7	49.7	49.7		49.7	49.7	49.7	49.7	49.7	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	1.04	0.00	0.00	0.00	0.00	1.08	1.24	6.78	1.10	2.10

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

085 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	52.8	52.8	52.8		52.8	52.8	52.8	52.8	52.8	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	1.12	0.00	0.00	0.00	0.00	1.16	1.34	7.32	1.21	2.28

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied tampering and misfueling rates, basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

090 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	55.9	55.9	55.9		55.9	55.9	55.9	55.9	55.9	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	1.21	0.00	0.00	0.00	0.00	1.27	1.47	8.02	1.31	2.48

0Emission factors are as of July 1st of the indicated calendar year.



0User supplied tampering and misfueling rates, basic exhaust emissions rates,
 mileage accrual distributions, veh registration distributions.
 0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

095 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+ Veh. Spd.:	59.0	59.0	59.0		59.0	59.0	59.0	59.0	59.0	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	1.30	0.00	0.00	0.00	0.00	1.41	1.63	8.90	1.42	2.73

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied tampering and misfueling rates, basic exhaust emissions rates,
 mileage accrual distributions, veh registration distributions.
 0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: Yes Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

0100 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+ Veh. Spd.:	62.1	62.1	62.1		62.1	62.1	62.1	62.1	62.1	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	1.39	0.00	0.00	0.00	0.00	1.59	1.83	10.01	1.52	3.03



1 MOBILE5a - (DATED 93085)

IBM-PC VERSION (1.00) MOBILE5a
 (C) COPYRIGHT 1993, TRINITY CONSULTANTS, INC.
 SERIAL NUMBER 8242 SOLD TO SECOT CO. LTD

Run Began on 11/27/2002 at 20:08:21

1TAcIDES(JICA) Yr2011 4/4 LDDV/T,HDDV,MC e4
 MOBILE5a (26-Mar-93)

0 Emission Factor Modification Profile

Equation	Reg	Veh	Pol	First MY	Last MY	Base	DR	Altered
1	1	5	3	1971	1994	1.84	0.04	Yes
2	1	5	3	1995	1995	1.84	0.04	Yes
3	1	5	3	1996	2000	1.63	0.04	Yes
4	1	5	3	2001	2003	1.32	0.03	Yes
5	1	5	3	2004	2009	1.18	0.03	Yes
6	1	5	3	2010	2020	0.59	0.03	Yes
7	1	6	3	1971	1994	2.49	0.08	Yes
8	1	6	3	1995	1996	2.49	0.08	Yes
9	1	6	3	1997	2000	1.36	0.03	Yes
10	1	6	3	2001	2003	1.18	0.03	Yes
11	1	6	3	2004	2009	0.92	0.03	Yes
12	1	6	3	2010	2020	0.46	0.03	Yes
13	1	7	3	1971	1997	51.43	0.14	Yes
14	1	7	3	1998	1999	34.08	0.12	Yes
15	1	7	3	2000	2005	29.83	0.00	Yes
16	1	7	3	2006	2010	21.30	0.00	Yes
17	1	7	3	2011	2020	14.92	0.00	Yes
18	1	8	3	1971	1994	0.08	0.00	Yes
19	1	8	3	1995	1995	0.09	0.00	Yes
20	1	8	3	1996	1996	0.10	0.00	Yes
21	1	8	3	1997	1997	0.12	0.00	Yes
22	1	8	3	1998	1998	0.19	0.00	Yes
23	1	8	3	1999	1999	0.22	0.00	Yes
24	1	8	3	2000	2000	0.28	0.00	Yes
25	1	8	3	2001	2001	0.31	0.00	Yes
26	1	8	3	2002	2002	0.33	0.00	Yes
27	1	8	3	2003	2003	0.35	0.00	Yes
28	1	8	3	2004	2020	0.24	0.00	Yes

0Replacement Diesel Sales Fractions Input by User:

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
LDDV:	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
LDDT:	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
LDDV:	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
LDDT:	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
	2007	2008	2009	2010	2011					
LDDV:	0.010	0.010	0.010	0.010	0.010					
LDDT:	0.010	0.010	0.010	0.010	0.010					

0Total HC emission factors include evaporative HC emission factors.

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied basic exhaust emissions rates, mileage accrual distributions,
 veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

05 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020
 0Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 Veh. Spd.: 3.1 3.1 3.1 3.1 3.1 3.1 3.1 3.1 3.1
 VMT Mix: 0.430 0.000 0.000 0.000 0.000 0.070 0.155 0.178 0.167

0Composite Emission Factors (Gm/Mile)

Exhst NOX: 2.67 0.00 0.00 0.00 0.00 2.63 2.28 45.30 0.21 9.78

0Emission factors are as of July 1st of the indicated calendar year.



0User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

010 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Spd.:	6.2	6.2	6.2		6.2	6.2	6.2	6.2	6.2	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.22	0.00	0.00	0.00	0.00	2.31	2.01	39.85	0.19	8.55

0Emission factors are as of July 1st of the indicated calendar year.

0User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

015 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Spd.:	9.3	9.3	9.3		9.3	9.3	9.3	9.3	9.3	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.07	0.00	0.00	0.00	0.00	2.06	1.79	35.52	0.18	7.66

0Emission factors are as of July 1st of the indicated calendar year.

0User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

020 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Spd.:	12.4	12.4	12.4		12.4	12.4	12.4	12.4	12.4	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.00	0.00	0.00	0.00	0.00	1.86	1.62	32.13	0.17	6.99

0Emission factors are as of July 1st of the indicated calendar year.

0User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

025 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Spd.:	15.5	15.5	15.5		15.5	15.5	15.5	15.5	15.5	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	1.95	0.00	0.00	0.00	0.00	1.71	1.48	29.44	0.18	6.46

0Emission factors are as of July 1st of the indicated calendar year.

0User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

030 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)



Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	18.6	18.6	18.6		18.6	18.6	18.6	18.6	18.6	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	1.92	0.00	0.00	0.00	0.00	1.59	1.38	27.34	0.19	6.05

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

035 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	21.7	21.7	21.7		21.7	21.7	21.7	21.7	21.7	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	1.94	0.00	0.00	0.00	0.00	1.49	1.30	25.75	0.20	5.76

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

040 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	24.8	24.8	24.8		24.8	24.8	24.8	24.8	24.8	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	1.97	0.00	0.00	0.00	0.00	1.43	1.24	24.58	0.21	5.55

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

045 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	28.0	28.0	28.0		28.0	28.0	28.0	28.0	28.0	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	1.99	0.00	0.00	0.00	0.00	1.38	1.20	23.77	0.23	5.41

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

050 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	31.1	31.1	31.1		31.1	31.1	31.1	31.1	31.1	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	2.01	0.00	0.00	0.00	0.00	1.35	1.18	23.33	0.24	5.33



0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied basic exhaust emissions rates, mileage accrual distributions,
 veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

055 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Spd.:	34.2	34.2	34.2		34.2	34.2	34.2	34.2	34.2	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.03	0.00	0.00	0.00	0.00	1.35	1.17	23.21	0.25	5.32

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied basic exhaust emissions rates, mileage accrual distributions,
 veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

060 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Spd.:	37.3	37.3	37.3		37.3	37.3	37.3	37.3	37.3	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.04	0.00	0.00	0.00	0.00	1.36	1.18	23.41	0.25	5.36

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied basic exhaust emissions rates, mileage accrual distributions,
 veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

065 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Spd.:	40.4	40.4	40.4		40.4	40.4	40.4	40.4	40.4	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.05	0.00	0.00	0.00	0.00	1.39	1.21	23.93	0.26	5.47

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied basic exhaust emissions rates, mileage accrual distributions,
 veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

070 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Spd.:	43.5	43.5	43.5		43.5	43.5	43.5	43.5	43.5	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.06	0.00	0.00	0.00	0.00	1.44	1.25	24.81	0.26	5.64

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied basic exhaust emissions rates, mileage accrual distributions,
 veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

075 km/hr



Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	46.6	46.6	46.6		46.6	46.6	46.6	46.6	46.6	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	2.07	0.00	0.00	0.00	0.00	1.51	1.31	26.07	0.27	5.88

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

080 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	49.7	49.7	49.7		49.7	49.7	49.7	49.7	49.7	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	2.17	0.00	0.00	0.00	0.00	1.61	1.40	27.77	0.28	6.25

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

085 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	52.8	52.8	52.8		52.8	52.8	52.8	52.8	52.8	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	2.36	0.00	0.00	0.00	0.00	1.74	1.51	29.98	0.31	6.76

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

090 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	55.9	55.9	55.9		55.9	55.9	55.9	55.9	55.9	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	2.55	0.00	0.00	0.00	0.00	1.90	1.65	32.82	0.34	7.38

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

095 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	59.0	59.0	59.0		59.0	59.0	59.0	59.0	59.0	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	2.73	0.00	0.00	0.00	0.00	2.11	1.84	36.42	0.37	8.15



0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied basic exhaust emissions rates, mileage accrual distributions,
 veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

0100 km/hr Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+ Veh. Spd.:	62.1	62.1	62.1		62.1	62.1	62.1	62.1	62.1	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.92	0.00	0.00	0.00	0.00	2.38	2.06	40.97	0.39	9.10



1
TAcIDES(JICA) Yr2011 4/4 HDDV(NG2)
1
1
3
4
2
1
1
1
1
1
1
4
3
1
1
2
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0.0190.0210.0130.0090.004
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0.0190.0210.0130.0090.004
0.1780.1240.0900.0670.0510.0410.0330.0270.0230.019
0.0170.0180.0110.0090.0310.0390.0420.0470.0640.018
0.0120.0130.0100.0080.008
0.0950.0850.0760.0670.0600.0530.0470.0420.0370.032
0.0280.0220.0180.0140.0400.0570.0530.0420.0350.031
0.0190.0210.0130.0090.004
0.1820.1270.0920.0680.0530.0410.0330.0280.0230.020
0.0170.0140.0100.0130.0390.0540.0480.0370.0320.018
0.0120.0130.0100.0080.008
0.0830.0750.0680.0620.0560.0500.0460.0410.0380.034
0.0310.0270.0200.0210.0390.0500.0530.0440.0340.033
0.0240.0250.0190.0150.012
25
1 5 3 71 94 1.8430 0.0400 0.0000
1 5 3 95 95 1.8430 0.0400 0.0000
1 5 3 96 00 1.6250 0.0400 0.0000
1 5 3 01 03 1.3190 0.0300 0.0000
1 5 3 04 20 1.1770 0.0300 0.0000
1 6 3 71 94 2.4890 0.0800 0.0000
1 6 3 95 96 2.4890 0.0800 0.0000
1 6 3 97 00 1.3560 0.0300 0.0000



.010.010.010.010.010.010.010.010.010.010
1 11 40.4 91.9 20.6 27.3 20.6 7
65 km/hr B75.2096.809.0009.000 20 1 2 1
.010
.010
.010.010.010.010.010.010.010.010.010.010
1 11 43.5 91.9 20.6 27.3 20.6 7
70 km/hr B75.2096.809.0009.000 20 1 2 1
.010
.010
.010.010.010.010.010.010.010.010.010.010
1 11 46.6 91.9 20.6 27.3 20.6 7
75 km/hr B75.2096.809.0009.000 20 1 2 1
.010
.010
.010.010.010.010.010.010.010.010.010.010
1 11 49.7 91.9 20.6 27.3 20.6 7
80 km/hr B75.2096.809.0009.000 20 1 2 1
.010
.010
.010.010.010.010.010.010.010.010.010.010
1 11 52.8 91.9 20.6 27.3 20.6 7
85 km/hr B75.2096.809.0009.000 20 1 2 1
.010
.010
.010.010.010.010.010.010.010.010.010.010
1 11 55.9 91.9 20.6 27.3 20.6 7
90 km/hr B75.2096.809.0009.000 20 1 2 1
.010
.010
.010.010.010.010.010.010.010.010.010.010
1 11 59.0 91.9 20.6 27.3 20.6 7
95 km/hr B75.2096.809.0009.000 20 1 2 1
.010
.010
.010.010.010.010.010.010.010.010.010.010
1 11 62.1 91.9 20.6 27.3 20.6 7
100 km/hr B75.2096.809.0009.000 20 1 2 1
.010
.010
.010.010.010.010.010.010.010.010.010.010



1

MOBILE5a - (DATED 93085)

IBM-PC VERSION (1.00) MOBILE5a
 (C) COPYRIGHT 1993, TRINITY CONSULTANTS, INC.
 SERIAL NUMBER 8242 SOLD TO SECOT CO. LTD

Run Began on 11/27/2002 at 20:55:26

!TAcIDES(JICA) Yr2011 4/4 HDDV(NG2)
 MOBILE5a (26-Mar-93)

0 Emission Factor Modification Profile

Equation	Reg	Veh	Pol	First MY	Last MY	Base	DR	Altered
1	1	5	3	1971	1994	1.84	0.04	Yes
2	1	5	3	1995	1995	1.84	0.04	Yes
3	1	5	3	1996	2000	1.63	0.04	Yes
4	1	5	3	2001	2003	1.32	0.03	Yes
5	1	5	3	2004	2020	1.18	0.03	Yes
6	1	6	3	1971	1994	2.49	0.08	Yes
7	1	6	3	1995	1996	2.49	0.08	Yes
8	1	6	3	1997	2000	1.36	0.03	Yes
9	1	6	3	2001	2003	1.18	0.03	Yes
10	1	6	3	2004	2020	0.92	0.03	Yes
11	1	7	3	1971	1997	51.43	0.14	Yes
12	1	7	3	1998	1999	34.08	0.12	Yes
13	1	7	3	2000	2003	29.83	0.00	Yes
14	1	7	3	2004	2020	3.88	0.00	Yes
15	1	8	3	1971	1994	0.08	0.00	Yes
16	1	8	3	1995	1995	0.09	0.00	Yes
17	1	8	3	1996	1996	0.10	0.00	Yes
18	1	8	3	1997	1997	0.12	0.00	Yes
19	1	8	3	1998	1998	0.19	0.00	Yes
20	1	8	3	1999	1999	0.22	0.00	Yes
21	1	8	3	2000	2000	0.28	0.00	Yes
22	1	8	3	2001	2001	0.31	0.00	Yes
23	1	8	3	2002	2002	0.33	0.00	Yes
24	1	8	3	2003	2003	0.35	0.00	Yes
25	1	8	3	2004	2020	0.24	0.00	Yes

0 Replacement Diesel Sales Fractions Input by User:

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
LDDV:	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
LDDT:	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
LDDV:	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
LDDT:	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
	2007	2008	2009	2010	2011					
LDDV:	0.010	0.010	0.010	0.010	0.010					
LDDT:	0.010	0.010	0.010	0.010	0.010					

0 Total HC emission factors include evaporative HC emission factors.

0 Emission factors are as of July 1st of the indicated calendar year.

0 User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0 Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

05 km/hr

Minimum Temp: 75. (F) Maximum Temp: 97. (F)
 Period 1 RVP: 9.0 Period 2 RVP: 9.0 Period 2 Yr: 2020

0 Veh. Type: LOGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

Veh. Spd.:	3.1	3.1	3.1		3.1	3.1	3.1	3.1	3.1
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167

0 Composite Emission Factors (Gm/Mile)

Exhst NOX:	2.67	0.00	0.00	0.00	0.00	2.90	2.52	22.88	0.21	5.85
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0 Emission factors are as of July 1st of the indicated calendar year.

0 User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0 Cal. Year: 2011 Region: Low Altitude: 500. Ft.



I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

010 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Spd.:	6.2	6.2	6.2		6.2	6.2	6.2	6.2	6.2	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	2.22	0.00	0.00	0.00	0.00	2.55	2.21	20.12	0.19	5.09

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, vch registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

015 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Spd.:	9.3	9.3	9.3		9.3	9.3	9.3	9.3	9.3	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	2.07	0.00	0.00	0.00	0.00	2.28	1.97	17.94	0.18	4.58

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, vch registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

020 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Spd.:	12.4	12.4	12.4		12.4	12.4	12.4	12.4	12.4	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	2.00	0.00	0.00	0.00	0.00	2.06	1.79	16.22	0.17	4.20

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, vch registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

025 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Spd.:	15.5	15.5	15.5		15.5	15.5	15.5	15.5	15.5	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)										
Exhst NOX:	1.95	0.00	0.00	0.00	0.00	1.89	1.64	14.87	0.18	3.90

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, vch registration distributions.
 O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

030 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
OVeh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										



Veh. Spd.:	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	
OComposite Emission Factors (Gm/Mile)									
Exhst NOX:	1.92	0.00	0.00	0.00	0.00	1.75	1.52	13.81	0.19 3.67

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

035 km/hr

	Minimum Temp: 75. (F)				Maximum Temp: 97. (F)				
	Period 1 RVP: 9.0				Period 2 RVP: 9.0 Period 2 Yr: 2020				
O Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC All Veh
+									
Veh. Spd.:	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	
O Composite Emission Factors (Gm/Mile)									
Exhst NOX:	1.94	0.00	0.00	0.00	0.00	1.65	1.43	13.00	0.20 3.52

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

040 km/hr

	Minimum Temp: 75. (F)				Maximum Temp: 97. (F)				
	Period 1 RVP: 9.0				Period 2 RVP: 9.0 Period 2 Yr: 2020				
O Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC All Veh
+									
Veh. Spd.:	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	
O Composite Emission Factors (Gm/Mile)									
Exhst NOX:	1.97	0.00	0.00	0.00	0.00	1.58	1.37	12.41	0.21 3.41

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

045 km/hr

	Minimum Temp: 75. (F)				Maximum Temp: 97. (F)				
	Period 1 RVP: 9.0				Period 2 RVP: 9.0 Period 2 Yr: 2020				
O Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC All Veh
+									
Veh. Spd.:	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	
O Composite Emission Factors (Gm/Mile)									
Exhst NOX:	1.99	0.00	0.00	0.00	0.00	1.52	1.32	12.00	0.23 3.34

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

O Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

050 km/hr

	Minimum Temp: 75. (F)				Maximum Temp: 97. (F)				
	Period 1 RVP: 9.0				Period 2 RVP: 9.0 Period 2 Yr: 2020				
O Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC All Veh
+									
Veh. Spd.:	31.1	31.1	31.1	31.1	31.1	31.1	31.1	31.1	31.1
VMT Mix:	0.430	0.000	0.000	0.000	0.070	0.155	0.178	0.167	
O Composite Emission Factors (Gm/Mile)									
Exhst NOX:	2.01	0.00	0.00	0.00	0.00	1.50	1.30	11.78	0.24 3.31

O Emission factors are as of July 1st of the indicated calendar year.
 O User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.



0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

055 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Spd.:	34.2	34.2	34.2		34.2	34.2	34.2	34.2	34.2	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.03	0.00	0.00	0.00	0.00	1.49	1.29	11.72	0.25	3.30

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

060 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Spd.:	37.3	37.3	37.3		37.3	37.3	37.3	37.3	37.3	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.04	0.00	0.00	0.00	0.00	1.50	1.30	11.82	0.25	3.33

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

065 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Spd.:	40.4	40.4	40.4		40.4	40.4	40.4	40.4	40.4	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.05	0.00	0.00	0.00	0.00	1.53	1.33	12.09	0.26	3.39

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

070 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Spd.:	43.5	43.5	43.5		43.5	43.5	43.5	43.5	43.5	
VMT Mix:	0.430	0.000	0.000		0.000	0.070	0.155	0.178	0.167	
0Composite Emission Factors (Gm/Mile)										
Exhst NOX:	2.06	0.00	0.00	0.00	0.00	1.59	1.38	12.53	0.26	3.48

0Emission factors are as of July 1st of the indicated calendar year.
 0User supplied basic exhaust emissions rates, mileage accrual distributions, veh registration distributions.

0Cal. Year: 2011 Region: Low Altitude: 500. Ft.
 I/M Program: No Ambient Temp: 92.0 (F)
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6
 Reformulated Gas: No

075 km/hr

		Minimum Temp: 75. (F)			Maximum Temp: 97. (F)					
		Period 1 RVP: 9.0			Period 2 RVP: 9.0			Period 2 Yr: 2020		
0Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HGV	LDDV	LDDT	HDDV	MC	All Veh
+										