PROFESSIONAL TIMING

CHRONOPRINTER 705

Operating Instructions

Version 1.0e December 99

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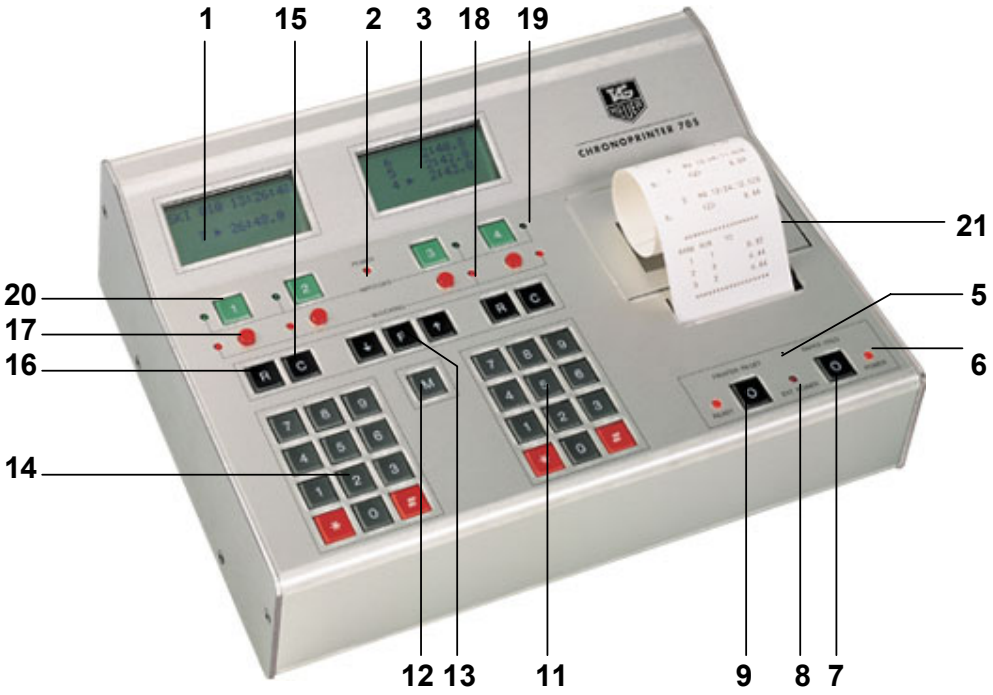
CP 705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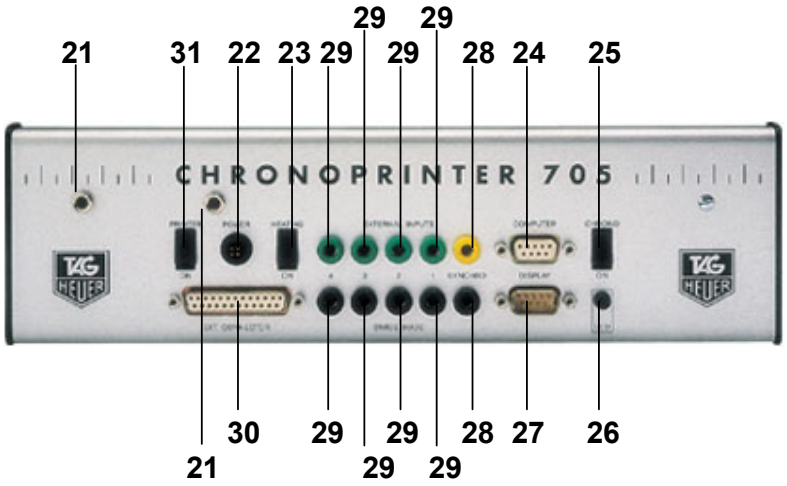
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CHRONOPRINTER 705
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1. DEVICE DESCRIPTION

1	**LCD Display – Left**	:	Handles all STARTS in Alpine Ski and Cross-Country. Handles the BLUE course in parallel racing.
2	**POWER LED** (Timer)		Timer battery condition indicator. Batteries must be changed if flashing.
3	**LCD Display – Right**		Handles all FINISHES in Alpine Ski and Cross Country Handles the RED course in parallel racing.
4	**Paper Compartment Cover**		Allows access to the printer paper roll compartment. Push on the sides of the cover to pop up and remove for access. Do not push down on the Plexiglas.
5	**HEATING**		Internal Timer Printer Heating Indicator. The red LED is on when the heating circuit is engaged.
6	**POWER LED** (Printer)		Printer battery condition indicator. Batteries must be changed if flashing.
7	**FEED**		Printer Paper advance.
8	**EXT. POWER**		LED Indicator that glows red when external power is connected and applied.
9	**RESET**		Reinitializes the Printer
10	**CONTROL**		Tests for correct printer operation and for the presence of printer paper
11	**Keypad – Right**		Used to control functions and to input competitor numbers for FINISH operations in Alpine Skiing and Cross-Country. Used to input Competitor numbers for Starts AND Finishes in Parallel Racing.
12	**"M" Key**		Switches in and out of AUTOMATIC and MANUAL Finish mode for Alpine Ski or Cross-Country. In Parallel SEQUENTIAL mode this key requests the calculation of the difference time between 2 competitors.
13	**"F" and ↑↓ Key**		UP & DOWN Scroll controls while in any menu. The arrows allow for movement within any menu.
14	**Keypad - Left**		Used to control functions and to input competitor numbers for START operations in Alpine Skiing and Cross-Country. Used to input Competitor numbers for Starts AND Finishes in Parallel Racing.

15 C Keys Used to effect corrections.

16 R Keys RECALL of unidentified times in memory for identification with competitor numbers at start or finish.

17 BLOCKING Keys Blocks and/or unblocks external inputs 1 through 4

18 BLOCKING LEDs Indicator lamps. Light as inputs 1 through 4 are blocked.

19 IMPULSES LEDs Indicator lamps that show when external inputs 1 through 4 are triggered.

20 IMPULSES Keys Manual triggering keys for timing channels 1 through 4.

21 HOLDER Provided to hold a paper spindle.

22 POWER External power adapter for 12 to 18 Vdc.

23 HEATING ON / OFF switch to activate internal heating of printer.

24 COMPUTER RS232 / 9600 Baud serial data output for ON LINE or OFF LINE connection to a PC. Input connection for data transfer to CP 705 of any upgrade programs.

25 CHRONO ON / OFF switch for timer segment of the CP 705

26 LCD Contrast adjustment of LCD screens

27 DISPLAY RS232 output for Display Board or other serial device.

28 SYNCHRO Initialization synchronization jacks

29 EXTERNAL INPUTS Timing Input Jacks

Timing (INPUTS)	Typical Usefor Alpine Ski or Cross Country	Typical use for Parallel Events	
		Sequential Mode	Differential Mode
1	Start	Start BLUE COURSE	
2		Finish	Finish BLUE COURSE
3		Start RED COURSE	
4	Finish	Finish	Finish RED COURSE

30 EXT. CONNECTOR Connector for full access to all 16 timing channels as well as data outputs and special remote functions

31 PRINTER ON/OFF switch for printer component of CP 705

2. IMPORTANT OPERATING INSTRUCTIONS

- **Never** use the CP 705 without batteries.
- Always remove batteries from the CP 705 if the device will not be used for long periods of time. Dead or **old batteries that leak** can seriously damage the system and void your warranty.
- **Use the external supply (AC/DC Adapter Ref. HL 605-1)** in conjunction fresh batteries whenever possible so as to conserve battery power.
- **Make certain there is enough paper** loaded in the printer prior to starting a timing session if the printer must be used.
- **Under difficult atmospheric conditions** (if the CP 705 is used outside or in windy or humid conditions) you can of course **use the CP 705 with the printer turned off**. All data can be reprinted after the termination of the race.
- Although the CP 705 is designed to endure limited outdoor use, **always protect it** from the effects of rain, snow or dust when operating outdoors.
- If you wish to **clean your CP 705**, never use abrasive materials or harsh detergents.
- **Pay close attention to all messages** on both of the LCD screens and on the printer when in use.
- If it is necessary to turn the CP 705 off/on (timer section), **make certain to leave the power switch in the off position for at least 2 seconds** before turning the system on again.
- To protect your CP 705 from possible damage, it is best to **effect all external connections** (start gate, photocell, Computer, Displays, etc.) with **the CP705 turned OFF.**
- If you have the optional Aluminum Case for the CP705, never store any cables, manuals or other parts in the cover as it is possible to damage the displays and keyboards.
- Always keep paper loaded in the printer. Absence of paper installed in the printer can cause progressive deterioration of the printer head.
- The basic operation of the CP 705 is a simple matter of a few key operations. More complex operations are likewise easily mastered. Please take the time to read this description carefully to ensure success.

Operation

Power system: For added timing security, the **CP 705 has two separate battery sets** of 6 "C" cell batteries each **for a total of 12 "C" cells**. One set is devoted to the **timer** section of the device, the other is devoted to the **printer** and **heating** functions.

Three (3) separate power switches on the rear of the 705 and associated LED indicators allow the operator to choose how best to manage the power systems for each application and to monitor their condition.
A **battery compartment** for all batteries is accessible on the bottom of the CP 705.

There are 3 power switches There is one power switch each for the **TIMER, PRINTER and HEATING** sections of the 705. All of them are located on the rear panel of the 705.

Make certain you use the correct switch and that all power switches are **turned off** for storage of the device after use.

Turn the Printer On with the printer power switch on the rear panel. **(PRINTER ON).** Look for the red printer power LED to illuminate.

Turn the Timer On with the timer power switch on the rear panel. **(CHRONO ON).** Likewise look for the red timer power LED to illuminate.

Check that you have an adequate supply of paper loaded in the printer.
Check that the red LED power indicators for both the Timer and the Printer are not flashing.

If either of them or both are flashing, replacement of the appropriate batteries is required before your timing session continues.

You can use either the left or the right numeric keypads to respond to questions and input data during the initialization of the CP 705.

Watch the LCD displays and the printer closely and respond to the questions posed during the initialization process. In general:

- Use the ✳ **Key to scroll** through available selections
- Use the **# key to validate** your selection or to respond with "yes"
- Use any other appropriate **numerical key to input a correction.**
- Use the **C key to clear** or correct BEFORE you validate a response

Is the correct date indicated?

- If **YES**. Accept with the **#** key
- If **NO**. input the new date, followed with the **#** key. Use C to correct any input error.

Is the Time of Day correct?

- The CP 705 has an internal Time-of-Day RTC clock circuit that feeds the memorized time of day to the timer section when the CP 705 is first powered up.
- This is a handy feature but you will often have to override the choice if only to re-synchronize with other external timers when operating back up systems in synchronous time-of-day, or to simply synchronize from a time of 00:00:00:000
- **If YES** Accept with the **#** key
- **If NO** or if you wish to synchronize with other systems to a preset time-of-day, use the ✳ key and then input the time-of-day from which you wish to synchronize. (Use the C key to correct any input error.)
- **Note:** Setting the correct time of day and synchronizing to an external time is an important component of correct time keeping. Once you have input a time of day, **the internal clock of the timer can be triggered by a pulse from a start gate or other device connected to the "SYNCHRO" jacks**, or by manually triggering any of the green keyboard buttons for channels 1 to 4.
- It is recommended that you always trigger the synchronization from the "SYNCHRO" banana jacks on the rear of the timer. Note also that if you have a start device connected to the input jacks of channel 1 - **this will not synchronize or trigger the waiting clock.**
- The 705 will only trigger a synchronization of the internal time-of-Day clock from the SYNCHRO jacks or from one of the manual timing buttons on the keyboard for channels 1-4. Use a simple banana jumper cable from the channel 1 input to the yellow SYNCHRO input to allow this to happen, or move the start gate pair over to the SYNCHRO jacks for this one-shot purpose.
- **It is recommended that you follow the choices indicated by the arrow → for your first tests of the system**

Erase the memory?

- **Yes** → Press ✳, confirm with **#**

The maximum memory capacity of the CP 705 is **21,162 individual times**.

A typical timing session for a 200 person event with a start and finish is +/- 500 lines of memorized times.

You have a GREAT deal of memory to work with even if many events are stored.

- **NO** Chose this option if you wish to keep all of the previously stored data in the memory.

Make sure you have enough room for the race you intend to run if you select this option.

Once the memory is filled, new data begins to overwrite older data in a FIFO format (First in, First Out…)

- **4 sport - timing modes are available. Use the ✳ key to scroll the selections**

I	**ALPINE SKI**	(Individual Starts)
II	**PARALLEL**	(Parallel Racing)
III	**CROSS-COUNTRY**	(Mass or Group Starts)
IV	**SPLIT / LAP**	(Start at zero, Lap times)

3. ALPINE SKI

1. Chose ALPINE SKI

- On the right hand LCD display, if you see “PARALLEL”, “CROSS-COUNTRY” or any other program mode, change to the next available selection using the ✳ key until you see ALPINE SKI, and validate your choice with **#**.

2. Chose which run (RUN) you wish to work (use the ✳ key to select other runs)

- 1st run (FIRST RUN) → Validate with **#**

The 705 manages each successive run or 1-run race in separate files known to the 705 as “RUNS”. You can elect to combine “runs” together to handle events with two or more heats, such as in Alpine skiing or in Bobsled In all cases, consider a “run” as either a 1 run race or the 1st or next successive run of a multiple run event.

- 2nd run (or more) (WITH PREVIOUS RUN) allows you to associate this new run you are creating with any preceding run stored in the 705. (See the MENU section for details)

3. Start Numbers (Change with the ✳ key)

- **AUTOMATIC** → Accept with the **#** key. This option automatically presents race numbers in the start in sequential order.
- **FROM PC LIST**, if you wish to load a start list of race numbers in pre determined start order from a results computer system or file.
- **MANUAL** if race start numbers will appear in random order.

4. AUTOMATIC START NUMBERING (Change with ✳)

- UP → Accept with the **#** key. Sequences start numbers upwards from 1 or a pre-selected value.
- DOWN Sequences start numbers automatically in a downward progression from 100 or any other pre-selected number.
  Forerunners timed using numbers preceeded by a zero (01,02,03…) are not considered in the run or race ranking.

5. YOU ARE NOW READY TO BEGIN TIMING

- On the left LCD display, the number 1 is ready for a start.
- To manually **simulate** starts and finishes during testing, **you can trigger a start with the green button “1” and finishes with green button “4”.**
- For live timing applications:

YOU MUST FIRST UNBLOCK the timing inputs 1 and 4 to which your start gate and finish photocell are connected before any triggering from these sources will occur. Red buttons below the green manual triggering buttons for channels 1 to 4 must be used to unblock inputs 1 and 4. **Red LED on = BLOCKED INPUT. LED off = UNBLOCKED INPUT.**

6. RACE TIMING

- Once a start is received on input 1, on the right LCD display you will see the bib number of the racer on course and the running time.

- You can put as many competitors on course as you like, but you will only see the corresponding running time of the first three next expected to finish based on start order.

- Finishes are assigned to the racers AUTOMATICALLY in the order of start. Finish impulses must arrive on input 4.

- Once a start and a finish are received for a particular bib number, the CP 705 will calculate a net time spent on course and provisional rank for each finishing racer.

- Once your field has completed the race, or in fact at any time during the competition, you can print a provisional ranking list based on best to worst time using the F and then the **#** keys in combination (F+**#**) In automatic mode, you have just completed your 1st event with the CP 705.

- As in life however, nothing is ever so simple as having all who start in perfect order all finish in the same sequence.

- The following section will allow you to correct for those who do not start, finish or for common mistakes that can occur in time keeping. The keystrokes for most functions are simple to learn.

7. RECAP of FUNCTIONS, AUTOMATIC Timing Mode

REMINDER — As you key in commands using the keyboards, please read and pay attention to the directions and printing appearing on the LCD screens and on the printer.

START (Left-hand keyboard)

N° + #	To change the N° of the racer who is next to start (Press ✳ to correct any input mistake BEFORE confirming with the **#** key)
C + #	To desidentify the last competitor(s) started (Ex. If the racer inadvertently opens the start gate prior to actually starting and accidentally triggers the **#**1 start input)
C + ✳	To advance to the next racer number in the start sequence (Ex. If an expected racer is not present for the start, use this sequence to simply advance to the next competitor in the start list.)
N° + C + #	To disindentify a competitor N°. already started
R	Recall of all times canceled using **C + #**

FINISH (Right-hand Keyboard)

N° + #	To input another racer number next expected to finish (Use ✳ to correct any mistake BEFORE using the **#** key to confirm your choice.)
C + #	To disidentify the last competitor(s) finished (Ex. Either a course worker or some other disturbance causes the finish photocell to trigger unexpectedly. This sequence puts the racer back into finish position waiting for the next - correct - finish impulse
N° + C + #	To disidentify a competitor N°. already finished
C + N° + #	DID NOT FINISH (Aborted) Removes the selected racer from the list of those waiting to finish.
R	Recalling of all finish times discarded using the **C+#** combination OR stored during operation in MANUAL finish mode
M	To enter MANUAL finish mode. (Press M again to return to AUTOMATIC finishes mode).
ATTENTION	Make sure that you are certain which racer is to be designated as a DID NOT FINISH.
F + #	QUICK RANKING

Keystroke commands **C + #** (either at the start or finish) can be quickly repeated in the case where many false start or finish impulses are received. This theory also applies to the use of the **C +** ✳ combination to advance many numbers at the start.

8. " R " (Recall Times)

This key allows you to manage via the LCD screens any or all times that are either not identified or associated with a racer number, or those times that were discarded using the **C + #** key combinations.

These times that are not directly used by the 705 in time calculations are deemed to be **recall**able for use from a special memory location.

Example: False FINISH → **C + #.** The finish time that is now not being used is printed with a minus (-) sign beside it.

Press **R** (on the right hand keyboard). This time now appears on the right LCD preceded by ">>".
If this time is:

a) A FALSE AND UNWANTED TIME→ Use the **0** key and confirm your choice with **#**. The time is now discarded from the Recall memory. (But it is recorded on the printer and in the memory of the CP 705…)
b) A VALID Finish for a racer→ Input the racer number and confirm the choice with the **#** key. This finish time from the Recall memory is now associated with this racer number and used in the net time calculation.

It is recommended that you quickly identify or discard any times stored in the Recall memory pile of either the start or the finish as soon as you can to minimize any confusion if you need to quickly manage time data under pressure. Keeping this pile small allows you to more easily identify any time-of-day split being recalled.

9. " M " (Switching between AUTOMATIC and MANUAL finish modes)

This key is **VERY IMPORTANT**

In most cases it is possible to determine who will be the next racer to finish.

The running time on the right hand screen helps you determine if an approaching skier is headed for a reasonable time or if something is wrong.

In cases where you are not sure what is happening or who is next to finish, the MANUAL mode of finish management (accessed by pressing the **M** key) allows you to key in the bib number of the racer AFTER the finish impulse(s) is/are received.

The **M** key switches you back and forth between the AUTOMATIC or MANUAL modes of finish time identification.

Once absorbed in MANUAL finish mode, finish times can be Recalled using the R key and racer numbers associated to the sequence of times after the fact once you have figured out what took place and in which order.

Examples:

3 racers are on course, and you are not certain which ones are arriving at the finish and in which order.

Press **M** (enter MANUAL finish mode). 4 finish times are generated by the photocell connected to input 4.
Since you were watching the order of finish, you know after the fact that the actual order of finish was a false impulse - 13 - then 11

You can note this information as it happens on the printer tape if you wish.

Press **R**, you can now see the sequential pile of recalled memorized finish times.

Input Number 12 first, next to the correct corresponding finish time, confirm with **#**.

Input No. 0 to delete and discard the false finish time, confirm with **#**.

Input No. 13 next to the correct finish time for 13, confirm with **#**

Input No. 11, finally, and confirm with **#**

Press **R** again to reenter the normal timing screens.

Consider staying in MANUAL FINISH MODE if managing the finish line is difficult due to blowing snow or a great variance in the ability of arriving racers.

Press **M** again to reenter AUTOMATIC finish mode if conditions permit and you are certain that the finish impulses will be automatically assigned to the correct racer numbers as they finish.

10. OTHER START NUMBERING MODE CHOICES

- **Timing from a Start List Downloaded from a PC**

  Contact your authorized TAG Heuer Dealer

- **Timing in MANUAL mode**

  This mode is similar to timing in AUTOMATIC mode, it differs only in that you must always input the next racer number to start when a start impulse is received and continue to do so for each successive racer.

  BEFORE a Start **N° + #**

  AFTER a Start **R+N°+#** (if the racer number was not previously input.)

  OTHER START NUMBERING OPTIONS (See point I.3)

  In the last case, AFTER a start impulse is received, the start time is recalled using the **R** key. Input the racer number next to the corresponding start time and confirm you selection with the **#** key.

During timing it is possible to change from AUTOMATIC to MANUAL start mode or back again, by accessing this change in the GLOBAL CNTRL (Global Control) Menu found in the selection found using the **F** key.

11. 2nd Run in ALPINE SKI timing (or an association of RUNS)

Always check the correctness of your run file data before starting another RUN to which the information will be added.

Using the **F** key, chose **NEW RUN** using the ↑↓, select with **#** and confirm with ✳.

ALPINE SKI # a NEW run HAS BEEN CREATED

This **NEW RUN** will now have to be associated with the previous run. Instead of using the **FIRST RUN** option, use **WITH PREVIOUS RUN** with the ✳ key and confirm with **#**.

The number of the new run is now indicated use ↑↓ to move to the previous RUN number and confirm your choice with **#**. The new run is now associated in combination with the previous run.

Select the start numbering mode you wish to use (change with the ✳ key)

- **AUTOMATIC** this option automatically presents race numbers in the start in sequential order.
- **FROM PREVIOUS RUN** → for bib numbers derived from the order of finish of the previous run.
- **FROM PC LIST**, if you with to load a start list of race numbers in pre determined start order from a results computer system or file.
- **MANUAL** if race start numbers will appear in random order.
- **Chose FROM PREVIOUS RUN** → confirm with **#**.

Chose the numbering mode (change with ✳)

- **UP** Sequences start numbers upwards from 1 or lowest pre-selected value.
- **DOWN** Sequences start numbers automatically in a downward progression from 100 or any other highest pre-selected number.
- **BIBO** → Select with **#**. To invert a certain number of the ordered finish results from the proceeding run, input a value as required. Example, to flip the 1st 15, type in 15 and confirm with the **#**.
- You can now request the printing of a **START LIST**
- **YES** → **#**
- **NO**, press ✳
- Competitor bib numbers will now appear in the start LCD as requested as a function of the proceeding run's results in the **BIBO** format. Begin timing the 2nd run.
- During the 2nd run timing you will now see the printing of the 1st run's time and the total time as calculated by the 705.
- The **F + #** keys give you now a GENERAL ranking of total time results (the two runs added.)

12. F key Menu (Functions) Alpine Ski

This Function Menu is quite a powerful resource. It allows, prior to timing an event, the adjustment of all important function parameters. During timing you may ask for ranking reports or make corrections to any racer number in terms of time data and net time calculations.

To enter this menu, you must initialize the timer and be in timing mode(point 1.5)

Use the **F** key to explore the options presented in the Function Menu.

Once in the Function Menu, use the “up and down ” (↑↓) keys to access the different options.

Note that not all options can be seen initially, so scroll down to see all that can be accessed.

Confirm your selected menu choice with **#**.

To exit, press **F**. If you are in a sub Menu, press **F** repeatedly to exit back to timing mode.

The most important menu options are presented at the top of the Functions Menu list to facilitate easy access by the operator.

A keyboard shortcut to access the FUNCTION RECALL menu is (**F + R**).

F + # provides a quick or provisional ranking of two or more combined runs

GENERAL RANKING

Once all corrections (if necessary) and disqualifications have been effected, use the RANKING menu to print definitive results from either one RUN or combination of RUNS

4. PARALLEL

Refer to the same initialization process as described in sections 1 to 5

Note that timing is effected to 1/1000th precision

Choose DUAL and confirm with #

Two timing modes are available (change the selection with ✳)

1. A **Mode SEQUENTIAL**

This DUAL SEQUENTIAL mode is for simultaneous or separate net timing of two separate parallel racecourses. The left-hand keypad controls the BLUE racecourse with starts on INPUT 1 and finishes on INPUT 2. The Right-hand keyboard controls the RED racecourse with starts on INPUT 3 and finishes on INPUT 4. You can opt to link INPUTS 1 and 3 together if on course net timing for both competitors is taken from a common start signal. Once both competitors reach the finish line, use of the M key prints the difference in the two measured Net Times on course for that pairing. This is considered as SEQUENTIAL – DIFFERENTIAL mode timing.

2. B **Mode DIFFERENTIAL**

In this Differential mode there is no start signal or net time on course considered, only the difference at the finish between the two competitors on the BLUE and the RED courses.

Mode SEQUENTIAL

3. **SEQUENTIAL Mode (Confirm with #)**

4. **Chose a run (RUN) (Change with ✳)**

When creating a RUN, it can be considered as the first run or as a 2nd run to be associated with a previous run in memory.

- 1st run (FIRST RUN) → Select with #
- 2nd run Nth run (WITH PREVIOUS RUN) to be associated with a previous run (see MENU))

5. **Start Numbering** (change with ✳)

- AUTOMATIC**, if the bib numbers will be starting in sequential order**

Chose UP, for progressive numbering from 1 on the BLUE course, and from 50 for those who will race on the RED course. (You may of course use other numbers rather than these default values using the **N° + #**).
Select with # if UP is you choice.
Chose DOWN to countdown from bib 50 on the BLUE course and from 100 on the RED course.
Select with **#** if DOWN is you choice

- MANUAL → **Select with # to allow you to manually introduce start bib numbers**

Whichever parameters you select are stored and printed.

Now input the bib number of the racer to start in the BLUE course and confirm with the # key
Do the same for the appropriate bib number ready for a start in the RED course

6. Timing

You are now ready to begin timing.

- To manually **simulate** starts and finishes during testing, **you can trigger a starts with the green buttons "1" and "3", finishes with green buttons "2" and "4".**

- For live timing applications:

YOU MUST FIRST UNBLOCK the timing inputs to which your start gates and finish photocells are connected before any triggering from these sources will occur. Red buttons below the green manual triggering buttons for channels 1 to 4 must be used to unblock inputs 1 –4. **Red LED on = BLOCKED INPUT. LED off = UNBLOCKED INPUT.**

7. RACE TIMING ! (Parallel)

Input bib No 1 with the left-hand keypad + **#**
Input bib No 2 with the right-hand keypad + **#**

Start impulses will arrive on inputs 1 and 3 respectively for the BLUE and RED racecourses.

The running times on course for each racer will appear on the LCD displays. Finishes are expected automatically and will be assigned in order of start.

You may put as many racers on each course as you can handle, but it gets pretty exciting pretty quickly for the operator in this dual timing mode.

Finishes for the pair on course will arrive on inputs 2 and 4, Blue and RED course respectively

The 705 calculates each time on each course and provides a provisional rank-to-date.

Send or simulate a few more pairs of racers and then request a ranking list using the **F+#** keys. You will get separate net time rankings for the BLUE and the RED racecours

8. CORRECTIONS OR MODIFICATIONS DURING TIMEKEEPING

N° + #	To input or change a bib number ready to start
C + ✳	False Start! (Ex. Competitor inadvertently opens the start gate)
C + #	False Finish (Ex : A course worker mistakenly goes through the finish while a racer is on course)
R	RECALL of times not yet associated with net time calculations This important key allows you to make net time calculation corrections using the LCD screens to access start or finish times of the two courses received on inputs 1 to 4, or using times discarded with the **C** key.

Example:

False start on the BLUE course. Use the left-hand keypad and input **C+✳**. The unwanted start time is now printed with a – sign next to it

Press R and the unwanted time appears with the input number beside it, in this case 1.

If this really is a false start on the BLUE course, get rid of the time from the Recall memory with **0 +#**

If this is a valid start time for a valid bib number, input the bib number and conform with **#** (**N° + #**)

It is highly recommended to immediately manage and use or discard any times stored in the Recall memory so that you are always keenly aware of which times are present there to avoid confusion under pressure.

Press the **R** key to return to regular timing mode once you have completed any Recall operations.
More complex net time functions and other operations can be accessed using the **F** key and associated MENU

9. 2nd Run in DUAL Sequential Mode

- Before starting a new run that will be associated with any previous results in the memory of the 705, make certain that you verify the contents of the memory for correctness.
- Use the F key to enter the MENU. Chose NEW RUN with ↑↓, select with **#** and confirm with ✳.

PARALLEL #
SEQUENTIAL #

The new RUN is now created.

- This new run must now be associated with a previous stored run in the memory of the 705 to be considered as a 2nd run of anything.
- Change the choice from FIRST RUN to PREVIOUS RUN using the ✳ key and confirm your choice with **#**.
- The number of the NEW RUN is now indicated. Use ↑↓ and the number of the stored run that you wish to associate with, and validate the choice with the **#** key.
- The NEW RUN is now treated as the 2nd run of an event associated with the previous run you selected from the memory of the 705.
- You can now chose to use AUTOMATIC or MANUAL start numbering modes as previously described.
- Combining results from a previous RUN file in the 705 requires that you swap keypads for the RED / BLUE race courses. The 705 will only combine times from the 1st run of a dual event if it sees the same numbers on the same keypads (left and right) even though the racers have switched race courses.
- Control of the RED racecourse is now on the Left-hand keyboard; control of the BLUE racecourse is now on the Right-hand keyboard – the inverse of the 1st run of this « event »
- As the racers finish, along with their NET times for the 2nd run you will see their 1st run times and a TOTAL combined time and ranking based on total time.
- The **F + #** key combination will yield a printing of results for the two racecourses based on TOTAL combined time.

2. B Mode DIFFERENTIAL

In this mode there is no start signal or net time on course considered, only the difference at the finish between the two competitors on the BLUE and the RED courses.

10. DIFFERENTIAL Mode (Confirm with #)

11. Chose a run (RUN) (Change with ✳)

When creating a RUN, it can be considered as the first run or as a 2nd run to be associated with a previous run in memory.

- **1st run** (FIRST RUN) → Select with **#**
- **2nd run or Nth run (**WITH PREVIOUS RUN) to be associated with a previous run (see MENU))

12 PENALTY

- In the first round of any pair racing against one another in Parallel events, a maximum allowable difference time is often assigned.
- This maximum allowable time difference is called the "PENALTY". It is used ONLY in the first round when a racer is either too slow, has missed a gate, or has fallen and then must race against the same racer in the second round as they change race courses.
- This PENALTY system means that each pair of racres must race two runs in each round in order to advance to the next round.
- Input the desired PENALTY value. This will depend on course length and is decided by race officials. Since most parallel race courses are quite short (not in excess of 30 seconds) a value of 1.5 seconds is often used and is considered a difficult amount to make up over 30 seconds of head-to-head racing. Validate your selected PENALTY value with #.
- The maximum programmable Penalty is 9.9 seconds.

  ALL MEMORIZED RACE PARAMETERS ARE PRINTED OUT FOR VERIFICATION.

  IF THEY ARE NOT AS YOU WISH, REFER TO THE MAIN MENU (F KEY) FOR CHANGES

13 RACER NUMBERING

- In differential mode, since the time DIFFERENCE at the finish between each pair of racers is the only concern, there is no start time or sequence to consider. You will be working with finishes only.
- For the BLUE course, input the racer number expected at the FINISH with the LEFT Keyboard and validate with #
- For the RED course, input the racer number expected at the FINISH with the RIGHT Keyboard and validate with #

14. TIMING

You are now ready to begin timing.

- To manually **simulate** finishes during testing, **you can trigger finishes with green buttons "2" and "4".**

For live timing applications: **YOU MUST FIRST UNBLOCK the timing inputs** to which your finish photocells are connected before any triggering from these sources will occur. Red buttons below the green manual triggering buttons for channels 2 and 4 must be used to unblock inputs 2 & 4. **Red LED on = BLOCKED INPUT. LED off = UNBLOCKED INPUT.**

15. RACE TIMING! (Parallel)

- Input bib No 1 with the left-hand keypad + **#**
- Input bib No 2 with the right-hand keypad + **#**
- Finish impulses will arrive on inputs 2 and 4 respectively for the BLUE and RED race courses.
- The first racer to finish will get a time of 0.000 as the winner of the run (Printed and displayed)
- The second racer to finish will get a time based on the actual time since the first racer finished
- If the time behind exceeds the preprogrammed PENALTY time, the PENALTY time will be used.
- Send more pairs of racers to simulate an actual run
- Using the F+# key combination, obtain a provisional RANKING listing of those pairs of skiers who have contected the first run of this round.

16. CORRECTIONS OR MODIFICATIONS DURING TIMEKEEPING

N° + # **Left Keypad** **Right Keypad**	To input or change a bib number before a finish in the BLUE course. Press * to correct any input error befoire confirming you choice with the # key. Same functions but for RED course.
C + # **Left or Right Keypad**	False Finish, BLUE or RED course. (Ex : A course worker mistakenly goes through the BLUE finish while a racer is on course) Use the same concept for the RED course.
R	RECALL and correction of times incorrectly associated with other finish time calculations This important key allows you to make difference time calculation corrections using the LCD screens to access finish times of the two courses received on inputs 2 & 4.

Example:

The concept of PAIRS of racers in this DIFFERENTIAL mode of operation is very important. Whenever you make corrections or time adjustments you must respect this concept.

- Racer No. 10 is expected to finish in the BLUE, racer 11 expected to Finish in the RED
- A false finish impulse is is received at the BLUE finish affecting racer Number 10.
- Use C+# in the LEFT KEYPAD to correct this BLUE course false finish.
- Take the two correct finishes for the RED and the BLUE

R Left Keypad – To RECALL and work with times that were incorrecectly identified during timing

Press the **R** key of the Left Keypad and you will be presented with times to correct

- Use **0 + #** to cancel any unwanted times

- Find the correct finish time for racer number 10. Use 10 + # to validate the choice. The Right LCD Display now asks: **WITH WHAT COMPETITOR?**

- Input the correct number of the racer that number 10 was racing against. Inthis case racer 11. Confirm with the **#** key.

- The correct cal;culated difference between the two racers will not be refected in any new **RANKING** listing.

- To override the **PENALTY** function and to assign a difference time GREATER than the maximum allowable PENALTY of 9.9 seconds, you must first eliminate the finish time of the 2nd place racer of a pair using the C+# combination, and then use **RECALL (R)** to reidentify the finish time in excess of the 9.9 seconds.

17. 2nd RUN in DIFFERENTIAL MODE

- Before moving on to the 2nd run, make certain that the results of the 1st run are exactly correct and that all relevant corrections have been made.

- Enter the MENU using the (F) key and select NEW RUN with the ↑↓ **keys**, validate with # and confirm with *.

PARALLEL #

DIFFERENTIAL #

- The new run is created.

- The new run is now considered a 1st run. You MUST select a receeding run form the memory to make this a 2nd run. Change the display from « 1st RUN » to « WITH OTHER RUN » using the * key and confirm your choice with #.

- The number of the new Run is indicated. Use the ↑↓ keys to select the run with which you wish to combine the 2nd run with.

- Start the second run using the exact same operational concepts as that of the 1st run, EXCEPT THAT THE RACER NUMBERS ARE REVERSED in terms of the race course.

- Put the racer numbers who finished in the RED course in the 1st run using the LEFT Keypad now (BLUE COURSE).

- The CP 705 will automatically pull up the racer who was associated with your selected BLUE course racer from the 1st run and place him in the RED course, along with the memorised difference time from the 1st run.

- GENERAL Ranking listing will give you a simplified summary of all pairs and their difference times of the 1st and 2nd runs using the F+# key combination.

5. CROSS - COUNTRY

This timing mode allows for « Mass Start » or « Group Start » either by a start IMPULS (Starting pistol, Start gate, manual contactor etc.), or at a DEFINED TIME

The following menu explanation allows for a better understanding of the different possibilities.

1. **SELECT RUN** (Change with ✳)

When you create a RUN you can consider it as the 1st RUN or as the 2 RUN if you like to associate it WITH A PREVIOUS RUN. (Run addition)

- **FIRST RUN** → VALIDATE with **#**
- **WITH PREVIOUS RUN** (Associate a RUN with a PREVIOUS RUN)

2. **NUMBERING CNTRL** (Change with ✳)

- **USER DEFINED:** Manual introduction of the competitor numbers.
- **FROM PC LIST:** Download the start list from a PC.

3. **STARTING MODE** (Change with ✳)

- **PULSE:** By an impulse on Input 1 (or manually on M1) for each Start.
- **DEFINED TIME:** Automatic start of the competitors (or group of competitors) at a defined time.
  Of course, the CP 705 should be synchronised before

Ex: Group 1, comp. 1 to 10 starts at 10h00, then group 2, comp. 11 to 20 starts at 10h05

4. **STARTING LIST** (Change with ✳)

- **CONTINUOUS:** By groups with continuous competitors numbering.
  Ex:
  Group 1: From 1 to 50
  Group 2: From 51 to 90
  Etc..
- **DISCONTINUOUS:** By competitor number or by competitors group with discontinuous numbering.
  Ex:
  Group 1: Nr. 1 and 5
  Group 2: Nr. 3, 6 and 10
  Etc..

5. SELECT COMPET.

- Manual introduction of the competitors Nr. by group.

- Validate the Nr. with **#** after each introduction

REMARQUES:

A) If a competitor number has been forgotten, or if it is presented at the start as all groups have already been defined, you can insert it, thanks to the DUPLICATE function, directly after the starts are given.

Ex:
- The first group started with n° 1 to 50. The Nr.112 should also be in this group.
- Enter into the MENU and choose DUPLICATE.
- Ask for a competitor number of this group, Nr. 1 for ex.
- Duplicate its start time with the Nr. 112

B) If a competitor number has been inserted two times, or by mistake, use the MODIFY function to cancel the number or one of its corresponding times by **0 + #.** (See MENU)

6. PRINT START LIST

- When the different groups have been created, the CP 705 allows for printing a start list (YES **#** or No✳)

WARNING:

When you insert a lot of competitors in the same group
(Ex: Group 1 from Nr. 1 to 150).

- All the competitor numbers will be printed with their corresponding times

7. FINISH

- The competitor Nr. is inserted manually at the finish.

A) <u>The competitor Nr. is known at the finish.</u>

- Insert the Nr. on the right keyboard and confirm by **#**.
- The running time of this competitor is shown.
- At his arrival, his net time and his rank can be seen and printed.

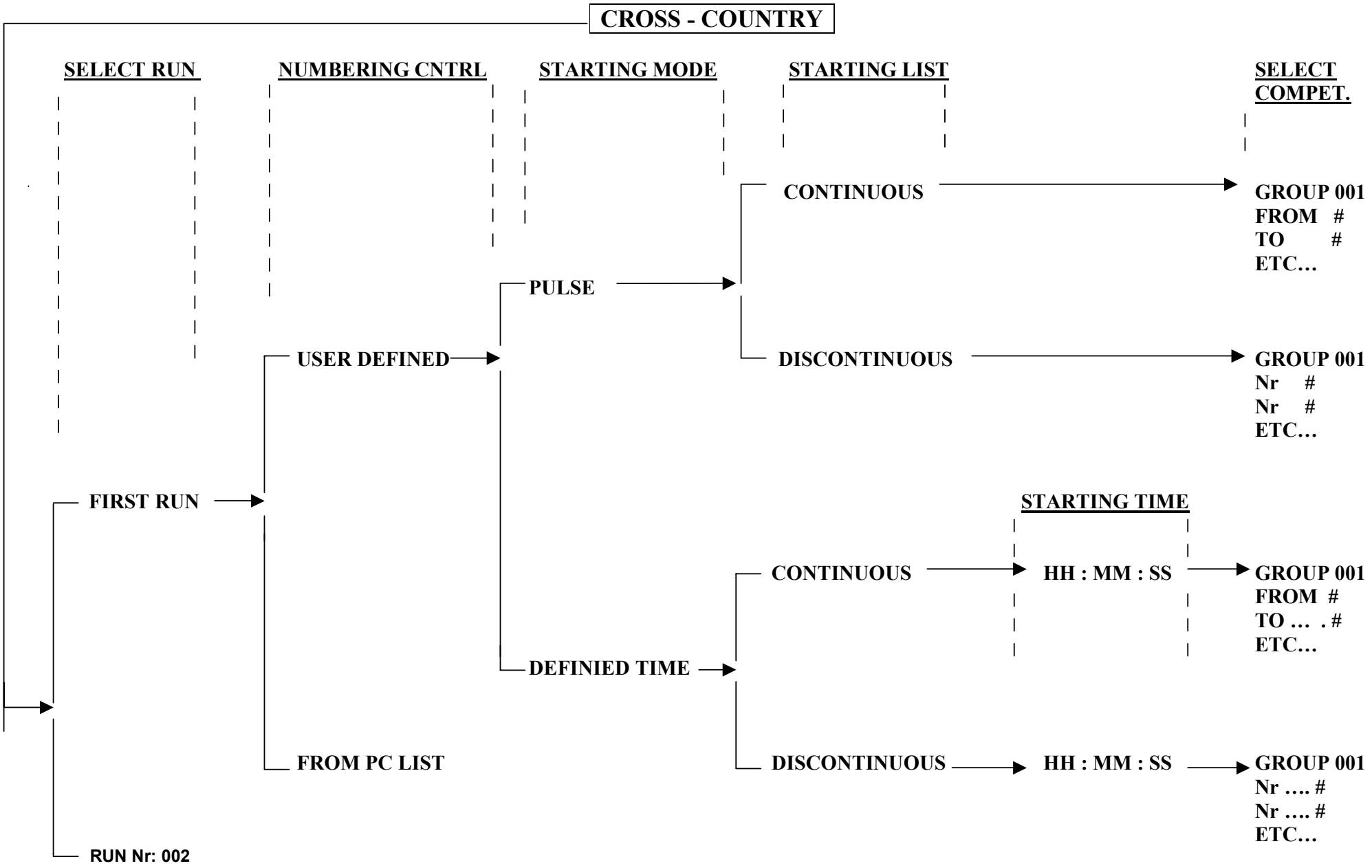
B) <u>The competitor Nr. is unidentified at the finish.</u>

- The finish time will be recorded and can quickly be identified by pushing **R (Recall)**.

8. RANKING

- A quick rank can be printed any time with **F** + **#**

- A general Ranking can be asked at the end of the competition: enter into the MENU and select RANKING


CROSS - COUNTRY
SELECT RUN
NUMBERING CNTRL
STARTING MODE
STARTING LIST
SELECT COMPET.
CONTINUOUS
GROUP 001
FROM #
TO #
ETC…
PULSE
USER DEFINED
DISCONTINUOUS
GROUP 001
Nr #
Nr #
ETC…
FIRST RUN
STARTING TIME
CONTINUOUS
HH : MM : SS
GROUP 001
FROM #
TO … . #
ETC…
DEFINIED TIME
FROM PC LIST
DISCONTINUOUS
HH : MM : SS
GROUP 001
Nr …. #
Nr …. #
ETC…
RUN Nr: 002

6. SPLIT / LAP (Instructions Under construction)

7. MULTI-CATEGORY (Alpine Ski / Cross Country)

The CP 705 allows you to designate many different categories of competitors WITHIN the same RUN. Doing this is very simple.

The creation or selection of a category for any competitor is done **BEFORE** a racer starts that you wish to assign into a particular category of racers. You MUST select the category a racer is destined to be considered in **before** the racer starts.

TO CREATE A CATEGORY: F + * + #

The CP 705 will propose the next available category number. You can select another category number of your choice by simply entering the category number you wish to use, and validating with #: F + No. + #

With this operating principle, it is thus possible to create or return to any category, again **before** any particular racer starts. Here is an operating example:

Ex: Alpine Ski, 1st Run, Racer No. 1 in the start:

- Create category 1 (F + * + 1), start racers 1 to 3
- Create category 2 (F + * + 2), start racers 4 and 5, racer 6 is absent for now)
- Create category 3 (F + * + 3, start racers 7 to 9
- Racer 6 now arrives at the start, return to category 2 with F + *
- Racer 6 starts and is assigned to category 2
- All finishes are recoreded in the normal way. You will find that all racer net times on course are indentified with the category number assigned. Note that category 1 is never indicated.

RANKING

- A quick or provisional ranking can be obtained at any time for the current category selected by using: F+#

- For General Ranking, use the Menu function (F Key) and select RANKING. Confirm which run you wish to work with using the # key. You have a choice of:

  - General ranking of all categories

  - General ranking of one specific or many categories.

MODIFICATIONS

- You can change the category to which a racer has been assigned after the fact. In MENU (F Key) work under RECALL and choose CATEGORY using the * key (Note that you can quickly access the RECALL functions using the shortcut of F+R)

2nd RUN

Use the same principles of operation as for the 1st run.
Note: Start and BIBO list are not available in the category mode of operation.

8. CP 705 MENU DESCRIPTION

Press « **F** » to enter the Functions Menu

Use the ↑↓ keys to move through the various choices

To select any sub-menu choice, use the **#** key.

QUICK RANK

DUPLICATE

DISQUALIFY

RANKING
- RUN
- ON COURSE
- LIST BY NR
- ABORTED
- DISQUALIFIED

NEW RUN

RECALL
- RACER STATUS
- CANCEL TIMES
- INSERT
- MODIFY No.
- INDENTIFY
- CATEGORIES *

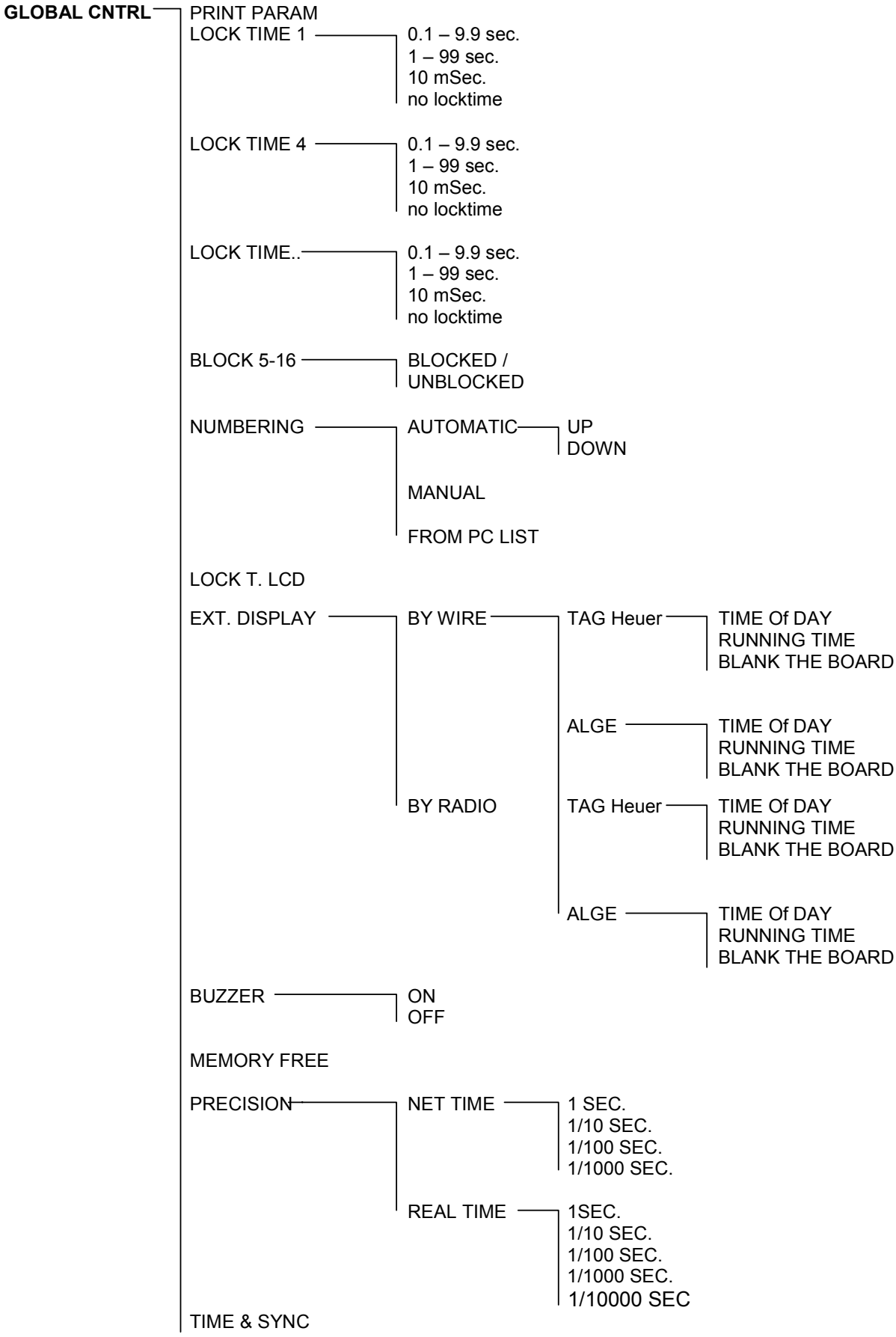
GLOBAL CNTRL See page 28

SPEED
- NONE
- INPUT 1
- INPUT 2
- INPUT 3
- INPUT 4

PRINTER
- ON / 1 LINE FEED
- ON / 2 LINE FEED
- OFF

COMMUNICATE
- RUN→ PC
- RUN→ PRINT
- UPGRADE CP705

* Insofar as categories were created using **F+#**


GLOBAL CNTRL
PRINT PARAM
LOCK TIME 1
0.1 – 9.9 sec.
1 – 99 sec.
10 mSec.
no locktime
LOCK TIME 4
0.1 – 9.9 sec.
1 – 99 sec.
10 mSec.
no locktime
LOCK TIME..
0.1 – 9.9 sec.
1 – 99 sec.
10 mSec.
no locktime
BLOCK 5-16
BLOCKED /
UNBLOCKED
NUMBERING
AUTOMATIC
UP
DOWN
MANUAL
FROM PC LIST
LOCK T. LCD
EXT. DISPLAY
BY WIRE
TAG Heuer
TIME Of DAY
RUNNING TIME
BLANK THE BOARD
ALGE
TIME Of DAY
RUNNING TIME
BLANK THE BOARD
BY RADIO
TAG Heuer
TIME Of DAY
RUNNING TIME
BLANK THE BOARD
ALGE
TIME Of DAY
RUNNING TIME
BLANK THE BOARD
BUZZER
ON
OFF
MEMORY FREE
PRECISION
NET TIME
1 SEC.
1/10 SEC.
1/100 SEC.
1/1000 SEC.
REAL TIME
1SEC.
1/10 SEC.
1/100 SEC.
1/1000 SEC.
1/10000 SEC
TIME & SYNC

9. CP 705 FUNCTION MENU EXPLANATIONS

- This Function Menu is very powerful and allows for the correction or modification of times and parameters before, during or after timing and event.
- Various ranking and start lists can be printed or recalled.
- Operating parameters and settings can be modified or selected.
- Here is a summary of functions:
- To enter this menu at any time, the 705 must already be in a timing operating mode (Ex: Alpine Ski)
- Use the « **F** » key on the CP705 to gain access to the Function Menu. Use the ↑↓ keys to move through the different functions and options and confirm your selection with **#**.
- To exit any selected Function or sub-menu, press **F**.
- The most important Function options are presented at the start of the list of options for easy access.
- A keyboard shortcut to gain access to the RECALL functions is **F+R**
- The « **F** » key on the CP705 allows access to the following Function Menu possibilities:
- Use the ↑↓ keys to move through the different functions and options:

◂ **QUICK RANK** ▸ Allows for the rapid printing of a provisional ranking of competitors and times during a race. Use the **#** key to validate this choice. Ranking is in time order with bib number.

◂ **DUPLICATE** ▸ Allows another or many bib numbers to be associated with a particular start or finish time already received. Use the **#** key to confirm this choice, then enter the bib number of the competitor you with to associate with the selected time-of-day start or finish. Confirm the operation with the **#** key again. Repeat the same operation for any additional bib numbers.

◂ **DISQUALIFY** ▸ Disqualifies selected bib numbers. Use the **#** key to select this menu choice, enter the bib numbers of the competitors you wish to disqualify, confirm your choice with the ✳ key and exit with **#**. All times obtained by disqualified competitors will appear with "**D**"

RANKING Provides a complete final ranking of all race results based on time. Use the **#** key to select this menu choice and select the Run number by using the ↑↓ keys. Below are the different sub-menu options available to you:

RUN Provides a complete ranking of the selected Run. Use the **#** key to select this menu choice. All times, disqualifications and those who did not finish are printed.

ON COURSE Lists those still on course. Use the **#** key to select this menu choice.

LIST BY NR Provides a listing of all times in Bib order. Use the **#** key to select this menu choice.

ABORTED Lists all competitors who did not finish. Use the **#** key to select this menu choice.

DISQUALIFIED Lists those who have been disqualified. Use the **#** key to select this menu choice.

NEW RUN Creates a New Run. Use the **#** key to select this menu choice and confirm with ✳. **BE CAREFUL:** The creation of a New Run will prevent you from returning to and being able to modify any information in preceding runs. Once selected, confirm the timing sport mode you wish to work in and follow the directions for start-up as described in the different **timing modes.**

RECALL Access to the different special functions below, all accessible with the ✳ key **:** A keyboard shortcut for this valuable RECALL menu is **F + R**

RACER STATUS Pulls up the status of any competitor and displays all relevant data (start and finish time, net time, DSQ…etc.) Use the **#** key to select this menu choice, enter the bib number on the right LCD screen, and confirm your choice with the **#** key.

CANCEL TIMES Allows you to eliminate from memory a particular group of times between two defined times-of-day. (Example: To discard a group of false impulses received)

INSERT Allows you to create a particular start or finish time-of-day for any competitor.

MODIFY Changes or eliminates any competitor bib number for any existing time-of-day start or finish. Confirm your choice with the **#** key.

INDENTIFY Allows you to associate a time-of-day with a bib number. Simply enter the bib number of the competitor next to the time-of-day you are working with. Confirm your choice with the **#** key.

GLOBAL CNTRL As the name suggests , allows you to access many of the CP705 operating parameters. Confirm your choice with the **#** key. Use the ↑↓ to move through the following options:

PRINT PARAM. Lists the current parameters the 705 is using.

LOCK TIME 1 Input 1 Lock-out Time. The period of time for which input 1 will not receive further impulses once an impulse is received. This choice is a function of the type of competition you are timing. Input 1 Lock-out Time is selectable between 0.1 and 9.9 seconds. Confirm your choice with the **#** key and then manually enter the lock-out time with the keyboard. You can also command the 705 not to have a lock-out time for this channel. Confirm your selection with the **#** key again.

LOCK TIME 4 Input 4 Lock-out Time. The period of time for which input 4 will not receive further impulses once an impulse is received. This choice is a function of the type of competition you are timing. Input 4 Lock-out Time is selectable between 0.1 and 9.9 seconds. Confirm your choice with the **#** key and then manually enter the lock-out time with the keyboard. You can also command the 705 not to have a lock-out time for this channel. Confirm your selection with the **#** key again.

LOCK TIME .. Subsequent Lock-out Time for the indicated timing input Number as described above.

BLOCK 5-16 Blocks **"BLOCKED"** or unblocks **"UNBLOCKED"** timing inputs 5 to 16 as a group.

NUMBERING Access to the different special start functions below, all accessible with the ✳ key :
AUTOMATIC. Automatically displays bib numbers in ascending **UP** or descending **DOWN** order. Select ✳ and confirm with **#**
MANUAL Bib numbers are manually input for each successive start. Confirm selection with the **#** key.

FROM PC LIST Follows a start list as loaded from a PC file.

LOCK T. LCD Adjusts the duration net times displayed on the LCD screens. Enter the number of seconds and confirm with the **#** key.

EXT. DISPLAY There are two functions selectable with the ✳ key.

DIRECT TO LINE Direct cable connection to a display using wire. Confirm this choice with the # key and then select which type of display you are using with the ✳ key **TAG Heuer** or **ALGE**. You can also select one of the 3 following options with the ✳:
TIME OF DAY
TIME
BLANK DISPLAY
THROUGH RADIO Sends data to a display board linked by radio transmission (using the TAG Heuer HL 620). Confirm this choice with the **#** key and then select which type of display you are using with the ✳ key **TAG HEUER** or **ALGE**. You can also select one of the 3 following options with the ✳ key :
TIME OF DAY
TIME
BLANK DISPLAY

BUZZER
ON Audible tone on
OFF Audible tone off

MEMO FREE Allows you to check the current memory use and to clear if necessary. Confirm your choice with the **#** key.

PRECISION Two choices are available with the ✳ key:
NET TIME Net time calculation precision (as a function of split-times used in the calculation process that are always one digit more precise than the calculated net time on course. Example: Alpine Ski, Swimming, Euquestrian…)
1 SEC. Select using ✳ and confirm with **#**.
1/10 SEC.
1/100 SEC.
1/1000 SEC.
REAL TIME Real time calculation precision (as a function of split-times used that are derived from the same level of timing precision)
1 SEC. Select using ✳ and confirm with **#**.
1/10 SEC.
1/100 SEC.
1/1000 SEC.

TIME & SYNC Provides for a new synchronization of the 705. Confirm with the **#** key, enter the time of day desired, confirm again with the **#** key

◂ **SPEED** ▸ Allows for speed calculations to be performed between impulses received on selected timing inputs at known distances. Select with ✳ and confirm with **#**

NONE Deactivates all speed measurements. Confirm with **#**.

INPUT 1 Activates Input 1 for speed measurement.

INPUT 2 Activates Input 2 for speed measurement.

INPUT 3 Activates Input 3 for speed measurement.

INPUT 4 Activates Input 4 for speed measurement.
Distances from 0.000 to 1 km (1000 meters) or in feet, and calculations of Km/h, Mph, Meters/ Sec. and Knots are all available to the operator.

◂ **PRINTER** ▸ Access to the following choices is made with the ✳ key:

ON 1 LINE FEED Prints one line feed between each printed line. Confirm with **#**.

ON 2 LINE FEEDS Prints two lines between each printed line. Confirm with **#**.

OFF Turns the printer off.

◂ **COMMUNICATE** ▸ Access to the following choices is made with the ✳ key:

RUN→PC Sends ranking data of the selected Run out the data port of the 705 to a connected PC. Confirm the choice of this operation with the **#** key 3 times and wait until the data transfer is completed.

RUN→PRINT Reprints all of the data of a selected run on the printer. Confirm this choice 2 times with the **#** key.

UPGRADE CP705 Upgrades the operating program of the 705 with new versions of software as available from time to time from TAG Heuer. See the 705 UPGRADE operating instructions for more details.

10. UPGRADE CP 705 INSTRUCTIONS

Warning:

The software upgrade process of your CP705 is a delicate operation. Mishandling this procedure may cause the destruction of the CP705's microprocessor, with no alternative but to return your CP 705 to the factory for repair. This is why we ask you to <u>strictly</u> respect the following instructions :

1) Install the « Upgrader » program on your PC using floppy disks or from other means as delivered by your TAG Heuer agent or via our website. This program is to be installed like any Windows software (Start – Execute - setup.exe)

2) Make sure the batteries of CP 705 are fresh. For more safety, use the external power supply.

3) Connect the PC (COM1 or COM2) to the computer port of the CP705, making sure that all connections are snug.

4) Power up the printer of CP705 and then the CP705 timer. Enter the timing mode (create a run).

5) Keep the print out on which you will find the serial number of the CP 705 (you will need it afterwards).

6) Enter MENU by pressing « **F** » and select « **COMMUNICATE** » and validate with **#**.

7) With ✳ select **UPGRADE 705** and validate with **#**

8) Enter the code **R21C47C0 on the left keyboard** and valid with **#**.

9) On the PC, launch the programm **UPGRADE** (upg_705_1_2.exe).

10) On the PC, click on **SELECT FILE** and select the file to be loaded in the CP705 (ex.cp08m.a35) . Then click on **UPGRADE** to start the transfer.

11) On the screen you can control the progress of transfer (red stripe). The transfer is completed when the stripe is green (about 8-10 min.) .

12) On the left LCD of the CP 705 ,you find the number of the actual version and the new version for upgrade.

13) Follow the instructions on the CP705's LCDs. Validate the upgrade with **#** and **<u>wait until</u> <u>the loading is completed</u>** (around 20 seconds) The loading is completed when the message **TURN OFF** appears on the LCD.

14) Turn OFF the CP 705. Wait 2-3 seconds and turn it on again. Make sure the new version is loaded (check the printout for the version number). Make a CLEAR MEMORY at that stage.

15) On the PC click on the free window, enter the serial number of the device (ex. 7050) and click on « **Set serial number »** .

16) Turn OFF again the CP 705. After two seconds turn it ON again. The TAG Heuer logo,the new version number and the serial number appear on the printing.
You've done it right, congratulations.

11. COMPUTER OUTPUT PROTOCOL

1. General

ON-LINE and OFF-LINE data transmissions from the **COMPUTER port** of the PTB 705 respect the following transmission format. This format always comprises 30 characters + CR under the RS232 protocol at **9600 bds.**

1 or 2	Characters for Data String Identification
3	Characters for Position or the N. of the speed measurement
1	Space
5	Characters for Competitor Number
1	Space
2	Characters for Timing Input Channel
1	Space
15	Characters for Time
1	<CR> = End of Data String

Characters not used in the transmission of any value are replaced with a space.

2. Data String Identification Characters

S	Creation of a new RUN
T	Time recorded on one of the input channels
R	Calculated Net Time for a Competitor
G	Cumulative Net Time for a Competitor after multiple runs
V	Speed
T-	False Start or False Finish (time disassociated)
T*	Any time modified through manipulation of start number
T+	Any time used if manually input using RECALL - INSERT
T=	Any duplicated time using FUNCTION - DUPLICATE
TA	DNF (Did not Finish)
TD	DSQ (Disqualified)
TC	Any discarded time rejected using FUNCTION-RECALL-CANCEL or "**0#** in RECALL

3. Examples of Data Strings produced by the CP 705

Example below: Start of Run 4 under Alpine Ski. The last 3 characters to the right of "ALPINE SKI" show which preceding run is being used to add to net times being generated in this Run #4. In our example here, Run **#**3 is used. This indication occurs only in OFF-LINE data transmission mode.

S 004 ALPINE SKI 003<CR>

Times taken for Competitor **#**2 on input channels 1 and 4 (Manually)

T 2 M1 09:09:15.608778<CR>
T 2 M4 09:09:27.277816<CR>

Net time for Competitor #2, ranked in position 1 for run number 4 at 11.67 seconds.
Followed by a cumulative time for run**#**3 and **#**4 of 2:41.39

R 1 2 11.670000<CR>
G 1 2 2.41.390000<CR>

Speed Calculation for Competitor **#**1

V 1 317.903 [km/h]<CR>

4. Distinctive Characters Placed at the Start of Times Printed or Transmitted to PC

- False Start of False Finish (disassociated times)
***** Competitor Number Modified with this time
+ Manually Entered Time using RECALL-INSERT
= Duplicated Time using FUNCTION-DUPLICATE
A DNF, Did not Finish
D DSQ, Disqualified
C Any discarded time rejected using FUNCTION-RECALL-CANCEL or "**0#** in RECALL

5. Keyboard Shortcuts

General

F + ON Rapid Start-Up
F FUNCTION menu call-up
F again Returns to the previous menu when in any FUNCTION mode
M Switches between MANUAL or AUTO(matic) finish numbering
↑↓ Keys to move through the data screens, up or down
F + R Quickly calls-up the RECALL menu.

Left Keyboard

C # False Start
No. C # Disassociates start time from selected bib number
C ✳ Selects the next starting number in the start list by eliminating the one proposed
N # Selects the Competitor Number being input
R Accesses file of non-associated start times in a Fin – Fout file
R again Returns to the previous menu or function when in the start time file
✳ Error Correction

Right Keyboard

C # False Finish
No. C # Disassociates finish time from selected bib number
C ✳ Selects the next Finishing number of those on course by eliminating the one proposed
N # Selects the Competitor Number being input
R Accesses file of non-associated finish times in a Fin – Fout file
R again Returns to the previous menu or function when in the Finish time file
✳ Error Correction
Discards times selected under RECALL

12. DISPLAY OUTPUT PROTOCOL

Data transmission format for DISPLAY from CP 705.

Official TAG Heuer Data String contents for use with numeric display boards:

Data being sent out the DISPLAY port of the CP705 adheres to the following format based on 24 characters :

1	1	Identification character at the start of the data string	02h	Start of text
2	1	L character for “Line”	4Ch	
3	1	Number character for line number	0 à 9	Selects display line #
4	1	Horizontal tab character	09h	
5	1	A Character pour “alphanumeric”	41h	
6-8	3	Number characters for competitor number		000 à 999
9	1	Horizontal tab character	09h	
10-21	12	Characters for time	Hh:Mm:Ss.DCM	
22	1	Horizontal tab character	09h	
23	1	Carriage Return character	0Dh	
24	1	Line Feed character	0Ah	

Any inactive digit remaining blank, corresponding to character 20 (space) is underlined in our examples.(_)

Data string examples for data being sent to display boards from the CP 705:

A) “Alpine Ski” and “Cross-country” Modes

1. Competitor Number and Net Time on display “0”

<STX> L 0 <HT> A _ 5 2 <HT> _ 5 : 3 1 : 3 6 . 2 9 2 <HT><CR><LF>

Net time of 5:31:36.292 for competitor 52 sent to display line “0”

2. Rank and Competitor Number on display “1”

<STX> L 1 <HT> A _ 2 1 <HT> _ _ _ _ _ _ 5 2 : _ 2 1 <HT><CR><LF>

Rank of 21 for competitor number 52, sent to display #1 (Rank is sent twice)

3. Speed Measurement on Display “2”

<STX> L 2 <HT> A _ _ _ <HT> _ _ _ _ _ 2 9 2 . 5 9 0 <HT><CR><LF>
Speed of 292.590 km/h sent to display #2

B) 'Dual' Mode

1. Left course Net Times sent to display "0"

<STX> L 0 <HT> A _ _ _ <HT> _ _ _ _ _ _ 4 9 . 3 6 7 <HT><CR><LF>

Net time of 49.367 seconds for racer on the left course sent to display #0

2. Right Course Net Times sent to display "1"

<STX> L 1 <HT> A _ _ _ <HT> _ _ _ _ _ _ 4 9 . 8 9 9 <HT><CR><LF>

Net time of 49.899 seconds for racer on the right course sent to display #1

3. Calculated Difference of 2 net times sent to display "2" in differential mode only

<STX> L 2 <HT> A _ _ _ <HT> _ _ _ _ _ z 0 . 5 3 2 _ <HT><CR><LF>

Calculated net time difference of 0.532 seconds sent to display #2

C) Miscellaneous Messages

1. General all-clear data string

<STX> L _ <HT> A _ _ _ <HT> _ _ _ _ _ _ _ _ _ _ _ _ <HT><CR><LF>

All display locations are sent blanks

2. Time-of-Day Display

<STX> L _< HT> A _ _ _< HT> 1 3 : 0 5 : 3 6 _ _ _ _<HT><CR><LF>

Time-of-Day is13:05:36.

D) Transmission Protocol

9600 baud / 8 Data bits / 1 Stop bit / No parity

13. CONNECTOR PIN ASSIGNMENTS

DB 9 female plug « Computer »

2 TX data output RS232

3 RX data input RS232

5 Ground

DB 9 male plug « Display »

2 TX data output RS232

5 Ground

DB 25 female plug « external connector »

1 Input 1
2 Input 2
3 Input 3
4 Input 4
5 Input 5
6 Input 6
7 Input 7
8 Input 8
9 Input 9
10 Input 10
11 Input 11
12 Input 12
13 Input 13
14 Input 14
15 Input 15
16 Input 16
17 Synchronisation
18 Ground of the inputs
19 + Top minute (isolated)
20 – Top minute (isolated)
21 « Ground » of the commands (isolated)
22 Command 1 (isolated)
23 Command 2 (isolated)
24 Command 3 (isolated)
25 Command 4 (isolated)