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# Air Resources Board

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**Edmund G. Brown Jr.**  
Governor

**TO:** George Lew, Chief  
Engineering and Certification Branch

**FROM:** Frederick Medina *F.M.*  
Air Resources Engineer

**Date:** December 19, 2012

**SUBJECT:** 2012 VEHICLE MATRICES FOR CERTIFICATION TESTING OF PHASE II VAPOR RECOVERY SYSTEMS

Several test matrices of vehicles, by make and model year, were prepared to be used in certifying Phase II vapor recovery systems by the California Air Resources Board (ARB). The efficiency of a Phase II system to reduce emissions of gasoline vapors is measured for dispensing gasoline to a test matrix of vehicles. The age, type of vehicle and manufacturer of the vehicles in the test group are selected to be representative of vehicles in use on California roads. The vehicle matrices were prepared according to ARB Test Procedure 201.2A<sup>1</sup>, Determination of Vehicle Matrix for Phase II Systems. The 2012 matrices are listed below as Tables 1, 2, and 3:

Model Years	Chrysler	Ford	G.M.	Toyota	Honda	Niss/Dat	VW/Volvo	others	Totals
1998-2005	1	1	1	1	1	1	1	1	8
1991-1997	1	2	2	2	1	0	1	2	11
1965-1990	1	2	3	1	1	1	1	1	11
<b>Totals</b>	<b>3</b>	<b>5</b>	<b>6</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>30</b>

Model Years	Chrysler	Ford	G.M.	Toyota	Honda	Niss/Dat	VW/Volvo	others	Totals
1998-2005	1	2	2	2	1	1	1	2	12
1991-1997	1	4	4	3	3	1	1	3	20
1965-1990	1	4	5	2	1	1	1	3	18
<b>Totals</b>	<b>3</b>	<b>10</b>	<b>11</b>	<b>7</b>	<b>5</b>	<b>3</b>	<b>3</b>	<b>8</b>	<b>50</b>

<sup>1</sup> Based on version approved by the Board on September 22, 2012.

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website: <http://www.arb.ca.gov>.*

California Environmental Protection Agency

Model Years	Chrysler	Ford	G.M.	Toyota	Honda	Niss/Dat	VW/Volvo	others	Totals
1998-2005	2	4	4	4	2	2	1	4	23
1991-1997	3	8	8	6	5	1	3	5	39
1965-1990	3	7	11	4	2	3	3	5	38
<b>Totals</b>	<b>8</b>	<b>19</b>	<b>23</b>	<b>14</b>	<b>9</b>	<b>6</b>	<b>7</b>	<b>14</b>	<b>100</b>

Table 1 is a 30 vehicle matrix of conventional (non-ORVR) vehicles. Table 2 is a 50 vehicle matrix of conventional (non-ORVR) vehicles. Table 3 is a 100 vehicle matrix of conventional (non-ORVR) vehicles. Using these matrices will provide a group of test vehicles that are representative of conventional vehicles on California roads.

The above matrices were prepared from projections for on-road gasoline-powered passenger cars, light duty trucks, and medium duty vehicles (< 8500 lbs. gross vehicle weight rating). It is estimated that passenger cars account for 56 percent of vehicle miles traveled (VMT) on California roads, light duty trucks account for 27 percent, and medium duty vehicles account for 17 percent.

The matrices were calculated from the following two reports:

- (1) The report of the number of registered vehicles by model year and make as of January 25, 2012, from the California Department of Motor Vehicles (DMV). Suzette Y. Cabero-Charles, Data Processing Manager of the DMV's Production Data Guidance provided a printed copy of the report.
- (2) The statewide projected vehicle populations and miles traveled per day in 2012 by model year for the gasoline-powered vehicles listed above. Tom Scheffelin of ARB's Planning and Technical Support Division provided the report from ARB's Emission Factors Model (EMFAC2011).

If you have questions or need further information, please contact me via email at [fmedina@arb.ca.gov](mailto:fmedina@arb.ca.gov) or by phone at (916) 324-1003.

cc: See next page.

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