

# Mountain Bike Timekeeper & Finish Judge Course Manual

Provincial 'C' Level Mountain Bike Commissaire Course

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## Module 1: Preparing to Officiate at a Mountain Bike Event

This section of the course deals with the background information you need to understand the role of Commissaires in Mountain Bike races. Topics found in this section include:

- The role of Commissaires
- The administrative structure of Cycling
- The importance of interpersonal communication skills
- Ethical responsibilities of Commissaires
- Teamwork and the roles of members of the Commissaires' Panel
- Roles of key Race Organization volunteers

### Lesson 1: The Role of Commissaires at Mountain Bike Events

#### Commissaires – Referees for Cycling Events

Like other sports, Mountain Bike races are supervised by a group of referees. In all of the Cycling disciplines, these referees are called “Commissaires”. The main job of the Commissaires is to watch each race and penalize any illegal activity which has the effect of disadvantaging one or more other riders. In doing so, the Commissaires are responsible for controlling the sporting aspects of the race.

#### Typical Commissaire Roles

Commissaires at Mountain Bike races perform many jobs, each contributing to the sporting control of the race. Some of these roles, depending upon the sub-discipline of the race, include:

- Supervising registration (all sub-disciplines)
- Inspecting the course and other technical zones of the race venue (all sub-disciplines)
- Race staging and starting (all sub-disciplines)
- Rider supervision on the course (all sub-disciplines)
- Rider and coach supervision in the feed zone (XC)
- Recording the finish order of each race (all sub-disciplines)
- Dealing with the impact of any race stoppages (DH)
- Supervising the practice (DH & 4X)
- Dealing with lapped riders (XC)
- Backup time keeping (all sub-disciplines)

Three very important tasks involve race staging and starting, time keeping, and finish judging. The goal of this course is to introduce you to the skills needed to successfully perform all three of these tasks. These basic officiating skills must be learned and practiced before you learn how to do other Commissaire jobs.

#### Skills and Knowledge You Need to Work as a Commissaire

You need to know the basic skills required for your level of certification, and the expected level of performance for those skills. You also need to know the rules that apply to the roles that you will be

certified to perform. Throughout this course, the rules of the sport that you need to know for these jobs are identified. Therefore, in order to complete the course successfully, you will also need a copy of two parts of the UCI Regulations, available from the UCI Web Site.

These documents are:

- Part I, “General Organization of Cycling as a Sport”
- Part IV, “Mountain Bike Races”

These documents are available from <http://www.uci.ch> in the “Rules” section of the web site; they are in Adobe PDF format.

### **Administrative Structure of Cycling**

It is important for you to understand the basic administrative structure of your sport. The structure of the other Cycling sports is similar to that of many other sports.

All Olympic sports are represented internationally by an “International Sport Organization”. In the case of the Cycling Sports, this body is known as the UCI, or International Cycling Union (Union Cycliste Internationale, in French). The UCI headquarters are in the town of Aigle, in Switzerland. Its web site is: <http://www.uci.ch>

The UCI represents the interests of the Cycling Sports to the International Olympic Committee (IOC), and coordinates the organization of the World Championships and other international cycling events. It also sets the international rules for each of the Cycling Sports, including Mountain Bike. The UCI is governed by its member National Federations.

The Canadian Cycling Association (CCA) is the National Federation for the Cycling Sports in Canada. It is a member of the UCI; its role is to manage the national racing calendar for each Cycling Sport, coordinate and direct the operation of the National Cycling Teams, and set the national rules for each Cycling Sport. The CCA is governed by a board of directors elected by its member Provincial Federations. The CCA headquarters are in Ottawa; its website is: <http://www.canadian-cycling.com>

Cycling British Columbia is the Provincial Federation for the Cycling Sports in British Columbia. It is a member of the CCA and by extension, the UCI. Its role is to manage the provincial racing calendar for each Cycling Sport, coordinate and direct the provincial cycling teams, and to set the provincial rules for each Cycling Sport. Cycling BC is governed by a board of directors elected from among its members. The Cycling BC headquarters are in Vancouver; its website is: <http://www.cyclingbc.net>

Cycling BC also is responsible for developing Commissaires for each Cycling Sport. As a result, Mountain Bike Commissaires in BC are trained, certified, evaluated, and assigned by Cycling BC.

Individual Mountain Bike clubs and teams in Canada are members of their Provincial Federation for Cycling; in British Columbia, Cycling BC fills this role. Commissaires are sometimes members of one of the clubs, and officiate at local races held by the club. The Commissaires belonging to each club may also officiate at Provincial Mountain Bike races when assigned to do so by Cycling BC.

All Commissaires in Canada are also individual members of their Provincial Federation; each active Commissaire in British Columbia must therefore have an annual membership in Cycling BC in order to work as a Commissaire, even at local races. This ensures that all Commissaires are trained and work to the same minimum standard throughout the sport. It also ensures that each individual Commissaire is protected Cycling BC's insurance policy while officiating.

### **Training and Certification Process for Mountain Bike Commissaires**

In British Columbia, Mountain Bike Commissaires are trained and promoted through the following process:

1. *Timekeeper and Finish Judge (Level: Provincial C)*
  - a. Follow the Timekeeper and Finish Judge self study course (this document)
  - b. Pass a mail-in test based upon the material and rules presented in the self study guide
  - c. Experience at 6 qualifying races (races at the provincial level with a Provincial "A" or higher certified official as Chief Commissaire; 3 races must be XC races, 3 must be DH)
  - d. Certified as a Timekeeper and Finish Judge (Mountain Bike Provincial "C" Commissaire)
2. *Provincial "B" Level Mountain Bike Commissaire*
  - a. Take the Provincial "B" Mountain Bike Course, and pass the examination
  - b. Experience at 6 qualifying races (races at the provincial level with a Provincial "A" or higher certified official as Chief Commissaire; any combination of MTB disciplines is accepted, however at least 2 such races must indicate experience as the race secretary)
  - c. Certified as a Provincial "B" Mountain Bike Commissaire
3. *Event Chief Commissaire (Level: Provincial A)*
  - a. Take the Mountain Bike Chief Commissaire Course and pass the examination
  - b. Job shadow the Chief Commissaire at two Provincial Mountain Bike events, on a volunteer (non-remunerated) basis
  - c. Pass a practical evaluation as Chief Commissaire at a Provincial Mountain Bike event
  - d. Certified as an Event Chief Commissaire
4. *National Mountain Bike Commissaire*
  - a. Certified as an Event Chief Commissaire (Provincial A Level)
  - b. At least 2 years total experience certified as a Provincial Commissaire
  - c. Recommended by Cycling BC to attend the National Commissaire Course
  - d. Attend the National Commissaire Course and pass the written and oral examinations
  - e. Pass a practical evaluation as a member of the Commissaires' Panel at a National or International Mountain Bike event
  - f. Certified as a National Mountain Bike Commissaire

5. *International Mountain Bike Commissaire*

- a. Successfully follow the process outlined in the UCI Regulations concerning the training and certification of International Commissaires

**Lesson 1 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Explain the responsibilities and main jobs of Mountain Bike Commissaires
- Explain the basic administrative structure of Cycling
- Identify the levels of certification of Mountain Bike Commissaires and how to achieve them
- Identify the address of the web site where the UCI Mountain Bike rules can be found

**Lesson 2: Traits and Ethical Responsibilities of Effective Commissaires**

In order to work effectively as a Commissaire, you need more than some experience in the sport and knowledge of the job and the rules. The way that you perform your duties is just as important.

***Effective Interpersonal Communication***

A big challenge with officiating in any sport involves dealing with other people. This means that you must be able to listen to others and to announce your decisions clearly and firmly, but in a manner that is respectful of all involved.

Though developing interpersonal communication skills is beyond the scope of this course, two very important such skills that you can improve with practice include:

***Active Listening***

Showing the other person that you are listening to them by:

- Not talking while they are speaking
- Using body language that shows you are paying attention (e.g. maintaining eye contact, facing the person, maintaining an open and attentive posture)
- Repeating what you think the other person has said back to them in your own words, and then giving the other person the chance to tell you whether or not your summary is correct; the other person doesn't know if you have understood them unless you can accurately reflect what they said

***Communicating Assertively***

Assertiveness is about firmly promoting your point of view in a way that maintains respect for the other person involved. Techniques such as these can help you do this:

- Active Listening; see above... this is by far the most important communication skill you can learn
- Repeating your position over and over and over; known as the "Broken Record" technique
- Acknowledging the other person's feelings about the situation

- Respectfully, but firmly ending the conversation if it is clear that a situation can't be resolved productively in the amount of time available

### ***Ethical Concerns for Commissaires***

Amateur sport is about providing a competition that gives all participants the chance to perform at their best. As a Commissaire, you have an obligation to help make this possible by working in an ethical manner. There are two particularly important ethical aspects of officiating that even new Commissaires should strive to practice.

#### ***Consistency***

The best sports officials are often the most consistent in their decision making. That is, they will respond in the same way whenever a similar situation occurs. It is very important to realize that consistency does not mean following the letter of the rules in a black and white fashion, or always making the same decision without thinking about it. Consistency refers more to consistency in your decision making process when deciding how to deal with an incident, rather than the substance of the decision itself.

This decision making process includes:

- Thinking about the facts of the incident
- Deciding which rules apply based upon the facts
- Deciding whether the incident has put one or more other participants at a disadvantage
- Consulting with other Commissaires if there is time
- Settling on a course of action taking all of the factors above into account

A consistent, good quality decision making process consistently produces appropriate decisions.

This can be difficult to get right; it requires experience both in the sport and as an official; fortunately, as you become more experienced, your judgment and decision making ability will improve.

#### ***Dealing with Conflicts of Interest***

As a Commissaire, you need to identify and avoid conflicts of interest while officiating. As a Commissaire, a conflict of interest occurs when you have more than one duty or interest involved in the race where you are officiating, and one of those interests could possibly corrupt your motives or actions concerning your other duties.

Conflicts of interest are not a problem, as long as you identify and deal with them. They only become a problem and cast doubt on your job as a Commissaire if you ignore them.

The most common conflicts of interest happen when you have one or more close friends or family members participating in a race where you are officiating.

This situation can put you in a conflict of interest in two ways:

1. The perception that you might influence a decision concerning a participating family member or friend
2. The possibility that the time you need to provide care or support for children who are participating in the event will interfere with your ability to perform your Commissaire duties

Fortunately, both of these conflicts of interest are easily fixed. To deal with the first situation, simply tell the other Commissaires that you have a family member participating in the event, and that you will be unable to participate in making any decision concerning an incident involving them.

The second situation may or may not be a problem; for most local races, the pace is slow enough that you'll have time to look after the kids. However when working at provincial races, most Commissaires are continuously busy with the race. If you accept assignment to a provincial race, or are helping with a National or International Race, then it is best to plan ahead and make arrangements to have a friend or other family member look after any dependent children during the race while you are busy officiating. This arrangement is also better for any of your children who are participating in the race. They can count on having the person you arranged to care for them for the day being available to help them, which is something you can't do if you are busy with the race.

### **Lesson 2 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Identify two interpersonal communication skills important for Commissaires
- Describe two Ethical Concerns of Commissaires

## **Lesson 3: Team Work and the Commissaires' Panel**

### ***Commissaires Panel***

Commissaires usually work together as a team; this team is usually known as "The Commissaires' Panel". While each Commissaire has their own duties at the race, these duties are usually carried out together with other Commissaires.

The number of Commissaires assigned to races depends upon the level of the event. Most provincial Mountain Bike events in BC have a Commissaires Panel of 2 or 3 members; these officials are assigned by Cycling BC. However, the international standard is as panel of 5 members; usually this means that each Commissaire at a BC Provincial race will be responsible for two Commissaire jobs.

Commissaires work together as a team for several important reasons:

- To delegate responsibility for important officiating tasks so that they can be done effectively and efficiently
- To improve the quality of decisions by providing a forum for multiple points of view

- To provide backup for one another in case one or more officials must divert their attention away from the race for some reason

### *The Chief Commissaire*

The person who is appointed to direct and supervise the work of the Commissaires' Panel is the Chief Commissaire (also known as the President of the Commissaires' Panel). The Chief Commissaire's job is to ensure that the event is properly supervised. This is done by working with the race organization and by managing the work of the other Commissaires. The Chief Commissaire has the final say over any sporting aspect of the event. The skills needed to work as the Chief Commissaire are not covered in this course; they are the subject of the "Event Chief Commissaire" Course.

### *The Assistant Chief Commissaire*

Sometimes the Chief Commissaire must step away from the race to deal with some problem or incident. In this situation, the Assistant Chief Commissaire fills in for the Chief Commissaire while he or she is otherwise occupied. At international events, the Assistant Chief has particular job responsibilities for races in each sub-discipline, and has no other job. However, at Provincial BC events, the Chief will sometimes give one of the other two Commissaires this responsibility in addition to their other tasks. The particular skills needed to work as the Assistant Chief Commissaire are not covered in this course; they are the subject of the Provincial "B" Commissaire Course.

### *The Start Judge*

The Start Judge (also known as "The Starter") manages the race staging process and executes the start procedure. The actual start procedure used is different depending upon the type of race. Learning how to perform this skill is a major part of this course.

### *The Finish Judge*

The Finish Judge is responsible for recording and confirming the finish order of each type of Mountain Bike race. Often, this also involves time keeping, particularly in downhill races. Learning how to perform Time keeping and Finish Judging skills is a major part of this course.

### *The Race Secretary*

The Secretary is the Commissaire whose job is to oversee race registration, and the creation of start lists and race results. The Secretary is usually kept very busy with these tasks; this skill set requires a detailed knowledge of the Mountain Bike rules, great patience, excellent communication skills, and an eye for detail. The skills needed to work as the Race Secretary are not covered in this course; they are the subject of the Provincial "B" Commissaire Course.

### *Team Effort and Solidarity*

The Commissaires' Panel works best when it operates as a team. A team is group of people who, through their individual efforts, unite to achieve a common goal.

In order for a team to be effective, it is important that each team member places the work of the team first. It is also important that each team member should trust and respect the other team members. The

corner-stone of this trust depends mostly upon communication between officials. As a result, all members of the team need to deal with each other continuously and openly.

A final point involves solidarity within the Commissaire team. That is, once the Panel has made a decision, it is important that every member of the Panel should publically support the decision, whether they individually agree with it or not. The time for discussion ends once the decision is made.

### **Lesson 3 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Describe the roles of:
  - The Chief Commissaire
  - The Assistant Chief Commissaire
  - The Start Judge
  - The Finish Judge
  - The Race Secretary
- Explain the meaning of the phrase “Team Work”
- Identify three reasons why Commissaires work in a team called “The Commissaires’ Panel”

### **Lesson 4: Roles of Key Race Organization Volunteers**

Just as it is important for you to understand the basic jobs of the Commissaires’ Panel, you must also understand the function of the Race Organization and the volunteers who work within it.

#### **The Race Organization and the Race Organizer**

The best races in any of the Cycling Disciplines are the result of a team effort. One person, usually known as “The Race Organizer”, is responsible for motivating and coordinating the work of the volunteers that make up the organization.

While the Race Organizer is usually the face of, and controlling figure within the race organization, the most successful race organizers are excellent managers who delegate much of the responsibility for running the event to others.

#### ***The Race Organizer***

Just as the Chief Commissaire manages the work of the Commissaires’ Panel and has the ultimate responsibility for making decisions concerning the sporting aspects of the race, the Race Organizer manages the work of the Race Organization. He or she has the ultimate responsibility for making decisions regarding the organization of the race.

This person is also ultimately responsible for making sure that the event and race course(s) are constructed in a way that complies with the rules of the sport. In doing so, it is the race organizer who has ultimate responsibility for the safety of the participants in the race.

The Race Organizer is also the person who is responsible to the sport's governing body (in the case of provincial races, Cycling BC) for organizing a race that meets the policies of the governing body. The governing body awards a "Race Sanction" to the Race Organizer, who is then responsible for carrying out the event in a way that satisfies the conditions of that sanction.

### *The Chief of Course*

For larger events, this person is responsible for setting up and maintaining one of the race courses. For local races, this may be one of several jobs done by a single volunteer. The Commissaires typically deal directly with this person for any issues concerning a particular race course.

### *Volunteer / Marshal Coordinator*

This person is responsible for recruiting, coordinating, and assigning the volunteers that make the race work. For most provincial races, these are registration volunteers and course marshals. For local races, this may be one of several jobs done by a single volunteer. The Commissaires typically deal directly with this person for any issues concerning the positioning of course marshals, or specific tasks such as use of red and yellow flags during downhill races.

### *Registration and Results Coordinator*

This person is responsible for handling the race registration and results production process on behalf of the race organization. They work closely with the Secretary Commissaire and the timing staff. Even at local races, this person is busy enough that they this job is usually their only responsibility.

### *Timing Staff*

Depending upon the race, the people who do the timing may be:

- The Commissaires themselves
- A timing company hired for that purpose
- A group of volunteers trained by Cycling BC

Who-ever is responsible for timing the race, they work closely with the Secretary Commissaire, the Finish Judge, and the Registration and Results Coordinator.

### *First Aid / Emergency Action Plan Coordinator*

This person is responsible for positioning and calling in the first aid volunteers. They are also responsible for serving as the "Call Person", in case emergency services (ambulance, fire department, police) are needed at the race. For most provincial races, this person usually has several other jobs as well.

### *Course Marshals*

Course Marshals are the group of volunteers who are stationed at various points around the course to help the Commissaires and the organization supervise the race. Depending upon the type of race, Course Marshals may have a variety of jobs including:

- Report any incidents to the Marshal Coordinator and Commissaires, especially if they suspect a rider has done something illegal, such as take a short-cut on the course
- Keep race spectators off of the race course

- Notify first aid in case a rider or spectator needs assistance
- During downhill races, blow a whistle each time a rider passes on the course
- During downhill races, use red or yellow flags according to the instructions of the Commissaires to warn on-coming riders of a crash
- During cross-country races, write down the number plate of every rider who passes their position, in the order that they passed

While Commissaires may occasionally deal with individual marshals, they usually do so through the Marshal Coordinator.

#### **Lesson 4 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Describe the roles of:
  - The Race Organizer
  - The Chief of Course
  - The Volunteer / Marshal Coordinator
  - The First Aid / Emergency Action Plan Coordinator
  - The Registration Coordinator
  - The Timing Staff
  - The Course Marshals

## Module 2: Types of Mountain Bike Races and Rider Categories

In order to learn how to work as a Start Judge, Time Keeper, or Finish Judge, it is important for you to understand the basic types of Mountain Bike race and the method used to categorize riders.

This section of the course describes the rider categories and the basic details of each type of Mountain Bike race.

### Lesson 1: Rider Categories

As with most sports, Mountain Bike racing has wide appeal and is practiced in many different forms. There are races suitable for beginners, experienced recreational riders, and professionals alike.

Many Mountain Bike races feature categories that appeal to all three types of rider described above. Others, such as the Mountain Bike World Cup series are open only to professional riders. On the other end of the scale, local club races are oriented specifically at beginners and recreationalists.

In principle, all mountain bike races offer categories that group riders with roughly the same level of ability in the sport. At most levels, the idea behind doing this is to give most riders an enjoyable challenge without being difficult enough to discourage people from participating.

#### UCI Age Categories

The UCI rules are the basis for the category system used in most countries; the UCI mountain bike categories are based only on age. While age categories alone are sufficient for high-level international races, they usually don't provide a broad enough range of opportunity for recreational-level riders. Therefore, most National Federations further sub-divide the UCI age categories into several ability levels.

Note that for cycling races, a rider's age on December 31 is used to determine their age category for the entire year. For example, if a rider's 17<sup>th</sup> birthday is on October 10, they are considered to be 17 for the entire year, beginning on January 1. The easiest way to calculate age is simply to subtract the rider's year of birth from the current year.

The UCI age categories for Cross Country (XC) races are as follows:

- Youth (also known as Under 17); riders ages 16 and younger
- Junior; riders aged 17 and 18
- Under 23; Olympic format XC only (XCO); riders 19 to 22\*
- Elite; riders aged 23 + for XCO, 19+ for all other XC race types
- Master; riders 30+ who elect that status at the start of season when applying for their license

\* Note: For provincial races and many national races, Under 23 is usually not held; such riders enter the Elite category instead.

### Rulebook Review – Rider Categories

The regulations concerning rider categories are in Parts I “General Organization of Cycling as a Sport” and IV “Mountain Bike Races” of the UCI rules. Rules that apply in general to all of the Cycling disciplines are in Part I (the General section of the rules); they apply to Mountain Bike races unless they are contradicted or altered in Part IV (the section of the rules specifically for Mountain Bike races). In Part I, articles 1.1.034 – 1.1.037 apply. In Part IV, articles 4.1.002 – 4.1.010 apply.

The UCI age categories for Downhill (DH) and 4-Cross (4X) races are as follows:

- Youth (also known as Under 17); riders ages 16 and younger
- Elite; 17+ \*
- Master; riders 30+ who elect that status at the start of season when applying for their license

\* Note: For DH and 4X races at the international level, riders 17 and older are eligible to enter the Elite category if they wish. The only exception is for World Championships; riders 17 & 18 must enter Junior at this event. At most provincial and national DH races a junior category is held. Check the local rules to see if juniors are also permitted to enter the Elite category at this level.

In Canada, the Under 17 age group is further divided for XC and DH as follows for both boys and girls:

- Under 17; riders aged 15 and 16
- Under 15; riders aged 13 and 14
- Under 13; riders aged 12 and under (usually ages 10 – 12)

### Ability Categories

In Canada, for XC and DH, each age category is usually divided into 3 ability categories for both men and women. They are:

- Novice; this category is suitable for riders new to racing
- Sport; this category is broadly suitable for riders with some racing experience, but who don't have the time to train regularly
- Expert; this category represents the highest level of recreational competition

Due to its nature and the number of riders needed in each category to have a meaningful competition, categories for 4X are usually a bit different. Usually, only 3 or 4 categories are held; they are typically similar to this:

- Open Men 17+
- Open Women 17+
- Youth Men

### Ability Categories in BC

Cycling BC sometimes changes the mountain bike ability categories used at provincial races at the start of the season. This is done to make sure the categories reflect the number of people who usually enter races for that age group so that the racing is challenging, but not so challenging that the fun is lost.

The current list of Mountain Bike categories used in BC can be found on the Cycling BC web site.

### **Lesson 1 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Explain the UCI age categories for XC races
- Explain the UCI age categories for DH and 4X races
- Explain the ability categories commonly used in Canada
- Describe how to calculate the ages of riders in order to determine their age category

### **Lesson 2: Types of Mountain Bike Races**

There are many different kinds of Mountain Bike race. The three main type of Mountain Bike race are:

- Cross Country (XC): An endurance discipline; many riders start the race together. The outcome is determined by the order of riders across the finish line who have completed the full distance of the race.
- Downhill (DH): In its most common form, this is an individual time trial where contested over a steep, technically demanding downhill course. Emphasis is on power and bike handling skill more than endurance.
- 4-Cross (4X): This is a mass start sprint event where heats of 4 riders at a time race head-to-head over a short course with obstacles, jumps, and banked corners. The first and second place riders in each heat advance to the next round of the competition, while the third and fourth place riders are eliminated.

#### **Cross Country Races**

There are several different kinds of Cross Country Races. They are usually “mass start” events, meaning that all of the riders in the category start at the same time. They are:

- Circuit races:
  - Olympic Format (XCO) Races: Take place over multiple laps of a circuit between 5 and 9 km long
  - XC Criterium (XCC) Races: Take place over multiple laps of a circuit less than 5 km long
  - XC Team Relay (XCT) Races: Similar to XCC races, except they are contested by teams of 4 riders, each of whom completes a lap when relayed in to the race by another team member who has just finished their lap
- Marathon (XCM) Races: Races at least 60 km in length that generally do not cover the same terrain; they the start and finish are typically in the same location
- Point to Point (XCP) Races: Races that only cover the same terrain once; the start and finish are in different locations

The Commissaire jobs for most circuit races are the same, regardless of the exact format and circuit length. The methods used to supervise point to point and marathon races are similar to those for XC circuit races, but as they are not run over a circuit, it is not possible for riders to be lapped; as a result, timekeeping and finish judging is usually less complicated.

### Downhill Races

There are 3 basic types of downhill race. They are:

- Individual Downhill (DHI): A time trial event where riders start one at a time, racing on a usually steep downhill course up to 3.5 km long
- Mass Start Downhill (DHM): A point-to-point mass start downhill event, where all of the riders start at the same time. The first rider to reach the finish line at the bottom of the course wins. These races are run in much the same way as an XC race
- Dual Slalom (DS): Though the rules for this event have been retired from the rulebook (replaced by 4X), this is a downhill where two riders race side-by-side, each down their own parallel downhill course, which may feature banked corners and various jumps and obstacles. The rider with the best course time advances to the next round of competition. Unlike 4X, finish order is determined based upon time, rather than the order of the riders across the finish line

#### Rulebook Review – Types of Mountain Bike Race

Part IV “Mountain Bike Races” of the UCI rules defines the characteristics of the different types of Mountain Bike Race. Articles 4.2.001 – 4.2.011 describe the types of XC races, articles 4.3.001 – 4.3.011 describe Individual DH races, and 4.4.001 – 4.4.021 describe the 4X race procedure and course.

#### Lesson 2 – Points for Review and Performance Expectations

Following this course, you should be able to:

- Explain the differences between the various types of XC race
- Explain the differences between the various types of DH race
- Explain the basics of the 4X race procedure

## **Module 3: Preparing to Officiate at a Race**

As with anything, advance preparation for a race assignment is very important. This section of the course describes how to prepare for a race. Topics covered include:

- What you need to know about the race in advance
- The basic personal equipment you need to officiate at a Mountain Bike race
- The Commissaire uniform and suitable clothing for Mountain Bike officiating
- Forms and paperwork needed to officiate

### **Lesson 1: Advance Information Needed About the Race**

Regardless of which role you will have when assigned to officiate at a Mountain Bike race, there is some basic information about the event that you need to find out in advance.

#### **The Race Schedule**

The race schedule is the document that describes when the main parts of the race happen. The schedule for a Mountain Bike race usually includes:

- The opening and closing times for race registration
- The times when the course is open for practice (there is no official practice for some races)
- The race start time for each race category
- The approximate time when the awards will take place

As a Commissaire, you usually need to be available for the entire race schedule. Therefore, you will need to know the schedule in advance in order to plan your arrival and departure times.

If for some reason you aren't able to arrange your arrival and departure around the race schedule, then it is important for you to contact the Chief Commissaire assigned to the event to see if it is possible for you to arrive slightly later, or leave slightly earlier, whichever the case may be. If you are unable to arrive in time to perform your job, then you should contact Cycling BC in order to decline the assignment.

As a good rule of thumb, it is best to plan on arriving at least 30 minutes before race registration opens. It is also best to plan your departure for at least 60 minutes after the last race is scheduled to end, in case of a delay in the event.

#### **Location of the Race and Travel Planning**

In many cases, Mountain Bike races are held at ski resorts, or areas well away from major cities. If the race is too far away from your home to reasonably drive there and back in the same day, then the organizer must provide you with a place to stay for at least one night, depending upon the duration of the event. Also, the race organizer must cover your travel costs to and from the race.

Since the organizer is responsible for your travel and accommodation costs, it is your responsibility to plan your travel in a way that keeps those costs as low as possible. While Cycling BC tries to assign Commissaires that live reasonably close to each race, this is not always possible.

When planning your travel, consider the following:

- Find out the current mileage rate for Commissaires; it is found in the Cycling BC Commissaire Policy document, available on the Cycling BC web site
- Find out if another Commissaire who lives close to you is also officiating at the race; if so, try to car pool with them
- For races that are more than a few hundred kilometers away, compare the cost of flying with that of driving; sometimes it is less expensive to fly if the organizer can provide local transportation for you while at the event

### **The Weather Forecast**

As Mountain Bike racing happens outdoors, one of the main factors in the outcome of any Mountain Bike race is the weather, both for the rides and the officials.

Before leaving for an assignment, you should check the weather forecast for the area where the race will be held. This will give you a chance to arrive prepared to officiate regardless of the weather.

#### **Lesson 1 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Identify the four basic pieces of information contained in a Mountain Bike race schedule
- Explain why it is important to find out the weather forecast before the race
- Describe when you should usually arrive at and depart from the race site

### **Lesson 2: Basic Personal Equipment**

In order to work effectively and comfortably as a Mountain Bike Commissaire you need to bring some basic personal equipment with you to every race. This lesson describes that equipment. The equipment you need is:

- A copy of the race schedule, technical guide, and any other information about the race
- A Stopwatch
  - To begin with, an inexpensive model that can display times to the nearest 1/100 second with a 30 “split” memory is sufficient. However, you will eventually want to get a more capable model capable of storing at least 100 “splits”, with the ability to recall stored times while the clock is running.
- A Wrist watch
  - In order to stick to the race schedule, you need to know what time it is
- A Whistle
  - For starting races and gathering people’s attention
- A Rule book
  - At very least, you need the current version of the UCI Mountain Bike rules
- A Clip-board
- A Clear plastic bag (to put clip-board in when raining)

- If you don't have any waterproof paper, get a large clear plastic bag big enough to pull over your clipboard and arm so that you can write in the rain without your paper getting wet
- Pens
  - Keep several spare pens; this way you will always have one that works
- Pencils
  - Pencils are usually best for using with waterproof paper
- A Black Marker, in case you need to make a sign
- A Highlighter
- Paper
  - Graph paper or lined paper is usually best. This helps when keeping track of laps or times, particularly if you run out of forms. It's also a good idea to keep a few sheets of waterproof paper
- Forms (lap sheets, timing sheets, etc.)
  - Samples are included in the appendix; you may photocopy or print these if you wish
- A small notebook
  - For notes during meetings, or as a quick reference for notes about the race
- Paper Clips, Butter Fly Clips, and / or large envelopes
  - Good for keeping loose paperwork organized
- Some food
  - The organizer is supposed to provide you with lunch; however, depending upon your job, you may not be able to take a lunch break. It's important to have some emergency food so you don't go hungry
- Water
  - While most organizers supply bottled water, don't count on it
- Sunscreen
- Insect repellent

It is a good idea to keep all of this equipment in a "race bag" during the Mountain Bike season; this way preparing for an event doesn't take much time.

### **Lesson 2 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Describe the type of stopwatch you should have
- Identify the basic items you need in order to officiate effectively and comfortably

### Lesson 3 – Commissaire Uniform and Clothing

It is important to dress appropriately, keeping in mind that Mountain Bike Commissaires must be able to work comfortably in any weather. So, you should also bring the following:

- Spare clothing, including rain wear
- Comfortable, practical shoes
- A hat and gloves
- Sunscreen
- Water and snacks

Clothing should also be comfortable, neat, and appropriate. When choosing clothing, you should keep in mind that your clothing choice can be an effective tool to help you maintain the respect of the riders. Much of your authority as an official comes from maintaining a bit of distance from the riders; that is, being approachable and friendly, without being too familiar (the expression “familiarity breeds contempt” is surprisingly true). Clothing choice can do much to create the separation needed to do your job effectively.

The most important clothing item that you need when officiating is your Cycling BC Commissaire uniform.

The Commissaire uniform consists of both a short-sleeved button-up shirt and a vest. Either or both may be worn, depending upon the weather. Whichever you choose, it is important to wear your uniform when officiating, so that others can easily identify you as a Commissaire. The uniform brands you as one of the representatives of Cycling BC appointed to supervise the race.

Because the uniform identifies you as a Commissaire, it is also important that you do not wear it when you are not officiating; only those officials appointed as the Commissaires for the race can wear the uniform.

#### Lesson 3 – Points for Review and Performance Expectations

Following this course, you should be able to:

- Explain what extra items of clothing you should bring to each race, and why
- Describe when you should wear your Commissaire uniform and when you should not

## Lesson 4 – Forms and Paperwork

Finish Judging and Time Keeping are basically about logging data about the race. Race results are the output of the process of recording times and finish order, which is an exercise in producing and managing paperwork.

To be effective, the best Judges and Timekeepers are organized. Several standard forms are used to help with keeping data organized.

The forms that you will use most often are:

- Circuit race worksheet
- Timing log sheet
- Race results sheet

It is best to keep a supply of each of these forms; some printed on standard paper, others on loose-leaf waterproof paper if you can find it.

However, if you run out, they can be roughly created on a sheet of ruled paper. The important thing is that for every worksheet you use or create, you do the following:

- Label the top of every worksheet with:
  - The name of the race
  - The category
  - The distance or expected duration of the race (if known)
  - The time of day that the race actually started
  - The number of starters in the category (if known)
- On the bottom, write your name and the page number

Without the information listed above identifying each sheet, the data listed on the sheet is meaningless if the person reading it can't identify the race or category that it applies to.

Samples of the three forms mentioned above are available in the Commissaire section of the Cycling BC web site; you may print or photocopy them to use at races.

### Lesson 3 – Points for Review and Performance Expectations

Following this course, you should be able to:

- Identify the three forms that you need in order to work effectively as a Finish Judge or Timekeeper
- Describe the identifying information you should record on every worksheet that you produce, and why it is important to include it

## Module 4: Basic Timekeeping Principles

This section of the course describes the basics of time keeping. Topics include:

- Stopwatch operation
- Basic timing calculations
- Timing precision for each mountain bike discipline
- Whether to use elapsed time or time of day

### Lesson 1: Stopwatch Operation

One of the most important things a Commissaire can own is a digital stopwatch. A stopwatch is used to accurately measure the amount of time that has elapsed since the watch was started. This is known as “Elapsed Time”. Many digital stopwatches are also capable of storing times for later recall.

#### Difference between Elapsed Time and Time of Day

As noted above, “Elapsed Time” is the amount of time that has passed since the stopwatch was started. On the other hand, “Time of Day” is literally the time of day.

Most stopwatches use Elapsed Time, although some more expensive and feature-rich stopwatches can also record and store times in Time of Day format.

Elapsed Time can easily be converted to Time of Day; in order to do this, simply add the Elapsed Time to the Time of Day that the stopwatch was started. Similarly, two Time of Day values can be converted into an Elapsed Time by subtracted the earlier Time of Day from the later Time of Day.

For certain kinds of race such as Individual DH races (or other Time Trials), it is best to work in Time of Day. This is because the rider’s start times are given on the start list as a Time of Day.

#### Choosing a Stopwatch

There are many different types of stopwatches. Many wristwatches have a basic stopwatch function; also, there are many different types of handheld stopwatches, and even printing stopwatches that print a continuous log of all the times recorded by the watch. However the most useful sort of stopwatch for Mountain Bike Commissaires has the following features:

- Memory: The ability to store several times; the more times that can be stored, the better, however a useful watch should be able to store at least 30 times
- Recall: The ability to recall stored times while the watch is still running
- Display Resolution: The ability to display and record times accurate to the nearest 1/100 of a second. Choose your watch carefully however; the most basic watches have displays that can only show 1/10 or 1/100 of a second for the first hour of watch operation, after which the “hours” digit appears and shifts minutes and seconds over to cover the spot formerly occupied by 1/100’s of a second
- Watch Format: Very few wrist-watch style stopwatches are able to perform the functions listed above; however, there are many types of hand-held stopwatch that can do these things. However, a wrist-watch with a built-in stopwatch function can make a good backup watch

- Cost: Most handheld stopwatches with the features described above can be purchased inexpensively, usually for less than the honorarium you will earn at a single race. The cost of a basic stopwatch with these features should be between about \$35 and \$60

As you gain more experience as a Commissaire and work at more and more races, you may wish to eventually purchase a more advanced watch that can store 100 or even 300 times, or that can be connected to a printer. However, for most officials, such a watch is not needed.

### **Where to Buy a Stopwatch**

While sports department stores sell very basic stopwatches, they may not carry watches with the features described above. The best place find useful stopwatches in most cities are swimming and aquatics supply stores, or athletics / track and field supply stores. If your city does not have such a store, then you can buy stopwatches inexpensively on the internet.

Web sites that have stopwatches suitable for Commissaires include:

<http://www.jumpstartathletics.com/> (Canada – Edmonton)

<http://www.team-aquatic.com/> (Canada – North Vancouver)

<http://www.cei-ultrak.com/> (USA)

<http://www.stopwatchcentral.com/> (USA)

Less expensive models that have or exceed the features listed above include:

- EAI S-5500
- Seiko S056
- Robic SC-606W
- Accusplit AX602
- ULTRAK 495
- ULTRAK 485

These are just a few of the watches available which will meet your needs. Always be sure to look up the specification for any watch before you buy it to make sure that it has the features you need.

### **Basic Stopwatch Operation**

Despite the variety of stopwatches available, the design and button functions of most hand-held stopwatches are about the same.



In the picture above, the watch on the left is a more basic model, while the watch on the right has many more functions. However, the display and buttons are basically the same.

Most digital stopwatches behave as described immediately below; however, there are often minor differences in some functions depending upon how the watch was designed. You should read the instructions that come with your stopwatch and practice using it to become comfortable with its operation.

### ***Start / Stop Button***

The button on the top right side of each watch is the “Start / Stop” button. This button starts the watch; when pressed, the clock starts and begins counting up in increments of 1/100 of a second. If the watch is running, pressing the button again will stop the clock. Note however, that stopping the clock does not reset it to ‘0’ time. Instead, the Elapsed Time at which the clock was stopped remains displayed. At this

point, if you hit the Start / Stop button again, the clock will begin running from the time where it was stopped.

Care must be taken to avoid accidentally hitting the “Start / Stop” button during a competition; otherwise, the clock will stop running. Some watches come with a “Safety” cap that can be put over the “Start / Stop” button to prevent this from happening. More commonly, officials will start a backup watch at the same time as their primary watch in case this happens.

### ***Split / Reset Button***

The button on the top left side of each watch is the “Split / Reset” button. This button resets the watch to ‘0’ time if the watch is currently stopped. If the watch is running, then an intermediate time, sometimes called a “split” is recorded.

The time recorded when the “Split / Reset” button is pressed while the watch is running is the time that has elapsed since the watch was started.

If the watch has a memory, then the split time is recorded in the memory for future recall.

Pressing the “Split / Reset” button also changes the watch display. For watches that have multiple display lines as both of those pictured above do, then the most recently recorded split is displayed in the top line, while the main clock continues running on the bottom line. Less advanced watches with a single line display usually temporarily replace the Elapsed Time with the split time for 2 to 5 seconds, depending upon the watch. After this, the Elapsed Time is again displayed.

Both watches pictured above also assign a sequence number to each split, on the left hand side of the top line of the display. This allows you to see at a glance how many splits have been recorded. If the watch has a memory and a recall function, this also tells you the order in which the splits were recorded.

As you may have noticed, the watch on the right in the picture above has 3 display lines. The bottom line shows the running Elapsed Time. The top row shows the Elapsed Time at which the last split was taken. The middle row shows the difference in time between the last two splits; so for instance, if Split A was taken at 10 minutes 32 seconds and 57 / 100ths and Split B was taken at 11 m 47.60 s, then the middle line will display a “Lap” time of 1 m 15.03 s.

### ***Mode Button***

Both of the watches pictured above have “Mode” buttons. Pressing this button changes the operating mode of the watch. The mode used most often for Cycling events is usually called “Timer” or “Chrono”. Most stopwatches also have a mode that will display the current Time of Day.

The operation of the Mode button for the watch on the left is a bit different; this watch doesn’t have as many features as the one on the right. The watch on the left does have the ability to recall splits while the watch is running. But in order to access stored splits with this watch, the “Mode” button is used to enter “Recall” mode. The watch on the right does not have a “Recall” Mode, as it has a separate “Recall” button which can be used at any time.

### *Recall Button*

Most stopwatches that allow memory recall of stored splits while the watch is running have a “Recall” button. If this button is pressed, the most recently stored split is displayed, usually while the bottom line continues to display the current Elapsed Time. The recalled split is usually displayed for 2 or 3 seconds. Each time the “Recall” button is pressed again within this time window, causes the watch to recall splits in order from the most recently recorded back to the very first split recorded.

If you need to take another split while in Recall mode, simply press the “Split / Reset” button again; the watch will still be running.

As a final note, most watches store splits until the watch has been reset to ‘0’ time. Resetting the watch to ‘0’ time usually causes all stored times to be erased.

Also, if you collect more splits than the memory of your watch can handle, the watch will either stop storing new splits, or it will begin discarding splits, in the order that they were taken, beginning with the first split recorded. This behavior depends upon the design of your watch.

### *Printing Stopwatches*

As a Commissaire, you may at some point have the chance to work with a printing stopwatch. Printing stopwatches do basically the same thing as hand-held stopwatches. However, in addition to a printer, these watches usually have several extra features that handheld stopwatches do not. Some of these features are:

- The ability to accept inputs from remote plunger buttons, optical gates, or contact strips; when the watch receives a pulse from such a device, it records a split
- The ability to use, store, and calculate splits based on “Time of Day” formatted times instead of Elapsed Time
- The ability for the operator to manually input riders’ race numbers and associate them with split times so that the time record reflects the riders identification numbers
- The ability to output times to a digital display clock
- The ability to run on either rechargeable batteries or AC power

While you will not need features like these for most Commissaire tasks, it is important that you are aware of the capabilities of such stopwatches, particularly if you end up working with a timing company.

If you must use a printing stopwatch, be sure to read the manual for the watch before use. The buttons and display found on printing stopwatches are usually quite different from most handheld models.

Also, if you are going to use such a watch, you should have a supply of paper for the printer and know how to reload the paper supply. Most modern printing stopwatches use rolls of thermal paper; the orientation of the paper is important, as only one side of the paper is chemically treated to work with the printer.



An ALGE Timy printing stopwatch is pictured above. It is one of the most common types of printing stopwatch in use.

### Stopwatch Batteries

Most handheld stopwatches use wristwatch batteries, usually either of the CR2016 or CR2032 sizes. These batteries usually have the capacity to last for a full season of use, assuming that they are fresh. As a result, you should make a habit of changing your stopwatch batteries a week or two before your first race of the season.

Most printing stopwatches use rechargeable batteries and draw much more power; as a result, they should be recharged before every use. Better still, if AC power is available, such watches should be plugged in during use with the batteries available as a backup in case of a power interruption.

### How to Synchronize Two or more Stopwatches

When working with other Commissaires, you often need to synchronize your wristwatch and stopwatches with them, so that everyone is operating on the same time.

Whether you are using Elapsed Time or Time of Day, the method used to synchronize watches is the same.

1. Everyone who is going to synchronize a watch stops their watch and resets it to '0' time (if Elapsed Time is being used) or to the standard Time of Day that will be used

2. One of the people looking at a watch that can display seconds begins a count-down 5 seconds before the synchronization is to occur
3. The count-down is done in time with seconds of the running watch; it helps if the countdown is done with a deliberate rhythm. In order to give a visual cue, it also helps for the person giving the count-down to dip their hand or shake a finger in time with the count-down.
4. Countdown: 5, 4, 3, 2, 1, Now
5. When the person giving the count-down says “Now”, everybody starts their watch
6. The person continues to count upwards from ‘0’ time for a few seconds so that everyone can see that their watch was correctly synchronized and is displaying the common time
7. In case someone missed a beat and is out of synch with the other watches, the process can be repeated. If there isn’t enough time to repeat the process, then that person can re-synchronize their own watch with one of the correct watches a few minutes later. If synchronizing watches for Elapsed Time, however, they must make note that their watch will be several minutes behind the other watches, and take account of that fact when recording times
8. If synchronizing watches to use elapsed time, watch synchronization is usually best done within 20 or so minutes of the start of a race. It is helpful if it is done at an easy multiple of minutes before the start (say 5, 10, or 15 minutes), as this extra time gap will have to later be subtracted from recorded times

You should always keep your wristwatch synchronized to a standard clock, and confirm that it is still synchronized before you leave for the race. The official time of day for a race is the time of day for the time zone where the race is held. You can find out the current time of day for your time zone on the internet, at this web site: [http://time5.nrc.ca/webclock\\_e.shtml](http://time5.nrc.ca/webclock_e.shtml)

### **Lesson 1 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Explain the difference between Elapsed Time and Time of Day
- Explain the function of the 3 common handheld stopwatch buttons
- Describe how often you should change your stopwatch batteries
- Describe some features of most printing stopwatches
- Explain how to synchronize two or more stopwatches

### **Lesson 2: Basic Calculations with Times**

As a timekeeper, you need to know how to do some basic mathematical operations on times. Often, you will be able to use a calculator, or computer software such as Microsoft Excel to perform such calculations automatically. However, you should still know how to do these calculations manually in case a computer or calculator is not available.

Also, knowing how to calculate times will give you the ability to see at a glance whether or not the times reported in race results are reasonable – a form of error checking. It will also help you to avoid making mistakes when calculating times, even when using a computer.

### Common Notation for Recording Times

It is important that you know how to write down and read times. There are several ways to do this; it doesn't matter which you use, as long as you use it consistently.

Times collected at races typically span a period of several hours. So, the most significant field in a time is the "hours" field. The next most significant is "minutes", followed by "seconds", then tenths of seconds, hundredths of seconds, thousandths of seconds, and so on.

Times are always report from left to right, with the most significant field (hours) to the far left, and the least significant (seconds, or fractions of seconds) on the far right.

Hours may be represented with a small 'h', minutes may be represented with a small 'm' or a ' mark, seconds may be represented with an 's' or a " mark. Usually, a decimal point is used to separate seconds from fractions of seconds, however, sometimes fraction notation is used. Also, sometimes the individual segments that make up a time are not labeled as above; sometimes they are only separated with a colon ':':

Examples of ways to write times (in this example, 2 hours, 37 minutes, 54 seconds, 304 thousandths):

- 2h 37m 54.304s
- 2h 37' 54.304"
- 2 : 37 : 54.304
- 02 : 37 : 54.304
- 2h 37m 54s 304/1000

All of the above examples are valid ways of recording times.

### Adding Times

The method for adding numbers that you learned in school is fairly simple; let's review it now.

Similar to times, regular numbers are also constructed from left to right, with the most significant digit on the far left, and the least significant digit on the far right. For example, the number 3,072 has 3 in the "thousands" place on the left, 0 in the "hundreds" place, 7 in the "tens" place, and 2 in the "ones" place. The number 4,969 is similarly constructed (4 in thousands, 9 in hundreds, 6 in tens, and 9 in ones).

To add these two numbers together, you place one over the other, making sure that the "ones" place for both numbers lines up, as follows:

$$\begin{array}{r} 3072 \\ +4969 \\ \hline \end{array}$$

We then start from the right side and add together all of the numbers in the “ones” column. In this case, 2 and 9; if the result of this addition is 10 or greater (in this case 2 and 9 are 11), we keep the remainder which is 1 below (11 minus 10 gives a remainder of 1), and then we carry the digit in the “tens” place of 2 + 9, which is 1, over to the “tens” column as follows:

$$\begin{array}{r}
 1 \\
 3072 \\
 +4969 \\
 \hline
 1
 \end{array}$$

Next, we repeat this process for the numbers in the “tens” column. In this example, 1 + 7 + 6 gives us 14. So, 14 minus 10 gives us a remainder of 4, which is put in the “tens” column of the answer, and the 1 is carried, as below:

$$\begin{array}{r}
 11 \\
 3072 \\
 +4969 \\
 \hline
 41
 \end{array}$$

Next, we again repeat this process for the numbers in the “hundreds” column. In this example, 1 + 0 + 9 gives us 10. To get our remainder, 10 minus 10 is 0; so the remainder of 0 is recorded in the “hundreds” column of the answer, and the 1 is carried as below:

$$\begin{array}{r}
 111 \\
 3072 \\
 +4969 \\
 \hline
 041
 \end{array}$$

And finally, we complete the addition in the “thousands” column. In this example, 1 + 3 + 4 gives us 8, as below:

$$\begin{array}{r}
 111 \\
 3072 \\
 +4969 \\
 \hline
 8041
 \end{array}$$

The process used to add two or more times together is almost exactly the same. Consider this example:

Add two times: 3h 47m 33.81s and 2h 25m 50.32s. So, we set up for our addition as above:

$$\begin{array}{r}
 3\text{h } 47\text{m } 33 . 81\text{s} \\
 +2\text{h } 25\text{m } 50 . 32\text{s} \\
 \hline
 \end{array}$$

The main difference between adding two numbers and two times, is when carrying. In order to make carrying easier, think of a time as having 4 segments, or fields: hours, minutes, seconds, and fractions of seconds. When doing the addition, do the addition for an entire segment at once, and then carry over to the next segment, if necessary.

So, starting at the right with the hundredths of seconds,  $81/100 + 32/100 = 113/100$ , which is more than 1 second... there are only 100 hundredths of a second in 1 second, so we must carry. To carry, first figure out the number of hundredths in excess of 1 second:  $113/100 - 100/100 = 13/100$ ; so as with the addition above, we put the remainder (13 hundredths of a second) in the hundredths field of the answer, and carry 1 second over to the seconds field.

$$\begin{array}{r}
 \phantom{3\text{h } 47\text{m } 33 . } 1\text{s} \\
 3\text{h } 47\text{m } 33 . 81\text{s} \\
 +2\text{h } 25\text{m } 50 . 32\text{s} \\
 \hline
 \phantom{3\text{h } 47\text{m } 33 . } . 13\text{s}
 \end{array}$$

Now we must be careful; as you know, seconds, minutes and hours are each divided into 60 equal parts. This is different from the tenths, hundredths, and thousandths of seconds, which are each divided into only 10, 100, and 1000 equal parts, each. This means that we need a different strategy when carrying with the seconds and minutes part of a time.

Because of this, when carrying from seconds to minutes, we must carry if the sum of the seconds column is 60 or greater.

In our example, below, we add 1 second (carried from the fractions of seconds field), 33 seconds, and 50 seconds together;  $1\text{s} + 33\text{s} + 50\text{s} = 84\text{s}$ . Since the result is more than 60 seconds, we have to carry over to the "minutes" field. The process is the same as above when dealing with fractions of seconds; we carry 1 minute over to the "minutes" field, and leave the number of seconds in excess of 1 minute below in the seconds field of the answer. This remainder is:  $84\text{s} - 60\text{s} = 24\text{s}$ ; intuitively, this makes sense... 84 seconds is the same as 1 minute and 24 seconds.

$$\begin{array}{r}
 \phantom{3\text{h } 47\text{m } 33 . } 1\text{m } 1\text{s} \\
 3\text{h } 47\text{m } 33 . 81\text{s} \\
 +2\text{h } 25\text{m } 50 . 32\text{s} \\
 \hline
 \phantom{3\text{h } 47\text{m } 33 . } 24 . 13\text{s}
 \end{array}$$

We then repeat the process with the “minutes” fields. Again, as was done above with the “seconds” field,  $1m + 47m + 25m = 73m$ . Since 73 minutes is more than 1 hour, we have to carry 1 hour over to the “hours” field, and leave the portion remaining below in the “minutes” field of the answer. So,  $73m - 60m = 13m$ ; again, this intuitively makes sense... 73 minutes is the same as 1 hour and 13 minutes.

$$\begin{array}{r}
 1h \quad 1m \quad 1s \\
 3h \quad 47m \quad 33 \quad . \quad 81s \\
 +2h \quad 25m \quad 50 \quad . \quad 32s \\
 \hline
 13m \quad 24 \quad . \quad 13s
 \end{array}$$

Finally, to complete the addition, the hours fields are added together;  $1h + 3h + 2h = 6h$ ; this result is recorded below in the answer field.

$$\begin{array}{r}
 1h \quad 1m \quad 1s \\
 3h \quad 47m \quad 33 \quad . \quad 81s \\
 +2h \quad 25m \quad 50 \quad . \quad 32s \\
 \hline
 1h \quad 13m \quad 24 \quad . \quad 13s
 \end{array}$$

To see if you have the hang of it, try adding these two times: 5h 44m 34.604s and 4h 57m 20.455s. The answer is 10h 41m 55.059s; see if you can use the method described above to get this answer.

### Subtracting Times

Being able to subtract one time from another is an important skill; this is the method used to convert Time of Day to Elapsed Time.

Subtraction is the opposite of addition. So, it is not surprising that the method used to subtract two numbers is nearly the opposite to that of adding them. We will use the numbers in our first example for addition above, 3072 and 4969, to demonstrate subtraction.

$$\begin{array}{r}
 4969 \\
 -3072 \\
 \hline
 \end{array}$$

As with addition, we work from left to right. So, begin by subtracting the least significant digits. In this example, these are the numbers in the “ones” column, 9 and 2. As you know, 9 minus 2 equals 7, which is recorded in the “ones” column of the answer.

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$$\begin{array}{r}
 4969 \\
 -3072 \\
 \hline
 7
 \end{array}$$

We then move on to the next most significant digits; the numbers in the “tens” column, which are 6 and 7. But this presents us with a problem; you can’t subtract 7 from 6; 6 is less than 7. So, we must “borrow” from the neighboring “hundreds” column in order to create a number in the top row of the “tens” column that is large enough to allow for the subtraction. So we borrow 10 from the hundreds column, to turn 6 into 16; we then subtract 7 from 16 to get 9, which is recorded in the “tens” column of the answer, as below. Notice that borrowing 10 from the “hundreds” column means we have to reduce the number in the hundreds column by 1; so 9 is struck out, and replaced with 8.

$$\begin{array}{r}
 8 \\
 4 \overset{\ominus}{\cancel{9}} (16) 9 \\
 -3 0 \quad 7 2 \\
 \hline
 9 7
 \end{array}$$

We can then move on to the “hundreds” column; 8 minus 0 equals 8, which is recorded in the “hundreds” column of the answer, as below.

$$\begin{array}{r}
 8 \\
 4 \overset{\ominus}{\cancel{9}} (16) 9 \\
 -3 0 \quad 7 2 \\
 \hline
 8 9 7
 \end{array}$$

Finally, the subtraction is completed with the “thousands” column; 4 minus 3 equals 1, which is placed in the “thousands” column of the answer, as below.

$$\begin{array}{r}
 8 \\
 4 \overset{\ominus}{\cancel{9}} (16) 9 \\
 -3 0 \quad 7 2 \\
 \hline
 1 8 9 7
 \end{array}$$

Subtracting one time from another is nearly the same as the method that is shown above for subtracting two numbers. The method will be demonstrated by subtracting 13h 38m 50.32s (a time of day) from 13h 41m 33.21s (another time of day) to determine the amount of time that has elapsed between them. The subtraction is first set up the same as with the two numbers in the example above:

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$$\begin{array}{r}
 13\text{h } 41\text{m } 33.21\text{s} \\
 -13\text{h } 38\text{m } 50.32\text{s} \\
 \hline
 \end{array}$$

As with adding times, it is also easiest to deal with complete segments (hours, minutes, seconds, and fractions of seconds) of the times when subtracting them.

So, we start with the fractions of a second; 21/100s minus 32/100s. Since 21/100s is less than 32/100s, we need to borrow 1 second from the “seconds” field. To do this, we add 1 second, or 100 hundredths (100/100) of a second to 21 hundredths of a second so that we have a number big enough to allow the subtraction;  $100/100\text{s} + 21/100\text{s} = 121/100\text{s}$ . Now, the subtraction of the hundredths of a second field can happen;  $121/100\text{s} - 32/100\text{s} = 89/100\text{s}$ . This result is placed in the hundredths field of the answer.

$$\begin{array}{r}
 \phantom{13\text{h } 41\text{m }} 32 \\
 13\text{h } 41\text{m } ~~33~~. (121) \text{s} \\
 -13\text{h } 38\text{m } 50. \phantom{00} 32 \text{s} \\
 \hline
 \phantom{13\text{h } 41\text{m }} \phantom{00} 89 \text{s}
 \end{array}$$

Next, we repeat the process for the “seconds” field. Because we borrowed 1 second in order to complete the subtraction in the hundredths of a second field, we are now subtracting 50 seconds from 32 seconds. So, we must borrow again. To do this, we borrow 1 minute (60 seconds) from the “minutes” field; the borrowed 60 seconds are added to the 32 seconds in the top row of the “seconds” field, in order to create a number big enough to allow for the subtraction;  $60\text{s} + 32\text{s} = 92\text{s}$ . So we can now complete the subtraction for the “seconds” field. This  $92\text{s} - 50\text{s} = 42\text{s}$ ; this is recorded in the “seconds” field of the answer, below.

$$\begin{array}{r}
 \phantom{13\text{h } } 40\text{m} (92) \\
 13\text{h } ~~41\text{m } 33~~. (121) \text{s} \\
 -13\text{h } 38\text{m } 50. \phantom{00} 32 \text{s} \\
 \hline
 \phantom{13\text{h } } \phantom{00} 42. \phantom{00} 89 \text{s}
 \end{array}$$

Next, we repeat the process for the “minutes” field. Again, we deal with the entire “minutes” field as a unit. Since a minute had to be borrowed to complete the subtraction in the “seconds” column, we are now subtracting 38 minutes from 40 minutes; as 40 is great than 38, no further borrowing is necessary. Subtracting the minutes,  $40\text{m} - 38\text{m} = 2\text{m}$ ; this is recorded in the “minutes” field of the answer.

$$\begin{array}{r}
 \phantom{13\text{h } } 40\text{m} (92) \\
 13\text{h } ~~41\text{m } 33~~. (121) \text{s} \\
 -13\text{h } 38\text{m } 50. \phantom{00} 32 \text{s} \\
 \hline
 \phantom{13\text{h } } 02\text{m } 42. \phantom{00} 89 \text{s}
 \end{array}$$

Finally, the numbers in the “hours” column are subtracted; 13 minus 13 gives 0 hours, which is recorded in the “hours” column of the answer.

$$\begin{array}{r}
 40\text{m } (92) \\
 13\text{h } \cancel{44\text{m}} \cancel{33} \cdot (121) \text{ s} \\
 -13\text{h } 38\text{m } 50 \cdot 32 \text{ s} \\
 \hline
 0\text{h } 02\text{m } 42 \cdot 89 \text{ s}
 \end{array}$$

Therefore, the time that has elapsed is 2m 42.89s.

To see if you have the hang of it, try subtracting these two times: 4h 57m 20.455s from 5h 44m 34.604s. The answer is 47m 14.149s; see if you can use the method described above to get this answer.

### Converting Hours, Minutes and Seconds to Hours and Fractions of Hours (Decimal Format)

When you are trying to calculate average speed, or distance travelled, you need to be able to express times as a number of hours and fractions of hours.

This is easy to do, as follows:

1. Divide the seconds by 60 in order to get fractions of minutes
2. Add the fractions of minutes to the number of minutes in the time
3. Divide the minutes and fractions of minutes by 60 in order to get fractions of hours
4. Add the fraction of an hour to the hours in the time

Using an example of 11h 27m 35.51s:

1.  $35.51\text{s} / 60\text{s} = 0.59\text{m}$
2.  $27\text{m} + 0.59\text{m} = 27.59\text{m}$
3.  $27.59\text{m} / 60\text{m} = 0.46\text{h}$
4.  $11\text{h} + 0.46\text{h} = 11.46\text{h}$

So, 11h 27m 35.51s is 11.46 hours.

To convert a time from hours and fractions of hours to hours, minutes, and seconds, do the following:

1. To get the number of minutes, separate the fractions of hours from the hours, and multiply it by 60 minutes
2. To get the number of seconds, separate the fractions of minutes from step one from the minutes, and multiply it by 60 seconds
3. How, re-assemble the hours, minutes, seconds, and fractions of seconds into hours, minutes, and seconds format

Using the example of 11.46 hours from above:

1.  $0.46 \times 60\text{m} = 27.6\text{m}$
2.  $0.6 \times 60\text{s} = 36\text{s}$
3.  $11.46 \text{ hours} = 11\text{h } 27\text{m } 36\text{s}$

Notice the result is not exactly 11h 27m 35.51s, from the original example; this is simply because some rounding was done during the original calculation which converted it to 11.46 hours. As a result, converting 11.46 hours back to hours, minutes and seconds format produced a time slightly less precise.

### Calculating a Percentage of a Time

For some kinds of races, you need to be able to calculate a percentage of a time. For example, if the leading rider completed a lap in 25m 42s, you might need to calculate the number of minutes and seconds in 80% of the leader's lap time.

In order to calculate a percentage of a time, do the following:

1. If the time is less than 1 hour, convert the time to a number of minutes and fractions of minutes; if the time is 1 hour or greater, convert the time to a number of hours and fractions of hours
2. Once you have converted the time to a number of minutes or hours, whichever the case may be, take the percentage
3. Once you have calculated the percentage, convert the percentage time back hours, minutes, and seconds, or minutes, and seconds, whichever the case may be

For example: Find 80% of 25m 42s

1.  $42\text{s} / 60\text{s} = 0.7\text{m}$ , so we have 25.7m
2.  $80\% \text{ of } 25.7\text{m} = 25.7 \times 0.8 = 20.56\text{m}$
3.  $0.56\text{m} = 0.56 \times 60\text{s} = 33.6\text{s}$ ; so 20m 33.6s

So, 80% of 26m 42s is 20m 33.6s

Practical Example: The Commissaires have determined that the time cut for the current stage of a stage race will be 9% of the winner's time; that is, any riders who finish farther behind the leader than 9% of his time, are eliminated. If the stage winner finished in 5h 17m 52s, how many hours, minutes and seconds do the remaining riders have to finish before facing elimination?

So, we must find 9% of 5h 17m 52s

1. Convert seconds to fractions of minutes  $52\text{s} / 60\text{s} = 0.87\text{m}$
2. Convert minutes to fractions of hours  $17.87\text{m} / 60 = 0.30\text{h}$
3. So, 5h 17m 52s is 5.3 h
4. Find 9% of 5.30h =  $5.3\text{h} \times 0.09 = 0.477\text{h}$
5. Convert 0.477h back to hours and minutes;  $0.477 \times 60\text{m} = 28.62\text{m}$
6. Convert 0.62sm back to seconds;  $0.62 \times 60\text{s} = 37.2\text{s}$
7. So,  $0.477\text{h} = 0\text{h } 28\text{m } 38\text{s}$  (rounded from 37.2)

So, the time cut is 28m 38s. To find the time after which riders are eliminated, now add the stage winner's time 5h 17m 52s and the time cut of 0h 28m 38s. This gives a time of 5h 46m 30s.

So any riders who finish after an elapsed time of 5h 46m 30s are eliminated from the race.

### Calculate Average Speed

Sometimes, as a timekeeper, you may be called upon to calculate the average speed of a race.

Using the earlier example of a stage race in which the winner of a stage had a finishing time of 5h 17m 52s, let us calculate the average speed of the stage winner assuming that the stage was 112 km long.

Before we begin, you need to know the relationship between speed and time.

$$\text{Speed} = \text{Distance} / \text{Time, or } S = D / T$$

Since speed is usually given in kilometers per hour, we must first convert the time to a number of hours and fractions of hours, as in the example above. Without repeating this calculation, 5h 17m 52s is 5.3h.

Therefore, the average speed over a distance of 110 km is:

$$S = 110 \text{ km} / 5.3\text{h} = 20.75 \text{ km} / \text{h}$$

So, the average speed of the stage was 20.75 km/h.

### Predict the Finish Time Given a Distance and Average Speed

Sometimes once a race has begun, you will be asked to calculate an estimate finish time based on the average speed of the first part of the race. Of course, this prediction will be more accurate for races that take place over multiple laps of a circuit, as the average speed is more likely to remain constant than it is for a point-to-point race.

In order to solve this problem, the relationship between Speed and Time is still used, but is re-arranged in order to find Time, instead of speed. Recall from above that Speed = Distance / Time or  $S = D / T$ .

In this case, we want to find Time (T) instead of Speed (S). So:

$$\text{Time} = \text{Distance} / \text{Speed, or } T = D / S$$

Practical Example:

An Olympic Format Cross Country race is to be run over 7 laps of a 5.2km course. The average speed of the race leader in lap 1 was 18.7 km / h, in lap 2 it was 18.2 km /h, and in lap 3 it was 18.3 km / h. If the race began at 1:00 PM, predict the finish time of the winner.

First, you need to find the average speed of the race leader over the first 3 laps. This is done simply, by computing the mathematical average of the 3 speeds. This is done as follows:

$$18.7 \text{ km/h} + 18.2 \text{ km/h} + 18.3 \text{ km/h} = 55.2 \text{ km/h}$$

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$$55.2 \text{ km/h} / 3 = 18.4 \text{ km/h}$$

So, the average speed over the first 3 laps of the race is 18.4 km/h

Second, you need to calculate the total distance over which the race is run. The race is 7 laps of 5.2 km each, therefore:

$$7 \times 5.2 \text{ km} = 36.4 \text{ km}$$

So, the race is run over a total distance of 36.4 km

Now, using the relationship between Speed and Time, you can compute the estimated elapsed time of the race:

$$\text{Time} = \text{Distance} / \text{Speed}$$

$$\text{Time} = 36.4 \text{ km} / 18.4 \text{ km/h}$$

$$\text{Time} = 1.97 \text{ h}$$

Third, convert hours and fractions of hours back to hours, minutes, and seconds format:

$$0.97\text{h} = 0.97 \times 60\text{m}$$

$$0.97\text{h} = 58.2 \text{ m}$$

Now, convert 0.2 minutes into seconds and fractions of seconds:

$$0.2\text{m} = 0.2 \times 60\text{s}$$

$$0.2\text{m} = 12.0\text{s}$$

Now, re-assemble the time:

$$1.97 \text{ h} = 1\text{h } 58\text{m } 12\text{s}$$

So, estimated elapsed time of the race will be 1h 58m 12s.

Finally, add the estimated Elapsed Time to the Time of Day that the race started.

Given that the race started at 1:00 PM, this means with an expected elapsed time of 1h 58m 12s, the race winner will probably finish at around 2:58 pm.

## Lesson 2 – Points for Review and Performance Expectations

Following this course, you should be able to:

- Describe several different notations for recording times
- Explain how to add times
- Explain how to subtract times
- Explain how to convert times in hours, minutes, and seconds format to hours and fractions of hours (decimal format)
- Explain how to find a percentage of a time
- Explain how to calculate an average speed given time and distance
- Explain how to calculate an estimated time given average speed and distance

## Lesson 3: Time Precision

Using the methods described above, you can calculate times to any level of precision – to the nearest second, tenth of a second, hundredth of a second, thousandth of a second, or beyond.

However, it is important to realize that times need only be reported to a useful degree of precision. For a cross-country race, while it may be possible to calculate a time to the nearest thousandth of a second, it is not necessary.

### Rulebook Review – Time Precision by Discipline

Part I, “General Organization of Cycling as a Sport” of the UCI regulations defines the time precision that must be reported in the race results for each discipline. Articles 1.2.106 and 1.2.107 apply.

As defined by the regulations, times are taken to the nearest thousandth of a second in Mountain Bike Downhill races, and to at least the nearest second for other races.

For bunch races, such as Cross Country races, when 2 or more riders finish in a group, they are given the same time (a new time is only given if there is more than 1 second separating the riders); as a result, times for bunch races need only be reported to the nearest second. As you will see later in this manual, the results of bunch races are determined by the order the riders cross the finish line. While time is part of the result for such races, it does not determine the result; finish order does.

However, for individual races like Downhill races, or other time trials Finish Time is used to determine the result; therefore, greater time precision is needed.

## Lesson 3 – Points for Review and Performance Expectations

Following this course, you should be able to:

- Describe the time precision required for Downhill Races
- Describe the time precision required for other types of Mountain Bike races
- Explain why when two riders finish together in a bunch race, they’re given the same time

## Module 5: Preparing to Give the Start or Record the Finish Order

This section of the course deals with the physical setup of the Start area and Finish area at a race. Also, it describes where you should stand in order to give the start, record times, or record the finish order.

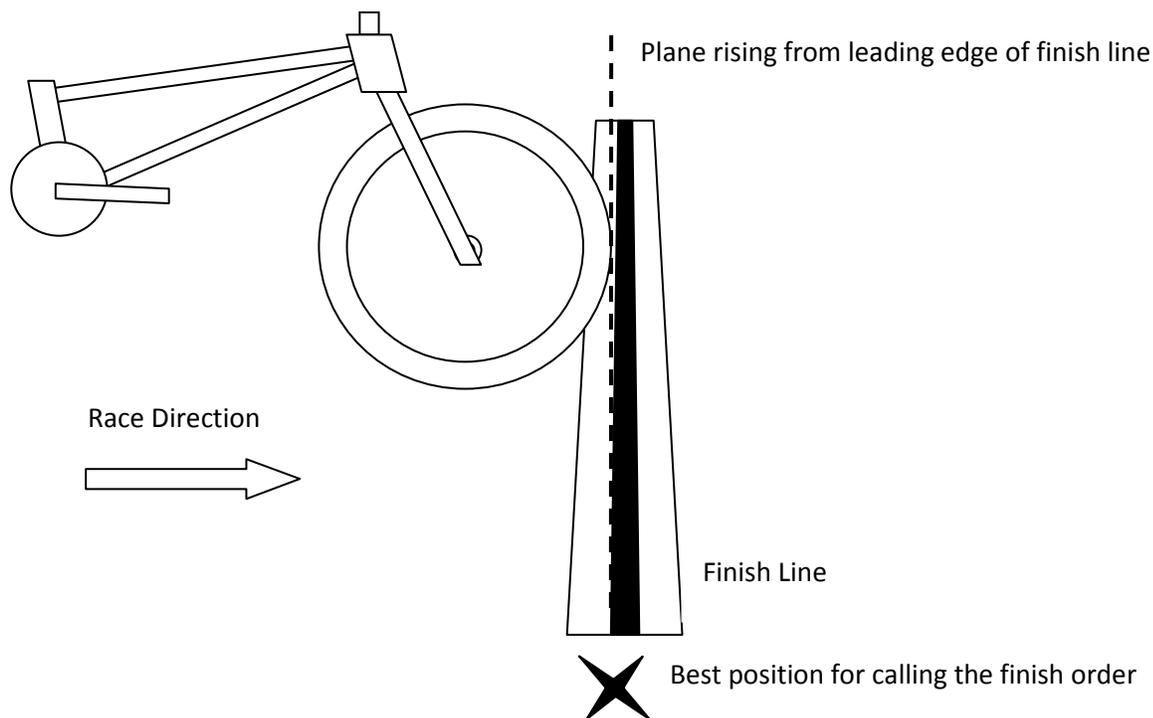
### Lesson 1: Preparing to Record Times or the Judge the Finish

Before you can record times or judge the finish, there are two things you need to know. First, you need to know at exactly which point when a rider crosses the finish line they are considered to have finished. Second, you need to know the best place to stand to accurately judge the finish.

#### Rulebook Review - The Finish

Part I, "General Organization of Cycling as a Sport" of the UCI regulations defines when the finish occurs. Article 1.2.100 applies.

As pictured in the diagram below, the finish occurs the moment that the front tire cuts the plane rising from the leading edge of the finish line. By extension, whether the bicycle is ridden, pushed, or carried, this means that the rider must have their bicycle with them in order to be considered as having finished.



Also, as pictured in the diagram above, the correct place to stand in order to accurately judge the finish, or record times is next to the finish line. The farther you stand away from the finish line, the greater the chance that you might call a close sprint incorrectly.

### **Lesson 1 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Describe the when the finish has occurred
- Describe the best place to stand relative to the finish line to accurate record times or the finish order

### **Lesson 2 – Finish Area Setup**

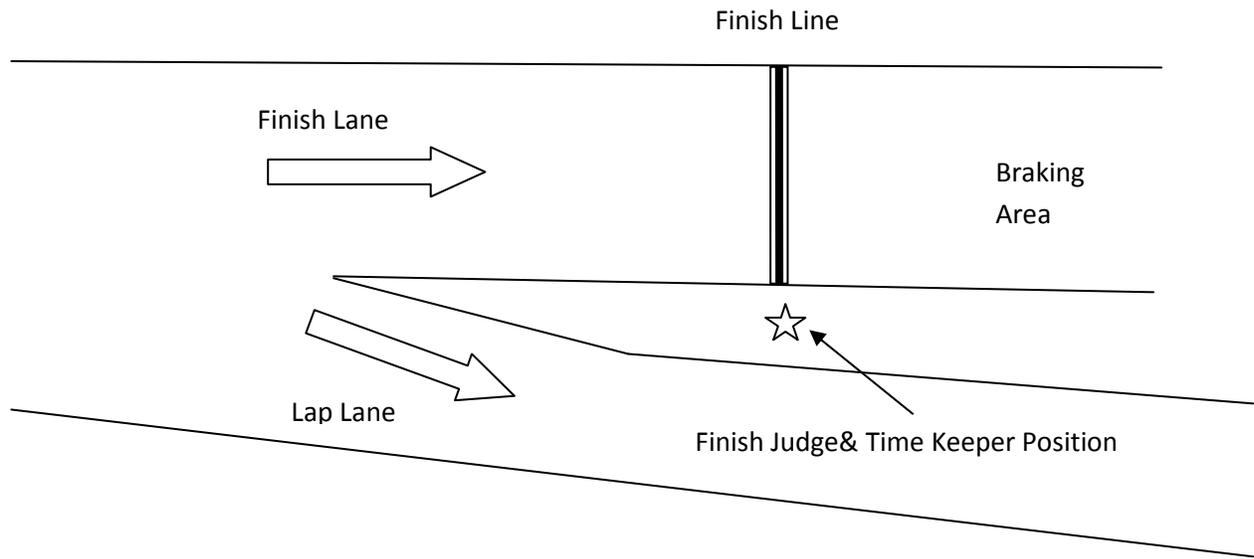
If you are working as the Finish Judge, you are partly responsible to make sure that the race organizer has provided a good enough finish area. The basic elements of an effective finish area are:

1. There must be a finish line; this is important for both the Commissaires and the riders
2. For races that are run over multiple laps of a circuit, the finish line is sometimes separated from the path that the riders take to begin another lap of the course. If this is the case, signs, marking tape and / or fencing must be used to make the choice of the Finish Lane or Lap Lane obvious
3. Make sure that the finish line is positioned part way down a fairly flat (or very slightly uphill) straight section of course that is wide enough for the number of riders in the race. The finish should never be immediately after a sharp corner and it should be fairly smooth; at least smooth enough that the terrain is unlikely to cause a crash
4. Make sure that there is enough braking space after the finish line. Usually more is needed for DH races than for XC races
5. Visibility: If the finish is in an area where you can't see riders coming much in advance of the finish line, then ask the Race Organizer to supply a volunteer to stand 10 to 20 metres before the finish line and call the numbers of the riders as they approach the line
6. Shelter and Services: If electronic timing is used, a power source is needed. Also, because Mountain Bike races usually are run regardless of the weather, the organizer should be asked to provide a tent

### **Rulebook Review – Finish Area Specifications**

Part IV, “Mountain Bike Races” of the UCI regulations gives specific dimensions concerning the setup of the finish area for each Discipline. Articles 4.1.043, 4.2.030 – 4.2.032, 4.3.010 – 4.3.011 apply. Article 1.2.099 of Part I, “General Organization of Cycling as a Sport” defines the actual dimensions of the finish line itself.

The dimensions described in the UCI regulations are intended for International Mountain Bike Events. However, these dimensions should be respected as much as possible even at provincial races, particularly if there are large numbers of riders.



Example: Effective XC Finish Line Setup

### Lesson 2 – Points for Review and Performance Expectations

Following this course, you should be able to:

- Describe the basic elements of an effective finish area
- Describe the dimensions of finish areas as specified by the UCI regulations

### Lesson 3: Staging and Start Area Setup

It is also important to understand the basics of an effective staging and start area setup.

Any Start Area has to allow for two activities. They are:

- Race staging; staging is the process of assembling the riders in the correct order so that the race can be started
- Starting the race

For XC races enough space is needed to assemble a large group of riders in the correct order. Also, the first few hundred metres of the course after the start line must be continue to be quite wide before narrowing to give the bunch of riders a chance to thin out.

For DH races, less space is needed; usually no more than 5 to 10 riders are lined-up waiting to start. Also, as only a single rider starts at a time, the start does not need to be nearly as wide as for XC races.

### Staging Area for XC Races

For XC races with more than a few riders, it is important to have a well organized staging area. The staging area has two purposes:

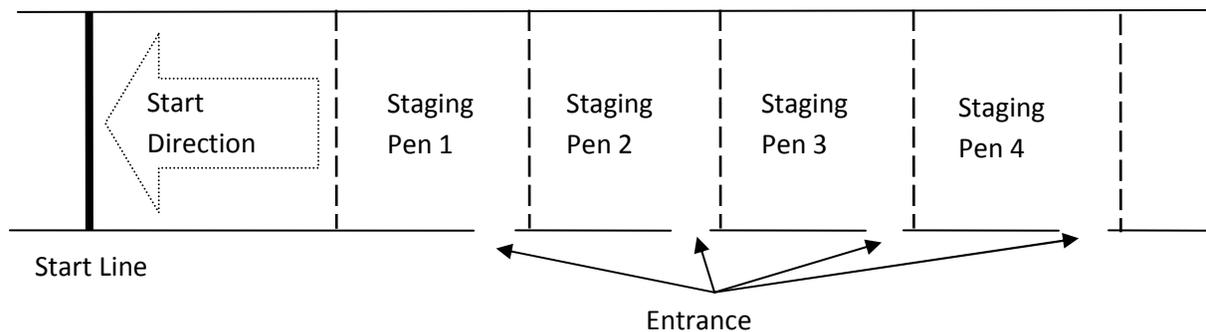
- To assemble groups of riders in the order that they will start the race
- To allow the Commissaires to take attendance so that they know exactly which riders have started the race

For provincial XC races, usually several categories start the race either at the same time, or 1 or 2 minutes apart. Therefore, each category has to be staged together in the same place in the order that they are to start the race.

Usually, the staging area is divided up into a number of “staging pens”. Each category in the race is assigned a pen; the organizer usually creates signs which tell riders which pen they need to enter before the race begins.

For small races, the staging pens can be as simple as a sign-post stuck in the ground, or simply the area around that Commissaire who is taking attendance for that category. However, for larger races, it is better if pens are constructed from posts and marking tape, or sections of temporary fencing. This allows the Commissaires to control access to the pens, which makes it easier to take attendance before the race begins.

The diagram found below shows the typical setup for the XC staging and start area.



Example of XC Start and Staging Area

### Staging and Start Area for DH Races

The staging and start area for a DH race is usually quite a bit smaller than for XC. Since most DH events are individual races, the start line need only be wide enough for a single rider to begin the race.

Also, since the start interval can range from 30 seconds to 3 minutes, very little space is needed for staging; usually only enough space for 5 to 10 riders to line up behind the rider who is about to start.

Three things that are often overlooked at a downhill start are:

- Shelter: As much as the start and staging area as possible should be covered by tents. This makes it easier for the timers and Commissaires to do their work, and also greatly improves conditions for the riders
- Toilets: While DH races at ski areas often have washrooms at the top of the hill, other venues often do not, meaning that the organizer should arrange to have at least one portable toilet brought in, if possible
- An assembly and warm-up area: Since the method used to shuttle riders to the top of the hill might be inefficient, there should be enough space around the start for a large group of riders to gather and wait for their race to start

### Staging and Start Area for 4X and DS Races

The staging and start area for 4X and DS races is similar to that for DH races; the main difference is that since between 2 and 4 riders will be starting the race at once, the start has to be wide enough to safely allow this.

Also, for all but the most basic races, a BMX-style starting gate is used; this ensures that there are no false starts and that all riders begin at the same time.

The same 3 things often overlooked at the start of DH races should also be supplied for 4X and DS races.

#### Rulebook Review –Start Area Specifications

Part IV, “Mountain Bike Races” of the UCI regulations gives specific dimensions concerning the setup of the start area for each Discipline. Articles 4.1.043, 4.2.029, 4.2.031, and 4.3.010 apply.

### Positioning of the Start Judge

For all races, the Start Judge must be positioned at the start line. For XC races, the Start Judge also usually helps with rider call-up (if it’s done) and staging. But once this is finished and the race is about to begin, the starter moves to the start line to give the start procedure and supervise the start of the race.

For DH races, the Start Judge has an assistant, usually the Assistant Chief Commissaire, to take care of rider staging. For these races, the starter is always at the start line continuously performing the start procedure for each rider.

### Lesson 3 – Points for Review and Performance Expectations

Following this course, you should be able to:

- Define the term “Race Staging”
- Describe the basic layout of a XC start and staging area
- Describe the basic layout of a DH start and staging area
- Describe the basic layout of a 4X / DS start and staging area
- Explain where the Start Judge is positioned

## Module 6: Starting the Race

This section of the course deals with the procedures used to start Mountain Bike races. Samples of start lists for each type of race are also presented.

### Lesson 1: XC Race Staging and Start Procedures

The race staging and start procedure for Cross Country races is well defined by the UCI Mountain Bike rules. For most races, this can be split into three sections:

- Staging
- Call-up
- The Start

#### Staging

Staging is the process of assembling the riders in the order that they will start the race, and confirming that they are present. As described in Module 5, a set of staging pens is used to do this.

Staging usually begins up to 20 minutes before the start of a race, though for races with only a few riders, it may begin a bit later.

If several categories are going to be racing at the same time, then a pen is assigned to each category. In this case, the Commissaires and organizer decide the order in which the categories will start before the race. The start order is always done with the fastest categories starting first, and the slowest categories starting last.

Once the staging pens are opened, a Commissaire (or volunteer) is stationed at each pen in order to take attendance. Each person who is managing a staging pen needs to have a start list for that category. The best way to take attendance is to put a check mark beside the number plate of each rider as they enter the pen. If you miss someone, simply call their name and number once most of the other riders seem to have arrived.

You should know that some riders do not show up until the last possible moment; therefore if you are not the starter, you should stay at your staging pen until the race has started in order to take note of any people who arrive just in time.

Generally, people who are late for their start may not begin the race. Also, the start of the race is never held for someone who is late.

Also, in order to start a race for any of the Mountain Bike disciplines, riders must be on the start list and must have all have number plates. If a rider turns up who is not on the start list, or who does not have a number plate, quickly call the secretary Commissaire on the rider to find out if the rider was omitted by mistake. If no mistake has been made, the rider can't start as they have not completed the registration process; inclusion on a start list is the last step of the registration process and is equivalent to being given permission to start the race. Pre-registering on the internet is not enough; they must also show up at registration to sign in and show their license.

Once the race has begun, give your start list and the list of riders who were missing from your staging pen to the Finish Judge. It is important that the Finish Judge knows exactly how many riders have started the race, and who is missing.

### Call-Up

For XC races, starting as close as possible to the front of the bunch of riders is very important. Since most mountain bike races have at least some single-track, the farther ahead you are in the start greatly reduces the chance that you will be held up by slower riders when the trail first narrows.

Since being close to the front is strategically important, most XC races that are part of a series or ranking use a system to call highly ranked riders to the start line in order of that ranking. This is known as the “call-up order”.

Not all provincial races will call riders to the line, but others such as BC Cup events, will.

If no individual call-up is done, then the riders are called as a group to the line between 1 and 2 minutes before the race is scheduled to start. Those fortunate enough to be near the front of the staging pen will most likely end up near the front of the bunch.

Otherwise, if an individual call-up is done, the best way to manage call-up is to ensure that the person who is doing the call-up has a start list that is created in the order of the call-up. This list will not always be the same as a list that is sorted in number plate order. Therefore, if the call-up list is different from a start list in number plate order, it is important that the call-up list is labeled as a “call-up list” so that the wrong list is not accidentally used.

The call-up is usually begun after most of the riders have assembled in the staging pens. The goal is usually to complete call-up somewhere between 1 and 3 minutes before the scheduled start of the race.

Working backwards, if the announcer can call-up 10 riders per minute, then it will take 10 minutes to call 100 riders; in this example, that would mean that the call-up should probably start about 12 minutes before the race is scheduled to begin. The speed of the announcer can vary, so it is best to ask the announcer how much time he needs to call each rider. If only the number and name of the rider are spoken, then most announcers can call 14 or 15 riders per minute; if more details are given, then it is less.

It is usually the Start Judge’s job to go over the call-up list with the announcer before the race, and to decide how many minutes before the start of the race the call-up must begin. If there is no announcer present, then the Start Judge calls up the riders.

If a rider has not reported to staging by the time the call-up begins, and the rider does not appear until after their name is called, then the rider who was late must take his or her position at the back of the bunch. Space is not held in the call-up for late riders.

Sample XC Start List. This list also happens to be in call-up order.

CANBERRA 2009		uci		2009 UCI MOUNTAIN BIKE & TRIALS WORLD CHAMPIONSHIPS		CANBERRA AUSTRALIA	
September 5th, 2009				Mountain Bike - Communiqué n°32			
<b>CROSS-COUNTRY OLYMPIC</b>							
<b>Start List</b>							
<b>Men Elite</b>							
R: UCI Ranking of August 24th, 2009							
S: Starting Order (Art. 9.2.038) > by UCI Ranking							
<b>Start Time &gt; 14:00</b>							
Race Nr	UCI Code	NAME / First Name	National Team		R	S	
1	SUI19760413	SAUSER Christoph	SWITZERLAND	World Champion 2006	5	1	
2	ESP19780824	HERMIDA RAMOS José Antonio	SPAIN		1	2	
3	FRA19800816	ABSALON Julien	FRANCE		2	3	
5	SUI19820218	VOGEL Florian	SWITZERLAND		6	4	
6	SUI19840131	FLÜCKIGER Lukas	SWITZERLAND		7	5	
7	GER19820624	MILATZ Moritz	GERMANY		8	6	
8	CAN19770414	KABUSH Geoff	CANADA		9	7	
9	SUI19860513	SCHURTER Nino	SWITZERLAND		10	8	
11	BEL19760427	PAULISSEN Roel	BELGIUM		13	9	
12	SUI19820416	GUJAN Martin	SWITZERLAND		14	10	
13	FRA19770522	PERAUD Jean-Christophe	FRANCE		15	11	
14	AUS19790718	JONGEWAARD Chris	AUSTRALIA		16	12	
15	ESP19840925	MANTECON GUTIERREZ Sergio	SPAIN		17	13	
16	ITA19841012	FONTANA Marco Aurelio	ITALY		18	14	
17	FRA19781126	RAVANEL Cédric	FRANCE		19	15	
18	CZE19850108	KULHAVY Jaroslav	CZECH REPUBLIC		20	16	
19	FRA19860305	TEMPIER Stéphane	FRANCE		21	17	
20	SWE19850504	LINDGREN Emil	SWEDEN		22	18	
21	CZE19770322	SPESNY Milan	CZECH REPUBLIC		23	19	
22	GRE19860626	ILIAS Periklis	GREECE		24	20	
23	USA19810815	CRAIG Adam	UNITED STATES OF AMERICA		25	21	
24	GBR19820412	KILLEEN Liam	GREAT BRITAIN		26	22	
25	USA19751225	WELLS Todd	UNITED STATES OF AMERICA		28	23	
26	CAN19841019	ZANDSTRA Derek	CANADA		31	24	
27	ESP19840909	RUZAGA CUETO Ruben	SPAIN		36	25	
28	ESP19830901	LEJARRETA ERRASTI Inaki	SPAIN		37	26	
29	NED19760514	PETERS Bas	NETHERLANDS		38	27	
30	NED19840116	VAN HOUTS Rudi	NETHERLANDS		39	28	
31	AUS19850809	MCCONNELL Daniel	AUSTRALIA		40	29	
32	USA19851211	SCHULTZ Samuel	UNITED STATES OF AMERICA		42	30	
33	USA19780811	HORGAN-KOBELSKI Jeremy	UNITED STATES OF AMERICA		44	31	
34	AUT19770520	METZLER Hannes	AUSTRIA		45	32	
35	CZE19860711	SKARNITZL Jan	CZECH REPUBLIC		46	33	
36	CHI19791012	SILVA IBACETA Cristobal	CHILE		47	34	
37	ESP19810928	COLOMA NICOLAS Carlos	SPAIN		48	35	
38	NAM19831011	BASSINGTHWAIGHTE Marc	NAMIBIA		49	36	
39	NED19820515	PJETERSMA Jelmer	NETHERLANDS		50	37	
40	RUS19811026	GOGOLEV Maxim	RUSSIAN FEDERATION		51	38	
41	BRA19800907	PSCHIEDT Ricardo	BRAZIL		53	39	
42	BEL19760617	NYS Sven	BELGIUM		56	40	
43	AUT19790625	LAKATA Alban	AUSTRIA		57	41	
45	JPN19850820	YAMAMOTO Kohei	JAPAN		61	42	
46	BRA19780719	CRUZ Edivando De Souza	BRAZIL		63	43	

02.09.2009 - 14:02 > 75 riders entered

<http://www.uci.ch>

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UCI Secretary  
**POELMAN Peter (BEL)**

UCI President of the Commissaires' panel  
**MCCORD Andy (USA)**



Sometimes for international races, a start grid is drawn on the ground in order to help organize the riders as they are called. The grid is simply a number of lines parallel to the start line, drawn on the ground behind the start line, each a little more than a bike length apart. As riders are called, they pick a spot on the line closest to the start line that is not yet filled with riders.

For start areas that are as wide as the minimum defined by the regulations, 10 riders can usually be placed on each line. Each rider usually needs a space about 75 cm wide. But, of course, if the start area isn't as wide as the regulation 8m, then fewer riders can be placed on each line.

The start grid isn't often used at provincial races, but some organizers may decide to use it.

### **The Start**

Between 1 and 3 minutes before the scheduled start of the race, the riders will be assembled at the start line, ready to go.

### ***Start Instructions***

At some point during the start procedure, the Start Judge gives any start instructions. For Olympic format races, the instructions are usually limited to reconfirming the number of laps that the category will do; this should take less than 20 seconds.

Also, if some unusual circumstance has made a change to the course necessary, then that change should also be described in the start instructions.

For provincial races, if the lap lane and finish lane are separated, then this should also be pointed out.

Other than these examples, no further instructions are necessary.

### ***Start Procedure***

The regulations describe the start procedure as beginning 3 minutes before the race is scheduled to start.

1. 3 minutes before the start, the announcer gives the Start Judge control of the public address system. A 3-minute warning is given.
2. 2 minutes before the start, a 2-minute warning is given.
3. At this point, the Start Judge gives any start instructions. Usually this is limited to confirming the number of laps.
4. 1 minute before the start, a 1-minute warning is given.
5. At this point, if a length of marking tape has been stretched across the start line, it is removed.
6. 30 seconds before the start, a 30 second warning is given
7. 15 seconds before the start, a 15 second warning is given
8. As of the 15 second warning, the race may begin at any time. If you are the Start Judge, you are now paying close attention to the line of riders at the start line, and very little attention to your watch. The level of tension is usually quite high at this point. Any sudden noise can be mistaken by the riders for the start signal, causing them to start moving. If the riders begin to move, blow your whistle (or fire the gun) to officially begin the race. In this way, false starts are avoided.
9. Otherwise, start the race as close to 'zero' time as possible. No further count-down is given after the 15 second warning.

During the start procedure, riders must have at least one foot on the ground; track-stands during the start procedure are not allowed. Any riders who attempt a track stand should be told to place a foot on the ground.

### **Rulebook Review –Cross Country Staging and Start Procedure**

Part IV, “Mountain Bike Races” of the UCI regulations describes the rules for the start procedure. Articles 4.1.031 – 4.1.033 apply.

### **Lesson 1 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Describe the jobs of the Commissaires during staging
- Explain why call-up is important for Cross Country races
- Describe the XC race start procedure

## **Lesson 2: The Downhill Start Procedure**

Most downhill races are individual time trial events where riders start one at a time.

Staging for DH races is fairly simple. The start lists are drawn up in with each category racing in the same block of time; generally categories start the race in order from the category with the slowest riders to the fastest.

Within each category, the start lists give the order in which each rider starts the race, as well as the exact time when each rider is scheduled to start. Riders must always begin the race in the order on the list. Riders usually begin the race between 30 seconds and 2 minutes apart, though 1 minute tends to be the most common start interval. Start intervals should always be multiples of either 30 seconds or 1 minute.

The DH Start Procedure is as follows:

1. One or more assistants to the Start Judge, known as “whips”, assemble the next riders in their order of start in the staging area behind the start line, making sure to give the rider in the start area enough room. If a rider in the start order is missing, the whip must alert the Start Judge that a rider is missing. The number of riders lined up to start the race depends on the start interval; as riders usually need a couple of minutes to make their final preparations, 3 to 5 minutes worth of riders should be lined up behind the current starter.
2. Warnings. The Start Judge gives the rider a series of warnings before the start. If the start interval is 30 seconds, a 15 second warning is given; if the start interval is 1 minute or more, warnings are given every 30 seconds.
3. Unlike cross country races, riders may decide to start with both feet on the pedals if they choose. Most organizers provide a start ramp and platform, as well as a railing that riders can

lean on while preparing for the start. This is all fine, as long as the platform and railing are sturdy enough to last for the entire race.

4. Count-down to Start: The Start Judge should quickly explain the start procedure to each rider. For most provincial races, the Start Judge counts down from 5 seconds before the start of the race as follows: **5, 4, 3, 2, 1, Go**
5. If no electronic timing system is used, the rider should be asked to start as close to the word "Go" as possible. However, they may decide to start at any time after the countdown from 5 begins.
6. Some timing systems feature a set of audible tones that begin 5 seconds before the start; this replaces the count-down. The rider may start the race at any time after the count-down tones begin.
7. Even when electronic timing is used, the Start and Finish Judges still record back-up times. If you are the Start Judge, record the actual time that the rider started the race on your start list (or timing sheet). If there is no electronic timing, then the times recorded by the Start and Finish Commissaires are the primary times used. ***Important: The Start Judge and Finish Judge must always synchronize their watches, and should use the same time system – either elapsed time or time of day. This eliminates the chance of simple math errors in when verifying (or calculating) results.***
8. Once a rider has started the race, the Start Judge should then allow the next rider in line to enter the start area.
9. ***Important:*** If the next rider is missing, then you should walk in front of the start line and prevent the following rider from entering the start area until the start time for the missing rider has passed. Any gap in the start order caused by one or more missing riders must be maintained; this is also known as "sending a 'ghost' rider". Failure to do so can result in the race running early, which may cause more riders to miss their starts. Only the Chief Commissaire may decide to not maintain gaps for missing riders; this is only ever done if there has been a significant delay and the race is running late.
10. If a rider is late for their start, the Chief Commissaire should be asked for further instructions. Generally, late riders are not allowed to start unless the delay is due to something beyond the rider's control, such as a break-down of the chair-lift; however, only the Chief Commissaire can make this decision. It is the responsibility of riders to plan ahead and allow enough time to get to the start of the course.
11. If a rider appears at the start without wearing a full-face helmet which is certified for Cycling by a standards agency, they can't start the race. Open faced helmets are not allowed.

DH Races are quite simple. But if the start list is not followed to the letter, the probability of making mistakes is quite high. Following the start list and making sure that any issues are discussed with the finish line and timing staff is a recipe for success. Deviating from the start list and failing to communicate with the Finish Line and timing volunteers is a recipe for disaster.

### **Other Responsibilities of the DH Start Judge**

The Start Judge for DH races is also responsible for ensuring that the course marshals and first aid attendants are in place and that the course is clear before sending any riders down the course.

This is done by using the radio to ask the marshal coordinator to do a “course clear”. That is, the Marshals are asked in order from top to bottom to confirm over the radio that they are in place and that the course is clear in their area. A course clear should be done before beginning the race or before starting a practice.

For some races, the organizer designates one or more “Fore Runners” who go down the course in order to test the timing system and provide a warning that the race is about to begin. If used, the Fore Runners usually go down the course 1 or 2 minutes apart, within 10 minutes before the race is scheduled to begin. It is up to the Start Judge to coordinate the start of the Fore Runners with the timing staff. The Fore Runners should not go down the course until a course clear has been done.

Another responsibility of the Start Judge is to stop the race if the Chief Commissaire decides to declare a course hold due to a crash. In order to do this, you must constantly monitor the radio. If

Finally, the DH Start Judge is responsible to supervise the practice sessions. If a rider crashes during practice, the Start Judge may decide to stop the practice until the rider has been carried off of the trail, if advised by the first aid attendants that it’s necessary.

Some things to remember about supervising DH practice include:

- All riders must have fully completed the race registration process and have their number plate on their bicycle before being allowed to practice
- All practice runs must take place from the start line
- Full face helmets are mandatory for practice as well as racing
- In BC, all riders must complete at least 1 official practice run before being allowed to race. For international races, two such runs must first be completed. Therefore, during the practice, the Start Judge must keep a list of all riders who have practiced on the course. If there are several practice sessions, riders can do their mandatory practice run during any of the practice sessions

#### **Rulebook Review –Downhill Start Procedure**

Part IV, “Mountain Bike Races” of the UCI regulations describes the rules needed in order to work as Start Judge at a downhill race. Articles 4.3.001 – 4.3.003, 4.3.010, 4.3.013 – 4.3.018, 4.3.021 – 4.3.023 apply.

Sample DH Start List. In this case, the start interval is 30 seconds.



September 4th, 2009

Mountain Bike - Communiqué n°16

**DOWNHILL**

**REVISED 2**

**Start List**

**Official Timed Session**

**Men Elite**

Starting Order (Art. 9.2.038) > by UCI Ranking

R: UCI Ranking of August 24th, 2009

Start Time	Race Nr	UCI Code	NAME / First Name	National Team	R
1. 12:15:00	63	COL19800402	CAMARGO REY Anderson	COLOMBIA	-
2. 12:15:30	61	COL19810226	ALVAREZ VILLA Daniel	COLOMBIA	-
3. 12:16:00	59	USA19710906	LOPES Brian	UNITED STATES OF AMERICA	-
4. 12:16:30	58	FRA19861010	SALADINI Romain	FRANCE	-
5. 12:17:00	57	SVK19870522	VITKO Matej	SLOVAKIA	675
6. 12:17:30	56	CAN19900912	FRASER Rob	CANADA	1/1
7. 12:18:00	55	COL19871004	SANCHEZ PAEZ Camilo Andres	COLOMBIA	428
8. 12:18:30	54	SLO19890427	RUTAR Nejc	SLOVENIA	240
9. 12:19:00	53	CAN19900523	GARSTIN Simon	CANADA	180
10. 12:19:30	52	CAN19850815	BILUK Jamie	CANADA	175
11. 12:20:00	51	USA19900326	SCHUSLER Joey	UNITED STATES OF AMERICA	141
12. 12:20:30	50	CAN19880928	TENNANT Dean	CANADA	134
13. 12:21:00	49	NZL19890605	SCOLES Matthew	NEW-ZEALAND	132
14. 12:21:30	48	COL19900509	GUTIERREZ VILLEGAS Marcelo	COLOMBIA	116
15. 12:22:00	47	HKG19820121	TSUI King Man	HONG-KONG, CHINA	111
16. 12:22:30	46	NZL19871202	BENNETT Kieran	NEW ZEALAND	108
17. 12:23:00	45	HKG19880910	WONG HON Chiu	HONG-KONG, CHINA	102
18. 12:23:30	44	GER19900817	BENDER Maximilian	GERMANY	100
19. 12:24:00	43	HKG19840920	LAU Shu Sum	HONG-KONG, CHINA	97
20. 12:24:30	42	USA19850827	WARREN Cody	UNITED STATES OF AMERICA	96
21. 12:25:00	41	CZE19810425	VAGNER Adam	CZECH REPUBLIC	88
22. 12:25:30	40	BRA19800209	BERCHTOLD Markolf	BRAZIL	80
23. 12:26:00	39	HKG19820221	YIP Kim Fung	HONG-KONG, CHINA	72
24. 12:26:30	38	USA19870404	STRAIT Kyle	UNITED STATES OF AMERICA	71
25. 12:27:00	37	JPN19880813	NAGATA Junya	JAPAN	69
26. 12:27:30	36	AUS19810622	RANDO Jared	AUSTRALIA	67
27. 12:28:00	34	NZL19870418	MASTERS Wyn	NEW-ZEALAND	48
28. 12:28:30	33	ESP19790210	VAZQUEZ LOPEZ David	SPAIN	43
29. 12:29:00	32	NZL19790430	RANKIN Nathan	NEW-ZEALAND	41
30. 12:29:30	31	SWE19880704	WALLNER Robin	SWEDEN	40
31. 12:30:00	30	USA19860624	STROBEL Luke	UNITED STATES OF AMERICA	37
32. 12:30:30	29	SUI19851227	BEER Marcel	SWITZERLAND	34
33. 12:31:00	28	NZL19880203	COLE Cameron	NEW-ZEALAND	33
34. 12:31:30	27	ITA19860315	SUDING Lorenzo	ITALY	32
35. 12:32:00	25	SVK19820410	POLC Filip	SLOVAKIA	29
36. 12:32:30	24	AUS19821209	ATKINSON Bryn	AUSTRALIA	28
37. 12:33:00	23	AUS19890725	DELFS Mitchell	AUSTRALIA	23
38. 12:33:30	22	AUS19821216	GRAVES Jared	AUSTRALIA	22
39. 12:34:00	21	USA19861029	RIFFLE Duncan	UNITED STATES OF AMERICA	21
40. 12:34:30	20	AUS19810531	RENNIE Nathan	AUSTRALIA	20
41. 12:35:00	19	FRA19880422	GIORDANENGO Aurélien	FRANCE	19
42. 12:35:30	18	GBR19900323	BRYCELAND Josh	GREAT BRITAIN	18
43. 12:36:00	17	CAN19891125	SMITH Steve	CANADA	17
44. 12:36:30	16	AUS19780301	KOVARIK Chris	AUSTRALIA	16

01.09.2009 - 08:56 > 59 riders entered

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UCI Secretary  
**POELMAN Peter (BEL)**

UCI President of the Commissaires' panel  
**McCORD Andy (USA)**



## Lesson 2 – Points for Review and Performance Expectations

Following this course, you should be able to:

- Describe the job of the whip
- Explain the start procedure for DH races
- Explain the role of the Start Judge during a course hold
- Describe the role of the Start Judge when supervising race practice

## Lesson 3: The 4X Start Procedure

4X races are run over two stages. The first stage is an individual time trial; the results from this time trial are used to qualify a number of riders for the second stage of the competition, and to seed them into heats of 4 riders. The time trial stage of the competition is run exactly the same as for an individual DH race. The start procedure is mostly the same, except that it usually done with a starting gate.

The second stage of the competition is contested by heats of 4 riders racing head-to-head down the course. In each such heat, the first 2 riders to cross the finish line advance to the next round of competition, while the last 2 riders are eliminated from the event.

The start procedure for the second stage of competition is again handled by the start gate. But, as the Start Judge, you still have a role in the start procedure as follows:

1. As each heat of riders is loaded into the start gate, confirm that they are correct riders for that heat. Sometimes mistakes can happen. Within each heat, the riders are allowed to choose their position on the gate in order of their qualifying times (from fastest to slowest).
2. Once the gate is loaded, radio the finish line and give them the numbers of the riders in the gate, from left to right.
3. Before giving permission for the gate operator to start the race, you must first confirm with the Chief Commissaire that the course is clear and that the start can proceed.
4. Once the gate has dropped, watch the riders on the course for as long as you can still see them. Pay particular attention to the riders during the first 10 metres of the race. If anyone rides on or crosses one of the white lines separating the starting lanes in the first 10 metres of the race, that rider is disqualified. If this happens, call the Chief Commissaire on the radio immediately.
5. When the race has finished, the Finish Judge will use the radio to confirm the two riders who crossed the finish line first and who therefore advance to the next round. Write down the two riders who advance on your start lists in the space set aside for the next round of competition.
6. Repeat the process.

Just as with a DH race, the Start Judge always has someone to serve as a “whip” to assemble the riders for the next heats that will race. As with DH races, riders must have a full faced helmet.

### ***The Small Final vs. the Big Final***

Eventually, the race will reach the “semi final” round of competition; that is, two heats are left to run. The riders who place first and second in each of these semi final heats advance to the “Big Final” (4 riders in total). The outcome of the “Big Final” determines places 1 through 4. The other 4 riders advance to the “Small Final”. The “Small Final” determines places 5 through 8 in the competition.

### ***Starting 4X Races without a Gate***

Generally, 4X races at the provincial level or higher should not be run without a gate. However, for local races, the same basic procedure as a XC race can be used. Riders start with 1 foot on the ground, and are given a 15 second warning, after which the race may start at any time. The starter then blows the whistle at some point after giving the 15 second warning.

#### **Rulebook Review –4X Start Procedure**

Part IV, “Mountain Bike Races” of the UCI regulations describes the rules needed in order to work as Start Judge at a downhill race. Articles 4.4.001 – 4.4.021 describe the 4X race procedure.

#### **Lesson 3 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Describe the job of the Start Judge during 4X races
- Explain the difference between the Big Final and Small Final
- Explain the purpose of the Time Trial stage of a 4X race

Sample 4X Start List. Notice the spaces set aside to record the riders who advance to the next round.



September 4th, 2009

Mountain Bike - Communiqué n°42

**FOUR CROSS MEN - Start List**

**1/8 FINALS**

BIB	Heat 1	Rank
1	GRAVES J. (AUS)	
16	BEAUMONT S. (GBR)	
17	GIORDANENGO (FRA)	
32	POLC F. (SVK)	

BIB	Heat 2	Rank
8	ATHERTON D. (GBR)	
9	GRAF D. (SUI)	
24	HUNTINGTON R. (AUS)	
25	HADERER M. (USA)	

BIB	Heat 3	Rank
4	HENDERSON R. (AUS)	
13	ALVAREZ DE L. (ESP)	
20	WALKER M. (NZL)	
29	SANCHEZ PAEZ (COL)	

BIB	Heat 4	Rank
5	WICHMAN J. (NED)	
12	SEYDOUX P. (SUI)	
21	TSCHUGG G. (GER)	
28	SHIMIZU K. (JPN)	

BIB	Heat 5	Rank
2	SLAVIK T. (CZE)	
15	MEIJER J. (NED)	
18	CARNEY B. (USA)	
31	PROKOP M. (CZE)	

BIB	Heat 6	Rank
7	WILLOUGHBY S. (AUS)	
10	MADILL L. (AUS)	
23	VLIKU M. (SVK)	
26	NAGATA J. (JPN)	

BIB	Heat 7	Rank
3	SALADINI R. (FRA)	
14	ROPELATO M. (USA)	
19	RIHA J. (CZE)	
30	WALSTROM K. (CAN)	

BIB	Heat 8	Rank
6	FISCHBACH J. (GER)	
11	DARRELL L. (AUS)	
22	MASTERS E. (NZL)	
27	CASTILLO D. (COL)	

**1/4 FINALS**

BIB	Heat 9	Rank

BIB	Heat 10	Rank

BIB	Heat 11	Rank

BIB	Heat 12	Rank

**1/2 FINALS**

BIB	Semi-Final 1	Rank

BIB	Semi-Final 2	Rank

**FINALS**

BIB	Small Final	Rank

BIB	Big Final	Rank

## **Module 7: Recording Race Passing Order, Finish Order and Race Times**

This module brings what you have learned in earlier sections into focus by describing the methods used to record data about races as a finish judge and time keeper.

### **Lesson 1: Working as the Finish Judge at XC Races**

The main job of the Finish Judge for an XC race is to record the finish order of the riders. However, the Finish Judge is also responsible for recording the race passing order and for giving information about how the race develops to the other Commissaires.

#### **Judging Circuit Races**

A circuit race is any race that takes place over multiple laps of the same circuit. For any circuit race, the Finish Judge has the following jobs:

- Keep a race passing order
- Continuously analyze the passing order to identify the front of the race, the back of the race, and any riders who have been lapped
- Keep track of significant time gaps between leading riders
- Upon request, predict the remaining duration of the race based upon average speed
- Judge any close sprints for the finish line
- Record the finish order and times
- Assist the timing staff with production of race results based upon the finish order
- Verify the race results produced by the race organization for accuracy, and have any errors corrected

#### ***Keep a Race Passing Order***

The race passing order is a complete record of the state of the race on each lap as it passes the finish line. It is basically a “snapshot” of the position of every rider in the race at that point along the course. This is the main tool the Commissaires have to verify race results, identify lapped riders, and to identify possibly instances of riders short-cutting the course.

The Finish Judge at an XC race always keeps a race passing order. The Assistant Chief Commissaire usually does this as well for international races where the 80% rule is used. Also, the Chief Commissaire usually selects one or two course marshals to record a passing order at various points along the course; this additional record can be used to help verify whether or not a rider may have taken a short-cut.

The process that the Finish Judge uses to keep a race passing order is:

- Write down the number of every rider in the order that they pass the lap / finish area
- If you can't see a rider's number, instead write down an 'X' to indicate that a rider has passed; if you have time, also write down a short description of the rider; for example “red jersey”
- For riders in the lead of the race, write down an elapsed time (hours, minutes, and seconds) to help you identify time gaps and the pace set by the leader of each lap

## Mountain Bike Timekeeper & Finish Judge Course Manual

- After the first lap, you will know the 5 or 10 riders who are at the front of the race; you can most likely expect one of these riders to be the race leader at the start of the next lap
- When the leader of the race passes you, begin recording the order for the new lap at the top of a new column on your passing order sheet
- Label the laps on your passing order sheet as laps remaining. For instance, if it is a 5 lap race, then the first lap recorded on your passing order sheet will be “4 laps to go”, then 3, then 2, then 1, and finally, the Finish.
- When a rider comes around on a new lap, after recording his or her number, try to find the rider in the previous lap and put a line through their number; this will help you to see at a glance which riders have not yet passed you. Assuming that all riders in the race are in the same category, if the race leader passes again before some of the slower riders have shown up, then those slower riders have been lapped by the leader
- Always label your passing order sheets with a page number, the name of the category, the number of laps in the race, and the time that the race began

On the following page, an example of a race passing order is presented. In this example, is the Elite Women’s race at the “Elmwood XC Bonanza”; it was contested over 4 laps, beginning at 13h00. There were 17 starters (number plates 101 – 117).

Before analyzing the race, a couple of things to notice are:

- No more than 5 riders are written each section of each column; this makes it easier to count the number of riders who have passed so far
- Elapsed times listed next to the riders are abbreviated as h.mm.ss (e.g. 0.21.33)
- Riders who did not finish are listed separately

After the first lap (3 laps to go), rider 104 was in the lead, with an elapsed time of 21m 33s. Rider 102 was close behind with a time of 21m 45s. The last rider to arrive before the start of the next lap was number 114, with an elapsed time of 27m 35s; just over 6 minutes behind the leader.

After the second lap (2 laps to go), the race leader has changed; notice how rider 102 has passed rider 104. Also notice how much farther behind rider 114 has fallen; she is now nearly 20 minutes behind the race leader. She will most likely be lapped. As a matter of interest, when a rider quickly falls behind like this, it usually indicates that they have suffered some kind of mechanical problem, or a crash.

After the third lap (1 lap to go), the race leader has remained the same. Notice how rider 109 did not go through the lap / finish area. This rider is recorded elsewhere on the sheet as not finishing (as “DNF” or “Did Not Finish”). Rider 109 must have retired from the race and let one of the Commissaires know that they were not going to finish. Finally, notice that rider 114 did not appear before the race leader crossed the finish line, indicating that they were lapped.



The Finish Order for the race is listed to the right of the passing order sheet. As you can see, rider 114 was lapped, and appeared at the Lap / Finish area between the finish of riders 116 and 106. This rider will be listed in 16<sup>th</sup> place in the results.

Also, in most cases rider 114 would not be allowed to go out on the course for a final lap. At this point, it would not change the results. Also, once the winner of the race has finished, it is important to clear the course and account for all riders as quickly as possible so that the next race can start on schedule, or if it is the last race of the day, so that the volunteer race marshals can be released from their duties.

### *Dealing with Multiple Categories*

For most local and provincial races, several categories are usually racing on the course at the same time. Though each category starts the race as a group and the starts are usually separated from one another by a couple of minutes, some mixing of categories will happen during the race.

The method for recording the race passing order and finish order is still basically the same as that for a race with only 1 category on the course. However, some things are done a bit differently in order to make this easier.

First, the registration staff will assign a unique range of race numbers to each category. So for example, Category A may have numbers from 101 – 150, and Category B may have numbers from 151 to 180. So, if you know the number ranges, you can easily identify the category to which a rider belongs.

Also, as much as possible, only categories that do the same number of laps race on the course at the same time.

However, even with well defined number ranges for each category, the process of identifying the leading rider of each category and any lapped riders is more difficult. Some strategies to make this easier are:

1. Have several Finish Judges, who each track only 1 or 2 categories
2. If you are the only Finish Judge, only start a new column for the leading rider of the fastest category. When the leading rider of another category passes you, simply mark that rider with an asterisk
3. Riders are only considered lapped if they are lapped by the leader of their own category. If you are the only Finish Judge, it will be very difficult to figure this out on the fly. You may not be able to do this until after the race

### *Marathon and Point-to-Point XC Races*

Marathon XC races usually don't happen over multiple laps of the same course, and Point-to-Point XC races never do. While the process of recording the Finish Order is the same as for circuit races, taking the passing order is done a bit differently.

The passing order is instead recorded at different points along the race course, often near feed zones, since they are usually fairly easy to access.

While there will never be lapped riders in such races, it is still important to record a passing order at several points along the course as a means of verifying the finish order, and to guarantee that a rider did not take a short-cut. Also, in case one or more riders go missing during the race, keeping a passing order at several locations will help you to see approximately how far into the race the person advanced before going missing.

### **Lesson 1 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Describe the responsibilities of the Finish Judge for XC races
- Explain how to record and analyze a race passing order for circuit races
- Explain why lapped riders should be pulled from the race once the leader of their category has finished
- Describe some strategies to make keeping the passing order easier when several categories are racing at the same time
- Explain how to take a passing order for a Marathon or Point-to-Point race

## **Lesson 2: XC Finish Order Recording Strategies and Verification**

### **Finish Order Recording Strategies**

At races with large numbers of riders, recording both the finish order and times can be a challenge, particularly if the riders maintain a high pace through the finish zone. A couple of possible strategies to make this easier include:

- Have someone stand about 25 metres in advance of the finish line, and call out the number plates to you; this will give you a chance to write down the number and the finishing time. In case of a close finish, if the order changes, you can easily reverse it afterwards
- Remember that in the event of a close sprint, the riders are given the same time. It is the order in which they finish that matters
- If you have an assistant, have your assistant write down the finish order as you call it out, while you record the times with your watch
- An optional, but useful piece of equipment that many Finish Judges choose to own is a voice recorder. You can use it to record your voice as you call the finish order for any particularly busy parts of the race, while simultaneously using your stopwatch to save finish times. You can then play the recording back later and write out the times and finish order on paper

At major races, race organization sometimes hires a timing company which may have equipment such as chip timing systems, video camera, photo finish cameras, and printing stopwatches. If this is the case, the timing staff will also be recording finish order and finish times.

## Verifying Results

Producing race results is the job of the race organization. Sometimes the organization will use timing volunteers or a timing company to provide the times and finish orders. However, for provincial and local races, the times and finish order recorded by the Finish Judge is what is often used to produce results.

Race results must account for and include the finish order, the finish times, and the impact of any decisions made by the Commissaires such as disqualifications. They must also include a list of any riders who did not start (“DNS”) or who did not finish (“DNF”).

One of the jobs of the Finish Judge is to examine the results, whether produced by a timing company or someone else.

If the organizer’s results are different than the finish order that you recorded, then you need to investigate why the results are different. Some common sources of error are:

- Inexperienced organizers or timers may use finish time to determine the results for an XC race instead of finish order; times are part of the results, but only finish order is used to place riders in the results. Be particularly careful of this in case a timing company that uses a “chip timing” system has been hired. Such systems occasionally get the finish order wrong depending upon minor variations in the placement of the timing chips on the riders’ bicycles
- Sometimes, a timing volunteer will not be standing exactly at the finish line, and may call a close sprint incorrectly
- Sometimes, a timing volunteer will not be aware of the race passing order, and may place a rider who was lapped as having finished on the same lap as the race winner

Also, if the organizer has arranged to record the finish with a video camera or photo finish system, do not be afraid to consult the camera images in case of a particularly close finish. Assuming that the camera image is of good enough quality, it can be a great help.

Whatever the case, if you are satisfied that the finish order you have recorded is correct, and the results produced by the race organizer are wrong, then your version of the finish order is the one that should be used – as the finish judge, your interpretation of the results and any finish order or timing data is final. However, your decision must always be based upon evidence from that finish order and timing data that has been collected.

### Lesson 2 – Points for Review and Performance Expectations

Following this course, you should be able to:

- Describe some strategies for helping to record times and the finish order
- Describe some common sources of error in race results
- Identify who is responsible for producing race results and who is responsible for verifying them
- Describe the data that must be combined with finish order and times in order to create results

### Lesson 3: Time Keeping and Verification for DH Races

For DH races, the Finish Judge's main job is to serve as either the primary or backup time keeper. Unlike XC races, the results for DH races are determined based upon the elapsed time of the riders; the fastest time wins.

Though some passing does occur during DH races, particularly for races with long courses and short start intervals, finish order is not particularly meaningful other than to indicate the relative speed of the riders. Except when one rider passes another, the order of riders across the finish line should be the same as the order in which riders start the race.

#### Timekeeping at a DH Race

As described in an earlier module dealing with DH race starts, the Start Judge and Finish Judge must communicate constantly. This way, both the Start and Finish will more easily be able to coordinate the solution to any problems, and both be aware of any missing riders, delays, or changes to the race order (though rare).

As the Finish Judge during a DH race, you do the following:

- Record the order in which riders cross the finish line
- Record the time that each rider crosses the finish line, to the maximum precision of your stopwatch. If possible, do so in "Time of Day", as this makes calculating elapsed times easier since the start list is also listed in Time of Day" format. Even if your stopwatch can only store the time elapsed since the watch was started, if you know how many minutes late or early the race is running, you can easily add the elapsed time from your watch to the time of day the race started in order to express a finish time in "Time of Day". However, you may also use elapsed times direct from your stopwatch if you wish
- If the start interval between riders is at least 1 minute and you know how many minutes and seconds late the race is running (if any), try to calculate the race time of each rider to the nearest second as the race proceeds; this will make verification of the race results much easier later on. However, if the start interval is only 30 seconds, then you won't have enough time between riders to do this. If you have enough time, the method for doing this is simple:
  - Add the number of minutes and seconds that the race is running late to the time of day that the rider was scheduled to start
  - Then, subtract this from the time of day that the rider crossed the finish line
- Keep a record of any riders who did not start (the Start Judge must tell you as soon as possible if a rider is missing), and any riders who did not finish

If the organizer has provided a timing company or timing volunteers, it is their responsibility to do the primary timekeeping and to produce the race results. However, even timing companies sometimes make mistakes... it is essential that you always keep a set of backup times as described above. You will need this data in order to later verify that the race results are correct.

### Verifying and Correcting DH Results

DH results are based upon the time that it takes the riders to ride down the course; that is, the elapsed time for each rider. The results are sorted in order from fastest time to slowest time; the rider with the fastest time in each category is declared the winner.

In order to calculate the elapsed time, you subtract the time that the rider started the race from the time that the rider finished the race. Some examples:

1. The start and finish judge's watches are running on elapsed time. The race was due to start at 13:00; they decided to synchronize and start their watches 10 minutes before the race, so at 12:50. Rider A's scheduled start time was at 13:41:30; however, he left the start line 2 seconds before his scheduled start time (3 seconds into the 5 second count-down). He crossed the finished line at 0:54:43.107 on the Finish Judge's stop watch. To calculate his elapsed time:
  - a. First, since the finish judge is using elapsed time since the start of the race, and the watches were synchronized 10 minutes before the race began, subtract the 10 minute off-set from the finish time as follows:  $0:54:43.107 - 0:10:00.000 = 0:44:43.107$
  - b. Adjust the rider's start time to account for the fact that he left 2 seconds early. So,  $00:41:30 - 00:00:02 = 00:41:28$
  - c. Subtract the finish time from the start time:  $0:44:43.107 - 0:41:28.000 = 0:03:15.107$
  - d. Rider A's race time is 3m 15.107s
  
2. The situation is the same as above in example 1, except that the start judge is taking a split on his stop-watch when the riders leave instead of simply recording the number of seconds early or late that the riders leave the start. In this case, to calculate the elapsed time:
  - a. There is no need to adjust the finish judge's time by 10 minutes, since both the start and finish judge are using watches synchronized 10 minutes before the race began.
  - b. There is no need to adjust the start judge's time by 2 seconds, since the judge would have recorded the rider's actual start time on his watch
  - c. So, simply subtract the start time from the finish time:  $0:54:43.107 - 0:51:41.28.000 = 0:03:15.107$
  - d. Rider A's race time is 3m 15.107s

As the Finish Judge, it is your job to verify the results produced by the organizer. For DH races, this is done by making sure the race times produced by the timing staff are reasonable – that is, they need to match your backup times closely, within a few seconds at least.

Since you won't necessarily have a chance to check with the Start Judge to see how many seconds early or late a rider started the race, times calculated from your manual backups still serve as confirmation if they are within about 5 seconds of the times listed in the results. If you need to calculate a back-up time more accurately, then you should check with the Start Judge for the exact time they recorded the rider as having started the race.

Common sources of error in DH results include:

- The start line did not send a “ghost” rider in place of a rider who did not show up for his or her start
- In the event that a faster rider passed a slower rider on the course, the finish time keeper accidentally assigned the wrong finish times to the two riders
- Making changes to the start order without coordinating the changes with the finish line
- Equipment malfunction
- Accidentally triggering a start or finish pulse (e.g. someone accidentally walks through a timing gate) and attributing that pulse to a rider
- Failure to synchronize the stopwatches at the start and finish of the course
- Equipment failure

Errors in DH race times produced by the timing staff are usually large – that is, they are usually multiples of the start interval, or fairly close to it. This is because most errors in DH race times are caused by mixing up riders, or by not making proper note of riders who don’t start, or by not resuming the race after a break in the schedule at the proper time.

Fortunately, if the Start Judge and Finish Judge stay communicate with each other constantly, most of these problems can either be avoided or easily corrected.

Verifying results is easy if you were able to quickly calculate the approximate elapsed time for each rider as they cross the finish line (as described above). If so, you can quickly get a sense of whether or not the results produced by the race organization are reasonable.

If it was not possible to do this, then verify the results for each category by doing the following:

- Use your backup times and the start times from the Start Judge to estimate the finish times for the top 10 riders (or, at least 2 or 3 riders beyond the number of riders for which prizes are awarded) listed in the draft results; verify that your times are close enough to those listed in the results to be within the range of error caused starts a few seconds early or late (as described above)
- Using your backup times and the start times from the Start Judge estimate the finish times for 2 or 3 more other riders chosen at random from the draft results; verify that your calculations produce a time similar to that reported in the results for those riders

The following pages show two examples of how to record (and verify) times as the Finish Judge at a downhill race. In the first example, the judge didn’t use a timing record sheet; rather the finish times and estimated race times were simply written down on a copy of the start list. In the second example, a finish record sheet was used. Notice that riders 10 and 11 finish in a different order than that in which they started... 11 started first, but for some reason was passed by rider 10.



September 4th, 2009

Mountain Bike - Communiqué n°16

**DOWNHILL**

**REVISED 2**

**Start List** *Finish Time* **Official Timed Session** *Elapsed Time* **Men Elite**

Starting Order (Ar. 9.2.038) > by UCI Ranking

UCI Ranking of August 24th, 2009

Start Time	Race Nr	UCI Code	NAME / First Name	National Team	R
12:37:30	15	12:37:46.1 / ESP19020930	GUARDIA PASCUAL Derrat	SPAIN	2m 16.81s / 15
12:38:30	14	12:38:40.44.7 / GBR19840925	BEAUMONT Marc	GREAT BRITAIN	2m 14.7s / 14
12:39:30	13	12:39:47.3 / RSA19840305	NEETHLING Andrew	SOUTH AFRICA	2m 12.3s / 13
12:40:30	12	12:40:45.6 / GBR19880110	FAIRCLOUGH Brendan	GREAT BRITAIN	2m 15.6s / 12
12:41:30	11	12:41:41.5 / FRA19791011	PASCAL Mickael	FRANCE	2m 11.5s / 11
12:42:30	10	12:42:37.9 / USA19871224	GWIN Aaron	UNITED STATES OF AMERICA	2m 07.9s / 10
12:43:30	9	12:43:37.6 / FRA19800726	BAREL Fabien	FRANCE	2m 07.6s / 9
12:44:30	8	12:44:40.1 / NZL19841020	LEOV Justin	NEW-ZEALAND	2m 10.8s / 8
12:45:30	7	DNS / NZL19881028	BLINKINSOP Samuel	NEW-ZEALAND	2m 10.8s / 7
12:46:30	6	12:46:35.7 / AUS19831121	HANNAH Michael	AUSTRALIA	2m 05.2s / 6
12:47:30	5	12:47:37.1 / SUI19870917	BEER Nick	SWITZERLAND	2m 07.1s / 5
12:48:30	4	12:48:31.7 / GBR19740617	PEAT Steve	GREAT BRITAIN	2m 01.7s / 4
12:49:30	3	12:49:31.8 / AUS19850721	HILL Samuel	AUSTRALIA	2m 01.8s / 3
12:50:30	2	12:50:32.1 / RSA19811113	MINNAAR Greg	SOUTH AFRICA	2m 02.1s / 2
12:51:30	1	12:51:32.4 / GBR19850226	ATHERTON Gee	GREAT BRITAIN	2m 02.4s / 1

DNS

04.09.2009 - 09:56 > 59 riders entered

http://www.uci.ch

Page 2/2

UCI Secretary  
POELMAN Peter (BEL)

UCI President of the Commissaires' panel  
McCORMACK Andy (USA)



STROMLO



PHILLIPS FOX

WALTER TURNBULL

CROWNE PLAZA



Timing and Results provided by

**Finish Line Worksheet**

Race: 2009 MTB Worlds Men Elite DH

Date: 12/09/09

Category: Qualifying - Finish Record

Page: 1/1

Rider	Time (Start)	Time (Finish)	Elapsed	
15	12:37:30	12:39:46.1	2'16.1"	
14	12:38:30	" 40:44.7	2'14.7"	
13	12:39:30	" 41:47.3	2'17.3"	
12	12:40:30	" 42:45.6	2'15.6"	
10	12:42:30	" 44:37.9	2'17.9"	
11	12:41:30	" 44:41.5	3'11.5"	} Riders 10 & 11 are Out of the start list Order
9	" 43:30	" 45:37.6	2'07.6"	
8	" 44:30	" 46:40.1	2'10.1"	
7	45:30	DKS —	—	
6	46:30	48:35.2	2'05.2"	
5	47:30	49:37.1	2'07.1"	Rider 10 passed rider 11 on the course. Probably because 11 had a crash or flat tire.
4	48:30	50:31.7	2'01.7"	
3	49:30	51:31.8	2'01.8"	
2	50:30	52:32.1	2'02.1"	
1	51:30	53:32.4	2'02.4"	

Commissaire Name: John Doe

Finally, if it's apparent that some of the race times produced by the timing staff are badly flawed, then search to find the problem. If it can't be found, then calculate the results that are in error manually using the backup Start Times from the Start Judge, and your own backup finish times.

### **Lesson 3 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Explain the role of the Finish Judge at a DH race
- Describe some common sources of error in DH race results
- Describe the method used to verify race results

### **Lesson 4: Finish Judging and Timekeeping 4X Races**

Working as the finish judge at a 4X race has elements common to judging both DH and XC races.

In the qualifying (time trial) stage of a 4X race, the race is run almost exactly like a DH race. Therefore, the job of the finish judge during this stage is to record and verify the finish times of the riders, exactly like in a DH race.

Then, during the elimination stage (the heats) of a 4X race, the Finish Judge is judging close sprints, and recording the finish order across the finish line, just like in an XC race. For each heat, the Finish Judge is also responsible for announcing the first and second place riders over the radio, so that the Commissaires at the start know which riders have advanced to the next round of competition.

### **Lesson 4 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Explain the role of the Finish Judge at 4X races.

## Module 8: Preparing Race Results and other Classifications

In the last section of the course, we build upon the things that you have learned earlier in order to describe how to prepare race results and other classifications.

Even though it is the organizer's responsibility to produce the race results, you should know how to prepare results correctly and accurately so that you can assist the organizer if it is necessary.

### Lesson 1: Preparing Results for 1-Day Races

There are two kinds of bicycle races: 1-Day races, and Stage Races. 1-Day races are "stand-alone" races, usually taking place on a single day. The race results are not part of the classification of a larger event.

Stage races are races that are made up of a set of 1-Day races, called "Stages". While each stage is its own race with independent results, the collect of results from all of the stages are added together in order to determine an over-all ranking for the entire stage race, called a "General Classification" or "GC". This lesson deals with preparing results for 1-Day races; the next lesson deals with preparing Stage Race results.

### Race Results

Race Results are the official record of the finish order of the race, including:

- At the top of the results (in the header):
  - The name of the race
  - The category
  - The type of race (XC, DH, 4X)
  - The distance over which the race was run
  - The name of the place where the race happened
  - The date of the race
- The ranking of the participants after the race, in the following order:
  - The finish order of all riders who started and finished the race, as well as the amount of time it took them to complete the race; then,
  - For races run over multiple laps of a circuit, the riders who finished 1 lap behind the leader; then,
  - For circuit races, the riders who finished 2 laps behind the leader; then,
  - For circuit races, etc...; then,
  - The list of riders who started, but did not finish "DNF"; then,
  - The list of riders who completed the registration process, but did not start "DNS"; then,
  - The list of riders (if any) who were disqualified "DQ"
- Note: For each participant listed, the following information is included:
  - Number plate
  - Name and Last Name
  - UCI Code (as found on their license card; nationality + date of birth)
  - Club or Team

- Their finish time, or if they are 1 or more laps down, the number of laps behind the leader
- DNF, DNS, or DQ in place of finish time (if one of these applies)
- At the bottom of the results (in the footer)
  - The names of the Finish Judge and Chief Commissaire
  - The page number

Ideally, all results sheets include the information listed above. However, sometimes all of this information is not available. At very least results should list the name of the race, the date of the race, and the ranking (including race number, name, team, UCI Code, and time) in order of riders who finished, riders who were lapped (in case of a circuit race), DNF, DNS, and disqualified riders.

### **Lesson 1 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Describe the information that should be included in race results for 1-Day races
- Explain the order in which the ranking should be presented in the results

# Mountain Bike Timekeeper & Finish Judge Course Manual

Sample race results from the 2009 Mountain Bike World Championship in Canberra, Australia. In this example, notice how the times are reported; instead of elapsed time, times are instead expressed as a number of minutes and seconds behind the race winner.



September 2nd, 2009

Mountain Bike - Communiqué n°24a

## CROSS-COUNTRY OLYMPIC

### Results

### Women Juniors

Distance: 19.41 km - Average Speed: 17.81 km/h

Rank	Race Nr	UCI Code	NAME / First Name	National Team	Time
1	15	FRA19920210	FERRAND PREVOT Pauline	FRANCE	1:05:23
2	2	SUI19910501	HEDIGER Michelle	SWITZERLAND	+00:33
3	12	RSA19920215	NEETHLING Candice	SOUTH AFRICA	+01:06
4	6	GER19920411	GROBERT Helen	GERMANY	+03:08
5	18	ISR19910823	KOREM Noga	ISRAEL	+03:23
6	13	BEL19920526	MARCHAL Elise	BELGIUM	+04:25
7	26	AUS19910927	HENDERSON Rebecca	AUSTRALIA	+04:47
8	3	SUI19920926	SCHUMACHER Vania	SWITZERLAND	+04:57
9	14	FRA19920525	BERTEAUX Julie	FRANCE	+04:58
10	29	CHN19921213	BAI Yue	PEOPLE'S REPUBLIC OF CHINA	+05:01
11	16	NED19910105	TERPSTRA Anne	NETHERLANDS	+05:38
12	11	RSA19910516	STRAUSS Mariske	SOUTH AFRICA	+05:43
13	17	NED19910412	SLIK Rozanne	NETHERLANDS	+06:43
14	4	SUI19910506	HANSELMANN Nicole	SWITZERLAND	+06:47
15	30	UKR19921102	BELOMOYNA Yana	UKRAINE	+07:31
16	19	USA19910724	BEHLEN Jill	UNITED STATES OF AMERICA	+08:17
17	10	RUS19910426	ANOSHINA Ekaterina	RUSSIAN FEDERATION	+08:18
18	20	USA19920324	ESSENCE Barton	UNITED STATES OF AMERICA	+08:49
19	27	CHI19910422	ROJAS Daniela	CHILE	+08:59
20	5	GER19910105	EIBERWEISER Mona	GERMANY	+09:25
21	8	CAN19920204	BROOKS Cayley	CANADA	+09:39
22	22	NZL19921228	PETERS Alexa	NEW-ZEALAND	+09:46
23	7	CAN19920402	BIETOLA Laura	CANADA	+10:36
24	25	AUS19910515	FLOOD Shelly	AUSTRALIA	+10:40
25	28	AUT19920913	MITTERBAUER Lisa	AUSTRIA	+11:51
26	24	AUS19910702	BURGESS Gillian	AUSTRALIA	+13:15
27	21	NZL19920901	MCDONALD Sarah-kate	NEW-ZEALAND	+15:24
28	23	NZL19910817	SMITH Sasha	NEW-ZEALAND	+15:46
29	9	CAN19920929	OLDCORN Natasha	CANADA	-1LAP
31		SVK19920313	SIMOROVA Natalia	SLOVAKIA	DNF2

Legend :

DNF = Did Not Finish - DNS = Did Not Start - DSQ = Disqualified

02.09.2009 - 11:59 > 30 competitors

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Finish Judge  
**WARD Tim (AUS)**

UCI President of the Commissaires' panel  
**McCORD Andy (USA)**



**STROMLO**  
FOREST PARK  
MOUNTAIN BIKE



**WALTERTURNBULL**  
THE PLACE TO MEET



Timing and Results provided by



## Lesson 2: Preparing Results for Stage Races

As mentioned in Lesson 1, above, Stage Races are races that are made up of a set of 1-Day races, called “Stages”. While each stage has its own results and winners, the results from individual stages are compiled into a “General Classification”, or “GC”, which gives an overall ranking for the entire event.

Another feature of most Stage Races is that riders must finish each stage in order to be allowed to start the next; that is, they must complete all stages.

The General Classification for Mountain Bike Stage Races is usually based upon accumulated time. That is, the race completion time for each rider from every stage is added together. The overall winner of the Stage Race is the rider who completed all stages in fastest cumulative time.

Stage races may include both bunch races (XC events) and Time Trials (DH events, or other individual times trials, including Hill Climbs). Race results for XC events are reported to the nearest second, while Time Trial results are reported to the nearest 1/1000 of a second, or at least the maximum precision of the stopwatches if it is less than 1/1000 of a second. The General Classification times are only reported to the nearest second, unless there is a tie; in order to break the tie, the fractions of seconds from any Time Trial stages are then included.

While time does not determine the outcome of the individual XC stages of a stage race (order of finish does), time does determine the outcome of the General Classification; so accurate timekeeping is especially important for stage races.

The General Classification for a stage race should include the same basic information as that found in race results for 1-Day races. The main difference is that the inclusion of a column called “Overall Time”, which is the sum of the times of each rider for all stages completed so far. The ranking is produced by sorting the results on “Overall Time” from fastest to slowest.

A General Classification is created after every stage so that riders can see the overall ranking and plan their strategy for future stages accordingly.

### Lesson 2 – Points for Review and Performance Expectations

Following this course, you should be able to:

- Explain what a “Stage Race” is.
- Explain how the “General Classification” for most stage races is calculated.
- Describe why accurate timekeeping is particularly important for Stage Races.

### Lesson 3: Breaking Ties

For mass start races such as XC events, it should usually be possible to determine the finish order even in the closest sprints. The decision of the finish judge in such matters is final; however, the judge may use all means available to decide the outcome of a sprint, such as video, photo finish cameras, etc.

However, sometimes it is not possible to break a tie; an example is DH races. Despite times being recorded to the nearest 1/1000 of a second, a tie can happen, though it is rare. The usual method used to break ties in this situation is to use the results from any seeding or qualification run; in this case, the rider with the highest qualifying time would break the tie. However, if there was no such qualifying run, or if there was still a tie, then the riders would share the same place and the prizes. In such cases, the placing immediately after that which is tied is not awarded.

For instance, suppose there is a tie for second place that can't be broken. The results would look like this:

Moe's DH Race						September 30, 2009
Results						
Rank	Number	UCI Code	Name	Team	Time	
1	3	CAN19821209	DOE, John	Dirt 'n Bikes	2:55.107	
2	15	CAN19800405	MACDONALD, Ronald		2:56.443	
	11	USA19791110	SMITH, Jim	Rip 'n Hammer	2:56.443	
4	4	MEX19830327	MENDEZ, Pablo	Mexican National Team	2:56.907	
5	7	CAN19830712	O'SHEA, Marcus		2:57.513	
...	...	...	...	...	...	...

In this example, riders 15 and 11 are tied for 2<sup>nd</sup> place; as a result, they share 2<sup>nd</sup> place, and 3<sup>rd</sup> place is not awarded.

#### Rulebook Review - Breaking Ties

Part I, "General Organization of Cycling as a Sport" of the UCI regulations describes the measures that may be taken by the Finish Judge in order to resolve a tie. Article 1.2.110 applies.

#### Lesson 3 - Points for Review and Performance Expectations

Following this course, you should be able to:

- Explain how the equipment that the finish judge can use to break ties.
- Explain how ties are broken in the general classification of a stage race.
- Describe how the results are presented if a tie can't be broken.

### Lesson 4: Preliminary Results

Often, preliminary results need to be created; sometimes, even before all riders have finished the race.

For major races, the award presentation for the winning riders takes place very quickly after the race has ended, often within 10 minutes of the race leaders crossing the finish line. Because riders are expected to attend the podium in racing clothing, it is necessary to have the award ceremony as quickly as possible.

In order to do this, the Finish Judge and timing staff must create and verify a set of preliminary results. For 1-Day races, this is fairly simply; results are created and verified a few rankings beyond the number of places for which prizes are awarded.

However, for the final stage of Stage Races, more care is required. Since an award ceremony for the results of the General Classification is usually held along with a ceremony for the final stage, a preliminary General Classification must also be produced.

Though the riders who place near the top of the General Classification usually also do well in most stages, it is quite possible for a rider who is in contention to win, or place on the podium for the GC to not place particularly highly in a stage. For stage races, you must wait for riders in contention for the GC podium to finish the race before producing the preliminary GC, or wait at least until enough time has passed that it is no longer possible for those riders to place highly enough to appear on the podium.

If you are the Finish Judge, it is your job to work with timing staff to produce and verify the preliminary results in time for the awards to proceed as planned. Sometimes an assistant judge may need to carry on with recording the finish order so that you can do this. Some advance planning is needed for this; be sure to find out the race schedule and when the organizer hopes to do the awards so that you can prepare.

### **Lesson 4 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Describe why preliminary results are sometimes created
- Explain why care is needed when creating preliminary General Classification results

## **Lesson 5: Dealing with Errors in the Race Results**

### **Verifying the Results**

As the Finish Judge, it is your responsibility to verify the race results before they are declared official and sent to Cycling BC.

To review, verifying the results for XC races is done by tracking the progress of some of the riders through the entire race to make sure that they have completed the full distance for the race. For circuit races, a good practice is to trace the top 10 to 15 riders through the lap sheets to ensure that they are placed correctly. Then, a random selection of other riders should also be verified using the same

process, including some of the lapped riders, if any. The process is the same for point-to-point races, except that the passing orders collected at various points on the course are used instead.

The process for verifying DH results was described earlier in this manual. To recap, it involves calculating the race times for some of the riders from the manual backup times, to make sure that the times (and results) created by the timing staff are reasonable. As with XC results, times should be verified for at least a few riders beyond the lowest rank for which prizes are awarded, plus a few others chosen at random.

### **Dealing with Errors once the Results are Verified and Published**

Once the race is finished and the Finish Judge has verified the results, they should be posted for the riders to see. Sometimes preliminary results are even posted before the race is completely over if some riders are not expected to finish for a while.

Some time ago, there was an official protest period of 15 minutes after the results were first posted, during which riders could protest the results; after this, the results were declared official. However, this is no longer the case. It is the responsibility of the Finish Judge to verify the results before they are posted, so that the awards ceremony can take place as soon as possible. Once the results are verified, they are considered to be official, and are signed by the Finish Judge and Chief Commissaire.

However, sometimes mistakes are made when creating the results despite everyone's best efforts.

If mistakes are discovered in the results, and can be proved by reviewing all available evidence (timing records such as print-outs from printing stopwatches, or backup times; race passing orders, official video or photo finish records), then the results should be corrected. This can happen even after the results are declared official and sent to Cycling BC.

#### **Rulebook Review – Corrections to Results**

In fact, results shown to be incorrect can be corrected by the governing body up to 30 days after the race in question. Article 1.2.111 of Part I, "General Organization of Cycling as a Sport" of the UCI Regulations describes this.

Sometimes, riders don't agree with the results whether there actually is a mistake or not. Riders can always bring what they believe to be errors to the attention of the Commissaires at any time, either before or after the awards. However, any error must be supported by evidence; if after investigating a results claim, the Commissaires are satisfied that the results are correct, then the results are not changed and the challenge to the results is denied.

But, if an error can be proven, then the results should be corrected, even if it means that some of the prizes have to be taken back and redistributed.

### **Lesson 6 – Points for Review and Performance Expectations**

Following this course, you should be able to:

- Describe the process used to verify results
- Explain the process used to declare results as “official”
- Describe the circumstances under which “official” results can be corrected
- Describe what to do when no error is found in the results despite a complaint
- Explain what happens if an error is found in the results

### **Next Steps**

After you have finished reading the course manual and the rules that have been introduced throughout the text, and you are confident that you understand that material, the next step is to contact Cycling BC to arrange to take the written test.

The test consists of several questions that you should have no trouble answering provided that you have completely read this document and the associated rules. This test is done at home at your own pace; once completed, you can e-mail back to Cycling BC for grading if you have completed it with Microsoft Word; or, you can fax it or mail it if you completed it by hand.

The passing grade is 70%; once you have passed the test, you are eligible to be licensed as a “Provincial ‘C’ level Commissaire”. Once you have obtained your license you can work at local races and under the supervision of more experienced Commissaires at provincial races. Once you have returned your completed Practical Experience Card to the Cycling BC office, you will be certified as a “Provincial ‘C’ level Commissaire”, and are eligible to take the Provincial ‘B’ level Commissaire course if you wish.