State of California
AIR RESOURCES BOARD

Staff Report: Initial Statement of Reasons for Proposed Rulemaking

PUBLIC HEARING TO CONSIDER THE ADOPTION OF REGULATIONS REGARDING CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR OFF-HIGHWAY RECREATIONAL VEHICLES AND ENGINES

Date of Release: November 24, 1993
Scheduled for Consideration: January 13, 1994
Agenda Item No.: 94- -

I. INTRODUCTION

The California Clean Air Act (CCAA), (AB 2595, enacted in 1988), codified in the Health and Safety Code requires the Air Resources Board (the "Board" or "ARB") to consider regulating emissions from off-road engines and other non-vehicular sources in order to help achieve an overall five percent per year reduction of carbon monoxide and ozone precursor emissions (Health and Safety Code Sections 43013 and 43018). This legislation specifically mandates that the ARB consider measures to reduce emissions from off-highway vehicles and motorcycles. Included in these categories are all-terrain vehicles (ATVs), go-karts, golf carts, and specialty vehicles.

To fulfill the statutory requirements of the CCAA, the staff conducted numerous public and private workshops concerning off-highway vehicles from October 1990, to the present. With valuable input from industry, these workshops proved to be instrumental in developing a plan to control emissions from off-highway vehicles. This plan was approved by the Board at a public meeting on May 14, 1992. Because the vehicles and equipment in the off-highway vehicle category vary greatly in terms of usage, applications, and available emission control technology, the off-highway vehicle category was subdivided into three separate subcategories: preempted farm and construction equipment, off-highway industrial equipment, and off-highway recreational vehicles. Currently, emission control regulations are being considered by the United States Environmental Protection Agency for certain preempted farm and construction equipment. Regulations for the industrial equipment subcategory will be presented to the Board for consideration at a later date. A proposal to reduce emissions from the off-highway recreational vehicle subcategory is the subject of this report.

II. BACKGROUND

The off-highway recreational vehicle subcategory includes off-road motorcycles, ATVs, go-karts, golf carts, and specialty vehicles such as small personnel carriers, burden carriers, and transport vehicles. Although not all of the vehicles contained in the off-road recreational

vehicle subcategory fit the "classical" definition of "recreational vehicles", they have been included in this regulatory proposal because their engines are similar. The applications of off-highway recreational vehicles include, but are not limited to, carrying passengers or hauling a variety of loads on public lands and golf courses, and at resort or hotel areas. Engines used in these vehicles consist of both 2- and 4-stroke configurations. They range in power from 8 horsepower for golf carts to over 30 horsepower for the larger off-road motorcycles and specialty vehicles. Most of the smaller engines are gasoline powered and are relatively simple compared to current pollution controlled on-road engines. However, the larger engines in this category are currently utilizing advanced hardware such as fuel injection, or use of alternate fuels.

A. Off-Road Motorcycles and ATVs

Approximately 40 percent of the off-road motorcycles and ATVs in California today are equipped with 4-stroke engines. Of greatest concern are the remaining percentage of off-road motorcycles and ATVs equipped with the much "dirtier" 2-stroke engine. Specifically, the concern is that many of these vehicles are marketed as competition off-road motorcycles and ATVs. True competition off-road motorcycles and ATVs (i.e., those used exclusively off of the highways in organized and sanctioned racing/competition events) are exempt from state regulatory control pursuant to Health and Safety Code (HSC) section 43001. Staff's concern is although they are marketed as competition off-road motorcycles and ATVs, a large percentage are not truly used for this purpose and therefore should be subject to emission controls. Thus, the proposal contains two major provisions: one which limits the exhaust emissions from (non-competition) off-road motorcycles and ATVs, and the other that controls the improper use of off-road motorcycles and ATVs that are ostensibly designed for competition, through new certification, labeling, and registration procedures.

B. Golf Carts and Specialty Vehicles

The Board approved the first off-road emission control regulations for small "Lawn and Garden and Utility" (hereinafter "utility") engines at the December 1990 Board hearing. Golf cart engines were originally included in the utility category because of their size and similarity to other engines in the category. However, prior to the hearing, golf cart manufacturers argued that they had not been given adequate notice of the rulemaking and had not participated in the staff's workshops. Recognizing these concerns, the Board agreed with staff's recommendation to exclude golf carts from the utility engine rulemaking and to propose regulatory control measures for these vehicles at a future date.

Following the December 1990 Board Hearing, staff discussed with National Golf Car Manufacturers Association members preliminary proposals to control golf cart emissions. Subsequent to these discussions, National Golf Car Manufacturers Association, in November 1991, reversed its initial position and formally petitioned the Board to categorize golf carts as utility engines and consequently require these vehicles to comply with the utility engine emission standards and regulations. The National Golf Car

Manufacturers Association's position was that golf cart engines are similar to riding mower engines and should therefore be subjected to similar emission standards and regulations.

Following Board approval of the Off-Highway Vehicle Plan in May 1992, staff continued discussions with National Golf Car Manufacturers Association members on proposed emission control regulations applicable to golf carts and specialty vehicles. In an August 6, 1992 meeting with National Golf Car Manufacturers Association members, staff presented a proposal which would require all new golf carts and specialty vehicles sold in California to have zero emissions by January 1, 1993. However, after considering the lead time and cost concerns raised by National Golf Car Manufacturers Association members, the proposed implementation schedule for golf carts has been delayed until 1997. In addition, due to the technical difficulties associated with a zero emission standard for some specialty vehicles, staff is now proposing emission standards identical to those previously adopted for utility equipment engines.

C. Estimated Emissions Inventory

Staff's emissions inventory estimates are based on information obtained from independent contractors, industry associations, manufacturers, and other state agencies. From this input, staff estimated the 1992 baseline population for off-highway recreational vehicles in California to be 357,000 vehicles. Table 1, below, provides a breakdown of this population by individual vehicle types.

Table 1

Competition OFRMs[1] & ATVs	183,000
Other OFRMs & ATVs	116,000
Golf Carts	40,000
Specialty Vehicles & Go-Karts	18,000
Total Vehicle Population	357,000

Table 2, below, shows the estimated 1992 statewide baseline emissions contribution of hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) from off-highway recreational vehicles. Although off-road motorcycles and ATVs are used only on a limited basis (i.e., generally less than 200 hours per year), on a per vehicle basis, the emissions contribution of off-road motorcycles and ATVs is especially significant. For example,

1. Off-road motorcycle.

competition 2-stroke off-road motorcycles and ATVs, on a per vehicle basis can emit up to 100 times the HC emission levels of a currently regulated 1993 passenger car on a grams per mile basis.

Table 2

Source	Tons Per Day HC	CO	NOx
Competition OFRMs & ATVs	33.8	42.4	0.1
Other OFRMs & ATVs	3.3	43.4	0.3
Golf Carts	8.9	38.5	0.2
Specialty Vehicles & Go-Karts	2.5	43.1	0.3
Totals (rounded)	49	167	1

III. SUMMARY OF RECOMMENDED ACTION

Given the severity of California's air quality, and the emissions impact of off-highway recreational vehicles, staff is recommending the adoption of emission standards, test procedures, and enforcement requirements for off-highway recreational vehicles. While the staff's proposal is similar in structure and content to other previously adopted off-road regulations, it is also unique in that it will require zero emission golf carts in 1997 in federal ozone non-attainment areas, and impose new registration and labeling requirements for off-road motorcycles and ATVs to control the improper use of non-emission-controlled off-road motorcycles and ATVs designed for competition. A summary of staff's proposed action follows below. A more in-depth discussion of these items is provided in section IV, "DISCUSSION".

A. EXHAUST EMISSION STANDARDS

Staff proposes that engines used in off-road motorcycles and ATVs produced for sale, lease, use, or introduction into commerce in California after December 31, 1996 comply with the exhaust emission standards shown in Table 3. True competition off-road motorcycles, ATVs, and go-karts are exempt from these standards. The proposal also requires that after December 31, 1996, golf carts produced for sale, lease, use, or introduction into commerce in federal ozone non-attainment areas in California comply with a zero-emission standard. As shown in Table 3, it is proposed that specialty vehicles less than 25 horsepower comply with the emission standards applicable to utility equipment engines that are set forth in Title 13, California Code of Regulation, Section 2403. Finally, staff proposes that specialty vehicles and go-karts 25 horsepower and greater (hereinafter noted only as go-karts), comply with the 1999 utility engine standards beginning in 1997. No emission standards, test procedures, or other requirements are

Table 3

Proposed Emission Standards

Vehicle & Model Year	Hydro-carbon	Oxides of Nitrogen	Carbon Monoxide	Particulate Matter [2]
Off-Road Motorcycles and and ATVs 1997 and Later (g/km)[4]	1.2[3]	-	15.0	-
ATV Option 1997 and Later	Shall comply with exhaust emission standards equivalent to the off-road motorcycle and ATV standard using the utility test procedures set forth in Title 13, CCR, Section 2400 et seq.			
Golf Carts[5] 1997 and Later	ZERO	ZERO	ZERO	ZERO
Specialty Vehicles <25 horsepower				
1995 - 1998	10.0/12.0[6] Combined		300	0.9
1999 and Later (g/Bhp-hr)[7]	3.2 Combined		100	0.25
Go-Karts and Specialty Vehicles ≥25 horsepower 1997 and Later (g/Bhp-hr)	3.2 Combined		100	0.25

2. Applicable to diesel and two-stroke spark ignited engines only.
3. Applicable on a corporate average basis.
4. Grams per kilometer.
5. In federal ozone non-attainment areas only.
6. The applicable standard is based on engine displacement. Engines <225 cubic centimeters (cc) shall comply with the 12.0 g/Bhp-hr HC+NOx standard and engines 225cc and greater shall comply with the 10.0 g/Bhp-hr HC+NOx standard.
7. Grams per brake-horsepower-hour.

proposed for go-karts equipped with engines less than 25 horsepower because these engines are already controlled under the adopted utility engine regulations.

B. REPLACEMENT ENGINES

Many manufacturers supply new replacement engines for old equipment. Staff proposes that no new engines shall be produced for sale to replace pre-controlled off-road motorcycle, ATV, go-kart, golf cart, and specialty vehicle engines after the implementation of the emission standards, unless those new replacement engines comply with the applicable emission standards.

C. TEST PROCEDURES

Staff recommends the Board adopt the current on-road motorcycle test procedures, Title 40, part 86, subparts E and F of the Code of Federal Regulations as amended in Attachment 3, for use in certifying off-road motorcycles and ATVs. Off-road motorcycles will use the test cycle applicable to the engine's displacement, while ATVs regardless of engine displacement, will use the Class 1 testing cycle only. In addition, staff proposes that manufacturers be given the option, with prior ARB Executive Officer approval, to certify ATV engines using the utility engine testing procedures.

Because of the zero emission standard, test procedures are not proposed for golf carts. However, for go-karts and specialty vehicles, staff is proposing that the Board adopt the current utility engine emissions testing procedures. Staff also proposes that the Executive Officer be delegated authority to incorporate technical revisions as needed to the respective test procedures.

D. CERTIFICATION

All manufacturers of new off-highway recreational vehicles which are subject to the proposed standards will be required to certify their vehicles and repeat the certification annually. However, submission of new certification data would only be required whenever design changes to an engine are made, or new emission standards take effect.

Under the proposed regulations, the ARB would reserve the right to perform confirmatory emissions testing of new off-road motorcycles, ATVs, go-karts and specialty vehicle engines. These tests would be used to verify certification test data. If the test vehicle's emissions of any pollutant fail to meet the applicable emission standard, certification would be denied.

E. LABELING

For enforcement purposes, staff proposes that a permanent label be attached to off-road motorcycles, ATVs, go-karts, and specialty vehicles. This label would identify the vehicle/engine as a California-certified model meeting all applicable emissions requirements. This labeling requirement would be used to facilitate enforcement and provide vehicle owners and

service mechanics with information necessary for proper identification, maintenance, and repairs. This information would be made available to the ARB with the manufacturer's certification application. With regard to golf carts, there would be no labeling requirements.

F. REGISTRATION

For off-road motorcycles and ATVs produced after December 31, 1996, the proposed regulations would require manufacturers to encode the vehicle identification number in a manner which identifies the vehicle as a California certified off-road vehicle. This identification would provide the Department of Motor Vehicles with the necessary information to properly register the vehicle which, in turn, would be used as an enforcement tool to discourage the consumer from buying a competition off-road motorcycle or ATV if it would not truly be used for competition purposes. Staff is working with the Department of Motor Vehicles' staff to develop these new registration procedures. With regard to golf carts, specialty vehicles, and go-karts, no registration requirements are proposed.

IV. DISCUSSION

A. EMISSION STANDARDS

1. Off-Road Motorcycles and ATVs

Since there are currently no emissions standards applicable to off-road motorcycles and ATVs, manufacturers of these vehicles have historically focused their development efforts on improving engine performance rather than emissions performance. As a consequence, current emission levels of off-road motorcycles and ATVs are considerably higher than other regulated on- and off-highway vehicles.

The emissions standards proposed for 1997 and subsequent model year off-road motorcycles and ATVs have been developed with the cooperation of motorcycle manufacturers and the Motorcycle Industry Council using the latest and best available data. As previously shown in Table 3, staff is proposing a HC standard of 1.2 g/km (applied on a corporate average basis), and a CO standard of 15.0 g/km, using the current on-road motorcycle test procedure.

Table 4 presents the estimated average emission levels from current 2- and 4-stroke off-road motorcycles and ATVs as well as the proposed emission standards. For comparative purposes the current on-road motorcycle standards are also shown. Two-stroke emission levels were based on tests conducted by ARB on early non-controlled on-road production models. Emission levels for the 4-stroke off-road motorcycles and ATVs were estimated based on emissions tests conducted by manufacturers on a sample of 1990 production 4-stroke off-road motorcycle models.

Table 4

Average Emission levels in grams per kilometer

Vehicle	HC	CO
Current OFRM or ATV 2-stroke	15.0	20.0
Current OFRM or ATV 4-stroke	1.5	32.0
Proposed OFRM & ATV std.	1.2	15.0
On-Road Motorcycle std.	1.0[8]	12.0

With regard to current 4-stroke engine emission levels, the proposed standards will reduce HC emissions slightly and reduce CO emission levels by more than 50 percent. More importantly, however, the proposed standards will significantly impact current 2-stroke engine emission levels. It is likely that as a result of the standard, most 2-stroke engines will no longer be able to be produced for the recreational vehicle market unless they are equipped with catalytic converters. (See discussion below, Section B. 1. a.)

With regard to new engines sold as replacements for engines in old equipment, the proposed regulations will require that, beginning in 1997, these new replacement engines must comply with the 1997 emission standards.

2. Golf Carts

The staff proposes that golf carts comply with a zero emission standard for all criteria pollutants (HC, CO, NOx). Starting in 1997, this requirement will apply to all new golf carts produced after December 31, 1996 for sale, lease, or use in federal ozone non-attainment areas within California. As of this date, these areas are the San Francisco Bay Area, South Central Coast, South Coast, North Central Coast, North Coast, San Diego, Sacramento Valley, San Joaquin Valley, Great Basin Valleys, Southeast Desert and Mountain Counties Air Basins.

To slowly phase out the remaining gasoline golf cart fleets, staff proposes that no internal combustion engines produced after December 31, 1996 shall be sold for use in golf carts in federal ozone non-attainment areas. Current in-use gasoline engines may continue to be rebuilt as necessary, but it is anticipated that increased maintenance and rebuilding costs will eventually discourage this action. The staff estimates that by 2007, all golf courses in ozone non-attainment areas within California will have completely converted to zero emission golf cart fleets.

---

8. Applicable to motorcycles with engine displacements less that 700 cubic centimeters.

3. Specialty Vehicles and Go-Karts

Staff proposes that all new specialty vehicles equipped with engines under 25 horsepower, produced on or after January 1, 1995, comply with the utility engine emission standards and implementation schedules as set forth in Table 3. Staff also proposes that all new specialty vehicles and go-karts equipped with engines 25 horsepower and greater, produced on or after January 1, 1997, comply with the exhaust emission standards as set forth in Table 3. These standards are identical to the 1999 and later utility engine emission standards.

The proposed regulations also require that, beginning on January 1, 1995 for specialty vehicles less than 25 horsepower and January 1, 1997 for specialty vehicles and go-karts 25 horsepower and greater, replacement engines must comply with the applicable current year emission standards.

B. TECHNICAL FEASIBILITY

1. Off-Road Motorcycles and ATVs

a. 2-stroke engines

To comply with the proposed standards, manufacturers will likely replace 2-stroke engines with their existing 4-stroke engine models. Although 4-stroke engines are generally larger than equivalent powered 2-stroke versions, staff believes that the additional size and weight difference would have little significance (approximately <10 lbs.) when compared to the size and weight of the vehicle and rider (approximately 400 lbs.). Also, because the performance gap between 2- and 4-stroke vehicles has narrowed in recent years, and the performance capabilities of the 4-stroke vehicles approach the average recreational riders' safe operational limits, it is unlikely that many riders will notice the loss in performance, if any. It is anticipated that industry will be able to provide adequate 4-stroke engine performance for this type of vehicle without adversely affecting the market or rider appeal. Kawasaki, one of the only major off-road motorcycle manufacturers which produced exclusively 2-stroke vehicles, is already in the process of converting its primarily 2-stroke product line over to a 4-stroke product line. This voluntary decision was based on their assessment of the most cost-effective way to reduce exhaust emissions in anticipation of the proposed regulations. They have introduced two new 4-stroke off-road motorcycles this year with others to be introduced in the next few years.

In addition, catalysts have been used successfully in a few applications for 2-stroke on-road motorcycles in recent years. It is conceivable that the elimination of 2-stroke engines for use in off-road motorcycles and ATVs may be avoided if catalyst technology proves to be a viable method for complying with the proposed emission standards.

b. 4-stroke engines

To meet the proposed standards, manufacturers will likely employ emission control technologies which are currently available and in use on

on-road motorcycle engines. These include the substitution of cleaner 4-stroke engines that use more precise fuel metering (improved carburetors) and engine and cooling modifications. On-road motorcycles currently utilizing these emission control strategies have shown improved fuel economy and emission levels well below the proposed off-road standard.

2. Golf Carts

The technology to meet a zero emission requirement is currently available, as evidenced by California's existing golf cart fleet which is composed of approximately 60 percent electric vehicles. Most golf courses have already, or soon will be, converted to an all electric golf cart fleet because of increasing pressure from golfers for cleaner and quieter vehicles, as well as concerns with emissions permitting, waste oil disposal, and gasoline storage.

Recognizing the increasing demand for electric golf carts, manufacturers have improved electric golf carts' efficiency and performance. For example, improved charger/battery and motor/electronics combinations have enabled golf carts to complete over 50 holes of golf before requiring a recharge. Additionally, new recharging technologies have been developed which can significantly reduce the recharging time as well as increase battery life. These new designs and improvements have enabled golf carts to climb hilly courses as easily as gasoline carts. In fact, many of the golf courses in Southern California which are designated as "hilly" terrain are currently using electric golf carts. For these reasons, staff does not believe there are any technological barriers to the proposed zero emission standard.

3. Specialty Vehicles and Go-Karts

a. Specialty Vehicles Less than 25 horsepower

Specialty vehicles less than 25 horsepower are equipped with the same engines as used in utility equipment. Because the duty cycles of specialty vehicles and utility equipment are also similar, the proposed emission standards and implementation schedule for specialty vehicles are the same as the utility equipment standards and implementation schedule previously adopted by the Board. Thus, it is anticipated that manufacturers of specialty vehicles under 25 horsepower will use similar emission control technology for compliance as the utility engine manufacturers. Several utility engine manufacturers have already successfully developed carburetion improvements and engine modifications to certify utility engines to meet the 1995 emission standards. As noted in the utility engine staff report, these changes are capable of reducing HC emissions up to 70 percent.

b. Specialty Vehicles and Go-Karts 25 horsepower and Greater

Specialty vehicles and go-karts 25 horsepower and greater are typically equipped with 500 to 2000 cubic centimeter (cc) multi-cylinder gasoline, diesel, or alternately fueled engines. These engines can use emission control technology similar to that used in on-road vehicle engines such as catalytic converters. As with the specialty vehicles less than 25

horsepower, staff proposes that these vehicles comply with the utility equipment standards previously adopted by the Board. However, because of the more advanced design of these larger engines, staff proposes that they meet the previously adopted 1999 utility equipment standards beginning in 1997. Mitsubishi, one of the major manufacturers of these vehicles, has stated it believes its product will be able to comply with the proposed standards.

C. LEAD TIME

1. Off-Road Motorcycles and ATVs

The staff's proposal provides manufacturers with three years of lead time prior to 1997 to comply with the standards and other regulatory requirements. In contrast to many off-road equipment manufacturers, off-road motorcycle and ATV manufacturers will require little lead time to procure and set up test laboratories, since they currently possess the equipment and testing facilities that will be needed. Moreover, as previously indicated, 4-stroke engines will require little technological development to comply with the proposed standards, and thus, little or no lead time will be necessary in this regard. On the other hand, manufacturers will need the provided lead time to "change over" their product line from 2-stroke to 4-stroke engines or develop suitable catalyst technology.

As provided under the proposed regulations, manufacturers may test ATV engines on both the motorcycle and utility engine test cycles to determine the equivalent emission compliance level on the utility engine cycle. Presently, such testing is ongoing, and manufacturers should complete most of the preliminary testing by December 1993. Once the applicable utility cycle emission compliance level has been established, manufacturers should have sufficient time to modify their ATV engines to comply with the standards by the 1997 implementation date.

2. Golf Carts

To comply with the zero emission requirement, staff believes that golf cart manufacturers will need little or no lead time since compliance requires no new technology and complying electric golf carts are already being produced. The staff has proposed the 1997 implementation date to give golf courses and other users adequate time to phase in electric vehicles at their facilities. The proposed implementation date also recognizes the typical 3-year lease period golf courses have with golf cart manufacturers or distributors. Three years of lead time will allow golf courses to avoid conflicts with present leases, and to negotiate future leases.

3. Specialty Vehicles and Go-Karts

Specialty vehicles equipped with engines less than 25 horsepower have been given a relatively short lead time (1995 implementation). This lead time coincides with the implementation schedule of the utility engine regulations. The staff believes that additional time is not necessary since in most cases, the same manufacturers produce both specialty vehicle and the

utility equipment engines which have previously been regulated and therefore can utilize the same emission control strategies used for those engines.

The proposed emission standards provide the manufacturers of specialty vehicles and go-karts equipped with engine 25 horsepower and greater with three years of lead time to develop complying engines. Although the proposal requires engines 25 horsepower and greater to meet the 1999 utility engine standards two years ahead of the utility equipment schedule, on-road emission control technology should be easily transferable to these engines and, thus, the 1997 implementation date is proposed.

D. TEST PROCEDURE

1. Off-Road Motorcycles and ATVs

Staff proposes that the current on-road motorcycle test procedure be used to certify off-road motorcycles and ATVs. Under this procedure, the smaller class 1 on-road motorcycles are tested under a less severe cycle than the larger, more powerful class 2 and 3 motorcycles. Determining which class a motorcycle falls into is based on the cubic centimeter displacement of the engine. This same class/cycle distinction is proposed for off-road motorcycles. However, due to the speed limitations of ATVs, staff proposes that all ATVs, regardless of engine displacement, be tested on the less stringent Class 1 cycle.

While some ATV manufacturers have supported the use of the current on-road motorcycle test procedure, others have stated that because ATVs may have difficulty utilizing the motorcycle test procedure, they would prefer engine dynamometer testing similar to the utility engine procedure. Specifically, these manufacturers have expressed a concern that the wide track of ATVs would prohibit them from using current motorcycle dynamometers. These manufacturers have also stated that the low pressure tires on ATVs would not stand up to the rigors of a chassis dynamometer test.

Although staff believes that the testing difficulties described above are not insurmountable[9], it has proposed that ATV manufacturers have the option of using the utility engine test cycle as a means of certifying ATVs. However, insufficient data currently exist correlating the utility engine standards and test procedures to the motorcycle standards and test procedures. Thus, manufacturers choosing this option, would be allowed to

---

9. Staff believes that these testing difficulties can be overcome by using a wider tracked dynamometer or by disconnecting one of the drive wheels, enabling the ATV to "fit" on the narrower track motorcycle dynamometer. With regard to the low pressure tire concern, manufacturers could utilize a different set of special high pressure (slave) tires to conduct the dynamometer test.

certify ATVs to exhaust emission standards that are equivalent to the off-road motorcycle/ATV standards using the utility engine test procedures, if equivalency between the two test procedures can be established. Manufacturers would be required to submit appropriate test data to the ARB showing that these "equivalent" utility engine standards are at least as stringent as the off-road motorcycle/ATV emissions standards (1.2 g/km HC and 15 g/km CO) and receive prior approval from ARB's Executive Officer before certification will be granted. Executive Officer approval would be based on emission test results obtained from engines and vehicles tested on both the motorcycle and utility engine test cycles.

2. Specialty Vehicles, Go-Karts, and Golf Carts

For specialty vehicles and go-karts, staff is proposing the previously adopted utility equipment emission test cycle (see Test Procedures for 1995 and Subsequent Lawn, Garden, and Utility Equipment Engines). This test cycle consists of an 6-mode steady-state test which combines various speed and load combinations that may be encountered during normal operation of these vehicles. This test cycle has been widely accepted by industry and is considered the most appropriate cycle to use. No test procedures are proposed for golf carts.

E. CERTIFICATION

1. Off-Road Motorcycles, ATVs, Specialty Vehicles, and Go-Karts.

All new off-road motorcycles, ATVs, specialty vehicles, and go-karts offered for sale, lease, use, or introduction into commerce in California and which are subject to the proposed standards would be required to be certified for sale by an Executive Order. Manufacturers would be required to submit an application for certification. Such application would require manufacturers to provide estimated sales data, product and maintenance information, a sample emission label, a detailed description of the engine and emission control hardware, and emission test data showing compliance with the emissions standards. This is similar to other on- and off-road certification procedures. The specific requirements are described in Attachments 2 and 3.

2. Golf Carts

The regulation similarly proposes that golf carts be certified in California. Manufacturers would be required to submit an application for certification which includes estimated California sales data, product information, and a declaration that the vehicle qualifies as a zero emission vehicle.

F. ENFORCEMENT REQUIREMENTS

The proposed enforcement requirements are based on those currently used for other on- and off-road vehicles. These enforcement measures include requiring manufacturers to provide a sample of their engines for confirmatory testing, ARB's authority to enjoin manufacturers from sales in California, recall provisions, and monetary compliance penalties. Revised

registration requirements are also proposed to address the concern regarding the improper use of off-road motorcycles and ATVs designed for competition.

1. Confirmatory Testing

At ARB's option, a sample of a manufacturer's certification engines would be subject to emissions testing by the ARB. This testing is similar to testing performed on on- and other off-road engines. This testing provides an independent check on certification engines' compliance with the emission standards. It is not proposed that confirmatory testing apply to golf carts.

2. Labeling

Under the proposed regulations, all off-road motorcycles and ATVs would be required to have emission labels which conform to "California Motor Vehicle Emission Control Label Specifications," adopted March 1, 1978, as last amended July 12, 1991. These labels will clearly identify the engine and vehicle as a California certified model. They will function as an enforcement tool for both emission control regulations and registration requirements. In addition, manufacturers have voluntarily agreed to place a permanent label on their non-certified "competition" off-road motorcycles and ATVs stating that, "This vehicle is for use exclusively in closed course racing events. It does not conform to California's emission standards."

The emission control label would include the manufacturer's name, date of manufacture, model year, engine family identification number, tune-up specifications, and a list of the emission control equipment installed on that engine. The specific fuels, engine lubricant requirements, and the total engine displacement in cubic centimeters would also be included on the label. Manufacturers using labels which are different from those approved or which do not comply with the readability or durability requirements set forth in the specifications will be subject to applicable penalty provisions of the Health and Safety Code, and possibly be enjoined from any further sales of such products in California.

With regard to specialty vehicles and go-karts, manufacturers will be required to conform to the same labeling requirements previously adopted for utility equipment. No labeling requirements are proposed for golf carts.

3. Measures To Limit Use of Competition Vehicles for Non-Competition Purposes

a. Off-Road Motorcycles and ATVs

Sales data from 1992 indicate that off-road motorcycles marketed by manufacturers as competition motorcycles account for 60 percent of off-road motorcycle sales within California. Competition off-road motorcycles and ATVs contribute over 93 percent of the HC emissions from all off-road motorcycles and ATVs and over 60 percent of the HC emissions from the entire off-highway recreational vehicle category. Presently, the ARB staff believes that because of the very limited number of racing or sanctioned competition events and the disproportionately large number of competition

off-road motorcycles and ATVs sold, the majority of off-road motorcycles and ATVs being marketed as competition are being used for non-competition purposes.

Some off-road motorcycle manufacturers contend that because they market their off-road motorcycles and ATVs as competition vehicles, they are exempt from regulation by the ARB. In support of their contentions they cite Health and Safety Code section 43001, which declares that provisions of Part 5 of the Health and Safety Code do not apply to racing vehicles.

Staff disagrees with this conclusion. Health and Safety Code section 39048 defines racing vehicles to mean competition vehicles not used on public highways. Although the Health and Safety Code does not define competition vehicles, the Vehicle Code provides guidance. The latter code defines racing vehicles narrowly. Section 38088 of the Vehicle Code states that a motorcycle or ATV used in racing is a vehicle which an "owner has certified as being used exclusively in racing events on a closed course...". Vehicle Code section 38014 defines a "closed course" to include, but not limited to, a speedway, a racetrack, or a prescribed and defined route of travel, on or off a highway, that is closed to participants and is not available at any time for vehicular access by the general public. Vehicle Code section 38012 exempts from vehicular registration only those motorcycles defined as racing vehicles under vehicle Code section 38088.

In view of the narrow definition of racing vehicle, the ARB staff maintains that it has authority to regulate all motorcycle and ATV models that are not exclusively used in racing or competition events, and which would otherwise be subject to Department of Motor Vehicle registration requirements. This would be consistent with the Vehicle Code provisions which provide exemptions for racing vehicles based on how the vehicle is used by its ultimate purchaser.

However, in an effort to amicably resolve the controversy surrounding the issue, the ARB staff presently does not propose to require 2-stroke motorcycle and ATV models that have been marketed as competition vehicles to comply with the off-road motorcycle standards set forth in Table 3. Rather, staff proposes that industry and the ARB attempt to monitor the registration and sale of such models in an effort to restrict the sale and use of such vehicles for non-racing and non-competition purposes.

Staff is hopeful that the registration identification procedure will limit the number of competition marketed vehicles that are inadvertently registered each year as non-competition vehicles. This in conjunction with the sales and lease data provided by manufacturers, should enable the ARB to determine whether the problem of competition-marketed vehicles being used for other purposes continues to exist or is being remedied.

To this end, the ARB staff proposes that all off-road motorcycles and ATVs be equipped with the 17 digit VIN similar to that required for on-road vehicles. The VIN will enable the ARB and DMV to properly identify and register California certified vehicles. Staff is proposing that, for non-competition off-road motorcycles and ATVs, the 12th character in the VIN be an "N". This marking will designate the vehicle as being a California

certified off-road model meeting all emission control requirements set forth by the ARB. Competition off-road motorcycles and ATVs would not be permitted to use the "N" designation. Thus, only vehicles with the "N" character in the proper place will be permitted to register and receive a "green sticker" from DMV. The "green sticker" will allow owners to legally ride their vehicle off of the highways in California. In addition, the ARB staff proposes that, beginning January 1, 1997, manufacturers provide the ARB, on a quarterly basis, specified information regarding sales and leases to ultimate purchasers of all off-road motorcycles and ATVs, including models marketed as competition-only vehicles. Such data would include, but not be limited to, the reporting of the numbers of competition and non-competition vehicles sold, along with the Vehicle Identification Number (VIN), and the vehicle make and model of each type of vehicle.

b. Golf Carts, Specialty Vehicles, and Go-Karts

Staff is not proposing any registration requirements for golf carts, specialty vehicles, or go-karts.

4. Monetary Compliance Measures

To ensure compliance with the proposed regulations, staff will utilize the monetary compliance measures for off-highway recreational vehicles as provided in the HSC.

V. ISSUES OF CONTROVERSY

Many of the issues discussed at workshops and the May, 1992 Board meeting were considered by the staff and resulted in modifications to this proposal. However, as discussed below, several issues remain unresolved.

A. Off-Road Motorcycles and ATVs

1. Emissions Inventory

Manufacturers have expressed concern that staff may not have an accurate assessment of the off-road motorcycle and ATV emissions inventory. Specially, they questioned the accuracy of staff's estimates of the population and usage associated with these vehicles. Some industry representatives also believe that the relatively small population and wide geographic distribution of these vehicles make emission regulations unnecessary.

Staff based its off-road motorcycle and ATV population estimates on the Motorcycle Industry Council's 1992 California population estimates (299,000). Because California off-road vehicle DMV registration records show no significant change in the off-road motorcycle and ATV population over the past seven years, regardless of sales, staff assumed there would likewise be no significant change in the population by the year 2000. However, the Motorcycle Industry Council believes that the population of non-competition off-road motorcycles and ATVs will decrease to about 116,000

by the year 2000, despite the Motorcycle Industry Council's estimate that sales will increase by 5 percent per year over the next several years. The Motorcycle Industry Council further believes that competition off-road motorcycles and ATVs will be eliminated from the market as a result of the proposed registration requirements and that they will not be replaced by the non-competition models. Staff disagrees with the Motorcycle Industry Council's assessment and, instead, believes that potential competition off-road motorcycle and ATV buyers will purchase the non-competition alternate rather than make no purchase and retire from the sport.

Industry believes that the annual usage rates used by staff overestimate the typical off-road motorcycle and ATV activity by nearly eight times (317 vs. 2400 miles per year). Staff believes that the data provided by the Motorcycle Industry Council are contradictory in that the average annual mileage (317) does not "add-up" to the average number of days ridden annually times the average miles ridden daily (46 days/year x 29 miles/day = 1334 miles/year). Staff's estimate of annual miles driven is based on conservative assumptions of daily use. Staff assumed that enthusiasts would use their vehicles at least 40 times per year, three hours per day, and at an average speed of 20 miles per hour (40 days/year x 3 hours/day x 20 miles/hour = 2400 miles/year).

While industry contends that these vehicles are primarily used during the weekend in remote communities or national forests, many off-road parks are found in or near major cities and suburban areas, which are in non-attainment areas. Some examples of areas in Southern California which have been reserved for off-road use include, Victorville, Lancaster, Barstow, and the Los Angeles and San Bernardino National Forest. For this reason, we believe that these vehicles represent a significant emission impact and therefore warrant regulatory control.

2. 90cc Exemption

Manufacturers have strongly requested that all off-road motorcycles and ATVs less than 90cc be exempt from staff's regulatory proposal. They have stated that there is a strong need to provide small, light-weight, 2-stroke off-road motorcycles and ATVs with adequate performance capabilities for use by the younger riders and small adults who would otherwise feel uncomfortable on the larger vehicles. According to a Consumer Products Safety Commission (CPSC) rule, manufacturers are limited in the size of the engine (< 90cc) they can use in an ATV to be sold for use by children under age 16. Manufacturers argue that because of the CPSC rule they can not substitute a 4-stroke engine for the 2-stroke engines. This argument is based on their assertion that similar 4-stroke engines would be less powerful, heavier and more expensive, thereby discouraging the entry-level off-road motorcycle and ATV enthusiasts from continuing in the sport.

Staff believes the 90cc exemption is unnecessary and will undermine the very premiss of the proposed regulations (the elimination of the higher emitting 2-stroke engines). Staff has estimated that if only 5 percent of the vehicles in the entire off-road motorcycle and ATV population were equipped with 2-stroke engines, the HC emissions contribution from these dirtier engines would be over 65 percent of the entire off-road motorcycle

and ATV category. The staff believes that the added size, weight (10 lbs.), and performance difference of a similarly sized 4-stroke engine would not change the appeal of the product. It should be noted that one leading off-road motorcycle/ATV manufacturer currently produces an ATV equipped with a 90cc 4-stroke engine.

3. Competition Vehicle Exemption

Under staff's definition of competition vehicles, the proposed regulations would not be applicable to those recreational vehicles which "... are to be operated exclusively off of the highways in organized racing/competition events ..." Manufacturers oppose this definition primarily because of the words "to be operated exclusively." Manufacturers take the position that they should not be held responsible as to how these vehicles are ultimately used by the purchaser. They prefer to have the definition use the words "to be designed exclusively for." Staff strongly opposes this alternative because a strict interpretation of such a definition would remove ARB's authority to regulate any and all vehicles a manufacturer chooses to "design" as a competition vehicle. In theory, a manufacturer could claim that it has designed its entire product line for competition purposes and consequently be exempt from ARB regulatory control based simply on the manufacturers assertions. For these reasons, staff has been compelled to retain the definition of competition vehicles as proposed.

B. Golf Carts

The National Golf Car Manufacturers Association has expressed concern that for those golf courses currently using all gasoline powered golf carts, a large capital investment may be required to build the proper infrastructure for electric golf carts.

The staff's regulatory proposal should not have any significant impact on golf cart manufacturers or the golfing industry in general. Because the proposed regulations would only affect new vehicles, golf courses would not be required to replace their entire fleet at one time. They could continue to rebuild or repair their existing gasoline-powered fleet for an indefinite period. Therefore, golf courses would only be required to purchase zero emission vehicles when their gasoline-powered golf carts became unrepairable, or when it became cost-effective to do so. This would reduce the demand for large capital expenditures for buildings and equipment and amortize this cost over a much greater period of time. Staff estimates that a complete conversion to all electric golf carts for a "typical" golf course would be cost-effective, as described further in Section VII, below.

VI. REGULATORY ALTERNATIVES

A. Off-Road Motorcycles and ATVs

A proposal considered by staff included the adoption of the current on-road motorcycle regulations for off-road motorcycles and ATVs by 1995. This differs from the current proposal in that the alternative proposal would

have set exhaust emission standards at 1.0 g/km HC and 12 g/km CO and would have required evaporative emissions control. While this proposal would have resulted in additional reductions in HC and CO compared to the current proposal, it would have had a higher incremental cost. Most of the emissions benefit would still have been associated with the elimination of the 2-stroke engine off-road motorcycle and ATV. Requiring the manufacturers to greatly reduce the emissions from their existing 4-stroke engine off-road motorcycle and ATV would have provided little additional emissions benefit as compared to the cost of the necessary emission controls. Furthermore, requiring the use of add-on controls (evaporative canisters) may not have provided the expected emissions benefit, as staff believes owners may tamper with such controls. Moreover, evaporative emission controls may not be as effective on these vehicles because they sit for extended periods of time between use. This would result in uncontrolled emissions after enough fuel evaporates to saturate the evaporative canister.

B. Golf Carts and Specialty Vehicles

Staff considered many alternative regulatory proposals for golf carts and specialty vehicles. Mailout #93-38 proposed that all golf carts and specialty vehicles under 25 horsepower conform to zero emission vehicle standards by 1995 and all specialty vehicles 25 horsepower and greater comply with the current on-road low emission vehicle (LEV) emission standards.

Staff rejected the proposal which called for zero emission golf carts by 1995 because of strong concerns expressed by industry over inadequate lead time, and cost. Staff also rejected the proposal as it applied to specialty vehicles because it would likely have caused a severe burden upon industry to produce a viable electric or LEV type specialty vehicle given their current technology and market price.

VII. ENVIRONMENTAL IMPACT & COST-EFFECTIVENESS

Staff estimates that the proposed regulations will achieve a 40 percent reduction in both HC and CO emissions from these off-highway vehicles by the year 2010. Table 5, below, outlines the estimated controlled and uncontrolled 2010 emissions inventory. Staff expects to see the elimination of approximately 39 and 100 tons per day of HC and CO emissions, respectively, from the statewide emissions inventory. Most of the emissions reduction is attributed to the elimination of vehicles equipped with 2-stroke engines.

As shown in Table 5, a slight increase in NOx emissions will result with the implementation of this proposal due to the leaner engine calibrations that will be used. Because NOx is a precursor emission, there could be an increase in ozone and particulate matter less than 10 microns in size (PM_{10}). However, the NOx increase is relatively insignificant (estimated to be 0.05 tons per day) and would be more than compensated by the associated HC (ozone precursor emission) and CO benefits. Accounting for the NOx increase, the staff estimates that the combined (HC + NOx) ozone

precursor emissions would be reduced by 38 tons per day by 2010. To eliminate the NOx increase while maintaining the proposed HC and CO benefits, manufacturers would be forced to incorporate different (exhaust gas recirculation) or more advanced (three-way catalyst) technologies. Incorporation of these technologies would be very costly and would have little NOx emissions benefit. Additionally, staff considered requiring the electrification of specialty vehicles, which would have resulted in approximately a 0.3 tons per day of NOx reductions. This alternative standard was found to be technologically infeasible given the extended use and load requirements of many of the vehicles in this class. Accordingly, staff believes overriding considerations exist for adoption of this regulations, even though a slight increase in NOx emissions may occur.

Table 5

2010 Statewide Emissions Impact
tons per day

	HC	CO	NOx
Uncontrolled	48.5	167.5	0.73
Controlled	9.2	64.4	0.78
Reduction, t/d	39.3	103.1	<0.05>[10]
Reduction, %	81 %	38 %	6 % increase

In addition, there may be concerns associated with the increased use of batteries and the need for battery recycling as a result of the proposed zero emission requirement for golf carts. Staff does not anticipate the additional battery recycling associated with this proposal will create any adverse environmental impacts. The LEV record contains information and analysis of recycling programs for lead acid batteries, (see particularly the September 26, 1990 letters from the Battery Council International and RSR Quemetco Corporation.) In 1988, the California Legislature enacted mandatory battery recycling requirements, requiring all persons who sell batteries to take them back and ensure they are returned to secondary lead smelters for recycling. (Health and Safety Code Section 25215 et seq.) Currently there is sufficient capacity to reclaim the batteries available for recycling in California, and new capacity is planned that could absorb any increase in the number of junk batteries. Secondary lead smelters, at which lead acid batteries are recycled, are subject to stringent environmental and occupational safety and health regulations. The air emissions limitations imposed on smelters are health-based standards which

10. The increase in NOx emissions is due to the substitution of leaner burning 4-stroke engines for the 2-stroke models. The increase in NOx emissions is outweighed by the HC and CO emissions benefits.

must be achieved regardless of the volume of the batteries recycled. Battery recyclers are also developing new recycling technologies. The RSR Quemetco Corporation is the principal United States developer of a new "electro-winning" technology for battery smelting that not only will increase recycling capacity but also will reduce overall emissions.

A. Off-Road Motorcycles and ATVs

Staff estimated the cost of its proposal based on information from the previously adopted utility engine regulations. For 4-stroke engines, the necessary technology and associated cost to comply with the proposed regulations will be minimal. The current emission levels of these engines (as indicated in Table 4) are close to the proposed emission standards. Consequently, manufacturers will likely not be required to use "advanced" emission control technology to ensure emissions compliance. Based on the information provided in the utility engine staff report[11], staff estimated the cost of improvements to meet the proposed 1997 emission standards would be approximately $25 per engine. Manufacturers will likely use one or more of the emission control strategies listed below, in Table 6.

Table 6

Engine and cooling modifications	$10
Better quality control	$ 5
Improved carburetor	$10
Total	$25

The technology needed to bring the 2-stroke engine into compliance with the proposed standard is currently unproven (e.g., 2-stroke engine catalysts), and even if it were, it would likely be costly. Instead, manufacturers will probably elect to replace their 2-stroke engines with 4-stroke models. Most off-road motorcycle and ATV manufacturers currently produce both engine types. Thus, the proposed regulations will not require all manufacturers to invest the resources and capital usually associated with developing a new product. Those manufacturers that produce mostly 2-stroke engines are planning to convert to 4-stroke engines, due to the market demand for the more reliable, smoother operating, and easier starting 4-stroke engines. Nevertheless, for the upper bound of the cost-effectiveness calculations, staff estimated the cost differential between 2-

11. Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Public Hearing to Consider Regulations Regarding the Califonia Exhaust Emissions Standards and Test Procedures for 1994 and Subsequent Model Year Utility and Lawn and Garden Equipment Engines.

and 4-stroke engines ($250). Based on the range of cost between the 4-stroke engine emission control technologies listed in Table 6, and the additional cost of a 4-stroke vs. 2-stroke engine, the cost-effectiveness applicable to off-road motorcycles and ATVs ranges between $0.03 and $0.35 per pound of HC reduced and between $0.03 and $0.31 per pound of CO reduced. The calculations are shown below.

Cost Effectiveness Calculations:

HC
Weighted 2010 uncontrolled 2- and 4-stroke lifetime HC exhaust emissions per vehicle = 826 lbs

Weighted 2010 controlled 4-stroke lifetime HC exhaust emissions per vehicle = 102 lbs

Weighted 2010 lifetime HC exhaust emission reduction per vehicle = 724 lbs

Cost effectiveness = $25/724 lbs to $250/724 lbs
= $0.03 to $0.35 per pound of HC reduced

CO
Weighted 2010 uncontrolled 2- and 4-stroke lifetime CO exhaust emissions per vehicle = 2094 lbs

Weighted 2010 controlled 4-stroke lifetime CO exhaust emissions per vehicle = 1275 lbs

Weighted 2010 lifetime CO exhaust emission reduction per vehicle = 819 lbs

Cost effectiveness = $25/819 lbs to $250/819 lbs
= $0.03 to $0.31 per pound of CO reduced

B. Golf Carts

The proposed regulations for golf carts are expected to achieve a benefit to the state's air quality through the elimination of exhaust, evaporative, and spillage emissions from these vehicles. Staff estimates reductions of approximately 9 tons per day of HC + NOx and almost 38 tons per day of CO from the 1990 baseline inventory by the year 2010. This estimate is based on an assumption that all golf carts will have zero emissions by the year 2010.

Zero emission (electric) vehicles already account for over 60 percent of golf cart sales in California. Because zero emission golf carts are already in production at costs up to $300 less than comparable gasoline powered golf carts, there is no extra cost associated with the purchase of zero emission golf carts themselves. However, for those golf courses that

do not currently have the storage facilities and necessary wiring for electric vehicle charging, staff estimates that a capital investment of as much as $100,000 may be required for a typical fleet of 60 carts. Staff estimates that with the installation of a storage and charging facility, the cost-effectiveness would be $0.34 per pound of HC + NOx and $0.08 per pound of CO reduced. The calculations are shown below. In addition, the National Golf Car Manufacturers Association estimates that there would only be an additional cost of $0.62 per round of golf to completely convert an all gasoline powered golf course to 100 percent electric golf carts. It should be noted that staff's cost-effectiveness calculations do not include the $300 cost differential benefit of the electric versus gasoline powered golf cart.

Cost Effectiveness Calculations :

Hydrocarbon
Weighted 2010 uncontrolled 2- and 4-stroke
lifetime (3 years) HC + NOx emissions per vehicle = 493 lbs

Weighted 2010 controlled (zero emission)
lifetime (3 years) HC + NOx emissions per vehicle = 0 lbs

Weighted 2010 lifetime (3 years)
HC + NOx emission reduction per vehicle = 493 lbs

Facility cost per vehicle based on 10 year amortization of the facilities
and a fleet of 60 carts per facility = $ 167.00 per cart

Cost effectiveness = $ 167/493 lbs
= $0.34 per pound of HC + NOx reduced

Carbon monoxide
Weighted 2010 uncontrolled 2- and 4-stroke
lifetime (3 years) CO emissions per vehicle = 2110 lbs

Weighted 2010 controlled (zero emission)
lifetime (3 years) CO emissions per vehicle = 0 lbs

Weighted 2010 lifetime (3 years)
CO emission reduction per vehicle = 2110 lbs

Facility cost per vehicle based on 10 year amortization of the facilities
and a fleet of 60 carts per facility = $ 167.00 per cart

Cost effectiveness = $ 167/2110 lbs
= $0.08 per pound of CO reduced

C. Specialty Vehicles

For specialty vehicles, staff estimates a reduction of approximately 1 ton per day of HC + NOx and 31 tons per day of CO by the year 2010. Because the majority of these vehicles utilize engines which are identical to those

used in the previously regulated utility engine category, most of the design and engineering has already been successfully completed. In fact, a few utility engines under 25 horsepower, which may be used in these vehicles, have already been certified for sale. Based on the information provided in the utility engine staff report, staff estimated the cost of improvements to meet the proposed 1995 and 1999 emission standards would be approximately $66 per engine. This estimate was based on the technology listed in Table 7 to meet the 1995 emission standards and the incremental cost of a complete engine redesign ($36) of the low technology L-head engine to a newly designed overhead valve engine to meet the 1999 emission standards. For those manufacturers, especially those producing the larger (>25 horsepower) engines, that may already be using the emission control techniques listed in Table 7 and still cannot meet the proposed standards, a catalytic converter may be necessary. Staff estimates a catalytic converter would cost up to $100 for these vehicle types.. This results in a cost-effectiveness ranging from $0.18 per pound of HC + NOx for the <25 horsepower vehicles, to $0.27 per pound of HC + NOx for the 25 horsepower and greater vehicles, and up to $0.01 per pound of CO reduced for all specialty vehicles.

Table 7

Engine and cooling modifications	$10
Better quality control	$ 5
Improved ignition systems	$5
Improved carburetor	$10
Overhead valve engine redesign	$36
Total	$66

Cost Effectiveness Calculations:

Weighted 2010 uncontrolled 2- and 4-stroke lifetime HC + NOx emissions per vehicle = 1083 lbs

Weighted 2010 controlled 4-stroke lifetime HC + NOx emissions per vehicle = 713 lbs

Weighted 2010 lifetime HC + NOx emission reduction per vehicle = 370 lbs

Cost effectiveness = $66/370 lbs to $100/370 lbs
= $0.18 to $0.27 per pound of HC + NOx reduced

Weighted 2010 uncontrolled 2- and 4-stroke lifetime CO emissions per vehicle = 17,496 lbs

Weighted 2010 controlled 4-stroke lifetime CO emissions per vehicle = 4,948 lbs

Weighted 2010 lifetime CO emission reduction per vehicle = 12,548 lbs

Cost effectiveness = $66/12,548 lbs to $100/12,548 lbs
= $0.01 per pound of CO reduced

The cost-effectiveness values noted above are well within the values of adopted control measures recently adopted by the Board. The average and highest cost-effectiveness values for previously adopted control measures are shown below in Table 8.

Table 8

Pollutant	Average Cost $/pound	Highest Cost $/pound
HC	2 - 5	11
NOx	1 - 5	12
CO	0.10	1

VII. REFERENCES

1. California Code of Regulations, Title 13, State of California

2. Proposed Regulations for Low - Emission Vehicles and Clean Fuels, Staff Report and Technical Support Document, California Air Resources Board, August 13, 1990

3. International Standards Organization Procedure #3779-1997 (E), Road Vehicles - Vehicle Identifications Number (VIN) - Content and Structure

4. Air Resources Board Mailout #90-64, Initial Statement of Reasons for Proposed Rulemaking for 1994 and Subsequent Model Year Utility and Lawn and Garden Equipment Engines, California Air Resources Board, October 22, 1990

5. Air Resources Board Mailout #92-22, Notice of Public Meeting to Consider a Plan to Control Emissions from Off-Highway Vehicle Engines, California Air Resources Board, May 14, 1992

6. Air Resources Board Mailout #93-08, Draft Regulatory Proposal for Recreational Vehicles, California Air Resources Board, March 11, 1993

7. Air Resources Board Mailout #93-38, Workshop Notice on the Regulatory Measures to Control Off-Highway Recreational Vehicle Exhaust Emissions in the State of California, California Air Resources Board, July 8, 1993

8. Title 40 Code of Federal Regulations Parts 86, Federal Government, July 1, 1992.

9. Title 49 Code of Federal Regulations Parts 565 through 571.115, Federal Government, July 1, 1992.

10. Written Submissions by the National Golf Car Manufacturers Association, October 1990, to November 1993.

11. Written Submissions by the Motorcycle Industry Council, April 1990, to November 1993.

Adopt Title 13, California Code of Regulations, Chapter 9, Article 3, California Exhaust Emission Standards, Test Procedures, and Enforcement Regulations for 1995 and Later Off-Highway Recreational Vehicles and Engines to read as follows:

Article 3. Off-Highway Recreational Vehicles and Engines

2410. Applicability.

(a)(1) This article shall be applicable to new specialty vehicle engines under 25 horsepower (hp) produced on or after January 1, 1995 and all other off-highway recreational vehicles and engines used in such vehicles produced on or after January 1, 1997, for sale, lease, use, and introduction into commerce in California.

(2) New off-highway recreational vehicles and engines used in such vehicles, subject to any of the standards set forth in Chapter 10, shall be certified for use and sale by the Air Resources Board and covered by an Executive Order, pursuant to Section 2412 of this Article.

(b) Each part of this article shall be deemed severable, and in the event that any part of this chapter or article is held to be invalid, the remainder of this article shall continue in full force and effect.

(c) This article includes provisions for certification, labeling requirements, emission standard enforcement, and recall.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43104, 43105, 43107, and 43205.5 Health and Safety Code.
Reference: Sections 43013, 43018, 43101, 43104, 43105, 43107, and 43205.5 Health and Safety Code

2411. Definitions.

DEFINITIONS

(a) The definitions in Section 1900 (b), Chapter 3, Title 13 of the California Code of Regulations, shall apply with the following additions:

(1) "All-Terrain Vehicle" means a vehicle having 3 or more wheels, utilizing a handlebar style steering, designed to be straddled by the operator, used mainly on unpaved surfaces, and generally weighing less than 1,499 pounds. The vehicle is designed to carry not more than two persons, including the driver; carry not more than 200 pounds payload, excluding the passengers; and is powered by an internal combustion engine. A go-kart, golf cart or specialty vehicle is not, for purposes of this regulation, to be classified as an all-terrain vehicle. An all-terrain vehicle that is not used exclusively in competition/racing events in a closed course is not a competition/racing vehicle for purposes of these regulations.

(2) "ARB Enforcement Officer" means any employee of the Air Resources Board so designated in writing by the Executive Officer of the Air Resources Board or by the Executive Officer's designee.

(3) "Assembly-Line Tests" are those tests or inspections which are performed on or at the end of the assembly-line.

(4) "Competition/Racing Vehicle" means those vehicles that are operated exclusively off of the highways on closed courses in organized racing/competition events conducted under the auspices of a recognized sanctioned body or by permit issued by the local governmental authority having jurisdiction.

(5) "Confirmatory testing" means an ARB directed follow-up emissions test and inspection of the test engine or test vehicle that had been used by the manufacturer to obtain test data for submittal with the certification application. The emissions tests can be conducted at ARB or contracted out facilities or at the manufacturer's facility.

(6) "Crankcase Emissions" means airborne substances emitted into the atmosphere from any portion of the engine crankcase ventilation or lubrication system.

(7) "Emission Control System" includes any component, group of components, or engine modification which controls or causes the reduction of substances emitted from an engine.

(8) "End of Assembly-Line" is defined as that place where the final inspection test or quality-audit test is performed by the manufacturer.

(9) "Exhaust Emissions" means substances emitted into the atmosphere from any opening downstream from the exhaust port of an engine.

(10) "Final Calendar Quarter Production" is defined as the calendar quarter in which the production of an engine family ends.

(11) "Fuel System" means the combination of any of the following components: fuel tank, fuel pump, fuel lines, oil injection metering system, carburetor or fuel injection components, evaporative controls and all fuel system vents.

(12) "Go-Kart" means any four wheeled, open framed vehicle equipped with an internal combustion engine. These vehicles are generally found at amusement parks and rented to patrons on a "pay-by-play" basis. These vehicles are generally designed for a single rider and run on a confined track. A go-kart that is not used exclusively in competition/racing events in a closed course is not a competition/racing vehicle for purposes of these regulations.

(13) "Golf Cart" means a vehicle used to convey a person or persons and equipment to play the game of golf in an area designated as a golf course. Golf carts are designed to carry not more than 100 pounds, excluding passengers and are not used for grounds keeping or maintenance purposes.

(14) "Manufacturer" means the engine or vehicle manufacturer that applies to have the vehicle or engine certified.

(15) "Off-Highway Recreational Vehicle Engines" or "Engines" are identified as: two-stroke or four-stroke, air-cooled, liquid-cooled, gasoline, diesel, alternate fuel powered engines or electric motors that are designed for powering off-road recreational vehicles and engines included in, but not limited to use in, the following: off-road motorcycles, all-terrain vehicles, golf carts, go-karts 25 hp and greater, and specialty vehicles. All engines and equipment that fall within the scope of the preemption of Section 209(e)(1)(A) of the Federal Clean Air Act, as amended, and as defined by regulation of the Environmental Protection Agency, are specifically not included within this category.

(16) "Off-Road Vehicle" means any non-stationary device, powered by an internal combustion engine or electric motor, used primarily off the highways, to propel, move, or draw persons or property including any device propelled, moved, or drawn exclusively by human power, and used in, but not limited to the following applications: Marine Vessels, Construction/Farm Equipment, Locomotives, Utility engines and Lawn and Garden Equipment, Off-Road Motorcycles, and Off-Highway Vehicles.

(17) "Off-Road Motorcycle" means any two wheeled vehicle equipped with an internal combustion engine and weighing less than 1,499 pounds. An off-road motorcycle is primarily designed for use off highways. These vehicles are mainly used for recreational riding on dirt trails but are not limited to this purpose. An off-road motorcycle that is not used exclusively in competition/racing events in a closed course is not a competition/racing vehicle for purposes of these regulations.

(18) "Scheduled Maintenance" means any adjustment, repair, removal, disassembly, cleaning, or replacement of components or systems required by the manufacturer which is performed on a periodic basis to prevent part failure or equipment or engine malfunction, or anticipated as necessary to correct an overt indication of malfunction or failure for which periodic maintenance is not appropriate.

(19) "Specialty Vehicles" means any vehicle powered by an internal combustion engine having not less than 3 wheels in contact with the ground, having an unladen weight generally less than 2,000 pounds, which is typically operated between 10 and 35 miles per hour. The recommended bed payload for specialty vehicles is usually up to 2,000 pounds. Specialty vehicles are mainly used off of highways and residential streets. Applications of such vehicles include, but are not limited to, carrying passengers, hauling light loads, grounds keeping and maintenance, resort or hotel areas, airports, etc.

(20) "Ultimate Purchaser" means the first person who in good faith purchases or leases a new engine or equipment for purposes other than resale.

(21) "Unscheduled Maintenance" means any inspection, adjustment, repair, removal, disassembly, cleaning, or replacement of components or systems which is performed to correct or diagnose a part failure which was not anticipated.

(22) "Vehicle Identification Number (VIN)" means an alpha numeric code which has been permanently assigned by the manufacturer to a vehicle. The VIN is unique to each vehicle and may contain information deemed necessary by governing agencies. Unless otherwise noted, the VIN will follow formats specified in the Code of Federal Regulations 49, Chapter V, Parts 565-568 and 571, section 571.115 - Vehicle Identification Number - Content Requirements, which are incorporated herein by reference.

(23) "Zero Emission Vehicle" means any vehicle which produces zero exhaust emissions of any criteria pollutant under any and all possible operational modes.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, and 43107, Health and Safety Code.
Reference: Sections 43013, 43018, 43101, and 43107, Health and Safety Code

Article 2. Approval of California Exhaust Emissions Standards and Test Procedures for 1995 and Later Off-Highway Recreational Vehicles and Engines

2412. Emission Standards and Test Procedures - New Off-Highway Recreational Vehicles and Engines.

(a) This section shall be applicable to specialty vehicle engines under 25 horsepower produced on or after January 1, 1995, and all other off-highway recreational vehicles and engines used in such vehicles produced on or after January 1, 1997.

(b) For purposes of certification in California, manufacturers shall comply with the following exhaust emissions from new off-highway recreational vehicles and engines that are sold, leased, used, or introduced into commerce in California. Exhaust emissions shall not exceed:

Proposed Emission Standards

Vehicle & Model Year	Hydro-carbon	Oxides of Nitrogen	Carbon Monoxide	Particulate Matter[1]
Off-Road Motorcycles and and All-Terrain Vehicles 1997 and Later (g/km)[3]	1.2[2]	-	15.0	-
All-Terrain Vehicle Option 1997 and Later	Shall comply with exhaust emission standards equivalent to the off-road motorcycle and all-terrain vehicle standard using the utility test procedures set forth in California Exhaust Emission Standards and Test Procedures for 1995 and Later Utility and Lawn and Garden Equipment Engines," adopted March 20, 1992, last amended on April 8, 1993, which is hereby incorporated by reference herein.			

1. Applicable to diesel and two-stroke spark ignited engines only.
2. Compliance with the 1.2 gram per kilometer HC standard to be applied as a "corporate average" shall be determined as provided in subsection (d). Each engine family shall have only one applicable standard.
3. Grams per kilometer.

Proposed Emission Standards (continued)

Vehicle & Model Year	Hydro-carbon	Oxides of Nitrogen	Carbon Monoxide	Particulate Matter
Golf Carts in Federal Ozone Non-Attainment Areas				
1997 and Later	ZERO	ZERO	ZERO	ZERO
Specialty Vehicle Engines <25 horsepower				
1995 - 1998	10.0/12.0[4] Combined		300	0.9
1999 and Later (g/Bhp-hr)[5]	3.2 Combined		100	0.25
Go-Karts and Specialty Vehicle Engines ≥25 horsepower				
1997 and Later (g/Bhp-hr)	3.2 Combined		100	0.25

(c)(1) The test procedures for determining certification and compliance with the standards for exhaust emissions from new off-road motorcycles, all-terrain vehicles, and golf carts are set forth in "California Exhaust Emission Standards and Test Procedures for 1997 and Later Off-Highway Recreational Vehicles and Engines," adopted . There are no emissions test procedures for golf carts[6].

(2) The test procedures for determining certification and compliance with the standards for exhaust emissions from new specialty vehicles and go-karts, and engines used in such vehicles, and all-terrain vehicle engines (those engines utilizing the optional standards noted in (b) above) are set forth in "California Exhaust Emission Standards and Test Procedures for 1995 and Later Lawn and Garden and Utility Equipment Engines," adopted March 20, 1992, and last amended April 8, 1993.

---

4. The standard is applicable based on the engine displacement. Engines <225 cubic centimeters (cc) shall comply with 12.0 g/Bhp-hr HC+NOx standard and engines 225cc and greater shall comply with the 10.0 g/Bhp-hr HC+NOx standard.
5. Grams per brake-horsepower-hour.
6. Although golf cart manufacturers must file an application of certification and comply with the administrative requirements outlined in the procedures to certify their vehicles for sale in California, they are not required to perform emissions testing.

(d) Compliance with a standard to be applied as a "corporate average" shall be determined as follows:

$$\frac{\sum_{j=1}^{n} (PROD)_{jx} (STD)_{jx}}{\sum_{j=1}^{n} (PROD)_{jx}} = STD_{ca}$$

n = Off-road motorcycle and all-terrain vehicle engine families.

$PROD_{jx}$ = Number of units in engine family j produced for sale in California in model year x

STD_{jx} = The manufacturer designated HC exhaust emission standard for engine family j in model year x, which shall be determined by the manufacturer subject to the following conditions: (1) no individual engine family exhaust emission standard shall exceed 2.5 g/km, and (2) no engine family designation or engine family exhaust emission standard shall be amended in a model year after the engine family is certified for the model year, and (3) prior to sale or offering for sale in California, each engine family shall be certified in accordance with "California Exhaust Emissions Standards and Test Procedures for 1997 and Later Off-Highway Recreational Vehicle and Engine" adopted , and shall be required to meet the manufacturer's designated HC exhaust emission standard as a condition of the certification Executive Order. Prior to certification the manufacturer shall also submit estimated production volumes for each engine family to be offered for sale in California.

STD_{ca} = A manufacturer's corporate average HC exhaust emissions from those California off-road motorcycles and all-terrain vehicles subject to the California corporate average HC exhaust emissions standard, as established by an Executive Order certifying the California production for the model year. This order must be obtained prior to the issuance of certification Executive Orders for individual engine families for the model year and shall include but not be limited to the following requirements:

(1) During the manufacturer's production year, for each vehicle produced for sale in California, including those that may be used exclusively in competition vehicles, the manufacturer shall provide the following information to the Executive Officer within 30 days after the last day in each calendar quarter:

(i) vehicle identification numbers and an explanation of the identification code if applicable;

(ii) model number and engine size of vehicle;

(iii) the total number of vehicles marketed and produced as non-competition vehicles for sale in California and their applicable designated emissions standards;

(iv) the total number of vehicles marketed and produced as competition vehicles for sale in California and their applicable designated emissions standards.

(2) The manufacturer's average HC exhaust emissions shall meet the corporate average standard at the end of the manufacturer's production for the model year.

(3) Production and sale of vehicles which result in non-compliance with the California standard for the model year shall cause a manufacturer to be subject to civil penalties, according to applicable provisions of the Health and Safety Code. All excess emissions resulting from non-compliance with the California standard shall be made up in the following model year.

(4) For a period of up to one year following the end of the model year, the manufacturer shall submit California sales and registration data as it becomes available, for each model.

(e) As an option to the standards set forth in section (b) above, exhaust emissions from 1997 and later all-terrain vehicle engines shall not exceed the equivalent to the off-road motorcycle and all-terrain vehicle standard using the utility test procedures set forth in "California Exhaust Emission Standards and Test Procedures for 1995 and Later Utility and Lawn and Garden Equipment Engines", adopted, March 20, 1992, and last amended April 8, 1993, which is hereby incorporated by reference herein.

(f)(1) On or after January 1, 1995, no new engines shall be produced for sale to replace specialty vehicle engines, unless the engines comply with the emission standards in effect at the time of replacement.

(2) On or after January 1, 1997, no new engines shall be produced for sale to replace off-road motorcycles, all-terrain vehicles, go-karts and engines used in such vehicles, unless those engines comply with the emission control standards in effect at the time of replacement.

(3) On or after January 1, 1997, manufacturers shall not produce for sale in federal ozone non-attainment areas of California new, non-zero emission engines for golf carts.

(g) The Executive Officer may find that any off-road motorcycles, all-terrain vehicles, specialty vehicles, go-karts or engines used in such vehicles certified to comply with California emission standards and test procedures for on-road applications are in compliance with these regulations.

(h) No crankcase emissions shall be discharged into the ambient atmosphere from 1997 and later off-road motorcycles, all-terrain vehicles, golf carts, or engines used in such vehicles.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, and 43107, Health and Safety Code.
Reference: Sections 43013, 43018, and 43107, Health and Safety Code

2413. Emission Control Labels - New Off-Highway Recreational Vehicles

(a) All off-road motorcycles, all-terrain vehicles, and engines used in such vehicles produced on or after January 1, 1997, for sale, lease, use or introduction into commerce in California, shall comply with the labeling requirements of Title 13, CCR, Chapter 1, Article 2, Section 1965, and the incorporated "California Motor Vehicle Emission Control Label Specifications," adopted March 1, 1978, as last amended July 12, 1991, and are hereby incorporated by reference herein. Any reference to motorcycles in the incorporated documents shall be applicable to off-road motorcycles, all-terrain vehicles, and engines used in such vehicles.

(b) Specialty vehicles equipped with engines less than 25 horsepower and engines used in such vehicles produced on or after January 1, 1995, and specialty vehicles and go-karts equipped with engines 25 horsepower and greater and engines used in such vehicles produced on or after January 1, 1997, shall comply with the labeling requirements of Title 13, CCR, Chapter 9, Article 2, Section 2404 "Emission Control Labels - 1994 and Later Utility and Lawn and Garden Equipment Engines", incorporated by reference herein. Any reference to utility and lawn and garden equipment in the incorporated documents shall be applicable to specialty vehicles, go-karts, and engines used in such vehicles.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, and 43107, Health and Safety Code.
Reference: Sections 43013, 43018, and 43107, Health and Safety Code

Article 4. Off-Highway Recreational Vehicle Engine Emission Standards, Enforcement and Recall Provisions, Warranty, Quality Audit, and New Engine Testing.

2414. New Off-Highway Recreational Vehicle Engine Emission Standards, Enforcement and Recall Provisions, Warranty, Quality Audit, and New Engine Testing.

(a) This section applies to off-road motorcycles, all-terrain vehicles, and engines used in such vehicles produced on or after January 1, 1997, for sale, lease, use or introduction into commerce in California. Off-road motorcycles, all-terrain vehicles, and engines used in such vehicles are subject to Title 13, California Code of Regulations, Chapter 2, Articles 2.1 through 2.3, and the incorporated Appendix A, "California In-Use Vehicle Emission-Related Recall Procedures, Enforcement Test Procedures, and Failure Reporting Procedures for 1982 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, Medium-Duty Vehicles, Heavy-Duty Vehicles and Engines, and Motorcycles", which are incorporated by reference herein.

(b) This section applies to specialty vehicles less than 25 horsepower produced on or after January 1, 1995, and specialty vehicles and go-karts 25 hp and over produced on or after January 1, 1997, for sale, lease, use or introduction into commerce in California. Specialty vehicles, go-karts 25 horsepower and over, and engines used in such vehicles are subject to defects warranty, new engine compliance testing, and quality audit testing, as stipulated in Title 13, California Code of Regulations, Chapter 9, Sections 2405, 2406, and 2407, which are incorporated by reference herein.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43105, 43107, 43205.5, and 43210, Health and Safety Code.
Reference: Sections 43013, 43018, 43105, 43107, 43205.5, and 43210, Health and Safety Code

ATTACHMENT 2

State of California
AIR RESOURCES BOARD

AMENDMENTS TO TITLE 13, CALIFORNIA CODE OF REGULATIONS, CHAPTER 2, ARTICLES 2.1 - 2.3. PROCEDURES FOR IN-USE VEHICLE VOLUNTARY AND INFLUENCED RECALLS; PROCEDURES FOR IN-USE VEHICLE ORDERED RECALLS; AND IN-USE VEHICLE ENFORCEMENT TEST PROCEDURE

NOTE: These amendments encompass revisions to Sections 2111, 2112, 2117, 2118, 2127, 2139, and 2140 of Title 13, California Code of Regulations. Proposed additions to the text are indicated by underline and deletions by ~~strikeout~~. There are no substantive changes being proposed to sections 2113-2116, 2119-2126, and 2128-2138, other than changes to the authority and reference citations.

The modifications are being made to make Chapter 2, Articles 2.1 - 2.3 applicable to off-road motorcycles, all-terrain vehicles, and engines used in such vehicles, and do not materially alter the requirements, rights, responsibilities, conditions or prescriptions applicable to other covered vehicles set forth in the modified articles.

Amend Chapter 2, Articles 2.1-2.3, Title 13, California Code of Regulations (CCR) to read as follows:

Article 2.1. Procedures for In-Use Vehicle Voluntary and Influenced Recalls

2111. Applicability.

(a) These procedures shall apply to:

(1) California-certified 1982 and subsequent model-year passenger cars, light-duty trucks, medium-duty vehicles, heavy-duty vehicles, and motorcycles, ~~except zero-emission vehicles,~~ and California certified 1997 and subsequent model-year off-road motorcycles and all-terrain vehicles, including those federally certified vehicles which are sold in California pursuant to Health and Safety Code Section 43102 ~~but excluding these vehicles certified under Health and Safety Code Section 44201~~, and

(2) California-certified motor vehicle engines used in such vehicles.

(b) These procedures shall not apply to zero emission vehicles and those vehicles certified under Health and Safety Code section 44201.

(c) The Executive Officer may waive any or all of the requirements of these procedures if he or she determines that the requirement constitutes an unwarranted burden on the manufacturer without a corresponding emission reduction.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2112. Definitions.

(a)-(k) No change.

(l) "Useful life" means, for the purposes of this Article:

(1)-(10) No change.

(11) For 1997 and subsequent model year off-road motorcycles, all-terrain vehicles, and engines used in such vehicles, a period of use of five years or 10,000 kilometers(6,250 miles), whichever first occurs.

(m) No change.

Appendix A
to Article 2.1

California In-Use Vehicle Emission-Related Recall Procedures, Enforcement Test Procedures, and Failure Reporting Procedures for 1982 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, Medium-Duty Vehicles, Heavy-Duty Vehicles and Engines, and Motorcycles and 1997 and Subsequent Model-Year Off-Road Motorcycles and All-Terrain Vehicles.

Vehicle and Engine Parameters, Components, and Specifications: No further changes.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43104 and 43105, Health and Safety Code. Reference: Sections 39002, 39003, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5, 43102, 43103, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2113 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2114 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2115 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2116 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2117. Proof of Correction Certificate.

The manufacturer shall require those who perform the repair to provide the owner for each vehicle or engine repaired with a certificate, in a format prescribed by the Executive Officer, which indicates that the noncomplying vehicle or engine has been corrected under the recall program. This requirement shall become effective and applicable upon the effective date of a recall enforcement program adopted by the Department of Motor Vehicles or another state agency which requires presentation of proof of correction of a recalled vehicle prior to issuance of a smog certificate, annual registration renewal, or other entitlement to use.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2118. Notification. The notification of vehicle or engine owners shall contain the following:

(a) The statement: "Your (vehicle or engine) (is or may be) releasing air pollutants which exceed (California or California and federal) standards", if applicable as determined by the Executive Officer.

(b) A statement that the nonconformity of any such vehicles or engines will be remedied at the expense of the manufacturer.

(c) A statement that such nonconformity if not repaired may cause the vehicle or engine to fail a vehicle inspection or Smog Check test when such tests are required under state law.

(d) A statement describing the adverse effect, if any, of the uncorrected nonconformity on the performance, fuel economy, or durability of the vehicle or engine.

(e) After the effective date of the recall enforcement program referred to in Section 2117, a statement that a certificate showing that the vehicle has been repaired under the recall program shall be issued by the service facilities, and that such a certificate will be required as a condition of vehicle registration or operation, as appropriate.

(f) A card to be used by a vehicle or engine owner in the event the vehicle or engine to be recalled has been sold. Such card should be addressed to the manufacturer, have postage paid, and shall provide a space in which the owner may indicate the name and address of the person to whom the vehicle or engine was sold or transferred.

(g) The statement: "In order to ensure your full protection under the emission warranty provisions, it is recommended that you have your (vehicle or engine) serviced as soon as possible. Failure to do so could be determined as lack of proper maintenance of your (vehicle or engine)." This statement is not required for off-road motorcycles or all-terrain vehicles.

(h) A telephone number provided by the manufacturer, which may be used to report difficulty in obtaining recall repairs.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2119 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2120 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2121 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

Article 2.2 Procedures for In-Use Vehicle Ordered Recalls

2122 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2123 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2124 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2125 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2126 No change.

Note: Authority cited: Secions 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2127. Notification of Owners.

(a) Notification to vehicle or engine owners shall be made by first class mail or by such other means as approved by the Executive Officer provided, that for good cause, the Executive Officer may require the use of certified mail to ensure an effective notification.

(b) The manufacturer shall use all reasonable means necessary to locate vehicle or engine owners provided, that for good cause, the Executive Officer may require the manufacturer to use motor vehicle registration lists available from State or commercial sources to obtain the names and addresses of vehicle or engine owners to ensure effective notification.

(c) The Executive Officer may require subsequent notification by the manufacturer to vehicle or engine owners by first class mail or other reasonable means provided, that for good cause, the Executive Officer may require the use of certified mail to ensure effective notification.

(d) The notification of vehicle or engine owners shall contain the following:

(1) The statement: "the California Air Resources Board has determined that your (vehicle or engine) (is or may be) releasing air pollutants which exceed (California or California and Federal) standards. These standards were established to protect your health and welfare from the dangers of air pollution."

(2) A statement that the nonconformity of any such vehicles or engines will be remedied at the expense of the manufacturer.

(3) A statement that eligibility may not be denied solely on the basis that the vehicle or engine owner used parts not manufactured by the original equipment vehicle manufacturer, or had repairs performed by outlets other than the vehicle or engine manufacturer's franchised dealers.

(4) A clear description of the components which will be affected by the recall action and a general statement of the measures to be taken to correct the nonconformity.

(5) A statement that such nonconformity, if not repaired, may cause the vehicle or engine to fail an emission inspection or Smog Check test when such tests are required under State law.

(6) A description of the adverse effects, if any, that an uncorrected nonconformity would have on the performance, fuel economy, or driveability of the vehicle or engine or to the function of other engine components.

(7) A description of the procedure which the vehicle or engine owner should follow to obtain correction of the nonconformity including the date on or after which the owner can have the nonconformity remedied, the time reasonably necessary to correct the nonconformity, and a designation of the facilities at which the nonconformity can be remedied.

(8) After the effective date of the recall enforcement program referred to in Section 2117, above, a statement that a certificate showing that the vehicle has been repaired under the recall program shall be issued by the service facilities and that such a certificate may be required as a condition of vehicle registration or operation, as applicable.

(9) A card to be used by a vehicle or engine owner in the event the vehicle or engine to be recalled has been sold. Such card should be addressed to the manufacturer, have postage paid, and shall provide a space in which the owner may indicate the name and address of the person to whom the vehicle or engine was sold.

(10) The statement: "In order to ensure your full protection under the emission warranty made applicable to your (vehicle or engine) by State or Federal law, and your right to participate in future recalls, it is recommended that you have your (vehicle or engine) serviced as soon as possible. Failure to do so could be determined to be a lack of proper maintenance of your (vehicle or engine)." <u>This statement is not required for off-road motorcycles or all-terrain vehicles.</u>

(11) A telephone number provided by the manufacturer, which may be used to report difficulty in obtaining recall repairs.

(e) The manufacturer shall not condition eligibility for repair on the proper maintenance or use of the vehicle except for strong or compelling reasons and with approval of the Executive Officer; however, the manufacturer shall not be obligated to repair a component which has been removed or altered so that the recall action cannot be performed without additional cost.

(f) No notice sent pursuant to Section 2125(b)(8), above, nor any other communication sent to vehicle or engine owners or dealers shall contain any statement, express or implied, that the nonconformity does not exist or will not degrade air quality.

(g) The manufacturer shall be informed of any other requirements pertaining to the notification under this section which the Executive Officer has determined are reasonable and necessary to ensure the effectiveness of the recall campaign.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2128 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2129 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2130 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2131 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2132 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2133 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2134 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, 43211-43213 Health and Safety Code.

2135 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

Article 2.3 In-Use Vehicle Enforcement Test Procedures

2136 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2137 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2138 No change.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2139. Testing.

After the vehicles have been accepted and restorative maintenance, if any, has been performed, the ARB or its designated laboratory shall perform the applicable certification emission tests pursuant to the following:

(a)-(e) No change.

(f) For off-road motorcycles and all-terrain vehicles, in-use compliance tests shall be performed pursuant to section 2412, Title 13, California Code of Regulations.

(g) For any emission in-use compliance test performed pursuant to subsections (a) through ~~(e)~~ (f), the ARB may waive a specific test for subsequent vehicle samples if results from vehicle samples already tested are deemed to sufficient to establish complying emission levels. The ARB shall inform the manufacturer at least 30 days prior to enforcement testing of its vehicles or engines and shall permit a manufacturer representative to observe the enforcement testing.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43104 and 43105, Health and Safety Code. Reference: Sections 39002, 39003, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5, 43102, 43103, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

2140. Notification and Use of Test Results.

(a) The Executive Officer shall notify the manufacturer in writing if the in-use vehicle enforcement test results indicate that the test fleet contains three or more failures of the same emission-related component. Upon receipt of the notification, the manufacturer shall submit an emissions information report in accordance with Title 13, California Code of Regulations, Sections 2146 and 2147. The engine family or sub-group manufacturer shall be subject to recall when a specific emission-related failure occurred in three or more test vehicles, unless the Executive Officer determines from the emissions information report that a recall is unnecessary.

(b) If the results of the in-use vehicle emission tests conducted pursuant to Section 2139 indicate that the average emissions of the test vehicles for any pollutant exceed the applicable emission standards specified in Title 13, California Code of Regulations, Sections 1960.1, 1956.8, ~~or~~ 1958 or 2412, the entire vehicle population so represented shall be deemed to exceed such standards. The Executive Officer shall notify the manufacturer of the test results and upon receipt of the notification, the manufacturer shall have 45 days to submit an influenced recall plan in accordance with Sections 2113 through 2121, Title 13, California Code of Regulations. If no such recall plan is submitted, the Executive Officer may order corrective action including recall of the affected vehicles in accordance with Sections 2122 through 2135, Title 13, California Code of Regulations.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, and 43105, Health and Safety Code. Reference: Sections 43000, 43009.5, 43013, 43018, 43101, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

ATTACHMENT 3

State of California
AIR RESOURCES BOARD

CALIFORNIA EXHAUST EMISSIONS STANDARDS AND TEST PROCEDURES FOR 1997 AND LATER OFF-HIGHWAY RECREATIONAL VEHICLES AND ENGINES

Adopted:

NOTE: This document incorporates by reference, with noted modifications, sections of Subparts E and F, Part 86, Title 40, Code of Federal Regulations. California provisions which replace specific federal provisions are denoted by the words "DELETE" for the federal language and "REPLACE WITH" or "ADD" for the new California language. The symbols "****" and "..." mean that the federal text that immediately follows the symbols is unchanged and incorporated by reference into the California Standards and Test Procedures. Sections of the federal regulations which are not listed are not part of the California Standards and Test Procedures.

CALIFORNIA EXHAUST EMISSIONS STANDARDS AND TEST PROCEDURES
FOR 1995 AND LATER OFF-HIGHWAY RECREATIONAL VEHICLES AND ENGINES

The following provisions of Subpart E and F, Part 86, Title 40, Code of Federal Regulations, as adopted or amended by the U. S. Environmental Protection Agency on the date listed are adopted and incorporated herein by this reference as the California Exhaust Emission Standards and Test Procedures for 1995 and Later Off-Highway recreational vehicles and engines, except as altered or replaced by the provisions set forth below.

Subpart E, General Provisions for Emission Regulations for 1978 and Later New Motorcycles

SOURCE: 42 FR 1126, Jan. 5, 1977, unless otherwise noted.

86.401-78 General Applicability. 42 FR 1126, Jan. 5, 1977.

DELETE

86.401-90 General Applicability. 54 FR 14539, Apr. 11, 1989.

(a) DELETE,
REPLACE WITH:
(a) This subpart applies to all 1997 and later model year off-road motorcycles, all-terrain vehicles, golf carts, and engines used in such vehicles produced on or after January 1, 1997.

(b) DELETE

(c) DELETE

86.402-78 Definitions. 49 FR 48138, Dec. 10, 1984

* * * *

"Administrator" DELETE,
REPLACE WITH:
"Administrator" means the Executive Officer of the Air Resources Board, or their designee.

* * * *

ADD:
"All-Terrain Vehicle" means a vehicle having 3 or more wheels, utilizing a handlebar style steering, designed to be straddled by the operator, used mainly on unpaved surfaces, and generally weighing less than 1,499 pounds. The vehicle is designed to carry not more than two persons, including the driver; carry not more than 200 pounds payload, excluding the passengers; and is powered by an internal combustion engine. A go-kart, golf cart or specialty vehicle is not, for purposes of this regulation, to be classified as an all-terrain vehicle. An all-terrain vehicle that is not used exclusively in competition/racing events in a closed course is not a competition/racing vehicle for purposes of these regulations.

"Certificate of Conformity" means an Executive Order.

"Certification" means certification as defined in Section 39018 of the Health and Safety Code.

* * * *

ADD:
"Competition/Racing Vehicle" means those vehicles that are operated exclusively off of the highways on closed courses in organized racing/competition events conducted under the auspices of a recognized sanctioned body or by permit issued by the local governmental authority having jurisdiction.

* * * *

"EPA Enforcement Officer" DELETE,
REPLACE WITH:
"EPA Enforcement Officer" means an "ARB Enforcement Officer" which means any employee of the Air Resources Board so designated in writing by the Executive Officer of the Air Resources Board or by the Executive Officer's designee.

* * * *

"Executive Order" means an order issued by the Executive Officer of the Air Resources Board certifying engines for sale in California.

"Exhaust Emissions" DELETE,
REPLACE WITH:
"Exhaust Emissions" means substances emitted to the atmosphere from any opening downstream from the exhaust port of an off-highway vehicle.

* * * *

ADD:
"Go-Kart" means any four wheeled, open framed vehicle equipped with an internal combustion engine. These vehicles are generally found at amusement parks and rented to patrons on a "pay-by-play" basis. These vehicles are generally designed for a single rider and run on a confined track. A go-kart that is not used exclusively in competition/racing events in a closed course is not a competition/racing vehicle for purposes of these regulations.

"Golf Cart" means a vehicle used to convey a person or persons and equipment to play the game of golf in an area designated as a golf course. Golf carts are designed to carry not more than 100 pounds, excluding passengers and are not used for grounds keeping or maintenance purposes.

* * * *

"Motorcycle" DELETE,
REPLACE WITH:
"Motorcycle" means Off-Road Motorcycle, All-Terrain Vehicle, and Engines used in such vehicles.

* * * *

ADD:
"Off-Highway Recreational Vehicle Engines" or "Engines" are identified as: two-stroke or four-stroke, air-cooled, liquid-cooled, gasoline, diesel, or alternate fuel powered engines or electric motors that are designed for powering off-road recreational vehicles and engines included in, but not limited to use in, the following: off-road motorcycles, all-terrain vehicles, golf carts, go-karts 25 hp and greater, and specialty vehicles. All engines and equipment that fall within the scope of the preemption of Section 209(e)(1)(A) of the Federal Clean Air Act, as amended, and as defined by regulation of the Environmental Protection Agency, are specifically not included within this category.

"Off-Road Equipment and Vehicle" means any non-stationary device, powered by an internal combustion engine or electric motor, used primarily off the highways, to propel, move, or draw persons or property including any device propelled, moved, or drawn exclusively by human power, and used in, but not limited to the following applications: Marine Vessels, Construction/Farm Equipment, Locomotives, Utility engines and Lawn and Garden Equipment, Off-Road Motorcycles, and Off-Highway Vehicles.

"Off-Road Motorcycle" means any two wheeled vehicle equipped with an internal combustion engine and weighing less than 1,499 pounds. An off-road motorcycle is primarily designed for use off highways. These vehicles are mainly used for recreational riding on dirt trails but are not limited to this purpose. An off-road motorcycle that is not used exclusively in competition/racing events in a closed course is not a competition/racing vehicle for purposes of these regulations.

* * * *

ADD:
"Specialty Vehicles" means any vehicle powered by an internal combustion engine having not less than 3 wheels in contact with the ground, having an unladen weight generally less than 2,000 pounds, which is typically designed to be operated between 10 and 35 miles per hour. The recommended bed payload for specialty vehicles is usually up to 2,000 pounds. Specialty vehicles are mainly used off of highways and residential streets. Applications of such vehicles include, but are not limited to, carrying passengers, hauling light loads, grounds keeping and maintenance, resort or hotel areas, airports, etc.

* * * *

"Total Test Distance" DELETE,
REPLACE WITH:
"Total Test Distance" is defined as the appropriate distance the vehicle should be driven to stabilize the emission characteristics of the engine.

ADD:
"Ultimate Purchaser" means, with respect to any new off-highway recreational vehicles and engines, engines and equipment, the first person who in good faith purchases or leases a new off-highway recreational vehicle for purposes other than resale.

* * * *

"Useful life" DELETE,
REPLACE WITH:
"Useful life" is defined as follows:

ENGINE DISPLACEMENT (in cubic centimeters)	USEFUL LIFE (in years and Kilometers)
0 to less than 170	5 years or 10,000 km
170 to less than 280	5 years or 10,000 km
280 or greater	5 years or 10,000 km

* * * *

ADD:
"Vehicle Identification Number (VIN)" means an alpha numeric code which has been permanently assigned by the manufacturer to a vehicle. The VIN is unique to each vehicle and may contain information deemed necessary by governing agencies. Unless otherwise noted, the VIN will follow formats specified in the Code of Federal Regulations 49, Chapter V, Parts 565-668 and 571, section 571.115 - Vehicle Identification Number - Content Requirements.

86.403-78 Abbreviations.

ARB- California Air Resources Board.
* * * *
Bhp- Brake-horsepower.
Bhp-hr- Brake horsepower-hour.
* * * *
Hp- Horsepower.
* * * *
PM- Particulate Matter
* * * *

86.404-78 Section Numbering

* * * *

86.405-78 Measurement system.

* * * *

86.406-78 Introduction, structure of subpart, further information.

DELETE

86.407-78 Certificate of conformity required.

DELETE,
REPLACE WITH:
Every new off-road motorcycle, all-terrain vehicle, golf cart, and engines used in such vehicles produced for sale, lease, or use, or introduced into commerce in California which is subject to any of the standards prescribed in this subpart is required to be covered by an executive order issued pursuant to this subpart.

86.408-78 General Standards; Increase in Emissions; Unsafe Conditions.

(a) DELETE, "Any system installed on or incorporated in a new motorcycle to enable such vehicle to conform to standards imposed by this subpart:"

REPLACE WITH:
"Any system installed on or incorporated in a new off-road motorcycle, all-terrain vehicle, golf cart or engines used in such vehicles to enable such vehicles to conform to standards imposed by this subpart:"

(b) DELETE,
REPLACE WITH:
(b) Every manufacturer of new off-road motorcycles, all-terrain vehicles, golf carts, and engines used in such vehicles, which are subject to any of the standards imposed by this subpart shall, test or cause to be tested off-road motorcycles, all-terrain vehicles, golf carts, and engines used in such vehicles, in accordance with good engineering practice to ascertain that such test vehicles will meet the requirements of this section for the useful life of the vehicle.

86.409-78 Defeat Devices, Prohibition.

(a) "motorcycle" DELETE,
REPLACE WITH:
"off-road motorcycle, all-terrain vehicle, golf cart, or engine used in such vehicles,"

* * * *

86.410-90 Emission standards for 1990 and later model year motorcycles. 54 FR 14539, Apr. 11, 1989

(a) DELETE,
REPLACE WITH:
(a)(1) Exhaust emissions from 1997 and later off-road motorcycles and all-terrain vehicles shall not exceed:

(i) Hydrocarbons. 1.2 grams per vehicle kilometer. Compliance is based on a manufacturer's corporate average basis, as provided in (b) below.
(ii) Carbon Monoxide. 15.0 grams per vehicle kilometer.

(2) The standards set forth in paragraph (a)(1) of this section refer to the exhaust emitted over driving schedules as set forth in subpart F and measured and calculated in accordance with those procedures.

(b) DELETE,
REPLACE WITH:
(b) Compliance with a standards to be applied as a "corporate average" shall be determined as follows:

$$\frac{\sum_{j=1}^{n} (PROD)_{jx} (STD)_{jx}}{\sum_{j=1}^{n} (PROD)_{jx}} = STD_{ca}$$

n = Off-road motorcycle and all-terrain vehicle engine families.

$PROD_{jx}$ = Number of units in engine family j produced for sale in California in model year x.

STD_{jx} = The manufacturer designated HC exhaust emission standard for engine family j in model year x, which shall be determined by the manufacturer subject to the following conditions: (1) no individual engine family exhaust emission standard shall exceed 2.5 g/km, and (2) no engine family designation or engine family exhaust emission standard shall be amended in a model year after the engine family is certified for the model year, and (3) prior to sale or offering for sale in California, each engine family shall be certified in accordance with "California Exhaust Emissions Standards and Test Procedures for 1997 and Later Off-Highway Recreational Vehicle and Engine" adopted , and shall be required to meet the manufacturer's designated HC exhaust emission standard as a condition of the certification Executive Order. Prior

to certification the manufacturer shall also submit estimated production volumes for each engine family to be offered for sale in California.

STD_{ca} = A manufacturer's corporate average HC exhaust emissions from those California off-road motorcycles and all-terrain vehicles subject to the California corporate average HC exhaust emissions standard, as established by an Executive Order certifying the California production for the model year. This order must be obtained prior to the issuance of certification Executive Orders for individual engine families for the model year and shall include but not be limited to the following requirements:

(1) During the manufacturer's production year, for each vehicle produced for sale in California, including those that may be used exclusively in competition vehicles, the manufacturer shall provide the following information to the Executive Officer within 30 days after the last day in each calendar quarter:

(i) vehicle identification numbers and an explanation of the identification code if applicable;

(ii) model number and engine size of vehicle;

(iii) the total number of vehicles marketed and produced as non-competition vehicles for sale in California and their applicable designated emissions standards;

(iv) the total number of vehicles marketed and produced as competition vehicles for sale in California and their applicable designated emissions standards.

(2) The manufacturer's average HC exhaust emissions shall meet the corporate average standard at the end of the manufacturer's production for the model year.

(3) Production and sale of vehicles which result in non-compliance with the California standard for the model year shall cause a manufacturer to be subject to civil penalties, according to applicable provisions of the Health and Safety Code. All excess emissions resulting from non-compliance with the California standard shall be made up in the following model year.

(4) For a period of up to one year following the end of the model year, for each model the manufacturer shall submit California sales and registration data as it becomes available.

ADD:

(c) As an option to the standards set forth in section (a)(1) above, exhaust emissions from 1997 and later all-terrain vehicle engines shall not exceed the equivalent to the off-road motorcycle and all-terrain vehicle standard using the utility test procedures set forth in "California Exhaust Emission Standards and Test Procedures for 1995 and Later Utility and Lawn and Garden Equipment Engines", adopted, March 20, 1992, and last amended April 8, 1993, which is hereby incorporated by reference herein.

(d)(1) Emissions from 1997 and later model year golf carts operating in federal ozone non-attainment areas of California shall not exceed zero grams hydrocarbon, carbon monoxide, oxides of nitrogen, and particulate matter.

(2) These vehicles shall be certified by the Executive Officer pursuant to all applicable regulations set forth in CCR, Title 13, Chapter 10. Emission test procedures shall not be applicable to these vehicles.

(3) On or after January 1, 1997, manufacturers shall not produce for sale in federal ozone non-attainment areas of California new non-zero emission engines for use in golf carts.

(e) No crankcase emissions shall be discharged into the ambient atmosphere from 1997 and later off-road motorcycles, all-terrain vehicles, golf carts, or engines used in such vehicles.

(f) The Executive Officer may find that any off-road motorcycles, all-terrain vehicles, specialty vehicles, go-karts or engines used in such vehicles certified to comply with California emission standards and test procedures for on-road applications are in compliance with these regulations.

86.411 - 78 Maintenance instructions, vehicle purchaser.

(a) "motorcycle" DELETE,
REPLACE WITH:
"off-road motorcycle, all-terrain vehicle, golf cart, and engines used in such vehicles"

* * * *

86.412 - 78 Maintenance instructions, submission to Administrator.

* * * *

(a)(1) DELETE,
REPLACE WITH:
(a)(1) The manufacturer shall provide to the Executive Officer, at least 30 days before being supplied to the ultimate purchaser (unless the Executive Officer consents to a lesser period of time), a copy of the maintenance instructions which the manufacturer proposes to supply to the ultimate purchaser. The instructions must include the periodic and anticipated maintenance contained in the applications for certification or contained in the manufacturers' records. Such instructions must be reasonable and necessary to assure the proper functioning of the vehicle's emission control systems.

* * * *

b) "motorcycle" DELETE,
REPLACE WITH:
"off-road motorcycle, all-terrain vehicle, golf cart, and engines used in such vehicles"

* * * *

86.413 - 78 Labeling. 42 FR 56737, Oct. 28, 1977

(a) DELETE,
REPLACE WITH:
(a) The California labeling requirements for 1997 and later model year off-road motorcycles, all-terrain vehicles, and engines used in such vehicles shall be consistent with Title 13, California Code of Regulations, Chapter 10, California Exhaust Emissions Standards and Test Procedures for 1995 and Later Off-Highway Recreational Vehicles and Engines, Section 2413 and the incorporated "California Motor Vehicle Emission Control Label Specifications", adopted March 1, 1978, last amended July 12, 1991, which are incorporated herein by reference.

(b) DELETE

86.414 - 78 Submission of vehicle identification number.

(a) DELETE,
REPLACE WITH:
(a) Upon the request by the Executive Officer, the manufacturer of any off-road motorcycle or all-terrain vehicle shall, within 30 days, identify by vehicle identification number, the vehicle(s) covered by the executive order.

(b) DELETE,
REPLACE WITH:
(b) The manufacturer of any off-road motorcycle or all-terrain vehicle covered by an Executive Order shall furnish to the Executive Officer, at the beginning of each model year, its vehicle identification number coding system description which identifies such vehicle(s) as covered by an Executive Order. The vehicle identification number shall be consistent with the Code of Federal Regulations 49, Chapter V, Parts 565-568 and 571, section 571.115 - Vehicle Identification Number - Content Requirements, with the following modification: No non-certified vehicle may use an "N" in the 12th character of the VIN. For California certified non-competition off-road motorcycles and all-terrain vehicles, the 12th character in the vehicle identification number shall be an "N".

86.415 - 78 Production vehicles. 49 FR 48138, Dec. 10, 1984.

* * * *

86.416 - 80 Application for certification. 49 FR 48138, Dec. 10, 1984.

(a) DELETE, "New motorcycles produced by a manufacturer whose projected sales in the United States is 10,000 or more units (for the model year in which certification if sought) are covered by the following:"

REPLACE WITH:
"New off-road motorcycles, all-terrain vehicles, and engines used in such vehicles are covered by the following:"

* * * *

(iii) DELETE,
REPLACE WITH:
(iii) Projected California sales data sufficient to enable the Executive Officer to select a test fleet representative of the vehicles for which certification is requested.

* * * *

(b) DELETE,
REPLACE WITH:
(b) For new 1997 and subsequent model golf carts ["the vehicle(s)"], the certification application shall include the following:

(1) Identification and description of the vehicle(s) covered by the application.

(2) Identification of the curb weight and gross vehicle weight rating of the vehicle.

(3) Identification and description of the propulsion system for the vehicle.

(4) Projected number of vehicles produced and delivered for sale or use in California, and projected California sales.

(5) All information necessary for proper and safe operation and maintenance of the vehicle, and other relevant information as determined by the Executive Officer.

(6) A copy of the owner's manual must be submitted during certification for approval by the Executive Officer. The manual must include the safety and refueling/recharging information as required by the subsections above.

(c) DELETE,
REPLACE WITH:
(c) Manufacturers of off-road motorcycles, all-terrain vehicles, and engines used in such vehicles shall submit to the Executive Officer the number of competition, those marketed as competition which are not exclusively used for that purpose, and non-competition off-road motorcycles and all-terrain vehicles and engines used in such vehicles, produced for sale in California on an quarterly basis, beginning January 1, 1997. These data shall also include the model number, VIN, and the number sold for use in California for each model. These data shall be provided to the Executive Officer within 30 days after the last day in each calendar quarter.

* * * *

86.417 - 78 Approval of application for certification.

* * * *

86.418 - 78 Test fleet selection.

(a) DELETE,
REPLACE WITH:
Test fleet selection and requirements on test vehicles are found in 86.419 to 86.423.

86.419 - 78 Engine displacement, motorcycle classes.

* * * *

(b)(1) DELETE,
REPLACE WITH:
(b)(1) Class I - 0 to 169 cc displacement (0 to 10.4 cu. in.).

* * * *

86.420 - 78 Engine families. 44 FR 48205, Aug. 17, 1979.

* * * *

86.421 - 78 Test fleet.

* * * *

(b) DELETE

* * * *

86.422 - 78 Administrator's fleet.

* * * *

86.423 - 78 Test vehicles. 49 FR 48138, Dec. 10, 1984.

* * * *

86.425 - 78 Test procedures.

(a) DELETE,
REPLACE WITH:
(a) Off-road motorcycle and all-terrain vehicle emission test procedures are found in Subpart F. All-terrain vehicles shall be tested on the Class 1 cycle, regardless of the engine displacement. With prior approval by the Executive Officer, manufacturers of all-terrain vehicles, may use the emission test procedures incorporated in California Code of Regulations, Title 13, Sections 2403 to certify their vehicles. The Executive Officer shall grant approval to those manufacturers who provide information and test results showing the appropriate emission standards on the utility and lawn and garden test cycle that are equivalent to the all-terrain vehicle emission standards set forth in 86.410-90(a)(1). The Executive Officer shall consider data submitted by the manufacturer from engines similar to the engine to be certified. This data will include, but not limited to, the engine size, performance, operating characteristics, and technology used. The data should be statistically valid in order to set the complying emissions standard applicable for the engine family to be certified on the utility and lawn and garden test cycle.

* * * *

86.426 - 78 Service accumulation. 42 FR 56737, Oct. 28, 1977.

DELETE,
REPLACE WITH:
Manufacturers shall determine the appropriate service accumulation for their vehicles.

86.427 - 78 Emission tests. 49 FR 48139, Dec. 10, 1984.

(a)(1) DELETE,
REPLACE WITH:
(a)(1) Each test vehicle shall be driven with all emission control systems installed and operating for a period of time as deemed appropriate by the manufacturer to stabilize the emission characteristics of the engine.

* * * *

(b) DELETE,
REPLACE WITH:
(b) All vehicles shall undergo at least two emission tests at intervals specified by the manufacturer. Additional tests may be performed at the manufacturers option.

(c) DELETE

(d) DELETE

(e) DELETE

* * * *

86.428 - 80 Maintenance, scheduled; test vehicles.

* * * *

86.429 - 78 Maintenance, unscheduled; test vehicles.

* * * *

86.430-78 Vehicle failure. 49 FR 48139, Dec. 10, 1984.

* * * *

86.431 - 78 Data submission. 49 FR 48139, Dec. 10, 1984.

(a) DELETE,
REPLACE WITH:
(a) Data from all tests (including voided tests) performed by a manufacturer shall be included in the applications.

* * * *

86.432 - 78 Deterioration factor. 49 FR 48139, Dec. 10, 1984.

(a) DELETE,
REPLACE WITH:
(a) The applicable data used to calculate deterioration factors may include: emission test results and other data determined to be appropriate by the manufacturer.

* * * *

(c) DELETE,
REPLACE WITH:
(c) Manufacturers shall test for and determine the appropriate deterioration factor for the designated useful life.

(d) DELETE

* * * *

(f) DELETE

86.434 - 78 Testing by the Administrator. 49 FR 48139, Dec. 10, 1984.

(a) DELETE,
REPLACE WITH:
(a) At the conclusion of certification testing by manufacturers, the ARB may require confirmatory testing. The ARB will designate where such testing shall be performed.

* * * *

86.435 - 78 Extrapolated emission values. 49 FR 48139, Dec. 10, 1984.

DELETE

86.436 - 78 Additional service accumulation. 49 FR 48139, Dec. 10, 1984.

DELETE

86.437 - 78 Certification. 47 FR 49807, Nov. 2, 1982.

(a) DELETE, "New motorcycles produced by a manufacturer whose projected sales in the United States is 10,000 or more units (for the model year in which certification is sought) are covered by the following:"

REPLACE WITH:
"Manufacturers of new off-road motorcycles and all-terrain vehicles produced on or after January 1, 1997, shall submit to the Executive Officer a statement that the test vehicles with respect to which data are submitted have been tested, and conform to the requirements of the regulations to their designated useful life."

* * * *

(b) DELETE

86.438 - 78 Amendments to the application.

* * * *

86.439 - 78 Alternative procedure for notification of additions and changes. 49 FR 48139, Dec. 10, 1984.

* * * *

86.440 - 78 Maintenance of records. 49 FR 48140, Dec. 10, 1984.

* * * *

86.441 - 78 Right of entry.

* * * *

86.442 - 78 Denial, revocation, or suspension of certification. 42 FR 56738, Oct. 28, 1977.

* * * *

86.443 - 78 Request for hearing.

* * * *

86.444 - 78 Hearings on certification.

* * * *

Subpart F -- Emission Regulations for 1978 and Later New Motorcycles; Test Procedures

SOURCE: 42 FR 1137, Jan. 5, 1977, unless otherwise noted.

86.501 - 78 Applicability.

* * * *

86.502 - 78 Definitions.

* * * *

86.503 - 78 Abbreviations.
DELETE,
REPLACE WITH:
The abbreviations in 86.403-78 apply to this subpart, with the following additions:

ARB-	California Air Resources Board.
Bhp-	Brake-horsepower.
Bhp-hr-	Brake horsepower-hour.
Hp-	Horsepower.
PM-	Particulate Matter.

86.504 - 78 Section numbering.

* * * *

86.505 - 78 Introduction; structure of subpart.

* * * *

86.508 - 78 Dynamometer. 42 FR 56738, Oct. 28, 1977.

* * * *

86.509 - 90 Exhaust gas sampling system. 54 FR 14539, Apr. 11, 1989

* * * *

86.511 - 90 Exhaust gas analytical system. 54 FR 14539, Apr. 11, 1989.

* * * *

86.513 - 90 Fuel and engine lubricant specifications. 54 FR 14544, Apr. 11, 1989.

* * * *

86.514 - 78 Analytical gases.

* * * *

86.515 - 78 EPA Urban Dynamometer Driving Schedule.

* * * *

86.516 - 90 Calibrations, frequency and overview. 54 FR 14546, Apr. 11, 1989.

* * * *

86.518 - 78 Dynamometer calibration.

* * * *

86.519 - 90 Constant volume sampler calibration. 54 FR 14546, Apr. 11, 1989.

* * * *

86.521 - 90 Hydrocarbon analyzer calibration. 54 FR 14546, Apr. 11, 1989.

* * * *

86.522 - 78 Carbon monoxide analyzer calibration.

* * * *

86.523 - 78 Oxides of nitrogen analyzer calibration. 52 FR 47870, Dec. 16, 1987.

* * * *

86.524 - 78 Carbon dioxide analyzer calibration.

* * * *

86.526 - 90 Calibration of other equipment. 54 FR 14551, Apr. 11, 1989.

* * * *

86.527 - 90 Test procedures, overview. 54 FR 14551, Apr. 11, 1989.

* * * *

86.528 - 78 Transmissions.

* * * *

86.530 - 78 Test sequence, general requirements.

* * * *

86.531 - 78 Vehicle preparation.

* * * *

86.532 - 78 Vehicle preconditioning.

* * * *

86.535 - 90 Dynamometer procedure. 54 FR 14551, Apr. 11, 1989.

* * * *

86.536 - 78 Engine starting and restarting.

* * * *

86.537 - 90 Dynamometer test runs. 54 FR 14551, Apr. 11, 1989.

* * * *

86.540 - 90 Exhaust sample analysis. 54 FR 14551, Apr. 11, 1989.

* * * *

86.542 - 90 Records required. 54 FR 14551, Apr. 11, 1989.

* * * *

86.544 - 90 Calculations; exhaust emissions. 54 FR 14553, Apr. 11, 1989.

* * * *

ATTACHMENT 1

State of California
AIR RESOURCES BOARD

ADOPTION OF TITLE 13, CALIFORNIA CODE OF REGULATIONS, CHAPTER 9, Article 3, CALIFORNIA EXHAUST EMISSIONS STANDARDS AND TEST PROCEDURES FOR 1995 AND LATER OFF-HIGHWAY RECREATIONAL VEHICLES AND ENGINES

NOTE: This is a new regulation proposed for adoption. All language is new and set forth in standard type.

ATTACHMENT 4

REQUEST FOR INCORPORATED DOCUMENTS

On January 13 and 14, 1994, the Air Resources Board will conduct a public hearing to consider adoption of regulations establishing emission standards, test procedures, and enforcement regulations for off-highway recreational vehicles. Included in this mail-out is the Notice of Proposed Regulation; the staff report describing the proposed regulation; the proposed text of sections 2410-2414 of Title 13, California Code of Regulations (CCR); and several of the documents incorporated within those sections: the proposed California Emissions Standards and Test Procedures for 1997 and Later Off-Highway Recreational Vehicles and Engines; the text of the proposed amendments to Chapter 2, Articles 2.1-2.3 of Title 13 (in-use recall procedures).

In an effort to conserve state resources, other documents incorporated by reference within the proposed regulations have not been included within this mail-out, but are available upon request. Staff believes that many of these documents may be of limited general interest to most recipients of the mail-out, and for those recipients who do have a specific interest, many already have copies through previous rulemakings. If you do not already have copies of these documents, and are interested in receiving them, please complete the following page and return it to the address listed on the top of that page.

Please complete and mail this page to:

California Air Resources Board
9528 Telstar Avenue
El Monte, CA 91731
Attention: Sally Cabal

Please put a check mark in front of the requested documents.

_____ Subpart E--Emission Regulations for 1978 and Later New Motorcycles, General Provisions and Subpart F--Emission Regulations for 1978 and Later New Motorcycles, Test Procedures, Title 40, Part 86, Code of Federal Regulations.

_____ California Exhaust Emission Standards and Test Procedures for 1995 and Later Utility and Lawn and Garden Equipment Engines, Adopted March 20, 1992, Amended April 6, 1993.

_____ Title 13, CCR, Sections 2111-2140, Procedures for In-Use Vehicle Recall and Enforcement Test Procedures

_____ Title 13, CCR, Sections 2400-2407, Lawn and Garden and Utility Engine Emission Standards and Enforcement Regulations

_____ Title 13, CCR, Section 1965, Emission Control Labels--1979 and Subsequent Model-Year Motor Vehicles and the Incorporated California Motor Vehicle Emission Control Label Specifications, adopted March 1, 1978 and last amended July 12, 1991.

_____ Title 49 Code of Federal Regulations Parts 565-568 and 571, Federal Government, July 1, 1992.

Name of Company: _____

Attention: _____

Address: _____

_____

_____

_____

Phone #: _____