```
***********************************************************************
*                      COMET - MEMOTIMER                             *
*                                                                    *
*   TABLE OF CONTENTS                                    Page 1      *
***********************************************************************
```

TABLE OF CONTENTS

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```
******************************************************************
*                         GENERAL                      Page 2   *
******************************************************************
```

Why do you need a Memotimer:

The Memotimer is a device that stops times with start number. It is a very simple timer for backup timing, and timing with many intermediate times.

For each timing point of the track you need a separate Memotimer (e.g. a Comet for the Start Time, for every intermediate time, and for the finish time.)

You cannot compute the results before the end of the race.

The results can be calculated by the TdC 4000 (special software with Memotimer-program) or by a computer (PC) with your homemade software.

Advantages of the Comet-Memotimer:

- It is a very small and handy timer
- No cables are necessary between start and finish
- You can take as many intermediate times as you need
- You can make the computer software for your needs to compute the results you want.

Disadvantages of the Memotimer

Run-times, final times etc. are not available before the end of the race, unless you connect each comet to a computer and compile the results in real time.

Example for a track with an intermediate time:

Three comets are necessary; one for the start, one for the intermediate time, and one for the finish.
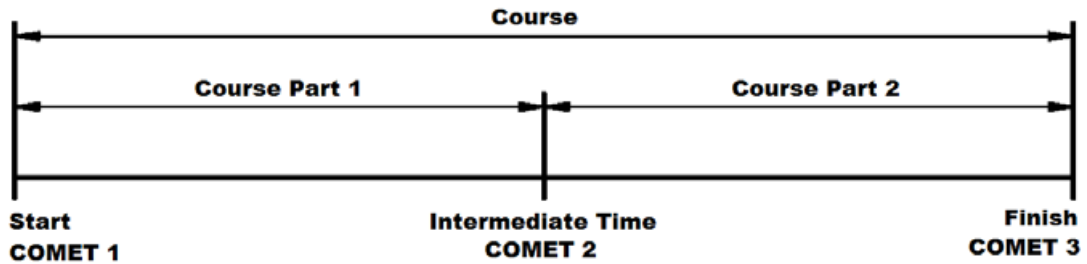
Before you start the timing you have to synchronise the three Comets with two cables 004-05 (Comet connection 12) or two cables 0001-05 through the start banana sockets.
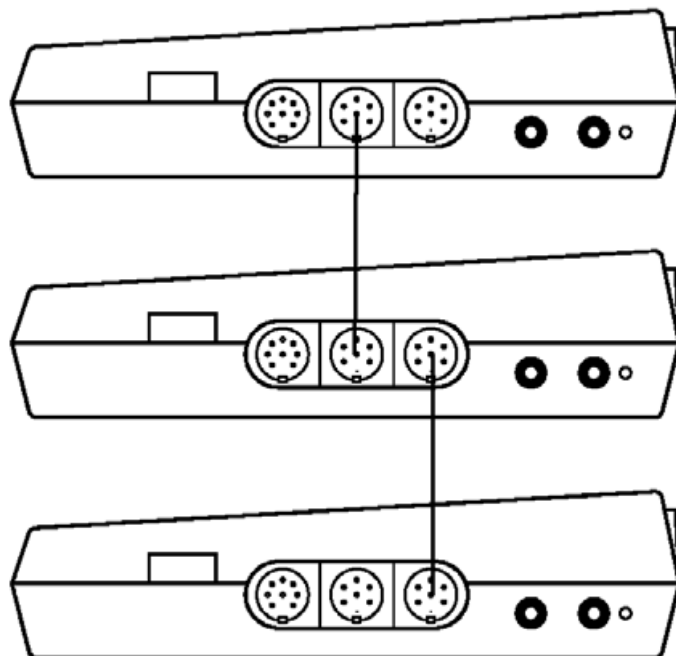
Turn all Comets on with switch (10), and follow the instructions on the next pages (do not unplug the synchronous-cable before you finish the synchronisation)

<u>Select the Memotimer Program</u>

```
┌─────────────────────┐
│ DEVICE:MEMOTIMER     │
│  SELECT  Y/N ?       │
└─────────────────────┘
```

```
    ┌─────┐
    │  Y  │              Yes
    └─────┘
```

```
┌─────────────────────┐
│ 0065   TIMES SAVED   │      65 times stored. Do you want to
│   CLEAR  Y/N ?       │      clear the memory?
└─────────────────────┘
```

```
    ┌─────┐
    │  Y  │              Yes
    └─────┘
```

```
┌─────────────────────┐
│ MEMORY CLEARED       │      The memory is cleared, continue
│ CONTINUE WITH *      │      with the "*" key.
└─────────────────────┘
```

```
    ┌─────┐
    │  *  │              Confirm
    └─────┘
```
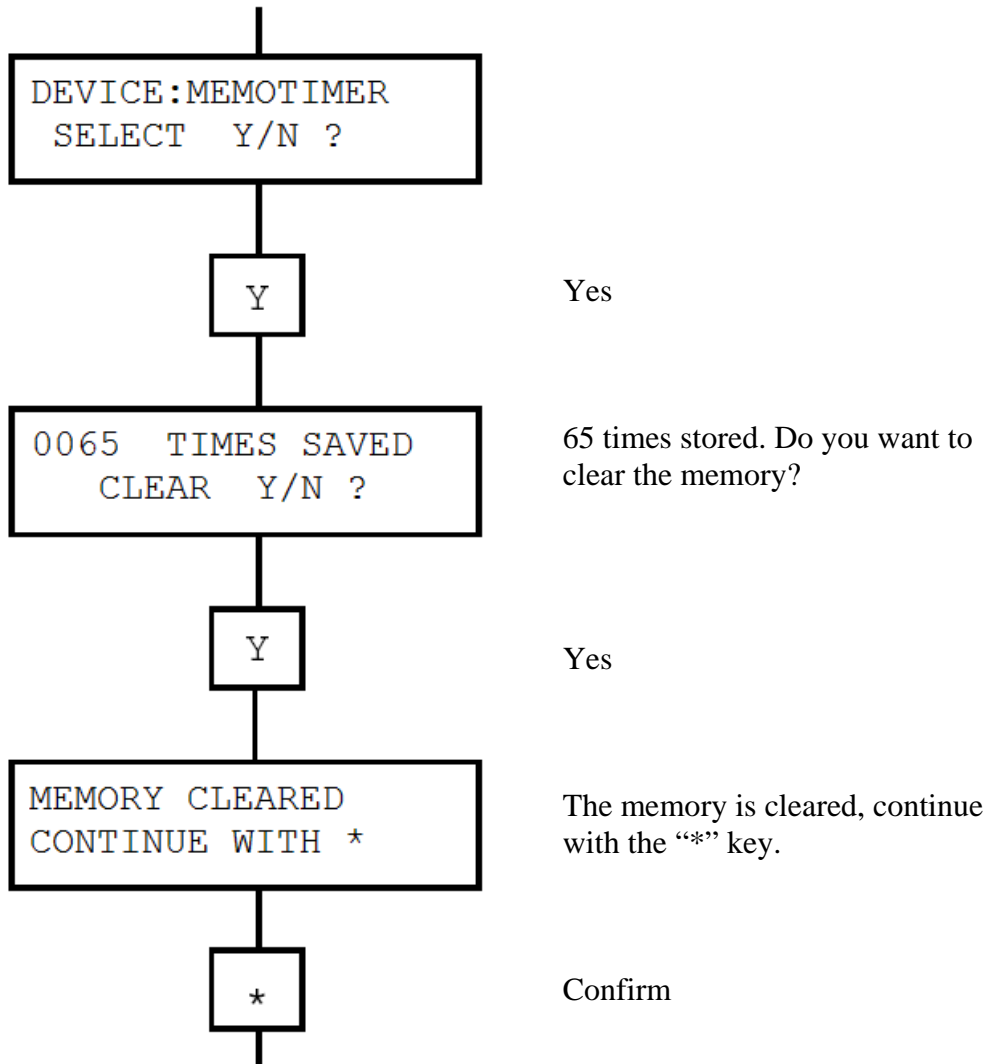
If there are no times stored in memory, the display shows:

```
┌─────────────────────┐
│ MEMORY EMPTY         │
│ CONTINUE WITH *      │
└─────────────────────┘
```

Now you can select the Memotimer mode.

```
***********************************************************************
*                      MEMOTIMER  - MODES                            *
***********************************************************************
```

You can choose between three different modes:

```
┌──────────────────────┐
│  PROGR: STOP         │        The STOP program is used for timing
│     SELECT Y/N ?     │
└──────────────────────┘
```

```
┌──────────────────────┐
│  PROGR: EDIT         │        The EDIT program is used to input late
│     SELECT Y/N ?     │         Start numbers
└──────────────────────┘
```

```
┌──────────────────────┐
│  PROGR: TRANSMIT     │        The TRANSMIT program is used to
│     SELECT Y/N ?     │        Transmit the data to a computer
└──────────────────────┘
```

If you want to change from one mode to another press the "N" key.

```
*********************************************************************
*             STOP - TIMING WITH THE MEMOTIMER                     *
*********************************************************************
```

Synchronisation of Memotimers:

Flowchart box	Description
PROGR: STOP SELECT Y/N ?	Program with STOP mode Select "YES" or "NO" ?
Y	Yes
PROGR: STOP CONTINUE WITH *	STOP mode program Continue with the "*" key
*	Confirm
WRITE SYNC-TIME # : :	Input synchronised time (Time of day)
☐	e.g. 10:00:00 (HH:MM:SS)
*	Confirm
WAITING FOR SYNC – IMPULSE	Connect all Memotimers with synchron cable 004 (see page 3). When you want to start the Memotimer press the "A" key.
A	Press the "A" to start the Memotimers

All Memotimers start at the same time and run synchronously. Now you can disconnect the synchron cable and carry each Memotimer to its timing location (Start, intermediate time 1, intermediate time 2, finish etc)

START   COMET START

1 : INTERMEDIATE   COMET 1. INTERMEDIATE

2 : INTERMEDIATE   COMET 2. INTERMEDIATE

3 : INTERMEDIATE   COMET 3. INTERMEDIATE

FINISH   COMET FINISH

Timing with Memotimers:

When all the Memotimers are at their timing location, you can start the event.

```
┌──────────────────────┐
│ #    STARTNUMBER      │     Input the start number of the first
│      10:14:37         │     competitor
└──────────────────────┘
          │
        ┌───┐
        │ 1 │                 e.g. Start number 1
        └───┘
        ┌───┐
        │ * │                 Confirm
        └───┘
┌──────────────────────┐
│ 1    STARTNUMBER      │
│      10:14:37         │     You get the stop impulse through pressing the
└──────────────────────┘     "A" or "C" key or through an external ALGE
          │                  device (e.g. photocell or start gate)
        ┌───┐
        │ C │                 The display shows the start number, the amount
        └───┘                 of stored times without confirmation and time.
┌──────────────────────┐     Press "*" to confirm
│ 1    STARTNUMBER      │
│ 1    10:14:45.34      │     If you stop the time with a start number pre-
└──────────────────────┘     entered, the display shows the time for four
          │                  seconds, then returns to the running time.
┌──────────────────────┐
│ #    STARTNUMBER      │
│      10:14:50         │     Input the next start number
└──────────────────────┘
          │
        ┌───┐
        │ 2 │
        └───┘
        ┌───┐
        │ * │                 Confirm
        └───┘
┌──────────────────────┐
│ 2    STARTNUMBER      │
│      10:14:50         │
└──────────────────────┘
          │                  You get the stop impulse through pressing the
        ┌───┐                "A" or "C" key or through an external ALGE
        │ C │                device (e.g. photocell or start gate)
        └───┘
┌──────────────────────┐
│ 2    STARTNUMBER      │
│ 1    10:15:15.42      │     Time of start number 2
└──────────────────────┘
          │
┌──────────────────────┐
│ #    STARTNUMBER      │     It returns to the running time after 4 seconds
│      10:15:20         │
└──────────────────────┘
          │
        etc.
```
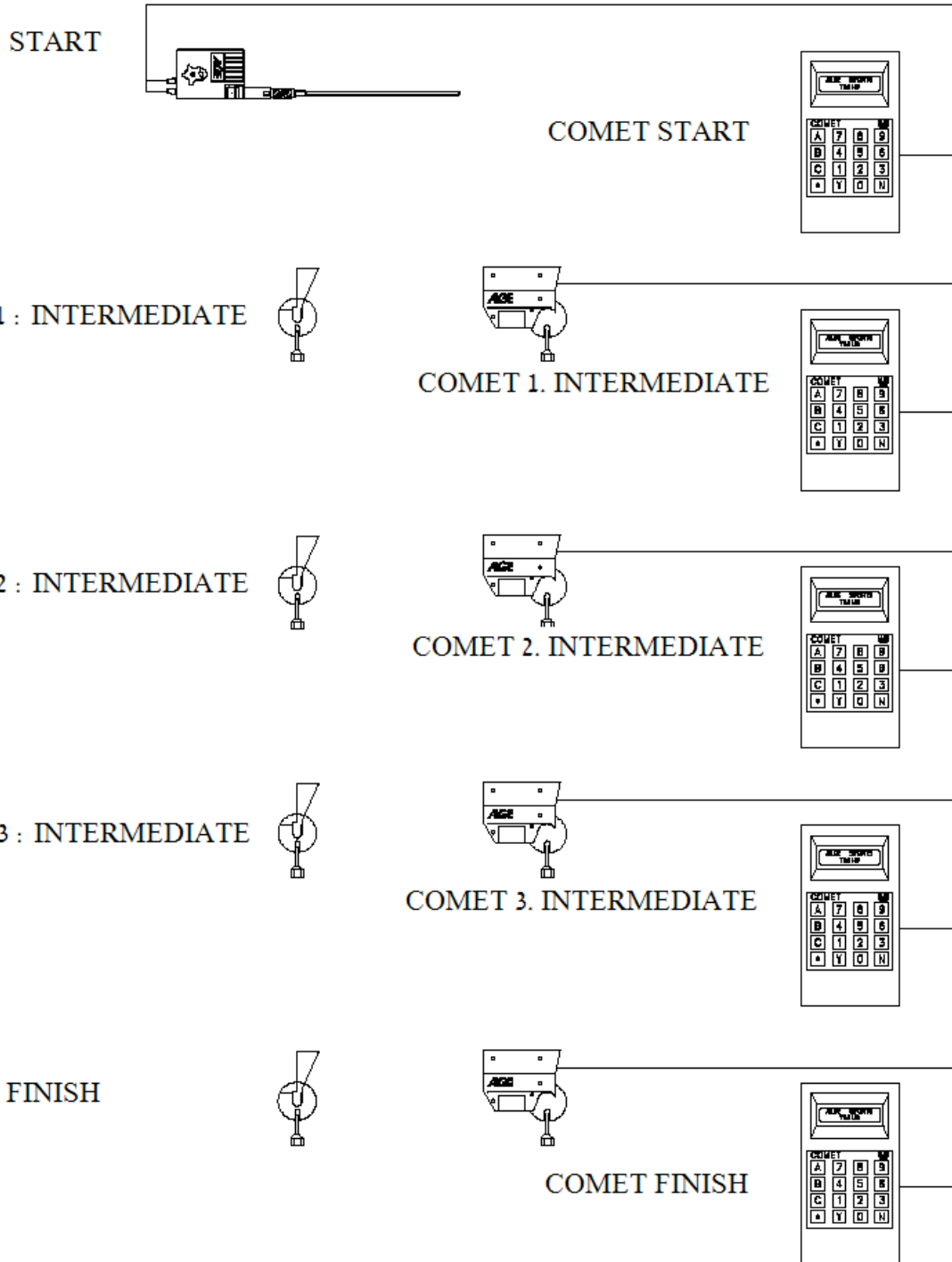
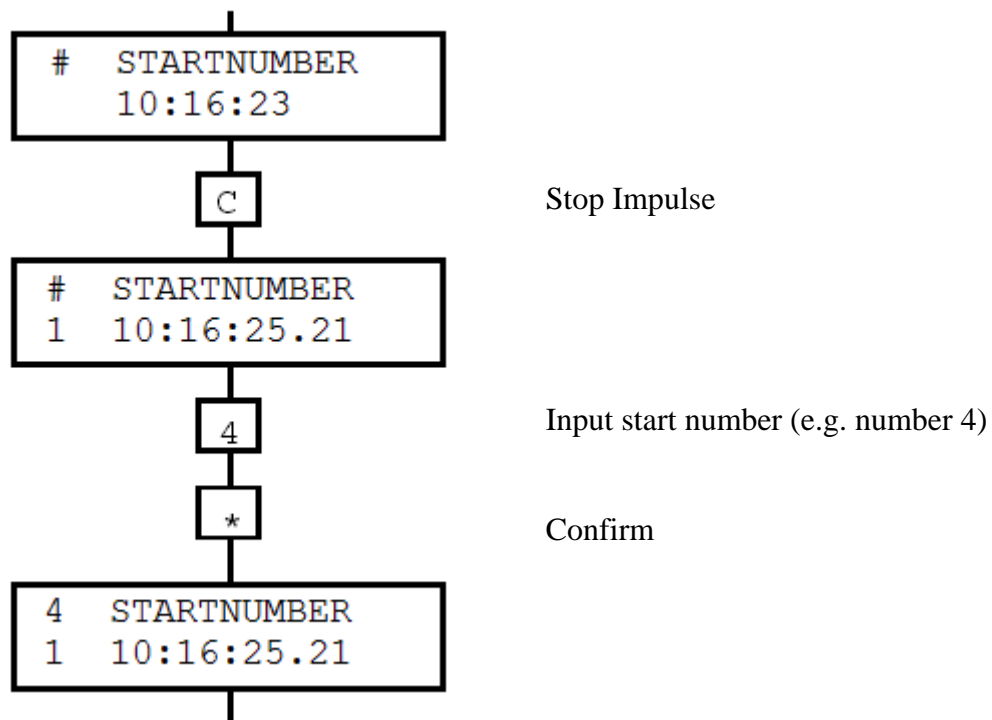If you use a photocell or start gate you have to press the "B" key when you plug these devices in. As long as you press the "B" key the Memotimer cannot receive timing impulses.

If you press the "B" key when you plug in a photocell or start gate you prevent the Memotimer from receiving false impulses.

If you do not use a photocell or start gate you can get timing impulses with the "A" or "C" keys. The Memotimer does not differentiate between start or stop impulses.

Input of start numbers after the stop impulse

You can input start numbers after the Memotimer receives the stop impulse

```
┌─────────────────────────┐
│  #   STARTNUMBER        │
│      10:16:23           │
└─────────────────────────┘
         ┌───┐
         │ C │              Stop Impulse
         └───┘
┌─────────────────────────┐
│  #   STARTNUMBER        │
│  1   10:16:25.21        │
└─────────────────────────┘
         ┌───┐
         │ 4 │              Input start number (e.g. number 4)
         └───┘
         ┌───┐
         │ * │              Confirm
         └───┘
┌─────────────────────────┐
│  4   STARTNUMBER        │
│  1   10:16:25.21        │
└─────────────────────────┘
```

Start number correction

e.g. Number 4 finished already, but you enter this number again.

```
┌─────────────────────┐
│ #   STARTNUMBER     │
│     10:30:23        │
└─────────────────────┘
          │
        ┌───┐
        │ 4 │          Input start number 4
        └───┘
        ┌───┐
        │ * │          Confirm
        └───┘
          │
┌─────────────────────┐    If you press the "Y" key the display
│ VIEW TIME  FROM     │    Shows the last stored time of start number 4. If
│ MEMORY    Y/N  ?    │    you press the "N" key the program continues the
└─────────────────────┘    timing mode.
          │
        ┌───┐
        │ Y │          Yes
        └───┘
          │
┌─────────────────────┐    You now see the last stored time in the memory.
│ MEM:                │    With the "N" key you show the earlier stored
│ 4    10:28:16.639   │    times (scroll back), with the "Y" key you scroll
└─────────────────────┘    forward.
          │
        ┌───┐
        │ 0 │          If you press a number key, the program goes back
        └───┘          To the stop mode
          │
┌─────────────────────┐
│ #   STARTNUMBER     │
│     10:30:41        │
└─────────────────────┘
          │
        ┌───┐
        │ 9 │          Input the correct start number
        └───┘
        ┌───┐
        │ * │          Confirm
        └───┘
          │
┌─────────────────────┐
│ 9   STARTNUMBER     │
│     10:30:43        │
└─────────────────────┘
          │
        ┌───┐
        │ C │          Stop impulse
        └───┘
          │
┌─────────────────────┐
│ 9   STARTNUMBER     │
│ 1   10:30:45.35     │
└─────────────────────┘
          │
        etc.
```

Stop Mode without start number input

You can work in the stop mode without the input of start numbers. If you do not use start numbers to store the times, every time automatically receives a continuous number.

```
┌─────────────────────────────┐
│  #   STARTNUMBER            │
│      10:18:33               │
└─────────────────────────────┘
             │
          ┌─────┐
          │  C  │        Stop impulse
          └─────┘
             │
┌─────────────────────────────┐
│  #   STARTNUMBER            │
│  1   10:18:35.04            │
└─────────────────────────────┘
             │
           ┌─────┐
           │  *  │       Confirm
           └─────┘
             │
┌─────────────────────────────┐
│  STN   STARTNUMBER          │
│  1     10:18:35.04          │
└─────────────────────────────┘
             │
           ┌─────┐
           │  *  │
           └─────┘
             │
┌─────────────────────────────┐
│  #   STARTNUMBER            │
│      10:18:40               │
└─────────────────────────────┘
             │
           etc.
```

Stop impulse

Confirm

If you do not input a start number, but press the "*" key again, the time will be stored with a continuous number.
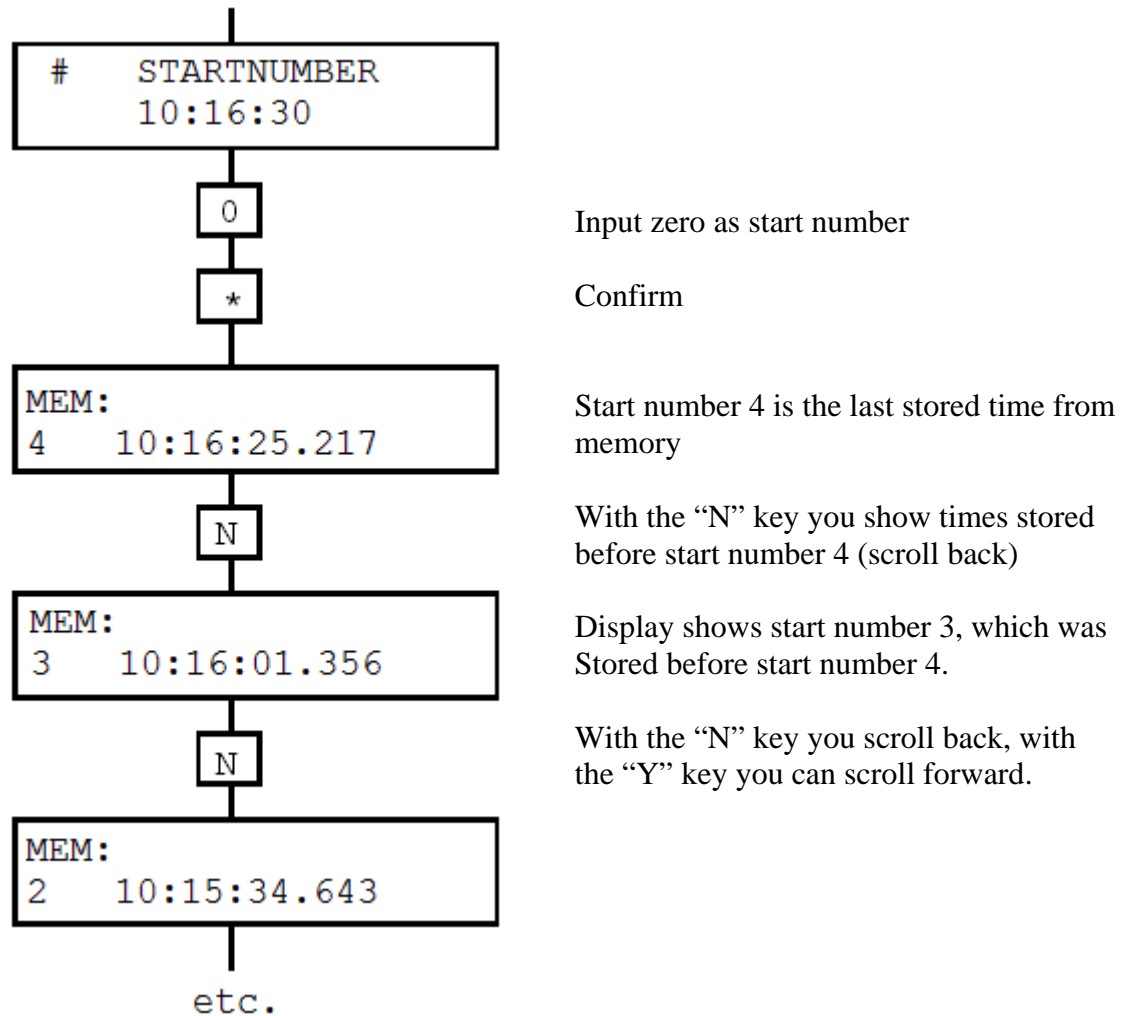
Confirm

The Memotimer shows the running time
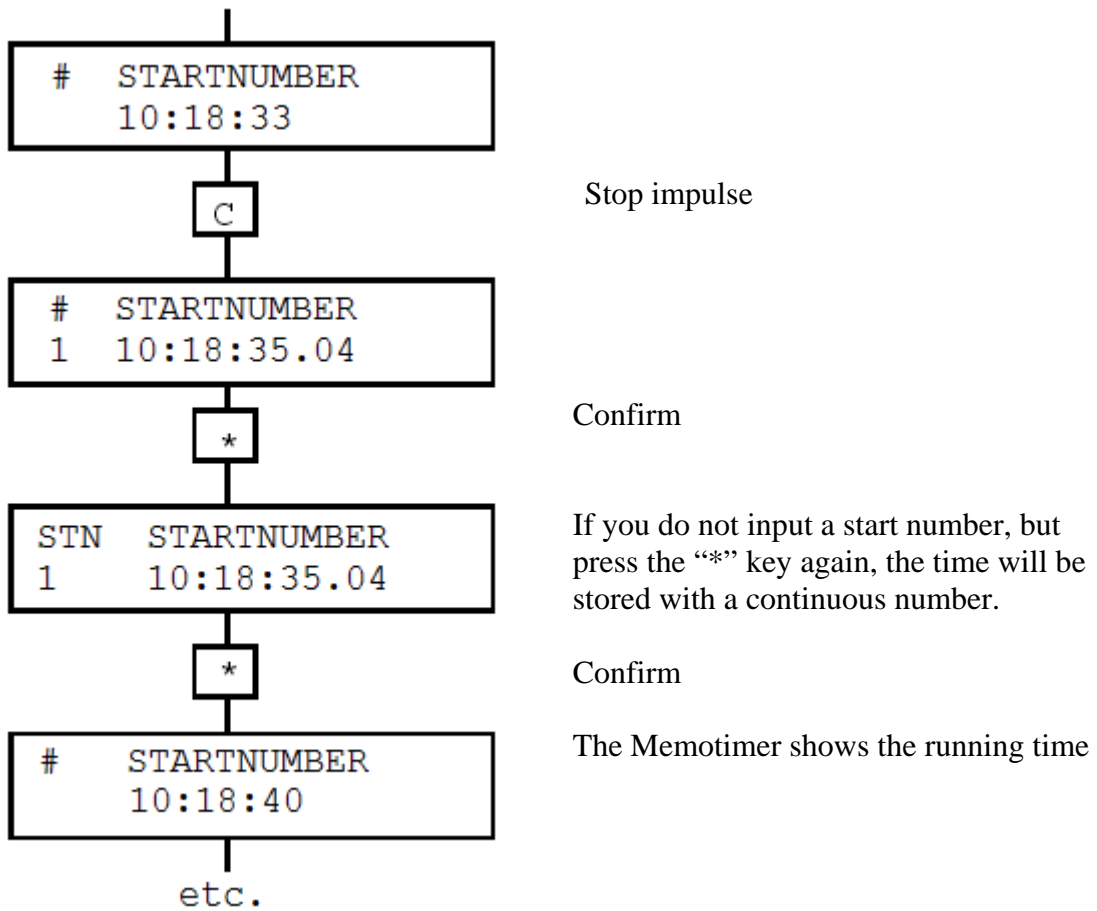
ATTENTION: If you use more than one Memotimer, you should always input start numbers. You can input start numbers directly during the stop mode or after the race with the EDIT mode.

If you do not input start numbers for every competitor, you may have problems with the computer ranking (the computer may incorrectly attach the start and finish time)

<u>Stored times shown on the display</u>

You can show all times which are stored in the memory on the display.

| ```
# STARTNUMBER
  10:16:30
``` | |
| 0 | Input zero as start number |
| * | Confirm |
| ```
MEM:
4   10:16:25.217
``` | Start number 4 is the last stored time from memory |
| N | With the "N" key you show times stored before start number 4 (scroll back) |
| ```
MEM:
3   10:16:01.356
``` | Display shows start number 3, which was Stored before start number 4. |
| N | With the "N" key you scroll back, with the "Y" key you can scroll forward. |
| ```
MEM:
2   10:15:34.643
``` | |
| etc. | |

If you press one of the number key, you return to the STOP mode.

Input of start numbers with a scanner:

You can input the competitors' start numbers with the keyboard of the comet or a scanner (e.g. Barcode scanner)

The scanner has to transmit the start number in ASCII code to the RS232c interface of the comet.

Transfer format:

2400 baud, 1 start bit, no parity, 8 data bits, 1 stop bit, hardware or software handshake.
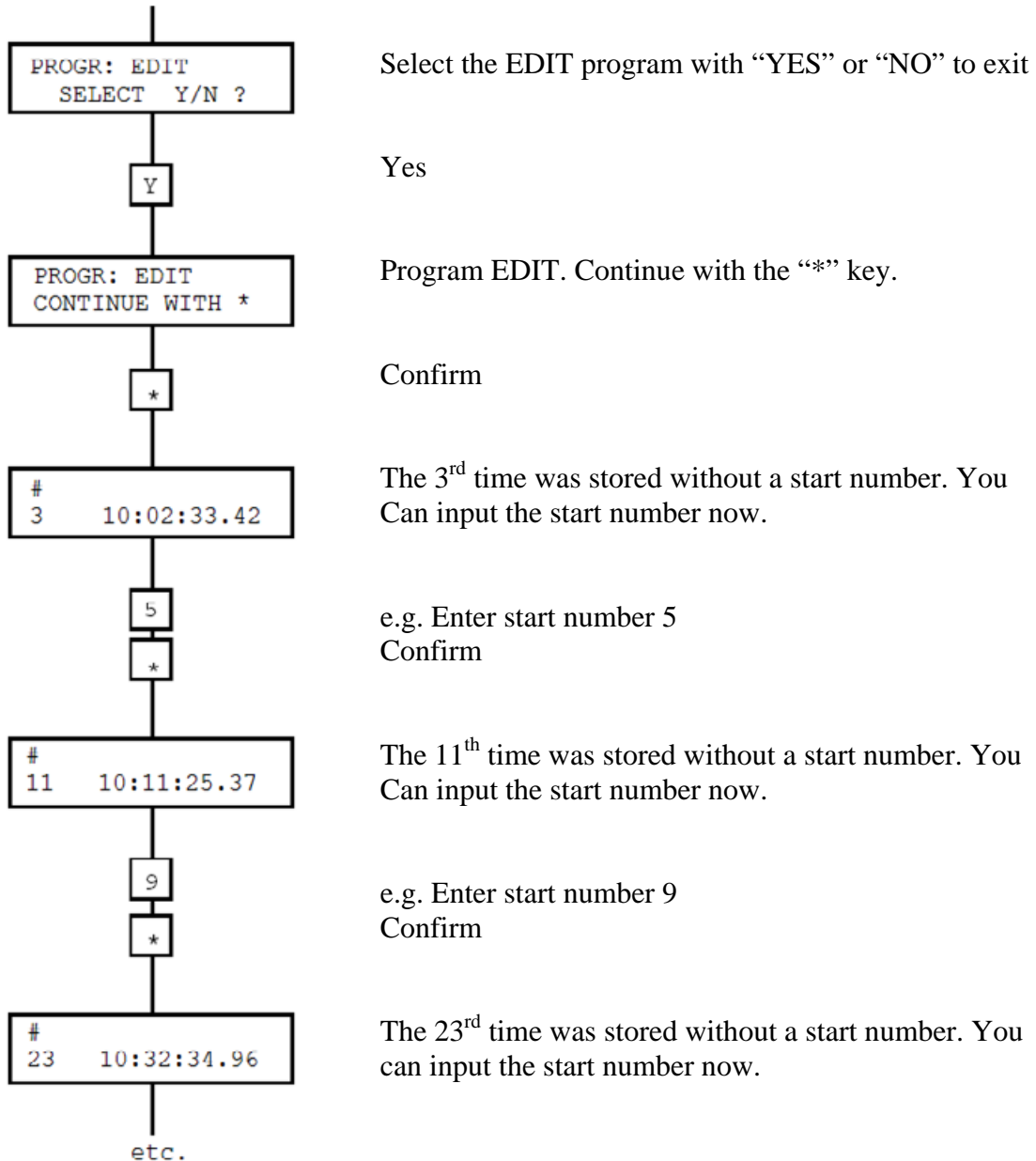

Data Format:

The comet can receive one digit to four digits as a start number. If you transmit numbers with more than four digits, it takes the last four digits. At the end of a start number it has to send CARRIAGE RETURN (CR) and LINE FEED (LF).

```
*********************************************************************
*          EDIT – BELATED INPUT OF START NUMBERS                  *
*********************************************************************
```

If you do not input start numbers during the STOP mode, you can do this later in the EDIT mode.

It is also possible that there will be some impulses without start numbers due to operator error during the race. (i.e. pressing "*" twice without entering a start number).You can then input the start numbers in the EDIT Mode at the end of the race.

All times that do not have a start number assigned will be shown on the display in order of impulse time.

PROGR: EDIT SELECT Y/N ?	Select the EDIT program with "YES" or "NO" to exit
Y	Yes
PROGR: EDIT CONTINUE WITH *	Program EDIT. Continue with the "*" key.
*	Confirm
# 3 10:02:33.42	The 3rd time was stored without a start number. You Can input the start number now.
5 *	e.g. Enter start number 5 Confirm
# 11 10:11:25.37	The 11th time was stored without a start number. You Can input the start number now.
9 *	e.g. Enter start number 9 Confirm
# 23 10:32:34.96	The 23rd time was stored without a start number. You can input the start number now.

etc.

```
************************************************************************
*                  TRANSMIT – TRANSFER THE DATA                       *
************************************************************************
```
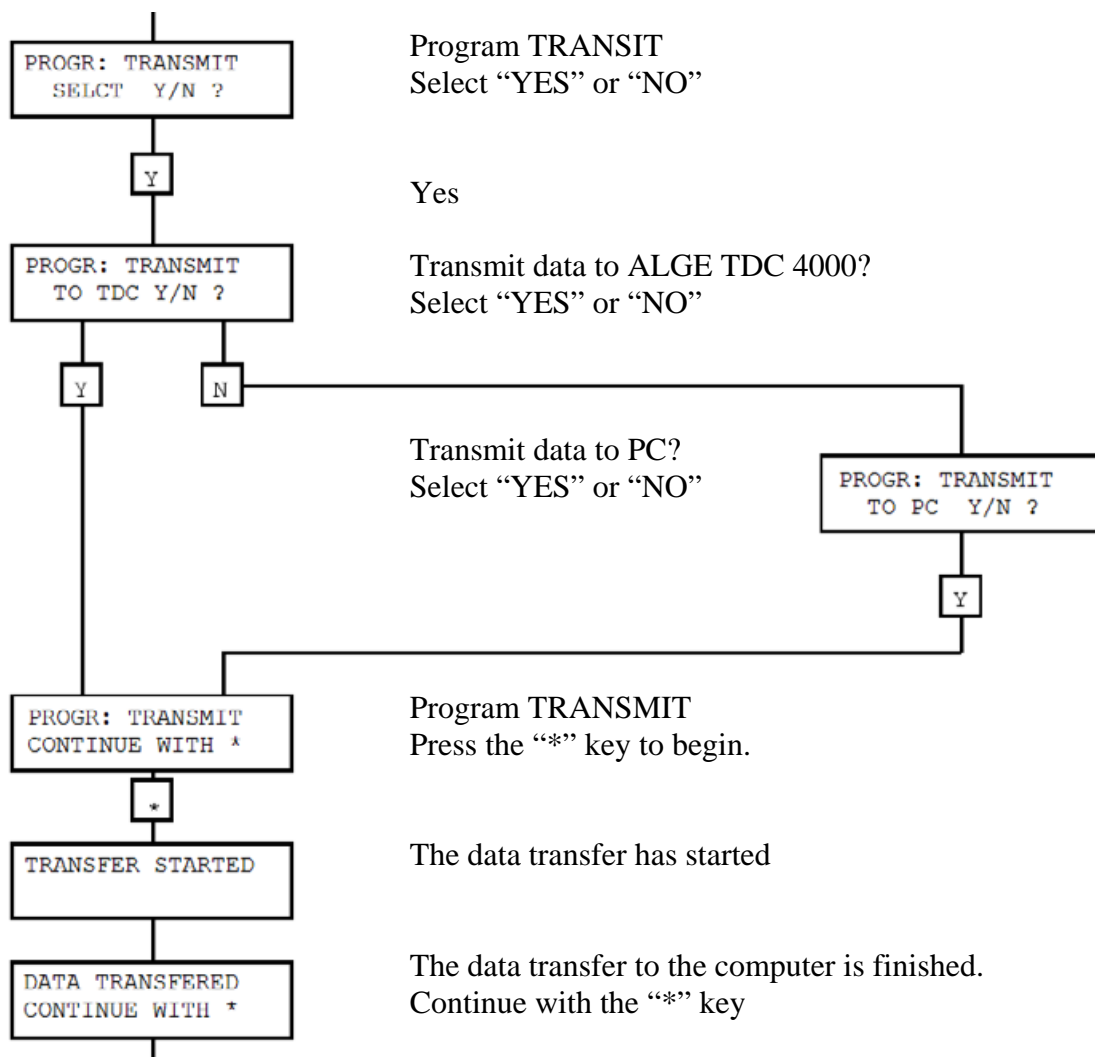
The TRANSMIT mode is used to transfer data from the Comet Memotimer to a computer (ALGE TdC4000 or PC).

You have to transmit the data of the Memotimer in order of use. i.e. first the start, then intermediate 1, intermediate 2 and last of all the finish (see diagram on next page)

Cables for the data transmission
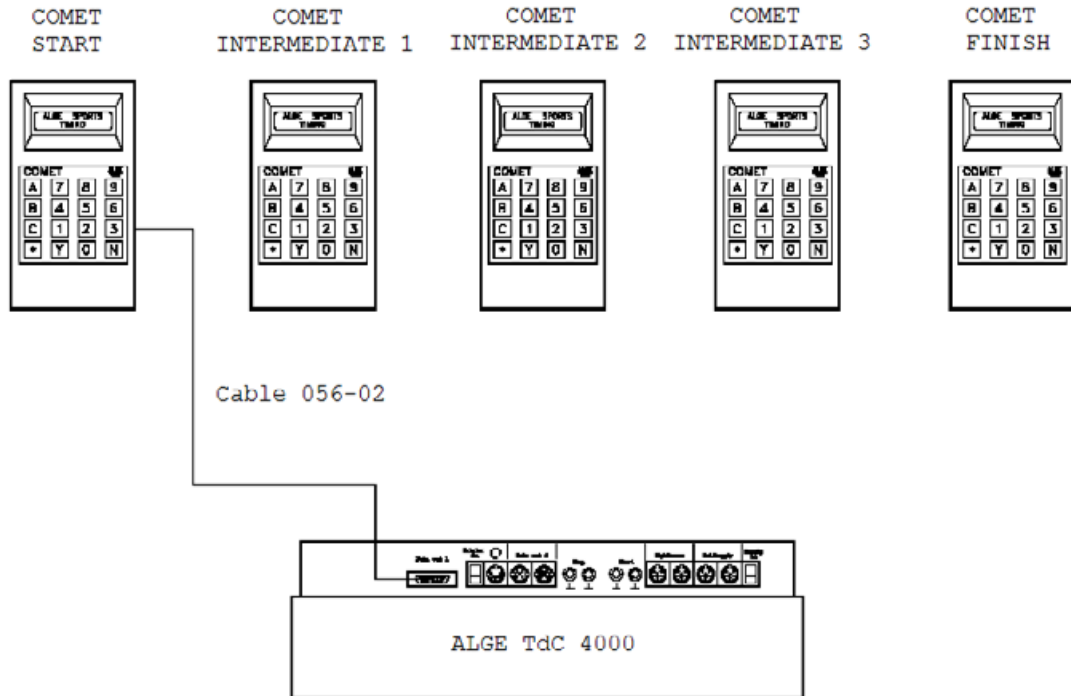Comet – Memotimer to TdC 4000:   Cable 056-02
Comet – Memotimer to computer PC: Cable 066-03

PROGR: TRANSMIT SELCT Y/N ?	Program TRANSIT Select "YES" or "NO"
Y	Yes
PROGR: TRANSMIT TO TDC Y/N ?	Transmit data to ALGE TDC 4000? Select "YES" or "NO"
Y N	
	Transmit data to PC? Select "YES" or "NO" PROGR: TRANSMIT TO PC Y/N ?
	Y
PROGR: TRANSMIT CONTINUE WITH *	Program TRANSMIT Press the "*" key to begin.
*	
TRANSFER STARTED	The data transfer has started
DATA TRANSFERED CONTINUE WITH *	The data transfer to the computer is finished. Continue with the "*" key

Now you have to transfer the data of the next Comet Memotimer.

Transmit the memory of the Memotimer to the TdC 4000 in the following order:

1) Start
2) Intermediate 1
3) Intermediate 2
4) Intermediate 3
5) Finish

COMET   COMET   COMET   COMET   COMET
START   INTERMEDIATE 1   INTERMEDIATE 2   INTERMEDIATE 3   FINISH
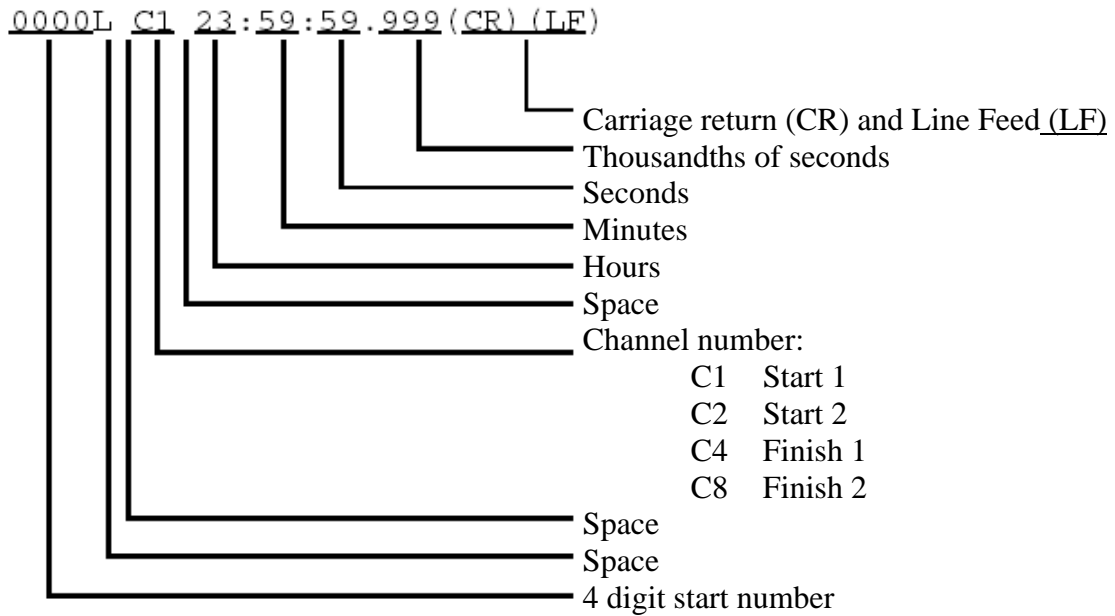
Cable 056-02

ALGE TdC 4000

Transfer Format:

2400 baud, 1 start bit, 8 ASCII Bits, 1 stop bit, no parity, hardware or software handshake.

Beginning of transmission:

(CR) (LF) (LF)
 01 (CR) (LF)

Time output:

```
0000L C1 23:59:59.999(CR)(LF)
```

Carriage return (CR) and Line Feed (LF)
Thousandths of seconds
Seconds
Minutes
Hours
Space
Channel number:
        C1   Start 1
        C2   Start 2
        C4   Finish 1
        C8   Finish 2
Space
Space
4 digit start number

End of Transmission:

(FF) (CR) (CR)

        (LF) Line Feed
        (FF) Form Feed
        (CR) Carriage Return