# REMOTE-CONTROL SYSTEMS
# FOR BROADCASTING PRODUCTION EQUIPMENT
# VIDEO TAPE-RECORDER TYPE-SPECIFIC MESSAGES

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**CONTENTS**

Introduction ..... 3

Chapter 1 - General concepts ..... 5

1. Transport machine states ..... 5
2. Electrical machine states ..... 5
3. Transport speeds ..... 6
4. Record control ..... 6
5. Track and channel selection ..... 6
6. VTR information fields ..... 6
   6.1. TMC tallies ..... 7
   6.2. Other command tallies ..... 7
   6.3. Tape code ..... 7
7. Synchronization ..... 7
   7.1. The SYNC command in the case of an "Ideal machine" ..... 8
   7.2. The CHASE command: an alternative means of maintining synchronism ..... 9
8. Immediate and timeline modes ..... 9
9. Sample command sequences ..... 10
   9.1. Immediate mode ..... 10
   9.2. Timeline mode ..... 12

Chapter 2 - VTR type-specific messages (virtual machine type is 02h) ..... 15

1. Index of keywords, mnemonics and information field names ..... 15
2. Keywords ..... 16
3. Information fields ..... 25

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# Introduction

Document Tech. 3245 describes the specification of a digital remote-control system for broadcasting production equipment. It defines completely the electrical/mechanical level (level 1), and the supervisory level (level 2), of the interface. The two remaining levels - the system service level (level 3), and the virtual machine level (level 4) - are defined only in terms of function and control message syntax.

Supplement 1 to Tech. 3245 completes the definition of the system service level by detailing the system service messages and, in addition, defines the virtual machine messages which are common to all types of virtual machine - the common messages.

The present Supplement defines the type-specific virtual machine messages which are applicable to video tape recorders. Type-specific messages applicable to other categories of equipment are defined in other supplements to Tech. 3245.

In order to implement a complete network, the system designer therefore requires:

Document Tech. 3245 - the general specification

Supplement 1 - system service and common messages

and one or more other supplements appropriate to the category or categories of equipment to be used.

The specification described in this Supplement has been developed jointly with the SMPTE, and is functionally identical to that to be published as an SMPTE Recommended Practice.

# Chapter 1
# General concepts

This chapter contains a general explanation of some of the concepts used in the formulation of the VTR type-specific message set. It constitutes tutorial information, and is intended to assist in the understanding of the specification in Chapter 2.

## 1. Transport machine states

The transport mechanism of a VTR is considered as an independent state machine. Therefore the commands which control transport functions form a subset within the VTR-specific message set. These commands are called Tape Motion Commands ("TMC"). Each TMC causes a transition from one specific transport state to another and cancels the previous state, i.e. these functions are mutually exclusive.

TMCs include: STOP, STD PLAY, SHUTTLE, PREROLL SEARCH, SYNC, etc.

All tape motion commands are marked as such in the command description.

## 2. Electrical machine states

Other VTR commands affect states of the electrical environment of the VTR. The functions controlled by them are not necessarily mutually exclusive.

## 3. Transport speeds

Some commands require a speed specification which is carried by the command in the form of a three-byte parameter. This parameter is intended to define the direction and absolute value of the desired speed that should be achieved as closely as possible by the real machine.

All commands with a speed parameter use the same format and coding. This in a three-byte signed number with a scale range defined so that

| | |
|---|---|
| 000000hex | represents still |
| 010000hex | represents standard play-speed forward. |
| 7F0000hex | represents approximately 127 times standard play-speed forward |
| FF0000hex | represents standard play-speed reverse |
| 800000hex. | represents 128 times standard play-speed reverse. |

It allows, theoretically, for speeds between -128 and approximately +127 times standard speed and a resolution of 1/65,536th of standard speed.

## 4. Record control

The recording function of the tape machine is fully controlled by the command pair ENTRY/EXIT. The form of record entry or exit is predefined by the command RECORD MODE. The tracks/channels affected by the command are defined by a parameter contained within the ENTRY/EXIT command.

## 5. Track and channel selection

Some commands and information fields refer to one or more tracks (or the associated channels) of the tape machine. The format used is the same in all cases and is defined in the description of the ENTRY and EXIT commands. The format allows for up to 16 audio tracks for future applications.

## 6. VTR information fields

The VTR dialect makes extensive use of the information field concept; some specific items of the VTR information field are described in the following sections.

### 6.1. TMC tallies

This Information field indicates the current state of the transport. As all possible states are commanded by TMCs, the code of the corresponding TMC keyword in used to identify them individually.

An additional byte indicates (tallies) the level of success, i.e. whether the commanded function is still in progress or already finished, and whether successfully or not.

### 6.2. Other command tallies

Commands which cause changes in any electrical machine state (non-TMCs) have a corresponding information field. When the information field is read, the response is tallied in the same format as that of the command.

Example: The command RECORD MODE SELECT is intended to preset the state of the recording electronics. The information field RECORD MODE TALLY may be read to obtain information about the record mode status, which will be tallied in the same format as that contained within the RECORD MODE SELECT command itself.

### 6.3. Tape code

There are several scales that may be used to identify a tape position, for example:

- longitudinal timecode,
- vertical interval timecode,
- tape timer 1,
- tape timer 2.

For tape search, editing and other automatic procedures one of these scales must be used. The selected scale is referred to as the TAPE CODE, and can be chosen by the TAPE CODE SELECT command. The functions mentioned above then refer to the TAPE CODE rather than directly to timecode.

There is a separate information field for each of the codes and timers mentioned above; the tape code actually selected, however, can also be read from the information field TAPE CODE.

## 7. Synchronization

Synchronization is one of the fundamental requirements of a tape machine. Synchronization means that the machine is programmed to pass:

- a specified point on the tape ( *'where"),

- at a specified point in time ("when'), and

- locked to a specified speed ("how").

"Where": The point on the tape is called SYNC POINT. It is specified in terms of TAPE CODE, and is maintained in the information field SYNC POINT. The sync point is specified by applying a PRESET command to this information field.

"When": The point in time is defined by the instant of issue of the SYNC command. At a specified time period after the arrival of the SYNC command, the SYNC POINT must be reached. This time period is called PREROLL DURATION; it is maintained in the information field PREROLL DURATION, and is specified by applying a PRESET command to this information field.

Note that the PREROLL DURATION is reserved mainly for synchronization purposes; a greater PREROLL DURATION than required by the real machine may, however, be chosen for operational reasons (e.g., extended preview time).

"HOW" The speed at the SYNC POINT is defined by a value maintained in the information field SYNC VELOCITY; it is specified by applying a PRESET command to this information field.

As a prerequisite for the use of the SYNC command, the tape must be placed at a park position which is calculated from the SYNC POINT and the SYNC VELOCITY as follows:

$$\text{SYNC POINT} - \frac{\text{PREROLL DURATION X SYNC VELOCITY}}{\text{STANDARD VELOCITY}}$$

To achieve this park position the PREROLL SEARCH command is used and the VTR virtual machine must make the calculation automatically.

### 7.1. The SYNC command in the case of an "Ideal machine"

A better understanding of the function of the SYNC command can be had if it is considered in the case of an "ideal" machine.

- On the arrival of a SYNC command an ideal VTR would start immediately with no delay, fully locked and with the specified speed. Under these ideal conditions the machine would, at the PREROLL DURATION time later, be precisely at the SYNC POINT.

- A real VTR cannot start and synchronize immediately; it is therefore the responsibility of the virtual machine, and hence of the virtual machine manufacturer, to control the real machine in such a manner that the result is the same.

Measures taken in order to correct synchronization following the PREROLL DURATION period may include:

- on the receipt of a PREROLL SEARCH command, parking a few frames down the tape to match the average number of frames lost while coming up to play speed, and

- on the SYNC command, overriding the specified velocity using the tape speed override facility of the real machine to eliminate the remaining offset from the appropriate lock condition.

### 7.2. The CHASE command: an alternative means of maintining synchronism

While the PREROLL SEARCH/SYNC commands may be used to run several machines in continuous synchronism (without changing their states and/or speed), the CHASE command is used to maintain synchronism as closely as possible where dynamic changes of the machines' state and/or speed occur.

This operation, however, requires one of the synchronous machines to be the master, while the others perform as slaves, and emulate all the movements of the master, even when in the SHUTTLE state.

The slaves must therefore be given precise information about the movement of the master. Such information is, in general, transferred by means of timecode, which is distributed continuously from the master to all slaves over a separate line. The bus cannot be used for this purpose due to its unpredictable delays.

The CHASE command specifies an offset between the timecode of the chasing machine and a reference. The reference is the timeline, which, in this case, will usually be programmed to use an "external reference time" as its source (i.e. the timecode of the master). See also the common message TIMELINE SOURCE.

## 8. Immediate and timeline modes

All VTR commands can be used in the "immediate mode", which causes their instantaneous execution; in this way they can be used to control even time-critical functions. As the transfer of a message over the bus within a given time slot cannot be guaranteed, however, the immediate mode is not recommended for such applications.

Wherever possible, time-critical commands should be queued on the timeline, using the command facilities provided by the common message set. Activities requiring synchronous operations between several VTRs are best suited to the "timeline mode" of operation, which allows for the pre-programming of sequences of time-critical functions (e.g. SYNC, ENTRY and EXIT commands). In general, time-critical functions refer to the timelines of the individual virtual machines, which themselves are synchronized by a system time transmission from the bus controller in response to a REQUEST TIME TRANSMISSION command.

For certain time-critical applications (for example, editing), it is essential that all machine internal clocks are synchronized to the station field phase sequence. In order to achieve this phasing, the machine internal clock will be advanced by as many frames as necessary following receipt of the TIMELINE RUN command. When all virtual machines in a session achieve this in the same way (for example, when they are all VTRs), there is no difficulty.

A problem does arise, however, if there are non-VTR participants within a session (ATRs, for example). They would have no reason to advance the machine internal clock is accordance with a video sequence and a mixed operation of VTRs and non-VTRs would therefore not necessarily run synchronously.

There are two approaches which might be taken to resolve this problem.

If the bus clock which resides in the bus controller runs synchronously with the video phase sequence, no correction of a machine internal clock following a TIMELINE RUN command need take place.

Alternatively, if this approach is not possible, the controlling device may gain information about any correction of the clocks within the system by READing the information field TIMELINE CORRECTION TALLY from all virtual machines involved and comparing them with each other. If this results in differing tallies, the controlling device can take that into account when calculating events for the timeline.

In the case of a known synchronous bus clock the TIMELINE CORRECTION TALLY may be used by the controlling device for fault diagnosis on the machine internal clocks.

## 9. Sample command sequences

The following sections show samples of typical command sequences in immediate mode as well as in timeline mode. These sequences describe only some of the applications of the command set; there is no obligation on the part of system designers to use precisely these sequences.

### 9.1. Immediate mode

#### 9.1.1. Search and play

some time before initial action:

<PRESET> <PREROLL DURATION> <time value>

<PRESET> <SYNC POINT> <time value>

initial action:

<PREROLL SEARCH>

final action (not earlier than when TMC TALLY has been "SEARCHed, successfully"):

<STD PLAY>

On the STD PLAY command the VTR starts. It reaches the SYNC POINT after approximately the PREROLL DURATION.

If the VTR is required to start at the SYNC POINT location (using no preroll) the TARGET SEARCH command should be used. Synchronization is not then guaranteed.

Note that the PREROLL DURATION and the SYNC POINT once loaded, need not be reloaded until changed.

### 9.1.2 Search and synchronize

some time before initial action:

<PRESET> <PREROLL DURATION> <time value>

<PRESET> <SYNC POINT> <time value>

<PRESET><SYNC VELOCITY><speed value>

initial action:

<PREROLL SEARCH>

final action (not earlier than when TMC TALLY has been "SEARCHed, successfully"):

<SYNC>

On the SYNC command the VTR starts. It reaches the SYNC POINT after precisely the PREROLL DURATION.

Under control of the virtual machine, the TSO function of the VTR may be used to find the appropriate lock.

Synchronization of the VTR in response to the SYNC command is guaranteed; however:

- in PAL the VTR will be advanced by one frame, when necessary to be in accordance with the P-phase, and
- the colour framer will advance the VTR by as many frame a as necessary.

This sequence can be used for the synchronous operation of multiple VTRs only when delivery of the SYNC command can be guaranteed within a reasonable time slot (e.g. one field).

Note that the PREROLL DURATION, once loaded, need not be reloaded until changed.

### 9.1.3. Search, synchronize and insert edit

some time before initial action:

<PRESET> <PREROLL DURATION> <time value>

<PRESET <SYNC POINT> <time value>

<PRESET><SYNC VELOCITY><speed value>

<RECORD MDE> <"insert">

initial action:

<PREROLL SEARCH>

final action (not earlier than when the TMC TALLY has been "SEARCHed successfully"):

<SYNC>

at ("entry point" - "record delay"):

<ENTRY> <appropriate channels>

at ("exit point" - "record delay"):

<EXIT> <appropriate channels>

The controlling virtual machine must "know" the record delays of the VTR9 and correct for them.

In "assemble", edits and previews differ only in the RECORD MODE parameter.

This sequence can be used for the synchronous operation of multiple VTRs only on the condition that the transfer of the SYNC, ENTRY, and EXIT commands is guaranteed within a reasonable time slot (e.g. one field).

## 9.2. Timeline mode

### 9.2.1. Search and play

some time before initial action:

<PRESET> <PREROLL DURATION> <time value>

<CLEAR EVENT> <0>

<STOP TIMELINE> (optional)

<PRESET> <SYNC POINT> <time value>

<PRESET><SYNC VELOCITY><speed value>

initial action:

<PREROLL SEARCH>

final action (not earlier than when TMC TALLY has been "SEARCHed, successfully"):

<REQUEST TIME TRANSMISSION>

<DEFINE EVENT>

<TIMELINE> <"timeline sync point" - "preroll duration">

<STD PLAY>

Note that the "timeline sync point" in the value of the timeline when the SYNC POINT has been reached approximately; it must be calculated from the instantaneous timeline value transmitted by the bus controller in response to the preceding REQUEST TIME TRANSMISSION command.

In this case it is actually easier to use the immediate mode which allows for VTR PLAY at a specific time from commands given much earlier.

### 9.2.2. Search and synchronize

some time before initial action:

<PRESET> <PREROLL DURATION> <time value>

<CLEAR EVENT> <0>

<STOP TIMELINW (optional)

<PRESET> <SYNC POINT> <time value>

<PRESET><SYNC VELOCITY><speed value>

initial action:

<PREROLL SEARCH>

final action (not earlier than when TMC TALLY has been "SEARCHed successfully"):

<REQUEST TIME TRANSMISSION>

<DEFINE EVENT>

<TIMELINE> <"timeline sync point" - "preroll duration">

<SYNC>

Note that the "timeline sync point" is the value of the timeline when the SYNC POINT has been reached precisely; it must be calculated from the instantaneous timeline value transmitted by the bus controller in response to the preceding REQUEST TIME TRANSMISSION command. For editing it is generally desirable to introduce no unnecessary waiting times; therefore it is suggested that ("timeline sync point" - "preroll duration") be substituted in the DEFINE EVENT command by (instantaneous timeline value + some frames to compensate for transmission delay).

It is the responsibility of the controlling virtual machine to ensure that the SYNC command is placed on the timeline at a point such that the SYNC POINT and the timeline SYNC POINT coincide in respect of the colour framer and/or the P-phase (in PAL).

If this is not done, the situation described in 9.1.2 will occur, which may result in inexact edits.

This implies preference for a system in which the system time, which presets all timelines, is synchronized to reference colour frame (or in PAL, at least to P-phase).

#### 9.2.3. Search, synchronize, and Insert edit

some time before initial action

<PRESET> <PREROLL DURATION> <time value>

<CLEAR EVENT> <0>

<STOP TIMELINE> (optional)

<PRESET> <SYNC POINT> <time value>

<PRESET><SYNC VELOCITY><speed value>

<RECORD MODE> <"insert">

initial action

<PREROLL SEARCH>

final action (not earlier than when TNC TALLY has been "SEARCHed, successfully"):

<REQUEST TIME TRANSMISSION>

<DEFINE EVENT>

<TIMELINE> <"timeline sync point" - "preroll duration">

<SYNC>

<DEFINE EVENT>

<TIMELINE> <required timeline value>

<ENTRY> <appropriate channels>

<DEFINE EVENT>

<TIMELINE> <required timeline value>

<EXIT> <appropriate channels>

The VTR virtual machine is responsible for the compensation of any inherent delays, so that the specified functions happen on the designated field. This allows the controlling virtual machine to talk to the VTR in a generic fashion. Thus type C, type B, U-matic, and Quad VTRs will all be set by exactly the same commands, and will all edit on the same field.

Split edits require multiple ENTRY and/or EXIT commands stacked on different points of the timeline by using multiple DEFINE EVENT c ends.

In "assemble", edits and previews differ only in the RECORD MODE parameter.

# Chapter 2
# VTR type-specific messages
# (virtual machine type is 02h)

## 1. Index of keywords, mnemonics and information field names

| Hex | Message keyword | (mnemonic) | Hex | Information field name | (mnemonic) |
|---|---|---|---|---|---|
| 40 | not used | | 40 | not used | |
| 41 | STOP | STOP | 41 | LTC FROM TAPE | LTFT |
| 42 | VARIABLE PLAY | VAPL | 42 | VITC FROM TAPE | VIFT |
| 43 | STD PLAY | STPL | 43 | SELECTED TAPE CODE | SETC |
| 44 | STEP | STEP | 44 | USERBITS FROM TAPE LTC | UFTL |
| 45 | VISIBLE FAST | VFST | 45 | USERBITS FROM TAPE VITC | UFTV |
| 46 | SHUTTLE | SHUT | 46 | T T 1 (tape timer 1) | TTON |
| 47 | TAPE SPEED OVERRIDE | TSPO | 47 | T T 2 **(tape timer** 2) | TTW |
| 48 | READY SELECT | REDS | 48 | READY TALLY | REDT |
| 49 | SERVO REFERENCE SELECT | SRES | 49 | SERVO REFERENCE TALLY | SRET |
| 4A | RECORD MODE SELECT | REMS | 4A | RECORD MODE TALLY | RENT |
| 4B | ENTRY | ENTY | 4B | CHANNEL RECORD STATUS | CRES |
| 4C | EXIT | EXIT | 4C | CHANNEL RECORD MASK | CREM |
| 4D | TAPE CODE SELECT | TACS | 4D | TAPE CODE SELECTION TALLY | TACT |
| 4E | TARGET SEARCH | TASE | 4E | SYNC VELOCITY | SVTY |
| 4F | PREROLL SEARCH | PRSE | 4F | PREROLL DURATION | PRDU |
| 50 | SYNC | SYNC | 50 | SYNC POINT | SPNT |
| 51 | COLOUR FRAMER SELECT | CFRS | 51 | COLOUR FRAMER TALLY | CFRT |
| 52 | EDIT FIELD SELECT | EDFS | 52 | EDIT FIELD TALLY | EDFT |
| 53 | CHASE | CHAS | 53 | not used | |
| 54 | TCG LTC TIME SOURCE SEL | TLTS | 54 | TCG LTC TIME SOURCE TALLY | TLTT |
| 55 | TCG VITC TIME SOURCE SEL | TWS | 55 | TCG VITC TIME SOURCE TALLY | TWT |
| 56 | TCG LTC UB SOURCE SEL | TLUS | 56 | TCG LTC UB SOURCE TALLY | TLUT |
| 57 | TCG VITC UB SOURCE SEL | TWS | 57 | TCG VITC UB SOURCE TALLY | TVUT |
| 58 | EJECT/UNTEREAD | EJCT | 58 | not used | |
| 59 | not used | | 59 | not used | |
| SA | not used | | 5A | TAPELENGTH | TLTH |
| 5B | not used | | 5B | PARKING ACCURACY | PARK |
| 5C | not used | | 5C | SYNCHRONISM ACCURACY | SYAC |
| 5D | not used | | 5D | not used | |
| SE | TRACKING SELECT | TRKS | SE | TRACKING SELECTION TALLY | TRKT |
| SF | ANTI-CLOG CONTROL | ANCC | SF | ANTI-CLOG CONTROL TALLY | ANCT |
| 60 | PRESET | PRST | 60 | not used | |
| 61 | not used | | 61 | TMC TALLY | TMCT |
| 62 | not used | | 62 | VELOCITY TALLY | VELT |
| 63 | not used | | 63 | TIMELINE CORRECTION TALLY | TLCT |
| 64 | not used | | 64 | not used | |
| 65 | PLAYBACK CHANNEL SELECT | PLCS | 65 | PLAYBACK CHANNEL TALLY | PLCT |
| 66 | CHANNEL MUTE SELECT | CMUS | 66 | CHANNEL MUTE TALLY | CMUT |
| 67 | TAPE/EE SELECT | TEES | 67 | TAPE/EE TALLY | TEET |
| 68 | not used | | 68 | TIMECODE TO TAPE LTC | TTTL |
| 69 | not used | | 69 | TIMECODE TO TAPE VITC | TTTV |
| 6A | not used | | 6A | USERBITS TO TAPE LTC | UTTL |
| 6B | not used | | 6B | USERBITS TO TAPE VITC | UTTV |
| 6C | not used | | 6C | PRESETTABLE TIME SRC LTC | PTSL |
| 6D | not used | | 6D | PRESETTABLE TIME SRC VITC | PTSV |
| 6E | not used | | 6E | PRESETTABLE UB SOURCE LTC | PUSL |
| 6F | not used | | 6F | PRESETTABLE UB SOURCE VITC | PUSV |

## 2. Keywords

*General notes: 1. All tape motion commands (Indicated below as "TMC") are mutually exclusive.*

*2. in all cases, the temporal order of entries and exits must be preserved.. Thus an entry received later in time at the same position on timeline will cancel an existing exit.*

40 not used

41 STOP (TMC command)
causes the controlled VTR to stop as soon as possible; indeterminate picture.

Format: <STOP>

42 VARIABLE PLAY (TMC command)
causes the controlled VITR to enter continuously variable playback mode with specified direction and speed.

Format: <VARIABLE PLAY>
<SPEED> 3-byte signed binary number: 2's complement

scale: 000000hex - still
010000hex - standard play-speed forward.
7F0000hex = approximately 127 times standard play-speed forward
FF0000hex - standard play-speed reverse
800000hex - 128 times standard play-speed reverse.

43 STD PLAY (TMC command)
causes the controlled VTR to enter field-locked real time playback mode, colour framed as selected, with specified direction and speed.

Format: <STD PLAY>

44 STEP (TMC command)
causes the controlled VTR to move the tape a specified number of fields forward or backward, with respect to its current position, only while in TMCs: STEP, TSO, VISIBLE FAST (STILL) or VARIABLE PLAY (STILL).

Successive commands are cumulative until next TMC other than STEP.

Format: <STEP>
<FIELD NUMBER> 1-byte signed number; range: -128 ... +127

45 VISIBLE FAST (TMC commend)
causes the controlled VTR to enter fact tape motion with visible but not, necessarily broadcastable picture with specified direction and speed.

Format: <VISIBLE PAST>
<SPEED> 3-byte signed binary number; same format an in VARIABLE PLAY

46 SHUTTLE (TMC command)
causes the controlled VTR to travel at specified direction and speed without necessarily reproducing picture or sound.

Format: <SHUTTLE>
<SPEED> 3-byte signed binary number; same format as in VARIABLE PLAY

47 TAPE SPEED OVERRIDE (TMC command)
causes the controlled VTR to override instantaneous play speed for synchronizing purposes.

Format: <TAPE SPEED OVERRIDE>
<SPEED> 3-byte signed binary number; same format as in VARIABLE PLAY

48 READY SELECT
establishes the VTR in a state to minimize start-up time.

Format: <READY SELECT>
<SWITCH> boolean value: 00h = OFF (= default)
01h = ON

49 SERVO REFERENCE SELECT
selects the input switch for video reference source.

Format: <SERVO REFERENCE SELECT>
<MODE> 1-byte special binary code:

00h = auto select (= default)
01h = video in
02h = external ref input
FFh = - as selected locally

4A. RECORD MODE SELECT
selects the mode of the subsequent recording(s) or edit(s).

Format: <RECORD MODE SELECT>
<MODE> 1-byte special binary code:

00h = record disable (= default)
01h = insert
02h = assemble; all channels
03h = assemble; channel selectable
04h = rehearsal
05h = crash record

4B ENTRY

cause a start of insertion on the specified channel(s) [track(s)]

Format: <ENTRY>
<CHANNELS> 3-byte bit mask:

bit 0 (lsb) = video
bit 1 = sync track
bit 2 = VITC
bit 3 = reserved
bit 4 = reserved
bit 5 = reserved
bit 6 = reserved
bit 7 = LTC
bits 8 - 23 - audios 1 16 respectively

Logic: 0 = channel not affected
1 = channel turned on or stays on

*Notes: 1. In "assemble; all channels" mode the channel bits have no meaning.*
*2. Bits 0-7 form the least-significant byte; this byte is transmitted last.*

4C EXIT

causes a termination of an insertion on the specified channels(a) track(a)

Format: <EXIT>
<CHANNELS> 3-byte bit mask:

bit 0 (lsb) = video
bit 1 = sync track
bit 2 = VITC
bit 3 = reserved
bit 4 = reserved
bit 5 = reserved
bit 6 = reserved
bit 7 = LTC
bits 8 - 23 = audios 1 - 16 respectively

Logic: 0 = channel not affected
1 = channel turned off or stays off

*Notes: 1. In "assemble; all channels" mode the channel bits have no meaning.*
*2. Bits 0-7 form the least-significant byte; this byte is transmitted last.*

4D TAPE CODE SELECT

selects the type of code for all succeeding messages that refer to "TAPE CODE".

*Note: As LTC, VITC, T T 1 and T T 2 are also contained in an item of the VTR-specific INFORMATION FIELD, they may be accessed by READ command at any time, even if not selected as TAPE CODE by the command TAPE CODE SELECT.*

Format: <TAPE CODE SELECT>
<CODE TYPE> 1-byte special binary code:

00h = longitudinal timecode (= default)
01h = vertical interval timecode
02h = T T 1
03h = T T 2
04h = auto TC
FFh = as selected locally

4E TARGET SEARCH (TMC command)
causes the controlled VTR to move to a defined tape position in accordance with the TAPE CODE.

Format: <TARGET SEARCH>
<TAPE CODE> (type TIME; field referenced)

*Note: The type of TAPE CODE is selected by the command TAPE CODE SELECT.*

4F PREROLL SEARCH (TMC command)
causes the controlled VTR to move to a tape position determined from the duration of the PREROLL TIME in advance of the SYNC POINT and the SYNC VELOCITY, in accordance with the TAPE CODE.

*Note. PREROLL TIME, SYNC POINT and SYNC VELOCITY are part of the VTR-specific INFORMATION FIELD.*

Format: <PREROLL SEARCH>

50 SYNC (TMC command)
causes the controlled VTR to start, and synchronize after the PREROLL DURATION when the tape will be at the SYNC POINT and travelling at the SYNC VELOCITY.

*Notes: 1. SYNC POINT and SYNC VELOCITY are part-of the VTR-specific INFORMATION FIELD, and must be predefined by a PRESET command before execution.*

*2. The tape must be positioned and tallied previously by a PREROLL SEARCH command.*

*3. If the SYNC VELOCITY is standard play speed, the VTR reverts to STD PLAY after attaining sync.*

*4. In PAL the VTR will be ADVANCED by one frame when necessary, to be in accordance with the P-phase, and the colour framer will ADVANCE the VTR by as many frames as necessary.*

Format:<SYNC>

51 COLOUR FRAMER SELECT
selects the colour framer mode

Format: COLOUR FRAMER SELECT>
<MODE> 1-byte special binary code:

bit 7 (msb): 0 = OFF - 2 field lock NTSC
- 4 field lock PAL/SECAN
1 = ON - 4 field lock STSC
- 8 field lock PAL/SECAM

bit 6: 0 = normal lock
1 = inverted lock

bits 3 - 0: nibble contains binary number, which specifies an offset from the lock specified above in units of fields

Exception: FFh = as selected locally

52 EDIT FIELD SELECT
selects the edit field.

Format: <EDIT FIELD SELECT>
<MODE> 1-byte special binary code:

00h = start of field 1 always
01h = start of field 2 always
02h = at next vertical in immediate mode, or determined by field bit of timeline if in timeline mode
FFh = as selected locally

53 CHASE (TMC command)
maintains a given time offset between the selected tape code of the machine and the specified timeline using appropriate transport mode as determined by the timeline (usually with "external reference time" source; see common message TIMELINE SOURCE).

Format: <CHASE>
<OFFSET TIME> (type TIME); definition:

offset - slave - master

e.g.: if slave is to lead by one minute send:
00 01 00 00;
if slave is to lag by one minute send:
23 59 00 00;
i.e. '24 hours complement' notation.

54 TCG LTC TIME SOURCE SELECT
selects the time source for the LTC timecode generator of the controlled VTR.

Format: <TCG LTC TIME SOURCE SELECT>
<TIME SOURCE> 1-byte special binary code:

00h = hold
01h = run independently, starting with the value contained in information field item PRESETTABLE TIME SOURCE LTC
02h = run with external unspecified source
03h = run with tbe regenerated value of the LTC timecode as source (also contained in information field LTC FROM TAPE) until a record ENTRY of the LTC track; then continue independently, running with the time value most recently read from tape; i.e. "Jam-sync" function
04h = run with regenerated VITC timecode from tape as source (also contained in information field VITC FROM TAPE); i.e. "copy" function
05h = run with TAPE CODE as source (also contained in information field TAPE CODE)

55 TCG VITC TIME SOURCE SELECT
selects the time source for the VITC timecode generator of the controlled VTR.

Format: <TCG VITC TIME SOURCE SELECT>
<TIME SOURCE> 1-byte special binary code:

00h = hold
01h = run independently, starting with the value contained in information field item PRESETTABLE TIME SOURCE VITC
02h = run with external, unspecified source
03h = run with the regenerated value of the VITC timecode as source (also contained in the information field VITC FROM TAPE) until a record ENTRY of-the VITC track; then continue, independently, running with the time value most recently read from tape; i.e. "Jam sync" function
04h = run with regenerated LTC timecode from tape as source (also contained in information field LTC FROM TAPE); i.e. "copy" function
05h = run with TAPE CODE as source (also contained in information field TAPE CODE)

56 TCG LTC USERBIT SOURCE SELECT
selects the userbit source for the LTC timecode generator of the controlled device.

Format: <TCG LTC USERBIT SOURCE SELECT>
<USERBIT SOURCE> 1-byte special binary code:

00h = no userbits; i.e. all set to zero (= default)
01h = userbits from information field item PRESETTABLE USERBIT SOURCE LTC, which may be preset by a PRESET command
02h = userbits from external, unspecified source
03h = userbits continuously copied from the LTC timecode from tape (also contained in information field USERBITS FROM TAPE LTC)
04h userbits continuously copied from VITC timecode from tape (also contained in information field USERBITS FROM TAPE

57 TCG VITC USERBIT SOURCE SELECT
selects the userbit source for the VITC timecode generator of the controlled device.

Format: <TCG VITC USERBIT SOURCE SELECT>
<USERBIT SOURCE> 1-byte special binary code:

00h = no userbits; i.e. all set to zero (= default)
01h = userbits from information field item PRESETTABLE USERBIT SOURCE VITC, which may be preset by a PRESET command
02h = userbits from external, unspecified source
03h userbits continuously copied from the VITC timecode from tape (also contained in information field USERBITS FROM TAPE VITC)
04h userbits continuously copied from the LTC timecode from tape (also contained in information field USERBITS FROM TAPE

58 EJECT/UNTHREAD (TMC command)
eject for cassette or unthread where applicable.

Format: <EJECT/UNTEREAD>

59 not used

5A not used

5B not used

5C not used

5D not used

5E TRACKING SELECT

selects tracking mode.

Format: <TRACKING SELECT>
<MODE> 1-byte special binary code:

00h = FIXED (= default)
01h = AUTO
FFh = as selected locally

5F ANTI-CLOG CONTROL

switches the anti-clog mechanism on/off.

Format: <ANTI-CLOG CONTROL>
<MODE> 1-byte special binary code:

00h = ON (= default)
01h = OFF
02h = extended
03h = immediate tension release
FFh = as selected locally

60 PRESET

presets the named information field to the given value.

Format: <PRESET>
<PERMITTED INFORMATION FIELD NAME>
<VALUE> format and coding defined by the INFORMATION NAME (see Section 3: Information fields)

Permitted information field names for VTRs are:

T T 1
T T 2
SYNC VELOCITY
PREROLL DURATION
SYNC POINT
TAPELENGTH
PARKING ACCURACY
SYNCHRONISM ACCURACY
CHANNEL RECORD MASK
PRESETTABLE TIME SOURCE LTC
PRESETTABLE TIME SOURCE VITC
PRESETTABLE UB SOURCE LTC
PRESETTABLE UB SOURCE VITC

61 not used

62 not used

63 not used

64 not used

65 PLAYBACK CHANNEL SELECT
selects the playback/monitoring channels.

Format: <PLAYBACK CHANNEL SELECT>
<CHANNELS> 3-byte bit mask:

bit 0 (lsb) = video
bit 1 = sync track
bit 2 = VITC
bit 3 = reserved
bit 4 = reserved
bit 5 = reserved
bit 6 = reserved
bit 7 = LTC
bits 8 - 23 = audios 1 - 16 respectively

Logic: 0 = playback channel (= default for all channels)
1 = monitor channel (audio)
record channel (video)

*Note: Bits 0-7 form the least-significant byte; this byte is transmitted last.*

66 CHANNEL MUTE SELECT
selects auto mute function.

Format: <CHANNEL MUTE SELECT>
<CHANNELS> 3-byte bit mask:

bit 0 (lsb) = video
bit 1 = sync track
bit 2 = VITC
bit 3 = reserved
bit 4 = reserved
bit 5 = reserved
bit 6 = reserved
bit 7 = LTC
bits 8 - 23 = audios 1 - 16 respectively

Logic: 0 = mute enabled
1 = mute disabled

*Note: Bits 0-7 form the least-significant byte; this byte is transmitted last.*

67 TAPE/EE SELECT
selects the tape/electronics switch.

Format: <TAPE/EE SELECT>
<MODE> 1-byte special binary code:

00h = AUTO (- default)
01h = TAPE
02h = EE
FFh = - as selected locally

68 not used

69 not used

6A not used

6B not used

6C not used

6D not used

6E not used

6F not used

## 3. Information fields

*Note: The items of the INFORMATION FIELD are accessed by the common messages READ, UPDATE, CYCLE or SIMULTANEOUS READ.*

*They are tallied by the common messages*
*INFORMATION FIELD ITEM RESPONSE or SIMULTANEOUS READ RESPONSE.*

*These commands use the format:*
*<KEYWORD><PARAMETER NAME>*
*and*
*<KEYWORD><PARMETER NAME><PARAMETER VALUE>*

*where the PARAMETER NAME uses the FIELD NAME specified below*
*and the PARAMETER VALUE carries the FIELD CONTENTS specified below.*

*Several names/values may be grouped together by means of a BEGIN/END construct.*

*At power-up the content of information fields is not specified.*

40 not used

41 LTC FROM TAPE
contains the longitudinal timecode value most recently read from tape.

Format: <LTC FROM TAPE>
<CODE VALIDITY> 1-byte special binary code:

00h = valid LTC
01h = derived LTC
FFh = not valid LTC

<TIME VALUE> standard "time" format

42 VITC FROM TAPE
contains the vertical interval timecode value most recently read from tape.

Format: <VITC FROM TAPE>
<CODE VALIDITY> 1-byte special binary code:

00h = valid VITC
01h = derived VITC
FFh = not valid VITC

<TIME VALUE> standard "time" format

43 SELECTED TAPE CODE
contains the time value of that code (LTC, VITC, etc.) which has been most recently selected by the TAPE CODE SELECT command.

Format: <SELECTED TAPE CODE>
<IDENTIFIER> 1-byte special binary code:

00h = LTC
01h = VITC
02h = T T 1
03h = T T 2
04h = auto TC
FFh = invalid

<TIME VALUE> standard "time" format

44 USERBITS FROM TAPE LTC
contains the LTC userbit contents most recently read from tape.

Format: <USERBITS FROM TAPE LTC>
<UB SPECIFICATION> 1-byte special code:

bits 0,1: 0,0 - content of userbits unspecified
1,0 - content of userbits is eight-bit character set conforming to ISO 646 and ISO 2022
0,1 - unassigned
1,1 - unassigned
bit 2: 0 - unassigned
1 - content of userbits is secondary time data in standard time format
bits 3-7: 0 - set to 0 until assigned

<UB GROUP 8/UB GROUP 7> 4 bytes, each consisting of two
<UB GROUP 6/UB GROUP 5> 4-bit nibbles, each containing one
<UB GROUP 4/UB GROUP 3> UB group
<UB GROUP 2/UB GROUP l>
(MSnibble)

*Note: UB 1 is the UB group which comes first on the tape.*

45 USERBITS FROM TAPE VITC
contains the VITC userbit contents most recently read from tape.

Format: <USERBITS FROM TAPE VITC>
<UB SPECIFICATION> for format description, see
<UB GROUP 8/UB GROUP 7> "USERBITS FROM TAPE LTC"
<UB GROUP 6/UB GROUP 5>
<UB GROUP 4/UB GROUP 3>
<UB GROUP 2/UB GROUP l>

46 T T 1 (tape timer 1)
contains the instantaneous counting status of tape timer 1.

Format: <T T l>
<TIME VALUE> standard "time" format

47 T T 2 (tape timer 2)
contains the instantaneous counting status of tape timer 2.

Format: <T T 2>
<TIME VALUE> standard "time" format

48 READY TALLY
tallies the status set by the READY SELECT command.

Format: <READY TALLY>
<SWITCH> boolean value: 00h = OFF
01h = ON

49 SERVO REFERENCE TALLY
tallies the status set by the SERVO REFERENCE SELECT command.

Format: <SERVO REFERENCE TALLY>
<MODE> 1-byte special binary code:
00h = auto select
01h = video in
02h = external ref input

4A RECORD MODE TALLY
tallies the status set by the RECORD MODE SELECT command.

Format: <RECORD MODE TALLY>
<MODE> 1-byte special binary code:

00h = record disable
01h = insert
02h = assemble; all channels
03h = assemble; channel selectable
04h = rehearsal
05h = crash record

4B CHANNEL RECORD STATUS

tallies the status of the recording channels controlled by the ENTRY and EXIT commands.

Format: <CHANNEL RECORD STATUS>
<CHANNELS> 3-byte bit mask:

bit 0 (lsb) = video
bit 1 = sync track
bit 2 = VITC
bit 3 = reserved
bit 4 = reserved
bit 5 = reserved
bit 6 = reserved
bit 7 = LTC
bits 8 - 23 = audios 1 - 16 respectively

Logic: 0 = not recording
1 = recording

*Note: Bits 0-7 form the least-significant byte; this byte is transmitted last.*

4C CHANNEL RECORD MASK

tallies the status of a record mask that enables/disables a single channel, or all channels, for recording.

Format: <CHANNEL RECORD MASK>
<CHANNELS> 3-byte bit mask:

bit 0 (lsb) = video
bit 1 = sync track
bit 2 = VITC
bit 3 = reserved
bit 4 = reserved
bit 5 = reserved
bit 6 = reserved
bit 7 = LTC
bits 8 - 23 = audios 1 - 16=respectively

Logic: 0 = enabled (= default)
1 = disabled

*Note: Bits 0-7 form the least-significant byte; this byte is transmitted last.*

4D TAPE CODE SELECTION TALLY

tallies the code currently selected by the most recent TAPE CODE SELECT command.

Format: <TAPE CODE SELECTION TALLY>
<CODE TYPE> 1-byte special binary code:

00h = longitudinal timecode
01h = vertical interval timecode
02h = T T 1
03h = T T 2
04h = auto TC

4E SYNC VELOCITY
contains a velocity used as the synchronization velocity for the SYNC command

Format: <SYNC VELOCITY>
<SPEED> 3-byte signed binary number; 2's complement
scale: 000000hex = still
010000hex = standard play-speed forward
7F0000hex = approximately 127 times standard play-speed forward
FF0000hex = standard play-speed reverse
800000hex = 128 times standard play-speed reverse.

This is the same coding as in the argument of the VARIABLE PLAY command.

Default is standard play-speed forward.

4F PREROLL DURATION
contains the preroll time used in advance of synchronizing processes.

Format: <PREROLL DURATION>
<TIME VALUE> standard "time" format

50 SYNC POINT
contains a TAPE CODE value used as the SYNChronization POINT for the SYNC command.

Format: <SYNC POINT>
<TIME VALUE> standard "time" format

51 COLOUR FRAMER TALLY
tallies the status of the colour framer selected by the COLOUR FRAMER SELECT command.

Format: <COLOUR FRAMER TALLY>
<MODE> 1-byte special binary code:

bit 7: 0 = OFF - 2 field lock NTSC
(msb) - 4 field lock PAL/SECAM

1 - ON - 4 field lock NTSC
- 8 field lock PAL/SECAM

bit 6: 0 = normal lock
1 = inverted lock

bits 3 - 0 = nibble contains binary number, which specifies an offset from the lock specified above, in units of fields

52 EDIT FIELD TALLY.
tallies the status act by the EDIT FIELD SELECT command.

Format: <EDIT FIELD TALLY>
<MODE> 1-byte special binary code:
00h = start of field 1 always
01h = start of field 2 alwys
02h = at next vertical in i~diate mode, or determined by field bit of timeline if in timeline mode
FFh = as selected locally

53 not used

54 TCG LTC TIME SOURCE TALLY
tallies the status of the timecode generator for the longitudinal timecode selected by the TCG LTC TIME SOURCE SELECT command.

Format: <TCG LTC TIME SOURCE TALLY>
<TIME SOURCE> 1-byte special binary code:
00h = hold
01h = running independently, started with the value contained in information field item PRESETTABLE TIME SOURCE LTC
02h = running with external, unspecified source
03h = running with the regenerated value of the LTC timecode as source (also contained in the information field LTC FROM TAPE) until a record ENTRY of the LTC track; then continuing independently, running with the time value most recently read from tape, i.e. "jam=sync" function
04h = running with regenerated VITC timecode from tape as source (also contained in information field VITC FROM TAPE); i.e. "copy" function
05h = running with TAPE CODE as source (also contained in information field TAPE CODE)

55 TCG VITC TIME SOURCE TALLY
tallies the status of the timecode generator for the vertical interval timecode selected by the TCG VITC TIME SOURCE SELECT command.

Format: <TCG VITC TIME SOURCE TALLY>
<TIME SOURCE> 1-byte special binary code:
00h = hold
01h = running independently, started with the value contained in information field item PRESETTABLE TIME SOURCE VITC
02h = running with external, unspecified source
03h = running with the regenerated value of the VITC timecode as source (also contained in the information field VITC FROM TAPE) until a record EMY of the VITC track; then continuing independently, running with the time value most recently read from tape, i.e. "Jam=sync" function

04h = running with regenerated LTC timecode from tape assource (also contained in information field LTC FROM TAPE); i.e. "copy" function
05h = running with TAPE CODE as source (also contained in information field TAPE CODE)

56 TCG LTC USERBIT SOURCE TALLY
tallies the status of the timecode generator for the longitudinal timecode selected by the TCG LTC UB SOURCE SELECT command.

Format: <TCG LTC USERBIT SOURCE TALLY>
<USERBIT SOURCE> 1-byte special binary code:

00h = no userbits; i.e. all set to zero
01h = userbits from information field item PRESETTABLE USERBIT SOURCE LTC, which may be preset by a PRESET command
02h = userbits from external, unspecified source
03h = userbits continuously copied from the LTC timecode from tape (also contained in information field USERBITS FROM TAPE LTC)
04h = userbits continuously copied from the VITC timecode from tape (also contained in information field USERBITS FROM TAPE =VITC)

57 TCG VITC USERBIT SOURCE TALLY
tallies the status of the timecode generator for the vertical interval timecode selected by the TCG VITC UB SOURCE SELECT command.

Format: <TCG VITC USERBIT SOURCE TALLY>
<USERBIT SOURCE> 1-byte special binary code:

00h = no userbits; i.e. all set to zero
01h = userbits from information field item PRESETTABLE USERBIT SOURCE VITC, which may be preset by a PRESET command
02h = userbits from external, unspecified source
03h = userbits continuously copied from the VITC timecode from tape (also contained in information field USERBITS FROM TAPE VITC)
04h. = userbits continuously copied from the LTC timecode from tape (also contained in information field USERBITS FROM TAPE LTC)

58 not used

59 not used

5A TAPELENGTH
contains the length of the loaded tape.

Format <TAPELENGTH>
<TIME VALUE> standard "time" format

5B PARKING ACCURACY
contains a time value that determines the accuracy of parking processes performed by certain commands, e.g. TARGET SEARCH, PREROLL SEARCH

Format: <PARKING ACCURACY>
<FIELDS> 1-byte unsigned number

*Note: FFh (as locally specified) shall be used in the PRESET command only. It shall not be used in an INFORMATION FIELD ITEM RESPONSE.*

5C SYNCHRONISM ACCURACY
contains a time value that determines the accuracy of synchronizing processes, i.e. it specifies the maximum allowed offset error at the SYNC POINT.

Format: <SYNCHRONISM ACCURACY>
<FIELDS> 1-byte unsigned number

*Note. FFh (as locally specified) shall be used in the PRESET command only. It shall not be used in an INFORMATION FIELD ITEM RESPONSE.*

5D not used

SE TRACKING SELECTION TALLY
tallies the status act by the TRACKING SELECT command.

Format: <TRACKING SELECTION TALLY>
<MODE> 1-byte special binary code:

00h = FIXED
01h = AUTO

5F ANTI-CLOG CONTROL TALLY
tallies the status of the anti-clog mechanism, which is controlled by the ANTI-CLOG CONTROL command.

Format: <ANTI-CLOG CONTROL TALLY>
<SWITCH STATUS> 1-byte special binary code:

00h = ON
01h = OFF
02h = extended
03h = immediate tension release

60 not used

61 TMC TALLY
tallies the current transport motion command of the VTR, and specifies its success in accomplishing the command.

Format: <TMC TALLY>
<KEYWORD> 1-byte value that contains the keyword of the last commanded TMC from either immediate or timeline mode.

<SUCCESS LEVEL> 1-byte special binary code:

00h = trying; transition in process
01h = successful
02h = failure; this tally should be supplemented by an ERROR message as appropriate

62 VELOCITY TALLY
tallies the current transport velocity. Note that this is the true velocity in all TMC modes.

Format: <VELOCITY TALLY>
<SPEED> 3-byte signed binary number; 2's complement
scale: 000000h = still
010000h = standard play-speed forward.
7F0000h = approximately 127 times standard play-speed forward
FF0000h = standard play-speed reverse
800000h = 128 times standard play-speed reverse.

this is the same coding as in the argument of the VARIABLE PLAY command.

63 TIMELINE CORRECTION TALLY
tallies the number of fields advanced by the-machine internal clock following a TIMELINE RUN command.

Format: <TIMELINE CORRECTION TALLY>
<FIELDS> 1-byte signed binary number

64 not used

65 PLAYBACK CHANNEL TALLY
tallies the status of the playback channels selected by the PLAYBACK CHANNEL SELECT command.

Format: <PLAYBACK CHANNEL TALLY>
<CHANNELS> 3-byte bit mask:
bit 0 (lsb) = video
bit 1 = sync track
bit 2 = VITC
bit 3 = reserved
bit 4 = reserved
bit 5 = reserved
bit 6 = reserved
bit 7 = LTC
bits 8 - 23 = audios 1 - 16 respectively

Logic: 0 = playback channel
1 = monitor channel (audio)
record channel (video)

*Note: Bits 0=7 form the least-significant byte; this byte is transmitted last.*

66 CHANNEL MUTE TALLY
tallies the status of the auto mute function selected by the CHANNEL MUTE SELECT command.

Format: <CHANNEL MUTE TALLY>
<CHANNELS> 3-byte bit mask:

bit 0 (lab) = video
bit 1 = sync track
bit 2 = VITC
bit 3 = reserved
bit 4 = reserved
bit 5 = reserved
bit 6 = reserved
bit 7 = LTC
bits 8 - 23 = audios 1 - 16 respectively

Logic: 0 = mute enabled
1 = mute disabled

*Note: Bits 0=7 form the least-significant byte; this byte is transmitted last.*

67 TAPE/EE TALLY
tallies the status of the tapelelectronics switches controlled by the TAPEIEE select command.

Format: <TAPE/EE>
<SWITCH> 1-byte special binary code:

00h = AUTO
01h = TAPE
02h = EE

68 TIMECODE TO TAPE LTC
contains the current longitudinal timecode value being generated by the timecode generator.

Format: <TIMECODE TO TAPE LTC>
<TIME VALUE> standard "time" format

69 TIMECODE TO TAPE VITC
contains the current vertical interval timecode value being generated by the timecode generator.
Format: <TIMECODE TO TAPE VITC>
<TIME VALUE> standard "time,, format

6A. USERBITS TO TAPE LTC
contains the current userbits contents being generated by the timecode generator to go with the longitudinal timecode.

Format: <USERBITS TO TAPE LTC>
<UB SPECIFICATION> for format description, see
<UB GROUP 8/UB GROUP 7> "USERBITS FROM TAPE LTC"
<UB GROUP 6/UB GROUP 5>
<UB GROUP 4/UB GROUP 3>
<UB GROUP 2/UB GROUP l>

6B USERBITS TO TAPE VITC
contains the current userbit contents being generated by the timecode generator to go with the vertical interval timecode.

Format: <USERBITS TO TAPE VITC>
<UB SPECIFICATION> for format description, see
<UB GROUP 8/UB GROUP 7> "USERBITS FROM TAPE LTC"
<UB GROUP 6/UB GROUP 5>
<UB GROUP 4/UB GROUP 3>
<UB GROUP 2/UB GROUP 1>

6C PRESETTABLE TIME SOURCE LTC
contains a time value that can be PRESET and be used to start the LTC timecode generator by selecting it in a TCG LTC TIME SOURCE SELECT command.

Format: <PRESETTABLE TIME SOURCE LTC>
<TIME VALUE> standard "time" format

6D PRESETTABLE TIME SOURCE VITC
contains a time value that can be PRESET and be used to start the VITC timecode generator by selecting it in a TCG VITC TIME SOURCE SELECT command.

Format: <PRESETTABLE TIME SOURCE VITC>
<TIME VALUE> standard "time" format

6E PRESETTABLE UB SOURCE LTC
contains a userbit pattern that can be PRESET and be used by the LTC timecode generator by selecting it in a TCG LTC UB SOURCE SELECT command.

Format: <PRESETTABLE UB SOURCE LTC>
<UB SPECIFICATION> for format description. see
<UB GROUP 8/UB GROUP 7> "USERBITS PROM TAPE LTC"
<UB GROUP 6/UB GROUP 5>
<UB GROUP 4/UB GROUP 3>
<UB GROUP 2/UB GROUP l>

6F PRESETTABLE UB SOURCE VITC
contains a userbit pattern that can be PRESET and be used by the VITC timecode generator by selecting it in a TCG VITC UB SOURCE SELECT command.

Format: <PRESETTABLE UB SOURCE VIM
<UB SPECIFICATION> for format description, ace
<UB GROUP 8/UB GROUP 7> "USERBITS FROM TAPE LTC"
<UB GROUP 6/UB GROUP 5>
<UB GROUP 4/UB GROUP 3>
<UB GROUP 2/UB GROUP l>