



EPA420-R-01-046  
September 2001

# Characterization of Off-Road Motorcycle Use

## Draft Final Report

Assessment and Standards Division  
Office of Transportation and Air Quality  
U.S. Environmental Protection Agency

Prepared for EPA by  
ICF Consulting

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# **CHARACTERIZATION OF OFF-ROAD MOTORCYCLE USE**

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## EXECUTIVE SUMMARY

On December 7, 2000, the U.S. Environmental Protection Agency (EPA) issued an Advance Notice of Proposed Rulemaking (ANPRM) (65 FR 76797) for the control of emissions from recreational land-based engines. Recreational vehicles containing these engines include off-road motorcycles, all-terrain vehicles (ATVs), and snowmobiles. A primary issue for establishing emission standards for off-highway motorcycles is their use for competition. The Clean Air Act excludes from nonroad engine regulations and programs, engines and vehicles “used solely for competition.” In addition, EPA’s long-established noise emissions regulations exempt competition motorcycles, defined as any motorcycle *designed and marketed* solely for use in closed course competition.

To assist EPA’s efforts to address these issues, ICF Consulting conducted a study of off-road motorcycle uses. The information assembled in this report describes the inventory of off-road motorcycles (Section 2.0); state off-road motorcycle registration programs (Section 3.0); competition uses of off-road motorcycles (Section 4.0); the extent of off-road competition activity (Section 5.0); the marketing of off-road motorcycles, particularly competition models (Section 6.0); the use of competition models for recreational purposes (Section 7.0); and features of the competition models (Section 8.0).

The most comprehensive data found on motorcycle uses in the U.S. was published in the Motorcycle Industry Council (MIC) *1999 Motorcycle Statistical Annual*, which provided statistics for 1998. The MIC data indicates that an estimated 6,570,000 motorcycles were in use in the U.S. in 1998. Of these, 1,196,000 (18.2%) were off-road motorcycles. MIC estimates that 1,171,900 (98%) of the off-road motorcycles were used off-road. MIC also estimates that 119,800 (10%) were used on-road.

**Off-road Motorcycle Registration Programs** - According to the MIC, 24 states require registration of off-highway motorcycles. Off-highway motorcycle registration is done by the state motor vehicle registration agency (12 states) or a recreation management agency (12 states). In eight states, off-highway motorcycle registration is required only if the vehicle is used in certain designated state lands. Registration programs were administered by either the motor vehicle agency or a recreational land management agency. A sample of five state registration programs for off-highway motor vehicles (OHMVs) are described.

**Off-Road Motorcycle Competitions** - This report focuses on competitions specifically sanctioned for off-road motorcycles or the competition-only versions of those models. Competition sanctioning bodies and the types of competitions are described. The AMA, with its 45 districts (including Puerto Rico), is the most prominent national body to license off-road competitors. A total of 22 types of road, track, and off-road motorcycle competitions were identified. The off-road motorcycle competitions include motocross and its arena and freestyle variations, hare and hound, hare scrambles, scrambles, enduros, hillclimbs, trail rides, and trials. The motocross competitions were the most prevalent of the off-road competitions.

During competitions, racers are grouped into divisions or classes to promote equal competition. Classes that are important to the rulemaking are based on motorcycle characteristics, which include maximum engine displacement, number of strokes, or engine modifications.

**Extent of Off-road Competition Activity** - The extent of off-road competition activity was determined by reviewing information on racing venues, events, and competitor participation. Available information showed that motocross events are an order of magnitude more prevalent than the other off-road competitions. ICF Consulting identified 818 motocross tracks in the U.S. Of these, 785 are fixed venues and 33 are transient venues (i.e., stadiums and arenas). A review of schedules for 13 randomly-picked tracks around the country showed that most tracks conduct between 6 and 14 events per year, although some conduct 40 to 52 events per year.

ICF Consulting used information on the number of sanctioned competitors and event participation to estimate the number of competitors participating in off-road competition. Based on the number of sanctioned competitors, there may be as many as 80,000 motorcycles used in motocross competition. Using information from event participation, the number of motorcycles used for motocross competition may range from about 14,700 to 61,000.

**Marketing of Off-road Motorcycles** - Steps taken by manufacturers and dealers to inform buyers of the intended uses of off-road motorcycles was identified through research on internet sites, brochures, visits to dealerships, and interviews. Warning methods found include labels on the motorcycle, statements in brochures and on internet sites, and in the only owner's manual available for review. Competition motorcycles are generally excluded from manufacturers warranty coverage with only two manufacturers providing a 30-day warranty limited to manufacturer's defects.

**Use of Competition Models for Recreation** - ICF Consulting used data from Minnesota to determine that about 34% of the off-road motorcycles registered for recreational use on public lands are competition motocross models. ICF Consulting also reviewed classified advertisements and determined that 64% of the advertisements indicating a use for a competition model described a recreational off-road use. The remaining 36% indicated a racing use.

**Features of Competition Models** - The term "used solely for competition" means the motorcycle exhibits features that are not easily removed and that would render its use other than in competition unsafe, impractical, or highly unlikely. To better define that term, ICF reviewed specification and other information on competition and recreation models of off-road motorcycles. Comparison tables were generated to compare features that could potentially distinguish between recreation and competition models. Although the definition refers to features that are not easily removed, the models reviewed did not contain features that clearly distinguish them from recreational models.

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## **Work Assignment 215 Draft Report**

### **CHARACTERIZATION OF OFF-ROAD MOTORCYCLE USES**

#### **1.0 INTRODUCTION**

On December 7, 2000, the U.S. Environmental Protection Agency issued an Advance Notice of Proposed Rulemaking (ANPRM) (65 FR 76797) for the control of emissions from recreational land-based engines. Recreational vehicles containing these engines include off-road motorcycles, all-terrain vehicles (ATVs), and snowmobiles.

A primary issue for establishing emission standards for off-road motorcycles is their use for competition. The Clean Air Act excludes from nonroad engine regulations and programs, engines and vehicles “used solely for competition.” In addition, EPA’s long-established noise emissions regulations exempt competition motorcycles, defined as any motorcycle *designed and marketed* solely for use in closed course competition.

Off-road motorcycles in the subcategory “motocross” are designed and marketed solely for competition use, consistent with the exemption contained in EPA’s noise regulations. Motocross bikes are, however, sold in dealerships alongside recreational dirt bikes. One issue to be addressed in the rulemaking is the extent to which consumers may be purchasing these competition bikes for recreational use as well as for competition. Although motocross bikes have characteristics that might make their use for recreation less than ideal, when compared to recreational motorcycles, there is nothing inherent in the design that prevents recreational use.

To assist EPA’s efforts to address these issues, ICF Consulting conducted a study of off-road motorcycle uses. The information assembled describes the inventory of off-road motorcycles (Section 2.0); state off-road motorcycle registration programs (Section 3.0); competition uses of off-road motorcycles (Section 4.0); the extent of off-road competition activity (Section 5.0); the marketing of off-road motorcycles, particularly competition models (Section 6.0); the use of competition models for recreational purposes (Section 7.0); and features of the competition models (Section 8.0).

#### **1.1 Study Approach**

ICF Consulting collected published data from manufacturer publications, internet sites, trade associations, and the mass media. Interviews were conducted with trade associations, motorcycle dealerships, and motorcycle riders to obtain additional information. Correspondence was also used for some information requests. Interviews, correspondence, and visits to obtain data were limited to nine per topic in accordance with work assignment requirements and the Paperwork Reduction Act.

#### **1.2 Definitions**

ICF Consulting used the following working definitions in the study.

Competition - Races, meets, or events conducted under the auspices of a sanctioning body.

Competition-only Motorcycles - any motorcycle *designed and marketed* solely for use in closed course competition. They do not meet the requirements for street use due to either exhaust emissions or noise levels. Both road- and off-road motorcycles may be sold for competition-only, but only the off-road motorcycles were considered for this analysis.

Dual-Sport Motorcycles - motorcycles originally manufactured and sold legal for street usage but contain design features that enables operation over natural terrain.

Off-Road Motorcycles - motorcycles originally manufactured and sold for use on natural terrain.

Street-Legal Motorcycles - motorcycles originally manufactured and sold legal for street usage. They meet EPA standards for exhaust emissions and noise.

Used Solely for Competition - motorcycles exhibiting features that are not easily removed and that would render its use other than in competition unsafe, impractical, or highly unlikely.

## 2.0 INVENTORY OF OFF-ROAD MOTORCYCLES

The Motorcycle Industry Council (MIC) *1999 Motorcycle Statistical Annual* contains the most comprehensive data available on motorcycle uses in the U.S. for the year 1998. Statistics for 1999 or 2000 are not available at this time. The MIC data indicates that an estimated 6,570,000 motorcycles were in use in the U.S. in 1998. Of these, 1,196,000 (18.2%) were off-road motorcycles. This represented an increase from the 750,000 (14.8%) off-road motorcycles out of the 5,060,000 motorcycles in use in 1990. The distribution of motorcycles by type as reported by MIC is shown in Table 1.

**Table 1**  
**Estimated Population by Model Type**

Model Type	Number (1998)	% of Total	Number (1990)	% of Total
On-Road	4,809,000	73.2%	3,650,000	72.2%
Dual	565,000	8.6%	660,000	13.0%
Off-Road	1,196,000	18.2%	750,000	14.8%
TOTAL	6,570,000	100.0%	5,060,000	100.0%

Source: MIC, 1999

Off-road motorcycles tend to have smaller engines than on-highway or dual motorcycles. MIC reports that nearly all (88%) of off-road motorcycles in use had engine displacement less than 350cc. Three-fourths (76%) of dual motorcycles had engine displacements less than 350cc. But on-highway motorcycles tend to have large engines, with two-thirds (66%) having engines greater than 749cc. Table 2 presents the range of off-road motorcycle engine sizes in service in 1998.

**Table 2**  
**Estimated Population of Off-Road Motorcycles by Engine Displacement**

Engine Displacement	Number	% of Total Off-Road
Under 125cc	367,200	30.7%
125-349cc	690,500	56.9%
350-440cc	34,700	2.9%
450-749cc	113,600	9.5%
Over 749cc	0	0.0%
Total Off-Road	1,196,000	100.0%

Source: MIC, 1999

Table 3 lists the population of off-road and dual-use motorcycles by state based on the MIC data. California, with 175,100 off-road motorcycles, has more off-road motorcycles than the three states with the next higher populations. One-third (33.4%) of the off-road motorcycles are found in five states – California, Texas, Pennsylvania, Ohio, and Michigan. Over half (51.4%) of the population of off-road motorcycles are found in ten states -- CA, TX, PA, OH, MI, FL, WA, NC, GA, and NY.

MIC estimates that 1,171,900 (98%) of the off-road motorcycles were used off road. MIC also estimates that 119,800 (10%) off-road motorcycles were used on-road. MIC estimates that 47% of dual-use motorcycles are used on-highway at least some of the time, and 81% are used off road at least some of the time.



<b>Table 3 - State Population of Off-Road and Dual Use Motorcycles</b>				
State	1998 Population			OHV Registration Requirement
	Off-Hwy	Dual	Total	
Alabama	19,700	8,800	28,500	none
Alaska	5,100	4,000	9,100	none
Arizona	20,400	12,600	33,000	none
Arkansas	10,700	7,400	18,100	none
California	175,100	96,700	271,800	by Motor Veh. Registration Agency
Colorado	30,200	16,000	46,200	by Recreation Mgmt. Agency
Connecticut	14,100	5,600	19,700	by Motor Veh. Registration Agency
Delaware	3,200	900	4,100	by Motor Veh. Registration Agency
DC	500	700	1,200	none
Florida	49,900	29,700	79,600	by Recreation Mgmt. Agency*
Georgia	39,200	12,800	52,000	none
Hawaii	N/A	N/A	N/A	none
Idaho	19,900	11,600	31,500	by Recreation Mgmt. Agency
Illinois	33,300	16,700	50,000	none
Indiana	24,900	8,100	33,000	by Recreation Mgmt. Agency*
Iowa	10,100	5,700	15,800	by Recreation Mgmt. Agency*
Kansas	8,200	4,900	13,100	none
Kentucky	20,500	4,700	25,200	none
Louisiana	15,000	4,600	19,600	by Motor Veh. Registration Agency
Maine	5,000	3,400	8,400	by Recreation Mgmt. Agency
Maryland	21,000	8,300	29,300	by Recreation Mgmt. Agency*
Massachusetts	20,900	7,400	28,300	by Recreation Mgmt. Agency
Michigan	53,200	20,000	73,200	by Recreation Mgmt. Agency
Minnesota	18,700	10,800	29,500	by Motor Veh. Registration Agency*
Mississippi	9,000	3,400	12,400	none
Missouri	20,600	6,900	27,500	none
Montana	9,600	5,500	15,100	by Motor Veh. Registration Agency
Nebraska	4,700	2,200	6,900	none
Nevada	15,800	7,200	23,000	none
New Hampshire	7,200	3,800	11,000	by Recreation Mgmt. Agency
New Jersey	29,700	13,100	42,800	none
New Mexico	9,900	6,900	16,800	by Motor Veh. Registration Agency
New York	37,500	28,200	65,700	by Motor Veh. Registration Agency
North Carolina	43,600	12,200	55,800	none
North Dakota	2,400	1,900	4,300	none
Ohio	54,400	16,200	70,600	by Motor Veh. Registration Agency
Oklahoma	14,400	8,900	23,300	none
Oregon	28,800	12,500	41,300	by Recreation Mgmt. Agency*
Pennsylvania	55,700	23,600	79,300	none
Rhode Island	3,100	1,300	4,400	by Recreation Mgmt. Agency
South Carolina	19,400	5,100	24,500	none
South Dakota	3,200	2,000	5,200	none
Tennessee	25,400	9,400	34,800	none
Texas	61,600	28,400	90,000	none
Utah	16,600	10,000	26,600	by Motor Veh. Registration Agency*
Vermont	2,900	1,400	4,300	by Motor Veh. Registration Agency*
Virginia	23,800	11,400	35,200	none
Washington	44,800	23,200	68,000	by Motor Veh. Registration Agency
West Virginia	12,900	4,700	17,600	none
Wisconsin	15,200	11,300	26,500	none
Wyoming	5,000	2,900	7,900	none
<b>Total</b>	<b>1,196,000</b>	<b>565,000</b>	<b>1,761,000</b>	
* Required only for all or certain public lands				
Source: Motorcycle Industry Council, 1990				

### **3.0 OFF-ROAD MOTORCYCLE REGISTRATION PROGRAMS**

ICF Consulting reviewed national data and a sample of five state registration programs for off-road motor vehicles (OHMV), focusing on off-road motorcycles and other recreational vehicles. Registration programs were administered by either the motor vehicle agency or a recreational land management agency. Off-road motorcycles are registered in some states as all-terrain vehicles (ATVs).

#### **3.1 National Summary**

According to the MIC *1999 Motorcycle Statistical Annual*, there were 1,196,000 off-road motorcycles in the U.S. in 1998 and another 565,000 dual-use motorcycles. Table 3 shows details of off-road motorcycle registration by state according to MIC.

According to the MIC *1999 Motorcycle Statistical Annual*, 24 states require registration of off-road motorcycles. Off-road motorcycle registration is done by the state motor vehicle registration agency (12 states) or a recreation management agency (12 states). In eight states, off-road motorcycle registration is required only if the vehicle is used in certain designated state lands.

#### **3.2 California**

California has established state emissions standards for OHMVs, and has a unique registration system that distinguishes between OHMVs that meet the standards and those that do not.

Like most states with OHMV registration systems, California requires that OHMVs meet safety and noise requirements (i.e., spark arrester and muffler) in order to be registered by the Department of Motor Vehicles (DMV) and used on public lands.

The California Air Resources Board (ARB) adopted emissions standards and test procedures for OHMVs in 1994. The emissions standards were set such that, in general, only 4-stroke engines and 2-stroke engines with a catalytic converter could comply. At the time of adoption, it was believed that most of the compliant OHMVs sold would be new models of higher-performance 4-stroke engines, and these would replace most 2-stroke engines used for recreational purposes. All new OHMVs would be registered by the DMV and issued a green registration sticker.

In December 1998, ARB revised the regulations governing registration and use of OHMVs. Users and dealers had expressed concerns that manufacturers had not produced a full line of vehicles compliant with the 1994 emissions standards. Consequently, dealers complained of lower sales and economic hardship. In response to these concerns, the new regulations allow registration of non-compliant OHMVs, which are issued a red registration sticker. These vehicles are allowed to operate only during the non-peak ozone season, while emissions-

compliant vehicles (with a green sticker) can operate year-round. The length of the operation period varies depending on the severity of ozone levels.

Enforcement of the system relies on DMV and public land management authorities. Emissions-compliant OHMVs are coded with a “3” or “C” as the eighth digit of the vehicle identification number (VIN), which makes them eligible for a green registration sticker. All other OHMVs are issued red stickers. Recreation area authorities are responsible for enforcing the use of red-sticker vehicles during the proper time periods. Because of inconsistencies in DMV registration procedures to date, the system has not yet been enforced at recreation areas, but it is expected to be enforced in the summer of 2001.

California also has a registration system for motorcycles that will operate only in closed-course competitions. For a cost of \$3, DMV issues an orange registration sticker that allows for their transport (e.g., on a trailer) to and from racetracks. The registration does not require renewal. Very few vehicles are registered under this system. According to ARB staff, only about 40 motorcycles were registered under this program in 1994.

### **3.3 New York**

The New York State Department of Motor Vehicles requires registration of all all-terrain vehicles (ATVs), which are defined as any self-propelled vehicle manufactured primarily for use on off-road trails or in off-road competition, not more than 70 inches wide and 1,000 pounds in weight. Thus, all off-road motorcycles are registered as ATVs. No exception exists for off-road motorcycles used solely in competition, or for ATVs operated only on the owner’s property. Snowmobiles are not considered ATVs, but are subject to separate regulations.

### **3.4 Michigan**

The Michigan Department of Natural Resources requires registration of “Off-Road Vehicles (ORVs),” defined as a 2-, 3-, or 4-wheeled vehicle that can be operated cross-country without benefit of a road or trail. ORVs in Michigan do not include snowmobiles. ORV registration is required to operate on public lands (where allowed). Private land owners are not required to register ORVs operated exclusively on their private property. ORVs used only for closed-course competition do not require registration.

### **3.5 Oregon**

Oregon classifies ATVs as Class I (three or more tires, less than 800 pounds), Class II (more than 800 pounds), or Class III (two tires, less than 800 pounds). Before November 1999, the state DMV required registration of Class I (three-wheelers and quads) but not Class II (dune buggies) and Class III (dirt bikes) ATVs. Beginning in 2000, the DMV dropped their ATV registration requirements and the Oregon Parks and Recreation Department (OPRD) took over the program. The OPRD now requires “permitting” for all ATVs that are operated on state lands. The

permitting program is essentially the same as a vehicle registration program, with state officials recording vehicle characteristics and VIN and issuing a sticker. ATVs operated only on private lands do not require a permit. The Oregon DMV still handles snowmobile registration.

### **3.6 Minnesota**

The Minnesota Department of Natural Resources (MN DNR) requires registration of off-road motorcycles only if they are operated on public lands. Information recorded during registration includes the make, model number, year and VIN. Off-road motorcycles used only on private lands do not require registration. Therefore, the registration database cannot be assumed to include all OHMVs in the state.

MN DNR provided information to ICF Consulting on currently registered off-road motorcycles as of March 2001. The data was specific to model years 1990 through 2000. The number of older models registered was not provided. The MN DNR data presented in Table 4 shows that 4,485 off-road motorcycles from model years 1990 to 2001 are registered for recreational use on public lands. If it is assumed that the MIC population estimate of 18,700 off-road motorcycles in Minnesota is correct, it can be deduced that the remaining 14,215 motorcycles are used on private land. The MN DNR data also indicated that about 34% of the motorcycles registered for use on public lands are competition motocross models.

**Table 4**  
**Current Registration of Off-Road Motorcycles**  
**For Recreation on Public Lands in Minnesota**

Year Class	All ORMs	Competition MX Models	% Competition
1990	124	43	35%
1991	97	38	39%
1992	136	36	26%
1993	187	70	37%
1994	206	69	33%
1995	257	90	35%
1996	411	142	35%
1997	628	216	34%
1998	697	282	40%
1999	748	284	38%
2000	994	249	25%
TOTAL	4,485	1,519	34%

Source: Minnesota Department of Natural Resources, March 2001

### 3.7 Washington

In Washington, the Department of Licensing (DOL) requires registration of all off-road vehicles. The agency records the model number of motorcycles in their database. However, there is no standard format for entering the model numbers, and sometimes they don't get entered at all. So the database is not particularly "clean". In addition, they cannot electronically distinguish between motorcycles and 3- or 4-wheel ATVs in their database. WA DOL manually removed the ATVs from the data before providing it to ICF Consulting. However, the data is likely to include some ATVs in the count of all off-road motorcycles. WA DOL also provided information on the number of competition models based on a search of their database for entries where the motorcycle model series is known to be a competition motocross model. The numbers provided may be low because the model numbers are not always included. Table 5 summarizes the off-road motorcycles by year class between 1990 and 2001.

**Table 5**  
**Summary of Registered Off-Road Motorcycles in Washington**

<b>Year Class</b>	<b>All ORMs</b>	<b>Competition MX Models</b>	<b>% Competition</b>
1990	1516	390	26%
1991	1454	288	20%
1992	1234	297	24%
1993	1867	426	23%
1994	1777	455	26%
1995	2000	437	22%
1996	2225	490	22%
1997	2427	526	22%
1998	3317	794	24%
1999	4395	925	21%
2000	9408	1426	16%
2001	4419	795	18%
<b>TOTAL</b>	<b>36,039</b>	<b>7,285</b>	<b>20%</b>

Source: Washington Department of Licensing, 2001

#### **4.0 OFF-ROAD MOTORCYCLE COMPETITIONS**

Although competitions may be on road or off road, this report focuses on the competitions specifically sanctioned for off-road motorcycles or the competition-only versions of those models. Races or other meets between two or more riders outside of the auspices of a sanctioning body are excluded from this analysis.

##### **4.1 Sanctioning Bodies**

Competition venues generally require some evidence of rider proficiency before they can compete. ICF Consulting compiled a list of 33 sanctioning bodies that issue licenses for motorcycle competitors. Based on the organization name and information from their internet sites, 20 were determined to license road racing competitors and 12 were determined to license off-road competitors. The AMA, with its 45 districts (including Puerto Rico), is the most prominent national body to license off-road competitors. Most sanctioning bodies recognize an

AMA license and do not require a separate license. ICF Consulting identified the following organizations that sanction off-road motorcycle competitions:

- American Motorcyclist Association (AMA) and its 45 districts
- American Historic Racing Motorcycle Association (ARHMA)
- American Trials Association (ATA)
- DM Sports
- Formula USA DTX
- International Freestyle Motocross Association (IFMA)
- Middle Atlantic Motocross Association (MAMA)
- Midwest Cycle Fest (MCF)
- National Motorsport Association (NMA)
- New England Trail Rider Association (NETRA)
- Northwest Motorcycle Association (NMA)
- Rocky Mountain Motocross Association (RMXA)

## **4.2 Competition Types**

The AMA “2001 AMA Sports Rules Governing Pro AM, Semi-Professional, Amateur, ATV and Youth Competition” defines 20 types of motorcycle racing competitions. The AMA definitions also included variations of motocross events called “Stadium motocross.” That is the term used by AMA to describe motocross-type events taking place in stadiums or arenas. These events are described by other sanctioning bodies as “supercross” in large stadiums and “arenacross” in smaller arenas. In addition to the AMA definitions, a relatively new form of competition known as Freestyle motocross is growing in numbers. Freestyle motocross events, frequently held in conjunction with other motocross events, involve scoring the rider's aerial maneuvers rather than timing. Attachment 1 provides a description of these 22 types of motorcycle competitions.

The off-road motorcycle competitions include:

- Motocross and its variations
- Hare and hound
- Hare scrambles
- Scrambles
- Enduros
- Hillclimbs
- Trail rides
- Trials

## **4.3 Competition Classes**

During all types of off-road competitions, racers are grouped into divisions or classes to promote equal competition. Specific classes used in a competition vary by venue, competition series, or by the sanctioning body. Classes may be any combination of age and gender, skill or experience level, prize type, and motorcycle characteristics.

Age classes are generally based on specific age ranges such as 11-12, 13-15, 20+, etc. An open category is often included so competitors of any age may race in the same event. The age classes may vary by gender.

Skill and experience classes are variable. The AMA classifies competitors by A, B, and C levels, with A being the most experienced and C being the least experienced. Some venues also add a level D for entry-level competitors. Other organizations use novice, intermediate (or moderate), and expert.

The prizes that can be earned in a competition distinguish professional and amateur competitors. The AMA definition of a professional is a competitor that competes for prize money. Amateurs compete for trophies or other non-monetary prizes. Semi-professional competitors compete for both money and other prizes.

Motorcycle characteristic classes are primarily based on maximum engine displacement, such as 50cc, 80 cc, 125cc, 250cc, etc. These may be combined with stock or modified designations for the condition of the engine. Separate classes for 2- and 4-stroke engines are sometimes included. Historic or vintage racing events, such as those sanctioned by ARHMA, also add restrictions on the year or model of motorcycle.

## **5.0 EXTENT OF OFF-ROAD COMPETITION ACTIVITY**

The extent of off-road competition activity was determined by reviewing information on racing venues, events, and competitor participation.

### **5.1 Racing Venues**

No overall sanctioning body or trade associations were found for off-road motorcycle competition venues. ICF Consulting conducted an internet search and identified three databases of motocross tracks. These three databases primarily listed fixed venues, but did include some stadium motocross venues. The most extensive database, [www.hometownmotocross.com](http://www.hometownmotocross.com), contained a list of 747 venues. Two less extensive databases by [ActionMX.com](http://ActionMX.com) and [MXWorld.com](http://MXWorld.com) were identified and compared to the [Hometownmotocross.com](http://Hometownmotocross.com) database. An additional 37 fixed venues were identified through this comparison. ICF Consulting also searched listings of off-road motorcycle events contained on other web sites and in media publications to identify additional venues, primarily transient venues to add to the list.

ICF Consulting identified 818 motocross tracks in the U.S. Of these, 785 are fixed venues and 33 are transient venues (i.e., stadiums and arenas). Fixed venues were generally found to conduct multiple competitions or series of competitions, as well as practice times. The transient venues at stadiums and arenas were found to be used only once or twice a year. Attachment 2 lists the number of venues by state.



Comprehensive lists of venues for other off-road competitions were not found. However, reviews of internet sites for AMA district and other competition organization showed that many motocross venues also sponsor hare scrambles.

The owner of one of the 12 tracks that host the AMA National motocross races indicated that on any given weekend about one out of four tracks will be operating. He said that the track owners generally schedule events about once a month to avoid scheduling conflicts with other nearby tracks. This information was consistent with a sample of schedule information found on the internet. ICF Consulting reviewed schedules for 13 randomly-picked tracks around the country. This review showed that most tracks conduct between 6 and 14 events per year, although some conduct 40 to 52 events per year. Table 6 lists the number of events at the 13 tracks.

**Table 6**  
**Scheduled Motocross Events at Selected Tracks**

State	Track	MX Events per year	Scheduled Practices
NC	Devil's Ridge Motorsports Park	7	12 per year
FL	Motocross World	52	3 per week
OH	Kenworthy's Motocross Park	8	
MI	Red Bud Motocross	23	6 per year
CO	Aztec Family Raceway	10	
AZ	Canon Off-Road Park	10	3 per week
TX	Badlands Motocross Park	7	22 per year
CA	Glen Helen Raceway Park	10	2 per week
CA	Sacramento Raceway	14	
WA	Extreme Motorsports	44	
MO	Radical Rob's Raceway	6	5 plus a school
MN	Elko Motocross	8	weekly after 3/29
PA	Dublin Gap Motocross Track	13	3 per year

Source: ICF Consulting review of internet sites, March 2001.

## 5.2 Number of Off-Road Competitions

The number of off-road competitions could not be determined within the constraints of the work assignment. Not all venues post schedules. A small number of the 45 AMA districts and other regional or area organizations post lists of competitions in their territory or nearby areas.

However, this information is not consistent from area to area. Schedule information for either the 2000 or 2001 seasons were reviewed for six AMA districts that posted the information on internet sites. Table 7 summarizes the relative number of motocross (MX), arenacross (AX), enduro (END), hare scrambles (HS), hillclimbs (HC), observed trials (OT), and cross country rides (CC) as listed on the AMA district internet sites.

**Table 7**  
**Off-Road Events Listed on AMA District Internet Sites**

AMA Dist.	MX	AX	END	HS	HC	OT	CC
5	81						
7	65	2	10	13		5	
14	78		9	16	7	14	
15	141		8	26	22		
16		31					
17	155	20	6	28	27	14	16
22	47		5		1		
23	60		6	6	10	1	4
27	55						

Source: AMA District internet sites

### 5.3 Number of Motorcycles Used in Motocross Competitions

ICF Consulting used information on sanctioned competitors and event participation to estimate the number of MX motorcycles used in off-road competition, as described in the following subsections. Competitors, as used in this analysis is any combination of rider and motorcycle. Thus, a rider competing in two motorcycle size classes (e.g., 125 cc and 250 cc) would be counted as two competitors because two different motorcycles would be used. Sanctioned competitor estimates were based on AMA national and district figures. Two approaches were used for the event participation estimates. One approach was based on average event participation information. The other approach used information on manufacturer's contingency programs to derive a lower bound estimate. Table 8 summarizes the estimates.

**Table 8**  
**Estimates of Motorcycles Used in Motocross Competitions**

<b>Estimation Approach</b>	<b>Minimum</b>	<b>Maximum</b>
Sanctioned Competitors	unable to estimate	80,000
Event Participation (~300/event)	47,160	61,350
Event Participation - contingency	14,724	unable to estimate

### **5.3.1 Sanctioned Competitor Estimates**

As discussed in section 4.1, most tracks require evidence of rider proficiency before they can compete. ICF Consulting obtained information from internet sites where event results or rider numbers were posted.

- **AMA National Office** - The AMA National Office licenses professional motocross racers. For 2001, about 1,294 licensed professional racers were sanctioned by the AMA National Office and listed on their 2001 rider number list. The National Office does not license amateur motocross racers, nor keep statistics on the number of amateur racers.
- **AMA Districts** - The 45 AMA district offices license amateur motocross racers. No national statistic was found for AMA licensed amateurs. The planned approach to generating a national number was to obtain information from a sample of districts and extrapolate the data to a national number. Information on the number of competitors was available for nine AMA districts, as shown on Table 9. However, because the AMA districts do not directly correspond to state boundaries, it would not be possible to determine what proportion of the national population these districts represented.
- **ARHMA** - A survey by ARHMA indicates that about 75% of the 5,000 members are off-road racers. About 90% of the members are also in AMA.
- **NETRA** - Event results posted by NETRA show that 505 riders participated in enduro events and 336 participated in hare scramble events in 2000. There were no motocross events posted.
- **Other Sanctioning Organizations** - The other organizations with information on the numbers of competitors were AMA sanctioned and chartered. The competitors were assumed to be AMA licensed.

**Table 9**  
**Number of Competitors Earning Points at AMA Events**

<b>AMA District</b>	<b>MX</b>	<b>AX</b>	<b>END</b>	<b>HS</b>	<b>HC</b>	<b>Notes</b>
5	1,890	570		143		
7	>1,256		123	not posted		Pro Class MX results truncated to 20/class.
15	>161		>66	>165	>136	Results truncated at 10/class
16	>420					Results truncated at 20/class
17	>216	271	206	>74	168	MX and HS Results truncated at 10/class
22	>200		333	255		MX results truncated at 10/class
23	3,212		328	644	236	
27	1237					
National	1294					Number of licensed professional riders

Source: AMA district internet site point standings.

In addition to the point standings for the districts, the rider point standings for the Loretta Lynn National Amateur Championship lists 1,320 riders. However, the results only listed between 38 and 42 riders per class, with most classes reporting 42 riders. The number of riders earning points is likely much higher.

The average number of competitors earning points in the AMA national and four district organizations that reported all point earners is 1,778. If this average is representative of all the AMA districts, the number of motocross competitors would be approximately 80,000 (82,000 if Puerto Rico is included). It could not be determined whether this average is representative across the entire country because only a few AMA districts posted comprehensive lists of competitors earning points.

Only three AMA districts were identified that reported all competitors earning points in enduro or hare scramble series. Two of the districts posted complete lists of both motocross and enduro competitors, and two posted complete lists of both motocross and hare scramble competitors. In these districts, the number of motocross competitors was an order of magnitude greater than that for enduro or hare scramble competition.

### 5.3.2 Event Participation Estimates

The number of competitors could also be estimated by multiplying the number of events by the number of participants. The inherent difficulty in this approach is the lack of firm numbers for events and for the number of participants. Although the figure of 818 motocross venues is believed to be relatively accurate, the number of events taking place at these venues is not known as discussed above. Some venues hold races monthly, others weekly. Similarly, the numbers of hare scrambles and other off-road competitions is uncertain. Two simplified approaches were employed to estimate the relative magnitude of event participation.

**Average Participation Estimates** - ICF Consulting obtained information on motocross track schedules and event participation to estimate the number of motocross competitors. Information from an owner of one of the 12 tracks that host AMA national races indicates that the tracks operate about once every four to five weeks. Therefore, between 20% and 25% of the tracks are open on any given weekend. This information is consistent with a review of track schedules described in Table 6, which showed that most tracks host between 6 and 14 events per year, but some host nearly weekly events. The owner also indicated that the average participation at an event is about 300 racers. This average is also consistent with other information found on internet sites regarding event participation.

To obtain a national estimate, ICF Consulting assumed that 20% to 25% of the tracks are open on any given weekend and that the average participation at the open tracks was 300. In addition, it was assumed that 100% of the racers participate on any given weekend. That is, the racers travel from track to track and race at four or five tracks. Applying the average of 300 participants to the 786 fixed tracks, an estimate of between 47,160 and 58,950 racers was obtained. If all 818 tracks are considered, the estimate would increase to between 49,080 and 61,350.

The assumption of 100% participation on any given weekend is believed to be conservative (i.e., results in lower estimates) for two reasons. First, it is likely that on any given weekend some percentage of the racers would not participate due to other commitments, mechanical problems, or other factors. Second, an unknown percentage of the racers will only race at one track rather than multiple tracks. If all of the racers only race at one track, the estimate would be as high as 245,400. The actual number is believed to be somewhere between these numbers. However, there is insufficient data to determine the exact number.

**Contingency Approach** - ICF Consulting identified lists of events and event series for which competitions can earn contingency payments from motorcycle manufacturers. Contingencies are cash or other awards given for riding the manufacturer's models to a specified finish position in each paying class. The Yamaha internet site provided the most complete information for events and paying classes. Information from that site was used to first estimate participation in contingency events, and then to extrapolate the numbers to a national participation estimate.

The 2001 Yamaha YZ/WR Contingency Program lists 347 motocross events in 55 motocross series. The listed paying classes totaled 898, or slightly more than 16 paying classes per series. To avoid double counting, it was assumed that the same racers participated in all events of a series. At the minimum program standard of 7 racers per motocross class, a minimum of 6,286 racers (114 per event) would participate in the program events.

To obtain a national number, a series of assumptions were made. First, it was assumed that each of the 347 events were conducted at a different track. Then it was assumed that the only racers using these tracks participated in the program. This gave an average of 18 racers per track. Finally, it was assumed that the participation levels at the other tracks were equivalent to the contingency program tracks. Since there are an estimated 818 tracks in the country, this approach yields a minimum of 14,724 racers.

These assumptions are considered to be conservative. The actual number is likely to be higher because multiple heats are run in many classes. Moreover, an average of 18 racers per track is lower than estimates based on discussions with a motocross track owner. According to information from the track owner, an average of between 60 and 75 per track is more likely.

The Yamaha contingency program also lists 15 off-road series consisting of 108 events. A total of 324 paying classes are listed. The off-road contingency rules call for a minimum of five participants per paying class. Using this number, the following estimates were obtained:

- Six Enduro Series ( 42 events, 129 paying classes) - 645 racers
- Four Hare Scramble Series (28 events, 84 paying classes) - 420 racers
- Five other off-road series (38 events, 111 paying classes) - 555 racers

These figures could not be extrapolated to national numbers because there was a lack of data on the number of venues for these events.

## **6.0 MARKETING OF OFF-ROAD MOTORCYCLES**

One purpose of the work assignment was to determine how motocross motorcycles are marketed and what steps are taken to inform customers of the intended uses of the model. ICF Consulting researched information on manufacturer's internet sites, dealer internet sites, and manufacturer's brochures. In addition, dealerships were contacted by telephone and personal visits to discuss and observe how competition motorcycles are marketed. The primary methods used to alert buyers of the intended uses of competition models are marketing materials and warning labels. ICF Consulting also examined warranty coverage, incentives, and cost as factors that might affect the decision to purchase competition or recreation models.

## 6.1 Marketing Materials and Warning Labels

ICF Consulting collected brochures for motocross and off-road motorcycles during visits to dealerships. As expected, all the brochures emphasize the performance aspects of their models. Competition models are pictured as if they are in a competition. Most brochures included warnings stating the intended use of the motorcycles.

All the major manufacturers also promote their motorcycles on the internet. ICF consulting reviewed these sites and found that two included warnings about the intended uses of the motorcycles and two say to read the owners manual. Only one owners manual was available at the dealerships visited. The manuals were not available because they are included in sealed packages given to buyers.

Table 10 summarizes the methods used to warn buyers about the intended uses of the competition and off-road models. Attachment 3 provides a detailed description of the warnings that were identified.

**Table 10**  
**Summary of Warning Methods Identified**

Manufacturer	On Motorcycle	In Brochures	Owner's Manual	On Web Site
Honda	YES	YES	YES	YES
Kawasaki	YES	YES		YES
KTM	YES	YES		NO
Suzuki	YES	YES		Refers to owners manual
Yamaha	YES	YES		Refers to owners manual
ATK				NO
Gas Gas				NO
Cannondale				NO
Husaberg				NO
Husqvarna				NO
TM				NO

NOTE: Blank boxes indicate that the information was not obtained.

## 6.2 Warranty Coverage

Competition motorcycles are generally excluded from manufacturers warranty coverage. Only Yamaha and KTM were found to provide a 30-day warranty limited to manufacturer's defects. Other manufacturers specify that competition use excludes an off-road motorcycle from normal warranty coverage. Honda, Suzuki, and Yamaha provide this information on their internet site, stickers placed on the motorcycle, and/or in their brochures. Honda specifically states on its tag on new CR motorcycles (intended for motocross competition) that "CRs are sold 'AS IS' without warranty and are designed exclusively for operator-only use in closed course racing events."

There was no mention on the Kawasaki internet site of warranty coverage being void due to competition use. Likewise, no mention of warranty coverage could be found on the Cannondale, Gas Gas, Husaberg, or Husqvarna websites. ICF Consulting contacted dealers carrying these models, as well as a TM motorcycle dealer, and inquired about warranty coverage. According to the dealers, none of these manufacturers provide any form of warranty coverage. They explained that all models made by these manufacturers are intended for competition use, and therefore warranty coverage is not provided.

The warning labels described in Attachment 3 include warnings that warranty coverage is not provided for competition models.

### **6.3 Incentives Affecting Purchases**

The choice of purchasing a competition or recreation model may be affected by a number of factors specific to the buyer. The intended use being one of the major factors.

Buyers who plan to compete will most likely purchase a competition model. Whether it is purchased new or used will depend on other factors such as cost, availability, and performance to name a few.

Buyers who plan to use the motorcycle for recreation have the opportunity to buy either a recreation model or a competition model. The enhanced performance of competition models make them an appealing alternative to recreation models for skilled riders.

There is also a strong incentive to purchase new models, both recreation and competitive, because manufacturers are constantly improving performance and other features. This is especially true for competition motocross models.

**Contingencies** - manufacturers offer financial incentives in the form of racing "contingencies" for riders to use newer models when competing. Contingencies are cash or product prizes for top finish positions in specified racing classes and events. For example, Yamaha offers contingencies for competitors in 347 events in 55 competition series. The number of paying classes at most events range from 11 to 30, although some series only include 1 to 6 paying classes. Similarly, Honda offers contingencies at 54 event series. Information on the number or paying classes for Honda contingencies was not found. Contingencies are only available to riders using model year



2000 or newer. Therefore, contingencies are an incentive to replace the competition model every couple years.

**Insurance Coverage** - A brief review of insurance internet sites found that insurance coverage is available for recreational use of off-road motorcycles by State Farm and Progressive. Allstate does not provide coverage for either use. Geico does not provide coverage for racing and off-road motorcycles in most states. No coverage was identified for competition use of off-road motorcycles. A test of one online application form showed that the owner of a competition model would be denied coverage if it was to be used for competition. However, the same competition motorcycle would be insured if it was to be used for off-road recreation.

#### **6.4 Cost Differential**

Competition models are more expensive than their recreational counterparts. The identical list prices of Honda, Suzuki, and Yamaha 250 cc models show that the competition versions (\$5,899) cost 26% more than the recreation models (\$4,999). For the only comparable 125 cc models, the competition version costs 92% more than the recreational version. At the 80 cc size, the competition models cost 55% to 137% more than the recreational versions.

The effect of the added cost for competition models on their use for competition or recreation could not be determined. The added cost may deter some recreational riders from purchasing a competition motorcycle if they only intended to ride recreationally. However, once a competition model is purchased, the cost of the investment may make it more likely that the buyer will use it for recreation in addition to competition. One former competitor indicated that many competitors use their competition motorcycles for recreation on Saturday and compete on Sunday. He cited the cost of the competition motorcycles as a reason the riders did not also buy a recreation model.

#### **7.0 USE OF COMPETITION MODELS FOR RECREATION**

ICF Consulting used two approaches to estimate the use of competition models for recreational uses. One approach used data from owners registering competition models for recreational use on public lands, as detailed in section 7.1. This approach gives an estimate of the percentage of recreational riders are using competition models. It does not facilitate an estimate of the percentage of competition models that are used for recreation.

The other approach, described in section 7.2, compiled information on stated uses of competition models as included in classified advertisements. This approach tells what percentage of competition models advertised for sale have been used for recreation or competition. However, it is only as accurate as the advertisers' claims that the motorcycle was never raced or that it was used on trails.

ICF Consulting considered, but abandoned, an approach using interviews with competitors or recreational riders about their usage patterns. These patterns would be extrapolated to the universe of competitors to derive an estimate. However, this approach was rejected because the interviews would be limited to nine, and this was not believed to be large enough to develop an estimate.

## **7.1 Minnesota State Registration Data**

As discussed in section 3.6, the Minnesota Department of Natural Resources (MN DNR) is responsible for registering off-road motorcycles and ATVs that will be used on public lands. Vehicles that will be used on private land, including motocross tracks, would not have to be registered with the MN DNR. Therefore, it is logical to conclude that the motorcycles registered with MN DNR are being used for non-competition recreation at least some of the time.

ICF obtained registration data from the MN DNR to determine the relative percentage of competition motocross models used for recreation. The MN DNR tabulated total registered off-road motorcycles for model years 1990 through 2000. They then tabulated the number of registered motorcycles that could be identified as a competition motocross motorcycle by the model number or series. The resulting data provides a basis to estimate the proportion of competition models that are used for recreation. Of the 4,485 off-road motorcycles registered for recreation on public lands, 1,519 (34%) are competition models. The percentages by year class range from 24% to 40% as presented in Table 4 (see section 3.6).

## **7.2 Classified Advertisement Search**

ICF Consulting also conducted a survey of classified advertisements to determine how competition motorcycles were being described when they are resold. An internet site, [www.motoclass.com](http://www.motoclass.com), was identified that contained thousands of classified advertisements and provided a search mechanism to compile results by manufacturer series and year. No other internet site was identified that provided this number of advertisements and search capability.

For each competition model series (i.e., Honda CR, Yamaha YZ, etc.), a listing of advertisements for each year class from 1988 through 2000 was compiled. On-screen links enabled a quick retrieval of each individual advertisement. The advertisements were visually scanned to determine whether the owner indicated any use of the motorcycle. This process was generally limited to 5 pages per group to conserve resources. Advertisements were eliminated from consideration if they were "wanted" advertisements or if they were apparent duplicate advertisements. For groups where less than all the advertisements were reviewed, the results were extrapolated to the full number of listings. Overall, a total of 1,493 valid advertisements were found and categorized as competition use, recreation use, both competition and recreation, and unknown use. These results were extrapolated to a population of 2,550 advertisements. Table 11 lists the results by year class in terms of numbers of the motorcycles in that year class.

**Table 11**  
**Number of Advertisements Citing Uses of Competition Motorcycles**

Year	Total MCs	Competition	Recreation	Both	Unknown
2000	314	42	41	4	227
1999	447	51	71	5	319
1998	404	46	53	10	296
1997	309	17	28	10	254
1996	218	10	33	4	172
1995	185	8	23	3	151
1994	147	16	14	1	116
1993	149	2	7	6	134
1992	82	3	12	1	65
1991	98	0	3	8	87
1990	64	3	10	1	50
1989	92	8	10	7	67
1988	40	1	5	0	34
<b>TOTAL</b>	<b>2550</b>	<b>208</b>	<b>310</b>	<b>60</b>	<b>1972</b>

Source: ICF Consulting review of advertisements on www.motoclass.com web site, March, 2001

Table 12 lists the competition and recreation uses in terms of the percentage of all motorcycles in the year class and in terms of the percentage of the known uses. For this table, the motorcycles that have been used for both competition and recreation are included in the recreational use numbers to distinguish between uses that are consistent with the "used solely for competition exemption (competition) and those that are inconsistent with the exemption (used for recreation).

**Table 12**  
**Relative Uses of Competition Motocross Models**

Year	Total MCs	Use As a % Of All Motorcycles		Use As a % Of Known Uses	
		Competition	Recreation+Both	Competition	Recreation+Both
2000	314	13%	14%	49%	52%
1999	447	11%	17%	40%	60%
1998	404	11%	15%	42%	58%
1997	309	6%	12%	31%	69%
1996	218	5%	17%	22%	78%
1995	185	5%	14%	25%	76%
1994	147	11%	11%	51%	49%
1993	149	1%	9%	13%	87%
1992	82	4%	16%	18%	82%
1991	98	0%	11%	0%	100%
1990	64	5%	17%	21%	79%
1989	92	9%	19%	32%	68%
1988	40	3%	13%	17%	83%
TOTAL	2550	8%	15%	36%	64%

Source: ICF Consulting review of advertisements on www.motoclass.com web site, March, 2001

It can be reasonably estimated that at least 14% of competition motocross motorcycles have been used for recreational because they were advertised as never being raced. At a minimum, 8% of the competition motorcycles are used primarily for racing as indicated in the advertisements. However, most advertisements (77%) did not indicate whether the competition motorcycle was used for racing or recreation. However, it is likely that the motorcycles in these advertisements were used for racing at least some of the time because a lack of racing history is believed to be a good selling point. Motorcycles that were never raced would be expected to be advertised that way. There is no basis to estimate how many of those that did not indicate a use were used solely for competition or used for recreation part of the time.

## 8.0 FEATURES OF COMPETITION MODELS

In previous non-road regulations, EPA has defined the term “used solely for competition” to mean that the motorcycle exhibits features that are not easily removed and that would render its use other than in competition unsafe, impractical, or highly unlikely. ICF reviewed specifications and other information on recreation and motocross competition models of off-road motorcycles to identify such features. Comparison tables were generated to compare features that could potentially distinguish between recreation and competition models. Attachment 4 includes these comparison tables.

Although the definition refers to features that are not easily removed, the models reviewed did not contain features that clearly distinguish them from recreational models. Differences between competition and recreation models are summarized in Table 13:

**Table 13**  
**Summary of Features of Competition and Recreation Models**

<b>Feature</b>	<b>Competition Models</b>	<b>Recreation Models</b>
Lights, turn signals, horn	None	Found on some enduro models, but not on other models.
Gasoline tank size	Motocross models have smaller tanks (~2.1 gal.) than comparable recreation models.	Recreation models have larger tanks (~2.9 gal.) than competition models.
Starter mechanism	Kick start only	Kick start and electric start on some models.
Suspension travel	Greater suspension travel than recreation models. Usually fully adjustable.	Shorter suspension travel. Fewer adjustment options.
Mufflers	Performance mufflers that do not need to meet EPA noise standards	Must meet noise standards
Cost	26% to 137% higher than comparable recreation models	Less expensive

## 9.0 SUMMARY OF FINDINGS

The Work Plan for Work Assignment ICF Consulting gathered information to answer five questions about the use of motocross motorcycles to the extent possible. The questions and summary of the information gathered is presented in this section.

1. *To what extent are motocross motorcycles used for recreation as well as for competition? How common is recreational use of supposedly competition cycles?* As discussed in sections 7.1 and 7.2, there is evidence that competition motorcycles are used for recreation as well as competition. The competition models do not have any features that make their use for recreation impractical or unsafe for experienced riders. Other than in the 28 states with a legal requirement to have either lights, mufflers, or spark arresters, the competition motocross models do not lack features that enable their use for recreation. However, the missing features can be easily added so that the competition motocross models can meet these requirements.

Evidence of recreational use of competition motorcycles was found in classified advertisements and in a state recreational use registration program. A search of classified advertisements for model years 1988 through 2000 showed that 15% of the owners indicated that they rode on trails or that they never raced their competition motorcycles. A search of the Minnesota Department of Natural Resources database revealed that 34% of the 1990 to 2000 motorcycles registered for off-road recreation on public lands were competition models.

2. *What percentage of new Motocross motorcycles are purchased with the primary intention of being driven in organized competition?* The number of motocross competitors is estimated at up to 80,000. Annual US sales of competition models is about 41,000 (*Dirt Bike Magazine Year 2000 Facts and Figures*). Most competition riders purchase new models every year or two in order to remain competitive. The MN DNR data indicates that 25% of the 2000 model motorcycles registered for recreational use on public lands are competition models.

3. *How does the use of Motocross motorcycles change as they age? What percentage of used cycles are purchased for competitive use?* Discussions with competitive riders and dealers indicates that serious competitors will purchase a new motorcycle every year or sooner. Class B competitors will replace their motorcycle about once every year or two. Class C competitors and beginners will purchase new models less frequently or buy used competition models to save costs.

4. *How are Motocross motorcycles marketed? Do dealers take steps to inform customers of the intended competitive use?* Visits to dealerships and reviews of marketing materials (brochures, internet sites) indicates that manufacturers and dealers provide warnings to customers that competition models are only intended for use in closed course competition. Warning labels were found on all competition models that ICF Consulting witnessed. Warranty coverage was not available for competition models for all but two manufacturers. That warranty coverage was limited to 30 days for manufacturer's defects. A discussion of warning labels and warranty coverage were presented in sections 6.1 and 6.2, and in Attachment 3.

5. *Based on a sampling of state registration programs, are there ways that states use to distinguish competitive from non-competitive cycles (e.g., equipment requirements, license tags)? How are these measures enforced?* As discussed in section 3.1 only 24 states require registration of off-road motorcycles. California uses colored stickers to register off-road motorcycles for use on public lands. A separate registration sticker is available for transport of competition only motorcycles, but records for this program are not well maintained. None of the other states provided a means to distinguish between competition and recreational off-road motorcycles. In states that register off-road motorcycles for use on public lands, competition models can be registered as well as recreational models. No enforcement mechanism was identified to distinguish between competition and recreational models.

According to Motorcycle Industry Council information, off-road motorcycles are required to have either lights, mufflers, or spark arresters in 28 states. In seven of these states, the requirement only applies on public lands. Lighting is required in 18 states, but in 14 states the requirement only applies for nighttime operation. Three of the states exempt motorcycles in authorized competitive events from the lighting requirement. Spark arresters are required in 17 states, but one state provides an exemption for motorcycles in authorized competitive events. Mufflers are required in 27 states, but six of the states provided an exemption for motorcycles in authorized competitive events.

# **ATTACHMENTS**



## Attachment 1 Motorcycle Competitions

Competition	Type	Description	MC Types	Distances
Dirt Track (DTX) and Short Track	Road	Races on specially prepared flat or banked oval tracks between 2,250 and 2,640 ft. in circumference. Short tracks are less than 2,250 ft.	Road competing versions	
Drag Race	Road	Either time trials or a final race between two contestants from a standing start to finish line over a measured distance.	Street legal, modified, or street competition only.	No greater than one quarter mile
Enduro	Road, off-road	A meet in which a time schedule must be maintained over a variety of terrain, little-used roads and trails, etc.	Street legal, dual sport	Less than 24 hours
Reliability Enduro (International Six-Day Enduro [ISDE] Qualifier)	Road	A meet designed to measure the reliability of the machine and the skill of the rider involved during the time of the event.	Dual sport	Six day event
Closed Course Enduro	Road, Off-road	An enduro meet in which a time schedule must be maintained over a closed course.	Road, Dual Sport, off-road competition models	Course of 3 or more miles, covered at least twice.
Grand Prix	Road, Off-road	A known closed course meet that includes both natural and graded or paved terrain, normally run as a multi-lap race.	Road, dual sport, and off-road, competition models	
Hare and Hound	Off-Road	Meets held on a marked course over natural terrain. Point to point or multiple loops of 30+ miles	Off-Road, Dual Sport	Approximately 100 miles. At least 60 miles.
Hare Scrambles	Off-Road	Meets held on a closed course, using trails and paths over natural terrain.	Off-Road, Dual Sport	Between 2 ½ and 40 miles long.
Hillclimb	Off-Road	Series of trials or match races against time or distance, on a specially prepared hill	Off-Road, Dual Sport	
European Hillclimb	Road	A series of trials against time and/or distance on a paved or graded road surface ascending a hill.	Road, dual sport competition models	

Ice Race	Off-Road	Meets on a prepared ice-covered oval no greater than one-half mile long	Off-Road, competition	
Motocross	Off-Road	Meets on a closed course that includes left and right turns, hills, jumps and irregular terrain, laid out over natural terrain	Off-Road, competition	
Stadium Motocross	Off-Road	Motocross events held in a stadium or other confined area on a man-made track. Also called "Supercross" or "Arenacross"	Off-Road, competition	
Freestyle Motocross	Off-road	Events where motocross riders are judged on aerial maneuvers	Off-Road, competition	
Mud and Snow Scrambles	Off-road	A closed course event through mud or snow using Hare Scramble rules	Off-road	0.5 to 4 miles
Observed Trials (English Trials)		Trials taking place on a course made up of a series of observed sections that contain natural obstacles such as mud, rocks, water, logs, etc.	Off-road, dual sport	
Off-Road Field Meet	Off-Road	A series of contests to determine the skill of the entrants, including activities where the winner is determined by speed and/or power of the machine.	Off-road, Dual sport, competition models	
Off-Road Reliability Run	Off-Road	An event taking place over highways, secondary roads, backwoods, dirt roads and other types of terrain, which can be covered by a two-track vehicle. Scored by enduro rules. Average speed less than 30 mph.	Street legal, dual sport	
Off-Road Trail Ride	Off-Road	A ride including any type terrain, all of which can be covered by a single-track vehicle. Not speed oriented.	Off-road	
Scottish Trials	Road, Off-road	Combination of observed trials and enduro. Courses are either long (enduro type) or short with multiple laps.	Road, dual sport	Long courses at least 20 miles. Short course no less than three miles per lap.
Scrambles	Off-Road	Meets are held on an unpaved, prepared course. A test of rider skill rather than speed. Must include right and left turns, hills, and natural terrain.	Off-Road, competition	

Speedway	Road	Meets on flat oval tracks less than 2,250 ft. in circumference	Street legal, competition	
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Source: AMA. Playing by the Rules. 2001

**Attachment 2: Summary of Motocross Tracks In U.S. By State**

STATE	H-MX	Additional from:		TOTAL MX TRACKS		Transient Series
		A-MX	MX-W	FIXED	TRANSIENT	
AL	12	0	0	12	2	AMA EA
AK	3	2	0	5	0	
AR	14	1	0	15	0	
AZ	12	0	0	12	1	AMA EA
CA	62	3	1	66	5	1-HT, 2-AMA EA, 2-SFX
CO	14	0	0	14	1	SFX
CT	7	0	0	7		
DE	1	1	0	2		
FL	20	0	0	20	1	AMA EA
GA	27	3	0	30	1	AMA EA
HI	4	0	0	4		
IA	15	0	0	15		
ID	11	0	0	11		
IL	25	0	0	25		
IN	17	1	0	18	1	AMA EA
KS	10	0	0	10		
KY	10	0	1	11		
LA	14	0	0	14	1	AMA EA
MA	3	0	0	3		
MD	3	0	0	3	1	SFX
ME	4	0	0	4		
MI	21	0	0	21	1	AMA EA
MN	16	0	0	16	1	AMA EA
MS	8	0	0	8		
MO	14	0	0	14	1	AMA EA
MT	10	0	0	10		
NE	9	0	0	9		
NV	11	0	0	11	1	AMA EA
NH	2	0	0	2		
NJ	7	2	0	9		
NM	15	0	0	15	1	SFX
NY	24	0	0	24		
NC	38	6	0	44	2	A-MX
ND	18	1	0	19		
OH	36	0	0	36	1	SFX
OK	14	0	0	14	1	H-MX
OR	13	0	0	13		
PA	31	1	0	32		
RI	0	0	0	0		
SC	15	1	0	16		
SD	10	0	0	10		
TN	31	2	1	34		
TX	39	2	0	41	2	AMA EA
UT	12	0	0	12	1	AMA EA
VA	9	0	2	11	1	SFX
VT	3	0	0	3		
WA	19	0	0	19	1	SFX
WV	6	5	0	11	1	H-MX
WI	18	0	0	18	1	SFX
WY	11	0	0	11		

**TOTAL FIXED TRACKS: 784**

**TOTAL ARENA TRACKS: 30**

**GRAND TOTAL (FIXED + ARENA): 814**

**SOURCES**

- H-MX [www.hometownmotocross.com](http://www.hometownmotocross.com)
- A-MX [www.actionmx.com](http://www.actionmx.com)
- MX-W [www.mxworld.com/tracks/htmtrackdata](http://www.mxworld.com/tracks/htmtrackdata)
- AMA-EA Cycle News list of AMA Arenacross Events
- SFX [www.pacefmx.com](http://www.pacefmx.com) (list of SFX Motor Sports Arena cross events)

### **Attachment 3**

#### **Methods to Alert Purchasers of Intended Uses Of Off-road Motorcycles**

ICF Consulting compiled information of methods that manufacturers and dealers use to alert purchasers of the intended uses of off-road motorcycles. Information was gathered from warning labels on the motorcycles, brochures, owners and service manuals, and internet sites.

#### **WARNING LABELS**

Motorcycles at the dealership showrooms displayed prominent warning labels regarding the intended uses of the motorcycle. The labels were primarily placed on the rear fender. The Kawasaki enduro models had the labels affixed to the front fork.

#### **Honda**

##### ***XR400R and XR650R***

“Designed and manufactured for off-road use only. It does not conform to Federal motor vehicle safety standards and operation on public streets, roads, or highways is illegal.” (*sticker*)

Sticker also indicated that the motorcycle meets all EPA noise standards

##### ***CR125R and CR80R***

“Designed and manufactured for competition use only. It does not conform to Federal motor vehicle safety standards and operation on public streets, roads, or highways is illegal.” (*sticker*)

“State laws prohibit operation of this vehicle except in an organized racing or competitive event upon a closed course which is conducted under the auspices of a recognized sanctioning body or by permit issued by the local governmental authority having jurisdiction.” (*sticker*)

The CR125R had a second sticker that read: “Designed for closed course competition use only. It does not conform to U.S. EPA motorcycle noise standards.” (*sticker*)

“CRs are sold ‘AS IS’ without warranty and are designed exclusively for operator-only use in closed course racing events.” (*tag on new bikes*)

## **Kawasaki**

### ***KDX Models (enduro models)***

“This vehicle is an off-road vehicle only and was not manufactured for use on public streets, roads, or highways.” (Sticker 56040-1018)

### ***KX Models (motocross models)***

“IMPORTANT NOTICE. This vehicle is a competition model only and was not manufactured for, nor should it be used on, public streets, roads, or highways. The use of this vehicle should be limited to participation in sanctioned competitive events upon a closed course. This vehicle should not be used for general off-road recreational riding. Read Owners Manual.” (Sticker 56030-1228)

“Disclaimer of Warranty. This motorcycle is sold AS IS with all faults, obvious or concealed and there are NO WARRANTIES expressed or implied. Including Warranties of MERCHANTABILITY or FITNESS FOR PURPOSE. The purchaser accepts all responsibilities concerning quality, performance, cost of service and/or necessary repairs.” (Sticker 56030-1229)

“Motorcycle Noise Emission Control Information. This motorcycle is designed for closed course competition use only. It does not conform U.S. EPA [sic] motorcycle noise standards.” (Sticker 56030-1231)

## **KTM**

### ***MXC, EXC, SX models***

“Off-road use only” (*sticker*)

“Important notice: Designed and manufactured for off-road use only. It does not conform to Federal motor vehicle safety standards and operation on public streets, roads, or highways is illegal” (*sticker*)

## **Suzuki**

### ***RM 125***

“Closed course competition only-Do not use on public streets, roads, or highways. Motorcycle does not meet Federal and state safety (and other) standards for street use or off-road use.” (*sticker*)

## **Yamaha**

### ***125 TT-R***

“Never operate this vehicle on public roads. You can collide with another vehicle if you operate this vehicle on a public road.”

## **BROCHURES**

Brochures for off-road and competition series motorcycles were collected from dealerships. Warnings, when present, were primarily displayed near the specifications or on the last page of the brochure.

## **Honda**

### **“Off-Road Fun” (*for the XR*)**

“Inspect your motorcycle before riding, read your owner’s manual...Always obey local laws, use common sense, and respect the rights of others when you ride. Always obtain permission before riding on private land, keep you riding areas clean, and never modify your motorcycle’s silencer, spark arrester or exhaust system...Remember, Honda XRs are designed exclusively for off-road operator-only use.”

“California versions may differ slightly due to emissions equipment”

### **“XR/XRL 2001”**

“Inspect your motorcycle before riding, read your owner’s manual...Always obey local laws, use common sense, and respect the rights of others when you ride. Make sure you have a proper license when riding your XR650L on public roads, always obtain written permission before riding on private land, and remember, Honda’s XR650R, XR400R and XR250R are designed exclusively for off-road operator-only use...Keep you riding areas clean, and never modify your motorcycle’s silencer, spark arrester or exhaust system”

“California versions may differ slightly due to emissions equipment”

### **“2001 CRs” (for the CR)**

"Inspect your motorcycle before riding, read your owner's manual...Remember, CRs are designed exclusively for off-road operator-only use in organized, closed-course racing events...never modify your motorcycle's silencer, spark arrester or exhaust system."

"All action depicted in this brochure features professional riders in controlled locations... CRs are sold "as is" and without warranty."

### **Kawasaki**

#### **2001 KX Series Motocross**

"... Ride in authorized closed-course areas only. ..." "... For closed-course competition only. ..."

### **KTM**

#### **“E/XC, M/XC 2001” and “SX 2001”**

"Review your owners manual before you ride. Check all of your equipment and keep you KTM well maintained...Operate a properly muffled machine and avoid sensitive wilderness areas."

### **Suzuki**

#### **“2000 Dualsport-Dirt”**

"Study your owner's manual and always inspect you Suzuki before riding...Preserve your future riding opportunities by showing respect for the environment, local laws, and the rights of others when you ride. Professional riders photographed under controlled conditions and on designated trails."

"Units which are used in competition are expressly excluded from all warranty coverage."

#### **“Suzuki Motocross”**

"Study your owner's manual and always inspect you Suzuki before riding...The RM series motorcycles are for closed course competition use and related practices only."

"As manufactured the RM series motorcycles do not meet government standards for off-road riding. Please ride your RM only in sanctioned closed-course events and related practices. RM



photography features professional riders pictured on a closed course under controlled conditions.”

## **Yamaha**

### **“2001 YZ/WR”**

“Always remember to review your Yamaha motorcycle owner’s manual and tips booklet before you ride...Never ride a YZ on paved surfaces or public roads...Yamaha and the Motorcycle Safety Foundation encourage you to ride safely and respect the environment...The riders used during photography of this brochure are highly skilled, very talented professional racers. All of the action was shot on a closed course, and is not intended to be duplicated in any way...YZs come with a 30-day limited factory warranty. Limited warranty does not apply to units for racing.”

### **“2001 Off-road”**

“Always remember to review your Yamaha motorcycle owner’s manual and tips booklet before you ride...Never ride a YZ on paved surfaces or public roads...Yamaha and the Motorcycle Safety Foundation encourage you to ride safely and respect the environment.”

## **OWNER’S MANUALS AND SERVICE MANUALS**

Only one owners manual and one service manual were available at dealerships.

## **Honda**

### ***CR80R/CR80RB Expert***

“The CR is a high performance racing motorcycle utilizing the latest motocross technology. This motorcycle is intended for competition use by experienced riders only.”

“This motorcycle is designed for competition use by experienced junior riders...”

“Always obey local off-road riding laws and regulations. It is illegal to ride CRs on public streets, roads, or highways.”

-manuals can be obtained from Helm Corporation ([www.helminc.com](http://www.helminc.com)) 1-888-292-5393.

## **Yamaha**

Obtained service manual, owner's manual not available. No mention of competition or off-road use only.

## **INTERNET SITES**

Internet sites are available for all major off-road motorcycle manufacturers.

**Honda** ([www.hondamotor.com](http://www.hondamotor.com); found under "be a responsible rider" link associated with every bike description)

"Inspect your motorcycle before riding, read your owner's manual..."

"CRs are designed exclusively for off-road operator-only use in organized, closed-course racing events. Always obey local laws, use common sense and remember, Honda's XR600R, XR400R, XR250R, XR200R, XR100R, XR70R and Z50R are designed exclusively for off-road operator-only use...Make sure you have a proper license when riding the XR650L [a street-legal model] on public roads, and always obtain written permission before riding on private land. Never use the street as a racetrack."

"Use common sense, keep your riding area clean, respect the rights of others when you ride, and never modify your motorcycle's silencer, exhaust system or spark arrester."

**Kawasaki** ([www.kawasaki.com/motorcycles/](http://www.kawasaki.com/motorcycles/); displayed at bottom of page)

"Adhere to the maintenance schedule in your owner's manual. Professional rider depicted on a closed course. "TREAD LIGHTLY" when off-highway on public and private land. Preserve your future riding opportunities by showing respect for the environment, local laws and the rights of others when you ride." (Off-road page)

"For closed course competition only. Adhere to the maintenance schedule in your owner's manual. Professional rider depicted on a closed course." (Motocross page)

**KTM** ([www.ktmusa.com](http://www.ktmusa.com))

No warnings found on the KTM web site.

**Suzuki** ([www.suzukicycles.com](http://www.suzukicycles.com); shown at bottom of dual sport/dirt and motocross pages)

“Study your owner's manual and always inspect your Suzuki before riding...Preserve your future riding opportunities by showing respect for the environment, local laws, and the rights of others when you ride.”

**Yamaha** ([www.yamaha-motor.com](http://www.yamaha-motor.com); under 2001 competition and off-road motorcycle information)

“Please read your Owner's Manual and all labels before operation”

**ATK** ([www.atkusa.com](http://www.atkusa.com))

No warnings found on the ATK web site.

**Cannondale** ([www.Cannondalemotorcycle.com](http://www.Cannondalemotorcycle.com))

No warnings found on the Cannondale web site.

**Gas Gas** ([www.gasgas.com](http://www.gasgas.com))

No warnings found on the Gas Gas web site.

**Husaberg** ([www.husaberg.se](http://www.husaberg.se))

No warnings found on the Husaberg web site.

**Husqvarna** ([www.husqvarnausa.com](http://www.husqvarnausa.com))

No warnings found on the Husqvarna web site.

## Attachment 4 Comparison of Specifications

<b>Make</b>	<b>Kawasaki</b>	
<b>Model</b>	2001 KDX220R off-road	KX250 Motocross
<b>Engine type</b>	2-stroke single cylinder w/KIPS	2-stroke single cylinder w/Kawasaki Integrated Powervalve System (KIPS)
<b>Displacement</b>	216cc	249cc
<b>Bore x Stroke</b>	69.0 x 58.0mm	66.4 x 72.0mm
<b>Compression ratio</b>	7.2:1 (high speed)-9.3:1 (low speed)	10.8:1 (low speed) - 9.0:1 (high speed)
<b>Cooling</b>	Liquid	Liquid
<b>Carburetion</b>	Keihin PWK33	Keihin PWK38S with Power Jet and K-TRIC
<b>Induction</b>	6-petal reed valve	Piston reed valve
<b>Ignition</b>	Electronic CDI	Digital CDI
<b>Transmission</b>	6-speed	5-speed
<b>Frame</b>	High-tensile steel perimeter design	High-tensile steel perimeter design with sub-frame
<b>Rake/trail</b>	26.5°/4.3 in.	26.0 degrees/4.3 in.
<b>Suspension, front</b>	43mm conventional cartridge fork	Inverted telescopic cartridge fork, 46mm
<b>Suspension adjustments, front</b>	20-way compression damping adjustment	Preload, 18-way compression and rebound damping
<b>Suspension, rear</b>	UNI-TRAK® single-shock system	UNI-TRAK® single shock system
<b>Suspension adjustments, rear</b>	Adjustable preload, 20-way compression and 18-way rebound damping adjustment	Preload, 3-turn high and 20-way low speed compression and 18-way rebound damping
<b>Wheel travel, front</b>	11.4 in.	12.0 in.
<b>Wheel travel, rear</b>	11.8 in.	13.0 in.
<b>Tire, front</b>	80/100 x 21	80/100x21
<b>Tire, rear</b>	100/100 x 18	110/90x19
<b>Brakes, front/rear</b>	Hydraulic disc/Disc	Hydraulic disc
<b>Overall length</b>	83.5 in.	85.6 in.
<b>Overall width</b>	35.0 in.	32.1 in.
<b>Overall height</b>	48.4 in.	47.6 in.
<b>Wheelbase</b>	56.5 in.	58.3 in.
<b>Ground clearance</b>	13.4 in.	15.0 in.
<b>Seat height</b>	36.2 in.	37.4 in.
<b>Dry weight</b>	222.6 lbs.	213.8 lbs.
<b>Fuel capacity</b>	2.9 gal.	2.25 gal.
<b>MSRP</b>	\$4,399	\$5,799
<b>Valve Train</b>		
<b>Final Drive</b>		
<b>Lubrication</b>		
<b>Starter</b>		

<b>Make</b>	<b>Honda</b>	
<b>Model</b>	2001 XR250R (off-road)	2001 CR250R (Motocross)
<b>Engine type</b>	single-cylinder four-stroke	single-cylinder two-stroke with power-port system
<b>Displacement</b>	249cc	249cc
<b>Bore x Stroke</b>	73.0 x 59.5 mm	66.4 x 72.0 mm
<b>Compression ratio</b>	10.2:1	8.5:1
<b>Cooling</b>	Air	Liquid
<b>Carburetion</b>	30mm piston-valve	38mm Mikuni TMX flat-side
<b>Induction</b>		Six-petal reed-valve
<b>Ignition</b>	solid-state CD with electronic advance	solid-state digital 3-d map-type digital ignition with electronic advance
<b>Transmission</b>	6-speed	close-ratio five-speed
<b>Frame</b>		
<b>Rake/trail</b>	24.8 degrees/3.6 in.	27.73 degrees/4.48 in.
<b>Suspension, front</b>	Leading-axle Kayaba cartridge fork, 41mm	Inverted Showa cartridge fork, 47mm
<b>Suspension adjustments, front</b>	adjustable compression damping	16-position rebound and 16-position compression damping adjustability
<b>Suspension, rear</b>	Pro-Link® Kayaba single shock system	Pro-Link® Showa single shock with spring preload
<b>Suspension adjustments, rear</b>	Adjustable compression and rebound damping	17-position rebound damping and 13-position (low-speed) and 3.5 turn (high-speed) compression damping adjustability
<b>Wheel travel, front</b>	10.6 in.	12.4 in.
<b>Wheel travel, rear</b>	10.6 in.	12.5 in.
<b>Tire, front</b>	80/100-21	80/100-21
<b>Tire, rear</b>	100/100-18	100-90-19
<b>Brakes, front/rear</b>	Single disc w/ twin-piston caliper/Single disc	Single 240mm disc w/ twin-piston caliper/Single 240mm disc
<b>Overall length</b>		
<b>Overall width</b>		
<b>Overall height</b>		
<b>Wheelbase</b>	55.1 in.	58.5 in.
<b>Ground clearance</b>	12.4 in.	13.0 in.
<b>Seat height</b>	36.0 in.	36.7 in.
<b>Dry weight</b>	240.3 lbs.	213.8 lbs.
<b>Fuel capacity</b>	2.4 gal (0.5 gal reserve)	2.0 gal
<b>MSRP</b>		
<b>Valve Train</b>	SOHC; four-valve RFVC	
<b>Final Drive</b>	#520 O-ring sealed chain; 13T/48T	#520 chain; 13T/50T
<b>Lubrication</b>		
<b>Starter</b>		

<b>Make</b>	<b>Yamaha</b>	
<b>Model</b>	WR250F Off-road	YZ250F Motocross
<b>Engine type</b>	DOHC, 5-valve, four-stroke w/ Titanium valves	DOHC, 5-valve, four-stroke w/ Titanium valves
<b>Displacement</b>	249cc	249cc
<b>Bore x Stroke</b>	77 x 53.6mm	77 x 53.6mm
<b>Compression ratio</b>	12.5:1	12.5:1
<b>Cooling</b>	Liquid	Liquid
<b>Carburetion</b>	37mm Keihin FCR Flat Slide w/Throttle Position Sensor	37mm Keihin FCR Flat Slide w/Throttle Position Sensor
<b>Induction</b>		
<b>Ignition</b>		
<b>Transmission</b>	5-Speed, Multi-plate Wet Clutch	5-Speed, Multi-plate Wet Clutch
<b>Frame</b>		
<b>Rake/trail</b>		
<b>Suspension, front</b>	Kayaba Inverted Telescopic Fork; 46mm	Kayaba Inverted Telescopic Fork; 46mm
<b>Suspension adjustments, front</b>	Adjustable rebound/compression damping	Adjustable rebound/compression damping
<b>Suspension, rear</b>	Single shock	Single shock
<b>Suspension adjustments, rear</b>		
<b>Wheel travel, front</b>	11.8 in.	11.8 in.
<b>Wheel travel, rear</b>	12.4 in.	12.4 in.
<b>Tire, front</b>	80/100-21 Dunlop K739F	80/100-21 Dunlop K739FA
<b>Tire, rear</b>	110/80-18 Dunlop K739	110/90-19 Dunlop K739
<b>Brakes, front/rear</b>	250mm Disc/240mm Disc	250mm Disc/240mm Disc
<b>Overall length</b>	85.5 in.	84.9 in.
<b>Overall width</b>	32.6 in.	32.6 in.
<b>Overall height</b>	51.3 in.	51.3 in.
<b>Wheelbase</b>	58.7 in.	58.1 in.
<b>Ground clearance</b>	14.7 in.	14.9 in.
<b>Seat height</b>	39.3 in.	39.3 in.
<b>Dry weight</b>	N/A	N/A
<b>Fuel capacity</b>	3.2 gal	2.1 gal
<b>MSRP</b>	\$5,699	\$5,499
<b>Valve Train</b>		
<b>Final Drive</b>		
<b>Lubrication</b>		
<b>Starter</b>		

<b>Make</b>	<b>Suzuki</b>	
<b>Model</b>	DR-Z250 off-road	RM250 Motorcross
<b>Engine type</b>	4-stroke, single-cylinder, DOHC, 4-valve	2-stroke, single-cylinder, AETC, piston reed
<b>Displacement</b>	249cc	249cc
<b>Bore x Stroke</b>	73 x 59.6mm	66.4 x 72.0mm
<b>Compression ratio</b>	10.4:1	10.1:1/8.9:1
<b>Cooling</b>	air/oil	Liquid
<b>Carburetion</b>	Mikuni TM 28	Keihin PWK38PWJ/TPS
<b>Induction</b>		
<b>Ignition</b>	CDI	Digital CDI
<b>Transmission</b>	6-Speed, constant mesh	5-Speed
<b>Frame</b>		
<b>Rake/trail</b>		
<b>Suspension, front</b>	Telescopic, oil damped	Telescopic
<b>Suspension adjustments, front</b>	16-way adjustable compression and rebound damping	20 compression and 18 rebound settings
<b>Suspension, rear</b>	Link-type, gas/oil damped	Link-type
<b>Suspension adjustments, rear</b>	Fully adjustable compression/rebound damping and preload	Spring preload, fully adjustable, 3 high-speed, 16 low-speed compression settings, 18 rebound settings
<b>Wheel travel, front</b>		12.2 in.
<b>Wheel travel, rear</b>		12.4 in.
<b>Tire, front</b>	80/100-21	80/100-21 51M
<b>Tire, rear</b>	100/100-18	110/90-19 62M
<b>Brakes, front/rear</b>	Single hydraulic disc/single hydraulic disc	Single hydraulic disc/single hydraulic disc
<b>Overall length</b>	84.8 in.	85.6 in.
<b>Overall width</b>	34.6 in.	33.1 in.
<b>Overall height</b>	48.4 in.	50.2 in.
<b>Wheelbase</b>	57.0 in.	57.9 in.
<b>Ground clearance</b>	11.8 in.	13.2 in.
<b>Seat height</b>	36.2 in.	38.0 in.
<b>Dry weight</b>	259.6 lbs.	212 lbs.
<b>Fuel capacity</b>	2.7 gal	2.1 gal
<b>MSRP</b>	\$4,699	\$5,899
<b>Valve Train</b>		
<b>Final Drive</b>	Chain	#520 Chain
<b>Lubrication</b>	Wet Sump	
<b>Starter</b>	Electric/Kick	

