

### Manual hand timing instructions & explanation:

Manual hand timing is used as a backup to the primary electronic timing system. Two volunteers with stopwatches are positioned at both the start and finish lines to capture start and finish times-of-day for each racer, to a resolution of 1/100th second. If needed, a manual elapsed time is calculated for a racer by subtracting the start time-of-day from the finish time-of-day captured by a pair of start/finish stopwatches.

Prior to the race, all of the stopwatches are started together. (A start time of 00:00 is used, so the time-of-day for the race is not the same as actual wall clock time.) When pressed, the button at the top of your stopwatch captures the current "time-of-day" and freezes it on the top line of the LCD display (where it remains until the button is pressed again). Your job is to consistently capture and record this "time-of-day" for each start or finish event that you observe for each racer.

### How the stopwatches work:

The stopwatches are capable of recording a continual running time up to 10 hours, at 1/100 second resolution (after reaching 10 hrs, they would wrap-around and start counting from 00:00 again, still at 1/100 resolution). The watches feature several display modes. The one we use for time-of-day timing has two rows of seven digits across it, with the word "split" in the upper left corner. If your watch accidentally gets out of the correct mode, press the "Mode" button enough times to get back to the correct one. Don't worry, doing this has no effect on the running time of the watch.

The bottom row of digits displays the running "time-of-day", and is not of use, other than to indicate that the watch is operating. The button that starts the clock running has been removed, so it is not possible for a user to accidentally stop, reset or restart the running clock.

When pressed, the only button at the top of the watch will freeze a "time-of-day" timestamp on the top line of digits. This is what should be recorded for each start/finish racer event. The value will remain static until the button is depressed again. When pressed, the second line will momentarily display a "split time" showing the time elapsed since the last time the button was pressed. This should be IGNORED. After a few seconds, the bottom line will revert back to the running time-of-day.

The "Recall" button will retrieve up to eight of the first timestamps that are captured by the top button, which is not a useful function for our purposes. If you accidentally get into a "Recall" display, press this button until the normal running time display appears again.

Each time a button is pressed, the watch will beep. This is useful for knowing that you successfully pressed a button, and can also warn that you pressed one accidentally.

### Advice for best timing results:

- 1) Position yourself with a clear view of the start or finish line.
  - a) At the start line, work with the start referee to make sure your position will not interfere with race operations, including coach support.
  - b) At the finish, line yourself up as best as possible to the finish line, preferably behind the electronic eye. Be sure to stay clear of the electric eye and wiring, so that you do not accidentally bump it.
- 2) For consistency, each racer should be observed from the same position.
  - a) For the start event, key off of the action of the start wand opening. It pops open quickly when the racer hits it.
  - b) For the finish, key your response off of the same body part crossing the line for each racer (such as the shin).
- 3) Use your forefinger to press the stopwatch button, not your thumb.

### Recording the results:

- 1) Fill out all information requested at the top of the HANDTIME sheet. You will be filling out several of these sheets during the race. It is vital that the requested information be completely filled in on each sheet.
- 2) Record the bib number and your captured time-of-day (all the digits, including the hour) on the time sheet. If, for whatever reason, you think the time you captured is erroneous or inaccurate, cross it out. If you miss capturing a time for a racer, write "no-time". (This is why we have two hand timers at both the start and finish lines.)
- 3) The hand time record sheet is purposely unnumbered because it is intended that you capture race events in the order that they happen (sometimes the race does not proceed in numerical bib order). Write a timestamp entry for each racer that starts or that crosses the finish line. It is unnecessary for you to record anything for racers that do not race (DNR) or do not finish (DNF). This is already kept track of by the Start and Finish referees. Just record who starts and who finishes.

- 4) Do not go back and change any previous entries. For instance, if there is a rerun for a racer, simply record the information on the current line. Do not alter or erase any previous information that may exist for that racer.
- 5) The two hand timers at the start line will each be able to capture the time-of day for all racers. This might not be possible at the finish line in the case of two closely finishing competitors. At the finish, if two closely spaced racers are approaching, the hand timers should quickly arrange for each of them to capture the time of one of the racers. This is a rare event, but it has happened.
- 6) Please write clearly!!
- 7) Please write clearly!!
- 8) Please write clearly!!

#### Before the race:

Be sure to record start and finish timestamps for the forerunner racers (the ones that check out the safety and quality of the course). Double check your hand timestamps against your hand time partner, and also against the electronically captured timestamp. All should agree within a few tenths of a second.

#### During the race:

- 1) Stay alert for all start and finish events! Do not get distracted. If the electronic timing fails for a racer, the hand times are the only backup available.
- 2) At the start line, warn the starter if you are not ready to capture a time (e.g.: stopwatch problem, blocked view). Also, always notify the starter if you miss a time, or think you have captured a bad time.
- 3) At the finish line, you can prepare yourself by staying aware of the current race order and bib number(s) on course. Listen for the bib numbers announced over the radio by the start referee and by the mid-course spotter. (You won't have a radio, but you should be able to hear one carried by nearby officials.) Notify the electronic timing person if you have a stopwatch problem, if you miss a time, or think you have captured a bad time.
- 4) At the finish line, you can be a big help to the electronic timing person by calling out "racer # approaching the finish line". (Oftentimes, the electronic timer does not have a good view of incoming racers from inside the finish tent or hut.)
- 5) Periodically compare your times against that of your hand timing partner to make sure they are reasonably close (within several tenths of a second.) Over the course of the day, you may notice a small, systematic time shift develop between the watches. This is normal and there is a procedure for compensating for this when hand times are used for a racer.

- 6) At the finish line, be sure to watch for out for your own safety. Be prepared to jump out of the way in case a racer goes out of control!
- 7) Notify the Start referee or Finish referee of any problems or concerns you may have related to the hand timing.